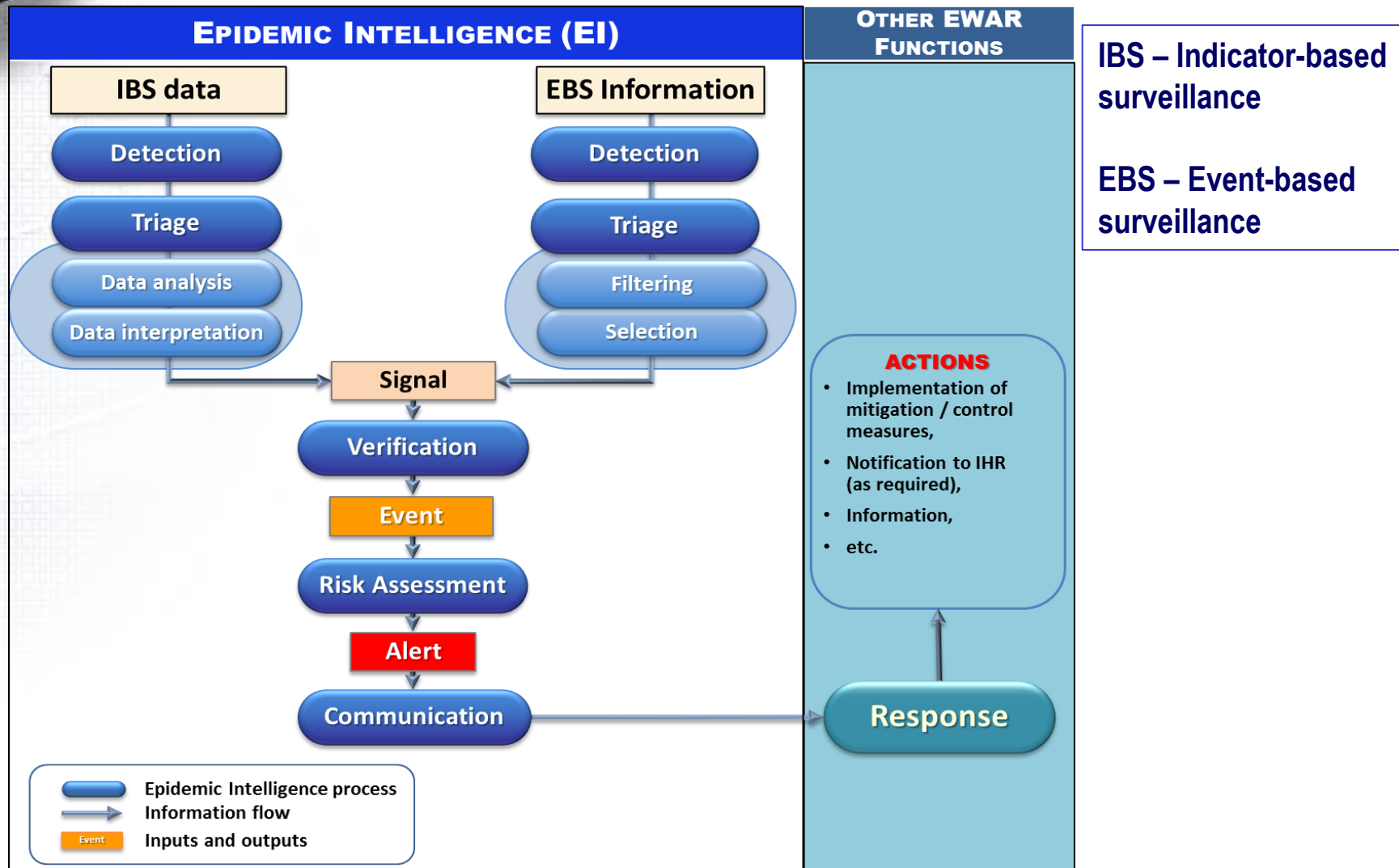




Overview of Event-based Surveillance for Early Warning and Use at CDC

Global Disease Detection Operations Center

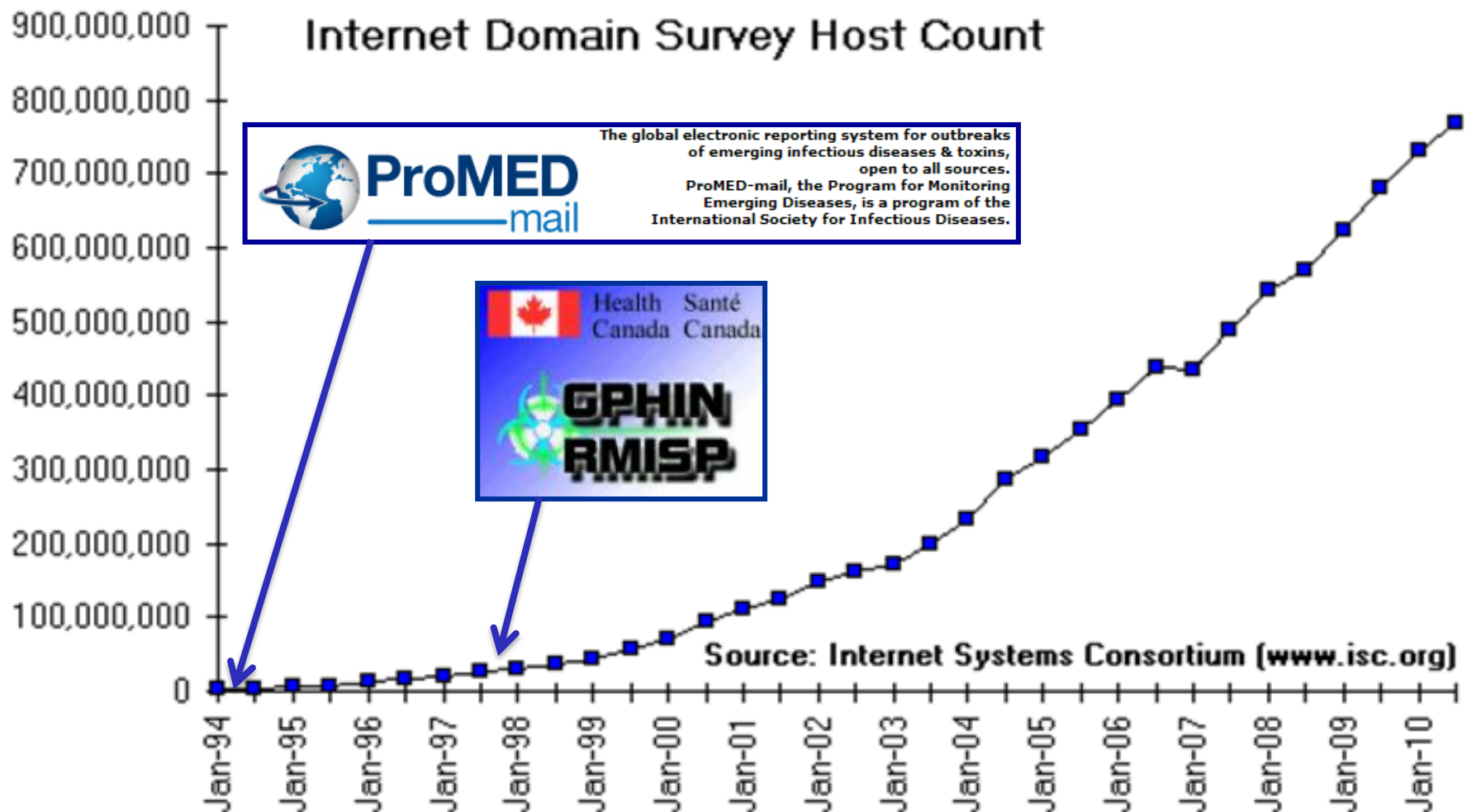
Epidemic Intelligence for Early Warning and Response



Early detection, assessment and response to acute public health events: *Implementation of Early Warning and Response with a focus on Event-Based Surveillance*. WHO 2014



Growth of the Internet 1994-2010



Technological advances in the past 15 years have revolutionized the way information is provided and accessed



Advantages of Event-based Surveillance

Traditional disease reporting mechanisms:

- produce credible information but reporting is often delayed; media monitoring systems are gathering information 24/7
- are designed for known diseases and often do not report cases until the etiology is known
- are not well established in all countries
- are limited to the health sector, whereas media reports come from reporters who are highly motivated to report disease events or health threats and have a way to promptly provide the information to the public

