

Session V: Building Health Security

The BWC Supporting Global Health: Reducing Biological Risk by Building
Capacity in Health Security

Oslo, Norway

17-19 June, 2009

May C. Chu, Laboratory Alliances and Biosafety, IHR Coordination

Health Security and Environment





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Sébastien Cognat, Ottorino Cosivi, Pat Drury, Keiji Fukuda, Fred Hayden, Angela Merianos, Guènaël Rodier, Mike Ryan, Nicoletta Previsani, Maja Lèvre, Emmanuelle Tuerlings

Discussion themes

- | International Health Regulations: the platform for investing in capacity building
- | The Challenges: normative versus reality
- | Approaches for achieving IHR compliance
happines by 2012: gaining respectability and confidence for State Parties



International Health Regulations:
the platform for investing in
capacity building

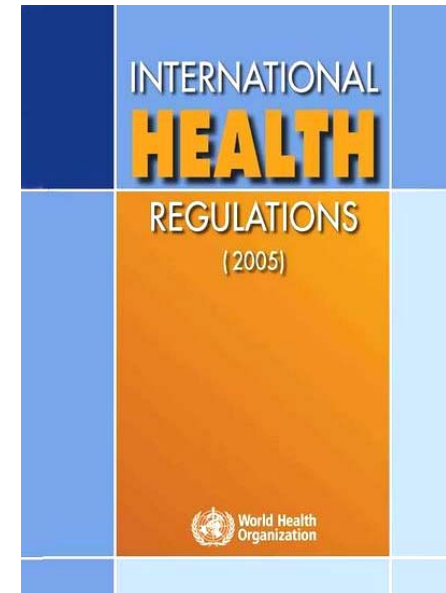
WHO: vision for revision of the International Health Regulations, 1996

- | *A world on the alert and able to detect and respond to international infectious disease threats within 24 hours using the most up to date means of global communication and collaboration*
- | *A change in the norms surrounding reporting of infectious disease outbreaks, making it expected and respected to report*

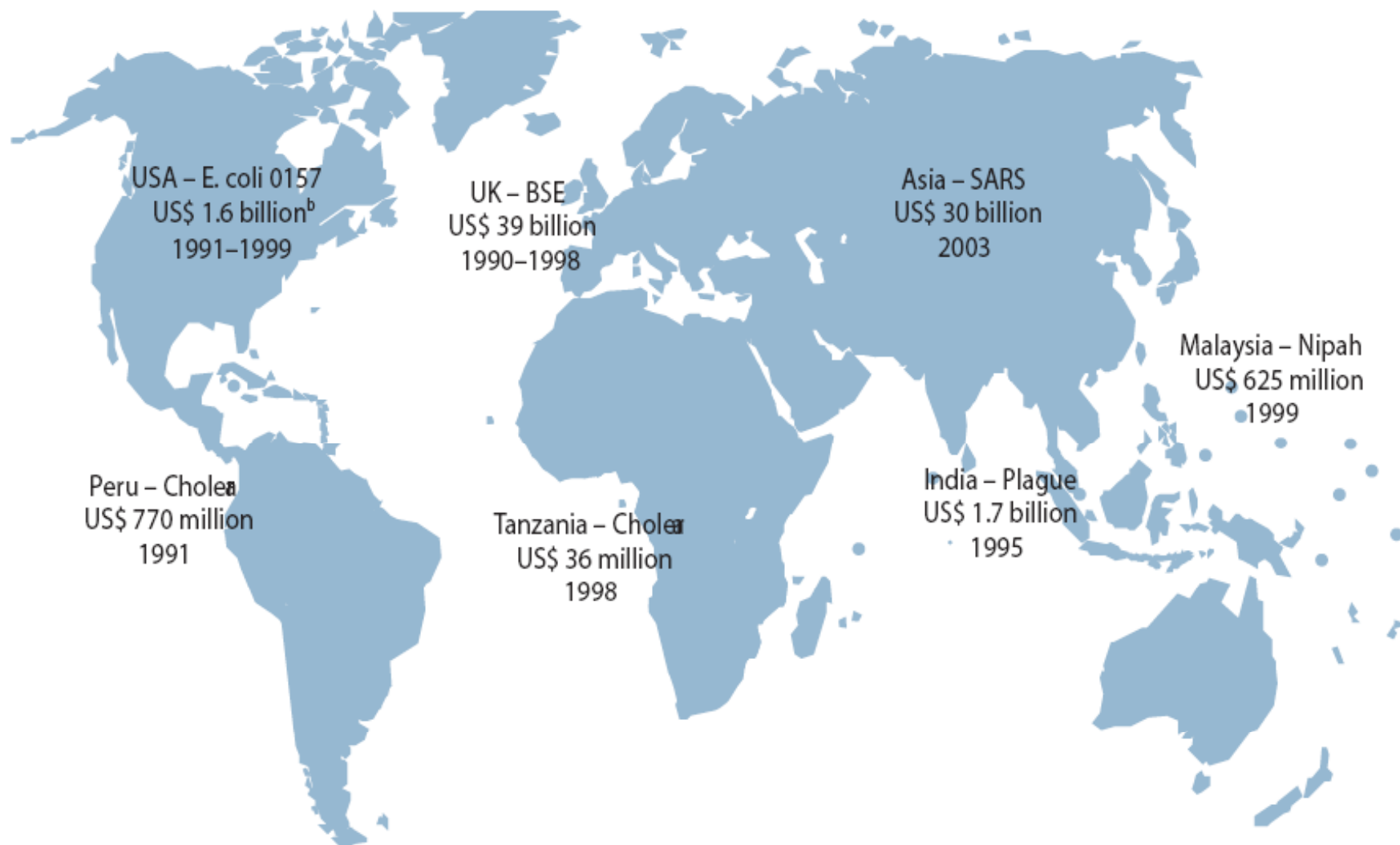
International Health Regulations 2005

Article 2:

Prevent, protect against, control and provide a public health response to the international spread of disease commensurate with public health risks, and which avoid unnecessary interference with international traffic and trade



Direct economic impact of selected infectious disease outbreaks, 1990–2003^a



^a Excludes economic impact of human sickness and death.

^b Date source: (8).

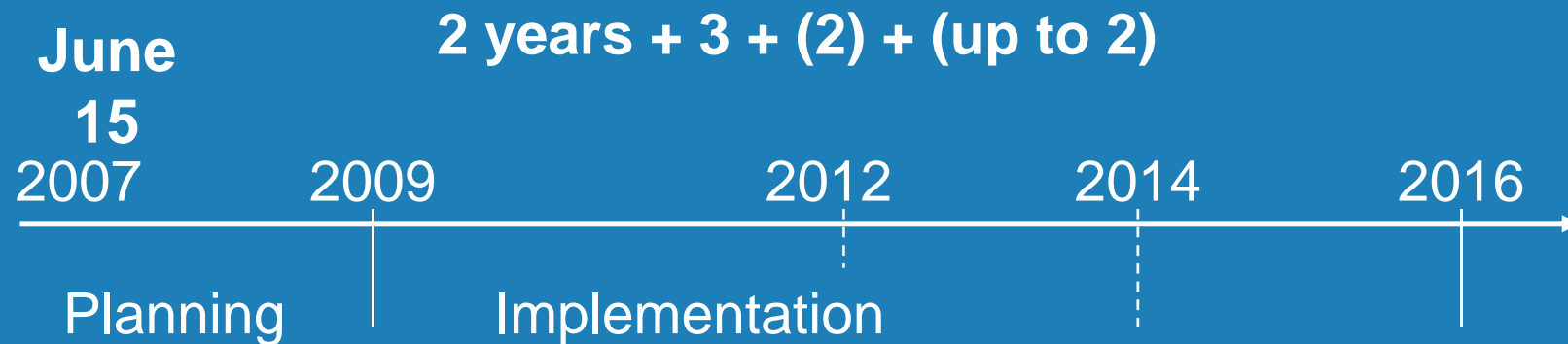
State Party and WHO responsibilities

State Party (194 countries) shall develop the capacity to detect, assess, notify and report events in accordance with these Regulations, as specified in Annex 1 and assess events in their territory according to the decision instrument (Annex 2)

WHO shall assist States Parties, upon request, to develop strengthen and maintain these capacities through multiple channels

IMPLEMENTATION OF THE IHR
STRENGTHEN NATIONAL CAPACITY
(194 Member States)

• **Timeline**



"As soon as possible but no later than five years from entry into force ..."
(Articles 5, 13)

What is a PHEIC?

