What is Field Epidemiology & Laboratory Training Program (FELTP) and how does it work for effective public health surveillance and response in Africa?

Dr Patrick M Nguku

Nigeria Field Epidemiology and Laboratory Training Program

www.nigeria-feltp.net

Outline

- Description of Field Epidemiology & Laboratory Training Program (FELTP)
- Description of an effective public health surveillance
- Examples of FELTP contribution to effective public health surveillance and response
- Conclusion

Field Epidemiology & Laboratory Training Program

- Closely supervised competency-based training
- Modeled after US Center's for Disease Control & Prevention Epidemic Intelligence Service (EIS)
- Two year full-time postgraduate training
- About 25% class work, 75% field placement
- Trainees assigned to positions that provide epidemiologic and public health services
- May receive a certificate or a degree
- Aims at developing public health systems

What is a competency-based training programme?

- A cluster of related knowledge, skills, and attitudes that affects a major part of one's job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development." (Training magazine: July, 1996)
- A cluster of knowledge, skills & attitudes that enables a person to successfully perform a job.
- Important that learners demonstrate a mastery of tasks
- This approach combines the theory and best practices learned in an academic setting with the real-world challenges that an epidemiologist faces.

Critical outcomes for FELTP

- Functional and robust public health surveillance systems
- Timely and effective response to public health emergencies (including outbreaks)
- Culture of evidence-based decision making in public health
- Strengthen public health workforce (leaders and frontline implementers)
- Contribution to reduction in morbidity and mortality from priority diseases
- Networking and communication within the country and between country programs

History of FETPs

1951 : U.S. CDC established EIS as 2-year program of applied epidemiology training and service ("learning while doing")

- In context of Cold War tensions and fears of biologic warfare
- To address shortage of epidemiologists

1975 : Canadian FELTP

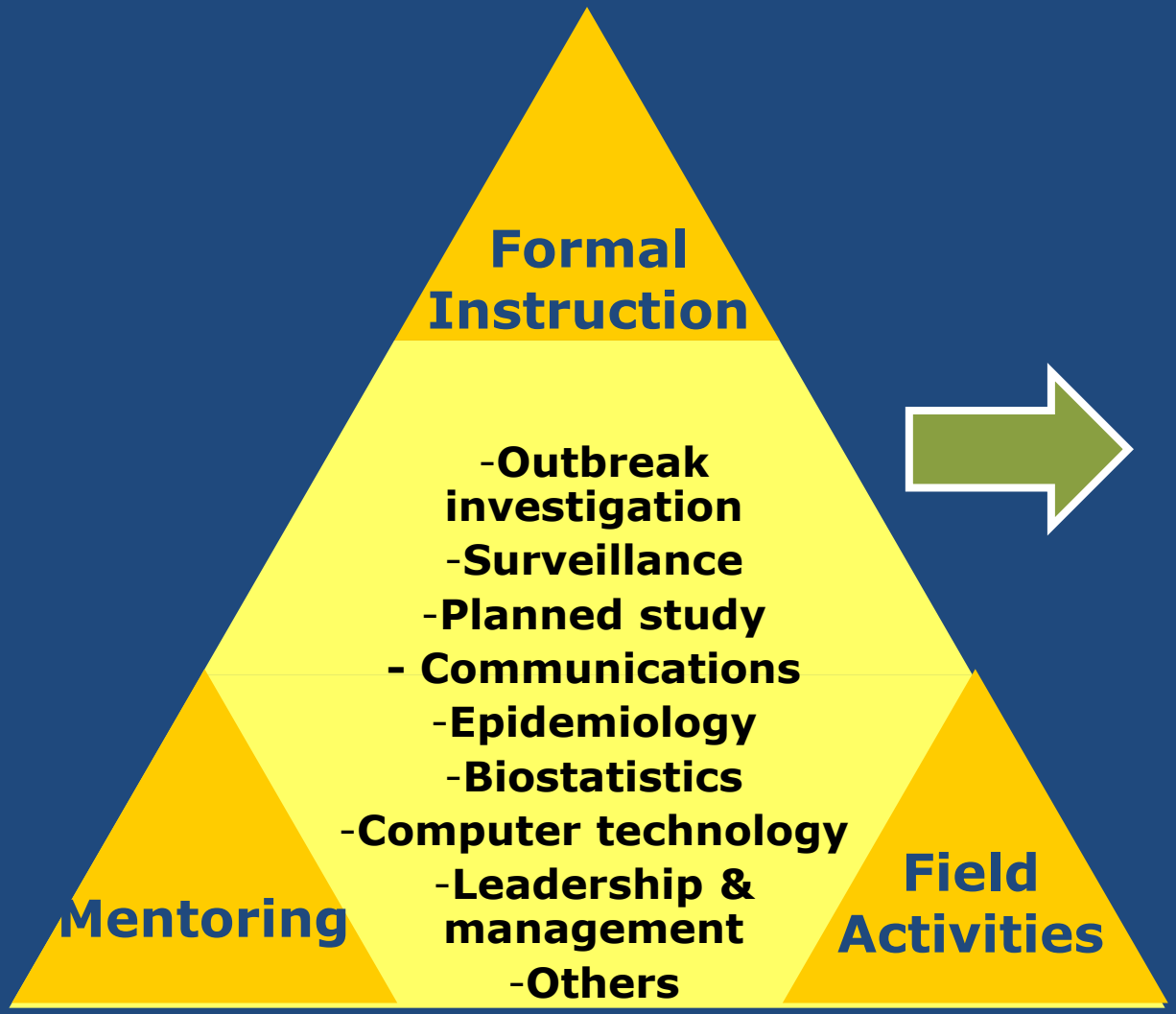
1980 : Thailand FETP established

1990s: Zimbabwe, Uganda (Public Health Schools Without Walls

2004: Kenya FELTP established (first FELTP)

Current: > 50 FETPs globally (>15 in Africa)

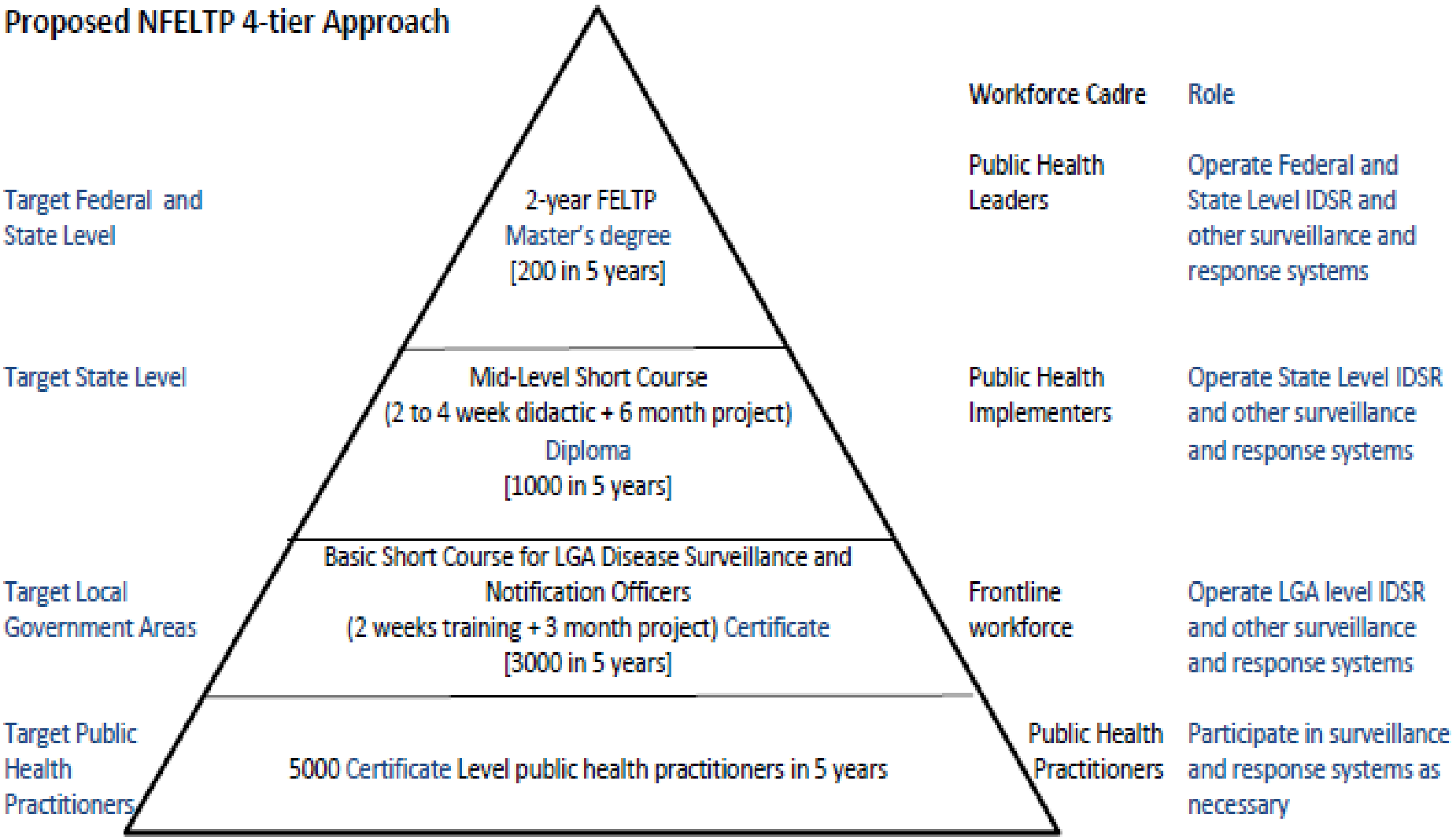
FELTP competencies and outputs



Outputs

- Outbreak report
- Surveillance analysis or data analysis report
- Surveillance evaluation report
- Study protocol
- Abstract
- Conference presentation
- Seminar
- Bulletin article
- Scientific manuscript
- Others
  - Teaching and mentoring reports
  - Management meeting minutes

FELTP tiered training approach



Inclusion of laboratory scientists in FELTP

- Fosters linkage between epidemiologists & laboratory scientists
  - Improve laboratory involvement in outbreak response and surveillance
  - Build a public health laboratory workforce
  - Public health laboratory managers & leaders
  - Build quality laboratory networks and systems

Laboratory Epidemiologist: Skilled Partner in Field Epidemiology and Disease Surveillance in Kenya

M. KARIUKI NJENGA[1], DENISE TRAICOFF[2], CHRISTOPHER TETTEH[1], SOPIATO LIKIMANI[1], JOSEPH OUNDO[1], ROBERT BREIMAN[1], JACK NYAMONGO[3], HEATHER BURKE[1], PETER NSUBUGA[2], and MARK E. WHITE[2]

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ABSTRACT

Although for over 20 years the Field Epidemiology Training Programs (FETPs) have provided a model for building epidemiology capacity in Ministries of Health worldwide, the model does not address laboratory training and its integration with epidemiology. To overcome this, Kenya added a laboratory management component in 2004, creating the first field epidemiology and laboratory training program (FELTP) to train both medical and laboratory epidemiologists. Laboratory management and epidemiology candidates were recruited from among degree-holding scientists at the Ministry of Health and trained in both applied epidemiology and laboratory management using a combination of short courses and extensive field placements. The course generated a cohort of laboratory epidemiologists with demonstrated capacity in disease surveillance and management of outbreaks. Early indicators suggest programmatic success: the start of laboratory-based disease reporting and better laboratory involvement in outbreak responses.

