International Health Regulations (IHR) and Global Health Security Agenda (GHSA)

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Early Detection and Mitigation is Crucial

Global outbreaks, the challenge: late reporting and response

Evolution of International Sanitary Regulations

Table 1. Treaties dealing with infectious diseases, 1892–1951

<table>
<thead>
<tr>
<th>Year</th>
<th>Treaty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1892</td>
<td>International Sanitary Convention</td>
</tr>
<tr>
<td>1893</td>
<td>International Sanitary Convention</td>
</tr>
<tr>
<td>1894</td>
<td>International Sanitary Convention</td>
</tr>
<tr>
<td>1897</td>
<td>International Sanitary Convention</td>
</tr>
<tr>
<td>1903</td>
<td>International Sanitary Convention replacing the 1892, 1893, 1894 and 1897 International Sanitary Conventions</td>
</tr>
<tr>
<td>1905</td>
<td>Inter-American Sanitary Convention</td>
</tr>
<tr>
<td>1912</td>
<td>International Sanitary Convention, replacing the 1903 International Sanitary Convention</td>
</tr>
<tr>
<td>1924</td>
<td>Pan American Sanitary Code</td>
</tr>
<tr>
<td>1926</td>
<td>Agreement Respecting Facilities to be Given to Merchant Seaman for the Treatment of Venereal Disease</td>
</tr>
<tr>
<td>1927</td>
<td>International Sanitary Convention, modifying the 1912 International Sanitary Convention</td>
</tr>
<tr>
<td>1928</td>
<td>Pan American Sanitary Convention for Aerial Navigation</td>
</tr>
<tr>
<td>1930</td>
<td>Convention Concerning Anti-Diphtheritic Serum</td>
</tr>
<tr>
<td>1933</td>
<td>Agreement Regarding Measures to be Taken Against Dengue</td>
</tr>
<tr>
<td>1934</td>
<td>International Sanitary Convention for Aerial Navigation</td>
</tr>
<tr>
<td>1938</td>
<td>International Convention for Mutual Protection Against Dengue Fever</td>
</tr>
<tr>
<td>1944</td>
<td>International Sanitary Convention, amending the 1926 International Sanitary Convention</td>
</tr>
<tr>
<td>1946</td>
<td>Protocols to Prolong the 1944 International Sanitary Conventions</td>
</tr>
</tbody>
</table>
IHR (2005) – new strategies

Goal
Respond to events effectively *before* they become international public health crises.

<table>
<thead>
<tr>
<th>Needs</th>
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</thead>
<tbody>
<tr>
<td>Anticipate emerging threats</td>
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<tr>
<td>Mandate timely and transparent reporting</td>
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<tr>
<td>Incorporate evidence into decision making</td>
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<tr>
<td>Accommodate different national capacities</td>
</tr>
<tr>
<td>Collect and disseminate sensitive information</td>
</tr>
<tr>
<td>Protect individuals and economies against unmerited actions</td>
</tr>
</tbody>
</table>
What did States Parties agree to do?

**Communications**
- Designate a National IHR Focal Point

**Core Capacities**
- Meet minimum requirements to detect, assess, report, and respond to public health events

**Points of Entry**
- Support disease detection and control at designated ports and borders

**Notification**
- Develop a framework for notifying WHO within 24 hours of a potential PHEIC

**Minimal interference**
- Take evidence-based actions sensitive to impact on trade, travel, and human rights

**Evaluate status**
- Conduct self-assessments and report to WHO
Annex 2 replaces fixed lists of notifiable diseases with a decision algorithm

• Anticipating emerging infections and other unusual or unexpected events
A case of the following diseases has serious public health impact and is unusual or unexpected, and thus shall be notified:

- Smallpox
- Poliomyelitis due to wild-type polio virus
- Influenza with pandemic potential
- Severe acute respiratory syndrome (SARS)

Any event of potential international public health concern, including those involving other events or diseases than those listed in the box on the left and the box on the right shall lead to utilization of the algorithm.

An event involving the following diseases shall always lead to utilization of the algorithm, because they have demonstrated the ability to cause serious public health impact and to spread rapidly internationally:

- Cholera
- Pneumonic plague
- Yellow fever
- Viral hemorrhagic fevers (Ebola, Lassa, Marburg)
- Other diseases that are of special national or regional concern, e.g. dengue fever, West Nile fever, Rill Valley fever, and meningococcal disease.

