

# **Surveillance: What, How, Do We Need It, What's New?**

**Peter Nsubuga MD, MPH**  
**Centers for Disease Control and  
Prevention**

# Overview

- **Definitions**
- **Objectives of surveillance systems**
- **Core activities and support functions of surveillance and response**
- **Surveillance and Response matrix**
- **Current status of surveillance in Africa**
- **Challenges**

# Definitions

## Public Health Surveillance

“ongoing systematic collection, analysis, and interpretation of data on specific health outcomes, closely integrated with the timely dissemination of these data to those responsible for prevention and control”

*Thacker SB, Berkelman RL. Public health surveillance in the United States. Epidemiol Rev 1988;10:164-90.”*

# Definitions

## [Health] Information System

**“a combination of vital and health statistical data from multiple sources, used to derive information about the health needs, health resources, costs, use of health services, and outcomes of use by the population of a specified jurisdiction”**

***Last JM. A dictionary of epidemiology. second edition. New York: Oxford University Press, 1988.***

# Objectives of Surveillance Systems

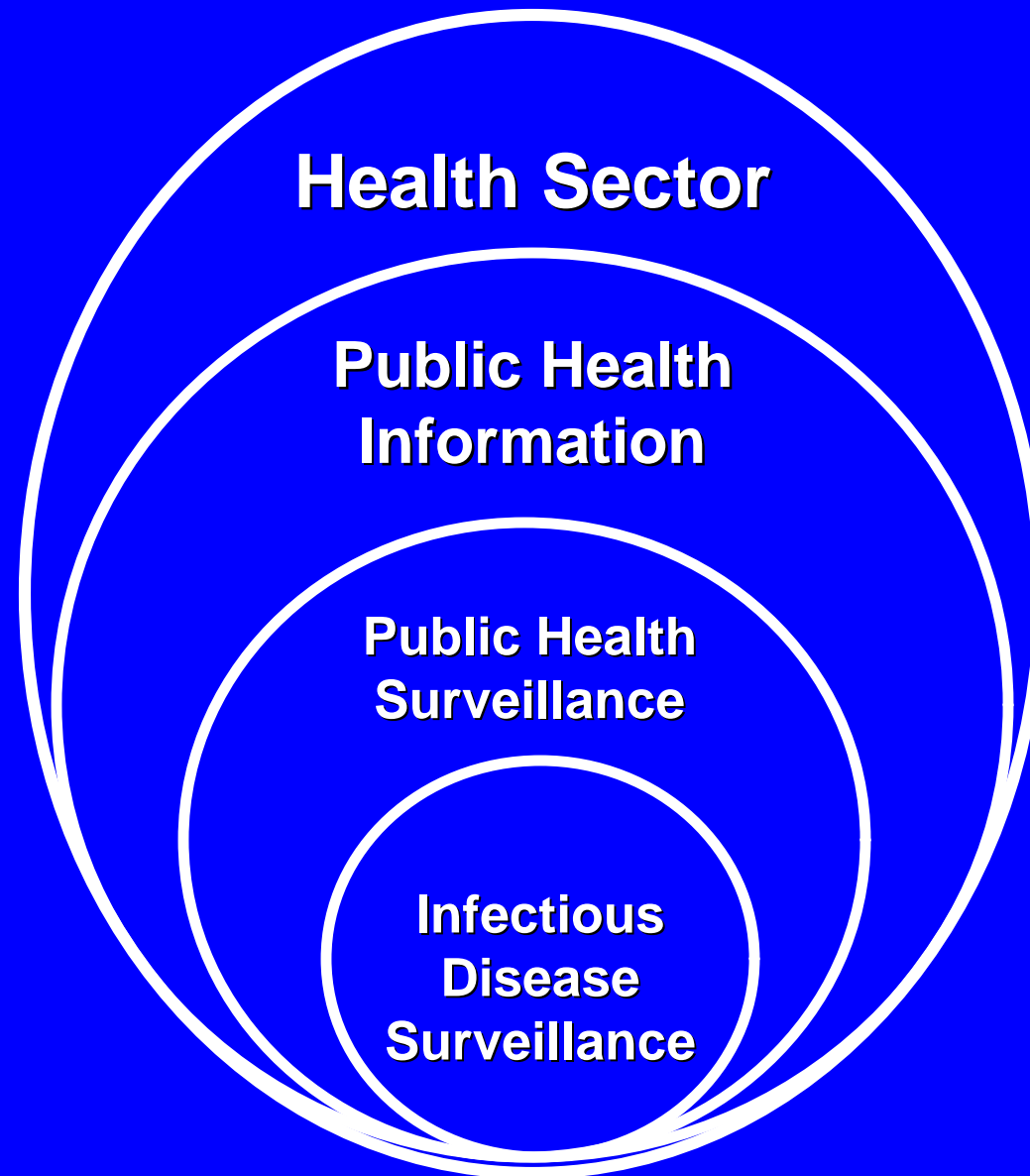
Determined by

- What action can be taken
- When (how often) the action needs to be taken
- What information is needed to take/monitor the action
- When (frequency) is the information needed