WHO shall collect and analyze information regarding to events and determine its potential to cause *public health emergency of international concern*, irrespective of origin or source and may share information with intergovernmental organizations following verification procedure with the affected State Party (articles 5, 6, 7, 10, 11, 12, 13, 14; Annex 1,2)

Annex 2-The Decision Instrument

4 questions

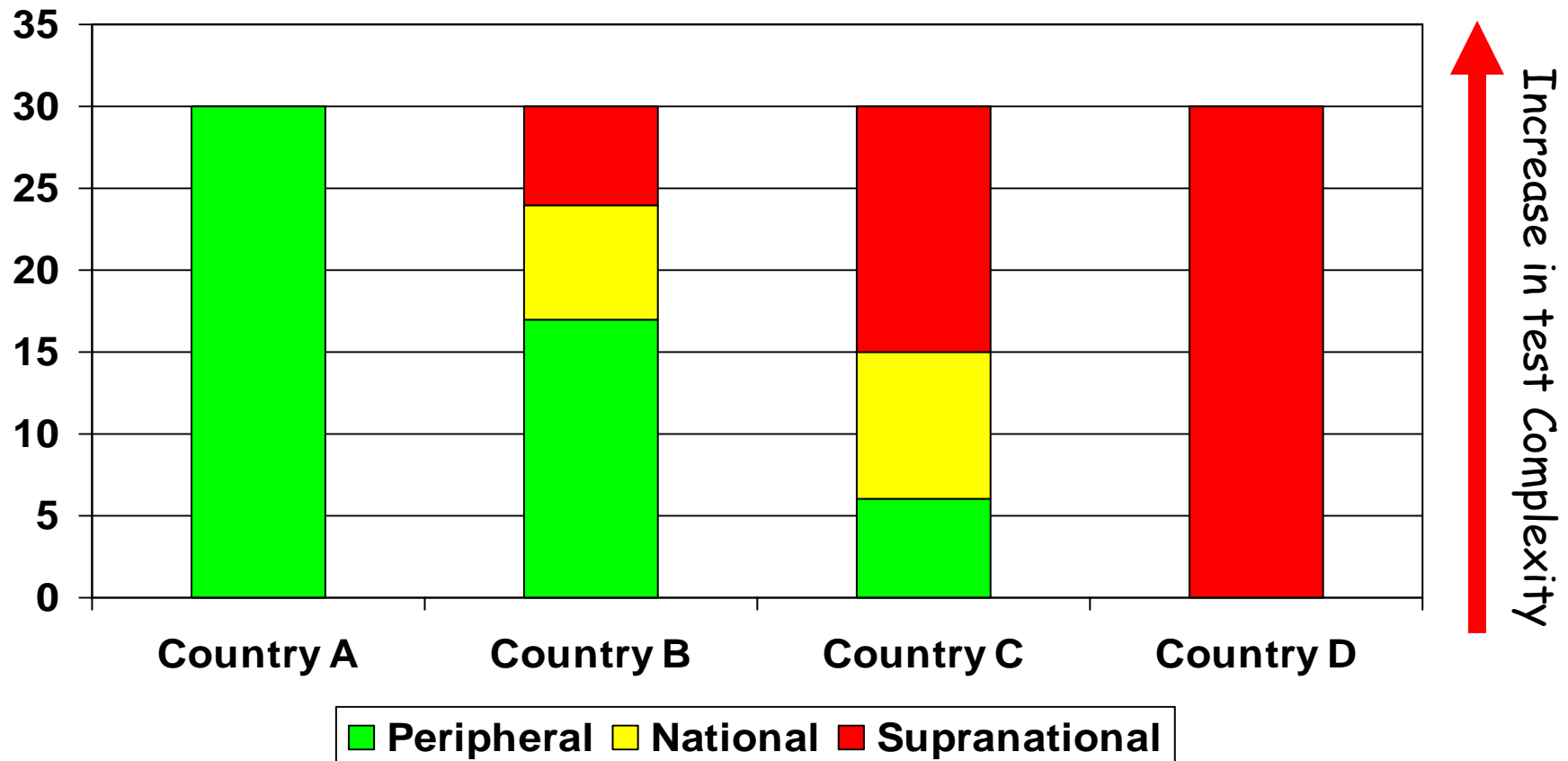
- | Is the public health impact of the event serious?
- | Is the event unusual or unexpected?
- | Is there a significant risk of international spread?
- | Is there a significant risk of international travel or trade restrictions?

IF "YES" TO 2 OF 4 QUESTIONS, THE STATE PARTY SHOULD NOTIFY WHO OF THE EVENT under Article 6



The Reality Test...

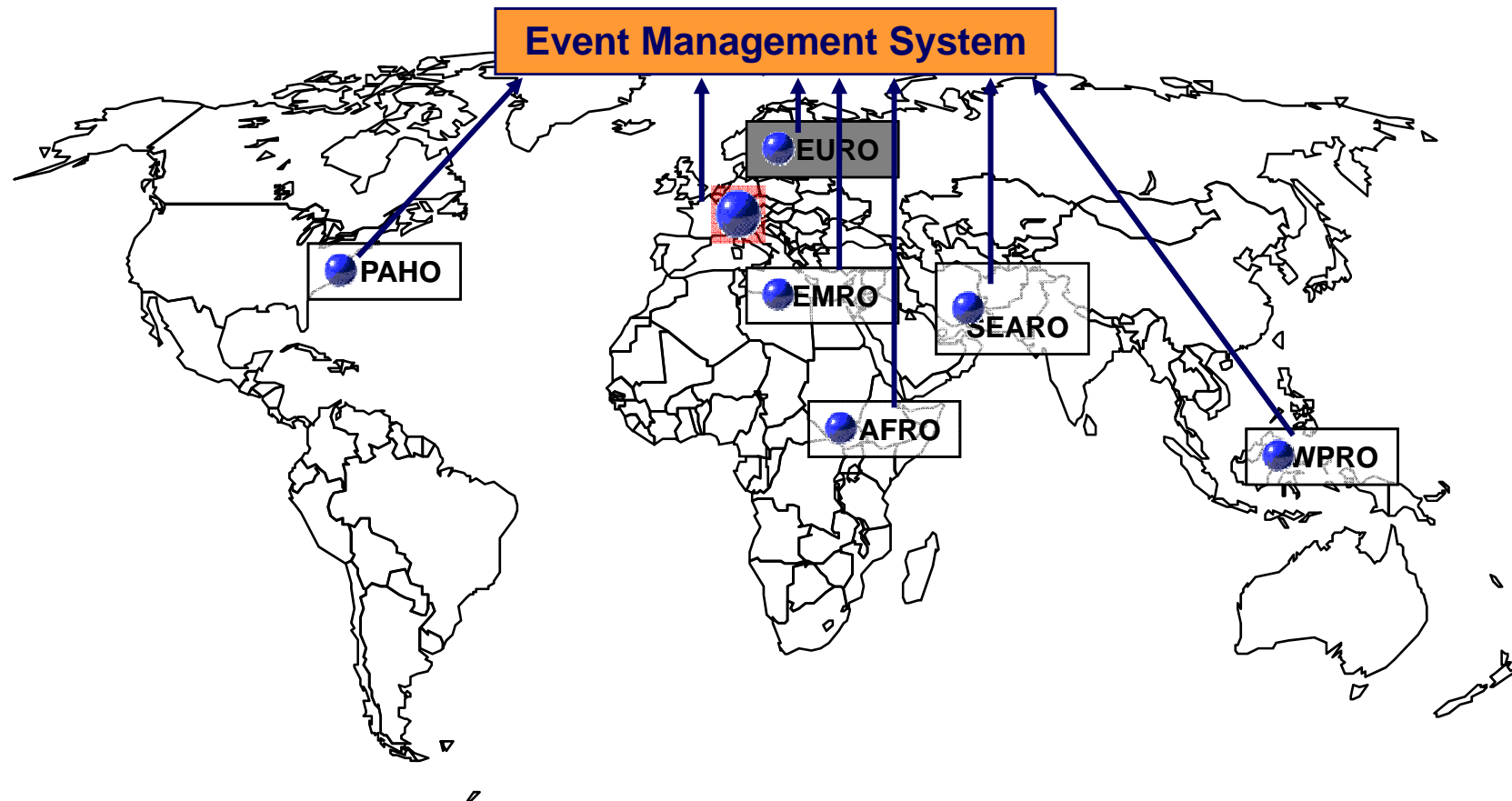
Laboratory capacities for IHR



Rebuilding Capacity and Reconstruction



Information flow, national IHR focal points to WHO



As of 22 Jan. 2008: 210 events registered since 15 June 2007

Type	Infectious	123
	Animal	38
	Food safety	19
	Undetermined	17
	Product	8
	Chemical	4
	Natural disaster	1

Initial information source

Media	103
IHR NFP or Government	43
Other org., NGOs, etc.	38
WHO	22
Foreign government	4

WHO coordinated response (GOARN)