Is the public health impact of the event serious?

- Yes
- No

Is the event unusual or unexpected?

- Yes
- No

Is there a significant risk of international spread?

- Yes
- No

Is there a risk for international trade restrictions?

- Yes
- No

Not notified at this stage. Reassess when more information becomes available.

Event shall be notified to WHO under the International Health Regulations
Information Flow Through the U.S. National IHR Focal Point

- Domestic Surveillance
- Global Surveillance
- U.S. Government
- International Stakeholders
- Other NFPs and Partners
- WHO HQ and Regional Offices

**Information Sharing**

**Notifications**

**Event Assessments**

- Food Safety HHS; USDA
- Public Health HHS
- U.S. States
- Agriculture USDA
- Security DHS
- Environment EPA
- Foreign Affairs DOS
- Commerce DOC
- Transportation DOT
- Defense DOD
- Energy DOE

Slide from HHS/ASPR
IHR (2005): Notification and communications flows

- Public health and event-based surveillance systems within a country
- National IHR Focal Points
- WHO IHR Contact Points
- WHO Director-General

- Detect, assess, and report urgent or unexpected events
- Consult with or notify WHO of any events that may constitute a PHEIC
- Receive, assess and respond to events notified
- Determine whether an event constitutes a PHEIC and recommend measures

- Advise
- Coordinate
- Communicate
- Report

- Emergency Committee
- Other competent organizations (IAEA etc.)
- Relevant ministries/Sectors/Back to State/Local
Annex 1 defines IHR (2005) core capacity requirements

**National**
- Detect unexpected disease or deaths
- Assess reports within 48 hours
- Notify WHO
- Support or implement control measures

**Intermediate**
- Detect unexpected disease or deaths
- Assess and confirm reported events
- Report to national level
- Support or implement control measures

**Local**
- Detect unexpected disease or deaths
- Assess events immediately
- Report essential information to appropriate level
- Implement preliminary control measures

- Provide epidemiological, laboratory, and logistical support
- Approve and implement containment and control measures
- Coordinate with other ministries
- Disseminate information to key actors
- Establish operational national public health emergency response plan
- Develop rapid response teams

School of Public Health & Health Services
THE GEORGE WASHINGTON UNIVERSITY
### IHR Monitoring Framework: Indicators

1. Legislation, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of obligations under the IHR.
2. A mechanism is established for the coordination of relevant sectors in the implementation of the IHR.
3. IHR NFP functions and operations are in place as defined by the IHR (2005).
4. Indicator-based surveillance includes an early warning function for the early detection of a public health event.
5. Event-based surveillance is established.
6. Public health emergency response mechanisms are established.
7. Infection prevention and control (IPC) is established at national and hospital levels.
9. Priority public health risks and resources are mapped.
10. Mechanisms for effective risk communication during a public health emergency are established.
11. Human resources are available to implement IHR core capacity requirements.
12. Laboratory services are available to test for priority health threats.
13. Laboratory biosafety and laboratory biosecurity (biorisk management) practices are in place.
14. General obligations at PoE are fulfilled.
15. Effective surveillance and other routine capacities is established at PoE.
16. Effective response at PoE is established.
17. Mechanisms for detecting and responding to zoonoses and potential zoonoses are established.
18. Mechanisms are established for detecting and responding to foodborne disease and food contamination.
19. Mechanisms are established for the detection, alert and response to chemical emergencies.
20. Mechanisms are established for detecting and responding to radiological and nuclear emergencies.

- Laboratories
- Human resources
- Risk communications
- Preparedness
- Response
- Surveillance
- Coordination and NFP communications
- Capacity to detect, assess, report, and respond
- National legislation, policy, & financing
- Points of Entry

Potential Hazards
- Zoonotic events
- Food safety
- Chemical events
- Radiation emergencies

Monitoring Framework
- IHR (2005)
**H1N1:** PHEIC Declared April 25, 2009
Pandemic Declared- June 11, 2009

Update: Novel Influenza A (H1N1) Virus Infections - Worldwide, May 6, 2009
MMWR May 8, 2009 / 58(17);453-458

April 23-24 Director General of WHO consults with US and Mexico
April 25th Director General of WHO declares a PHEIC
April 25th Emergency Committee approves PHEIC, provides recommendations
Polio declared public health emergency of international concern under International Health Regulations

