



# Perspectives on Global Health from the CDC

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Georgia Tech, Atlanta  
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**Most polluted city in the world, Delhi suffers from a toxic blend, says UK study**



WorldViews

**Airpocalypse, again. With winter coming, China hit by 'doomsday' smog.**





## Microcephaly cases linked to Zika virus rise in Brazil

Most of the cases of microcephaly brain defect remain concentrated in Brazil's poor northeastern region

The Associated Press Posted: Jan 20, 2016 2:08 PM ET | Last Updated: Jan 20, 2016 5:14 PM ET



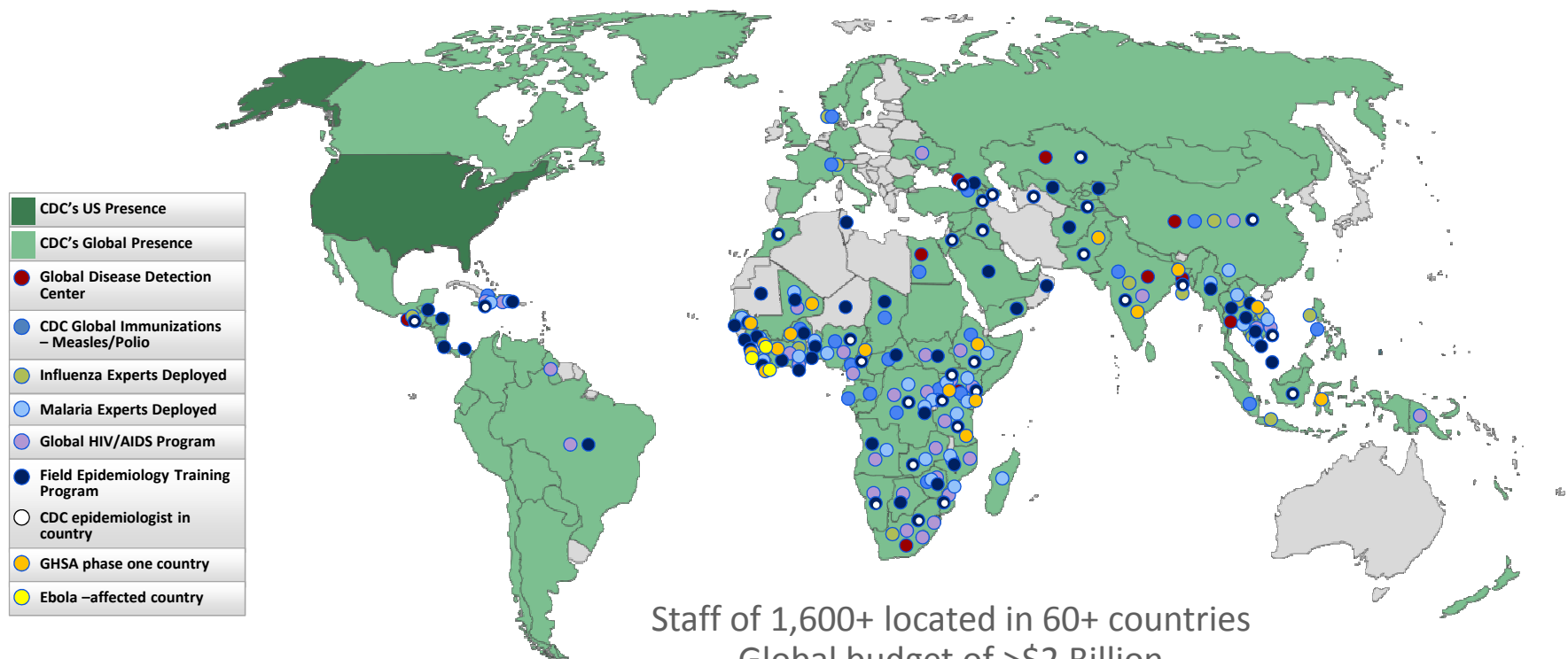
A health agent from Sao Paulo's public health secretary shows a soldier *Aedes aegypti* mosquito larvae that she found during clean up operations against the insect that transmits Zika virus. (Andre Penner/Associated Press)



A therapist teaching a mother in Recife, Brazil, last month how to massage her baby, who has microcephaly. Paulo Whitaker/Reuters