H5N1, Pakistan / Ebola, Uganda / Ebola, DRC /
RVF, Sudan / Marburg, Uganda



GOARN Field Operations 2000–2007

Over 62 countries

50+ GOARN partners participated

500+ experts

Over 287 events

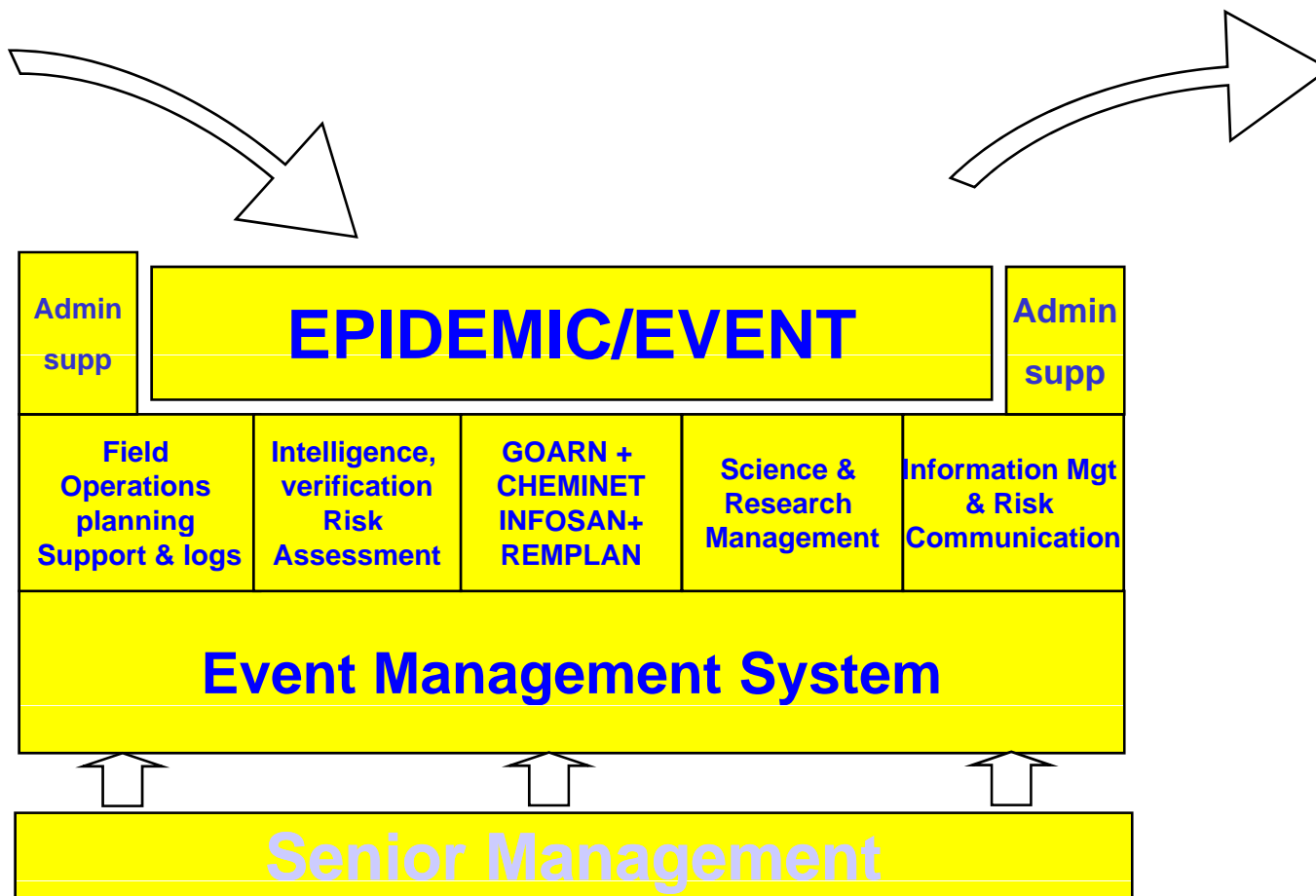


Public Health Event Response under the International Health Regulations

Specialist Programmes

- CHEMICAL
- RADIATION
- FOOD
- EPIDEMIC

"Payload" concept of operations



A picture says a thousand words..



P. Drury, ORLT/GOARN

Challenges for the countries

Preserve national sovereignty

Have their laboratory data accepted by the international community

Trust in the data coming from other countries

Assess and strengthen their laboratory system (inter-sectoral collaboration, flow of specimens and data, quality)



Challenges for WHO

Trust in the data received from countries

Support the countries in their assessment (by 2009) and capacity building (by 2012) process

Ensure that the strategies and requirements of the different vertical programmes fit into IHR(2005) requirements

Ensure that the collaborating centers and reference labs are not overloaded by insignificant samples that could be tested domestically

Define the technical requirements in an adequate manner: if too much or not enough ambitious: countries won't follow our recommendations



The Gaps and Need for Partnership...

What is needed to comply with the IHR?
How can we make it operational?

Laboratory Accidents and Bio-Risks

Selected examples of laboratory acquired infections:

SARS: Singapore, 2003

SARS: Taiwan, 2003

SARS: China, 2004

Tularemia: USA, 2004

Ebola: Russia, 2004

Potential exposure (high consequence):

Anthrax: Soviet Union, 1979; USA, 2005

H2N2: USA and Canada, 2005





Health Check
Station for Plague
at airport



Border crossing
decontamination



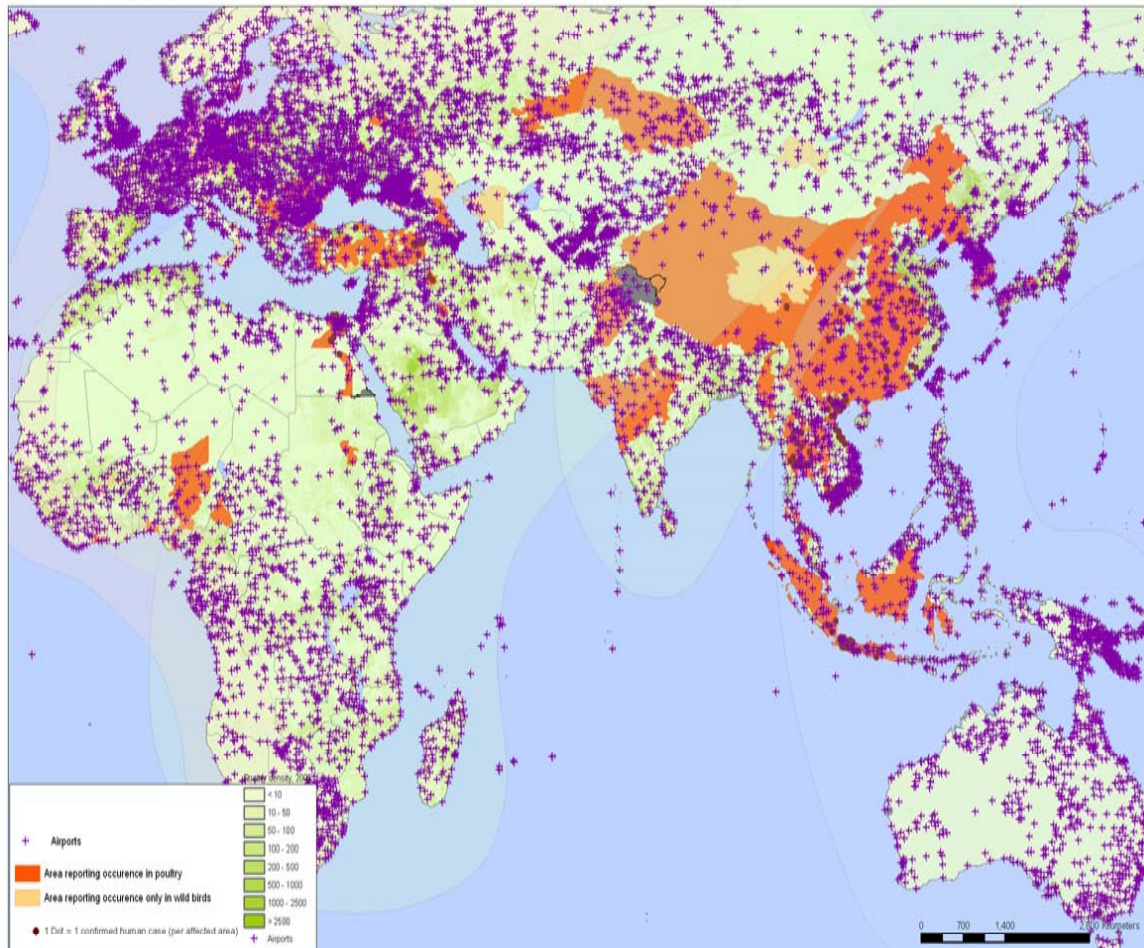
Ship
Quarantine

**First line of defense, border
entry control**

Supporting early detection and response to epidemics: avian influenza



Avian Influenza : confirmed human cases and occurrence in poultry and wild birds of H5N1 avian influenza, since 2003