May 5, 2014

Ebola Virus Disease, West Africa
PHEIC Declared August 8, 2014


CASES/DEATHS
(data up to 1 February 2015)

<table>
<thead>
<tr>
<th>Country</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea</td>
<td>1944</td>
<td></td>
</tr>
<tr>
<td>Liberia</td>
<td>3746</td>
<td></td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>3276</td>
<td></td>
</tr>
<tr>
<td>Mali</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Nigeria</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Senegal</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>United States of America</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>8981</td>
<td>6</td>
</tr>
</tbody>
</table>

Confirmed Cases
- 1 - 5
- 6 - 20
- 21 - 100
- 101 - 500
- 501 - 4000

No. of Cases, Past 7 Days
- 1 - 3
- 4 - 7
- 8 - 22
- 23 - 36

No. of Cases, Past 21 Days
- 1 - 3
- 4 - 7
- 8 - 22
- 23 - 36
- 37 - 73

NEWLY INFECTED - New cases in previously uninfected areas

Data as of:
- LR - 2015-02-01
- SL - 2015-02-01
- CI - 2015-02-01
- ML - 2015-01-19
Figure 2. Map of cases with human cases of avian influenza A(H7N9) infection (by place of reporting) during the second wave (highlighted in yellow). (as of June 9, 2014)
Figure 2. Countries reporting MERS-CoV infection as of 5 February 2015

Distribution of MERS CoV infections by date of onset and time of reporting, Saudi Arabia, 2013–2014, by week

Source: Ministry of Health Saudi Arabia
Implementing IHR (2005)

Adopted by 194 States Parties

Entered into force

States report meeting all core capacity requirements

OR

States assess core capacities

Plan/implement capacity building

Request extension

States report meeting all core capacity requirements

OR

Request 2nd extension

2005

2007

2009

2012

2014
IHR Implementation 2012-2014

2012
- No report, 27
- Fully implemented, 42
- 2-year extension obtained (with implementation plan) plus 9 with no implementation plan, 127

2014
- Fully implemented, 64
- No report, 48
- 2-year extension requested, 81

Polio PHEIC
Ebola PHEIC
GHSA
WHO/OIE/FAO
GHSI

Global Health Security Program
THE GEORGE WASHINGTON UNIVERSITY
Country Reports on IHR Implementation - 2012
Aggregate Score (%)

Legislation: 60%
Coordination: 70%
Surveillance: 80%
Response: 85%
Preparedness: 75%
Risk Communications: 75%
Human Resources: 60%
Laboratory: 80%
PoE: 65%
Zoonotic: 75%
Food Safety: 80%
Chemical: 55%
Radiological: 65%
Challenges to IHR implementation

- Resources
- Quality
- Uneven foundations
- Planning models
- Knowledge gaps
- Dependencies beyond the health sector
<table>
<thead>
<tr>
<th>States Parties</th>
<th>WHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection and assessment of and response to events</td>
<td>Evaluation and assessment of core capacities</td>
</tr>
<tr>
<td>Technical and logistical support, particularly in building core capacities</td>
<td>Provision/facilitation of technical and logistical support to States</td>
</tr>
<tr>
<td>Mobilization of financial resources to facilitate implementation</td>
<td>Mobilization of financial resources to support developing countries in building, strengthening, and sustaining IHR core capacities</td>
</tr>
<tr>
<td>Formulation of laws and regulations to support implementation</td>
<td></td>
</tr>
</tbody>
</table>

Possible channels: bilateral, regional networks, WHO regional offices, intergovernmental organizations, international bodies
“We must come together to prevent, and detect, and fight every kind of biological danger—whether it’s a pandemic like H1N1, or a terrorist threat, or a treatable disease.”

President Obama, United Nations General Assembly Address, September 22, 2011
Global Health Security Vision

To attain a world safe and secure from global health threats posed by infectious diseases

where we can prevent or mitigate the impact of naturally-occurring outbreaks and intentional or accidental releases of dangerous pathogens, rapidly detect and transparently report outbreaks when they occur, and employ an interconnected global network that can respond effectively to limit the spread of infectious disease outbreaks in humans and animals, mitigate human suffering and the loss of human life, and reduce economic impact.
Global Health Security Agenda

Prevent
Detect
Respond

Global Health Security Agenda: Objectives

To accelerate progress toward a world safe and secure from infectious disease threats in partnership with other nations, international organizations and public and private stakeholders, the Global Health Security Agenda seeks to:

Prevent avoidable epidemics: including naturally occurring outbreaks or accidental releases by:
- Preventing the emergence and spread of antimicrobial drug resistant organisms and regulatory frameworks of factors that enable and increase surveillance of new zoonotic diseases; and
- Preventing the emergence and spread of drug-resistant pathogens and regulatory frameworks of factors that enable and increase surveillance of new zoonotic diseases.

