

JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the
UNITED STATES OF AMERICA

Mission report:
June 2016



**World Health
Organization**

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Executive summary

Background

This report is the product of a joint external evaluation (JEE) of the United States of America's (USA's) capacity to prevent, detect and rapidly respond to public health threats of a natural, deliberate or accidental nature. The assessment used the World Health Organization (WHO) International Health Regulations (IHR) (2005) JEE tool (2016). The USA is now the sixth country to undergo a voluntary JEE assessment after Bangladesh, Ethiopia, Mozambique, Pakistan and Tanzania.

Main findings

The external evaluation identified some clear overarching themes that were observed during this assessment. Although a One Health approach is utilized and there is good collaboration between and within the state, the government and other stakeholders, the USA may benefit from developing a more formal One Health strategy that encompasses the federal, state and local levels.

The decentralization of the public health system (which includes human, animal, environment and other relevant health sectors), in the USA provides considerable benefits in focusing and supporting public health action at the local level. However, it also brings challenges in ensuring consistent and coordinated action across the public health system from federal to state and local levels. The assessment team acknowledges the considerable efforts being made across the USA to maximize the benefits of decentralization while minimizing the risks, and would encourage the country to continue to reinforce and develop collaboration across all levels of the public health system to strengthen IHR (2005) core capacities.

The assessment team agrees that, as reflected in the self-assessment report, the USA has extensive and effective systems to reduce the risks and impacts of major public health emergencies, and actively participates in the global health security system established by the IHR. However, there are still, as always, areas for improvement. The country's geographic size and spread, economic and social diversity, and legal complexity require ongoing refinement of existing plans and interoperability of systems (such as surveillance).

In regard to the USA laboratory system, while the networks are extensive and efficient, there is a need for better coverage in some parts of the country and overseas territories. Areas that would benefit from improvements (such as consistent levels of surveillance for antimicrobial resistance in more locations, including within the animal and agriculture industry) are: steady support for rapid testing for food contaminants in all local jurisdictions; and a wider extent of surveillance for dangerous pathogens (in general) in food production and importation. The team acknowledged the efforts that are underway to develop and expand the use of new technologies, such as whole genome sequencing.

A number of recent laboratory incidents involving inappropriate handling of dangerous pathogens highlight the need for improvements in the national biosafety and biosecurity technical area, many of which are already underway. However, open reporting of these incidents underlines both the transparency of the USA system and the exemplary risk communication strategy that the USA has undertaken to build confidence and trust within the global health security community.

Attrition in senior level expertise across a range of core capacities should be addressed through a comprehensive strategy to encourage recruitment and retention of personnel. A qualified workforce is a critical foundation of a comprehensive strategy for public health security. The USA could benefit by developing a better understanding of the types, skills mix, and numbers of personnel needed in national and subnational jurisdictions. The United States Government could consider options for developing public

health workforce models that are adaptable to local circumstances, local risk assessments and take into account the ability of some personnel to have multiple qualifications, and the need for various types of experts from relevant health sectors and specialists in different emergency situations.

The USA, like most countries, would be challenged if it had to respond to a large-scale, catastrophic nuclear emergency. It would be beneficial to develop improved collaboration and information sharing across the radiological and health sectors. As with other areas, loss of expertise in the future may be a challenge. Implementation of the recommendations in the report “Where are the radiation professionals?” (Statement No. 12) issued by the National Council on Radiation Protection and Measurements in 2015 would help address this.

Lastly, while the USA is generally recognized as effective in delivering international support to global health security, maintaining a level of effectiveness over time to keep up with increasing emerging threats requires continuing political commitment and support. In addition, upholding its international roles and participating in relevant international networks that would contribute to the global public good will reduce public health threats globally and to the USA itself.

The United States of America scores

Capacities	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR. (2005)	5
	P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005)	5
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005)	5
Antimicrobial resistance	P.3.1 Antimicrobial resistance (AMR) detection	4
	P.3.2 Surveillance of infections caused by AMR pathogens	4
	P.3.3 Healthcare associated infection (HCAI) prevention and control programmes	4
	P.3.4 Antimicrobial stewardship activities	3
Zoonotic diseases	P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to infectious zoonoses and potential zoonoses are established and functional	4
Food safety	P.5.1 Mechanisms are established and functioning for detecting and responding to food-borne disease and food contamination.	4
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	4
	P.6.2 Biosafety and biosecurity training and practices	4
Immunizations	P.7.1 Vaccine coverage (measles) as part of the national programme	5
	P.7.2 National vaccine access and delivery	5
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	5
	D.1.2 Specimen referral and transport system	4
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	5
	D.1.4 Laboratory Quality System	5
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	5
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	3
	D.2.3 Analysis of surveillance data	5
	D.2.4 Syndromic surveillance systems	4
Reporting	D.3.1 System for efficient reporting to WHO, FAO and OIE	5
	D.3.2 Reporting network and protocols in country	4
Workforce development	D.4.1 Human resources are available to implement IHR (2005) core capacity requirements	5
	D.4.2 FETP ¹ or other applied epidemiology training programme is in place	5
	D.4.3 Workforce strategy	4
Preparedness	R.1.1 Multi-hazard National Public Health Emergency Preparedness and response plan is developed and implemented	5
	R.1.2 Priority public health risks and resources are mapped and utilized	4

Emergency response operations	R.2.1 Capacity to activate emergency operations	5
	R.2.2 Emergency operations center operating procedures and plans	4
	R.2.3 Emergency operations programme	4
	R.2.4 Case management procedures are implemented for IHR (2005) relevant hazards.	3
Linking public health and security authorities	R.3.1 Public health and security authorities, (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	5
Medical countermeasures and personnel deployment	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency	5
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency	4
Risk communication	R.5.1 Risk communication systems (such as plans, mechanisms)	4
	R.5.2 Internal and partner communication and coordination	5
	R.5.3 Public communication	4
	R.5.4 Communication engagement with affected communities	3
	R.5.5 Dynamic listening and rumour management	4
Points of entry	PoE.1 Routine capacities are established at points of entry	4
	PoE.2 Effective public health response at points of entry	5
Chemical events	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies	4
	CE.2 Enabling environment is in place for management of chemical events	5
Radiation emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies.	3
	RE.2 Enabling environment is in place for management of radiation emergencies	3

Note on the Joint External Evaluation (JEE) process:

The Joint External Evaluation process is a peer-to-peer review. As such, it is a collaborative effort between host country experts and External Evaluation Team (EET) members. In completing the self-evaluation, the first step in the JEE process, and as part of preparing for an external evaluation, host countries are asked to focus on providing information on their capabilities based on the indicators and technical questions included in the JEE Tool.

The host country may suggest a score at this time or during the on-site consultation with the external team. The entire external evaluation, in particular the discussions around the score, the strengths, the areas which need strengthening, and the priority actions, is collaborative, with external evaluation team members and host country experts seeking agreement.

Should there be significant and/or irreconcilable disagreement between the external team members and the host country experts or among the external or the host country experts, the External Evaluation Team Lead will decide on the score and this will be noted in the final report, along with the justification for each party's position.

PREVENT

National legislation, policy and financing

Introduction

The IHR (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, States may still choose to revise some regulations or other instruments in order to facilitate IHR implementation and maintenance in a more effective manner. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It can also facilitate coordination among the different entities involved in their implementation. See detailed guidance on IHR (2005) implementation in national legislation at (http://www.who.int/ihr/legal_issues/legislation/en/index.html).

Target

States Parties should have an adequate legal framework to support and enable the implementation of all of their obligations and rights to comply with and implement the IHR (2005). In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even where new or revised legislation may not be specifically required under the State Party's legal system, States may still choose to revise some legislation, regulations or other instruments in order to facilitate their implementation and maintenance in a more efficient, effective or beneficial manner.

State parties should ensure provision of adequate funding for IHR implementation through national budget or other mechanism.

USA level of capabilities

Based on legislative and policy reviews led by the Assistant Secretary for Preparedness and Response (ASPR) following implementation of the IHR in 2007, the USA developed a national IHR policy and organizational framework. There are established laws, regulations and policies in place, such as the US Public Health Service Act (1944), the Disaster Relief Act (1974), Stafford Act (1988), and the Project BioShield Act (2004) among others, which provide a foundation for disease surveillance and multisectoral coordination and emergency response. Public health in the USA is a multiagency task, with complementary authorities, roles and responsibilities and involves the Centers for Disease Control and Prevention (CDC), United States Department of Agriculture (USDA), Food and Drug Administration (FDA), Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC), Federal Emergency Management Agency (FEMA), Department of Defence (DoD), Department of Homeland Security (DHS) as well as other relevant authorities. All these agencies have defined roles in national health security, and coordinate with state and local authorities of the USA.

The country has designated points-of-contact for the IHR in each agency that form the list of "USG IHR Stakeholders." These stakeholders inform the USA national IHR focal point of potential health events, conduct risk assessments, and participate in multiagency consultation in preparing official IHR notifications. Successful IHR implementation in the USA has led to 77 potential public health emergency of international concern (PHEIC) notifications to the WHO since 2007.

Evaluation of existing legislation, regulations and policies to support mechanisms for interagency coordination and response, and updating these where appropriate, could further improve coordination across sectors in public health emergency response. It would also be valuable to look at mechanisms for coordination in public health events before they reach the threshold for emergency declaration.

Recommendations for priority actions

- Continue the evaluation of existing legislation, regulations and policies to review opportunities that would help improve mechanisms for interagency coordination and response.
- Engage relevant stakeholders to develop the legislation, regulations and/or policies that facilitate coordination among sectors at all levels of pre-disaster or pre-emergency situations.

Indicators and scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005) – Score 5

Strengths/best practices

- Legislations from human, animal and environmental health and food aspects are in place for implementation of IHR.
- A national IHR policy and organizational framework following legislative and policy review has been developed.
- Policies and strategies for public health emergency preparedness and response (e.g. Presidential Policy Directives) are in place.
- National Health Security Strategy (NHSS) is part of the overall national health strategy, which provides strategic direction.
- Cross border agreements supporting health security are in place (Global Health Security Initiative etc.).
- Financing of implementation of the NHSS is in place not only for medical assistance and resources during emergencies, but also for strengthening state and local capabilities and capacities.

Areas that need strengthening and challenges

- Improve coordination of public health emergency response among the relevant sectors.
- Improve preparation and response to public health events that may derive from any of the origins including human, animal, food and environment, before becoming an emergency or a disaster.

P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005) – Score 5

Strengths/best practices

- The national IHR focal point is empowered to advocate for policy and procedural changes that can improve compliance with IHR.
- A clearly defined system for general (domestic) and public health emergency response that describes roles/responsibilities for all agencies is in place.
- The USA consistently meets the timeliness for notification of potential PHEIC.

Areas that need strengthening and challenges

- Continued regular evaluation of the existing legislation, regulations and policies relevant to mechanisms, structures and financing, for interagency coordination and response.
- Provision of collaboration or coordination by the United States Department of Health and Human Services, or other relevant entities to authorize, activate and organize at the earliest stages of emerging threats/events prior to emergency declaration.

IHR coordination, communication and advocacy

Introduction

The effective implementation of the IHR requires multisectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. Coordination of nation-wide resources, including the designation of an IHR NFP, which is a national centre for IHR communications, is a key requisite for IHR implementation.

Target

The effective implementation of the IHR (2005) requires multisectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. Coordination of nationwide resources, including the sustainable functioning of a National IHR Focal Point (NFP), which is a national centre for IHR (2005) communications, is a key requisite for IHR (2005) implementation. The NFP should be accessible at all times to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. States Parties should provide WHO with contact details of NFPs, continuously update and annually confirm them.

USA level of capabilities

The JEE self-assessment comprehensively covered the USA processes for coordination, communication and advocacy of IHR activity. The team members were satisfied that the USA has strong multisectoral arrangements in place for delivering the IHR, including a functioning, sustainable national IHR focal point connected to the essential elements of a One Health approach to IHR implementation and with agreed processes for intersectoral coordination.

The United States Government has recognized that implementation of elements of IHR capacity rests at the state level rather than the federal level and coordination between federal and state/local public health systems must be fostered.