Public health surveillance

Ongoing, systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control

WHO Definition

"Information for Action"

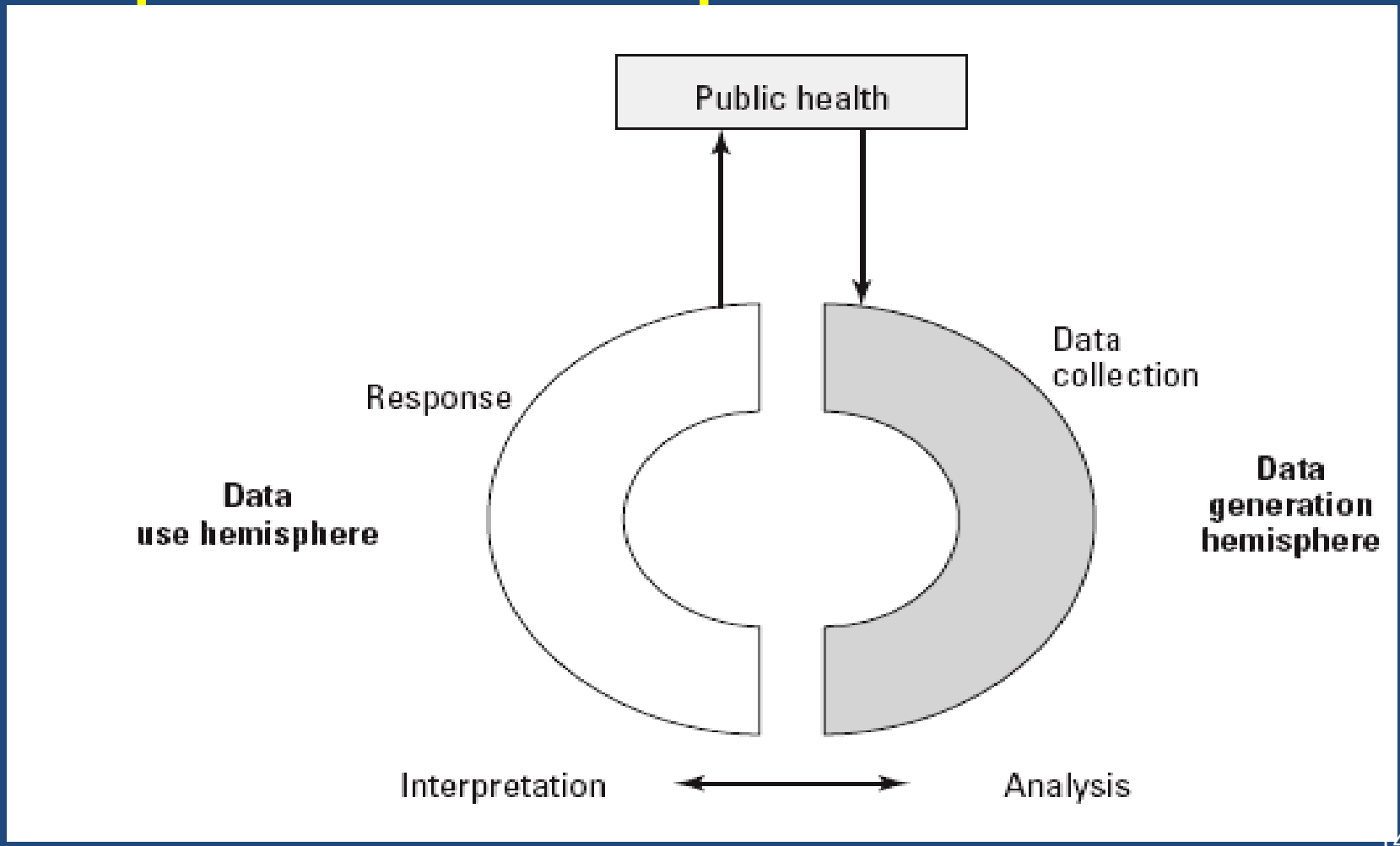
Requirements of an effective surveillance

- Surveillance is the backbone of disease control
- Prerequisite for success of implementation:
  - Well trained network of motivated staff
  - Clear standardized guidelines and tools
  - Networked and functional laboratory
  - Communication means
  - Rapid response and feedback
  - Sustainable funding

Characteristics of an effective public health surveillance

- Identifies and correctly classifies a high proportion of targeted health events
- Correctly reflects the distribution of events over time, place, and person
- Provides information rapidly enough for effective action to be taken
- Requires minimal resources appropriate to the circumstances
- Is adaptable and responsive to new demands
- Engenders a high level of participation
- Addresses important health events (i.e., of high morbidity and or mortality) which are practically preventable or controllable
- Leads to meaningful and effective public health actions based on data
- Is uncomplicated

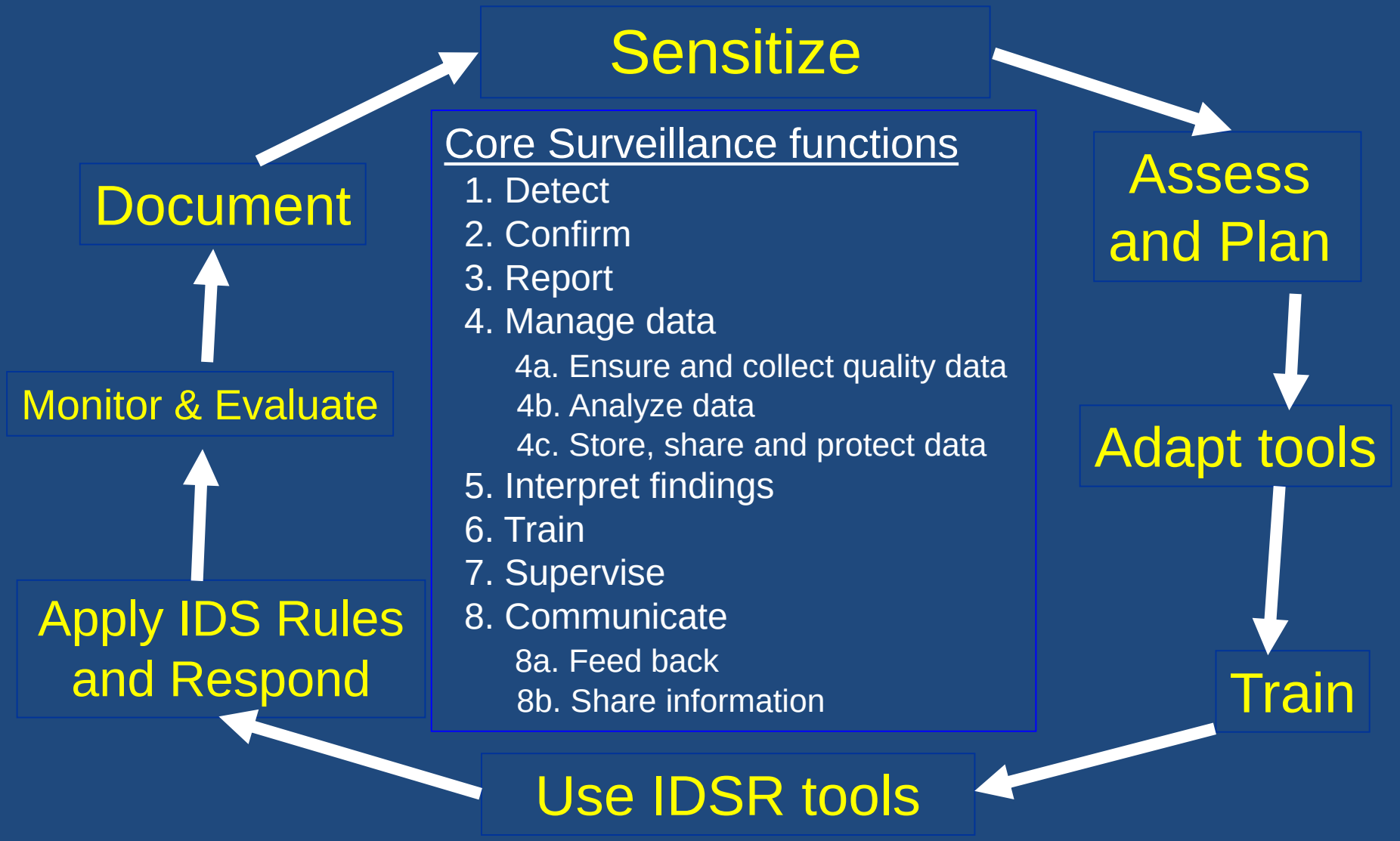
Surveillance as a tool to improve public health: surveillance and response conceptual framework



Integrated Disease Surveillance & Response (IDSR)strategy

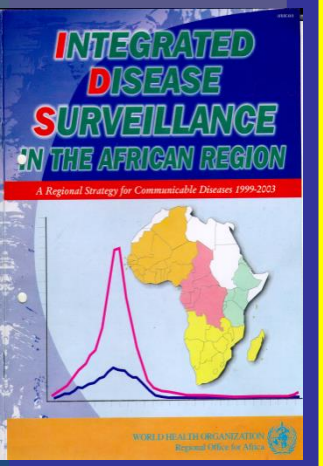
- 1998 ; IDSR adopted as a regional strategy to strengthen communicable disease surveillance
- Objectives
  - Strengthen capacity for effective surveillance
  - Integrate disease surveillance systems for efficiency
  - Improve use of surveillance information for decision making
  - Improve laboratory involvement in epidemic detection and confirmation
  - Increase involvement of clinicians in surveillance
  - Improve surveillance information flow in all levels of the health care system
  - Emphasize community participation in surveillance (detection and response)