Our Vision: A world safe and secure from global health threats posed by infectious diseases—where we can prevent or mitigate the impact of naturally occurring outbreaks and intentional or accidental releases of dangerous pathogens, rapidly detect and transparently report outbreaks when they occur, and employ an interconnected global network that can respond effectively to limit the spread of infectious disease outbreaks in humans and animals, mitigate human suffering and the loss of human life, and reduce economic impact.

The Global Health Security Agenda: In partnership with other nations, international organizations, and public and private stakeholders, we seek to accelerate progress toward a world safe and secure from infectious disease threats and to promote global health security as an international priority.
- Preventing and reducing the likelihood of outbreaks—natural, accidental, or intentional—is essential.
- Detecting threats early saves lives.
- Rapid, effective response requires multi-sectoral international coordination and communication.

Working together with partners around the world in support of the nine objectives of our Global Health Security agenda, we seek to prioritize coordinated action and specific, measurable steps focused on preventing outbreaks, detecting biological threats early and rapidly responding to disease outbreaks, whether naturally occurring, intentionally procured, or accidentally caused.

This effort will support existing agreements under the World Health Organization (WHO) International Health Regulations 2005 (IHR), the World Organization for Animal Health (OIE) Animal Health Codes, and the Codex Alimentarius International Food Standards and will complement existing multilateral efforts in this area including under the G8, G20, Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, Global Health Security Initiative, and regional forums.

The Global Challenge: An interconnected world is increasing the opportunities for human, animal and zoonotic diseases to emerge and spread globally. Today’s health security threats arise from at least 5 sources: the emergence and spread of new microbes; the globalization of trade and food supply; the rise of drug-resistant pathogens; the acceleration of biological science capabilities; and the risk that these capabilities may cause the inadvertent or intentional release of pathogens; and continued concerns about bioterrorism acquisition, development, and use of biological agents. The recent emergence of the H7N9 influenza virus and Middle East Respiratory Syndrome Coronavirus underscore infectious disease as a serious global threat.

Since the emergence of Severe Acute Respiratory Syndrome in 2003, the world has made great progress in strengthening local, regional, and international capacity to prevent, detect and respond to emerging infectious disease threats.

Yet, despite important accomplishments, much remains to be done to achieve our shared global health security vision. Only 1% of countries reported reaching full compliance with the core IHR requirements by the June 2012 deadline set by the WHO. Vulnerabilities include geographic areas with limited disease surveillance systems; reluctance to share outbreak information or biological samples; emergence of new pathogens and development of drug resistance; and the lack of technical assistance and support of international or accidental release of biological agents.

Multi-sectoral collaboration and the combined resources and expertise of the health and security sectors will be required to efficiently match resources to needs, avoid redundant efforts, and identify gaps.

The G8 and G20 called upon countries to strengthen compliance with the WHO IHR—the standard by which the world measures its preparedness for emerging disease threats, as well as bioterrorism events.

Accelerating Progress: Working together with strong global leadership and an integrated, multi-sectoral effort, we can achieve concrete and impactful gains in the world’s ability to prevent avoidable epidemics, detect threats early, and respond and recover rapidly and effectively. Toward the ultimate goal of a world safe and secure from infectious disease threats, to accelerate progress toward this vision, we invite other nations, international organizations, and public and private stakeholders from around the world to join us in promoting global health security by spurring concrete action and tangible improvements in national, regional, and international health capacities.