Airports

AN EXAMPLE OF CHALLENGE TO CERTIFY COMPLIANCE TO IHR AT THE PORTS OF ENTRY, including safety, disease-free and vector-free



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Data source: World Organisation for Animal Health (OIE) and national governments/WHO/EPR
Map Production: Public Health Mapping and GIS

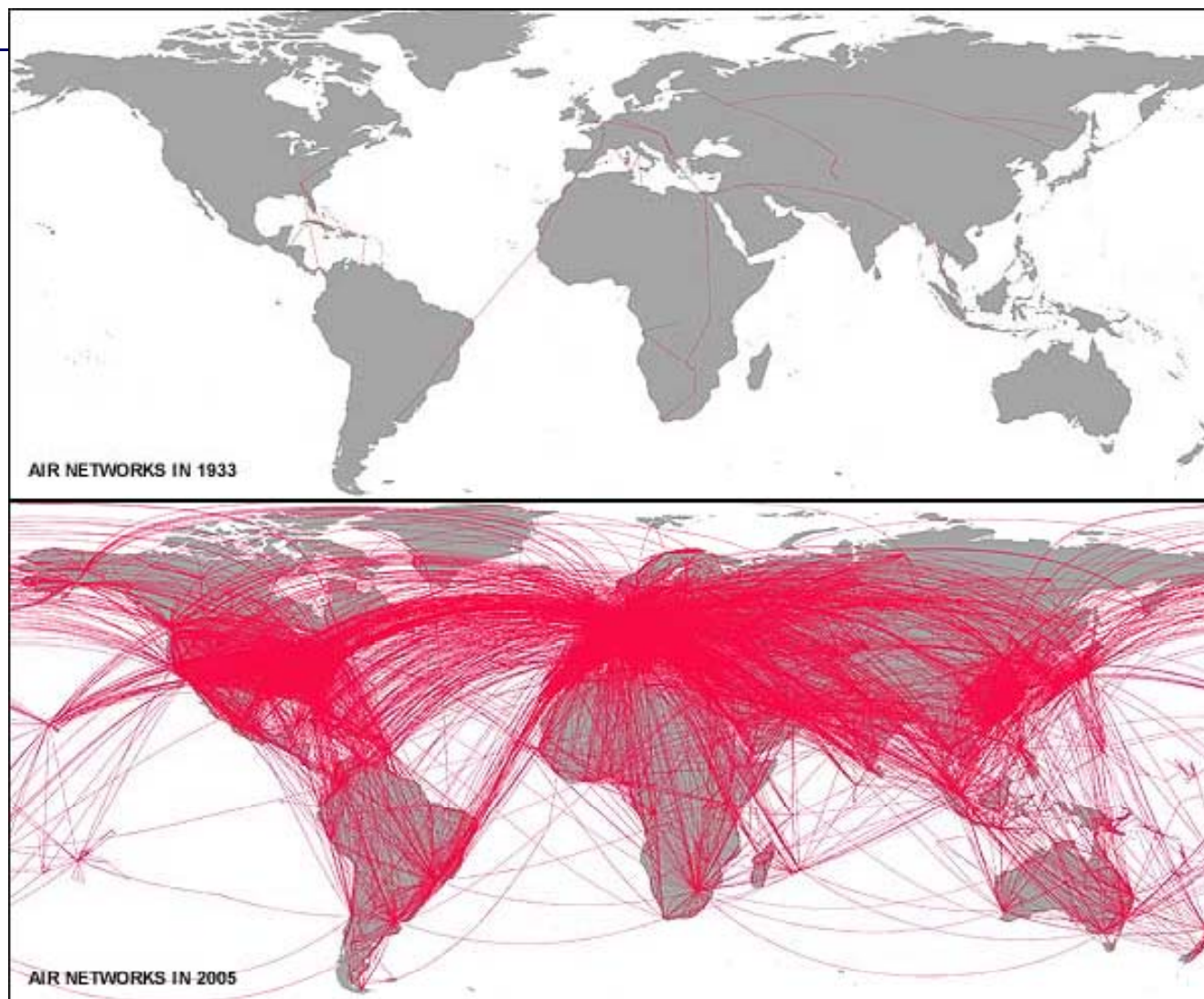
Communicable Diseases (CDS) World Health Organization © WHO 2006. All rights reserved



Sharing viruses....



Air Networks 1933 versus 2005





What resources can be leveraged?

Approaches to Capacity Building

| Conventional:

- Guidance
- Assessment (self or visit)
- Partnership and twinning
- Training
- Norms and standards
- Individually, country by country

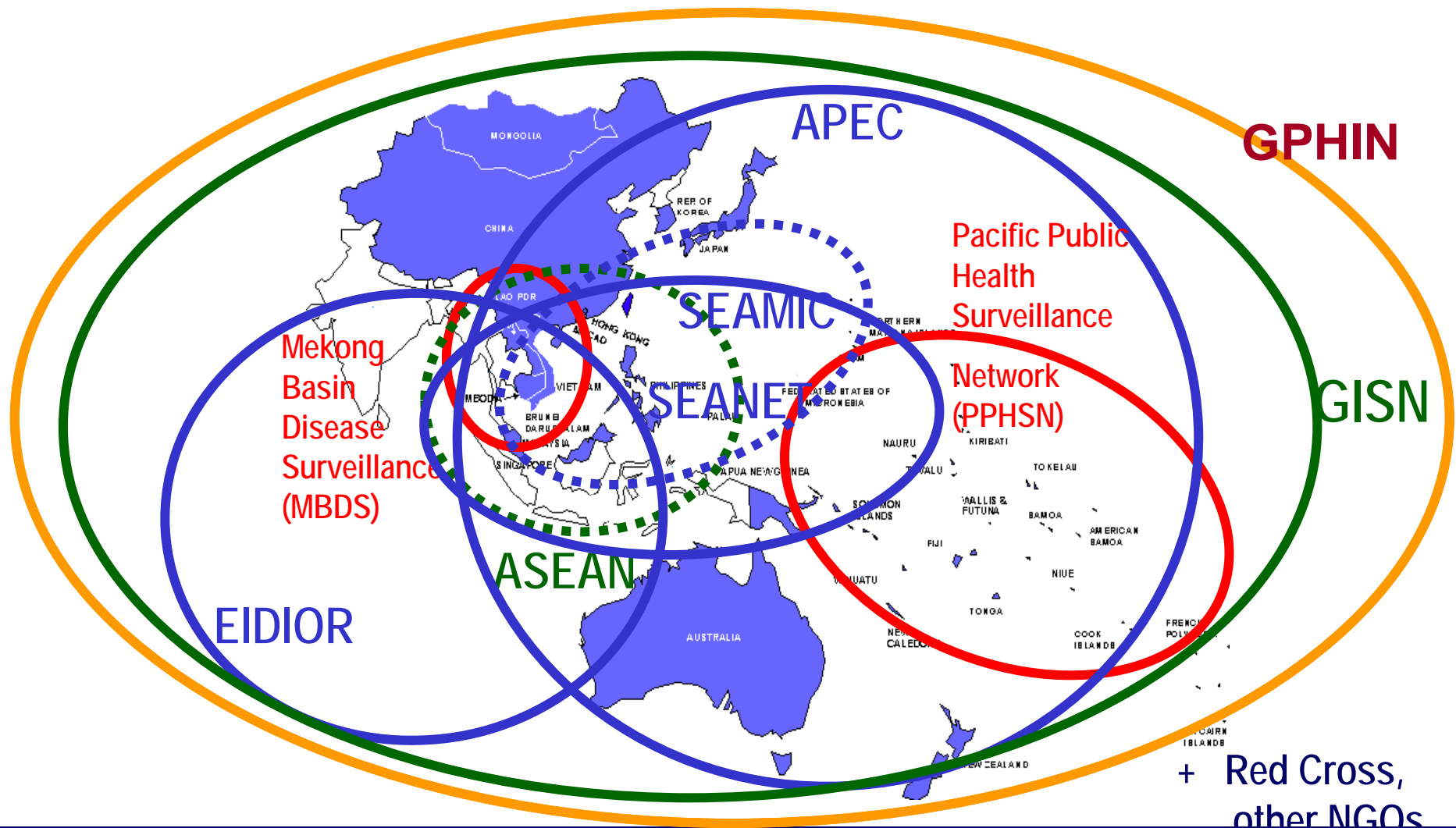
| Networking

- Virtual and Face-to-Face, platform-based
- Regional and sub-regional
- Supporting existing networks, building networks, sustain networks
- Confidence-building measures

| Functional Assessment

- Multidisciplinary, extends beyond traditional health sector
- Exercise, scenario play-book
- Quality management systems
- Legislative

