

# The Role of Networks

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## Global Alert and Response

Ray R. Arthur, Ph.D.

Communicable Diseases Surveillance and Response

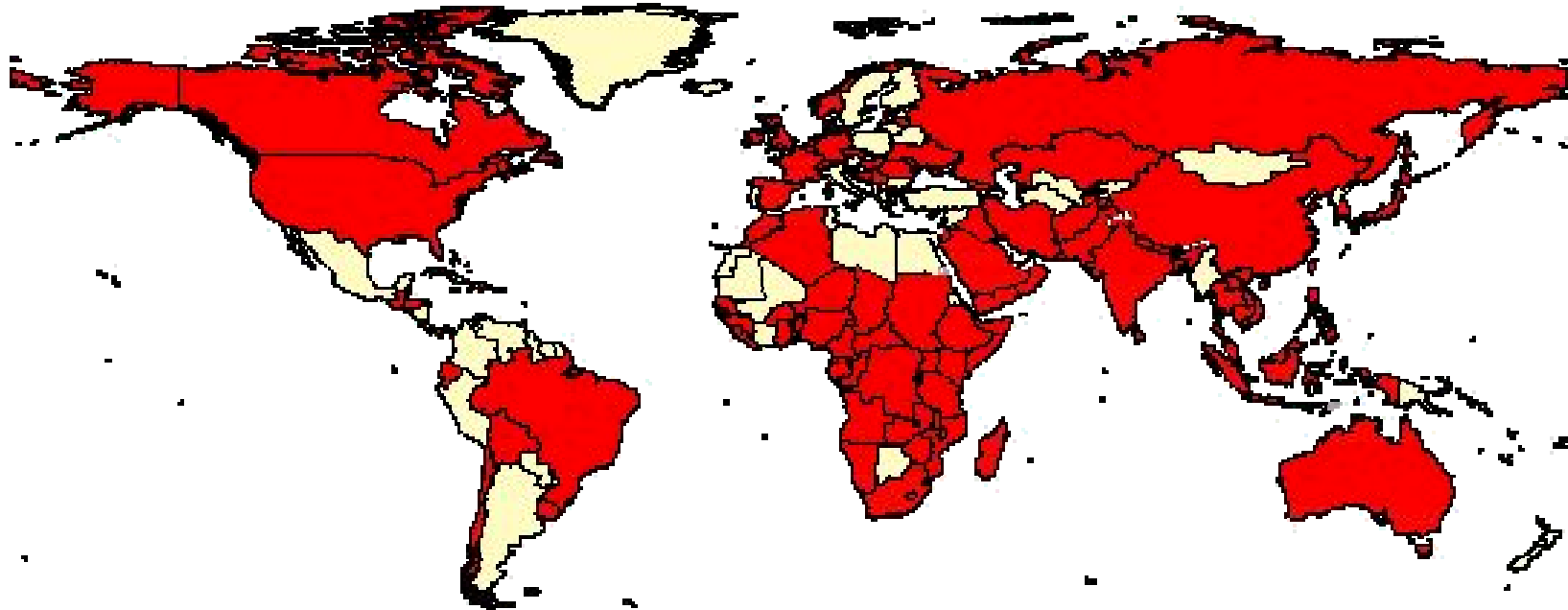
World Health Organization

Geneva

# A Dangerous World !

## Outbreak Alert and Response

- Since 1997, WHO has verified 800 outbreaks of international importance



- Over 50 partner institutions have been involved with WHO in mounting international responses

# The Challenge

## Outbreak Alert and Response

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- **Timely detection and verification of outbreak events**
- **Rapid and effective response to:**
  - **reduce human suffering**
  - **contain international spread**
  - **minimize impact on travel and trade**
- **Sustained epidemic preparedness at all levels**

**WHO brings partners together to focus global resources on the problem**



# The Challenge

## Outbreak Alert and Response

**No single institution  
has all the capacity!**



**WHO brings partners together to focus global resources on  
the problem**



GLOBAL  
HEALTH  
SECURITY

EPIDEMIC ALERT & RESPONSE

INTERNATIONAL HEALTH REGULATIONS

**Contain  
known risks**

**Respond to  
the unexpected**

**Improve  
preparedness**

GLOBAL PARTNERSHIP

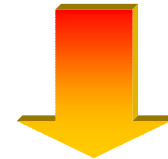


# Alert and Response Operations at WHO

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- **WHO Operational Support Team**
  - HQ - Geneva
  - 6 Regional Offices
  - 141 WHO country offices
- **WHO outbreak event management system**
  - a human process
  - supported by IT tools