This global effort must leverage capabilities and resources across the health and security sectors to enhance bio-preparedness and capacity for countering biological threats, no matter the cause. As the international community collectively accelerates progress to advance global health security, it is important that we harmonize our efforts, identify what works, and measure our progress. Working together, we can save lives.
Timeline and commitments

- February 2014: GHS Agenda launch with 33 partners
- May 2014 (Helsinki): Commitment development meeting
- August 2014 (Jakarta): Commitment development meeting
- September 2014 (Washington DC): 44 countries and international organizations
- 2015: GHSA Steering Group (Finland chairing)
- 2015: Start of Pilot Assessments

Australia, Azerbaijan, Canada, Chile, China, Denmark, Ethiopia, Finland, France, Georgia, Germany, Guinea, India, Indonesia, Israel, Italy, Japan, Jordan, Kenya, Liberia, Malaysia, Mexico, Netherlands, Norway, Pakistan, Peru, Portugal, Republic of Korea, Saudi Arabia, Sierra Leone, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Vietnam, and Yemen
Action Packages

- 5-year targets
- Desired national impact
- Country commitments
- Baseline Assessment and Planning Activities
- Monitoring and Evaluation Activities
## GHSA Action Packages

<table>
<thead>
<tr>
<th>ACTION PACKAGES</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVENT 1</td>
<td>Combat antimicrobial resistance</td>
</tr>
<tr>
<td>PREVENT 2</td>
<td>Minimize spillover of zoonotic diseases into humans</td>
</tr>
<tr>
<td>PREVENT 3</td>
<td>National biosafety and biosecurity system</td>
</tr>
<tr>
<td>PREVENT 4</td>
<td>National vaccine delivery system</td>
</tr>
<tr>
<td>DETECT 1</td>
<td>National laboratory system</td>
</tr>
<tr>
<td>DETECT 2 &amp; 3</td>
<td>Indicator and event-based surveillance systems</td>
</tr>
<tr>
<td>DETECT 4</td>
<td>Disease reporting consistent with WHO, FAO, and OIE requirements</td>
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<tr>
<td>DETECT 5</td>
<td>Workforce development to meet IHR and PVS core competencies</td>
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<tr>
<td>RESPOND 1</td>
<td>Emergency Operations Centers</td>
</tr>
<tr>
<td>RESPOND 2</td>
<td>Rapid, multisectoral response, linking law enforcement and public health</td>
</tr>
<tr>
<td>RESPOND 3</td>
<td>Deployment of medical countermeasures and medical personnel</td>
</tr>
<tr>
<td></td>
<td>ACTION PACKAGES - PREVENT AVOIDABLE EPIDEMICS</td>
</tr>
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<td>---</td>
<td>-----------------------------------------------</td>
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</tbody>
</table>
| 1 | **Develop an integrated and global package of activities to combat antimicrobial resistance.**  
Leading: Canada, Germany, Netherlands, Sweden, United Kingdom  
Contributing: Australia, India, Indonesia, Italy, Japan, Norway, Portugal, Switzerland, Thailand, United States  
IOs: FAO, OIE, WHO |
| 2 | **Adopt behaviors, policies and/or practices that minimize the spillover of zoonotic diseases from lower animals into human populations.**  
Leading: Indonesia, Vietnam  
Contributing: Georgia, Kenya, Sweden, United Kingdom, United States, Yemen  
IOs: FAO, OIE, WHO |
| 3 | **A whole-of-government national biosafety and biosecurity system is in place.**  
Leading: Canada, Denmark, Kenya, Peru, Portugal, Spain  
Contributing: Azerbaijan, Germany, India (TBC), Jordan, Republic of Korea, United Kingdom, United States  
IOs: FAO, IAEA, INTERPOL, OIE, WHO |
| 4 | **A functioning national vaccine delivery is in place.**  
Leading: Italy, Portugal  
Contributing: India, Pakistan, Republic of Korea, Saudi Arabia, United Arab Emirates, Yemen  
IOs: FAO, OIE, WHO |
<table>
<thead>
<tr>
<th></th>
<th>Action Package</th>
<th>Leading:</th>
<th>Contributing:</th>
<th>IOs: FAO, OIE, WHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.</td>
<td>South Africa, Thailand, US</td>
<td>Canada, China, Ethiopia, Finland, Georgia, Israel, Japan, Malaysia, Mexico, Peru, Switzerland, United Kingdom, Yemen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contributing:</td>
<td>Ethiopia, Finland, Georgia, Israel, Japan, Malaysia, Mexico, Peru, Switzerland, United Kingdom, Yemen</td>
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<tr>
<td></td>
<td></td>
<td>FAO, OIE, WHO</td>
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<tr>
<td>2/3</td>
<td>Strengthen foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security.</td>
<td>Georgia, Norway</td>
<td>Azerbaijan, Ethiopia, Finland, Indonesia, Israel, Italy, Kenya, Mexico, United States, Yemen</td>
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<tr>
<td></td>
<td></td>
<td>Contributing:</td>
<td>FAO, OIE, WHO</td>
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<tr>
<td>4</td>
<td>Timely and accurate disease reporting according to WHO requirements and consistent coordination with FAO and OIE.</td>
<td>France</td>
<td>Israel</td>
<td>FAO, OIE, WHO</td>
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<tr>
<td></td>
<td></td>
<td>Contributing:</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>A workforce (physicians, veterinarians, biostatisticians, laboratory scientists, farming/livestock professionals, and field epidemiologists) who can systematically cooperate to meet relevant IHR and PVS core competencies.</td>
<td>Jordan, Thailand</td>
<td>Ethiopia, Finland, Saudi Arabia, United States, Yemen</td>
<td>FAO, OIE, WHO</td>
</tr>
<tr>
<td>1</td>
<td>Every country will have a public health Emergency Operations Center (EOC) functioning according to minimum common standards.</td>
<td>Leading: Malaysia, Turkey Contributing: Ethiopia, Kenya, Saudi Arabia, United Kingdom, Vietnam IOs: FAO, OIE, WHO</td>
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<tr>
<td>2</td>
<td>In the event of a biological event of suspected or confirmed deliberate origin, a country will be able to conduct a rapid, multi-sectoral response, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, including to investigate alleged use events.</td>
<td>Leading: Republic of Korea, Peru Contributing: Australia, Canada, Indonesia, Israel, Malaysia, Portugal, United Kingdom IOs: FAO, INTERPOL, OIE, WHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>A national framework for transferring (sending and receiving) medical countermeasures and public health and medical personnel among international partners during public health emergencies.</td>
<td>Leading: Chile Contributing: Canada, Israel IOs: FAO, OIE, WHO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Prevent and reduce the likelihood of outbreaks – natural, accidental, or intentional