# CDC Doctors, Nurses, And Disease Control Experts Work Around The World To Keep Americans Safe



As of August 2015

# CDC Ebola Response by the Numbers

## Overall



**3,330** Total CDC deployments

**>3,980** CDC staff involved in the response

**>36,730** Questions answered by CDC's national contact center

## Domestic



**>34,700** Travelers monitored by health departments

**1,458** Domestic clinical inquiries

**55** US hospitals designated as Ebola treatment centers

**57** US labs approved to test for Ebola

## International



**1,410** CDC staff have deployed to West Africa

**>72,000** CDC person work-days in West Africa

**>27,000** Samples tested at CDC's lab in Bo, Sierra Leone

**24,655** Health workers trained in West Africa

**>476,000** Travelers leaving West Africa screened for Ebola

**>600** US health workers trained to work in West Africa (Anniston)

**8,680** Health and frontline workers enrolled in Ebola vaccine trial

Last updated December 31, 2015



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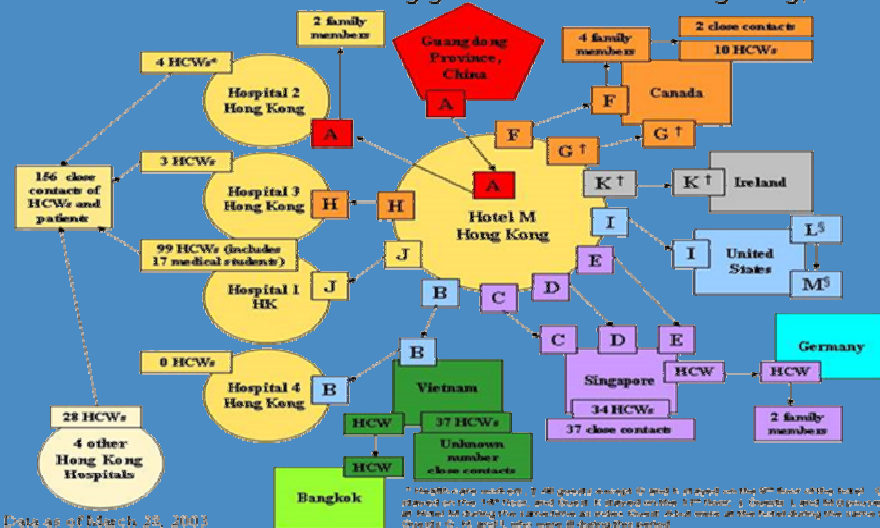
L. L. Linkages





Source: The Lancet 380:9857, 1-7 Dec 2012, pp. 1946-55. [www.sciencedirect.com/science/article/pii/S0140673612611519](http://www.sciencedirect.com/science/article/pii/S0140673612611519)