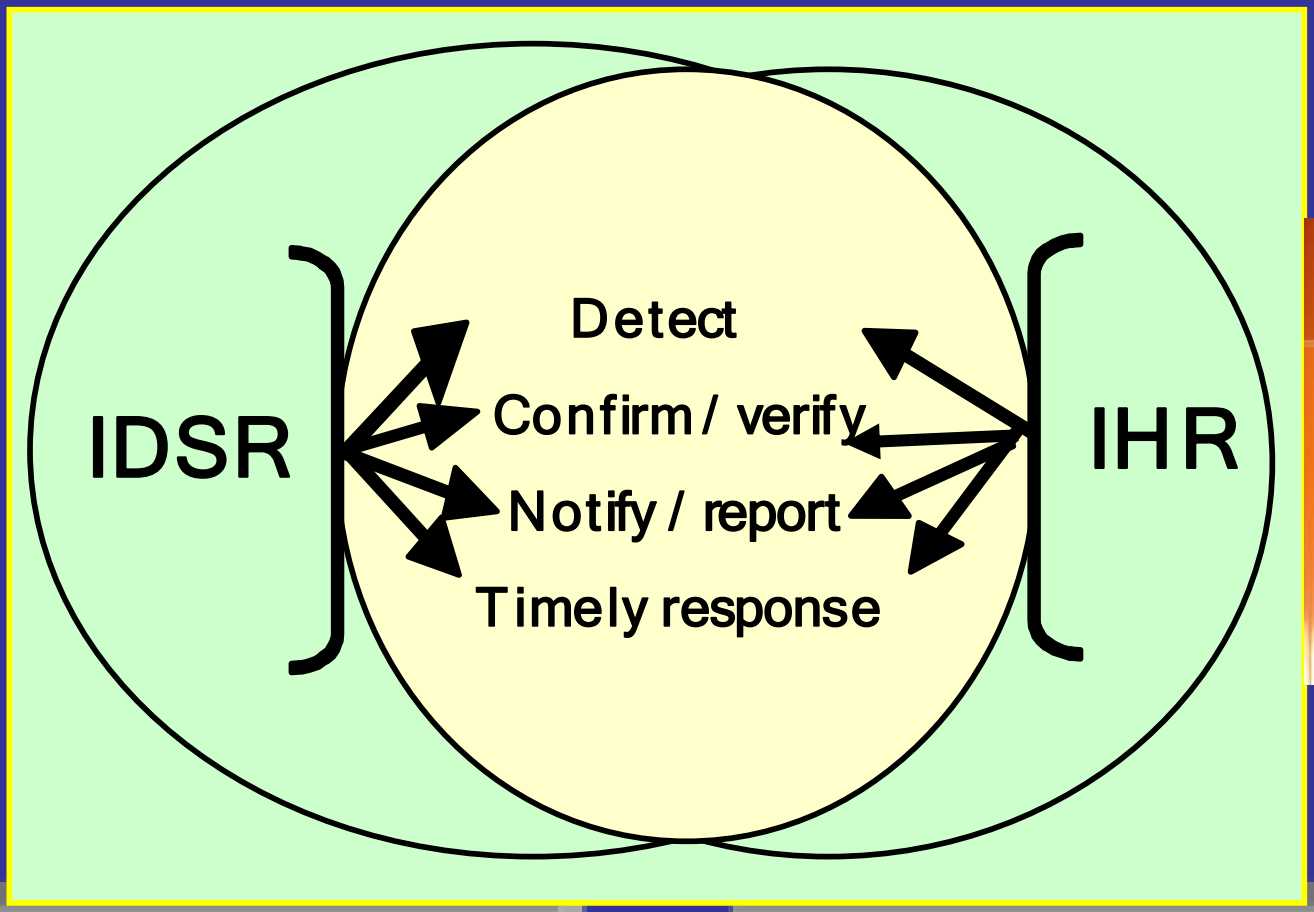
IDSR includes field epidemiology

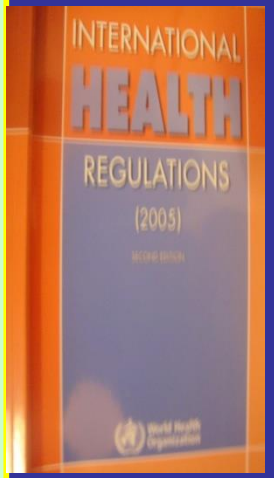


International Health Regulations (IHR) and IDSR

- In the WHO African Region, implementation of IHR is within the context of IDSR



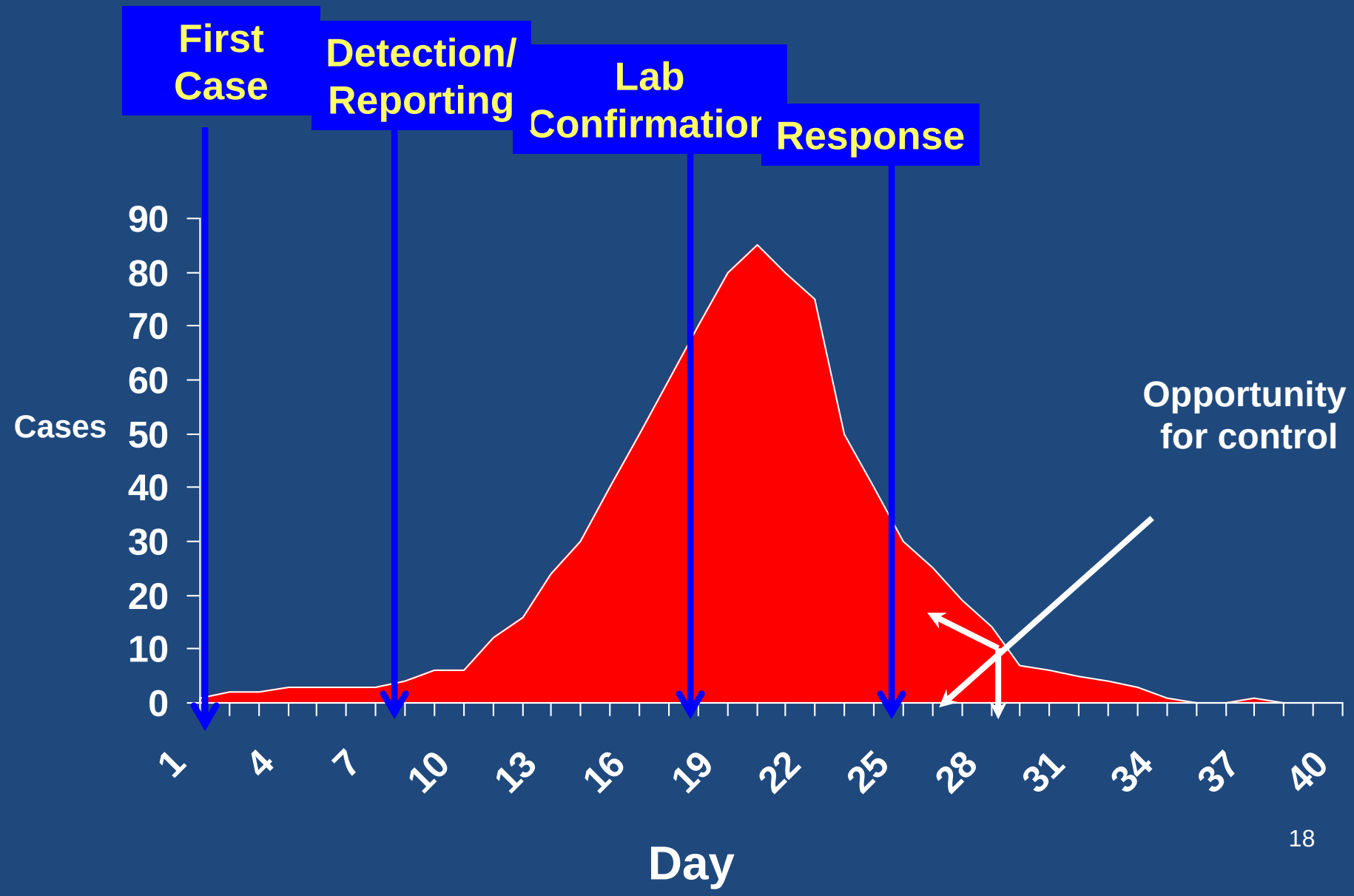




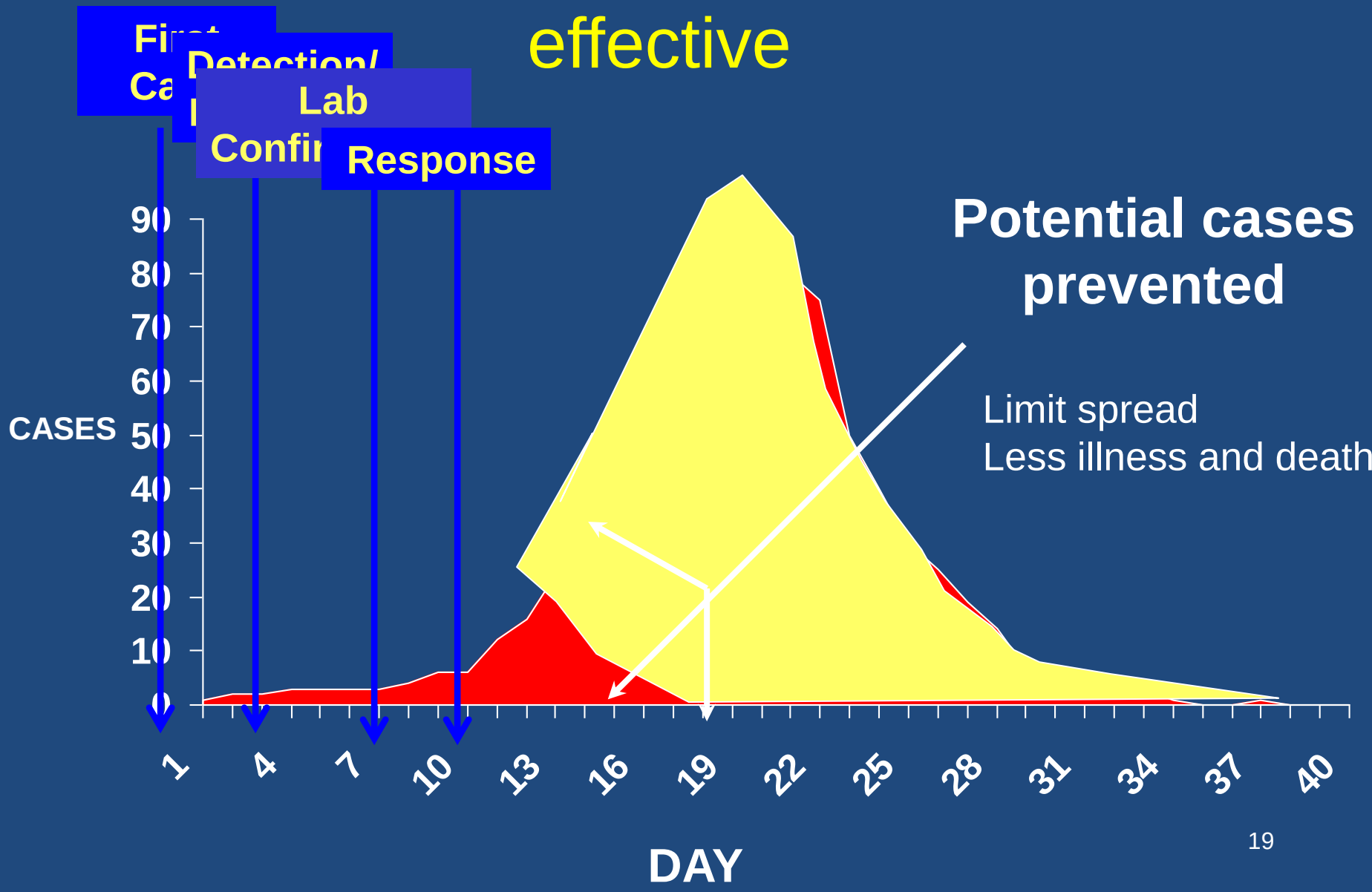
IDSR is a vehicle for IHR

IHR is the driving force for IDSR

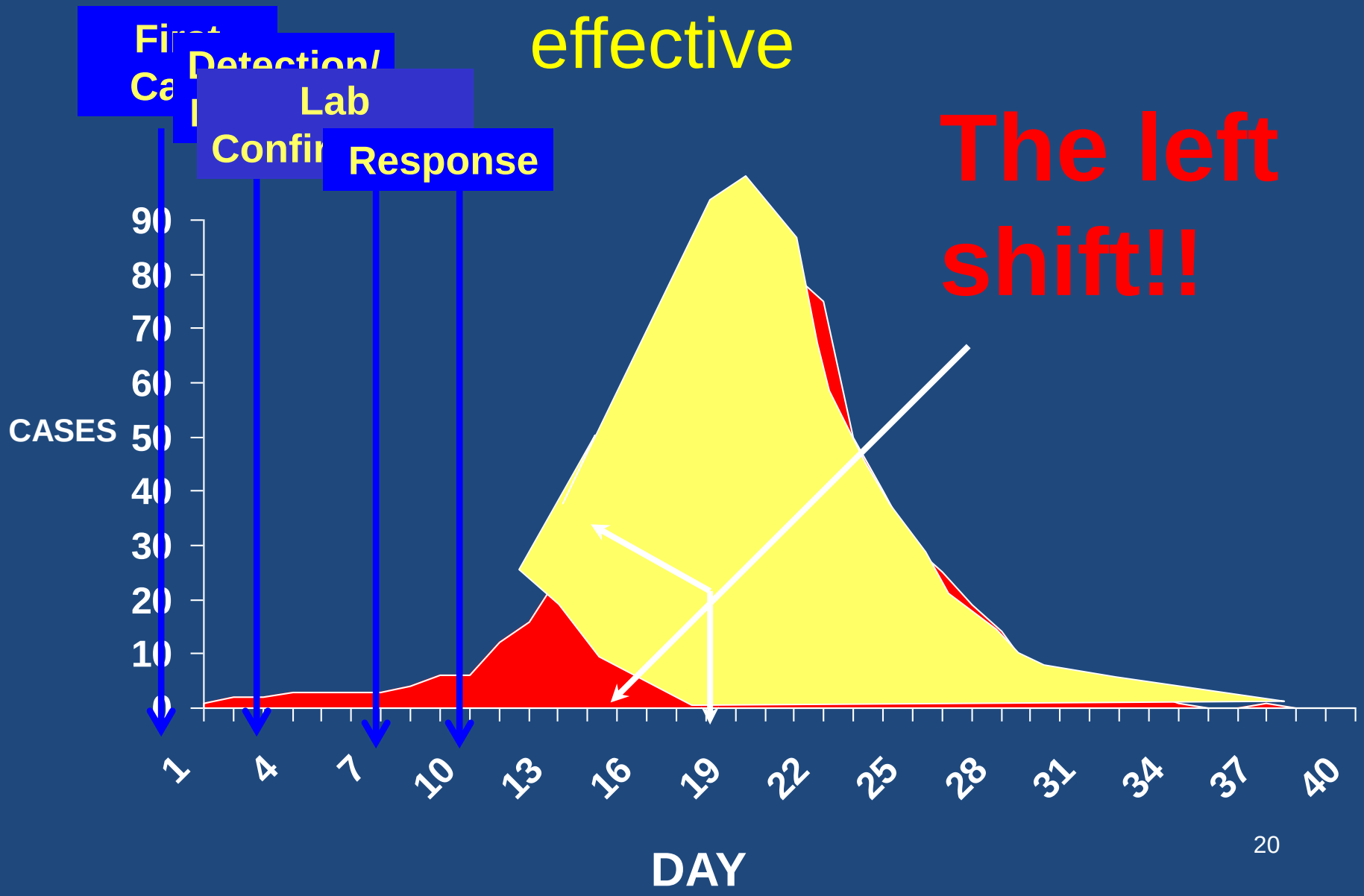
“Usual” sequence of events in an outbreak



Ideal sequence of events in an outbreak where surveillance and response are effective



Ideal sequence of events in an outbreak where surveillance and response are effective



What is required for the epidemic curve to shift to the left

- Functional and effective surveillance and response system
- Skilled public health workforce
- Functional and networked laboratory
- Intersectoral collaboration
  - Human, animal and environment
- Strengthened public health system
- Public health funding and leadership

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- Skilled public health workforce
- Functional and networked laboratory
- Intersectoral collaboration
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- Strengthened public health system
- Public health funding and leadership

FELTP addresses some of these issues

Surveillance as a tool to improve public health: role of field epidemiologists

- Competent field epidemiologists can provide evidence to enable a country to:
  - Respond to acute problems
  - Obtain scientific basis of program and policy decision-making
  - Implement disease surveillance systems
  - Operate disease control and other health programs
  - Support national health planning
  - Make resource allocation decisions

FELTP in Africa

- Over 1500 trained or in training in >15 countries
- Support to IDSR /IHR
  - Multi-disease surveillance
  - Response to numerous outbreaks
- Research
- Networking
  - Cross-border
  - AFENET
  - One health
- Disease specific
  - HIV, TB , Malaria
  - Polio
  - Ebola
  - Rift valley fever

PanAfrican Medical Journal

Open Access

Research

Field Epidemiology and Laboratory Training Programs in sub-Saharan Africa from 2004 to 2010: need, the process, and prospects

Peter Nsubuga[1,8], Kenneth Johnson[2], Christopher Tetteh[2], Joseph Oundo[2], Andrew Weathers[3], James Vaughan[1], Suzanne Elbon[2], Mufuta Tshimanga[4], Faustine Nduguilile[5], Chima Ohuabunwo[6], Michele Evering-Watley[1], Fausta Mosha[7], Obinna Oleribe[8], Patrick Nguku[9], Lora Davis[10], Nykiconia Preacely[2], Richard Luce[11], Simon Antara[12], Hiari Imara[1], Yassa Ndjakani[13], Timothy Doyle[14], Yescenia Espinosa[1], Ditu Kazambu[15], Dieula Delissaint[15], John Ngulefac[1], Kariuki Njenga[16]

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Field Epidemiology and Laboratory Training Programs in West Africa as a model for sustainable partnerships in animal and human health

Karen M. Becker, DVM, MPH, DACVPM; Chima Ohuabunwo, MD, MPH; Yassa Ndjakani, MD, MP
Patrick Nguku, MD, MSc; Peter Nsubuga, MD, MPH; David Mukanga, MPH;
Frederick Wurapa, MD, MPH