The self-assessment and discussions between the experts from the USA and the JEE team demonstrated evidence of systems to deliver timely communication of potential public health events to the national IHR focal point and to WHO. The discussions also highlighted the challenges in developing concurrence at the federal level that an event requires IHR-specific risk assessment and in obtaining necessary information from state and local health departments that is needed for this risk assessment.

Recommendations for priority actions

- Bring together stakeholders (federal, state and local) to discuss the USA IHR obligations and identify opportunities to make improvements.
- Improve training opportunities for state and federal officials to support communication of cases/events between the local level and state officials who understand the implications of IHR.
- Streamline processes for “pre-assessment” evaluation to determine if a full (federal) IHR assessment is needed.
- Enhance consistency among federal agencies to ensure that each has an internal IHR protocol that aligns with the national IHR focal point processes.

- Improve the ability of the national IHR focal point to communicate health risk information within the federal and state networks.

Indicators and scores

P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005) – Score 5

Strengths/best practices

- Clear procedures and guidelines are available for coordination between the national IHR focal point and other relevant sectors.
- There are timely and systematic information exchanges among all sectors.
- The USA provides regional national IHR focal point capacity building for developing countries.
- Standardized messaging instructions are in place between the USA national IHR focal point and WHO.
- An established annual IHR assessment process is in place that evaluates domestic compliance and maintenance of IHR capacity in the USA.
- Multiple internal quality control mechanisms are developed for enhanced IHR communication and situational awareness.

Areas that need strengthening/challenges

- Refining the USA's policy and procedures for IHR compliance should be an ongoing effort.
- Strengthened and more frequent engagement with national IHR stakeholders in all departments/agencies to help refine complementary IHR policies and structures that facilitate reporting in all sectors.
- Development of sustainable training and planning methods for specific IHR implementation policy for agency-specific consideration.
- Federal interagency outreach to state/local health department to develop capacity in analytical methods and communications to promote national awareness of potentially international events.
- There are some challenges in achieving agreement at the federal level that an event requires IHR-specific risk assessment, partially due to the size and diversity of the States of the USA, coupled with the presence of complex authorities and their capacities for public health emergency management.
- Delays in obtaining sufficient information to determine that events meet IHR reporting criteria.

Antimicrobial resistance

Introduction

Bacteria and other microbial species evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, the problem was manageable as the growth of resistance was slow and the pharmaceutical industry continued to create new antibiotics.

Over the past decade, however, this problem has become a crisis. The evolution of antimicrobial resistance (AMR) is occurring at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security, and national security.

Target

Support work coordinated by FAO, OIE and WHO to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). Each country has: (i) its own national comprehensive plan to combat antimicrobial resistance; (ii) strengthened surveillance and laboratory capacity at the national and international levels following international standards developed as per the framework of the Global Action Plan; and (iii) improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid point-of-care diagnostics, including systems to preserve new antibiotics.

USA level of capabilities

The National Antimicrobial Resistance Monitoring System (NARMS) was established in 1996 as a collaboration among the FDA, CDC and USDA to aggregate and report on national surveillance data. On 27 March 2015 the USA released its Combating Antimicrobial Resistant Bacteria Action Plan, which advances a One Health approach to combating the emergence and spread of antimicrobial-resistant bacteria.

The CDC laboratory functions as the national civilian antimicrobial resistance reference laboratory, including for detection of the WHO priority antimicrobial-resistant pathogens. The DoD Multidrug-resistant Organism Repository and Surveillance Network functions as the military's antimicrobial resistance reference lab. The USDA's Food Safety and Inspection Service (FSIS) Eastern Laboratory conducts antimicrobial susceptibility testing of isolates from animal origin using Clinical & Laboratory Standards Institute (CLSI) standards. The FSIS NARMS Cecal Sampling Program was launched for food animal monitoring. This Program generates approximately 1200 isolates for each microbial target and their antimicrobial resistance. The DoI United States Geological Survey (USGS) Michigan Bacteriological Research Laboratory conducts research on the occurrence, transport and fate of antimicrobial resistance in the environment, specifically for *Escherichia coli* and *Salmonella* species. The FDA has a programme to monitor residuals of drugs in foods including plant products.

The CDC Emerging Infections Program conducts population-based surveillance that is published. CDC and DoD conduct point prevalence surveys to assess antibiotic use in hospitals and are characterizing antibiotic prescribing practices on outpatients as well. International reporting of antimicrobial resistance is done through the WHO Global Antimicrobial Resistance Surveillance System (GLASS).

The United States Department of Health and Human Services National Action Plan to Prevent Health Care-Associated Infections was created in 2009 (<http://health.gov/hcq/prevent-hai-action-plan.asp>). CDC's National Healthcare Safety Network is implemented in a large part of the country (>17 000 health

care institutions enrolled) and reports health care-associated infections. The Association for Professionals in Infection Control and Epidemiology (APIC) supports national training and professional development (www.apic.org). Occupational Safety & Health Administration (OSHA) standards for handling bloodborne pathogens, use of personal protective equipment and respiratory protection help protect health workers as well as patients from nosocomial infections.

The DoD is developing its Antibiotic Stewardship Policy (2016, DoD Instruction 6025.xx). CDC developed the Core Elements of Hospital Antibiotic Stewardship for Nursing Homes. All pharmaceutical companies that produce medically important antimicrobials for use in animals have pledged to implement the Guidance for Industry (GFI) #209 “The Judicious Use of Medically Important Antimicrobial Drugs in Food-Producing Animals” (FDA, 2012) by December 2016. The Department of the Interior (Dol) United States Fish and Wildlife Service has a programme that works on FDA approval of pharmaceuticals for use as therapeutics in aquaculture and fisheries management in order to minimize the impact on the development of antimicrobial resistance (http://www.fws.gov/fisheries/aadap/drug_use_guidance.html).

Recommendations for priority actions

- Build animal and human public health laboratory capacity to detect and characterize antimicrobial-resistant pathogens to inform public health action.
- Further enhance multisectoral and multidisciplinary coordination and collaboration, particularly the agricultural plant and environment sector, including the Environmental Protection Agency (EPA), as well as strengthen private–public partnerships.
- Increase overall assessment and evaluation of antibiotic use in humans and animals.
- Strengthen and document the effectiveness of antimicrobial resistance stewardship activities.

Indicators and scores

P.3.1 Antimicrobial resistance detection – Score 4

(Caveat: The EPA laboratory is to be included in the antimicrobial resistance laboratory and surveillance network to ensure better understanding of environmental factors affecting antimicrobial resistance)

Strengths/best practices

- Hospital laboratories are accredited as Clinical Laboratory Improvement Amendments (CLIA) compliant and use CLSI standards for antimicrobial resistance detection and FDA-approved tests.
- New laboratory capacity is being established to fill the gap between data needed for patient management and data needed for public health.
- Using public health laboratory capacity for antimicrobial-resistant pathogen characterization.

Areas that need strengthening/challenges

- Training a public health laboratory workforce to perform reference-level antimicrobial resistance testing.

P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens – Score 4

Strengths/best practices

- Surveillance systems capture complementary data from multiple sources.
- Interagency collaboration to collect One Health antimicrobial resistance data from animals, food and humans.

- Implementing whole genome sequencing of antimicrobial-resistant pathogen associated threats for outbreak detection and surveillance for acquired resistance mechanisms.

Areas that need strengthening/challenges

- Technical and logistical issues with the electronic transfer of hospital antimicrobial resistance data to a centralized database.
- Not all hospitals or laboratories have the same ability to rapidly characterize antimicrobial resistance organisms locally.

P.3.3 Health care associated infection prevention and control programmes – Score 4

Strengths/best practices

- A national health care associated infection prevention action plan.
- CDC/Healthcare Infection Control Practices Advisory Committee (HICPAC) to develop national guidelines.
- Network of public health/academic partners to develop and evaluate prevention interventions.

Areas that need strengthening/challenges

- Ensure that funded plans exist to continue current programmes in the future (for more than five years).
- Consider improving the coverage of health care associated infection activity to a greater proportion of the health care system.

P.3.4 Antimicrobial stewardship activities – Score 3

Strengths/best practices

- Good buy-in for implementing stewardship programmes in health care settings.
- Electronic reporting of antibiotic use data from health care facilities to a national database.

Areas that need strengthening/challenges

- Surveillance for antibiotic use in the food-producing animal farms.
- Gaining access to antibiotic use data for food-producing animals.
- Documentation and publishing of results of stewardship activities at health facilities and animal farms needs to be uniformly consistent.

Zoonotic diseases

Introduction

Zoonotic diseases are communicable diseases and microbes spreading between animals and humans. These diseases are caused by bacteria, viruses, parasites, and fungi that are carried by animals and insect or inanimate vectors may be needed to transfer the microbe. Approximately 75% of recently emerging infectious diseases affecting humans is of animal origin; approximately 60% of all human pathogens are zoonotic.

Target

Adopted measured behaviours, policies and/or practices that minimize the transmission of zoonotic diseases from animals into human populations.

USA level of capabilities

The CDC and the USDA routinely coordinate and partner with other federal and state animal and human health partners and stakeholders to detect, prevent and respond to zoonotic diseases of public health importance. The nation has an extensive animal and human epidemiology, surveillance, response and laboratory capacity with a strong focus on zoonotic diseases in both human and animal populations. A One Health approach, focusing on the interface of human, animal and environmental health, is critical to the prevention and control of zoonotic diseases.

At the federal level, the CDC and USDA collaborate on a number of well-established and important zoonotic diseases surveillance programmes including rabies, bovine spongiform encephalopathy, trichinellosis, enteric zoonotic diseases, brucellosis, bovine tuberculosis, and animal (primarily swine and avian) influenza. Additionally, CDC is responsible for investigating illnesses and outbreaks of zoonotic diseases in humans, and works in tandem with other United States Government partners for a coordinated One Health approach. CDC's nationally notifiable disease list covers reportable zoonotic diseases in humans, and USDA has proposed an extensive reportable disease list for animal populations that complements the CDC list.

With respect to the public health veterinary workforce, 30 colleges of veterinary medicine provide many students per year with opportunities to receive advanced public health training. A number of sponsored internship and fellowship programmes exist for pending or recent graduates, and there is coursework available for established professionals to gain new skills related to epidemiology and laboratory capacity for zoonotic diseases in animals and humans.

Recommendations for priority actions

- Establish a national One Health approach which can formally delineate common goals, roles and responsibilities for the various health and multidisciplinary sectors taking into account the steady state and emergency response.
- Formalize interagency networks to address One Health issues through joint investigation, data sharing, communications and funding of high priority projects and diseases using existing or new multidisciplinary tools.
- Increase dedicated public health veterinarians to work on zoonotic diseases at the national, state and local levels.

Indicators and scores

P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens – Score 3

Strengths/best practices

- Systems are in place for surveillance, laboratory capacity, response and prevention for multiple zoonotic diseases in humans and animals with increasing emphasis on the One Health approach to better understand and respond to the rapidly changing disease dynamics at the human–animal–environment interface.
- Programmes are in place at national and state levels to monitor specific animal populations for zoonotic diseases and to track their potential risk for human populations.
- Numerous human and animal surveillance systems, pathogen-specific response plans, algorithms and partnerships exist to help guide response to outbreaks of zoonotic diseases in both human and animal health sectors.
- Human and animal health programmes within the Animal and Plant Health Inspection Service (APHIS), CDC, DHS, FDA and FSIS, maintain liaisons embedded in each other's organizations to ensure ongoing and daily collaboration in surveillance, detection and response.
- There is strong partnership between CDC's One Health Office and USDA's One Health Coordination Center.

Areas that need strengthening/challenges

- Human and animal health agencies are not fully integrated at the state and federal levels within the USA.
- Some departments have created One Health offices and/or interagency working groups but this is not currently government wide.
- For a few zoonotic diseases there is a routine specimen-sharing process in place, but for the most part the current process is informal and ad hoc for zoonotic pathogens, and typically driven by an outbreak response.
- Interoperability among the many information systems used in animal and human health sectors for zoonotic diseases is limited.