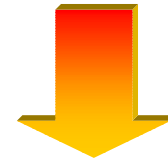
**Intelligence**



**Verification**



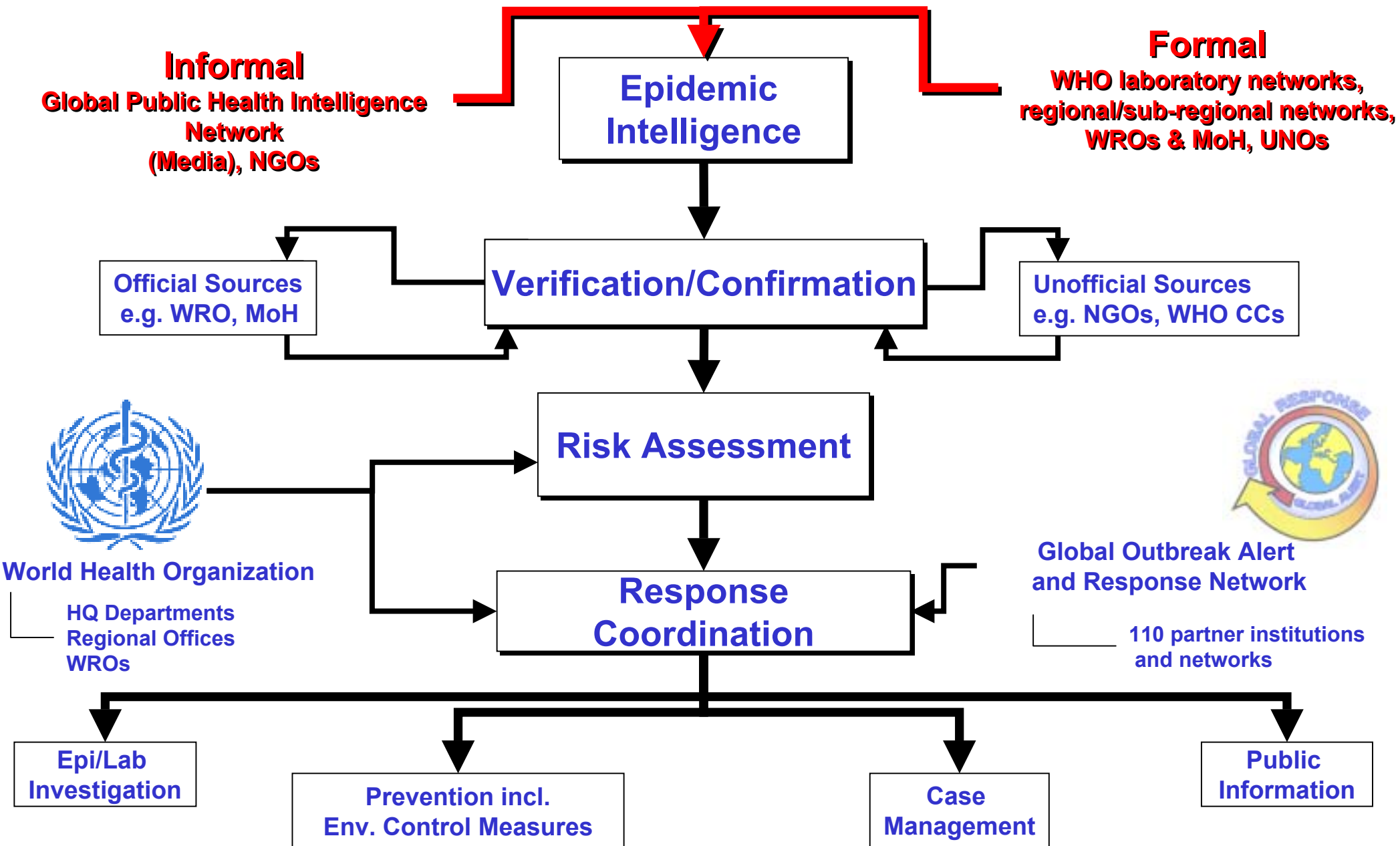
**Response**



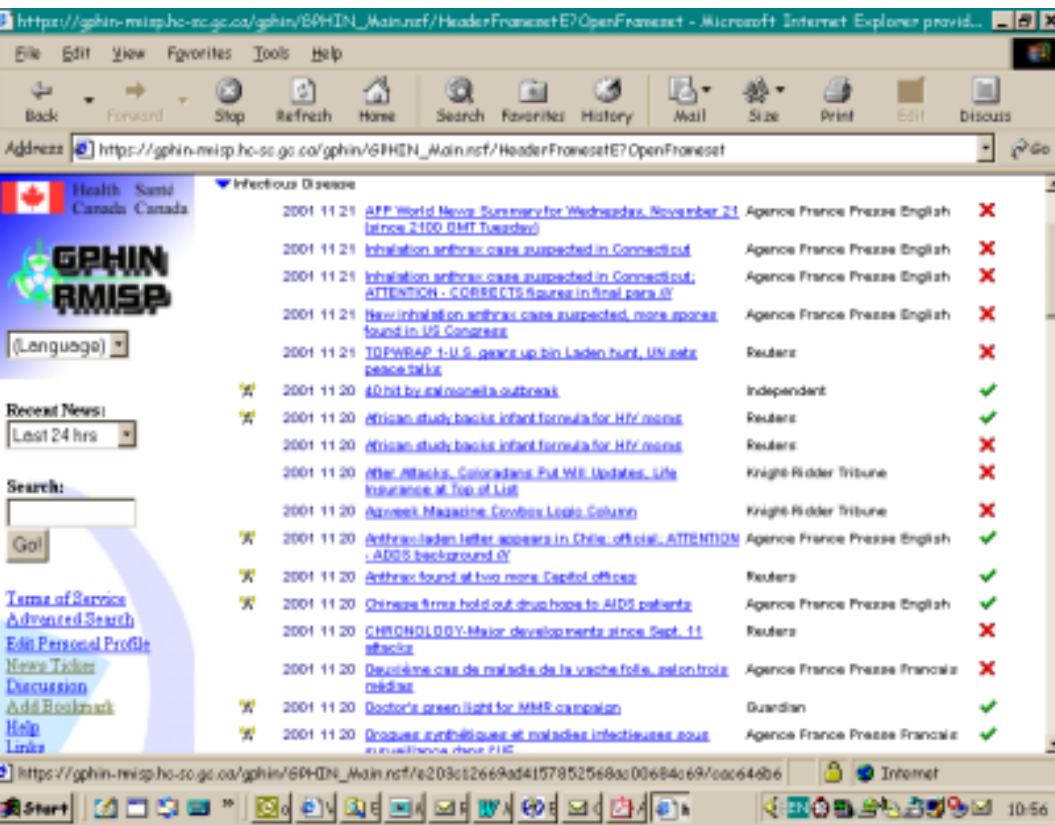
**Follow-up**



# Alert and Response Operations



# Intelligence



- Real time gathering of information related to outbreak events
- Multiple sources
  - GPHIN 39%
  - WHO System 33%
  - PRO-MED 6%
  - Others (labs, NGOs...) 22%