Respond rapidly and effectively using multi-sectorial, international coordination and communication

Detect threats early to save lives
Overlap Between GHSA and IHR

GHSA
- Prevent AMR
- Vaccination Programs
- Nosocomial infection control
- Regional biosurveillance hubs
- Sample sharing
- Novel diagnostics
- Sharing medical countermeasures and personnel

IHR
- Legislation, Policy & Financing
- Risk communication
- Coordination and NFP Communication
- Points of Entry
- Food Safety
- Chemical Events
- Radiological Emergencies

- Surveillance
- Laboratory
- Preparedness
- Response
- Zoonotic diseases
- Human Resources
Rates of Return for Systems Strengthening  
Source: Olga Jonas, Economic Adviser, World Bank

<table>
<thead>
<tr>
<th>Success in preventing onset of pandemics</th>
<th>Expected annual rate of return*</th>
</tr>
</thead>
<tbody>
<tr>
<td>20% (only 1 in 5 pandemics prevented)</td>
<td>25%</td>
</tr>
<tr>
<td>50% (only half of pandemics prevented)</td>
<td>57%</td>
</tr>
<tr>
<td>100% (all pandemics prevented)</td>
<td>86%</td>
</tr>
</tbody>
</table>

* Severe pandemic flu case: Impact $3.6 trillion (4.8% of GDP), probability 1%, expected benefit of prevention $37 billion/year. Estimated costs of preventive effort (public health systems that meet WHO-OIE standards): $3.4 billion/year (high end of range). Note that the estimated benefits are only from pandemic risk reduction and do not include additional substantial national co-benefits from robust public health systems.

For details, see World Bank: *People, Pathogens and Our Planet*, Vol. 2: *The Economics of One Health* (2012)
Global Health Security Agenda

The Global Health Security Agenda (GSHA) is an effort by 44 countries (as of March 2015) and three International Organizations to raise political attention and commit nations to developing global capacity to prevent, detect, and respond to infectious disease threats. The GSHA countries have committed to the development of Action Packages. For each Action Package, there are designated lead and contributing countries that will work together to meet 5 year targets to build specific capacity in select countries around the world.