P.4.2 Veterinary or animal health workforce – Score 4

Strengths/best practices

- Majority of the states (40 out of 50) have a dedicated public health veterinarian.
- Opportunities for training new generations at undergraduate and graduate levels are available through internship and fellowship programmes to provide veterinary public health experience.

Areas that need strengthening/challenges

- Not all states have a dedicated public health veterinarian, and there are too few animal health specialists at the national level to provide adequate support to state and local programmes.
- A long-term succession plan on public health veterinarians is needed to minimize human resources gaps.

P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional – Score 4

Strengths/best practices

- Human and animal health agencies maintain emergency operations centres (EOCs) for sharing information, exchanging liaison personnel, and contacting relevant experts to deal with emergencies at all times.
- Human and animal health programmes within APHIS, CDC, DHS, FDA and FSIS maintain liaisons embedded in each other's organizations to ensure ongoing and daily collaboration in surveillance, detection and response.

Areas that need strengthening/challenges

- Similar to the areas to be strengthened as identified for indicator P.4.1, operationalizing a formal One Health approach at national and state levels that accounts for steady state and emergency response is needed.

Food safety

Introduction

The rapid globalization of food production and trade has increased the potential likelihood of international incidents involving contaminated food. The identification of the source of an outbreak and its containment is critical for control. Risk management capacity with regard to control throughout the food chain continuum must be developed. If epidemiological analysis identifies food as the source of an event, based on a risk assessment, suitable risk management options that ensure the prevention of human cases (or further cases) need to be put in place.

Target

State parties should have surveillance and response capacity for food and water borne diseases' risk or events. It requires effective communication and collaboration among the sectors responsible for food safety and safe water and sanitation.

USA level of capabilities

The USA has a strong regulatory system for the safety of its food supply, a system shared by many federal, state and local agencies. The United States Government has the authority to establish regulatory standards, inspect facilities, and take action if there are violations, but the industry has the primary responsibility to ensure that food products are safe and meet applicable regulatory requirements. State and local government agencies also have similar authorities regarding food safety.

The FDA Food Safety Modernization Act (signed into law in 2011), has augmented numerous other existing laws and regulations to better protect human and animal health by helping to ensure the safety and security of the food and feed supply, including through implementation of specific prevention activities.

Federal partners work closely with each other as well as with the state and local agencies, private companies and consumers to address food safety from farm to table. CDC and state public health agencies are responsible for monitoring, identifying and investigating foodborne illnesses and outbreaks. CDC coordinates closely with FDA and USDA as the regulatory authorities for food products. The capacity of the USA to detect and respond to foodborne outbreaks, including those that result in a public health emergency, has improved dramatically in the past two decades. Since 1996, CDC has used DNA "fingerprinting" of bacteria to enhance outbreak detection and define the scope and scale of outbreaks beyond traditional methods. This system (PulseNet) is available in over 80 federal, state and local laboratories in the USA.

CDC works closely with state and local health departments who have the primary statutory authority and responsibility for disease surveillance. Most foodborne outbreaks are local events in just one city or county; and local public health officials investigate those outbreaks. State health departments investigate outbreaks that spread across several cities or counties, and often work with their departments of agriculture and with federal food safety agencies as needed. In partnership with the FDA and FSIS, CDC typically leads investigations of multistate outbreaks – those that affect many states at once. However, the FBI is the lead federal agency for law enforcement investigations of any potentially intentional biological or chemical threat or incident, such as but not limited to, food adulteration.

Recommendations for priority actions

- Continue to develop new epidemiological and environmental tools to enhance foodborne illness outbreak investigations.
- Continue to develop next generation laboratory methods such as whole genome sequencing for pathogen identification.
- Reinforce the coordination and support for state and local governments by conducting more clinical, food and environmental testing and isolation characterization.

Indicators and scores

P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination: – Score 4

Strengths/best practices

- Strong primary prevention system for foodborne illnesses through regulatory, public health, and risk analysis efforts across the farm-to-table continuum.
- Strong public–private partnerships for science-based food safety best practices to reduce the risk of illness from entities that produce, process and distribute food.
- Multiagency and multidisciplinary participation through every stage of detecting, investigating and responding to foodborne outbreaks and illnesses has become routine during multistate outbreak investigations.

Areas that need strengthening/challenges

- Multistate outbreaks are difficult to detect and investigate due to the wide distribution and multiple sources of many food ingredients and products.
- Coordination of specialized laboratory testing is required to trace and track cases and unexpectedly contaminated foods sources.
- Although coordination among federal and state agencies and experts from health, food and agricultural sciences is consistent, there is a need to continuously evaluate, modernize and strengthen the coordination of detection and investigation activities.

Biosafety and biosecurity

Introduction

Working with pathogens in the laboratory is vital to ensuring that the global community possess a robust set of tools—such as drugs, diagnostics, and vaccines—to counter the ever evolving threat of infectious diseases.

Research with infectious agents is critical for the development and availability of public health and medical tools that are needed to detect, diagnose, recognize, and respond to outbreaks of infectious disease of both natural and deliberate origin. At the same time, the expansion of infrastructure and resources dedicated to work with infectious agents have raised concerns regarding the need to ensure proper biosafety and biosecurity to protect researchers and the community. Biosecurity is important in order to secure infectious agents against those who would deliberately misuse them to harm people, animals, plants, or the environment.

Target

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 as appropriate.

USA level of capabilities

The USA has built a comprehensive national biosafety and biosecurity system covering all areas of society. These extensive oversight requirements and guidelines on biosafety and biocontainment exist both at the governmental and state levels, and at academic and other research institutes. The strengths of the system lie in active federal outreach and education, and promoting and improving biosafety and biosecurity overall.

These federal guidelines include, OSHA standards, United States Department of Health and Human Services/ CDC regulations, USDA APHIS regulations and Federal Select Agent Program (FSAP) regulations. The FSAP covers both human and agricultural pathogens and toxins, and provides for federal oversight of laboratories that possess, use or transfer any biological select agents and toxins. It authorizes United States Department of Health and Human Services and USDA to define and control select agents, and contains mandatory training in biosafety and biosecurity practices for those registered under the FSAP. Key guidelines include the Biosafety in Microbiological and Biomedical Laboratories (BMBL) and the National Institutes of Health (NIH) Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, which specifies the practices of NIH-funded research on recombinant or synthetic nucleic acid molecules.

However, the recent biosafety and biosecurity incidents in government laboratories underline the importance of continuous work to develop coordinated, whole-of-government oversight and proper training of the staff to gain sufficient experience and expertise to work safely with select agents and other dangerous pathogens. The United States Government has already responded actively by reviewing existing recommendations and practices. The priority areas for action and new recommendations are addressing issues of training, institutional cultures, governance, risk assessments and documentation in laboratories handling select agents. New implementation plans have been prepared, and implementation

of some of the recommendations is already ongoing. The gain-of-function studies are broadly discussed within the scientific community and working groups are evaluating the risks and benefits associated with gain-of-function studies, and developing draft recommendations on a conceptual approach for evaluating proposed studies.

Recommendations for priority actions

- Continue to implement recommendations by Federal Expert Security Advisory Panel (FESAP) and Fast Track Action Committee on Select Agent Regulations (FTAC-SAR).
- Enhance partnerships with biomedical industry and scientific community to comprehensively evaluate gain-of-function research and develop federal policies and guidelines.
- Finalize and implement recommendations on gain-of-function studies involving pathogens with pandemic potential.

Indicators and scores

P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities – Score 4

P.6.2 Biosafety and biosecurity training and practices – Score 4

Strengths/best practices

- Comprehensive national biosafety and biosecurity system.
- Active federal outreach and education activities.
- Strong commitment to promoting and improving biosafety and biosecurity overall, including laboratories working with dangerous pathogens and toxins.
- BMBL and NIH guidelines.
- CDC and APHL developed Guidelines for Biosafety Laboratory Competency and Competency Guidelines for Public Health Laboratory Professionals.
- Comprehensive, multistakeholder approach to evaluating biosafety and the impacts on science.
- The United States Government, life sciences community, and other stakeholders are conducting a comprehensive assessment of gain-of-function research to develop new federal policy to guide future investments in this area.

Areas that need strengthening/challenges

- General oversight framework.
- Revisions to the SAR to require documentation of problems identified during drills/exercises and the corrective action(s) taken.
- No single mechanism exists to ensure and monitor staff competence and proper training at all laboratories.

Immunization

Introduction

Immunization is one of the most successful global health interventions and one of the most cost-effective ways to save lives and prevent disease. Immunizations are estimated to prevent more than two-million deaths a year globally.

Target

A functioning national vaccine delivery system—with nationwide reach, effective distribution, access for marginalized populations, adequate cold chain, and ongoing quality control—that is able to respond to new disease threats.

USA level of capabilities

The USA sustains a comprehensive and accessible system to administer and record immunizations. There are specific recommendations for children and adults in various age categories, with special guidance for those with health conditions as well as other occupational hazards, international travel or chronically-ill family members.

The USA has a comprehensive and functional national vaccine delivery system that is able to respond to new disease threats based on the current best available science and technology platforms. Strong public–private partnerships exist with nationwide reach, effective distribution chains, adequate cold chain facilities, access for marginalized populations, and ongoing quality control. Federal funding is available through the Vaccines for Children Program, the United States Public Health Service Act, and the Affordable Care Act to improve access to vaccines. Vaccine safety monitoring and assessment tools enable rapid identification and investigation of concerns about vaccines, with rapid actions when needed to prevent harm. The USA’s vaccination programmes have eliminated many vaccine-preventable diseases and reduced the incidence of several others; however, opportunities exist for additional reductions and the associated decrease in morbidity and mortality.

There is no federal mandate that requires vaccinations, and policy and requirements vary by state. The United States Government has identified programmatic challenges, evolving issues and some effective interventions related to adult and adolescent vaccination programmes. Among current challenges, there are still persistently low vaccination rates in small subpopulations and at-risk groups. There are also problems with societal awareness and understanding of vaccine recommendations beyond those for children. Financing for adult vaccines varies by state and local levels creating different challenges and solutions from one state to another.

Recommendations for priority actions

- Improve vaccination coverage for the adult population.
- Increase interoperability between state-based immunization information systems and provider level electronic health records.
- Reduce disparities in vaccinations by increasing coverage among subpopulations.

Indicators and scores

P.7.1 Vaccine coverage (measles) as part of national programme – Score 5

(Caveat: The USA still has persistently low vaccination rates in small subpopulations and at-risk (socioeconomic) groups which cause disparities in vaccination coverage. The indicator used for monitoring and evaluation of immunization in the JEE tool has changed since the USA started their self-assessment. Originally the criterion for level 5 was 90%; this has been changed to 95%. Therefore, there is agreement that with the monitoring and evaluation framework in place at the time of the self-assessment the score is 5, but to achieve a score of 5 under the current framework, the USA would have to develop plans to increase coverage to 95% by 2020.)

P.7.2 National vaccine access and delivery – Score 5

Strengths/best practices

- Vaccine delivery (maintaining cold chain) in the USA is available in all 50 states.
- The national Vaccines for Children Program provides vaccines at no cost to children from birth through 18 years of age who are uninsured, Medicaid-eligible, or American Indian or Alaska Native.
- The United States Government maintains stockpiles of all routinely recommended paediatric vaccines that can be used to mitigate vaccine supply shortages.

Areas that need strengthening/challenges

- Improve vaccination coverage for all populations to achieve the new measles coverage goal of 95% by 2020.
- Increase interoperability between state-based immunization information systems and provider level electronic health records.
- Reduce disparities in vaccination coverage among subpopulations.

DETECT

National laboratory system

Introduction

Public health laboratories provide essential services including disease and outbreak detection, emergency response, environmental monitoring, and disease surveillance. State and local public health laboratories can serve as a focal point for a national system, through their core functions for human, veterinary and food safety including disease prevention, control, and surveillance; integrated data management; reference and specialized testing; laboratory oversight; emergency response; public health research; training and education; and partnerships and communication.

Target

Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.