Global Public Health Information Network





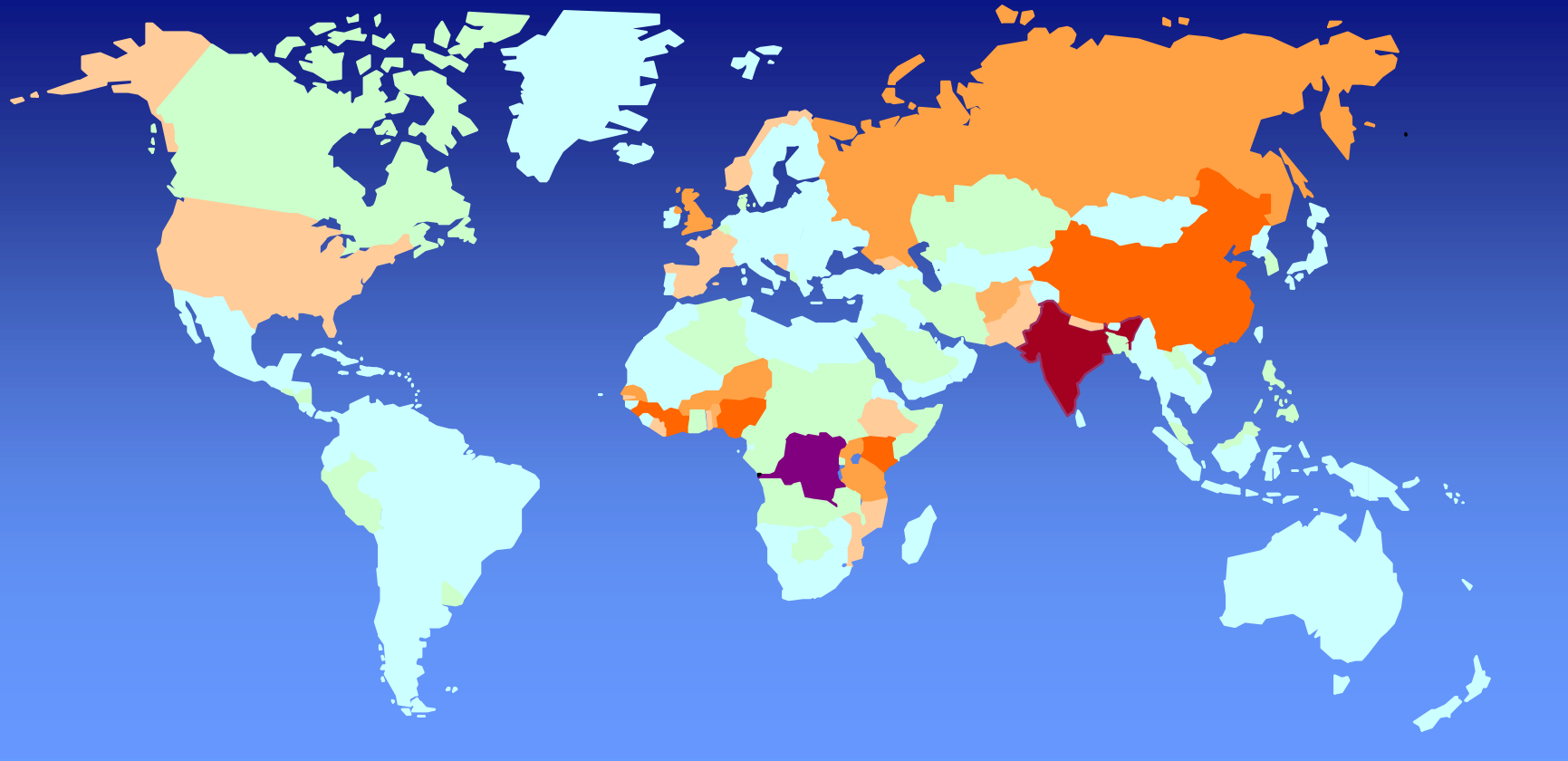
# Verification









- The systematic process by which WHO verifies the existence of an outbreak, its etiology and the need for assistance in an affected state(s)
- Focuses on events of potential “International Public Health Concern” (WHA 2001)
- Specific Criteria....Unknown, unexpected morbidity /mortality, assistance needed, Intl. travel and trade implications, IHR, intentional