Global Disease Detection

Worldwide Event-Based Surveillance & Response

- CDC's Centralized operations for event-based surveillance
- Initiated in 2006 and fully operational in 2007
- Detection and verification of international disease events and threats
- Operational support for rapid deployment of CDC assets and field teams
- U.S. compliance with International Health Regulations
- CDC's liaison with Global Outbreak Alert and Response Network (GOARN)
- EBS support for other institutions
 - Africa CDC, Ministries of Health



GDD Operations Center Team

- Director: PhD Microbiologist/Virologist
- Analysts: Med Epi (2), Vet Epi, PhD Epi (3)
- Emergency Coordinator

Global Disease Detection Operations Center: International Outbreak Alert & Response

Screen sources of
epidemic intelligence

Collect disease event Information

CDC programs (US & overseas),
WHO, Media reports (EIOS), ProMED,
OIE, FAO

Potential international
public health
Importance?

**Analyse, validate and assign “threat”
level**

(GDD analyst and *Subject Matter Experts*)

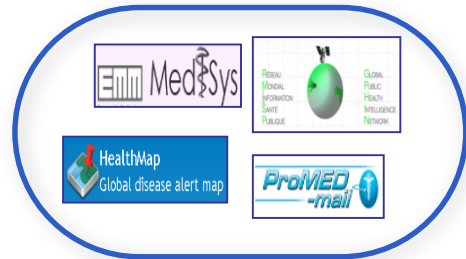
- Serious impact on public health
- Unusual or unexpected
- Significant risk for international spread
- Significant risk for trade and travel restrictions

Enter in database
& report

Response

Origin of Epidemic Intelligence from Open Sources (EIOS)

90s-2007

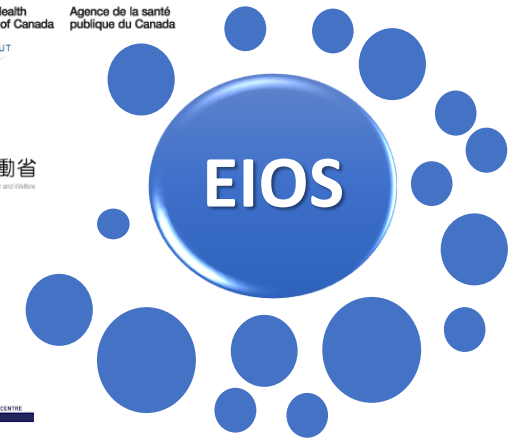


2008-2016



M
E
R
G
E

2017



Goals

- Capitalize on existing
- Foster synergies
- Pool expertise
- Reduce duplication
- Increased adaptability

1st
Phase

Integrated
collaboration



2nd
Phase

Roll out



Global Disease Detection Operations Center: International Outbreak Alert & Response

Screen sources of
epidemic intelligence



Potential international
public health
Importance?



Enter in database
& report



Response

1. Enter event into Event Analysis
Management System

2. Disseminate Event information

- CDC Programs
- USG agencies
- Domestic and international partners

Fund and facilitate response to disease
event

Bilateral and/or Global Outbreak Alert
and Response Network (GOARN)