USA level of capabilities

The USA has a federated, decentralized public health system in which public health, clinical care and animal health sectors work together to respond to public health threats. Major laboratory partners and networks include:

- Laboratory Response Network (LRN) for identifying human pathogens that have epidemic potential in addition to chemical threats; it works with many disease-specific programmes.
- Association of Public Health Laboratories (APHL) is a primary organization representing and facilitating activities with state PHLs.
- Integrated Consortium of Laboratory Networks (ICLN) forms the basis for a system of laboratory networks capable of integrated and coordinated response to and consequence management of acts of terrorism and other major incidents requiring laboratory response capabilities.
- National Animal Health Laboratory Network (NAHLN) is a nationally coordinated network and partnership of federal, state and university-associated animal health laboratories that provide animal health diagnostic testing, methods research and development, and expertise for education and extension to detect biological threats to the nation's animal agriculture.
- Food Emergency Response Network (FERN) integrates the nation's food-testing laboratories at the local, state, federal, tribal and territorial levels to respond to emergencies involving biological, chemical or radiological contamination of food.

The USA's national laboratory system is capable of conducting the following core tests: influenza virus, poliovirus, HIV, Mycobacterium tuberculosis, Plasmodium spp, Salmonella enteritidis serotype typhi. In addition, other testing capabilities at selected sites in the USA's laboratory system include: MERS-CoV, measles, carbapenam-resistant Enterobacteriaceae, and Ebola virus polymerase chain reaction. Selection of pathogen tests in animal health laboratories is congruent with World Organisation for Animal Health (OIE) standards.

Most zoonotic diseases of concern are nationally notifiable diseases with corresponding state-level statutes for case reporting and referral of specimens or isolates. Most of the animal diseases that are on the proposed list of reportable conditions are also potential zoonotic diseases. Generally, data are shared via direct exchange between subject matter experts on an ad hoc basis depending on the disease. Other exchanges of human and animal laboratory data occur through One Health arrangements (detailed in the section on Zoonotic diseases) as well as during outbreaks or research projects.

The United States Government has established national standards for clinical laboratory testing under the CLIA, which establishes minimum standards for quality assurance, supervision, oversight and review of laboratories and their personnel. Some states have more stringent state-specific requirements. Quality assurance is an integral component of the laboratory accreditation system. All laboratories performing diagnostic tests on specimens derived from humans are regulated under the federal CLIA. A number of USA laboratories are accredited to conduct testing as a part of the global network of reference laboratories for the Food and Agriculture Organization (FAO), OIE and WHO.

A system is in place to transport specimens to national laboratories for both animal and human sectors under the federal regulations of the Department of Transportation (DoT), which includes a classification scheme and corresponding packaging, labeling and shipping requirements for substances that are known to contain infectious/hazardous materials as well as those that are for diagnostic or investigational purposes. The DoT regulations for packaging and shipping are aligned with International Civil Aviation Organization (ICAO) standards, the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, and WHO and OIE guidelines. Laboratories operated by the United State both domestically and abroad (such as those maintained by the DoD or CDC in collaboration with host countries) typically receive specimens for referral testing and maintain an extensive network of formal and informal relationships with other laboratories.

There is an extensive commercial market in point-of-care diagnostics for clinical care, and regulations encourage manufacturers to improve accuracy and simplicity of use. The promotion of point-of-care tests varies by detection and control strategies for different pathogens. Referral for specialized testing is recommended for suspected dangerous pathogens, such as Ebola virus. The FDA reviews and approves point-of-care devices for accuracy, adequate instructions for use, and manufacturing standards prior to commercial distribution. Also, through Emergency Use Authorizations (EUAs), the FDA may authorize the emergency use of an unapproved test kit during, or in preparation for, certain types of emergencies, such as Ebola or Zika viruses, if there is sufficient scientific data and other statutory criteria are met.

Recommendations for priority actions

- Institutionalize partnerships among collaborating federal agencies by jointly developing policies and programmes to strengthen laboratory networks across health sectors and between federal and state laboratories. These will be in the areas of financing, harmonizing laboratory protocols, reporting chains, laboratory information systems, sample sharing, role of laboratory support in surveillance for outbreaks and emerging trends, as well as data sharing and confidentiality.
- Develop an inventory of vulnerabilities in capacity and capability for all health sectors at the state level to improve testing service with surge requirements for a concerted whole-of government plan.
- Continue to enhance capabilities of all health sectors for emerging disease detection including strengthening and assuring bioinformatics to inform future metagenomic technologies, the use of culture-independent diagnostic tests for patient care; and digitizing records in the human and veterinary laboratory networks to support real-time surveillance.
- Explore the appropriate protocols for rapid and safe sample sharing in anticipation or during a public health emergency.

- Continue to engage in various global laboratory networks including sharing resources, experiences, data and biological samples taking into consideration the global benefits.

Indicators and scores

D.1.1 Laboratory testing for detection of priority diseases – Score 5

Strengths/best practices

- All states, territories and several large municipalities have the ability to test for all significant practices for both human and animal health sectors.
- Sustainable capability for performing modern molecular and serological techniques as part of a national system of sample referral and confirmatory diagnostics is in place.
- Sharing of samples and data, including whole genome sequence and associated metadata, are available through public repositories for public health agencies and researchers to use globally.

Areas that need strengthening/challenges

- Laboratory systems are vulnerable to fluctuations due to federal and/or local funding. An analysis of vulnerabilities in capacity and capability to provide testing services (especially with surge requirements) would help support whole-of-government resilience planning.

D.1.2 Specimen referral and transport system – Score 4

Strengths/best practices

- Regulations and practices on specimen transportation including packaging and shipping are aligned with international standards and guidelines relevant to health and transportation.
- The United States Government is leveraging partnerships to discuss barriers and put in place protocols for rapid sample sharing in anticipation or during a public health emergency.

Areas that need strengthening/challenges

- Transportation of animal samples/specimen from some parts of the country may take longer due to the size of the country.
- Changes in the supplier arrangements for transport of class 1 Biological Select Agents or Toxins (BSAT) have increased complexities and costs associated with transportation.

D.1.3 Effective modern point-of-care and laboratory-based diagnostics – Score 5

Strengths/best practices

- Various effective modern point-of-care and diagnostics are available in the USA as indicated in the JEE-self-assessment report.

Areas that need strengthening/challenges

- Continuous expansion in the use of culture-independent diagnostic tests for patient care.

D.1.4 Laboratory quality system – Score 5

Strengths/best practices

- The USA laboratory regulations require registration and certification of every laboratory performing clinical tests, regardless of size or site.
- Standardized case notification reporting.
- Jurisdictional public health laboratories, following standards set by the CDC, are required to work closely with clinical laboratories to respond to emerging diseases through a tiered reference and referral system.

Areas that need strengthening/challenges

- No significant issues.

Real-time surveillance

Introduction

The purpose of real-time surveillance is to advance the safety, security, and resilience of the Nation by leading an integrated bio-surveillance effort that facilitates early warning and situational awareness of biological events.

Target

Strengthened foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between sub-national national and international levels of authority regarding surveillance of events of public health significance; improved country and intermediate level regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems. This would include epidemiologic, clinical, laboratory, environmental testing, product safety and quality and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with the IHR and OIE standards.

USA level of capabilities

The USA's public health structure has a strong surveillance system, including rapid detection of health threats, risk assessments, notifications and effective response. The USA surveillance systems have developed over many years and there are currently many parallel but very effective systems. Surveillance roles and responsibilities are defined through public health policy, regulation and law within each state's jurisdiction as well as at the local levels within states. National organizations, such as the Council of State and Territorial Epidemiologists (CSTE), develop consensus-based positions among their membership, to support notifications from the states to the federal level (e.g. CDC). The USA maintains an impressive and high level of academic research in the area of surveillance and continually works towards improving the systems in order to adapt to a constantly changing environment and to make use of new technological development. Interoperability and electronic linkage between different systems, in particular across various sectors, remains challenging and are still very limited. For biosurveillance purposes there is a need for collecting and analysing large and diverse datasets as well as integrating this with other types of non-clinical information sources, but is not possible due to shortage of personnel at the subnational level.

Recommendations for priority actions

- Create opportunities for the United States departments and agencies to exchange and integrate the results of their respective surveillance programmes in a better manner.
- Enhance strategies and partnerships to increase the use and interoperability of electronic health care records.
- Increase the number of trained personnel at subnational levels who are capable of collecting and analysing large volumes of diverse data as well as integrating that information with non-clinical information sources.

Indicators and scores

D.2.1 Indicator and event based surveillance systems – Score 5

D.2.2 Interoperable, interconnected, electronic real-time reporting system – Score 3

D.2.3 Analysis of surveillance data – Score 5

D.2.4 Syndromic surveillance systems– Score 4

Strengths/best practices

- The USA's public health system is capable of rapidly detecting public health threats, conducting risk assessments, notifying and responding effectively.
- Local-to-national surveillance roles and responsibilities are defined in both public health policy and legislation.
- Building of partnerships and trust is needed and has been successful in linking various sectors and ways of reporting.
- Creating a shared analytic workspace is needed for effective collaboration and interoperability.

Areas that need strengthening/challenges

- The long history of the USA's surveillance systems contributes to their strength but their different purposes and funding have resulted in many parallel systems, and hence many are not interoperable and electronic linkages are very limited, especially between different sectors.
- There is a need to address shortages of trained personnel at the subnational levels who are capable of collecting and analysing large volumes of diverse data as well as integrating that information with non-clinical information sources (i.e. news reporting, social media or environmental testing) for biosurveillance purposes.

Reporting

Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens continue to evolve and adapt to new hosts and environments, imposing a burden on human and animal health systems. Collaborative multidisciplinary reporting on the health of humans, animals, and ecosystems reduces the risk of diseases at the interfaces between them.

Target

Timely and accurate disease reporting according to WHO requirements and consistent coordination with FAO and OIE.

USA level of capabilities

The United States has an extensive network of epidemiologic, laboratory, and early warning surveillance systems. Several federal agencies, as well as all 50 states, engage in surveillance and reporting activities through crosscutting efforts. These systems are able to quickly identify nationally notifiable and unusual or unexpected health events for both human and animal populations to ensure reporting obligations are fulfilled under the IHR and the standards promoted by OIE and FAO.

Integration of FAO, OIE and WHO reporting requirements in the United States has created an efficient system that minimized the potential for inconsistent or conflicting notifications. The federal government is the obligated entity under FAO, OIE and WHO for event reporting while the states are not obligated to take part in the reporting. Other capabilities are summarized below.

- Points of contacts
 - There is a national IHR focal point located in the United States Department of Health and Human Services – the ASPR.
 - The USDA serves as the USA focal point for OIE and for the animal health component; CDC serves as the focal point for the human health component of One Health activities.
 - Points of contact for the FAO International Food Safety Authorities Network (INFOSAN) are:
 - FDA: Director of FDA's Emergency Operation Center
 - CDC: Division of Foodborne, Waterborne and Environmental Diseases (DFWED) Senior Advisor for Food Safety and the Branch Chief of the Enteric Diseases Laboratory Branch
 - USDA: FSIS Assistant Administrator for the Office of Public Health Science.
- There is an existing mechanism for information exchange based on type of event and liaison persons are assigned accordingly.
- The list of notifiable diseases exists and the Council of State and Territorial Epidemiologists (CSTE) encourages the state health departments to report on the list of notifiable diseases under IHR.
- The national IHR focal point coordinates the five-step process for IHR, event assessment and notification, and all notification always happen on time.
- There is an elaborate mechanism within the agencies of event verification assessment and notification.

- The United States has developed multilateral regional and bilateral reporting agreements with neighboring countries.
- The national IHR focal point has used the consultation mechanism (Article 8) in numerous occasions.

As described in the section on National legislation, policy and financing and IHR coordination, communication and advocacy, a full understanding of the IHR is not universal among the United States departments and agencies, and it is uncertain how state health officials perceive their roles in the federal obligations. A weakness in the United States current IHR implementation is the lack of institutional continuity and consistency within and among the agencies.

A more explicit United States Government policy for international event reporting, as described in the National legislation, policy and financing section, could help improve overall coordination among the agencies and subnational public health authorities by creating opportunities for dialogue, training, exercises and communication.