# Verified Events March 2001 to Feb 2002

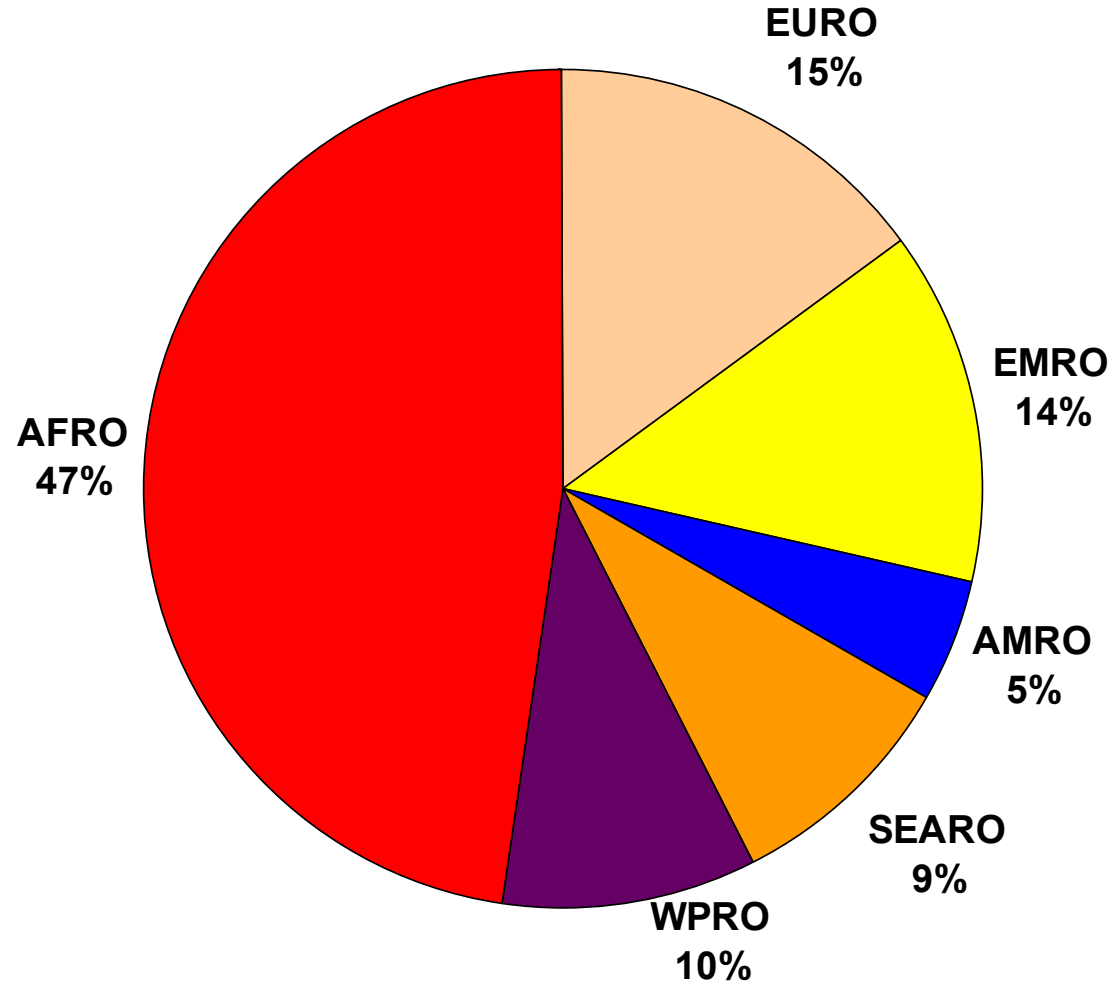
**N = 195**



Number of events verified	
	1
	2
	3
	4
	7
	11



# Verified Outbreaks March 2001 to February 2002



**(N = 195)**

**Median days to verification = 1  
(Range 0 -109)**

# Response Coordination

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- **Rapid, appropriate and effective assistance to affected state(s)**
- **Level of response geared to the needs (epidemic potential + national capacity to contain)**
- **Daily response coordination meetings**
- **Field presence and coordination when needed**
- **Systematic information management**

# Daily Summary

ALERT & RESPONSE – DAILY SUMMARY – 28 November 2001  
 Department of Communicable Disease Surveillance and Response (CSR)  
 World Health Organization (WHO), Geneva, Switzerland

• Working Document for WHO Staff Only

<b>Under verification</b>			
<b>Disease/Syndrome</b>	<b>Location - onset - Epidemiological data</b>	<b>Decision and action</b>	<b>Publications</b>
UNKNOWN ID 172-XXX-IN  Initial Report: GPHIN Various source 13-Nov-2001 (as Unknown)	INDIA Assam State 01-Nov-2001  <b>First report</b> <b>Verified</b> 19-11-01 cases: 729; deaths: 7 <b>Unofficial</b> 13-11-01 cases: 700; deaths: 1  <b>Last update: WR India 20-Nov-01</b> <b>Verified</b> 20-11-01 cases: 725; deaths: 1 <b>Unofficial</b> 13-11-01 cases: 700; deaths: 1  NEW AFFECTED AREAS:  LABORATORY: No	<b>LAST INCOMING INFO</b> 26-Nov-2001 Unicef submitted a report to the Indian Govt. Deaths not be attributed to Vit-A, State's preparedness was adequate for Vita-A programme. Overdose may be related with side-effects (nausea, vomiting). Regional Drug Analyst lab of Govt. of India reported Vit. A to be safe.  <b>Summary info</b> • 20-11-01 - verbal communication: 1 deaths and 724 non-fatal cases, (most of latter trivial or resolved by time of health-care attendance). Vit. A samples sent to MoH. UNICEF/MoHFW currently investigating.  <b>Action</b> Mike to follow up with HTP <input type="checkbox"/>	Points of contact HQ: Bruno de Benoit RO: M.V.H. Gumarane  Daily list: 13 Nov 2001  OVL: No  Web: No  Press release: No  Criteria for int. imp. High morb. mort. <input type="checkbox"/> Int. Disease Spread <input type="checkbox"/> Int. travel or trade <input type="checkbox"/> Int. assistance <input type="checkbox"/> Unknown disease <input checked="" type="checkbox"/> Pending <input type="checkbox"/> No importance <input type="checkbox"/>
ACUTE WATERY DIARRHOEAL SYNDROME ID 181-SY07-PH  Initial Report News Media GPHIN (AAP) 26-Nov-2001	PHILIPPINES Eastern Samar 11-Aug-2001  <b>First report</b> <b>Verified</b> cases: ; deaths: ; <b>Unofficial</b> 26-11-01 cases: 150; deaths: 11	<b>LAST INCOMING INFO</b> Request to verify 27-Nov-2001 Under verification  <b>Summary info</b> • 26-11-01 - 150 cases including 11 deaths reported. MoH	Points of contact HQ: C-L. Chaignat RO: H. Oshitani  Daily list: 26 Nov 2001  OVL: No  Web: No