Chain of transmission among guests at Hotel M—Hong Kong, 2003



Data as of March 20, 2003

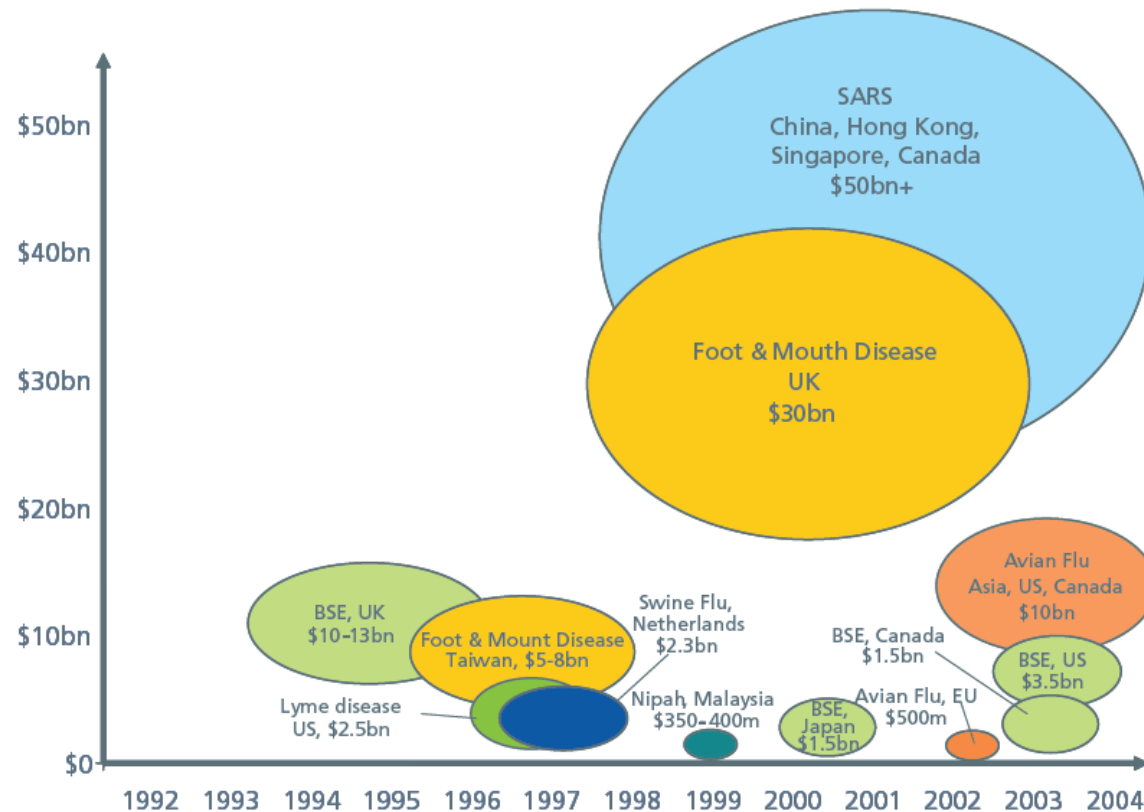








# Economic impact for SARS in China, Hong Kong, Singapore, Canada estimated at >\$50 Billion



12 August 2008. SARS and the New Economics of Biosecurity, 2003

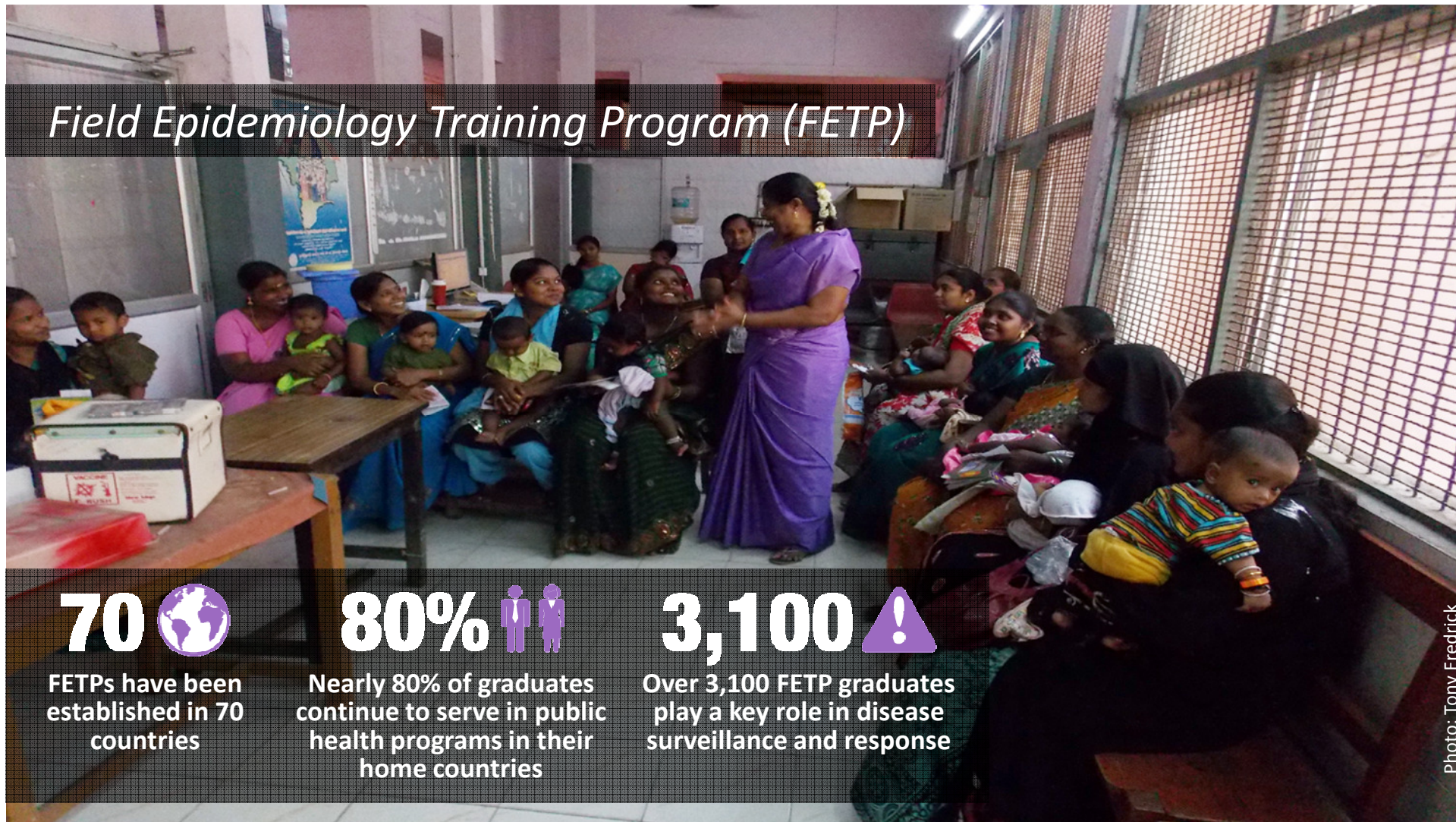


Photo: Isaac Eagan

# Learning Systems



## Field Epidemiology Training Program (FETP)



**70** 

FETPs have been established in 70 countries

**80%** 

Nearly 80% of graduates continue to serve in public health programs in their home countries

**3,100** 

Over 3,100 FETP graduates play a key role in disease surveillance and response