Another important opportunity is the further development of United States Government programmes that specifically address FAO, OIE and WHO event assessment and reporting requirements. This would necessarily require a multiagency approach. As the national advocate for IHR implementation the national IHR focal point could develop, coordinate and promote the dissemination of the multiagency standard operating procedures (SOPs) to guide agency and interagency activities related to IHR. Such guidance could also serve as a comprehensive resource for states and overseas territories that is complementary to other existing international agreements.

Recommendations for priority actions

- Improve understanding of FAO, OIE and WHO requirements among federal, state and local stakeholders through multisectoral discussions.
- Work towards developing consistency in reporting on IHR requirements across all agencies and subnational health departments.
- Improve overall coordination among all reporting entities by developing a policy on international event reporting.

Indicators and scores

D.4.1 System for efficient reporting to FAO, OIE and WHO – Score 5

Strengths/best practices

- Integration of FAO, OIE and WHO reporting requirements in the United States has created an efficient system that minimizes the potential for inconsistent or conflicting notifications.
- Agencies that most commonly identify notifiable events are well versed in working through their respective reporting requirements.

Areas that need strengthening/challenges

- There is no universal, or complete understanding of the IHR among the country's departments and agencies. There is also a lack of institutional continuity and consistency within and among the agencies.
- More explicit United States Government policies for international event reporting could help to improve overall coordination.

- State and local health officials are not very familiar with the IHR or the international reporting requirements, and because public health systems at the state level are unique, each must establish unique practices that support the federal reporting requirement.

D.4.2 Reporting network and protocols in country – Score 4

Strengths/best practices

- Because the IHR itself does not account for every variation in biology, epidemiology or human behaviour, the United States has developed informal but effective processes for deliberating among the relevant agencies and coordinating with the WHO Regional Office of the Americas on interpretations of the reporting requirement in the IHR.

Areas that need strengthening/challenges

- Improve understanding of FAO, OIE and WHO reporting requirements among federal, state and local stakeholders by exercising roles and responsibilities through a multistakeholder facilitated discussion.
- Improve overall coordination among the agencies and subnational public health authorities by creating opportunities for dialogue, training, exercises and communication.

Workforce development

Introduction

Workforce development is important in order to develop a sustainable public health system over time by developing and maintaining a highly qualified public health workforce with appropriate technical training, scientific skills and subject-matter expertise.

Target

States Parties with skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005).

USA level of capabilities

The USA has systems to develop and maintain a qualified public health workforce at national, state and local levels but these are not set within an overall national workforce strategy. A challenge for the future will be sustaining the workforce and encouraging engagement from underserved populations.

In the USA, all state-level public health departments have epidemiology, laboratory and case management capacity. The federal government supplements state capacity to prepare for, and respond to, any public health emergency through CDC's Division of State and Local Readiness (DSLRL), which provides technical assistance, training and funding.

CDC helps build future public health workforce through management and delivery of fellowships with specific target audiences, including epidemiology, public health informatics, laboratory sciences, economics and decision sciences, public health policy and management, and other public health disciplines.

Many other federal departments and agencies (i.e. CDC, USDA, NIH and FDA with additional support from NDMS National Disaster Medical System (NDMS) and the United States Public Health Service (USPHS)) train and employ public health personnel, who under specific circumstances, are available to respond within their agencies and in temporary assignments to other agencies during public health emergencies.

There are two main field epidemiology training programmes currently implemented in the USA. These programmes provide high-quality training experiences and secure long-term career placement for field epidemiologists at the state or local level.

The Epidemic Intelligence Service (EIS) is an advanced level, two-year, on-the-job training and service fellowship conducted by the CDC. EIS trains physicians, veterinarians, scientists and other health professionals who may come from a variety of settings, including academia, clinical practice, government and nongovernmental agencies, to apply epidemiology to solve public health problems.

The Applied Epidemiology Fellowship is closely designed after the EIS programme but is conducted by the Council of State and Territorial Epidemiologists (CSTE). In the Fellowship, those who already have a master- or doctoral-level degree, and who are interested in public health practice at the state or local level, receive training in epidemiology or a related field.

CSTE tracks the status of field epidemiology staffing in the United States. Since 2001, the CSTE has conducted a series of periodic standardized assessments of the epidemiology capacity of state and territorial health departments to estimate the number of state and local epidemiologists working in the country.

The APHIS veterinary services conducts two training programmes that target current veterinary epidemiologists. A veterinary field epidemiology programme trains about 25 epidemiologists annually, providing trainees with the tools to effectively manage and direct surveillance and eradication programmes, particularly focusing on protecting animal health. The USDA has also partnered with state veterinary laboratories in Maryland, Mississippi and Virginia to coordinate veterinary laboratory outreach and education efforts.

USDA APHIS tracks veterinary field epidemiology capacity.

Additional programs for emergency staffing

NDMS teams consist of pre-identified personnel including licensed and credentialed civilian medical personnel capable of performing a wide range of duties in the post-disaster phases. NDMS members are organized into state-level teams, which are activated as needed to respond throughout the country. Upon activation, team members take leave from their primary employers and become temporary federal employees for the duration of their assigned mission. The primary purpose of the NDMS is to supplement an integrated national medical response capability for assisting state and local authorities in dealing with the medical impacts of major peacetime disasters.

The United States Public Health Service Commissioned Corps is has uniformed officers with qualifying degrees in health and public health fields. Members of the Commissioned Corps hold positions throughout the federal government workforce including the Department of Health and Human Services, DHS, DoD and the Department of Justice, and may be activated to deploy in response to domestic and international emergencies, as needed. The Commissioned Corps includes a Readiness and Deployment Operations Group, which consists of pre-identified teams capable of deploying within 12-36 hours of notification to provide mass care at shelters, distribute and/or administer medicines, and/or conduct community outreach and assessments, among other functions. As seen during the recent response to the Ebola epidemic in West Africa, Commissioned Corps officers may also be deployed internationally to handle specialized missions, which may include direct patient care.

Recommendations for priority actions

- Use data sources to study the existing multidisciplinary public health workforce and anticipated gaps between human resource needs and staffing at state and local levels to:
 - supplement the current knowledge on staff enumeration and help in projection and planning; and
 - inform the CDC plan to create a National Action Plan for public health workforce development.
- Establish workforce staffing and incentives models in collaboration with existing agency programmes to reduce human resources gaps through either current or new public support models.
- Increase focus of existing programmes towards human resource recruitment, development and retention.

Indicators and scores

D.5.1 Human resources are available to implement IHR (2005) core capacity requirements – Score 5

D.5.2 FETP or other applied epidemiology training programme is in place – Score 5

D.5.3 Workforce strategy – Score 4

Strengths/best practices

- Following a long tradition of professional education, apprenticeship, and practical application of learning, the USA's public health workforce has developed in parallel with its public health system.
- The public health workforce receives primarily public financing, and there are many opportunities for specialization, research, career advancement, and diverse career experiences, though not necessarily homogeneously across the country.
- Professional associations provide important support for the public health workforce in the United States, ensuring opportunities for professional development, establishing standards for accreditation, promoting fair remuneration and job opportunities, and maintaining a network for routine and emergency communications.

Areas that need strengthening/challenges

- Workforce data for public health professionals, other than epidemiologists, is inconsistent, making it difficult to establish priorities for education and professional development.
- While many federal agencies and states have human resource models for their public health offices, there is no overarching national capacity goal that helps to identify or predict shortages.
- As with other highly specialized professions, the extent to which jurisdictions that are socioeconomically disadvantaged are capable of recruiting and sustaining a workforce that meets the needs of their populations remains unknown.
- Although some actions are being taken at the national level, there is as yet no federal focus or policy on the public health workforce. The Public Health Emergency Preparedness (PHEP) cooperative agreement provides critical resources for 62 state and jurisdiction health departments, but does not typically include local workforce assessments.
- Notable needs include:
 - an evaluation of the size and effectiveness of workforce; and
 - mechanisms to work with states to ensure that there are a sufficient number of public health practitioners and other public health professionals at the state and jurisdiction levels.

RESPOND

Preparedness

Introduction

Preparedness includes the development and maintenance of national, intermediate and community/primary response level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. Other components of preparedness include mapping of potential hazards, the identification and maintenance of available resources, including national stockpiles and the capacity to support operations at the intermediate and community/primary response levels during a public health emergency.

Target

Development and maintenance of national, intermediate (district) and local/primary level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. This covers mapping of potential hazards, identification and maintenance of available resources, including national stockpiles and the capacity to support operations at the intermediate and local/primary levels during a public health emergency.

USA level of capabilities

The USA possesses an outstanding preparedness and response system that includes a number of frameworks, plans and guidance documents. This system has been tested and improved several times over the past years. The 9/11 and anthrax attacks in 2001 and Hurricane Katrina in 2005 triggered the comprehensive review and restructuring of the national security policy and the domestic public health preparedness, response and recovery system.

In order to achieve a secure and resilient nation, the National Preparedness System provides the overarching doctrine for building, sustaining and delivering the core capabilities.

The National Planning Frameworks are key elements of the National Preparedness System that describe the roles and responsibilities for the whole community across all mission areas: prevention, protection, mitigation, response and recovery.

Within the Department of Health and Human Services, the Office of the Assistant Secretary for Preparedness and Response is the lead agency for coordination of domestic and international public health preparedness and response activities and in charge of maintaining and coordinating a number of national systems. Many other offices and entities within the federal government (such as ASPR, USDA, CDC, FDA, NIH, USPHS and others) have specified roles to provide the bulk of the public health surge capacity. In addition, there is a variety of organizations and entities in charge of the development, procurement and distribution of public health emergency medical countermeasures. The Secretary of DHS helps coordinate interagency unity.

The USA has a Strategic National Stockpile (SNS) with large quantities of medicines and medical supplies to protect human and animal health if there is a public health emergency (terrorist attack, flu outbreak, earthquake) severe enough to cause local supplies to run out.

The Strategic National Risk Assessment (SNRA) that was completed in 2011, provides USA policy makers and planners a foundation for domestic capacity development and a means for agencies to share information

and planning considerations, as well as to help align those policy/planning efforts towards a common goal. Federal homeland security, human and animal health and other agencies collaborate to maintain in place a robust national preparedness and response system addressed to achieve “A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.” The country has also conducted numerous risk assessments on various emerging threats including Ebola and Zika outbreaks.

Recommendations for priority actions

- Incorporate emergency preparedness into technology platforms.
- Assess the impact of corrective actions implemented as a result of lessons learned.
- Address challenges by coordinating responses to complex incidents that do not receive Stafford Act declarations.
- Develop exercises that involve state and other local partners including the private sector.

Indicators and scores

R.1.1 National multi-hazard public health emergency preparedness and response plan is developed and implemented – Score 5

Strengths/best practices

- Frameworks that describe roles and responsibilities have been established and are available to all.
- Operational plans that are in place identify government-wide roles and responsibilities.
- Risk assessments are conducted frequently to estimate capabilities and identify gap.
- National Response Framework, which is fundamental for preparedness and response, is in place and covers: prevention, protection, mitigation, response or recovery.

Areas that need strengthening/challenges

- Incorporating modern technology platforms into emergency preparedness, including taking advantage of current social media to activate, guide and mobilize communities.
- Interagency coordination for events that do not meet the threshold or criteria for a Stafford Act declaration.

R.1.2 Priority public health risks and resources are mapped and utilized – Score 4

Strengths/best practices

- Federal Interagency Operational Plans (FIOP) provide federal roles and responsibilities, specify critical tasks, and identify resourcing and sourcing requirements for delivering core capabilities.
- SNRA compares risks for potential incidents in terms of likelihood and consequences of threats and hazards.

Areas that need strengthening/challenges

- Review and implementation of lessons learned.
- Government-wide participation in exercises.

Emergency response operations

Introduction

A public health emergency operations center (EOC) is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. EOCs provide communication and information tools and services and a management system during a response to an emergency or emergency exercise. They also provide other essential functions to support decision-making and implementation, coordination, and collaboration.