# Dissemination of Information

Adobe Acrobat - [200111211.pdf]

NOT FOR PUBLIC DISTRIBUTION  
**OUTBREAK VERIFICATION LIST**  
21 November 2001

World Health Organization (WHO), Geneva, Switzerland  
Department of Communicable Disease Surveillance and Response (CSR), Communicable Diseases Cluster (CDCS)  
Tel +41 22 791 1111 (replace last four digits as required); Fax +41 22 791 4198  
e-mail: [outbreak@who.int](mailto:outbreak@who.int)

This list is distributed to a limited number of public health professionals in order to improve common awareness on reports and rumours of outbreaks which may have international implications. Please read the disclaimer below.  
New or additional information on these or other outbreaks can be sent to the e-mail address above.

Disease / Syndrome	Location and Date of onset	Source and Last update	Estimated number of cases and action taken	WHO Contact
ACUTE WATERY DIARRHOEAL SYNDROME ID 174-SY07-NG	NIGERIA Kano State 11-Nov-2001	WHO-Nigeria 16-Nov-2001	575 cases including 28 deaths. Cholera suspected. MoU implementing health education, sanitary measures and treating cases.	P. Linsombo linsombo@who.int Tel +263 470 9338  Sylvie Briand briand@who.int Est 2572

1 of 2 8:26 x 11.69 in 14:10



# Dissemination of Information

The screenshot shows a Microsoft Internet Explorer browser window with the address bar displaying <http://www.who.int/disease-outbreak-news/n2001/november/5november2001.html>. The page content includes a blue header for "Communicable Disease Surveillance and Response (CSR)" with a WHO logo and navigation links for "CSR Home", "Outbreak news", "Disease info", and "Surveillance". The main heading is "Disease Outbreaks Reported" with a sub-heading "5 November 2001" and a link to "Anthrax in the United States - Update 14". The text below states: "As of 4 November 2001, the WHO Collaborating Centres, the Centers for Disease Control and Prevention (CDC) have reported 22 human cases of anthrax, with 17 of these being confirmed and 5 being suspected. There have been 4 deaths associated with inhalational anthrax among the 22 cases. WHO is continuing to monitor the situation in the United States. [For the latest information from CDC, click here.](#) In addition, a detailed report on the anthrax outbreak is available in CDC's [Mortality and Morbidity](#)".



# Dissemination of Information

The screenshot illustrates the dissemination of information through digital media. It shows a desktop environment with several overlapping windows:

- Adobe Acrobat - [200111211.pdf]**: A PDF viewer window at the top.
- Microsoft Internet Explorer provided by WHO**: Two browser windows. The left one displays a WHO website page titled "Disease Outbreaks Reported" with a sub-heading "Anthrax in the United States" and a date of "5 November 2001". The right one displays the cover of the "Weekly epidemiological record" (Relevé épidémiologique hebdomadaire) for November 16, 2001, No. 46, featuring the WHO logo and sections for "OUTBREAK NEWS" and "LE POINT SUR LES ÉPIDÉMIES".





# Dissemination of Information

**Press Releases**

**INFORMATION OFFICE**

Press Release WHO/08  
6 February 2002

**WHO URGES INFLUENZA VACCINATION FOR NORTHERN HEMISPHERE**

As the influenza season in the northern hemisphere reaches its peak, the World Health Organization (WHO) is scaling up its efforts to fight this potentially devastating disease.

Influenza is one of the oldest and most common diseases known to man. It can also be one of the deadliest. The "Spanish flu" pandemic of 1918-1919 -- considered to be the worst disease outbreak in the last century -- claimed up to 40 million lives and is thought to have infected half the world's population. The possibility that this could happen again was exemplified by the A(H5N1) episode in Hong Kong, Special Administrative Region of China in 1997 when one third of infected patients died. Fortunately, this outbreak did not develop into a global health emergency.



# Secure Network Website



Global Outbreak Alert and Response Network

Contact the Operational Support Team: [Outbreak@who.int](mailto:Outbreak@who.int)

Search the site

[Advanced search](#)

Outbreak events: **Latest**

Network communications:

- Outbreak Verification
- Network Alerts
- Assistance Requests
- Operational Updates
- WEB news

• Weekly OVL

- About the Network
- Partner Institutions
- Advisory Committee
- Technical Workgroups
- Workplan
- Documents

- Photo gallery
- Discussion group

Updated pages:

- Operations Centre: Ebola Outbreak Response - Gabon and Congo
- Removing Security Warning when connecting to GOARN site

## Outbreak Events - *Latest news*

[Archives](#)

118 documents. Page 1/6

[Next page](#)

### March

• Thu, 21 March 2002

<b>WEB News</b>	<b>Meningococcal Disease</b> ▶ 233-A39-BF	Burkina Faso	<b>Verified</b> Meningococcal disease in Burkina Faso - Update 2	<a href="#">Open</a>
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• Wed, 20 March 2002

<b>Outbreak Verification</b>	<b>Dengue Fever</b> ▶ 270-A90-BR	Brazil	<b>Verified</b> As of 19 March 2002, Health Authorities have reported 104,469 cases of dengue and 40 deaths in Rio de Janeiro State. In the City of Rio de Janeiro the municipal Health Authority reported a total of 49,149 cases and 435 cases of dengue haemorrhagic fever with a total of 29 deaths.	<a href="#">Open</a>
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<b>Outbreak Verification</b>	<b>Measles</b> ▶ 268-B05-TH	Thailand	<b>Under verification</b> Number of cases involved in this outbreak on the border area between Thailand and Myanmar	<a href="#">Open</a>
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# Secure Network Website