# Different Objectives, Different Data, Different Systems

Objective	Action	Data	System
Detect epidemics	Epidemic response	Early warning information	Surveillance
Monitor diseases	Program monitoring	Program indicators	Health information
Monitor health status	Health policy	Health indicators	Health information
Monitor health system	Resource allocation	Administrative data	Health information and management

# Information Components of the Health Sector



# Initiatives in Surveillance and Response



# Core Activities of Surveillance and Response

- Detection
- Confirmation (epidemiologic and laboratory)
- Registration
- Reporting and Feedback
- Analyses
- Response (acute and programmatic)

# Support Functions

- Training
- Supervision
- Communication
- Coordination
- Resource-provision
- Monitoring and evaluation

# Levels of the Health System

- Community
- Health facility
- District
- (Regional or other intermediate level)
- National
- International (e.g., WHO)

# Surveillance and Response Matrix

	Identify	Report	Analyze	Investigate	Respond	Feedback	Evaluate
Community							
Health facility							
District							
National							
International							

# Integrated Disease Surveillance and Response (IDS) Strategy

- Partners: WHO (HQ, AFRO), CDC, USAID, UNF
- Started in 46 country WHO-AFRO in 1998
- Aim: Improve surveillance, epidemic preparedness and response
- Focus: 19 communicable diseases
- Phases: Assessments, prioritized plans of action, implementation, monitoring and evaluation

# IDS Progress

- **Regional activities**
  - Tools for assessments and planning
  - Technical guidelines for implementation
  - Regional training in laboratory methods
- **Country activities**
  - 19 country assessments
  - 10 plans of action
  - Targeted implementation in 4 countries

# Results of Surveillance and Response Assessments

# Surveillance at Health Facilities in 10 WHO-AFRO Countries

Activity	Median%	Range %
Have Standard Case Definitions	42	16-100
Have adequate supplies of registers	91	42-100
Can confirm TB or Shigella	44	32-93
Have adequate supply of reporting forms	79	0-100



# Surveillance at Health Facilities in 10 AFRO Countries

Activity	Median%	Range%
Timeliness of reporting	31	2-50
Completeness of reporting	57	10-100
Prepare trend lines	29	9-79
Received Feedback	34	6-57
Were Supervised	45	3-93

# Surveillance at Districts in 10 AFRO Countries

Activity	Median%	Range%
Can transport specimens	94	50-100
Have adequate supply of reporting forms	62	33-89
Prepare trend lines	33	9-75
Have Rapid Response Team	7	0-100