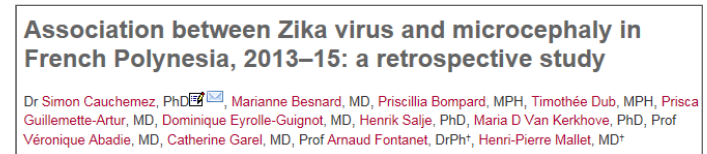




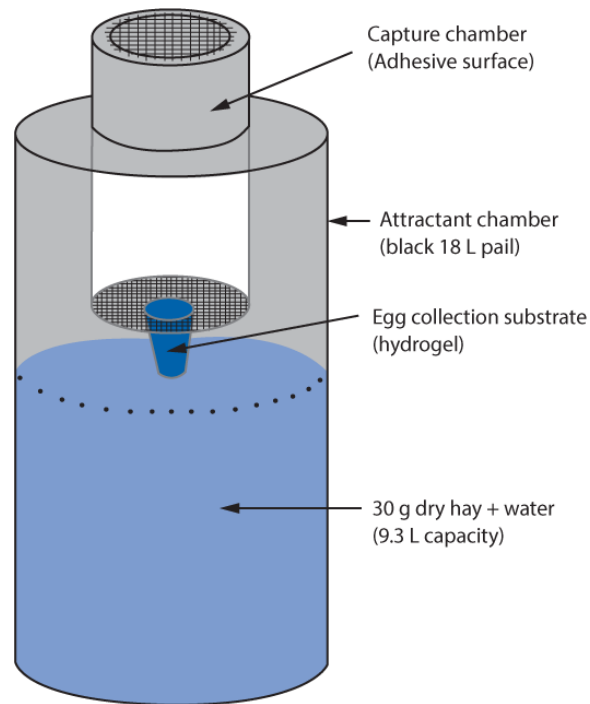
Photo: James Gathany

# Zika Virus – Microcephaly and Other Birth Abnormalities

- Spatial and temporal association
- Distinct clinical phenotype
- Epidemiologic cohort studies
- Brazil and French Polynesia
- Scientific and clinical evidence sufficient for causality



# Rapid Cycle Learning



**AGO Trap**

## Morbidity and Mortality Weekly Report (*MMWR*)

[CDC](#) > [MMWR](#)

### Increase in Reported Prevalence of Microcephaly in Infants Born to Women Living in Areas with Confirmed Zika Virus Transmission During the First Trimester of Pregnancy — Brazil, 2015