The concept of animal and human health experts working together toward a healthier world has been endorsed, but challenges remain in identifying concrete actions to move this one health concept from vision to action. In 2008, as a result of avian influenza outbreaks in West Africa, international donor support led to a unique opportunity to invest in Field Epidemiology and Laboratory Training Programs (FELTPs) in the region that engaged the animal and human health sectors to strengthen the capacity for prevention and control of zoonotic diseases. The FELTPs mixed 25% to 35% classroom and 65% to 75% field-based training and service for cohorts of physicians, veterinarians, and laboratory scientists. They typically consisted of a 2-year course leading to a master's degree in field epidemiology and public health laboratory management for midlevel public health leaders and competency-based short courses for frontline public health surveillance workers. Trainees and graduates work in multidisciplinary teams to conduct surveillance, outbreak investigations, and epidemiological studies for disease control locally and across borders. Critical outcomes of these programs include development of a cadre of public health leaders with core skills in integrated disease surveillance, outbreak investigation, vaccination campaigns, laboratory diagnostic testing, and epidemiological studies that address priority public health problems. A key challenge exists in identifying ways to successfully scale up and transform this innovative donor-driven program into a sustainable multisectoral one health workforce capacity development model. (*J Am Vet Med Assoc* 2012;241:572–579)

RESEARCH Open Access

Field Epidemiology Training Programmes in Africa - Where are the Graduates?

David Mukanga[1*], Olivia Namusisi[1], Sheba N Gitta[1], George Pariyo[2], Mufuta Tshimanga[3], Angela Weaver[4], Murray Trostle[5]

Abstract

Background: The current shortage of human resources for health threatens the attainment of the Millennium Development Goals. There is currently limited published evidence of health-related training programmes in Africa that have produced graduates, who remain and work in their countries after graduation. However, anecdotal evidence suggests that the majority of graduates of field epidemiology training programmes (FETPs) in Africa stay on to work in their home countries–many as valuable resources to overstretched health systems.

Methods: Alumni data from African FETPs were reviewed in order to establish graduate retention. Retention was defined as a graduate staying and working in their home country for at least 3 years after graduation. African FETPs are located in Burkina Faso, Ethiopia, Ghana, Kenya, Nigeria, Rwanda, South Africa, the United Republic of Tanzania, Uganda and Zimbabwe. However, this paper only includes the Uganda and Zimbabwe FETPs, as all the others are recent programmes.

Results: This review shows that enrolment increased over the years, and that there is high graduate retention, with 85.1% (223/261) of graduates working within country of training; most working with Ministries of Health (46.2%; 105/261) and non-governmental organizations (17.5%; 40/261). Retention of graduates with a medical undergraduate degree was higher (Zimbabwe 80% [36/83]; Uganda 90.6% [125/178]) than for those with other undergraduate qualifications (Zimbabwe 71.1% [27/83]; Uganda 87.5% [35/178]).

Conclusions: African FETPs have unique features which may explain their high retention of graduates. These include: programme ownership by ministries of health and local universities; well defined career paths; competence-based training coupled with a focus on field practice during training; awarding degrees upon completion; extensive training and research opportunities made available to graduates; and the social capital acquired during training.