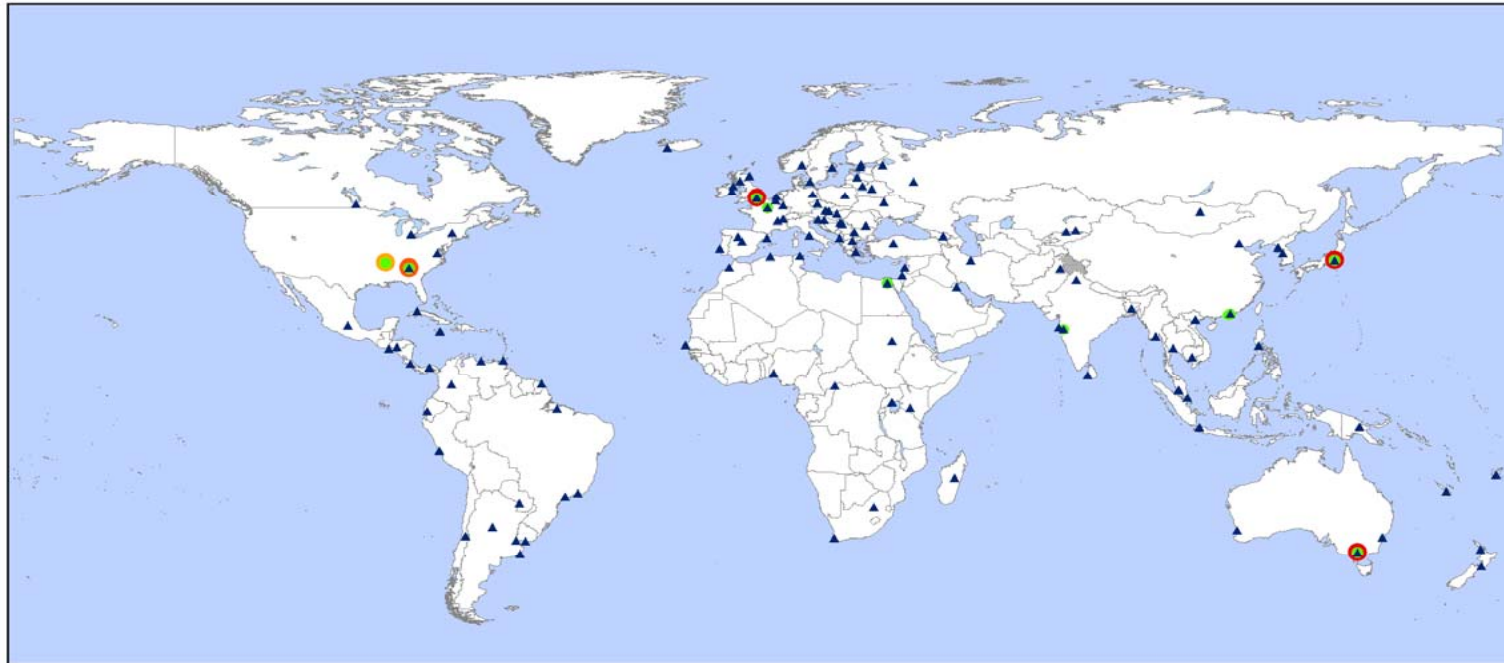
Global outbreak alert and response network: surveillance network partners in Asia



+ Red Cross,
other NGOs

WHO influenza surveillance network: collective action to assess and manage risks

The WHO Global Influenza Surveillance Network (GISN), July 2008



25 July 2008

- ▲ National Influenza Centres
- H5 Reference Laboratories
- WHO Collaborating Centre for Studies on the Ecology of Influenza in Animals
- WHO Collaborating Centre for the Surveillance, Epidemiology and Control of Influenza
- WHO Collaborating Centres for Reference and Research on Influenza



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Data Source: WHO FluNet, GISN

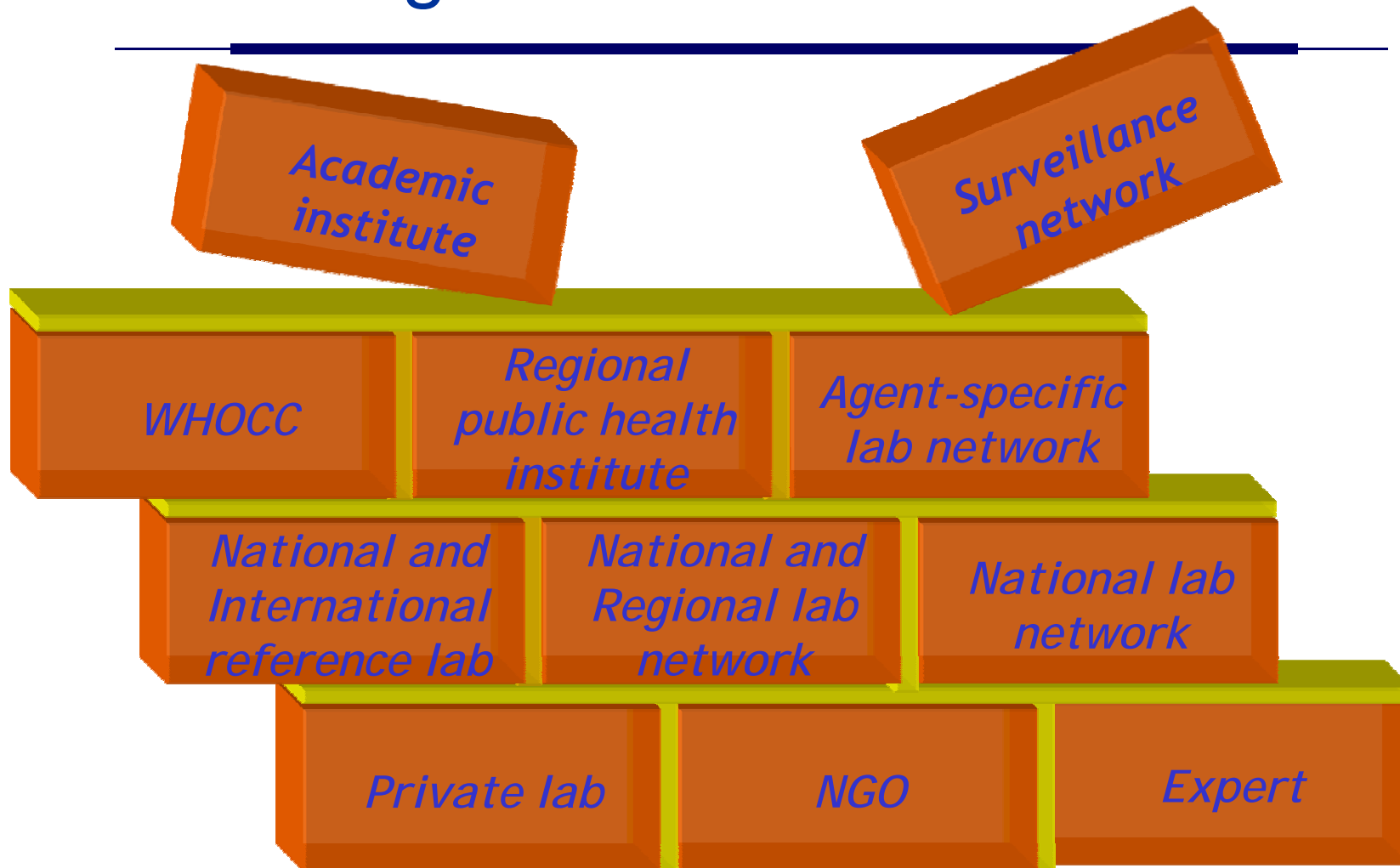
Map Production:

HSE/EPR/GIP, HSE/EPR/GIS

World Health Organization

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Building GLaD*: Bricks and Mortar



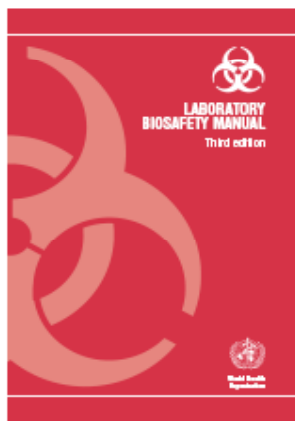
*Global Laboratory Directory

Responsible Biomedical Research -

Key element for engaging scientists to be "self-monitoring" and assume the responsibility rather than be "regulated"