Global Outbreak Alert and Response Network

## Search the site

Advanced search

## Outbreak events: latest

### Network communications:

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## Request for Assistance



printable view reply to this item

*Outbreak ID:* >199 A00.TZ Fri, 25 January 2002

*Classification:* **Confidential**  
*Status:* Verified

*Syndrome / disease:* **Cholera**

*Country:* United Republic Of Tanzania  
*Place:* Zanzibar

*WHO Region:* AFRO

### ***Request for Assistance for Cholera Mission to Zanzibar.***

From 9 November 2001 to 4 January 2002, 548 people have been diagnosed with *Vibrio cholera* infection and 24 persons have died (CFR= 4.38%). The cases have been laboratory confirmed by the Public Health laboratory Ivo de Cameri. Since 1978, Zanzibar has been affected by frequent cholera outbreaks.

### **Action**

A WHO mission is going to Zanzibar on the 31 January, 2002 for a project related to *Shistomiasis*. At the same time, this mission will collect basic information on the present cholera outbreak.



# Secure Network Website



Global Outbreak Alert and Response Network

Search the site

Advanced search

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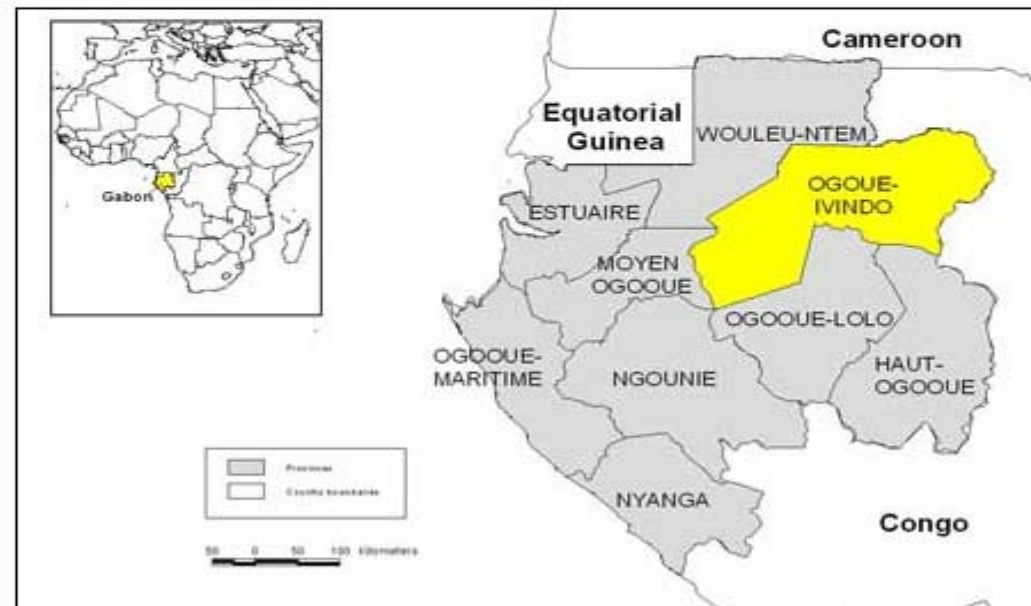
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printable view reply to this item forward this item

## » Operations Centre: Ebola Outbreak Response - Gabon and Congo



• Latest Updates



# Secure Network Website



Global Outbreak Alert and Response Network

Search the site

Advanced search

Outbreak events: lates

Network communications:

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Global Outbreak Alert and Response Network Ebola International Outbreak Response



# Global Outbreak Alert and Response Network

## A “Network of Networks”

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- A technical partnership of 110 institutions and networks who mobilize and pool resources for outbreak alert and response
- Contain outbreaks by rapid identification, verification and communication of threats
- Deliver appropriate technical assistance to affected state(s)
- Contribute to long-term outbreak preparedness



# Building the Partnership

April 2000 – November 2001

- A framework for international outbreak response
- Partnership consultations in Geneva (Apr. 2000 & Nov. 2001)
- Interim Working Group\*
  - Defining constitution and membership
  - Providing strategic advice on outbreak response
  - Guiding principles for international alert and response
  - Communications & Operational protocols, Code of conduct
  - Technical working groups
  - Work plan

\* CDC Atlanta, Epicentre, EPIET, European Commission, Health Canada, Institutes Pasteur, IPH Belgium, INVS Paris, IRC, Mekong Basin Disease Surveillance, NIID Japan, MSF, NIH Pakistan, NIV South Africa, TEPHINET, Thai FETP, UNICEF, WHO