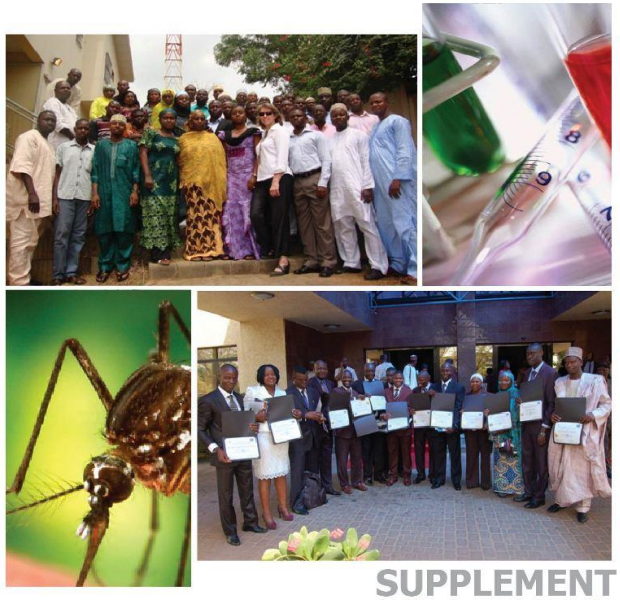
July 2014

Volume 18

Supplement 1

The Pan African Medical Journal

Building a Public Health Workforce in Nigeria through Experiential Training



SUPPLEMENT

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PanAfrican Medical Journal

Building a public health workforce in Nigeria through experiential training

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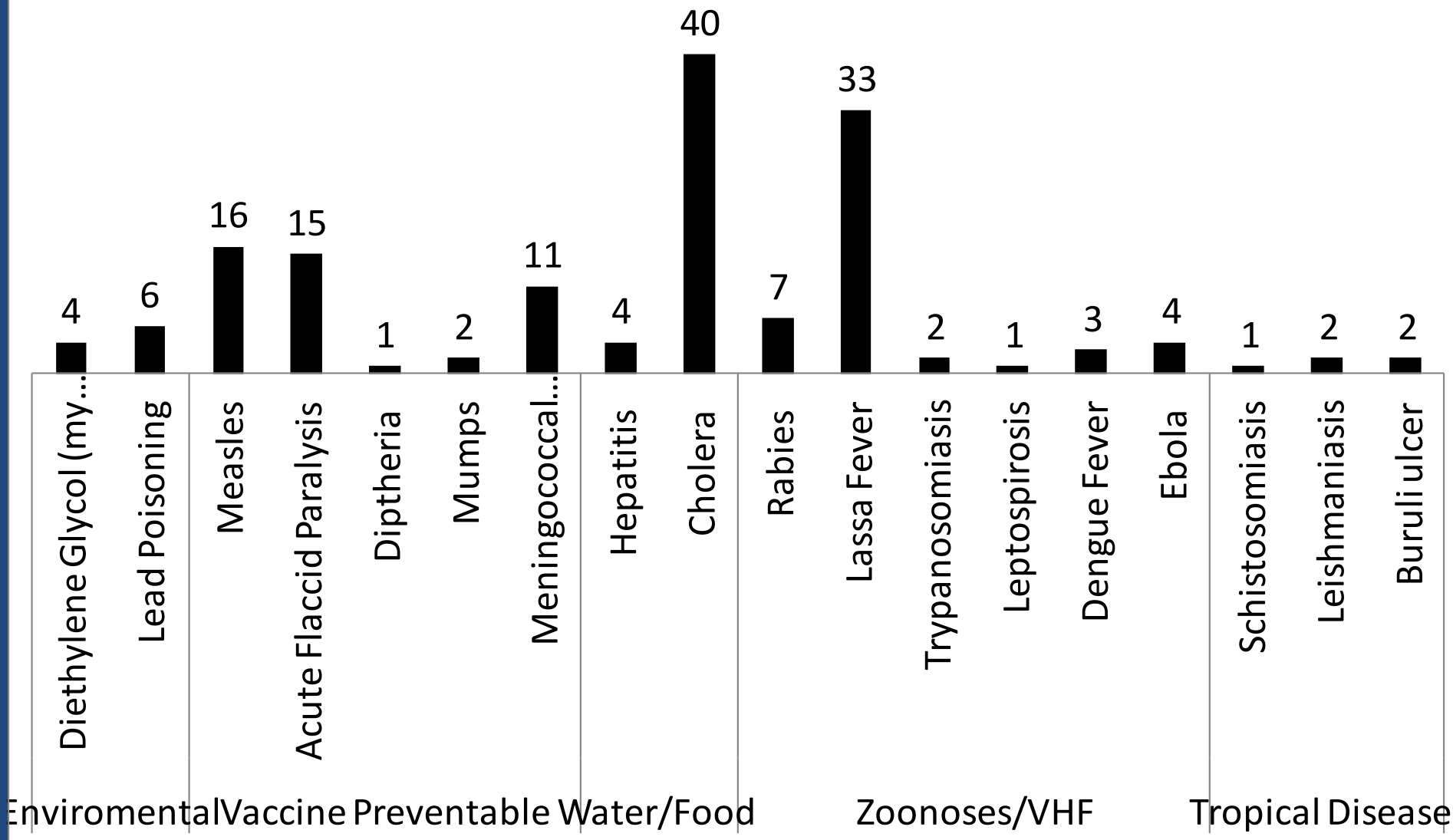


Zimbabwe Weekly Epidemiological Bulletin

World Health Organization

Number 182 Epidemiological week
38(week ending 23 September 2012)

Highlights: Week 38: -17-23 September 2012)

- 4 new suspected typhoid cases from Chitungwiza City
- 5 diarrhoea deaths reported

Contents

A. General Context

The typhoid outbreak in Chitungwiza continues since it was first reported on 16 June 2012. Harare still reports some cases from 10 October 2011when an outbreak of typhoid was initially reported. The disease has also been reported in other provinces.

There were no reports of cholera, influenza A and measles outbreaks countrywide.

B. Epidemic prone diseases

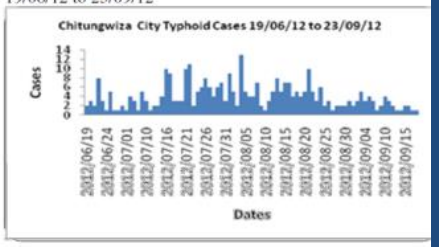
Cholera

No suspected cases of cholera were reported this week. The cumulative figure for cholera, from 2 May to 19 June 2012, is 22 cases (11confirmed cases, 11 suspected cases) and 1 death. This outbreak was declared over on 20 June 2012.

Typhoid outbreak

Four new suspected typhoid cases were reported in Chitungwiza this week. The cumulative number of cases as of 2 October stands at 367 with one death. Nationally the cumulative figure for typhoid is 4 916 suspected cases, 80 confirmed cases and 2 deaths (CFR 0.04%) since October 2011.

Figure 1: Chitungwiza City Typhoid Cases: 19/06/12 to 23/09/12



Anthrax

This week, no anthrax cases were reported. Since the beginning of 2012, a total of 36 human human cases have been reported.

Dysentery

Clinical dysentery cases reported this week are 1 067 and no deaths. Of the reported cases 282 (26.4%) were from the under five years of age. The provinces which reported the highest number of dysentery cases were Manicaland (183) and Mashonaland Central (174). The cumulative figure for dysentery is 28 150 and 19 deaths (CFR0.07%).

Measles

A total of 4 suspected cases of measles were reported this week through the Weekly Disease Surveillance System. The cumulative figure for suspected measles is 282 and no death.

Malaria

A total of 4 272 malaria cases and 1 death(CFR0.02%) were reported this week. Of the cases reported 792(18.5%) and no death were from the under five years of age. The death was reported from Sanyati district. The provinces which reported the highest number of malaria cases were Manicaland (1 552) and Mashonaland West (969). The cumulative figure for malaria is 274 693 and 182 deaths (CFR0.07%).

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Weekly Epidemiology Report

Nigeria Centre for Disease Control (NCDC)
Federal Ministry of Health - Nigeria

Issue: Volume 4 No. 13 4th April, 2014

Summary Table (IDSR Weekly Report as at 04/04/2014)

Disease	Variables	Week 12	Week 13		Cumulative Weeks	
		2014	2014	2013	01 - 13, 2014	01 - 13, 2013
AFP	Cases	72	50	67	974	1373
	Deaths	0	0	0	0	0
	CFR	0.00%	0.00%	0.00%	0.00%	0.00%
Polio	WPV Types 1 & 3	0	0	0	1	12
	WPV Types 1	0	0	0	1	12
	WPV Types 3	0	0	0	0	0
Cholera	Cases	1584	1881	0	12223	2
	Deaths	19	18	0	178	1
	CFR	1.20%	0.96%	0.00%	1.46%	50.00%
Lassa Fever	Cases	34	31	21	350	545
	Deaths	0	0	0	19	23
	CFR	0.00%	0.00%	0.00%	5.43%	4.22%
CSM	Cases	122	91	39	658	602
	Deaths	19	2	3	63	33
	CFR	15.57%	2.20%	7.69%	9.57%	5.48%
Measles	Cases	497	559	2034	7361	22291
	Deaths	1	2	36	46	172
	CFR	0.20%	0.36%	1.77%	0.62%	0.77%
Guinea Worm	Cases	0	0	0	0	0
	Deaths	0	0	0	0	0
	CFR	0.00%	0.00%	0.00%	0.00%	0.00%

2013 (Jan - Dec) - 2014 Wild Polio Virus and circulating Vaccine-derived Polio Virus type 2 isolates by States and Zones as at Week 13. 2014)

S/No	Zone	State	2014 New Results Received this week				2014				2013			
			WPV1	WPV3	cVDPV2	Total	WPV1	WPV3	cVDPV2	Cum Total	WPV1	WPV3	cVDPV2	Cum Total
1		FCT, Abuja	-	-	-	-	0	0	0	0	1	0	0	1
2	NC	Nasarawa	-	-	-	-	0	0	0	0	1	0	0	1
3		Niger	-	-	-	-	0	0	0	0	1	0	0	1
4		Jigawa	-	-	-	-	0	0	0	0	0	0	0	0
5		Kaduna	-	-	-	-	0	0	0	0	0	0	0	0
6		Kano	-	-	-	-	1	0	0	1	15	0	0	15
7	NW	Katsina	-	-	-	-	0	0	0	0	0	0	0	0
8		Kebbi	-	-	-	-	0	0	0	0	0	0	0	0
9		Sokoto	-	-	-	-	0	0	0	0	0	0	0	0
10		Zamfara	-	-	-	-	0	0	0	0	0	0	0	0
11		Adamawa	-	-	-	-	0	0	0	0	0	0	1	1
12		Bauchi	-	-	-	-	0	0	0	0	6	0	0	6
13	NE	Borno	-	-	-	-	0	0	1	1	17	0	4	21
14		Gombe	-	-	-	-	0	0	0	0	1	0	0	1
15		Taraba	-	-	-	-	0	0	0	0	3	0	0	3
16		Yobe	-	-	-	-	0	0	0	0	8	0	0	8
TOTAL			-	-	-	-	1	0	1	2	53	0	5	58

Latest onset of confirmed WPV was 01-Feb-2014 from Gaya LGA, Kano State.

Republic of Kenya

Ministry of Health

WEEKLY EPIDEMIOLOGICAL BULLETIN

Week 43 — **Week Ending 26th November, 2014**

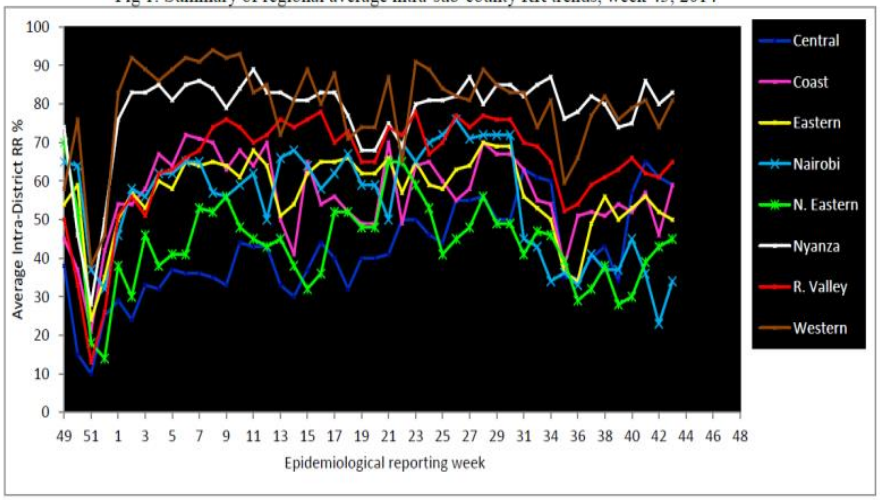
Regional & national surveillance indicators for week 43

Region	No. of Sub-counties	Reporting on time	Complete reports	Intra-Sub-county facility RR (%)	Timeliness (%)	Completeness of reports (%)	Weighted aggregate score (%)
Central	36	33	33	59	92	100	82
Coast	21	22	22	59	100	100	86
Eastern	59	47	47	50	80	100	73
Nairobi	9	8	8	34	89	100	72
N. Eastern	19	14	14	45	74	100	68
Nyanza	41	39	39	83	95	100	92
R. Valley	67	61	61	65	91	100	84
Western	32	30	30	81	97	100	92
National	284	254	254	60	90	100	81

- Overall IDSR reporting increased in week 43 as compared to week 42
- Zero measles cases confirmed in the week
- Outbreaks: Kala-azar
- Total confirmed measles cases in the country in 2014 is 107

www.ddsr.or.ke

Fig 1: Summary of regional average intra-sub-county RR trends, week 43, 2014



Ministry of Health Uganda

Weekly Epidemiological Bulletin

Epidemiological week 41 of 2014 [6th October– 12th October 2014]

National Summary

Indicator	Epidemiological week 41		
	2014	2013	Median 2008-2012
% of Districts reporting	99.12	98.21	
% HU reporting	59	58	
% Timely District reports	99.12	97.32	
AFP	0(0)	4(0)	
Animal bites	390(0)	387(0)	
Cholera	1(0)	2(0)	
Dysentery	891(1)	1024(0)	
Guinea Worm	0(0)	0(0)	
Malaria	133431 (31)	170441 (43)	
Measles	50(0)	43(0)	
Meningitis	9(2)	3(1)	
NNT	3(1)	1(0)	
Plague	1(0)	0(0)	
Typhoid	1437(0)	1396(0)	
S/Sickness	0(0)	0(0)	
Human Influenza	0(0)	0(0)	
Nodding Syndrome	0(0)	0(0)	
Yellow Fever	0(0)	0(0)	
Viral Hemorrhagic Fever	0(0)	0(0)	
Maternal Deaths	5	5	

Highlights of the Week

Completeness & Timeliness of Reporting

This week, 111 (99.12%) districts submitted their weekly reports as opposed to 107 (95.53%) for the corresponding week of 2013. The mean intra-district completeness this week is 59 [median 63.0%]; compared to the mean intra-district completeness of 58 [median 63.0%] for the corresponding week of 2013.