Target

Countries will have a public health Emergency Operation Centre (EOC) functioning according to minimum common standards; maintaining trained, functioning, multi-sectoral rapid response teams and “real-time” biosurveillance laboratory networks and information systems; and trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

USA level of capabilities

The United States has developed a high-level capability to activate any of the EOCs in its public health and animal health sectors within the required timeframe of two hours. The USA has developed a national framework, the National Incident Management System, and specific activation plans with a wide range of scenarios, triggers and activation levels. Situational awareness is maintained through multiple event-based surveillance systems and formal and informal exchange of information between the different agencies through liaisons officers.

Plans and procedures that exist in each of the EOCs as well as memoranda of understanding (MoUs) between agencies help to formalize collaborations. These plans integrate the need for flexibility and scalability when addressing complex health emergency issues. These procedures are reviewed both on a regular and as-needed basis and hard copies exist in case of unavailability of the digital library. Case management procedures are available and fully implemented at the federal level for all IHR-relevant hazards but are not all consistently implemented at the state or lower levels, sometimes due to inadequate resources.

Trained personnel are available for EOCs, both for steady states and when the activation requires a surge in human capacities to cover callback and round-the-clock coverage. The USA demonstrates a strong commitment to regular all-hazard operational exercises and constant learning and adaptation through after-action analysis of activations.

Recommendations for priority actions

- Standardize minimum acceptable performance criteria for federal emergency management programmes and consider a formal policy for accreditation across all federal agencies.
- Create a systematic One Health cross-agency approach in activation, EOC operational procedures, plans and full-scale exercises. This should include after-action reviews, delineating agency role and responsibilities and developing liaison officers and surge staff personnel exchange.
- Consider actions to help states and local health authorities to fully implement existing federal guidelines on IHR-relevant hazards.

Indicators and scores

R.2.1 Capacity to activate emergency operations – Score 5

Strengths/best practices

- Covers all hazards
- Twenty-four hours a day, seven days a week availability
- Continuity of operations
- Surge staff availability
- Back-up systems are in place to ensure communications during an emergency response.
- Event-based surveillance
- Availability of liaison officers.

Areas that need strengthening/challenges

- No substantial issues.

R.2.2 Emergency operations centre operating procedures and plans – Score 4

Strengths/best practices

- Plans and procedures are in place.
- Risk-based communications are in place.

Areas that need strengthening/challenges

- There should be a more systematic evaluation of the resources needed at each level to ensure consistent response activation.

R.2.3 Emergency operations programme – Score 4

Strengths/best practices

- Exercise and evaluation programmes.
- Training programmes instituted.
- Accredited emergency management programmes.

Areas that need strengthening/challenges

- The country should consider systematically evaluating the activation of its emergency response systems and developing follow up action plans.

R.2.4 Case management procedures are implemented for IHR (2005) relevant hazards – Score 3

Strengths/best practices

- Case management protocols have been developed effectively.

Areas that need strengthening/challenges

- The management and transportation protocols are not consistently available across all state and federal levels.

Linking public health and security authorities

Introduction

Public health emergencies pose special challenges for law enforcement, whether the threat is manmade (e.g., the anthrax terrorist attacks) or naturally occurring (e.g., flu pandemics). In a public health emergency, law enforcement will need to quickly coordinate its response with public health and medical officials.

Target

Country conducts a rapid, multisectoral response in case of a biological event of suspected or confirmed deliberate origin, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, such as to investigate alleged use events.

USA level of capabilities

The USA has developed and demonstrated capacity to link public health and law enforcement, including the investigation of alleged deliberate-use events. This has contributed immensely to a strong and critical component of its public health emergency preparedness and response system. The Joint Criminal-Epidemiological (Crim-Epi) Investigation Model raises awareness levels and increases collaboration between public health, law enforcement and other sector professionals with respect to the identification, assessment and response to biological threats, including intentional acts.

In addition, the United States Government has made efforts to improve public health, law enforcement and multisectoral response by creating frameworks/protocols and conducting training and exercises on both national as well as subnational levels. There is regular real-time information sharing between national public health and law enforcement authorities that ensures timely and coordinated response operations. The linkage has been institutionalized through MoUs, and similar arrangements exist between national and local law enforcement agencies. Enforcement systems are in place, including those at points of entry into the USA that help to prevent food, medical products and environmental contamination, and ensure necessary monitoring. Existing laboratory systems and networks are capable of identifying select and unknown agents. While the country has achieved the primary goal of implementing a multisectoral response to biological threats, there are opportunities for improvement.

Recommendations for priority actions

- Determine the strategy and content for recurring basic and proposed advanced level Crim-Epi trainings at the national and subnational levels.
- Develop Federal Bureau of Investigation (FBI) and subnational (state/territorial/local/tribal) public health department jurisdiction-specific written protocols for joint public health law enforcement investigations.

Indicators and scores

R.3.1 Public health and security authorities (e.g. law enforcement, border control and customs) are linked during a suspect or confirmed biological event – Score 5

Strengths/best practices

- Formal written agreements/MoUs are in place among all of the relevant collaborating federal agencies.
- Joint Criminal-Epidemiological Investigations Model and its attributes are available.

- There is timely and regular information sharing coupled with joint threat assessment, joint investigations/interviews, as well as joint training/exercises.
- All situations involving the intentional use of a biological agent require a FBI-led Threat Credibility Evaluation.
- FBI and other federal law enforcement agencies maintain direct connections with the international security community including the Interpol.

Areas that need strengthening/challenges

- The primary responsibility of public health authority lies at the subnational levels. Therefore, the FBI and state/territorial/local/tribal public health departments need unique written protocols and MoUs to elaborate on the specific roles in clear terms.
- There is a need for continuous training, for basic and advanced level in Crim-Epi at the federal and subnational levels to mitigate the normal turnover in positions and retirements.

Medical countermeasures and personnel deployment

Introduction

Medical Countermeasures (MCM) are vital to national security and protect nations from potentially catastrophic infectious disease threats. Investments in MCM create opportunities to improve overall public health. In addition, it is important to have trained personnel who can deploy in case of a public health emergency for response.

Target

National framework for transferring (sending and receiving) medical countermeasures, and public health and medical personnel from international partners during public health emergencies.

USA level of capabilities

The United States manages robust domestic systems for the development, stockpiling, distribution and dispensing of medical countermeasures, as well as the deployment of federal public health and medical personnel when and where they are needed. However, despite these systems, the USA recognizes that no single country can afford to make available the wide variety of medical countermeasures required to prevent or mitigate all potential threats, or ensure that enough qualified personnel are available for multiple, large-scale situations. As a result, building on the expertise developed through unprecedented domestic preparedness efforts, the United States Government has also developed corresponding policies to address the legal, regulatory and logistical challenges associated with transferring these resources across international borders during public health emergencies.

While the USA has a robust domestic preparedness infrastructure and substantial experience with these issues, the complexity of the challenges related to international deployments of public health assets is now being addressed. The coordination required to solve these challenges is a clear example of the many opportunities for improvement. In recognition of this fact, the USA works continuously to exercise policies and plans to receive, consider and respond to international requests for assistance during public health emergencies. Given that health security in the USA is fundamentally linked to global health security, these cross-border policies are developed and exercised in coordination with bilateral, regional and multilateral partners where possible.

Recommendations for priority actions

- Develop a companion framework to the International Assistance System that will describe the roles, responsibilities and processes that Department of Health and Human Services will use to manage international offers of public health and medical assistance including medical teams.
- Work with international partners to improve cross-border deployment capabilities by supporting the development of global emergency regulatory mechanisms, and developing checklists, operational plans and other tools as well as support the development of emergency medical teams, facilitating their deployment and improving coordination.

Indicators and scores

R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency – Score 5

Strengths/best practices

- Systems in place for development, stockpiling and deployment of medical countermeasures for use in a public health emergency are advanced and are regularly exercised and evaluated for improvement.
- Collaboration occurs prior to an event to identify all statutory, legal and policy authorities that would impact deployment or receipt of medical countermeasures.
- Model liability terms and conditions for international deployment of medical countermeasures.
- Processes to allow the emergency use of unapproved medical countermeasures or unapproved use of approved medical countermeasures during an emergency have been developed.
- Import and export regulations that govern the movement of medical countermeasures are identified.
- Logistical processes to move shipments of medical countermeasures rapidly have been developed.
- A checklist of required documents, licenses and/or approvals necessary for the import and export of emergency medical countermeasures is present.
- Mechanisms for paying or receiving costs related to the deployment of medical countermeasures are identified.

Areas that need strengthening/challenges

- Maintaining capacity among state and local level health authorities to mobilize and support a public health response using medical countermeasures.
- International collaboration to develop global policies and systems for the procurement and distribution of medical countermeasures.
- Policy framework and systems for requesting and receiving medical countermeasures into the USA during a domestic emergency.
- Sustaining long-term costs for state, local and territorial medical countermeasures capability.
- Rapid deployment of medical countermeasures internationally.

R.4.2 System is in place for sending and receiving health personnel during a public health emergency – Score 4

Strengths/best practices

- Systems are in place for domestic deployment of health personnel and have been developed for sending health personnel overseas.

Areas that need strengthening/challenges

- Systems for receiving international health personnel in an emergency are not well developed.
- International coordination mechanisms for deployment of health personnel in an emergency are lacking.

Risk communication

Introduction

Risk communications should be a multi-level and multi-faceted process which aims at helping stakeholders define risks, identify hazards, assess vulnerabilities and promote community resilience, thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is the dissemination of information to the public about health risks and events, such as outbreaks of diseases. For any communication about risk caused by a specific event to be effective, the social, religious, cultural, political and economic aspects associated with the event should be taken into account, as well as the voice of the affected population. Communications of this kind promote the establishment of appropriate prevention and control action through community-based interventions at individual, family and community levels. Disseminating the information through the appropriate channels is essential. Communication partners and stakeholders in the country need to be identified, and functional coordination and communication mechanisms should be established. In addition, the timely release of information and transparency in decision making are essential for building trust between authorities, populations and partners. Emergency communications plans need to be tested and updated as needed.

Target

State parties should have risk communication capacity which is multi-level and multi-faced real time exchange of information, advice and opinion between experts and officials or people who face a threat or hazard to their survival, health or economic or social well-being so that they can take informed decisions to mitigate the effects of the threat or hazard and take protective and preventive action. It includes a mix of communication and engagement strategies like media and social media communication, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement and community engagement.

USA level of capabilities

The United States is able to identify, develop and disseminate public messages that rapidly and efficiently communicate risks, strategies and actions to appropriate stakeholders and targeted populations through multilevel and multifaceted mechanisms, processes and tools, including social media, crowd sourcing and other technology-based networks for information dissemination, even specifically designated for communicating with the public about health emergencies. Indeed, community engagement before, during and after a major public health event is a component of the national approach to public health security.

The national system includes a number of plans, mechanisms and resources – to coordinate and facilitate risk communication (within individual departments and agencies, as well as across the entire United States Government during a public health event); deploy reasonably skilled and trained personnel and volunteers; and arrange financial resources – for scale up as evidenced by a simulation exercise or tested by a real health emergency.

The National Incident Communication Conference Line (NICCL) – an established network of lead communicators among the federal departments and agencies – serves to speak with a unified voice and consistent message that is coordinated not only with the different federal authorities involved in an incident, but also with affected international, state, tribal and local authorities as well as the parallel State Incident Communication Conference Line. For international emergencies, relevant departments and agencies who maintain relationships with WHO, other international health organizations, and foreign ministries coordinate with their counterparts.

USA departments and agencies have formalized functions to communicate with the public that include trained spokespersons within communication offices or divisions.

The National Response Framework Incident Communications Emergency Policy and Procedures (ICEPP) provides detailed guidance to federal incident communicators during a coordinated federal response, in order to:

- ensure that sufficient federal assets are available to provide accurate, coordinated, timely and accessible information to audiences affected by an emergency through community engagement, social mobilization and risk communication;
- provide pro-active, strategic communication plans and messages that anticipate and respond to public information needs in an appropriate manner (e.g. in the event of a terrorist incident, the FBI would be consulted before issuing sensitive media/press releases); and
- ensure accuracy, consistency and timeliness so that affected individuals and communities can make sound decisions about protecting health.