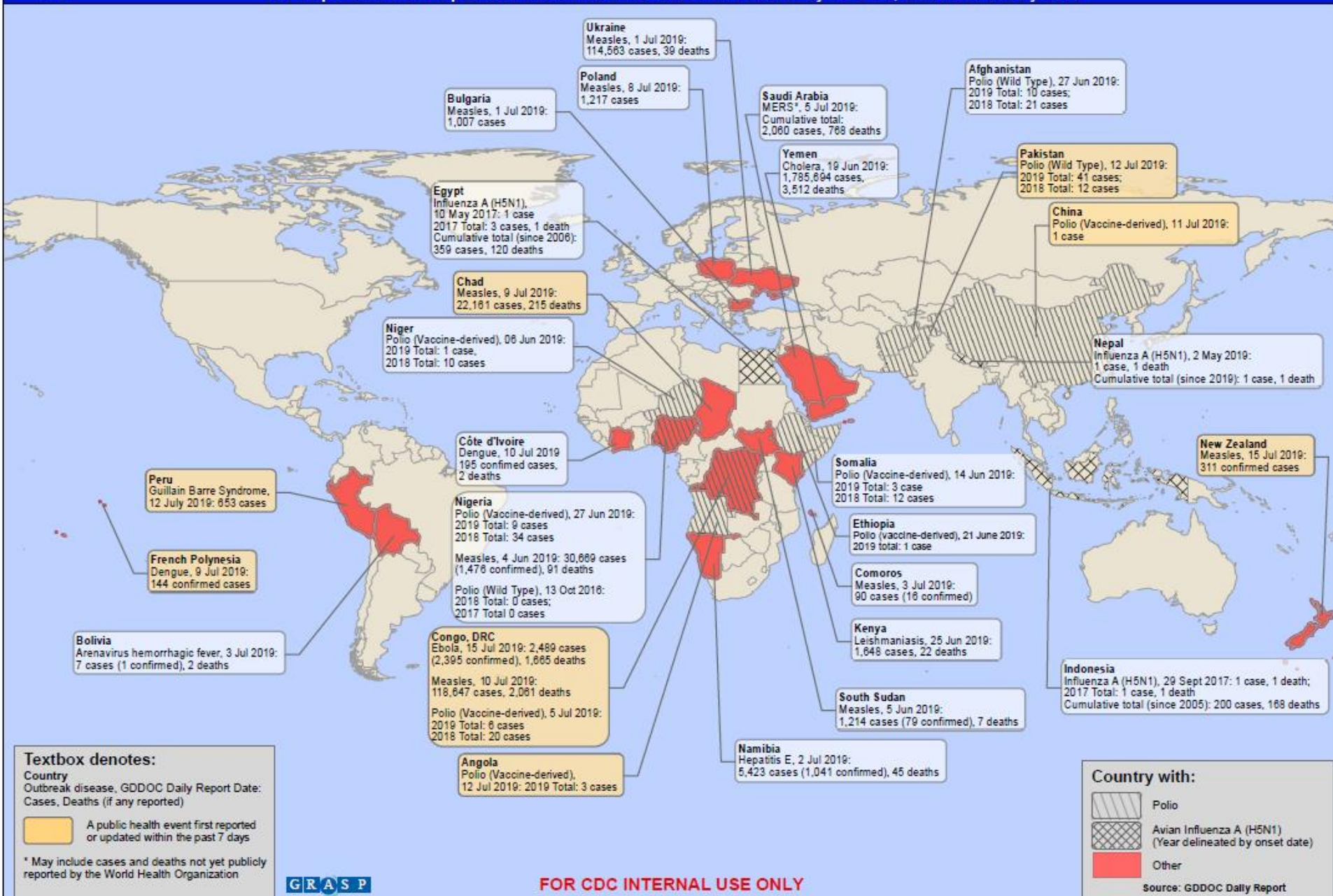


Global Disease Detection Operations Center (GDDOC)

Public Health Events of International Importance Under Surveillance

16 July 2019

The map shows verified public health events under active surveillance by GDDOC; data as of 15 July 2019



Global Disease Detection Operations Center
U.S. Centers for Disease Control and Prevention
Daily Report for 7/16/2019
 Contact: Ray Arthur, PhD
 Mobile: (404) 431-6630
gddoutbreak@cdc.gov
 EOC: (770) 488-7100 (24 hours / 7 days a week)

Contents At A Glance

INTERNATIONAL IMPORTANCE

- Measles (Rubeola) in Jordan (NEW): **23 cases reported in 7 clusters**
- Cholera in Cameroon (NEW): **OCV campaign planned**
- Ebola in The Democratic Republic of the Congo (Update): **Outbreak surpasses 2,500 cases and 700 recoveries**
- Leishmaniasis (Visceral) in Kenya (Update): **New county affected**

PUBLIC HEALTH EVENT OF INTERNATIONAL IMPORTANCE	
Geographic Scope	Public Health Impact Risk
Medium	Medium

Country: Jordan

Agent/Disease: Measles (Rubeola)

Event ID: 2373-B05-2019

First Rptd to GDDOC: 7/16/2019

Location: Amman, Al Azraq refugee camp, Al Salt camp

Source: WHO IHR

[Attachment](#)**Event Description**

The Global Disease Detection Operations Center (GDDOC) has learned of an outbreak of measles in Jordan.