# Supporting the Network

Operational Support Team At WHO/HQ

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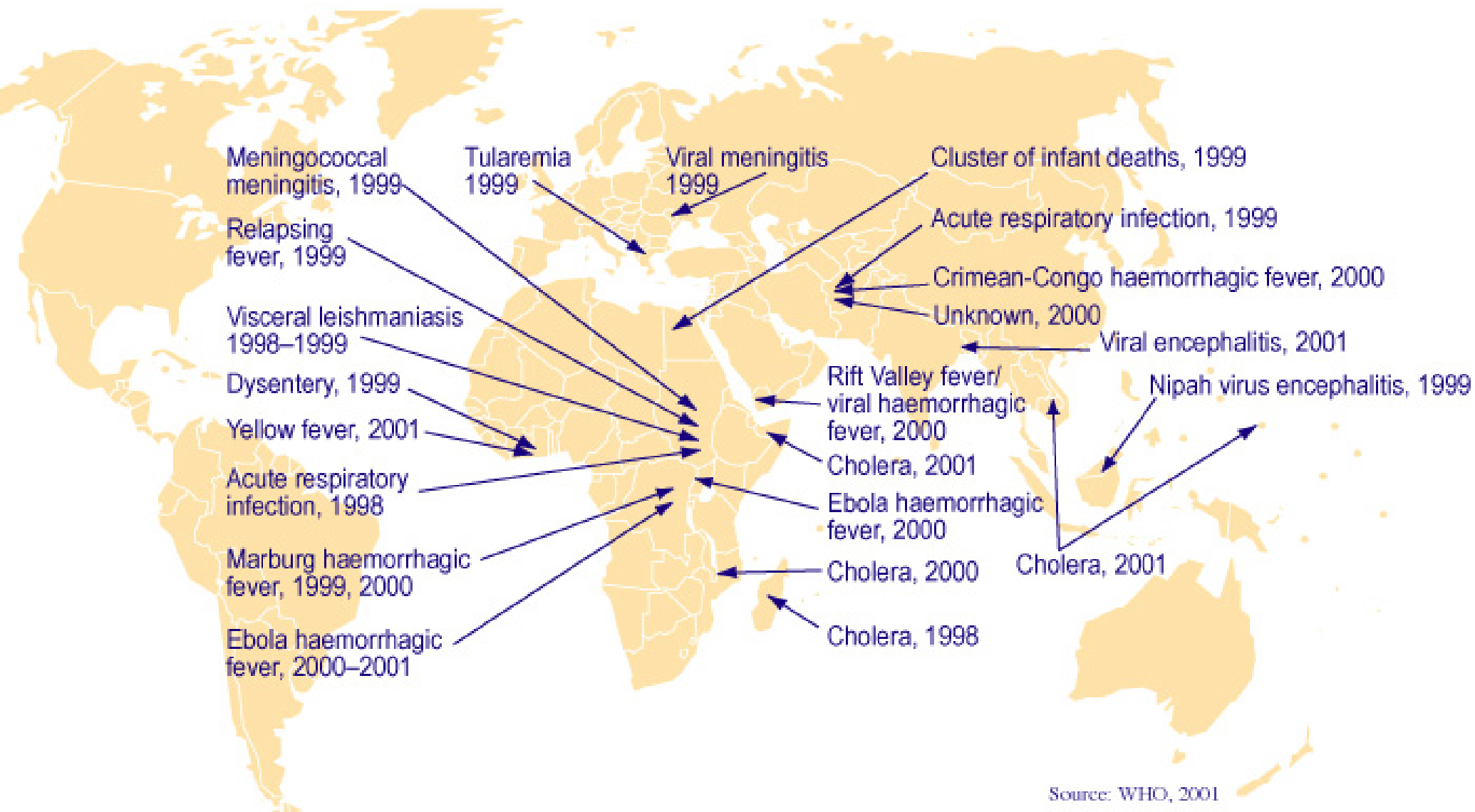
## Alert and Response Operations Center in Geneva

- Network Manager
- Logistics and Security Coordinator
- Event Management System
- Field Epidemiology Support
- Disease Specific Expertise
- Administrative Support





# Some WHO-facilitated epidemic response missions in the field, 1998–2001



Source: WHO, 2001

# Global Outbreak Alert and Response Field Operations

## Uganda – Ebola, 2000–2001

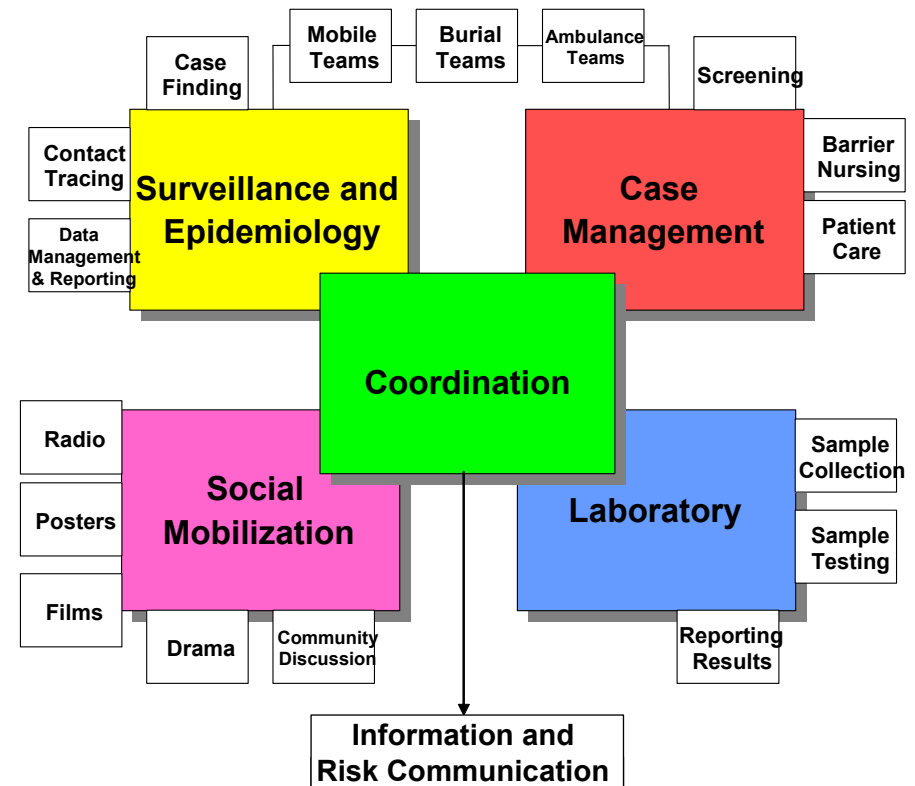
- Largest outbreak of Ebola recorded
- Urban centre in northern Uganda
- 70% of population internally displaced in “protected villages”
- 425 cases and 6000 contacts over a 30,000 km<sup>2</sup> area