*Weekly* / March 11, 2016 / 65(9):242–247

## Morbidity and Mortality Weekly Report (*MMWR*)

[CDC](#) > [MMWR](#)

### Travel-Associated Zika Virus Disease Cases Among U.S. Residents — United States, January 2015–February 2016

*Weekly* / March 25, 2016 / 65(11):286–289

## Morbidity and Mortality Weekly Report (*MMWR*)

[CDC](#) > [MMWR](#)

### Screening of Blood Donations for Zika Virus Infection — Puerto Rico, April 3–June 11, 2016

*Weekly* / June 24, 2016 / 65(24)

## Morbidity and Mortality Weekly Report (*MMWR*)

[CDC](#) > [MMWR](#)

### Suspected Female-to-Male Sexual Transmission of Zika Virus — New York City, 2016

*Weekly* / July 22, 2016 / 65(28):716–717

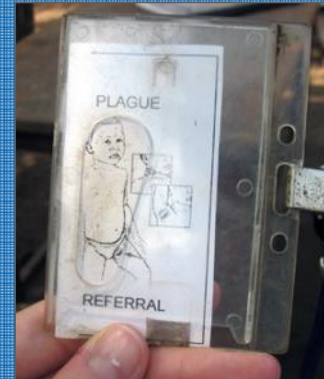


**Leap**











# Innovative Cold Chain

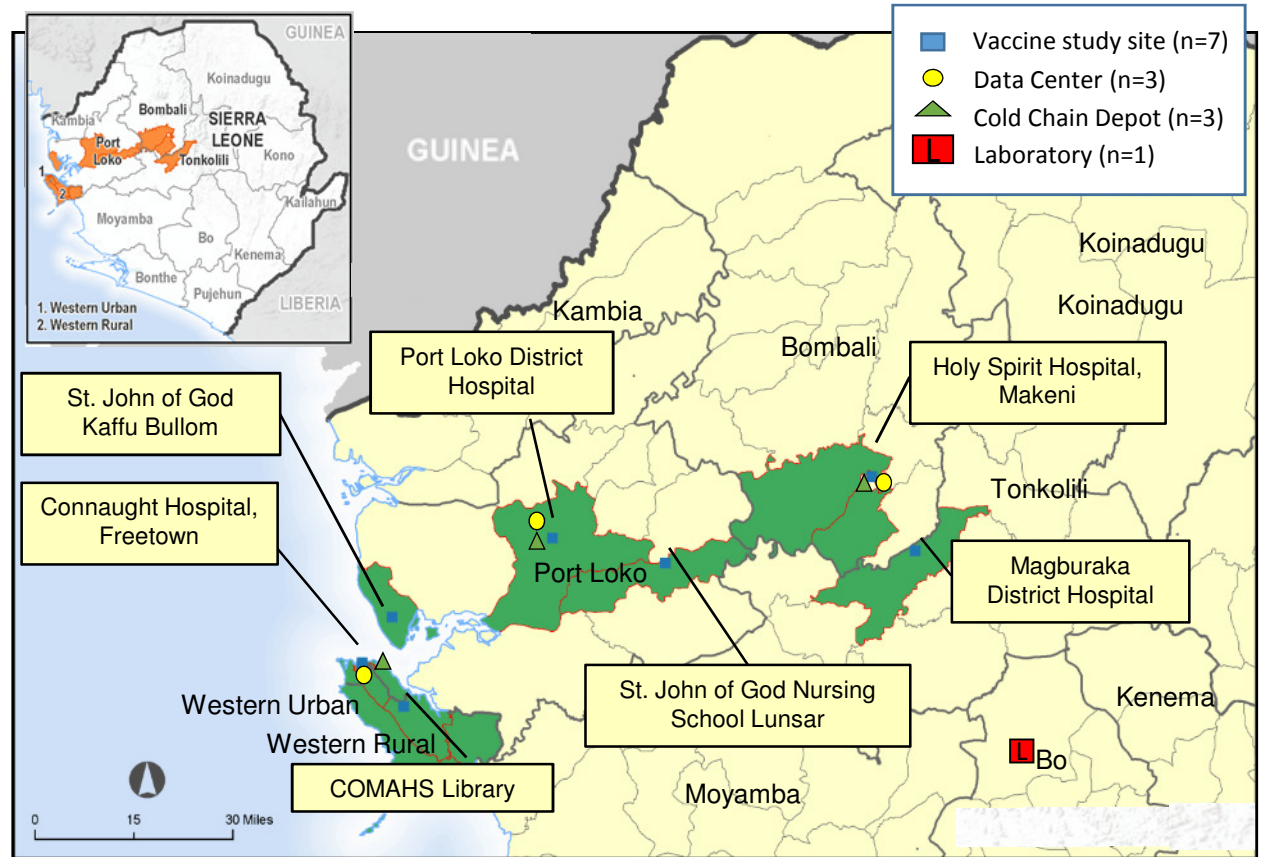
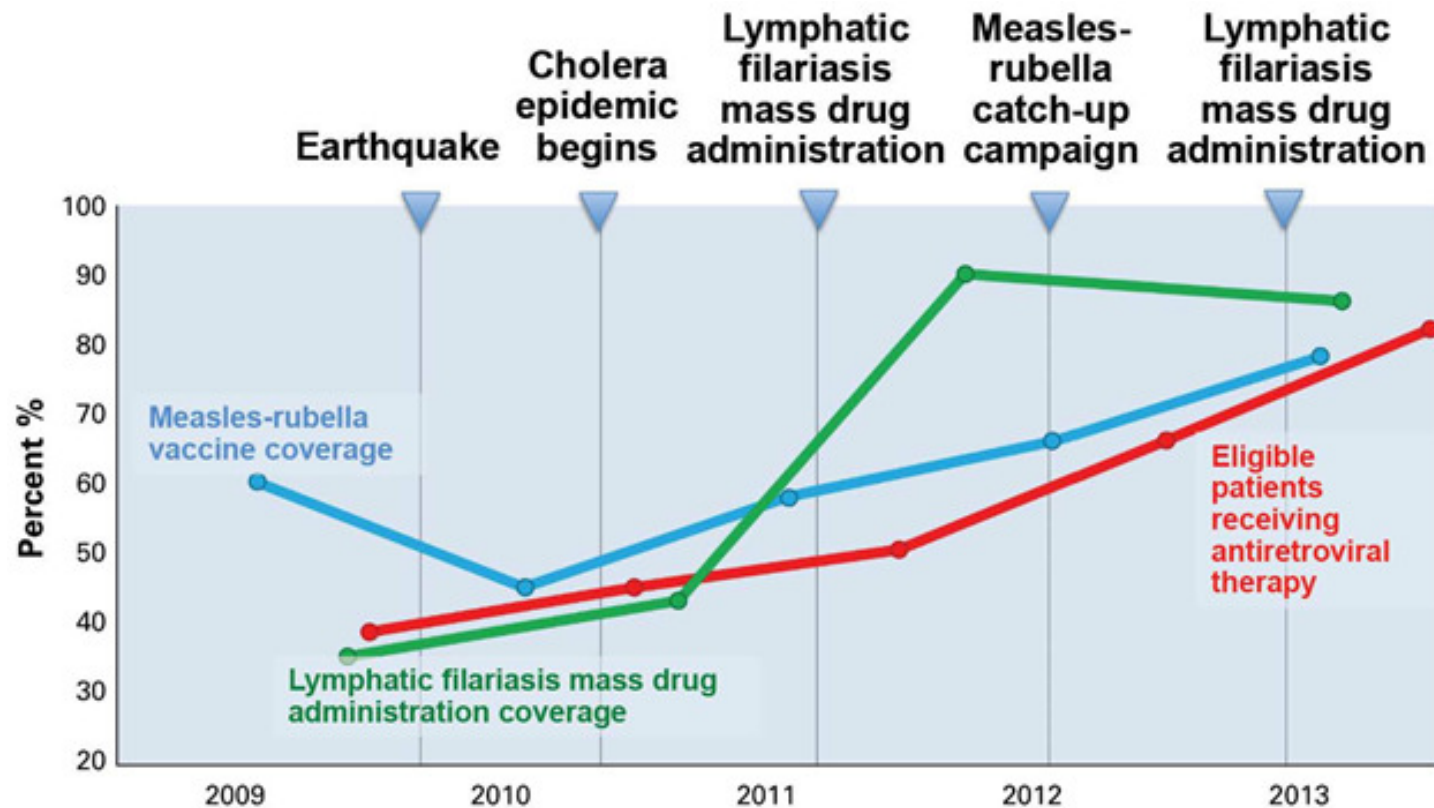