On 16 July 2019, the World Health Organization (WHO) reported that between 25 March and 2 July 2019 Jordan reported a total of 23 cases of measles. As shown in the attached table, the 23 cases were reported in seven clusters, five of which were in Amman, one in Al Azraq refugee camp (~100 KM east of Amman), and the other in Al Salt camp (~30 KM west of Amman). Currently there are no established links between the clusters, and all cases were reported as having been discharged with no additional cases and no deaths. Of the 23 cases, seven cases were under one-year old, and five were of Syrian origin.

The last outbreak of measles in Jordan was in 2014, when there were 20 cases reported. According to WHO/UNICEF estimates, the measles immunization coverage at the national level in Jordan was 99% in 2017. However, according to the Jordan population and family health survey in 2017-2018, the immunization coverage with at least two doses of any measles containing vaccine for children aged 24-35 months regardless of nationality was 89%. In addition, the coverage in some districts remains <95%.

Cluster no.	Location	Number of cases	Description	Date of onset
1	Al Azraq refugee camp located around 100km east of Amman	4	Syrian family	Between 25 March and 21 April 2019
2	Amman	4	Community-Jordanian family	Between 9 and 22 May
3	Al Salt camp located around 30km west from Amman	2	Suspected nosocomial transmission in hospital	On 10 and 20 May
4	Amman	5	Suspected nosocomial transmission in hospital	Between 14 and 29 May
5	Amman	2	Suspected nosocomial transmission in hospital	On 29 April and 18 May
6	Amman	3	Community-Jordanian family, with index case had history of contact with confirmed measles case during her travel	Between 18 and 24 June
7	Amman	3	Community-Jordanian family of taxi driver	Between 24 June and 2 July

Serial No.	COUNTY	Total cases	RDT positive	Total deaths	CFR %	Date of onset	Date of last case	cases reported last week	deaths in the last week	Current admissions	Outbreak status
1	Marsabit	1464	353	16	1.1	7-Jan-19	7-Jul-19	0	0	0	Active
2	Wajir	261	27	7	2.7	Jan 2019	May 2019	0	0	0	Active
3	Garissa	9	9	1	1.3	29-jun-19	5-Jul-19	0	0	0	Active
Total		1734	389	24	1.4			0	0	0	