ACTION PACKAGES

PREVENT 1 Combat antimicrobial resistance
PREVENT 2 Minimize spillover of zoonotic diseases into humans
PREVENT 3 National biosafety and biosecurity system
PREVENT 4 National vaccine delivery system
DETECT 1 National laboratory system
DETECT 2 & 3 Indicator and event-based surveillance systems
DETECT 4 Disease reporting consistent with WHO, FAO, and OIE requirements
DETECT 5 Workforce development to meet IHR and PVS core competencies
RESPOND 1 Emergency Operations Centers
RESPOND 2 Frontline multilateral response links law enforcement and public health
RESPOND 3 Deployment of medical countermeasures and medical personal

Global Health Security Initiative

The Global Health Security Initiative (GHSI) is a partnership between the U.S., Canada, EU, France, Germany, Italy, Japan, Mexico, and the U.K., and WHO. GHSI is an informal partnership between Ministries of Health to address global health security challenges, focusing on coordinated preparedness and response for medical countermeasures, disease surveillance, preparedness planning, risk assessment and communication, laboratory linkages, and coordination on radio-nuclear, chemical and food safety events. While most of the GHSI activities are focused on coordination between the partner countries, they have also worked on e-tools and preparedness frameworks that could be applied to a broader spectrum of nations.

Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (Global Partnership)

The Global Partnership (GP), began in 2002 as a way for the G7 to provide assistance to prevent and dismantle weapons of mass destruction. In 2012 the GP created the Biodefense Working Group (BSWG) to support partner nations to expand capacity to prevent, detect and respond to biological threats. The GP BSWG supports multi-sectoral engagement and has a set of deliverables that are predominantly consistent with the GSHA objectives.

Biological and Toxins Weapons Convention

The Biological and Toxin Weapons Convention (BWC), which entered into force in 1975, currently has 172 Member States and is focused on global cooperation to prevent the intentional use of biological agents. Two specific articles of the BWC directly relate to the GSHA:

• Article X – “the cooperation and assistance” article: obligates nations to “cooperate in continuance of, and to extend, their efforts together with other States or international organizations to the further development and application of scientific discoveries ... for prevention of disease.”
• Article VII – directs States to assist other Member States that may have experienced a violation of the BWC. This is interpreted to mean that the global community must assist in a potential intentional infectious disease event or outbreak.

National Health Security Strategy

The National Health Security Strategy (NHSS) is a Congressionally mandated report produced by Health and Human Services, Assistant Secretary for Preparedness and Response. Although the NHSS is primarily domestic, the fifth of five strategic objectives is to strengthen global health security. Under this objective, the U.S. proposes to work with partner nations to build capacity under the IHR, and support disease reporting under IHR, OIE and FAO. The strategy focuses on building global capacity to detect, and report public health emergencies, and specifically to build surveillance and diagnosis capacity. The strategy also calls for enhancing attribution capacity, working with law enforcement and public health to conduct investigations into alleged use.

National Strategy for Countering Biological Threats

The 2009 National Strategy for Countering Biological Threats is centered around seven major objectives to improve access to life sciences to combat infectious diseases, establish norms against the misuse of life sciences, and institute efforts to prevent the misuse of the life sciences. The first objective of this strategy is to Promote Global Health Security. Under this objective, the U.S. proposes to work with partner nations to build capacity under the IHR, and support disease reporting under IHR, OIE and FAO. The strategy focuses on building global capacity to detect, and report public health emergencies, and specifically to build surveillance and diagnosis capacity. The strategy also calls for enhancing attribution capacity, working with law enforcement and public health to conduct investigations into alleged use.

National Strategy for Countering Antibiotic-Resistant Bacteria

The 2014 National Strategy for Combating Antibiotic-Resistant Bacteria identifies priorities to prevent, detect, and control outbreaks of bacterial agents resistant to countermeasures. While most of the strategy is focused on domestic activities, one specific focus area looks to improve international collaboration and capacity.

Domestic Strategies

• Develop a multi-week of domestic strategies that target U.S. capacities and capabilities to prevent, detect, and respond to public health emergencies which the U.S. may consider sharing with the global community. These strategies include The Centers For Disease Control and Prevention’s 15 Public Health Preparedness Capabilities, National Strategy for Pandemic Influenza, National Strategy for Biosurveillance, the National Response Framework, National Preparedness (HSPOP-8), Medical Countermeasures against Weapons of Mass Destruction (HSPOP-18), and Public Health and Medical Preparedness (HSPOP-21).
Thank you for your attention

Questions?