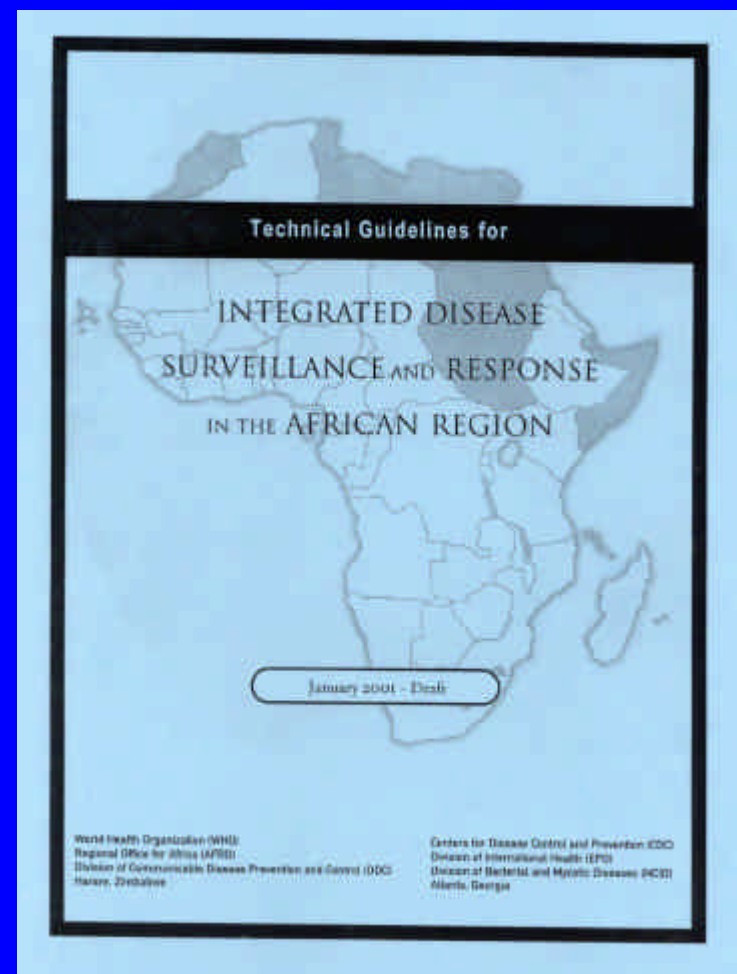
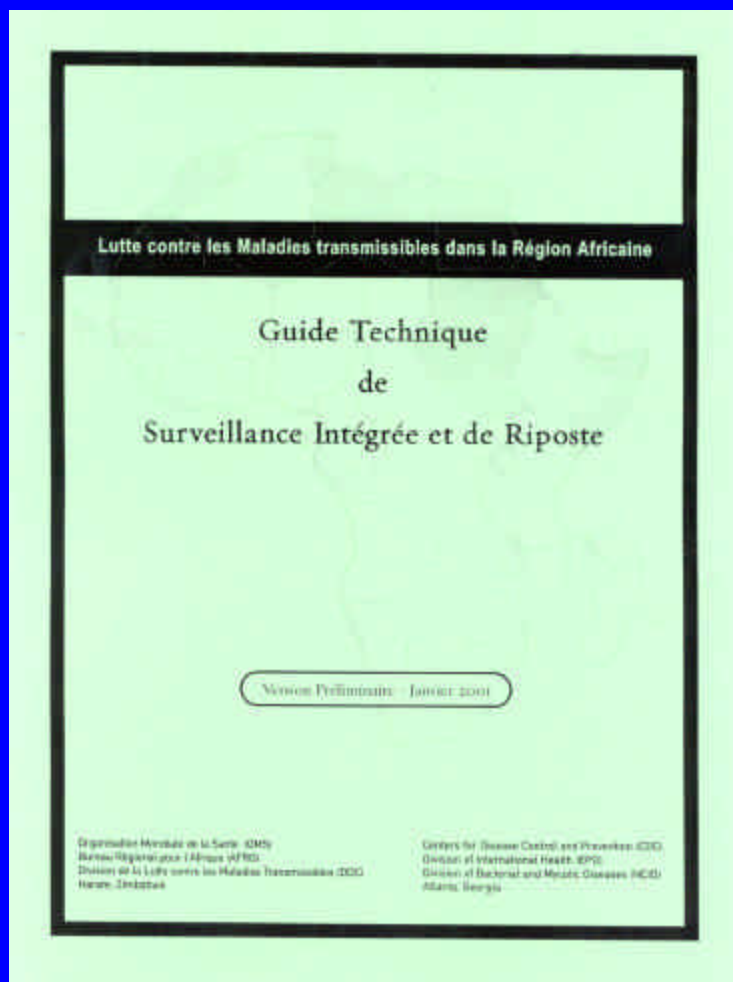
# Surveillance at Districts in 10 AFRO Countries

Activity	Median %	Range%
Responded within 48 hours	33	25-75
Received Feedback	25	0-82
Trained in Surveillance	54	0-100
Have telephone	80	50-100
Have vehicle	94	17-100

# Summary of Results

- **Major weaknesses**
  - Case definitions
  - Lab confirmation
  - Timely reporting
  - Data analysis
  - Rapid response
  - Feedback
  - Supervision
- **Strengths**
  - Forms (Registers, reporting forms)

# IDS Generic Technical Guidelines



# The Matrix at the IDS Field Test in Tanzania, 2000



# Challenges

- Many countries have health (management) information systems: how can they be improved for surveillance?
- How can we use targeted disease-specific programs (e.g., TB, HIV, Malaria, Polio) to strengthen surveillance?
- How will we know when we have succeeded?



**End**



# Integration of Polio in 32 African Countries, 2000

Attribute	N	(%)
Use AFP resources for surveillance for other diseases	26	(81)
Combine detection for other diseases with AFP	28	(90)
Inform clinicians about other diseases when informing them about AFP	27	(87)
Use AFP laboratory transportation system for other diseases	14	(44)
Total	32	