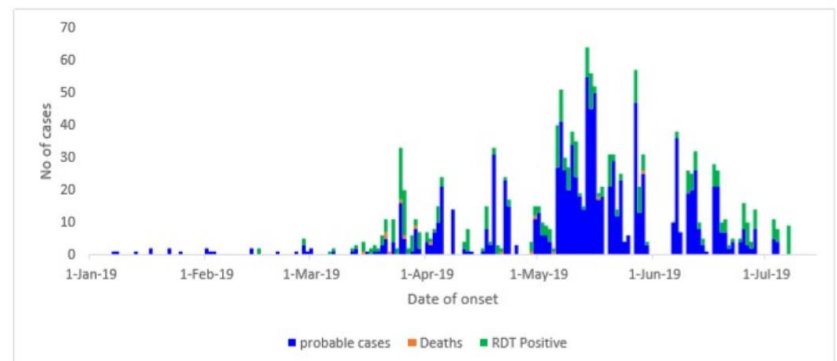
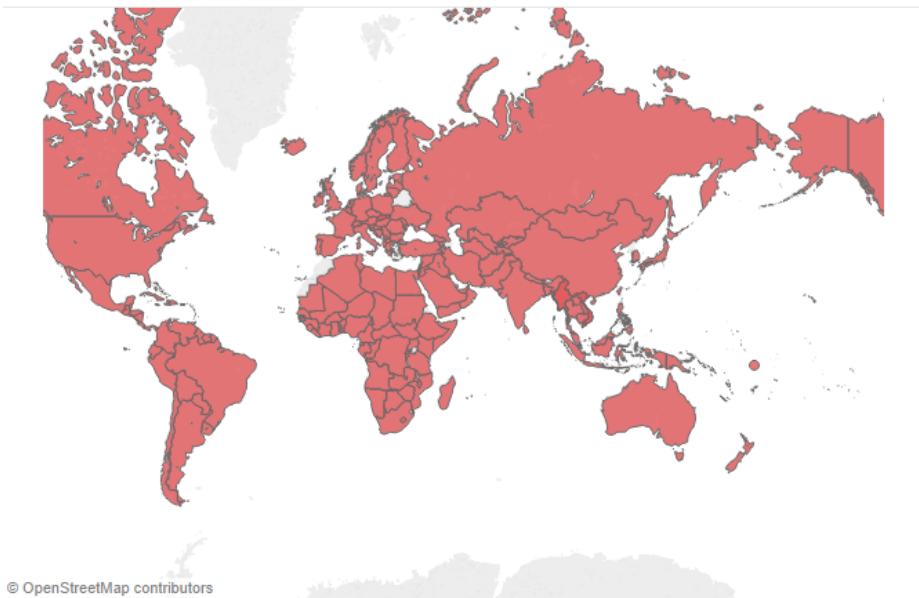
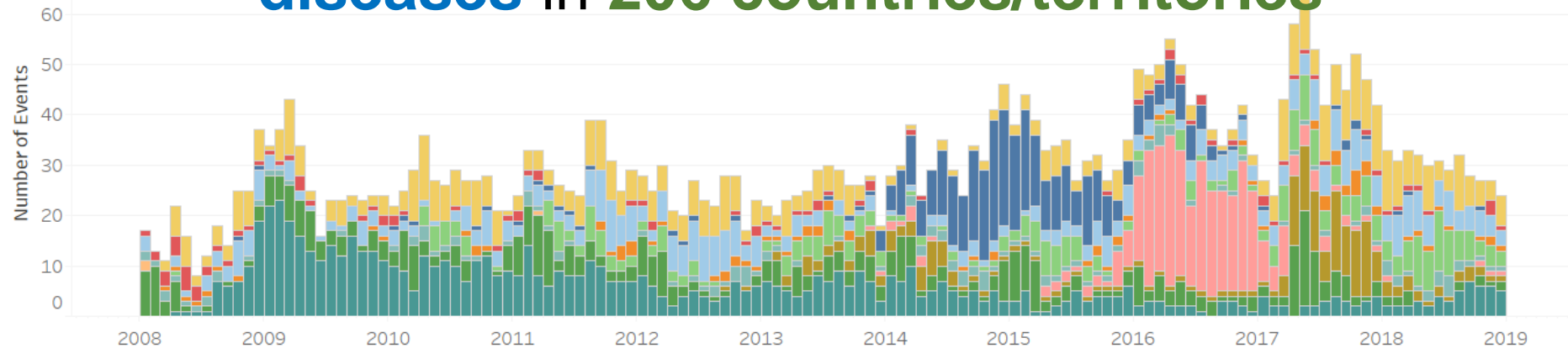
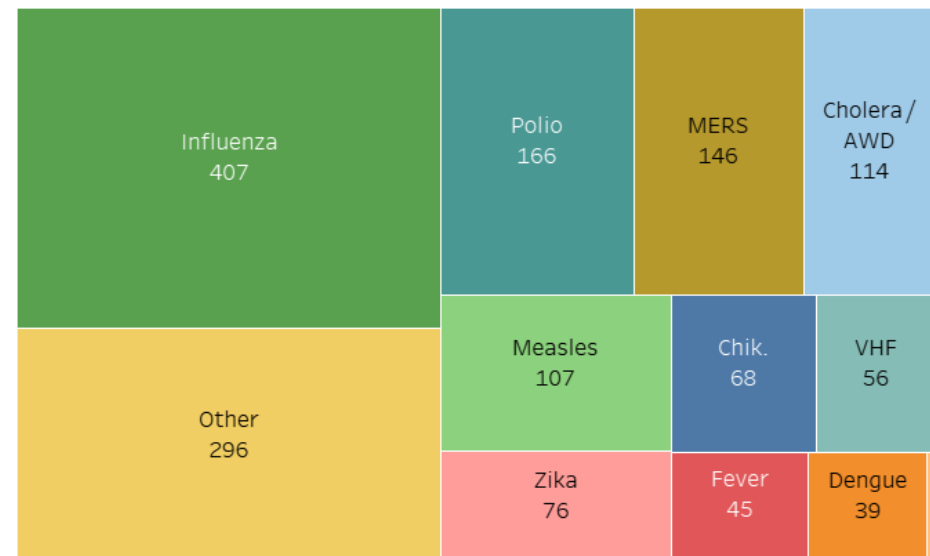