Photo: Victoria Gamino

## Building back better in Haiti



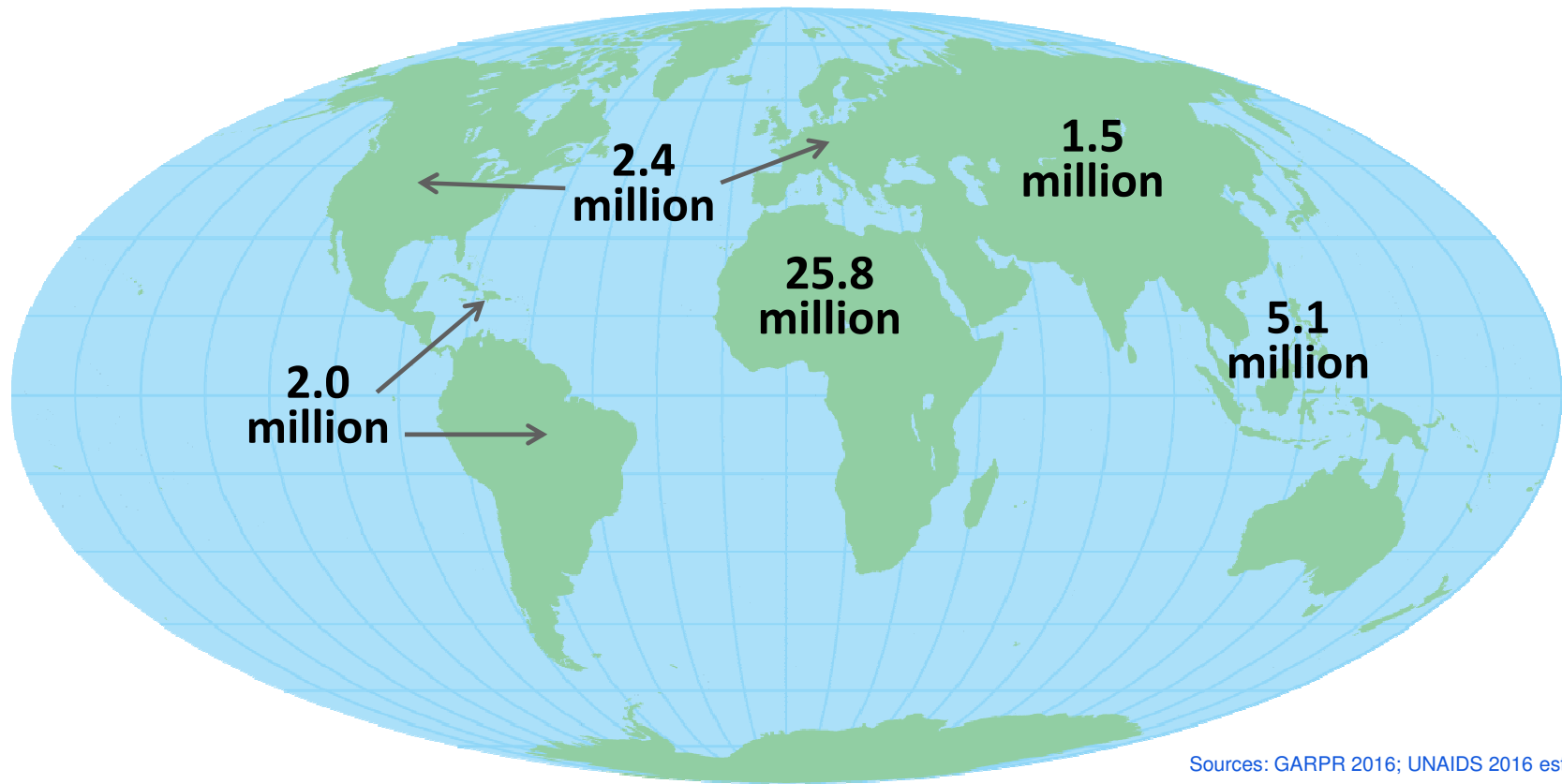
Adapted from: Vertefeuille J, Dowell SF, Domercant JW, Tappero J. Cautious optimism – public health progress in post-earthquake Haiti Lancet 2013.