# Coordinated Network Response

## Global Outbreak Alert and Response Field operations

- 500 national and local staff and volunteers
- 120 international staff from 22 institutions
- Coordinated investigation, control and research
- First ever Ebola field laboratory
- Effective information management
- Targeted advisory notices on appropriate precautions and response

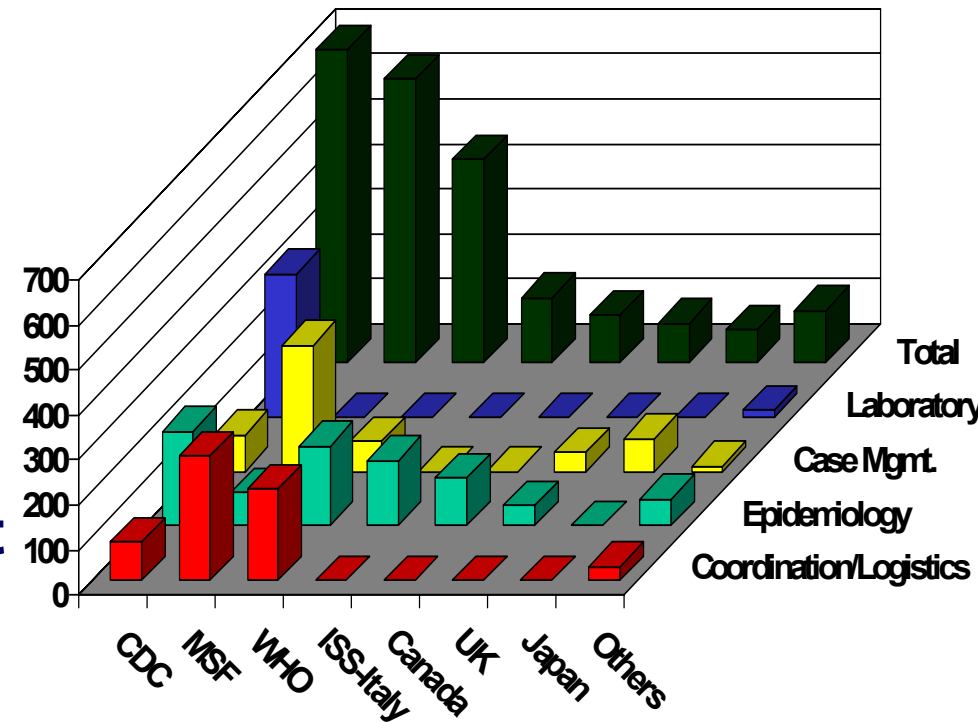


# Coordinated Network Response

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Person-days in the field



# Sustained Follow-up

## Global Outbreak Alert and Response field operations

- Permanent isolation wards established in Gulu
- Community-based early warning surveillance and response system for priority infectious diseases implemented
- June 2001: new focus of 3 suspected cases of HF detected within three days, patients isolated and specimens tested negative at NIV in South Africa



# Rapid Alert and Response

## Global Outbreak Alert and Response Field Operations

### October 2000

- Sun 8:** Two student nurses die in Lacor hospital with fever and haemorrhage.
- Mon 9:** National MOH investigate
- Tues 10:** WHO Country Office notified of acute HF outbreak (pathogen unknown).
- Wed 11:** WHO HQ notified by Country Office. WHO Country Office surveillance officer and MoH clinical expert visit Gulu. Samples collected. Information appeared on OVL.
- Thu 12:** Samples forwarded to NIV in S. Africa.
- Fri 13:** Preliminary lab results reported by NIV were positive for Ebola. Task force formed at national level. Message sent from WHO to Network partners.
- Sat 14:** Confirmatory lab tests completed. Ugandan Press release announcing Ebola outbreak. National task force meeting held in Kampala with WHO. WHO offers to coordinate international response.
- Sun 15:** WHO sub-regional team travels to Gulu
- Mon 16:** WHO is formally asked to coordinate international response WHO HQ team departs from Geneva for Uganda. WHO press release.



# Urban Yellow Fever

## Global Outbreak Alert and Response Field Operations

*Cote d'Ivoire - 2001*

- First urban yellow fever epidemic in over a decade
- 3.5 million people at risk
- International response
  - Team (WHO/UNICEF/MSF/IFRC/CDC/IP...)
  - Global reserve stock of vaccine (UNICEF/WHO) released
  - 3 million vaccines and safe injection equipment dispatched
  - 2.8 million people vaccinated in 7 days
  - Surveillance (for new cases, adverse events)



# Currently .....in 2002

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- **Ebola Response Teams in Gabon and Congo (EPIET, NHS, PHLS, CDC, Epicentre, MSF-B, MSF-H, IP Lyon, CIRMF, Health Canada, IFRC, WHO ....)**
- **Support to diagnostics in Kosovo for tularaemia (ISS, German KFOR)**
- **Assessment team in Afghanistan for hemorrhagic fever (WHO)**
- **Response in meningitis belt 2002 - Ethiopia, Somalia, Burkina Faso, Mali (MSF, CDC,WHO)**
- **Southern Sudan, investigation of haemorrhagic fever (KEMRI, WHO)**
- **Cholera response in Tanzania (ICDDR, WHO)**
- **Technical assistance with plague in India (CDC, WHO)**
- **Investigation team for monkeypox in DR Congo (MSF)**





# Thank You



**For further information  
please contact**

**[outbreak@who.int](mailto:outbreak@who.int)**