Only 31 (27.68%) of the districts that reported this week attained an intra-district completeness of at least 80%, Compared to 32 (28.57%) during the corresponding week of 2013. **This week 111 districts submitted their weekly reports** [see annex 1].

Timeliness for week 41 reporting is 111 (99.12%) for the current week; and 109 (97.32%) for the corresponding week of 2013.

The proportion of health facilities submitting weekly reports in each of the reporting districts is way below the national target of 80% in most of the districts. DHOs and district surveillance focal persons (DSFPs) are urged to ensure their districts submit weekly reports and to actively follow-up silent health facilities.

Public Health Emergencies/Disease Outbreaks

Polio Outbreak, Kamuli and Kween Districts: A suspected AFP case was detected in Kween District between July and September 2014. Stool samples from the suspected case and 5 contacts were collected on 15th and 16th September 2014. While results were subsequently negative for the suspected case, one of the contacts tested positive. In Kamuli, the AFP case was detected by the STOP team on 25th September 2014 beyond 14 days of onset. The AFP case was negative for polio but one the 4 contacts sampled, a sibling to the AFP case, was positive for polio. Detailed field investigations into these cases have been conducted in both districts and the next steps will be determined by the laboratory findings.

Marburg Outbreak, Mpigi: On 3rd October 2014, UVRI/CDC Viral Haemorrhagic Fever Reference Laboratory in Entebbe released preliminary results of a sample that was obtained from a patient in a private Hospital in Kampala. Results of the repeat test were positive for Marburg on 4th October 2014. A Marburg outbreak was declared and response activities started in Kampala, Mpigi, and Kasese. 197 contacts were traced and followed for 21 days. None of them developed Marburg disease. The country will be declared Marburg free on 11th November 2014, having finished 42 days without detecting any Marburg cases despite heightened surveillance

Cholera outbreak, Arua: There has been a Cholera epidemic in Arua District since 14th July 2014. As of 2nd October, **55** suspected cases (4 confirmed) including **two** deaths had been reported. Two cases were still admitted at Omugo HC IV. The most affected sub counties were River Olli, Adumi, Ayivumi and Rhino camp. The district reported on case during the current week. The cholera outbreak in Moyo has been controlled. Overall, **29** cases were recorded between 17th July and 26th August. Affected Sub Counties were Dufile (16 cases) and Metu (13 cases with 1 death). No additional cases have been recorded since though active surveillance is still continuing.

Ebola and other PH emergencies

International Journal of Infectious Diseases (2004) 8, 27–37

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Containing a haemorrhagic fever epidemic: the Ebola experience in Uganda (October 2000–January 2001)☆

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Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Early Release / Vol. 63
September 30, 2014

Ebola Virus Disease Outbreak — Nigeria, July–September 2014

Faisal Shuaib, DrPH[1], Rajni Gunnala, MD[2], Emmanuel O. Musa, MBBS[3], Frank J. Mahoney, MD[2], Olukayode Oguntimehin, MSc[4], Patrick M. Nguku, MBChB[5], Sara Beysolow Nyanti, MPA[6], Nancy Knight, MD[7], Nasir Sani Gwarzo, MD[1], Oni Idigbe, PhD[8], Abdulsalam Nasidi, MD[1], John F. Vertefeuille, PhD[2] (Author affiliations at end of text)

Ebola Hemorrhagic Fever Associated with Novel Virus Strain, Uganda, 2007–2008

Joseph F. Wamala, Luswa Lukwago, Mugagga Malimbo, Patrick Nguku, Zabulon Yoti, Monica Musenero, Jackson Amone, William Mbabazi, Miriam Nanyunja, Sam Zaramba, Alex Opio, Julius J. Lutwama, Ambrose O. Talisuna, and Sam I. Okware

Emergency preparedness and the capability to identify outbreaks: A case study of Sabon Gari Local Government Area, Kaduna state

A. A. Abubakar, S. H. Idris, K. Sabitu, A. U. Shehu, M. N. Sambo
Department of Community Medicine, Ahmadu Bello University, Zaria, Nigeria

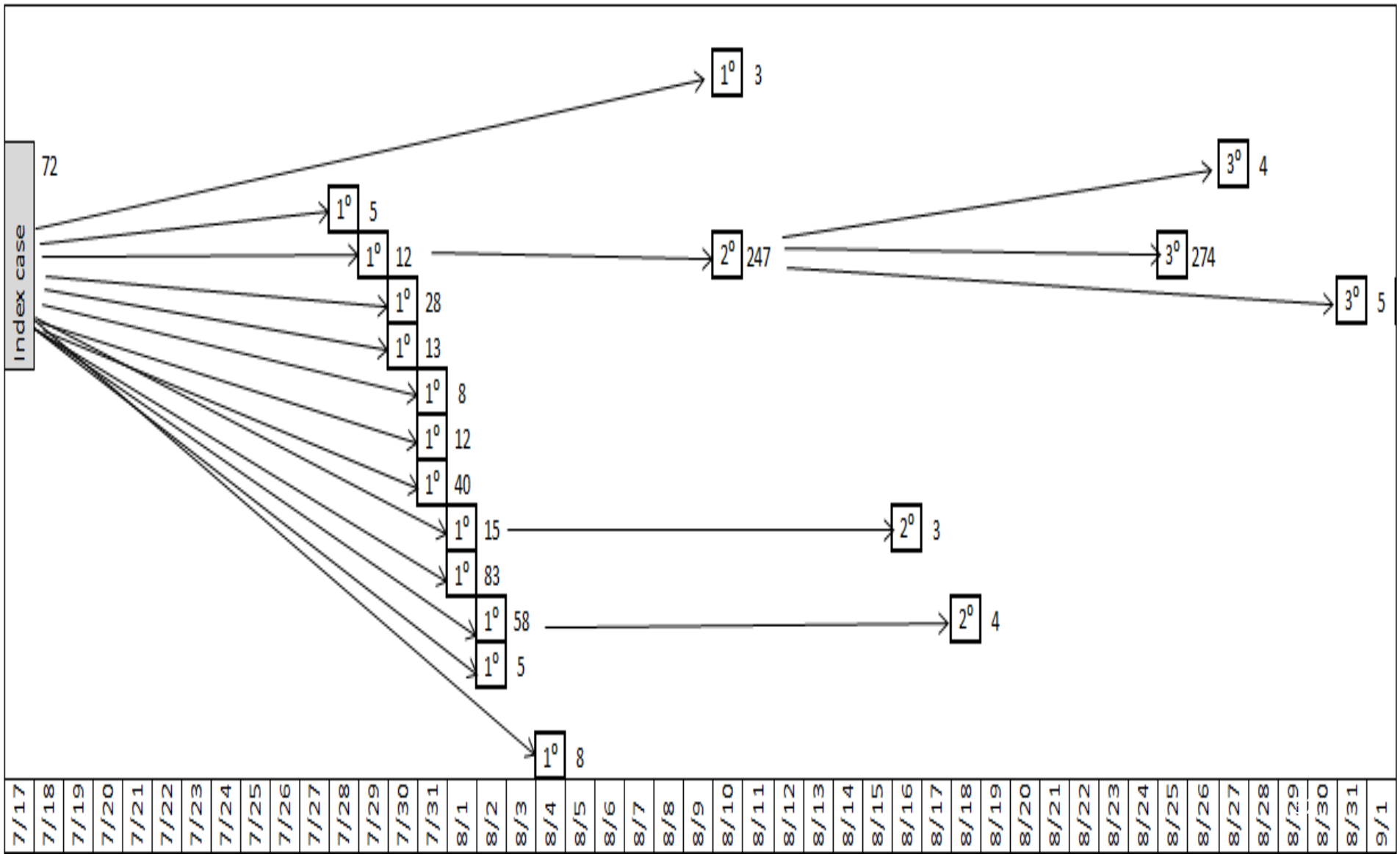
Ebola outbreak in Nigeria

- Imported case in July 2014
  - 20 cases with 8 deaths ; rapid response
  - 899 contacts ; > 97% contact tracing daily rate
  - Controlled within 8 weeks
- Why was it successful
  - Government leadership through EOC
  - Preparedness plan and rapid response
  - Use of highly skilled workforce for
    - Rapid response
    - Contact tracing
    - Operational research
    - Innovation – real time monitoring for contacts