Large

## Estimated numbers of people living with HIV, 2015

Total: 36.7 million







# CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

## TREATMENT CLINIC

Table shows who qualifies for which grants:

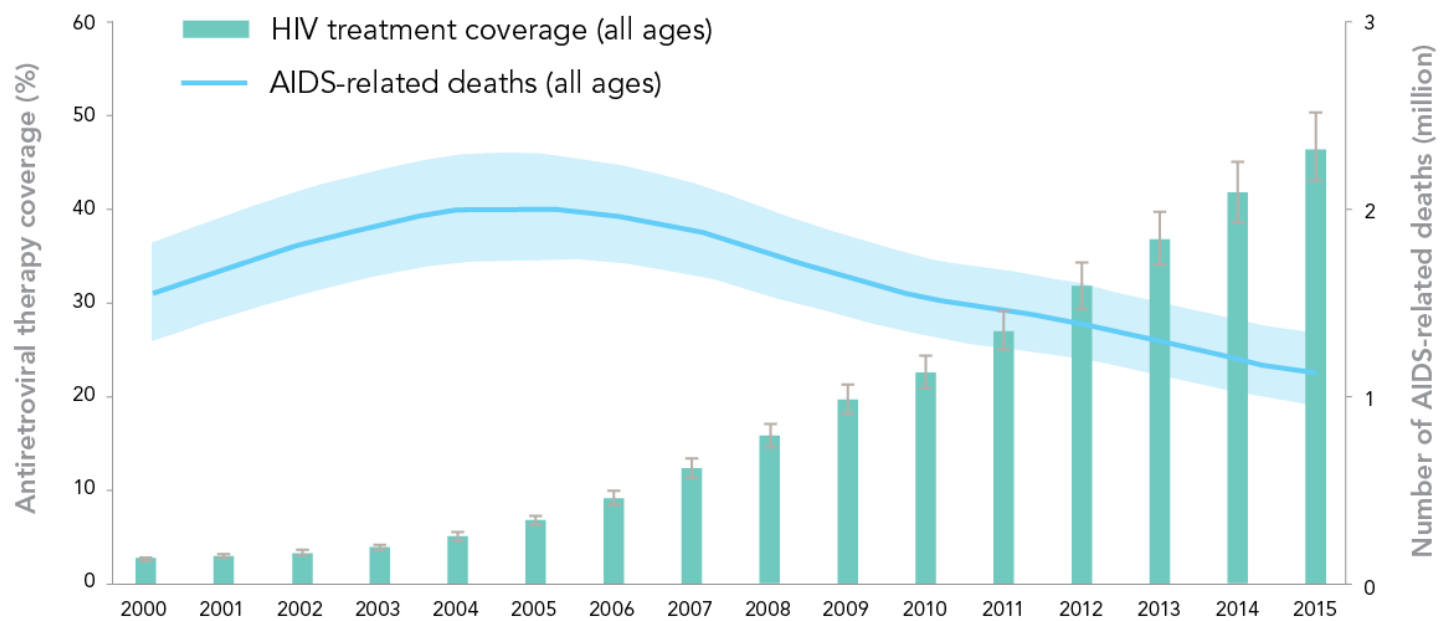
Social Grants: Old Age Grant	Disability Grant	War Veteran's Grant	Care Dependency Grant	Child Grants: Foster Child Grant	Child Support Grant	Grant-in-aid
<b>The applicant:</b> <ul style="list-style-type: none"><li>must be a South African citizen (permanent resident)</li><li>must reside in South Africa at the time of application</li><li>If a male, must be 60 years or older. (The table for implementation is still to be determined)</li><li>If a female, must be 60 years or older</li><li>spouse must comply with the means test</li><li>must not be maintained or cared for in a State institution</li><li>must not be in receipt of another social grant</li><li>must submit a 10 digit bar-coded identity document</li></ul>	<b>The applicant:</b> <ul style="list-style-type: none"><li>must be a South African citizen (permanent resident)</li><li>must reside in South Africa at the time of application</li><li>must be between 18 &amp; 59 years of age if a female and 18 to 60 years of age if a male</li><li>must submit a medical assessment report confirming disability</li><li>spouse must meet the requirements of the means test</li><li>must not be maintained or cared for in a State institution</li><li>must not be in receipt of another social grant</li><li>must submit a 10 digit bar-coded identity document</li></ul>	<b>The applicant:</b> <ul style="list-style-type: none"><li>must be a South African citizen (permanent resident)</li><li>must reside in South Africa at the time of application</li><li>must be 60 years and over or must be disabled</li><li>must have fought in the Second World War or the Korean War</li><li>spouse must meet the requirements of the means test</li><li>must not be maintained or cared for in a State institution</li><li>must not be in receipt of another social grant</li><li>must submit a 10 digit bar-coded identity document</li></ul>	<b>The applicant:</b> <ul style="list-style-type: none"><li>The child and primary caregiver must be South African citizens and reside in South Africa at the time of application</li><li>applicant must be the primary caregiver of the child</li><li>the child/children must be under the age of 16 years</li><li>the applicant and spouse must meet the requirements of the means test</li><li>must submit a 10 digit bar-coded ID document as the primary caregiver</li><li>must submit a 10 digit bar-coded ID document as the child/children</li><li>cannot apply for more than six non-biological children</li></ul>	<b>The applicant:</b> <ul style="list-style-type: none"><li>The child and primary caregiver must be South African citizens and reside in South Africa</li><li>applicant must be the primary caregiver of the child/children concerned</li><li>the child/children must be under the age of 16 years</li><li>the applicant and spouse must meet the requirements of the means test</li><li>must submit a 10 digit bar-coded ID document as the primary caregiver</li><li>must submit a 10 digit bar-coded ID document as the child/children</li><li>cannot apply for more than six non-biological children</li></ul>	<b>The applicant:</b> <ul style="list-style-type: none"><li>must be a South African citizen (permanent resident)</li><li>must reside in South Africa at the time of application</li><li>must be 60 years and over or must be disabled</li><li>must have fought in the Second World War or the Korean War</li><li>spouse must meet the requirements of the means test</li><li>must not be maintained or cared for in a State institution</li><li>must not be in receipt of another social grant</li><li>must submit a 10 digit bar-coded identity document</li></ul>	<b>The applicant:</b> <ul style="list-style-type: none"><li>must be a South African citizen (permanent resident)</li><li>must reside in South Africa at the time of application</li><li>must be 60 years and over or must be disabled</li><li>must have fought in the Second World War or the Korean War</li><li>spouse must meet the requirements of the means test</li><li>must not be maintained or cared for in a State institution</li><li>must not be in receipt of another social grant</li><li>must submit a 10 digit bar-coded identity document</li></ul>