Figure 7; Epi curve of Kala-azar outbreak in Marsabit County, Jan 2019-July 2019

From January 1, 2008 to December 31, 2018, the GDD Operations Center monitored **1,523 outbreaks** of **136 diseases** in **206 countries/territories**



Events Reported Per Disease

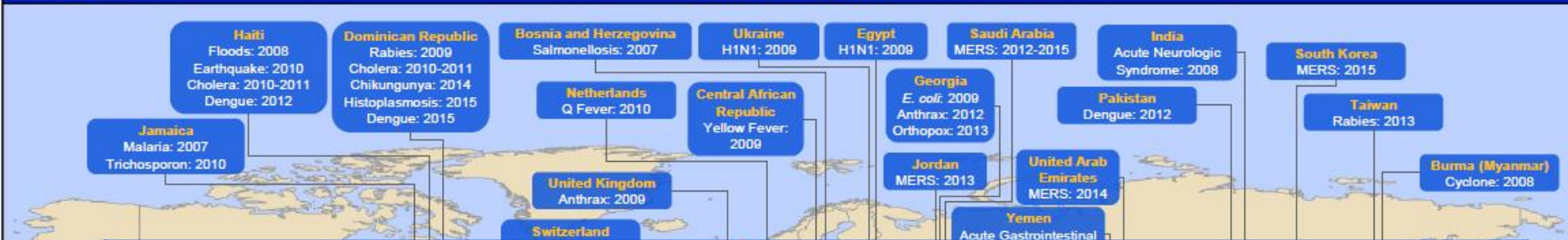




Global Disease Detection Operations Center (GDDOC)