Communication with public and private organizations, hospitals and the health care sector is a significant priority in strategic communication plans and is accomplished through multiple mechanisms. Public messaging also considers community-specific needs like social, religious, cultural, political and economic aspects related to the event. The Private Sector Incident Communications Conference Line is similar to the NICCL but includes the private companies responsible for maintaining critical infrastructure in the USA. The National Public Health Information Coalition (NPHIC) supports communication and public affairs staff from state health departments and other health risk communicators.

CDC's Crisis and Emergency Risk Communication (CERC) is a validated approach for communicating effectively during emergencies. Training materials and other resources are drawn from lessons learned during public health emergencies and research in the fields of public health and emergency risk communication. The United States Government trains federal, state, private and nongovernmental partners, and other personnel. The federal government coordinates with regions, states and urban areas to review and establish priorities for training and exercises.

Communication coordination tests and exercises are funded and performed with partner organizations; and communications offices constantly monitor and audit internal and external communication channels for misinformation to quickly correct issues on a routine basis. It is common practice to conduct an after-action assessment or report after completing a simulated exercise or responding to an actual emergency, to determine what actions had the most impact on changing behaviour and/or stopping the rumour from spreading. Additionally, by monitoring media and the trends in public concern, communication departments and agencies can quickly address information gaps, increase the accessibility and awareness of available information and resources, and ensure that just-in-time training is available for staff, media outlets and the public. Departments and agencies coordinate with external partners and stakeholders to develop, review and revise response plans. Needs identified through this coordination, including those for communication response, are incorporated in agency-specific annual budget requests to ensure a successful response.

Overlapping authorities and activities during an emergency response can cause public communications to be complex.

The United States Government ensures that communication in multiple languages is available, especially when the media is targeting specific geographic locations or populations. Individual departments and agencies develop guidelines and teaching tools to improve cross-cultural communication skills, and deliver culturally and linguistically appropriate messages to diverse populations.

The United States Government departments and agencies have staff available to manage and conduct social mobilization, health promotion, or community outreach for at-risk populations as part of the overall national response plan.

Agencies, especially those that would take the lead for a specific type of health emergency, have well developed and trained risk communications teams that are integrated into leadership and operations through both strategic and tactical activities. In large and/or complex responses, including terrorist incidents, agencies are able to collaborate and coordinate through existing incident management structures and the Joint Information Center.

Recommendations for priority actions

- Strengthen risk communication in professional disciplines with the help of increased resources for training and encourage professional peer-review publishing on the topic by practitioners.
- Ensure adequate numbers of risk communication specialists are trained for a possible radiological (or other rare) event.
- Evaluate existing risk communication staffing models and develop options for surge capacity.
- Increase resources for real-time population knowledge and beliefs to adjust behaviour change messages.

Indicators and scores

R.5.1 Risk communication systems (such as plans, mechanisms) – Score 4

Strengths/best practices

- National Response Framework integrated communications is in planning.
- Multiple crisis and risk communication tools and templates.
- Documented lessons learned.
- Use of multiple communication platforms and delivery systems, as well as technology-based networks.
- Recording, reporting and implementing lessons learned into plans are well established.
- Accuracy is encouraged with “key message” documents, syndication of web content and coordination calls.

Areas that need strengthening/challenges

- Leaders understanding their roles and responsibilities.
- Speed of release of information hampered by complex coordination and clearance requirements.
- More training needed to increase the number of emergency communication specialists.
- Staff and volunteer expertise needed in community engagement.
- Evidence tracking of desired behavioural changes.
- Management processes for complex situations in multifactorial environments (including language considerations).

R.5.2 Internal and partner communication and coordination – Score 5

Strengths/best practices

- The NICCL is an established network of lead communicators among the federal departments and agencies that serves to speak with a unified voice and consistent message.
- Research regarding message preferences and population needs based on their cultural norms and relationship to the emergency.
- Inclusive approach with local, state and tribal territories, and federal communicators, and the integrated model CERC is taught across governments, globally and in academic institutions.

Areas that need strengthening/challenges

- No significant issues.

R.5.3 Public communication – Score 4

Strengths/best practices

- Public messaging also considers community-specific needs like social, religious, cultural, political and economic aspects related to the event.
- The NPHIC supports communication and public affairs staff from state health departments and other health risk communicators.

Areas that need strengthening/challenges

- Overlapping authorities and activities during an emergency can cause public communication activities to be complex.

R.5.4 Communication engagement with affected communities – Score 3

Strengths/best practices

- Community message strategies are targeted and proactive.

Areas which need strengthening/challenges

- Mechanism is needed to build community resilience to harness scale up capacity in an emergency.
- Exercises and simulations should be focused on community engagement.

R.5.5 Dynamic listening and rumour management – Score 4

Strengths/best practices

- Continual monitoring of social media during a crisis gives early understanding of what the community desires.

Areas that need strengthening/challenges

- Consider evaluating the impact of communication messages to demonstrate evidence of behaviour change.

OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

Points of entry

Introduction

All core capacities and potential hazards apply to Points of Entry (POE) and thus enable the effective application of health measures to prevent international spread of diseases. States Parties are required to maintain the core capacities at the designated international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which will implement specific public health measures required to manage a variety of public health risks.

Target

States Parties should designate and maintain the core capacities at the international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings which implement specific public health measures required to manage a variety of public health risks.

USA level of capabilities

The USA has an effective system to detect, assess, report and respond to potential threats and events at points of entry. There is a MoU with relevant stakeholders (CDC, DHS, United States Customs and Border Protection (CBP), United States Immigration and Customs Enforcement (ICE), United States Coast Guard (USCG)) to share information regarding travellers' health, medical services and disease reporting. Public health activities at points of entry include coordination and collaboration among local public health departments, area medical providers, law enforcement, emergency medical services, airlines and port operators. There are quarantine stations at designated points of entry, which provide public health consultations and investigations, medical examinations as well as immediate treatment, and facilitate the transfer of sick travellers to definitive care (170 hospitals). CDC issues guidelines for the protection of travellers and to prevent introduction of communicable diseases into the USA.

USDA is responsible for inspection of specific food items, and the FDA is responsible for inspections of all other food and ingredients as well as medical products. Both agencies have specific authority to detain, test or confiscate material to prevent hazardous or contaminated materials from entering the USA. CDC, USCG and United States Navy are authorized to issue Ship Sanitation Control Certificates and Ship Sanitation Control Exemption Certificates.

There are some limitations at non-designated ports in respect of on-site access to specialized public health officers and the capacity to detect, assess, report and respond. Development of this capacity and regular exercise programmes could enhance the capacities at points of entry. The report by the Government Accountability Office highlighted the need of a comprehensive national aviation preparedness plan aimed at preventing and containing the spread of diseases that would include points of entry not already covered by the CDC.

Recommendations for priority actions

- Development of a comprehensive national aviation preparedness plan aimed at preventing and containing the spread of diseases, which would include points of entry not already covered by the CDC.
- Expansion of capacity to detect, assess, report and respond at non-designated ports supported by exercise programmes.
- Provisioning of on-site access to specialized public health officers at non-designated ports (ground, sea and air).

Indicators and scores

PoE.1 Routine capacities are established at points of entry – Score 4

Strengths/best practices

- A MoU exists with relevant stakeholders regarding the method to share information of travellers' health and medical services, and disease reporting with a good coordination mechanism in place.
- There are CDC quarantine stations at the IHR designated points of entry and all points of entry have SOPs to transfer travellers to the 170 designated medical facilities.
- Adequate legislation is in place for quarantine and isolation; there is also provision for other measures to prevent the entry and spread of communicable diseases.
- Points of entry have capacities for detecting, assessing and reporting illnesses; screening cargo, animals and animal products; and monitoring the health of persons with suspected illness.
- Aircrews have an obligation to report immediately to air traffic control about any deaths or seriously ill persons.
- Provision of points of entry inspection and public safety exists (vector control and vessels sanitation programme assist to prevent and control the introduction and spread of diseases for ships (conveyances)).
- CDC is the competent authority under the IHR (2005) to issue Ship Sanitation Control Certificate and Ship Sanitation Control Exemption Certificate.
- FDA has authority to inspect regulated food and medical products and also visits exporting countries to inspect animal and food products.
- USDA has capacity and authority for animal quarantine at points of entry with three designated holding sites. (Animals go through animal import centres/or sea-ports. USDA has inspections and temporary quarantines for three holding facilities across the country.)

Areas that need strengthening/challenges

- Improve on-site access to specialized public health officers at other non-designated ports (land, air and ports).
- Increase capacity for detection, assessment, reporting and response at non-designated ports (ground, sea and air).

PoE.2 Effective public health response at points of entry – Score 5

Strengths/best practices

- Communicable disease response plans are in place for the 18 points of entry with quarantine stations.
- Regular exercises are held with local, state and federal emergency response and airport partners.

- Systems are in place to safely transfer patients for medical care (170 designated medical facilities located near points of entry and CDC, and the mechanism of notification to CDC EOC),
- Due to the Ebola experience, monitoring of patients and other activities at points of entry are seen as part of a continuum of care, rather than just being a port issue.

Areas that need strengthening/challenges

- Expansion of the exercise programmes to other non-designated ports.
- Need for a comprehensive national aviation preparedness plan aimed at preventing and containing the spread of diseases that would include points of entry not already covered by the CDC.
- Ensuring there are facilities available to allow the prompt assessment and care of ill travelers

Chemical events

Introduction

State parties should have surveillance and response capacity for chemical risk or events. It requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal

Target

States Parties with surveillance and response capacity for chemical risks or events. This requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal.

USA level of capabilities

The USA has considerable preparedness and response capacity for chemical events with functioning mechanisms established for detecting and responding to emergencies. Any federal responses to chemical events or threats are carried out by EPA, FEMA and USCG with support from 13 other federal departments and agencies. Relevant departments and agencies maintain operational plans and procedures for chemical event responses. The USA has participated in a number of international treaties, conventions and protocols for the control of hazardous chemicals and materials as well as non-proliferation.

There is significant capacity for baseline public health assessment to inform national, state and local strategies, guidelines, plans and protocols for chemical threats and event response. Although the states' capacities vary, the federal government provides resources to support state and local preparedness. The country has experience of dealing with various chemical event responses and lessons learnt are regularly used to improve plans and develop new approaches. The Federal Interagency Working Group led by the DHS Assistant Secretary for the Office of Infrastructure Protection, the Department of Labor's Assistant Secretary for OSHA, and the EPA Assistant Administrator for the Office of Land and Emergency Management issued a report in 2014 with an aggressive action plan focused on changing the national landscape of chemical facility safety and security.

Laboratory capacity for identification of chemical intoxication needs further strengthening. Strengthening waste management capacity with the development of a regular monitoring system would make the system very robust. There are shortages of trained personnel for management and response to chemical emergencies. The development of multiagency plans and strategies based on chemical properties and hazards, and strengthening of community planning and preparedness at the local level would further enhance capacity.

Recommendations for priority actions

- Follow up and evaluate implementation of the Federal Interagency Working Group Action Plan issued in 2014.
- Improve the capacity for recovery and resiliency with respect to chemical response by reducing variations between states' capacities.
- Expand the number of the trained personnel who can manage larger-scale emergencies.

Indicators and scores

CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies – Score 4

Strengths/best practices

- There is capacity for event detection (sentinel surveillance, environmental monitoring, consumer product monitoring, and chemical hazards reporting of release of listed hazardous substances).
- There is significant laboratory capacity with 53 level 3 laboratories, 34 level 2 laboratories, 10 level 1 laboratories, with provision of surge capacity and availability of a mobile portable high throughput integrated laboratory.
- A network of poison control centres across the country are linked through a database, which provides up-to-date information.
- Regular baseline public health assessment is conducted to inform national, state and local strategies, guidelines, plans and protocols for chemical event response.
- Emergency planning and community's right to know act were created to help communities plan for emergencies involving hazardous substances addressing emergency planning and notification (substances and facilities are covered). Also in place are a comprehensive emergency response plan, emergency training and review of emergency systems, reporting requirements, provision of information to health professional, doctors and nurses, community right to know requirements, toxics release inventor, trade secrets and enforcement.
- Capacity for risk assessment and exposure monitoring exists, such as the CDC Agency for Toxic Substances and Disease Registry (ATSDR), for assessment of chemical exposures, the CDC community assessment for public health emergency response, and the EPA hazard monitoring system. CDC collaborates with American Association of Poison Control Centers via the national poison data system.
- Capacity to mitigate and treat the effects of chemical hazards due to availability of inventory health facilities and chemical hazards emergency contacts.
- Most chemical protective equipment is either certified by a national entity or designed to meet certain specifications.
- 1960 chemical hazards resource containers, called CHEMPACKs, are available around the country, with more than 90% being accessible within an hour.
- Private sector contributes significantly during chemical event preparedness and response through various mechanisms (such as Chemical Transportation Emergency Centre – CHEMTREC).