In instances when applicants do not have identity documents or birth certificates, SASSA approved alternate documents will be accepted.

Sponsored by Absa in the interest of financial literacy



## AIDS-related deaths dropping and ARV use increasing



Sources: GARPR 2016; UNAIDS 2016 estimates.





**197M+**



Insecticide-treated nets

[www.pmi.gov](http://www.pmi.gov)

**229M+**



Rapid diagnostic tests



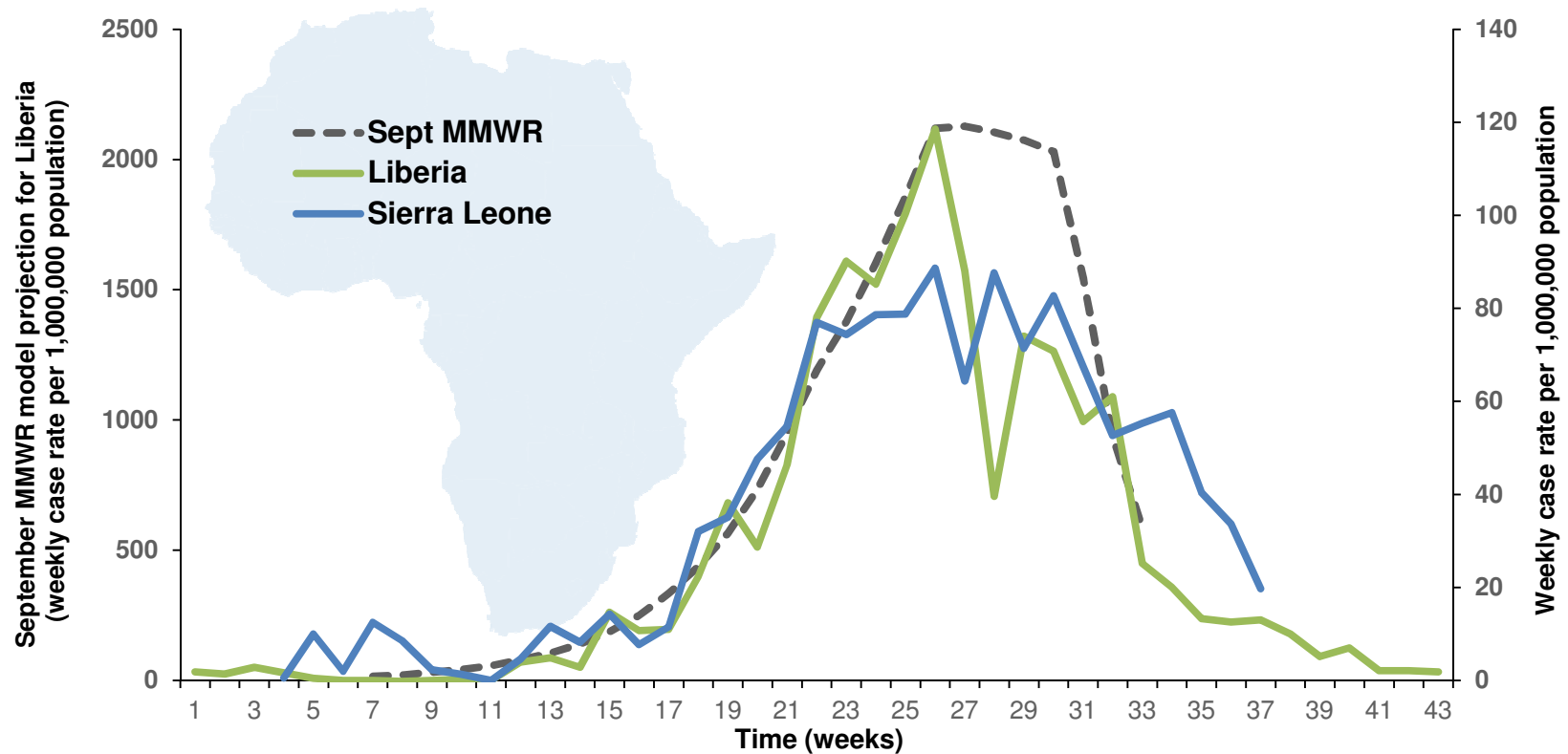
*6.2 million malaria deaths averted*







## Modeling predicted rapid rise in cases – and rapid decline **if interventions implemented rapidly**



Weekly case rates for Liberia and Sierra Leone time-shifted so that curves align compared with September *MMWR* projection for Liberia.

**Let Go**







# Global Health Security Agenda

**Prevent avoidable catastrophes**



**Detect threats early**



**Respond rapidly and effectively**



# Joint External Evaluation (JEE)

- Transparent
- Independent
- Objective
- Rigorous
- Standardized

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.	3
	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)	3
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.	3
Antimicrobial Resistance	P.3.1 Antimicrobial resistance (AMR) detection	2
	P.3.2 Surveillance of infections caused by AMR pathogens	2
	P.3.3 Healthcare associated infection (HCAI) prevention and control programmes	2
	P.3.4 Antimicrobial stewardship activities	2
Zoonotic Disease	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or Animal Health Workforce	3
	P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional	2
Food Safety	P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.	3
Biosafety and Biosecurity	P.6.1 Whole-of-Government biosafety and biosecurity system is in place for human, animal, and agriculture facilities	2
	P.6.2 Biosafety and biosecurity training and practices	3
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	3
	P.7.2 National vaccine access and delivery	5
National Laboratory System	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	4
	D.1.3 Effective modern point of care and laboratory based diagnostics	3
	D.1.4 Laboratory Quality System	1
Real-Time Surveillance	D.2.1 Indicator and event based surveillance systems	4
	D.2.2 Inter-operable, interconnected, electronic real-time reporting system	4
	D.2.3 Analysis of surveillance data	3
	D.2.4 Syndromic surveillance systems	4

<http://www.ghsaagenda.org/assessments>



*Emergency Operations Centers (EOCs)*

*Surveillance*

*Lab*

*Workforce (FETPs)*

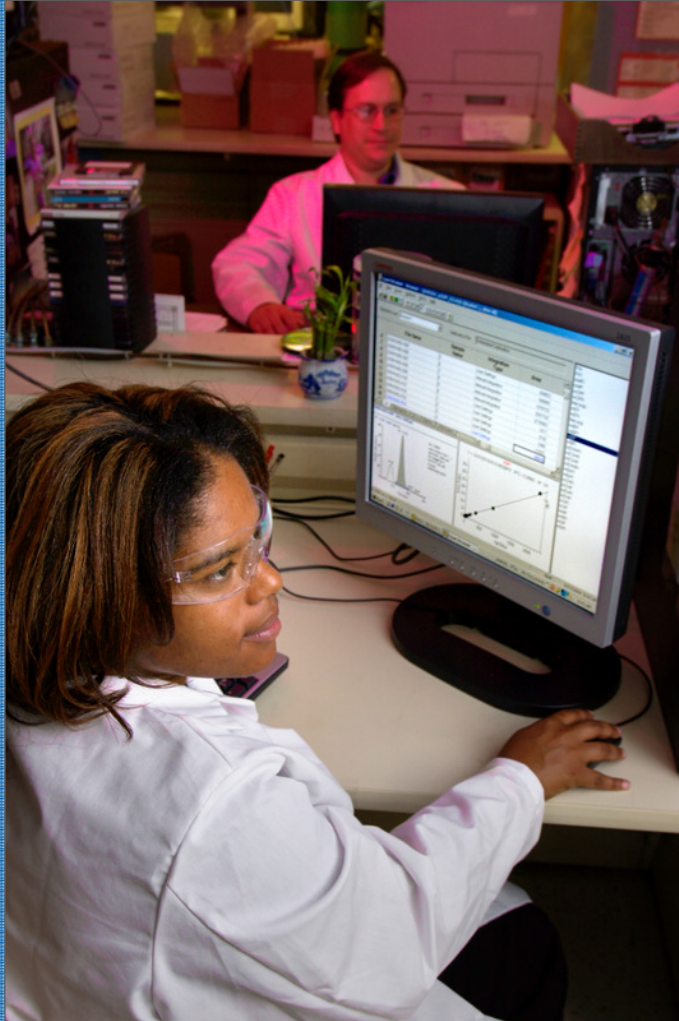






Legacy









*Over 235 million immunized with meningitis A conjugate vaccine in West Africa since December 2010*

*Polio eradication*











Saving Lives.  
Protecting People.™

**LEARN MORE ABOUT HOW  
CDC WORKS FOR YOU.**



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