Contingency Fund-Supported Outbreak Investigations, 2006-2016

November 15, 2016



GDD Operations Center Responses 2006-2018

Number of Outbreak Responses

160

Number of Countries with Deployments

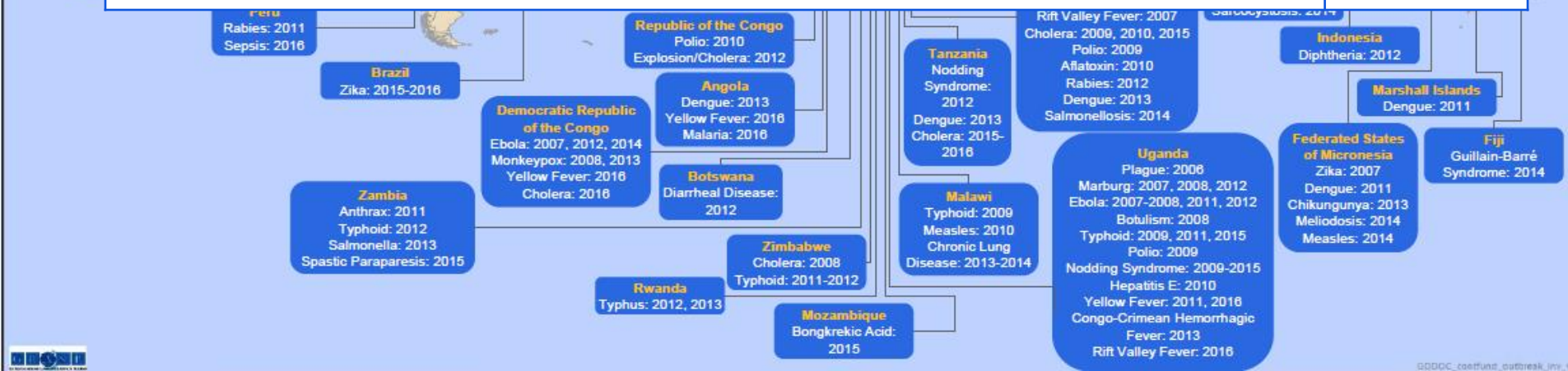
67

Number of Causal Agents

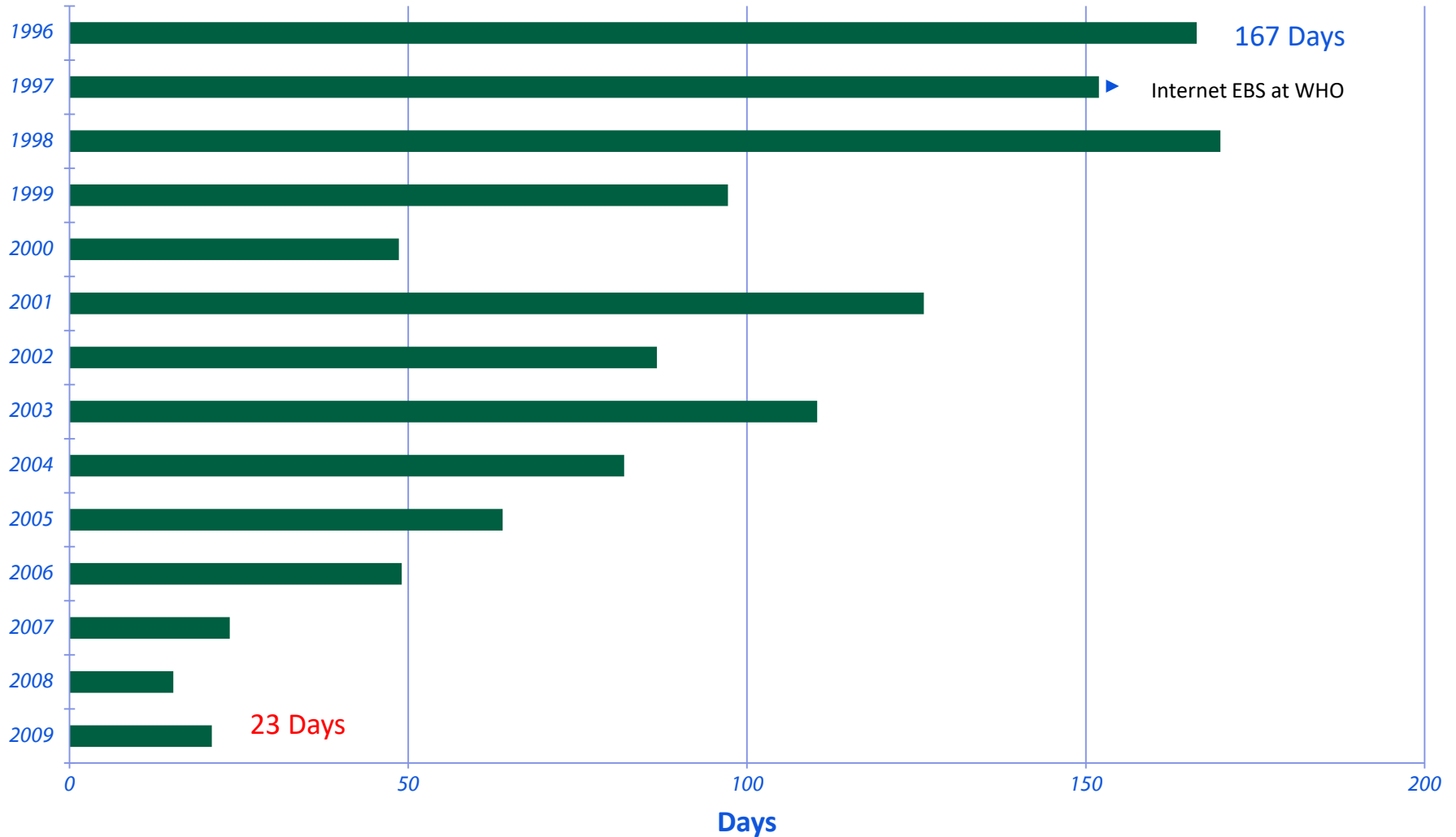
67

Number of Deployments Funded

892



Early detection is improving!



Summary: GDD Operations Center

- Located in Emergency Operations Center (EOC)
- Consolidates and shares international outbreak information from sources inside and outside of CDC
- Systematically conducts risk assessments, reports and responds to infectious disease events in support of IHR
- Adds value by leveraging technical expertise of CDC programs
- Facilitates rapid CDC international responses via emergency response outbreak contingency funds
- Advances models and systems for sensitive information sharing within the USG and between other countries
- Shares knowledge and experience to build/enhance capacities

Thank You

GDD-Outbreak@cdc.gov

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: www.atsdr.cdc.gov



U.S. Department of Health and Human Services

Centers for Disease Control and Prevention