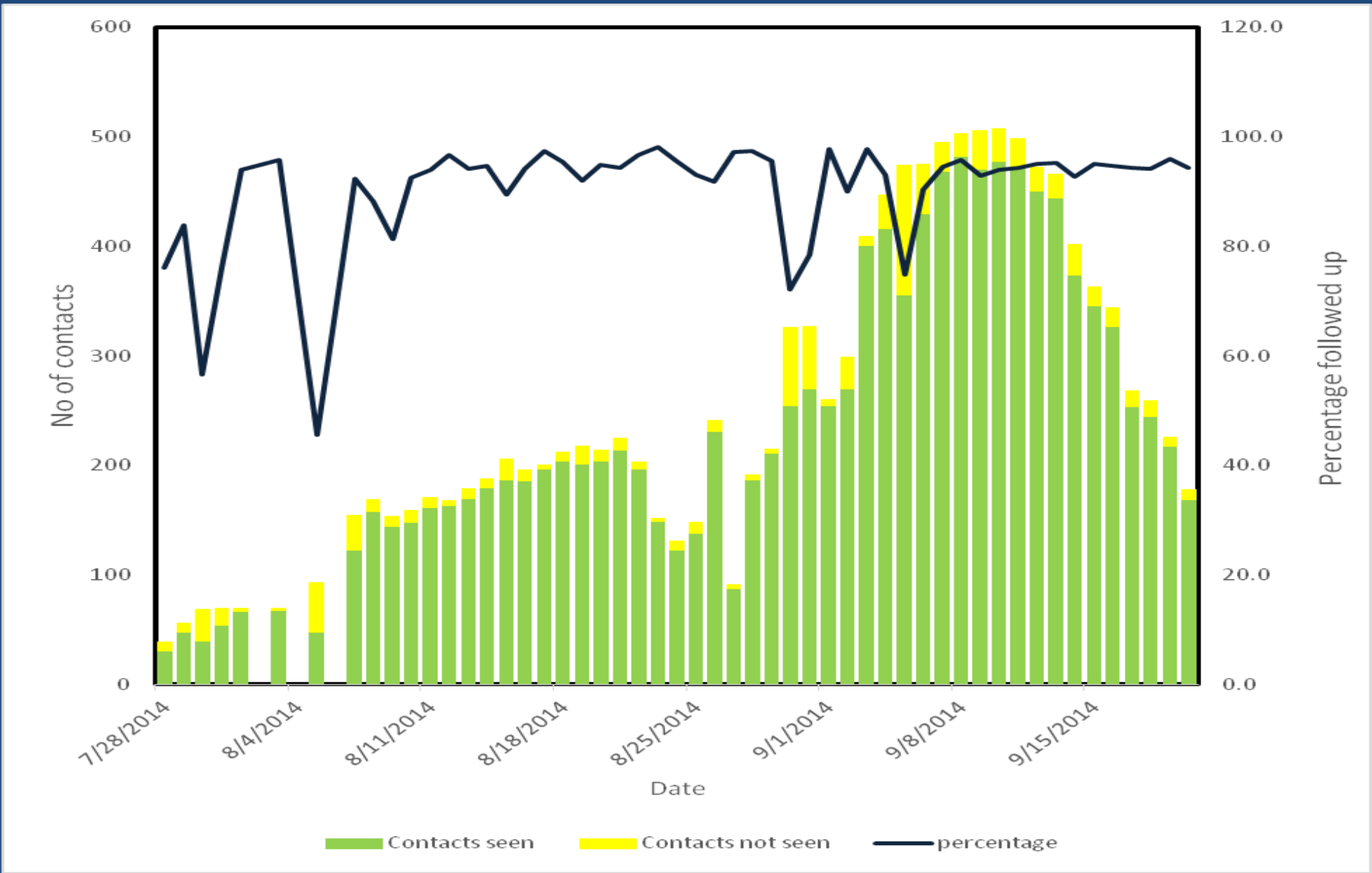
FELTP role in Ebola response

- Over 100 graduates and residents involved ; early
  - *Investigation competencies*
  - *Interpersonal communication skills*
  - *Epidemiology background*
  - Case identification and investigation
  - Contact identification and monitoring using real time (RT), GIS enabled system
  - All contact identified and followed up
  - Over 18 000 contact visits and interview in 3 states with > 97% coverage rates
- Operational research to identify specific response gaps – evidence based decisions
- Follow up activities – RT surveillance, repeat surveys
- Deployment to other countries

Ebola outbreak in Nigeria 2014 – transmission chain



Ebola outbreak in Nigeria 2014 - contact tracing



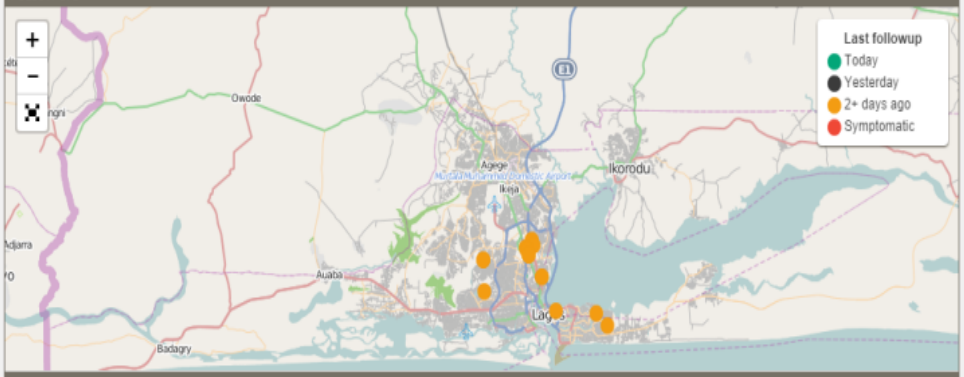
Real time contact tracing monitoring

EOC Nigeria | Ebola Outbreak Response

08:58:44
08:58:02 - Last Update

State ▾ ebola ▾

FOLLOW UPS



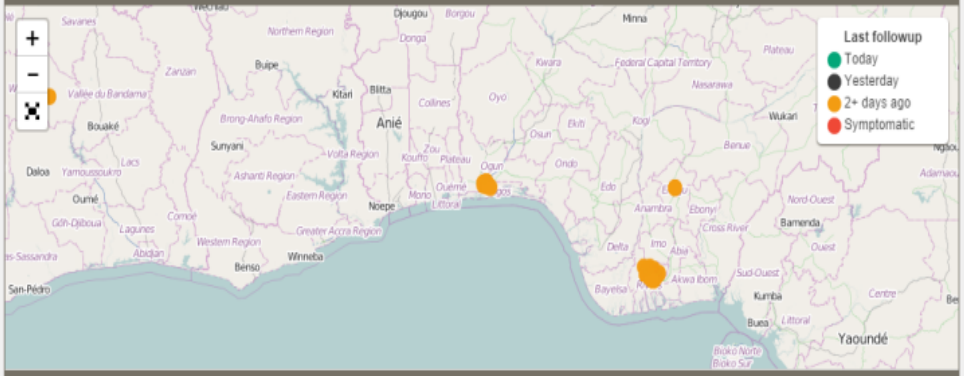
FOLLOW UPS

Name	Time	Interviewer	Temp	D	P	Ha	He	Mac	Mal	Mu	V
Nancy Opara	2014-09-24 11:26	Faith Ireye	37.50	Diarrhoea	–	–	–	–	–	–	–
Madubuike Okeh	2014-09-24 11:15	John Chinah	36.60	–	–	–	–	–	–	–	–
Victor Black	2014-09-24 11:09	John Chinah	35.40	–	–	–	–	–	–	–	–
Mini Samuel	2014-09-24 10:03	Faith Ireye	37.20	–	–	–	–	–	–	–	–
Madubuike Okeh	2014-09-23 12:38	John Chinah	36.70	–	–	–	–	–	–	–	–
Victor Black	2014-09-23 12:33	John Chinah	35.60	–	–	–	–	–	–	–	–
Alice Esau	2014-09-23 11:22	Dr. Ahemen Terseer	37.10	–	–	–	–	–	–	–	–
Esau Atama	2014-09-23 11:21	Dr. Ahemen Terseer	36.30	–	–	–	–	–	–	–	–
Marvellous Esau	2014-09-23 11:19	Dr. Ahemen Terseer	36.90	–	–	–	–	–	–	–	–
Esau Miracle	2014-09-23 11:18	Dr. Ahemen Terseer	37.00	–	–	–	–	–	–	–	–

« ‹ 1 2 3 4 5 6 › »

Export Contacts Data

FOLLOW UPS



SYMPTOMATIC

Name	Time	Interviewer	Temp	D	P	Ha	He	Mac	Mal	Mu	V
Vivien Opara	2014-09-17 08:19	Philo	38.20	–	–	–	–	–	–	–	–
Patience Orluwene	2014-09-13 11:39	Faith Ireye	36.90	–	–	–	–	–	–	✓	–
Omoruan Pastor Zion	2014-09-13 11:30	Sobande Wuraola	36.20	–	–	–	–	–	–	✓	–
Gladys Anele	2014-09-13 08:56	Dr Aderinola Olaolu	35.50	–	–	–	✓	–	✓	✓	–
Rukayat Olatunji	2014-09-12 14:10	Dr. Abikor	38.20	–	–	–	–	–	–	–	–
Madubuike Okeh	2014-09-12 11:25	Dr Abba Shehu	38.00	–	–	–	–	–	–	–	–
Glory Monday	2014-09-11 15:44	Dr Aderinola Olaolu	35.20	–	–	–	–	–	–	✓	–
Nwosu Uchenna	2014-09-11 13:02	Dr. Tukur Mustapha	38.00	–	–	–	–	–	–	–	–
Mini Samuel	2014-09-11 11:28	Faith Ireye	36.80	–	–	–	–	–	✓	–	–
Patience Orluwene	2014-09-11 11:23	Faith Ireye	37.20	–	–	–	–	–	–	✓	–

« ‹ 1 2 3 4 5 6 › »

Export Data

NOT FOLLOWED UP

Name	Last Visit	Supervisor
Lawal Adeleye	never	-
Eze Vivian Ijeoma	never	-
Okpara Benedicta	never	-
Abaniwo Stella	never	-
Nwobi R. A.	never	AKINYODE & SHABANDE & DR ANTHONY OMOKO
Bako Gideon	never	-

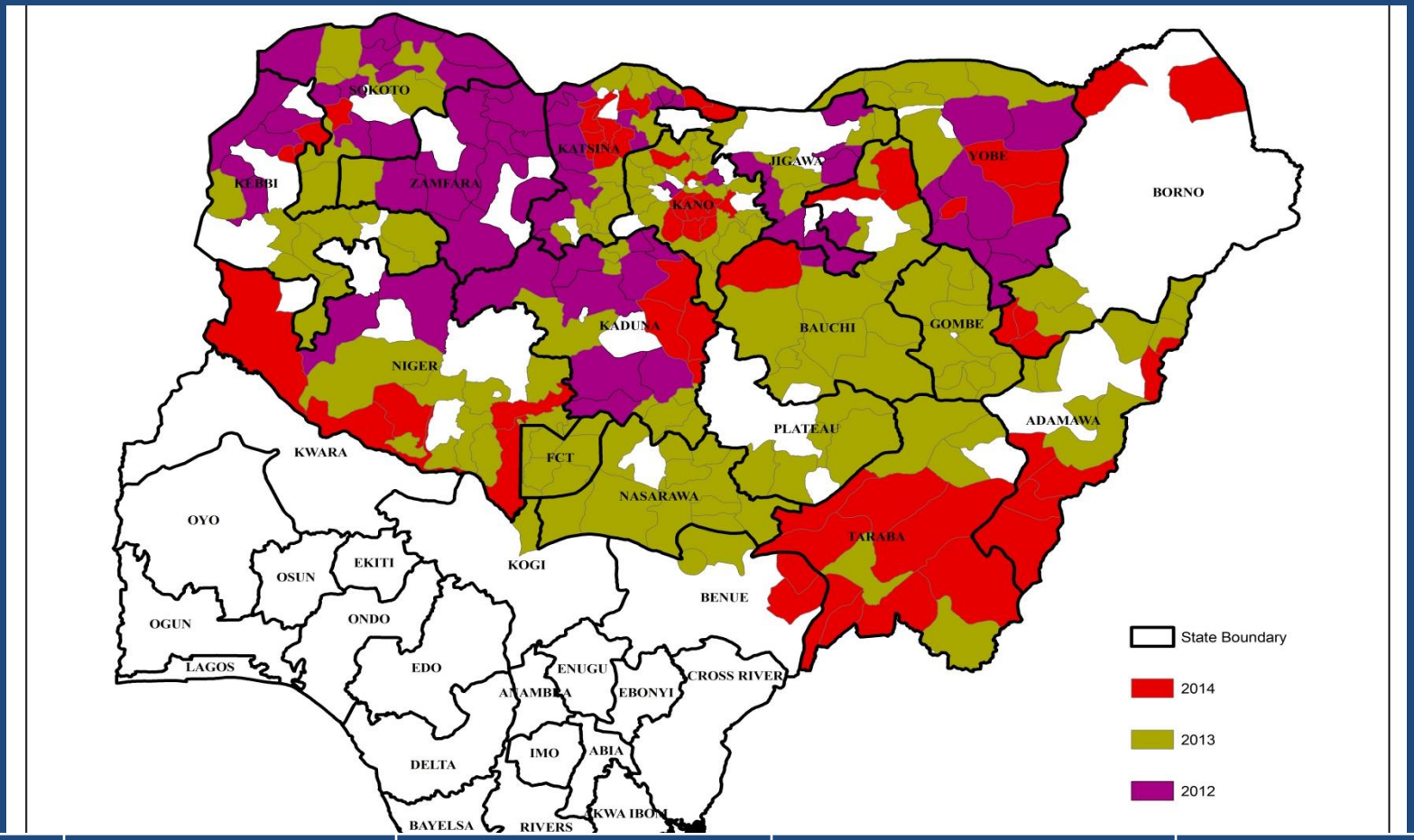
LAB RESULTS

Name	Time	Temp	F	Status	Type	Coll. Date	Res. Date	Res.
Fadipe Akinniyi	2014-09-12 17:02	36	–	Alive	Other Specimen	2014-09-12	2014-09-12	POS
Folssher Elizabeth	2014-09-12 17:02	36	–	Alive	Whole blood	2014-09-12	2014-09-12	NEG
Folssher Elizabeth	2014-09-12 09:04	36	–	Alive	Whole blood	2014-09-12	2014-09-12	NEG
Olutayo Faith	2014-09-10 17:23	36	–	Alive	Whole blood	2014-09-10	2014-09-10	NEG
Ibeauchi Morris	2014-09-10 17:23	36	–	Alive	Other Specimen	2014-09-10	2014-09-10	NEG
Emenuo Kelechi	2014-09-09 15:17	36	–	Alive	Whole blood	2014-09-09	2014-09-09	NEG