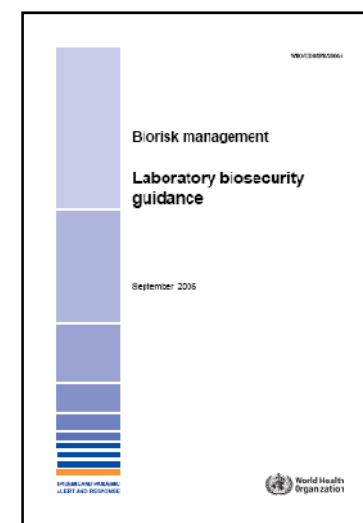


Laboratory biosecurity is a complement of biosafety

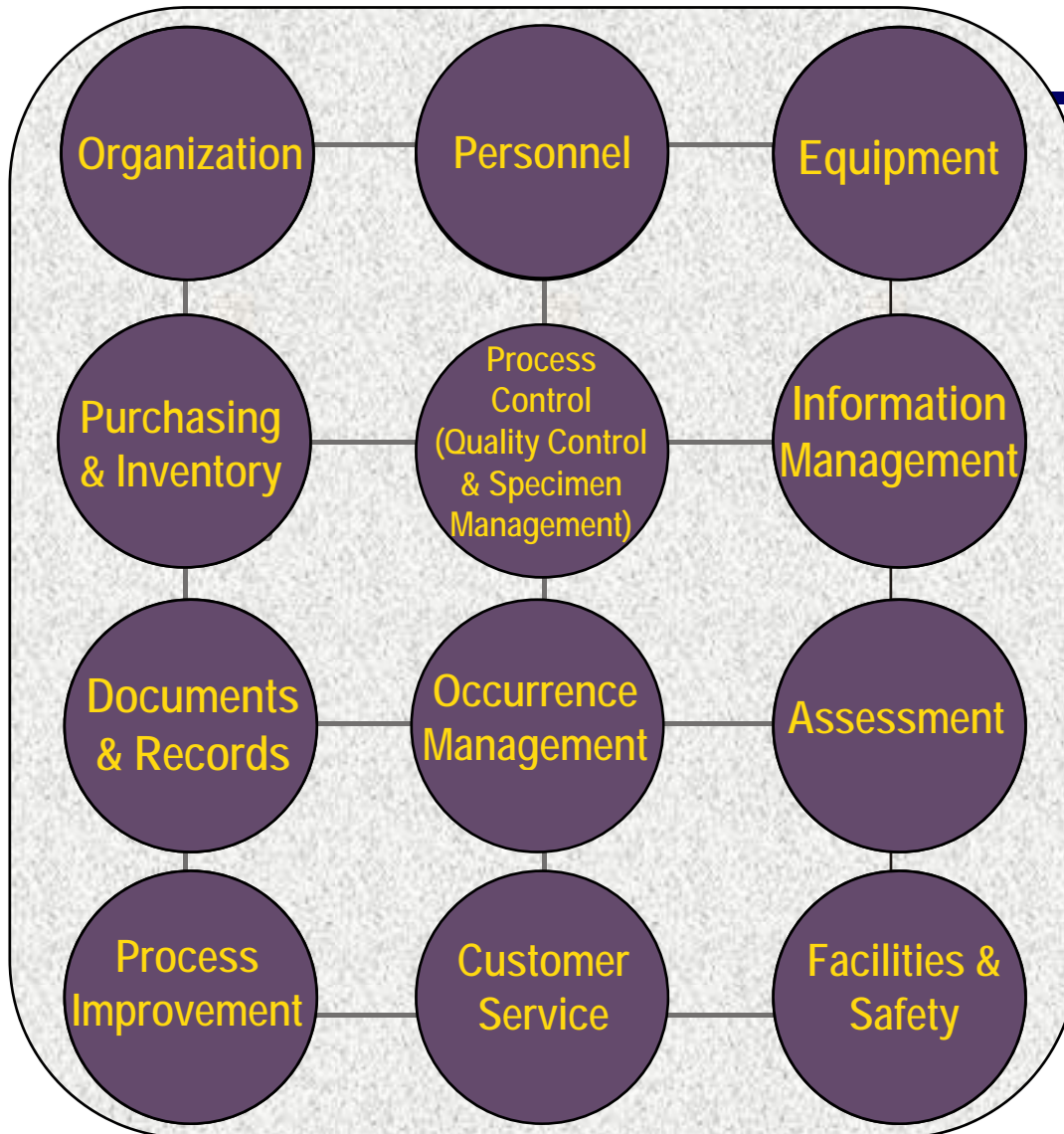


Laboratory biosafety describes containment principles, technologies and practices implemented to prevent unintentional exposure to pathogens and toxins, or their accidental release.

Laboratory biosecurity describes the protection, control and accountability for valuable biological materials (VBM) within laboratories, in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release.



Twelve Quality System Essentials



Quality system essentials

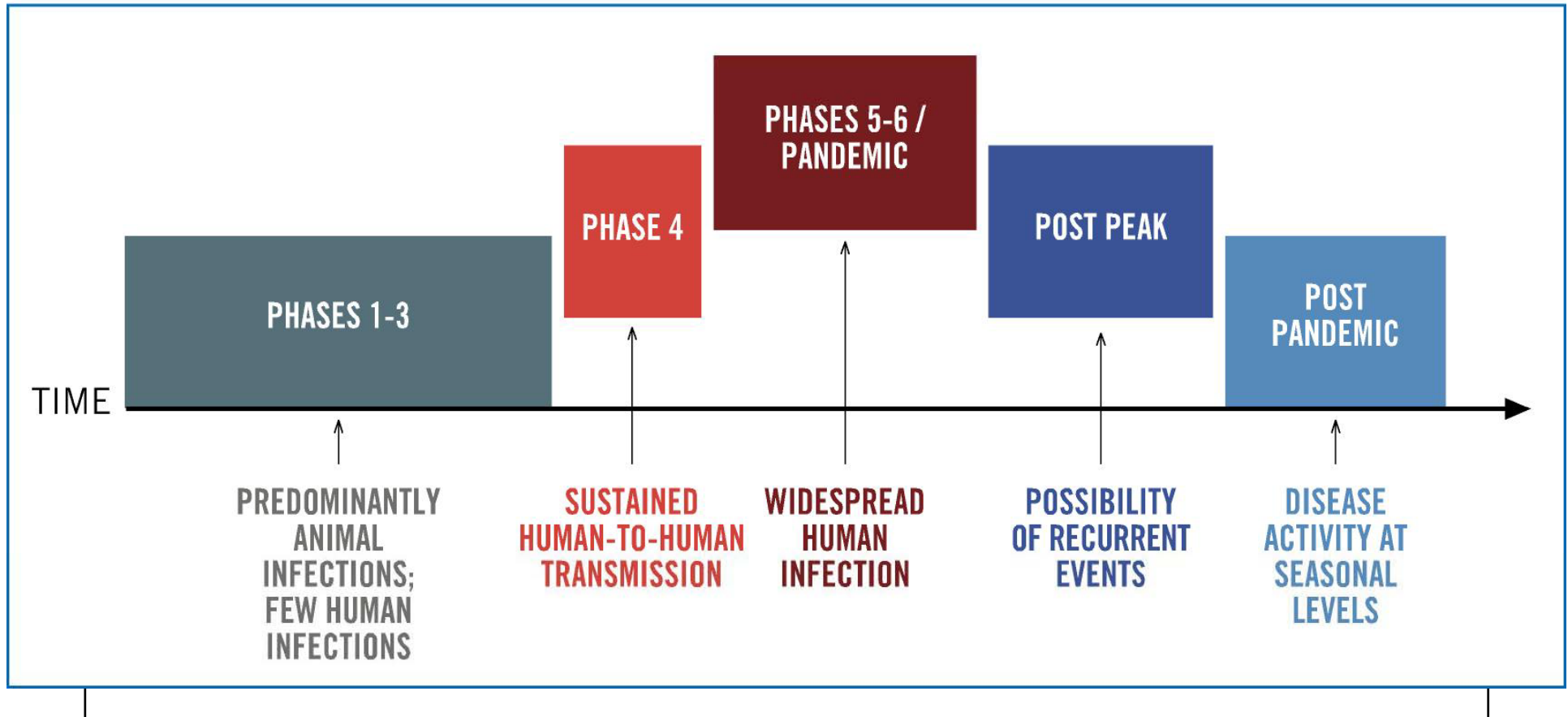
Set of coordinated activities that function as building blocks for quality management.



Why should we act?