Areas that need strengthening/challenges

- Consistency of laboratory capacity for identification of chemical intoxication needs further strengthening.
- Development of best practices for the waste management is required.

CE.2 Enabling environment is in place for management of chemical events – Score 5

Strengths/best practices

- A national contingency plan for oil and hazardous substances exists, which has coordination and communication mechanisms with state and local agencies. This plan has established 13 regional response teams consisting of regional representatives from 16 agencies comprising the national response team and the states within that region. The regions include the 10 standard federal regions plus three additional teams to address the different organizations of the federal agencies involved.

- A well-developed mechanism is in place for the regulation of chemical hazards, with experts and resources available for chemical emergency management, preparedness and response efforts.
- Relevant department and agencies have specific operational plans and procedures in place for chemical event responses.
- Agency-specific lists and mechanisms are in place to identify and contact appropriate experts across the United States Government.
- The USA also participates in a number of international treaties, protocols and conventions for the control of hazardous chemicals and materials.
- The DoT has comprehensive authority to regulate hazardous materials for transportation in and out of the country.
- Funding to support federal, state and local government emergency response activities is available under the Stafford Act or the National Oil and Hazardous Substances Pollution Contingency Plan. The Department of Health and Human Services also provides funding and manages development, acquisition and stockpiling of medical countermeasures.
- The USA regularly conducts exercises, simulations and real event responses (Deepwater Horizon in 2010, Elk River incident), every year that relate to chemical events. FEMA has a dedicated unit for the national exercise division to conduct exercises. These exercises are evaluated and lessons learned are incorporated.

Areas that need strengthening/challenges

- States are facing shortage of trained human resources, who are aware of the chemical emergency management plan and can respond to the large-scale emergencies.
- Use feedback from stakeholders in an evidence based way to develop best practices.
- Strengthen community planning and preparedness at the local level.
- Develop multiagency plans and strategies depending on the chemical properties and hazards.

Radiation Emergencies

Introduction

State Parties should have surveillance and response capacity for radionuclear hazards/events/emergencies. It requires effective communication and collaboration among the sectors responsible for radionuclear management.

Target

States Parties with surveillance and response capacity for radiological and nuclear hazards/events/emergencies. This requires effective communication and collaboration among the sectors responsible for radiological and nuclear emergency management.

USA level of capabilities

The USA has a strong, multisectoral approach to prepare for and respond to radiological and nuclear emergencies. The federal government provides assistance to state and local governments as needed on the premise that events would be handled at the local level until they exceed the capability of the local jurisdiction.

The National Response Framework contains the Nuclear/Radiological Incident Annex (NRIA), which outlines the roles, responsibilities and authorities for the federal agencies during a radiological emergency response. The capabilities of local governments vary widely across the USA, with the greatest resources found in states that have nuclear facilities. The overall coordination of response to any significant radiological/nuclear emergency would be carried out by DHS and FEMA, in close coordination with the White House National Security Council Staff. The FBI would also take lead actions if the incident were the result of terrorism or other federal crimes. The USA is a signatory to the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency of the International Atomic Energy Agency.

The USA, like most countries, would be challenged to respond to a large-scale, catastrophic nuclear emergency. Evaluation and testing of the identified roles and responsibilities of authorities as described in the NRIA, and its regular updating would be of value. Mechanisms can be established for systematic information exchange between authorities of the radiological competent and human health service units. Management of radiological and nuclear waste with the development of a long-term repository mechanism and appropriate monitoring systems is crucial for radiation safety. There is a decreasing trend of radiation and radiobiology professionals.

Recommendations for priority actions

- Establish mechanisms for systematic information exchange between authorities of the radiological competent and human health service surveillance unit.
- Develop a long-term waste management repository following the cleanup of a radiological spill.
- Research, develop and implement systems to create novel, high-throughput systems that are capable of performing bio-dosimetry and bioassay in both mass casualty and large-scale radionuclide dispersion situations.

- Implement the recommendations in the report “Where are the radiation professionals?” (Statement No. 12) issued by the National Council on Radiation Protection and Measurements in 2015.
- Integrate triage systems and population monitoring guidance with the existing national public health and clinical systems in order to provide a national capacity for continuity of assessment, care and treatment.

Indicators and scores

RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies – Score 3

Strengths/best practices

- Radiation detection exists in the country with defined responsibilities of various authorities – EPA is responsible for radiation in the environment; DHS is responsible for the BioWatch system, multiple agencies like FDA, DHS and USDA monitor consumer products with laboratory support; the Department of Energy monitors the incident radiation and radiation through aerial measuring system.
- There is a comprehensive system of protection in place for radiological and nuclear hazards with scalable national response plans.
- The capacity for conducting risk assessments and exposure of monitoring mechanisms are in place (CDC provides assistance and support to state and local government for monitoring of the exposed population and post-incident health surveillance. DOE led Federal Radiological Monitoring and Assessment Center coordinates the collection and assessment of radiological data immediately after an emergency).
- Regular exercises allow federal, state and local agencies, as well as nuclear power operators, to test both national and local plans, and maintain a level of readiness through integrated communication and capabilities across all levels and sectors.
- Mechanisms have been developed for mitigation and treatment following radiation events (such as various guidance documents published by FDA; and the radiation injury treatment network to care for patients during radiation events with guidance on various possible events).
- Radiation Emergency Assistance Center/Training Site and DoD’s Armed Forces Radiobiology Research Institute serve as medical resources.
- The DHS FEMA RadResponder network enables organizations to rapidly and securely record, share and aggregate large quantities of data while managing their equipment, personnel, interagency partnerships and multijurisdictional event spaces.

Areas that need strengthening/challenges

- There is a need to assess human health risk by characterizing the impact of radiation emergencies on humans.
- Limited capacity of laboratories to conduct bioassays for internal radioactive contamination or bio-dosimetry for the assessment of external radiation exposure.
- A system for information exchange is required between radiological competent authorities and human health surveillance units.

RE.2 Enabling environment is in place for management of radiation emergencies – Score 3

Strengths/best practices

- The NRIA outlines the roles, responsibilities and authorities for federal agencies during radiation emergencies (federal government provides assistance and support to state and local government as needed).
- Various stakeholders play a crucial role in the management of radiation emergencies (such as Federal Radiological Monitoring and Assessment Center, which is coordinated by National Nuclear Security Administration in the Department of Energy (DoE) and supported by other federal, state and local agencies; the Advisory Team on Environment, Food and Health, comprising technical representatives from EPA, FDA, CDC and USDA; state and local response agencies including radiation control programmes).
- A well-developed network of assets and plans exists for sampling, monitoring and assessing risks to the food supply and the environment.
- The United States Government has used lessons learned from regular exercises and various incidents to refine strategies and set up priorities (lessons learnt from the Fukushima incident particularly on equipment and the communication risk to the public are essential).
- The CDC National Center for Environmental Health (Division of Environmental Hazards and Health Effects/Radiation Studies Branch) and the DoE Radiation Emergency Assistance Center/Training Site are collaborating centers for radiation emergencies with the WHO Radiation Emergency Medical Preparedness and Assistance Network.

Areas that need strengthening/challenges

- Evaluate and test the identified roles and responsibilities of authorities as described in NRIA, and where appropriate, update them.
- Improve the availability and sustainability of experienced radiation and radiobiology professionals.
- Conduct realistic wide-scale drills that test the ability of state and local communities to assist and support during an emergency.

Appendix 1: Joint External Evaluation

Background

Mission place and dates

Washington DC, USA: 23–24 May, 2016

Atlanta, Georgia, USA: 25–27 May, 2016

Mission team members

- Simo Nikkari, Finland, Finnish Defence Forces (Team Lead)
- Issa Makumbi, Uganda, Ministry of Health (Team Co-Lead)
- Stefania Iannazzo, Italy, Ministry of Health (Team Member)
- Ernesto Gozzer, Peru, National Institute of Health Peru (Team Member)
- Nirmal Kandel, World Health Organization (Team Member)
- Wantanee Kalpravidh, Food and Agriculture Organization (Team Member)
- Anna Katz, Finland, Finnish Defence Forces (Team Member)
- Clément Lazarus, France, Ministry of Health (Team Member)
- Elizabeth Lule, World Bank (Team Member)
- Brian McCloskey, the United Kingdom, Public Health England (Team Member)
- Ndekyia Oriyo, Tanzania, National Institute for Medical Research Tanzania (Team Member)
- Zeinab Roka, Kenya, Ministry of Health (Team Member)
- Adam Roth, Sweden, The Public Health Agency of Sweden (Team Member)
- Elizabeth Jane Soepardi, Indonesia, Ministry of Health (Team Member)
- Jukka Lähesmaa, Finland, Ministry of Health (Observer)

Objective

To assess USA's capacities and capabilities relevant for the 19 technical areas of the JEE tool in order to provide baseline data to support USA's efforts to reform and improve their public health security.

The JEE process

The JEE process is a peer-to-peer review. As such, it is a collaborative effort between host country experts and JEE team members. The entire external evaluation, including discussions around the scores, the strengths, the areas that need strengthening, best practices, challenges and the priority actions should be collaborative, with JEE team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

Limitations and assumptions

- The assessment was limited to one week, which limited the amount and depth of information that could be managed.
- It is assumed that the results of this assessment will be made publically available.
- The assessment is not an audit and information provided by the USA will not be independently verified. Information provided by the USA will be discussed and the host country and assessment team will mutually agree on an assessment rating. This is a peer-to-peer review.

Key host country participants and institutions

United States Government Leadership

- Nicole Lurie, Assistant Secretary for Preparedness and Response, Department of Health and Human Services
- Tom Frieden, Director, United States Centers for Disease Control and Prevention
- Elizabeth Lautner, Associate Deputy Administrator for Science, Technology and Analysis Services, Department of Agriculture
- Annie Hall, Acting Principal Deputy Assistant Secretary for the Bureau of Oceans and International and Environmental Affairs, Department of State
- Laura Holgate, Special Assistant to the President for Weapons of Mass Destruction, Terrorism and Threat Reduction

The United States chairperson during the external assessment was Maria Julia Marinissen, Director of the Division of International Health Security, Office of Policy and Planning, Office of the Assistant Secretary for Preparedness and Response. The United States Assessment project leader was Christopher Perdue, Branch Chief for International Health Regulations, also in the ASPR Division of International Health Security.

The full list of United States Government participants is included below.

Host country institutions

Department of Health and Human Services

- Office of the Assistant Secretary for Preparedness and Response
- United States Centers for Disease Control and Prevention
- United States Food and Drug Administration
- Health Resources and Services Administration
- National Institutes of Health
- National Vaccine Program Office
- Office of the Assistant Secretary for Global Affairs
- Office of the Assistant Secretary for Public Affairs

Department of Agriculture

- Food Safety Inspection Service
- Animal and Plant Health Inspection Service

Department of Defense**Department of Energy****Department of Justice**

- Federal Bureau of Investigation

Department of Homeland Security**Department of the Interior**

- United States Geologic Survey
- United States Fish and Wildlife Service

Department of Labor

- Occupational Health and Safety Administration

Department of State**Department of Transportation****Department of Veterans Affairs****Environmental Protection Agency****Nuclear Regulatory Commission****United States Agency for International Development****White House Executive Office**

- Office of Management and Budget
- National Security Council

Supporting documentation

- International Health Regulations – Joint External Evaluation of the United States of America, Self-Assessment Report, May 5, 2015.
- Presentation on the United States self-assessment.
- Presentation on overview of the United States public health system.
- Presentations on each of the 19 JEE technical areas.