FELTP and Polio eradication

- Creation of NSTOP (National Stop Transmission of Polio)
- To support the National Polio Eradication Emergency Plan
- Training
  - >200 NSTOP training – FELTP, Universities, Ministries
  - Modular thematic >30 000 health care workers at LGA – competency based
    - Routine immunization – baseline assessment – organize outreach
    - Micro-planning
    - Service delivery
    - Vaccine cold chain management and logistics
    - Campaign management
    - Demand creation
    - Data analysis and M&E
    - Supportive supervision
    - VPD surveillance
    - DHIS
- Responded to all polio outbreaks
- Supported all IPDS – micro-planning , monitoring , service delivery
- Operational research and publication
- Enumeration and reaching underserved & hard to reach population
- Informatics/technology – GPS , smart phones , Open data kit

Enumeration outreach among underserved, Aug '12- may '14



No. LGAs visited	Total settlements visited	No. U5yrs children enumerated	U5yrs children missed previous IPD (%)	Zero-dose U5yrs children
346	63333	1,492,239	136,991 (9.2%)	91616 (6.1%)

Rift Valley Fever in East Africa 2007

- Affected several countries in East Africa
- FELTP worked on
  - Outbreak investigation and description
  - Risk factor identification
  - Cross-border collaborations
  - Prediction models
- Closer Intersectoral collaboration
  - Zoonotic disease units
  - Follow up work on anthrax, plague and other Zoonotic diseases

Rift Valley Fever outbreaks in East Africa 2007

Am. J. Trop. Med. Hyg., 83(Suppl 2), 2010, pp. 22–27
doi:10.4269/ajtmh.2010.09-0318

Epidemiologic and Clinical Aspects of a Rift Valley Fever Outbreak in Humans in Tanzania, 2007

Mohamed Mohamed,† Fausta Mosha,† Janeth Mghamba, Sherif R. Zaki, Wun-Ju Shieh, Janusz Paweska, Sylvia Omulo, Solomon Gikundi, Peter Mmbuji, Peter Bloland, Nordin Zeidner, Raphael Kalinga, Robert F. Breiman, and M. Kariuki Njenga*

Tanzania Ministry of Health and Social Welfare, Dar es Salaam, Tanzania; Department of Preventive Services, Viral and Rickettsial Diseases and Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia; National Institute for Communicable Diseases of the National Health Laboratory Service, Sandrigham, South Africa; Global Disease Detection Program, Centers for Disease Control and Prevention-Kenya, Nairobi, Kenya

Abstract. In January 2007, an outbreak of Rift Valley fever (RVF) was detected among humans in northern Tanzania districts. By the end of the outbreak in June, 2007, 511 suspect RVF cases had been recorded from 10 of the 21 regions of Tanzania, with laboratory confirmation of 186 cases and another 123 probable cases. All confirmed RVF cases were located in the north-central and southern regions of the country, with an eventual fatality rate of 28.2% ($N = 144$). All suspected cases had fever; 89% had encephalopathy, 10% hemorrhage, and 3% retinopathy. A total of 169 (55%) of the 309 confirmed or probable cases were also positive for malaria as detected by peripheral blood smear. In a cohort of 20 RVF cases with known outcome that were also positive for human immunodeficiency virus, 15 (75%) died. Contact with sick animals and animal products, including blood, meat, and milk, were identified as major risk factors of acquiring RVF.

Am. J. Trop. Med. Hyg., 83(Suppl 2), 2010, pp. 5–13
doi:10.4269/ajtmh.2010.09-0288

An Investigation of a Major Outbreak of Rift Valley Fever in Kenya: 2006–2007

Patrick M. Nguku, S. K. Sharif, David Mutonga, Samuel Amwayi, Jared Omolo, Omar Mohammed, Eileen C. Farnon, L. Hannah Gould, Edith Lederman, Carol Rao, Rosemary Sang, David Schnabel, Daniel R. Feikin, Allen Hightower, M. Kariuki Njenga, and Robert F. Breiman*

Kenya Ministry of Public Health and Sanitation, Nairobi, Kenya; Field Epidemiology and Laboratory Training Program, Nairobi, Kenya; Provincial Medical Office, Garissa, Kenya; Epidemic Intelligence Service, Office of Workforce and Career Development, Centers for Disease Control and Prevention (CDC), Atlanta, Georgia; Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases, CDC, Fort Collins, Colorado; Centre for Virologic Research, Kenya Medical Research Institute, Nairobi, Kenya; United States Army Medical Research Unit-Kenya, Nairobi, Kenya; Global Disease Detection Division, CDC-Kenya, Nairobi, Kenya

Abstract. An outbreak of Rift Valley fever (RVF) occurred in Kenya during November 2006 through March 2007. We characterized the magnitude of the outbreak through disease surveillance and serosurveys, and investigated contributing factors to enhance strategies for forecasting to prevent or minimize the impact of future outbreaks. Of 700 suspected cases, 392 met probable or confirmed case definitions; demographic data were available for 340 (87%), including 90 (26.4%) deaths. Male cases were more likely to die than females, Case Fatality Rate Ratio 1.8 (95% Confidence Interval [CI] 1.3–3.8). Serosurveys suggested an attack rate up to 13% of residents in heavily affected areas. Genetic sequencing showed high homology among viruses from this and earlier RVF outbreaks. Case areas were more likely than non-case areas to have soil types that retain surface moisture. The outbreak had a devastatingly high case-fatality rate for hospitalized patients. However, there were up to 180,000 infected mildly ill or asymptomatic people within highly affected areas. Soil type data may add specificity to climate-based forecasting models for RVF.

Am. J. Trop. Med. Hyg., 83(Suppl 2), 2010, pp. 14–21
doi:10.4269/ajtmh.2010.09-0293

Risk Factors for Severe Rift Valley Fever Infection in Kenya, 2007

Amwayi S. Anyangu, L. Hannah Gould, Shahnaaz K. Sharif, Patrick M. Nguku, Jared O. Omolo, David Mutonga, Carol Y. Rao, Edith R. Lederman, David Schnabel, Janusz T. Paweska, Mark Katz, Allen Hightower, M. Kariuki Njenga, Daniel R. Feikin, and Robert F. Breiman*

Ministry of Public Health and Sanitation, Kenya; Centers for Disease Control and Prevention, Atlanta, Georgia; Walter Reed Programme (WRP) U.S. Army Medical Research Unit, Kenya; National Institute of Communicable Diseases of the National Health Laboratory Service, Johannesburg, South Africa; Global Disease Detection Division, Centers for Disease Control and Prevention, Nairobi, Kenya

Abstract. A large Rift Valley fever (RVF) outbreak occurred in Kenya from December 2006 to March 2007. We conducted a study to define risk factors associated with infection and severe disease. A total of 861 individuals from 424 households were enrolled. Two hundred and two participants (23%) had serologic evidence of acute RVF infection. Of these, 52 (26%) had severe RVF disease characterized by hemorrhagic manifestations or death. Independent risk factors for acute RVF infection were consuming or handling products from sick animals (odds ratio [OR] = 2.53, 95% confidence interval [CI] = 1.78–3.61, population attributable risk percentage [PAR%] = 19%) and being a herdsperson (OR 1.77, 95% CI = 1.20–2.63, PAR% = 11%). Touching an aborted animal fetus was associated with severe RVF disease (OR = 3.83, 95% CI = 1.68–9.07, PAR% = 14%). Consuming or handling products from sick animals was associated with death (OR = 3.67, 95% CI = 1.07–12.64, PAR% = 47%). Exposures related to animal contact were associated with acute RVF infection, whereas exposures to mosquitoes were not independent risk factors.

Am. J. Trop. Med. Hyg., 83(Suppl 2), 2010, pp. 43–51
doi:10.4269/ajtmh.2010.09-0289

Prediction, Assessment of the Rift Valley Fever Activity in East and Southern Africa 2006–2008 and Possible Vector Control Strategies

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NASA Goddard Space Flight Center, Biospheric Sciences Branch, Greenbelt, Maryland; USDA-ARS Center for Medical, Agricultural and Veterinary Entomology, Gainesville, Florida; EMPRES/Animal Production and Health Division (AGAH) FAO - Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy; Global Alert and Response Department (HSE/GAR) World Health Organization, Geneva, Switzerland; Global Disease Detection Division, International Emerging Infections Program, CDC-Kenya Nairobi, Kenya; Division of Preventive Medicine Walter Reed Army Institute of Research, Silver Spring, Maryland; United States Army Medical Research Unit-Kenya; Arbovirology/VHF Laboratory, Centre for Virus Research Kenya Medical Research Institute, Nairobi, Kenya; 757th Airlift Squadron, Youngstown Air Reserve Station, Vienna, Ohio; Manatee County Mosquito Control, Palmetto, Florida; Chatham County Mosquito Control, Savannah, Georgia; Federal Ministry of Health, Epidemiology Department Khartoum, Sudan; Ministry of Health and Social Welfare, Dar es Salaam, Tanzania; Division of Disease Surveillance and Response Ministry of Health, Nairobi, Kenya; Institut Pasteur de Madagascar, Antananarivo, Madagascar; National Institute for Communicable Diseases, Sandringham, South Africa

Abstract. Historical outbreaks of Rift Valley fever (RVF) since the early 1950s have been associated with cyclical patterns of the El Niño/Southern Oscillation (ENSO) phenomenon, which results in elevated and widespread rainfall over the RVF endemic areas of Africa. Using satellite measurements of global and regional elevated sea surface temperatures, elevated rainfall, and satellite derived-normalized difference vegetation index data, we predicted with lead times of 2–4 months areas where outbreaks of RVF in humans and animals were expected and occurred in the Horn of Africa, Sudan, and Southern Africa at different time periods from September 2006 to March 2008. Predictions were confirmed by entomological field investigations of virus activity and by reported cases of RVF in human and livestock populations. This represents the first series of prospective predictions of RVF outbreaks and provides a baseline for improved early warning, control, response planning, and mitigation into the future.

Conclusion

- FELTPs are not just training programs
  - Competency-based training through service
  - Builds country's public health capacity through development of a skilled PH workforce
  - Necessary for IDSR and IHR implementation
- Laboratory science /track in FELTP is necessary for effective surveillance and response
- Investment in FELTP important in ensuring multi-disease disease surveillance and response
  - Left shift possible