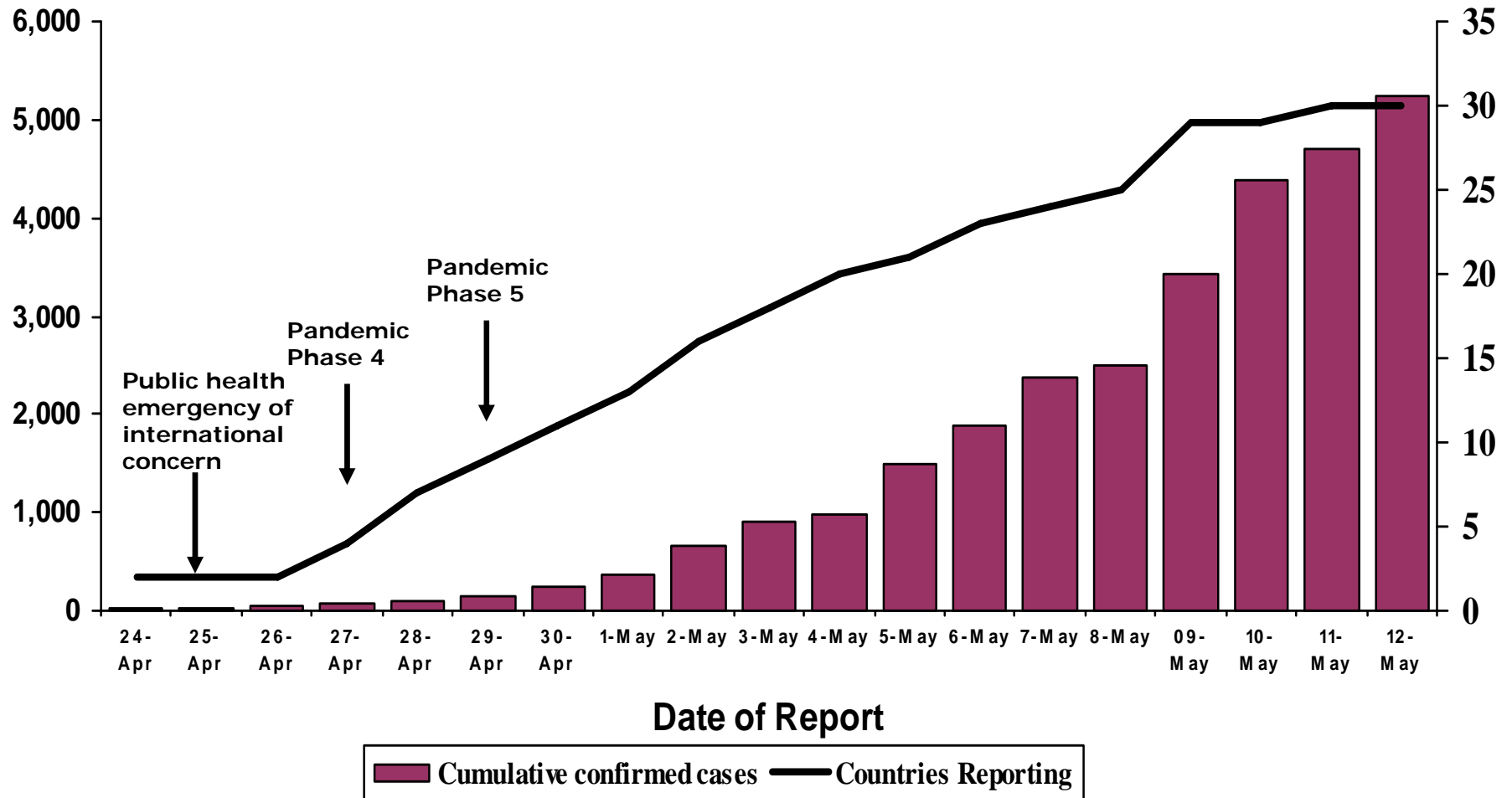
Pandemic Phases

PANDEMIC INFLUENZA PHASES (2009)



Cumulative confirmed new influenza A (H1N1) cases reported to WHO and number of countries reporting, 24 April -11 May 2009

Cumulative confirmed cases



NEW APPROVED Greetings - State Dept. of Health

Gary Varvel
THE MURKIN'S SAGE
©2009 GARY VARVEL



Long distance Wave



Elbow Bump



Sanitary Gloves

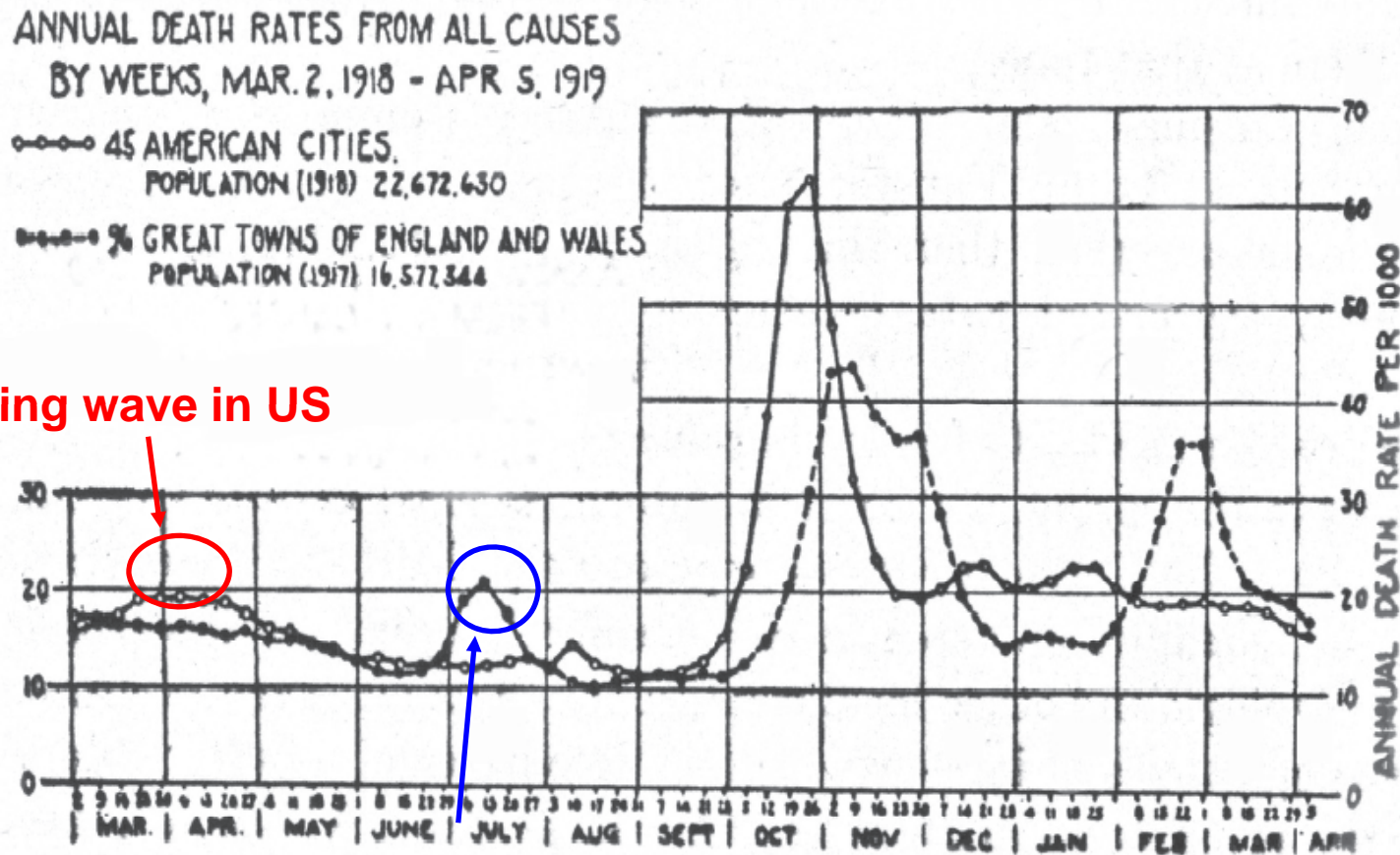


The Bow



The Bump

All-Cause Mortality, USA + UK, 1918-19



A mild spring wave in US

A mild early summer wave in UK

CHART 3.

Frost WH. *Pub Health Reports*; 1919;34(33), F. Hayden presentation

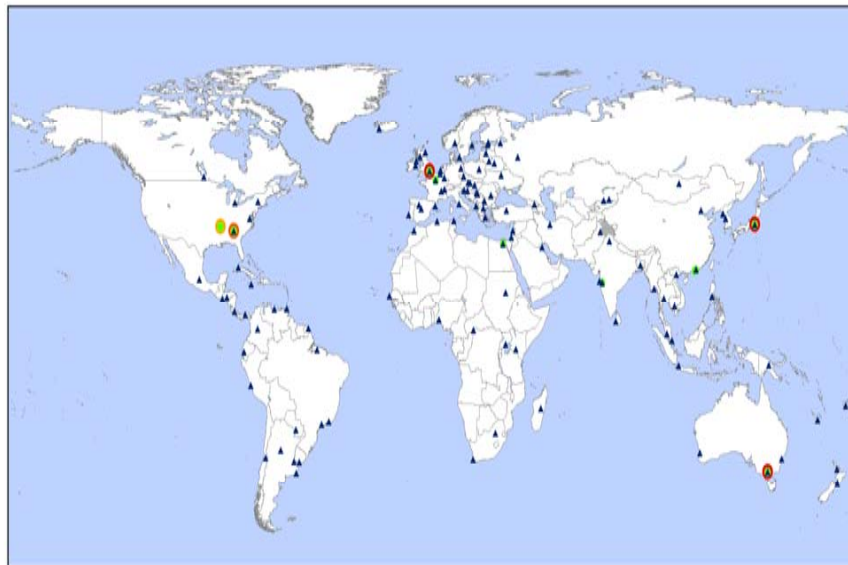
Health Security and Environment



World Health Organization

Laboratory Task Force Laboratory/Virology and Diagnostics/Biosafety

The WHO Global Influenza Surveillance Network (GISN), July 2008



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25 July 2008



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Data Source: WHO FluNet, GISN
Map Production:
HSE/PR/GIP, HSE/PR/GIS
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Low-income economies (49)

- | | | |
|--------------------------|------------------|-----------------------|
| Afghanistan | Haiti | Rwanda |
| Bangladesh | Kenya | São Tomé and Príncipe |
| Benin | Korea, Dem Rep. | Senegal |
| Burkina Faso | Kyrgyz Republic | Sierra Leone |
| Burundi | Lao PDR | Solomon Islands |
| Cambodia | Liberia | Somalia |
| Central African Republic | Madagascar | Tajikistan |
| Chad | Malawi | Tanzania |
| Comoros | Mali | Togo |
| Congo, Dem. Rep. | Mauritania | Uganda |
| Côte d'Ivoire | Mozambique | Uzbekistan |
| Eritrea | Myanmar | Vietnam |
| Ethiopia | Nepal | Yemen, Rep. |
| Gambia, The | Niger | Zambia |
| Ghana | Nigeria | Zimbabwe |
| Guinea | Pakistan | |
| Guinea-Bissau | Papua New Guinea | |

Using the full power of the IHR

- | It is the only international regulatory mechanism that binds the 194 State Parties
- | WHO and the State Parties must demonstrate their commitment by applying the spirit of the IHR
- | We must find ways to incentivize application and encourage compliance
- | Use opportunity to build capacity, build across the divides
- | Capacity equity must be a goal among State Parties to build respect and confidence



“Given today’s universal vulnerability to these threats, better security calls for global solidarity. International public health security is both a collective aspiration and a mutual responsibility....The new watchwords are diplomacy, cooperation, transparency and preparedness”

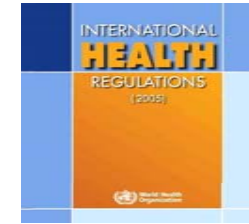
Introductory statement within the World Health Report Dr. Margaret Chan, Director General of the WHO, August 23, 2007

http://www.who.int/whr/2007/whr07_en.pdf

THANK YOU



IHR, Article 44,



1. State Parties shall undertake to collaborate with each other, to the extent possible, in: **a)**..detection ...assessment... response to events. **b)** Provision or facilitation of... technical cooperation, logistical support of... public health capacities..... **c)** Mobilization of financial resources to implementation of obligations to IHR. **d)** formulation....laws and...legal and administrative provisions...implementation of IHR
2. WHO shall..upon request.. to extent possible, in: **a)**..evaluation and assessment of public health capacities. **b)** Provision or facilitation of technical cooperation, logistical support**c)** Mobilization of financial responses
3. Collaboration...through multiple channels, ...networks...regional offices..intergovernmental organizations...international bodies

(1) The States Parties to this Convention undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes. Parties to the Convention in a position to do so shall also cooperate in contributing individually or together with other States or international organizations to the further development and application of scientific discoveries in the field of bacteriology (biology) for prevention of disease, or for other peaceful purposes.

2) This Convention shall be implemented in a manner designed to avoid hampering the economic or technological development of States Parties to the Convention or international cooperation in the field of peaceful bacteriological (biological) activities, including the international exchange of bacteriological (biological) and toxins and equipment for the processing, use or production of bacteriological (biological) agents and toxins for peaceful purposes in accordance with the provisions of the Convention

Phase 5

Phase 5 is characterized by the same identified virus causing sustained community level outbreaks in at least 2 countries in 1 WHO region.

Most countries won't be affected at this stage

Declaration of Phase 5 signals a pandemic could be imminent

Time to finalize organization, communication, implementation of planned mitigation measures is short

Phase 6

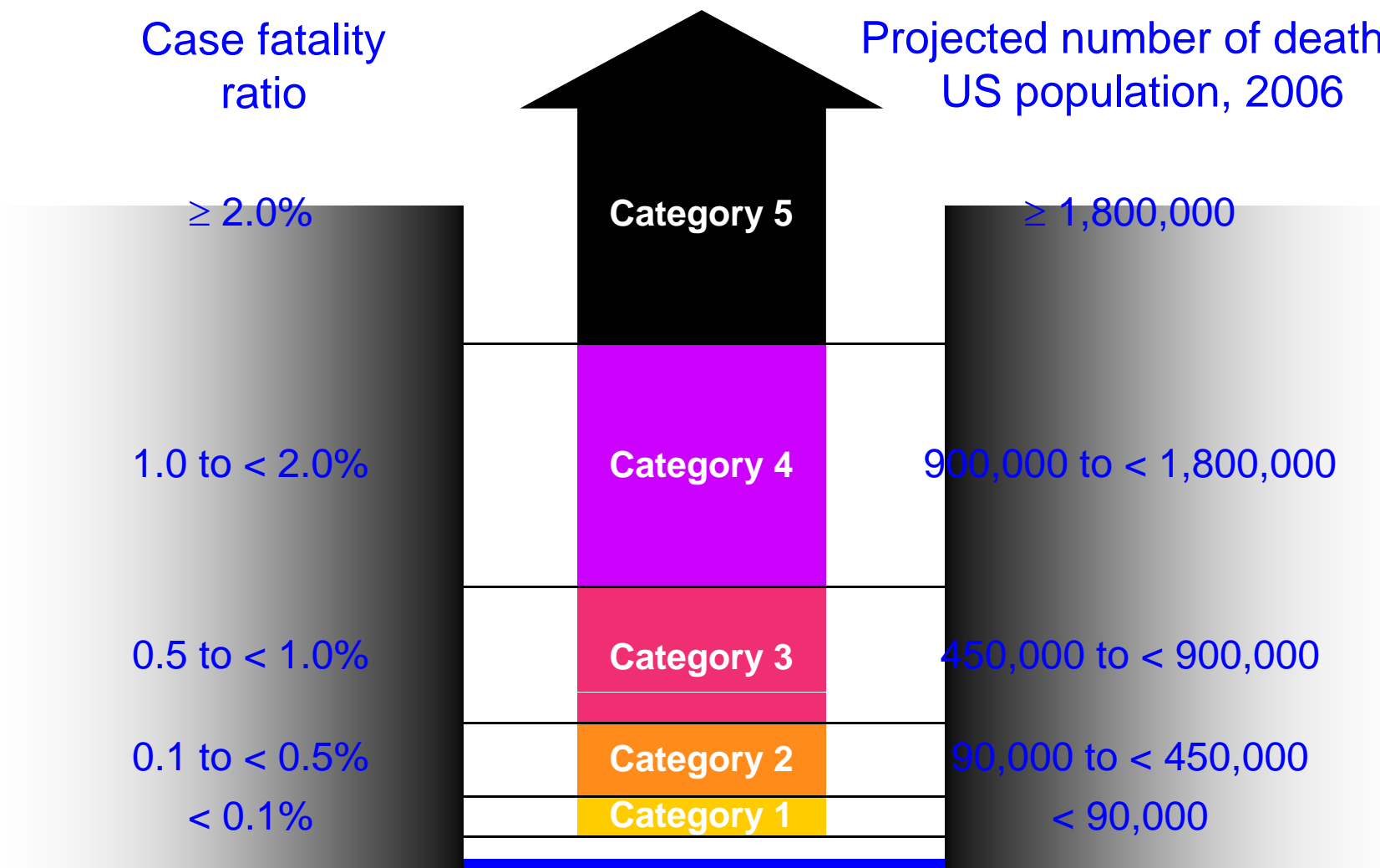
Phase 6 is characterized by community level outbreaks of the same virus in at least 1 other country in a different WHO region.

Designation of this phase would indicate that a global pandemic is under way.

Pandemic Severity Index

Case fatality
ratio

Projected number of deaths*
US population, 2006



*Assumes 30% illness rate.

http://www.pandemicflu.gov/plan/community/community_mitigation.pdf

**LADIES AND GENTLEMEN, THE
CAPTAIN HAS TURNED OFF
THE INFECTIOUS DISEASE LIGHT...
YOU'RE NOW FREE TO MOVE
ABOUT THE CABIN...**

