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EAIDSNet BULLETIN

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EAIDSNet is a member of Connecting Organizations for Regional Disease Surveillance (CORDS)

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1. Outbreak News

1.1. Yellow fever outbreak in Uganda

From early November 2010, Ugandan health authorities investigated an outbreak of a mysterious disease. This was subsequently confirmed to be yellow fever on 23rd December 2010, through molecular sequencing (3specimens) and IgM serology (1 specimen) at CDC laboratories in Atlanta. The index case was a 41 year old from Abim district in Karamoja area of Northern Uganda who used to frequent the forest to collect bamboo for sale in the local market. As at 5th January 2011, a total of 200 suspected cases with 50 deaths had been reported (Case Fatality Ratio-25%) from 10 districts.

Majority of the reported cases were from kitgum district 65 (32.5%), Agago district 63 (31.5%) and Abim district 33 (16.5%). Among the districts affected, 4 of them are border districts; Kaboong district borders Kenya, Kitgum and Lamwo border South Sudan while Arua district borders Democratic Republic of Congo.

Figure 1: Map of Uganda showing the districts affected by yellow fever as at January 5, 2011

On the overall, the case fatality ratio for the epidemic within the districts ranged from 13% to 39%. Arua and Kotido districts had unstable number of cases to reliably report on the case fatality ratio.

Table 1: Case Fatality Ratio of yellow fever, Uganda, November-January 2011

District	Cases n (%)	Deaths n (%)	Case Fatality Ratio
Kitgum	65(32.5)	12(24.0)	18.5%
Agago	63(31.5)	16(32.0)	25.4%
Abim	33 (16.5)	13(26.0)	39.4%
Gulu	4(2.0)	1(2.0)	25.0%
Arua	2 (1.0)	2 (4.0)	100.0%
Lira	15(7.5)	2 (4.0)	13.3%
Kaabong	16 (8.0)	3 (6.0)	18.8%
Kotido	2(1.0)	1 (2.0)	50.0%
Total	200 (100.0)	50 (100.0)	25.0%

Risk analysis done identified the following factors that were contributing to the rapid spread of the virus; presence of vertebrate host and mosquito vectors, high number of susceptible individuals and favorable climatic conditions.

Activities undertaken to contain the outbreak include

1. Reactivation of the national task force on yellow fever which had the overall responsibility of coordinating the response

2. Developed and disseminated yellow fever case management guidelines

3. Enhance surveillance for yellow fever and a community seroprevalence survey was conducted to determine the magnitude of the problem

4. Social mobilization and health education at the community, district and national levels were conducted.

5. Mass vaccination against yellow fever in five districts that had laboratory confirmation of the disease.

Kenya's Response to Yellow Fever in Uganda

Kenya last experienced yellow fever outbreak in 1992, and has been providing routine yellow fever vaccination in four districts in Rift Valley Province. The country was officially informed about the yellow fever outbreak in Uganda on 25th December 2011. Kenya acknowledged the risk of yellow fever transmission across the borders since one of the affected districts in Uganda (Kaboong district) shares a common border with Turkana district in Rift Valley province, the environmental conditions in the two districts were similar and both communities have close socio-economic and cultural interactions.

In response to the situation in Uganda, the Ministry of Public Health and Sanitation of Kenya issued an alert to all health workers, enhanced surveillance of yellow fever, sent a team from the national level to the border districts of Turkana and Pokot to sensitize the health workers and conduct active case search for yellow fever, the national task force for yellow fever was similarly reactivated and subsequently developed a national comprehensive preparedness and response plan. A press briefing was also conducted by the Director of Public Health and Sanitation on the situation.

Background on yellow fever

- Viral hemorrhagic disease caused by a flavivirus transmitted human-to-human via *Aedes* mosquitoes (urban epidemics) or via forest mosquito species and forest primate reservoirs (jungle cycle).
- Large scale outbreaks every 3 to 10 years in villages or cities. Sporadic cases can occur regularly in endemic areas. Resurgence of disease in Africa since mid-1980s. True incidence far exceeds reported cases.
- Incubation period 3 to 6 days after the bite from an infected mosquito.
- While only the minority of cases are severe, case fatality rate may be 25% to 50% among patients with syndrome of haemorrhage, jaundice, and renal disease.
- Risk factor: sporadic cases often linked to occupation or village location near woods or where monkeys are numerous. Also non-vaccinated persons.
- International reporting to WHO required within 24 hours.
- VHF and other infections causing haemorrhage may mimic yellow fever.

Standard case definitions

Suspected case of yellow fever:
A person with acute onset of fever followed by jaundice within two weeks of onset of first symptoms. Hemorrhagic manifestations and renal failure may occur.

Confirmed case of yellow fever:
A suspected case with laboratory confirmation (positive IgM antibody or viral isolation) or epidemiologic link to confirmed cases or outbreaks.

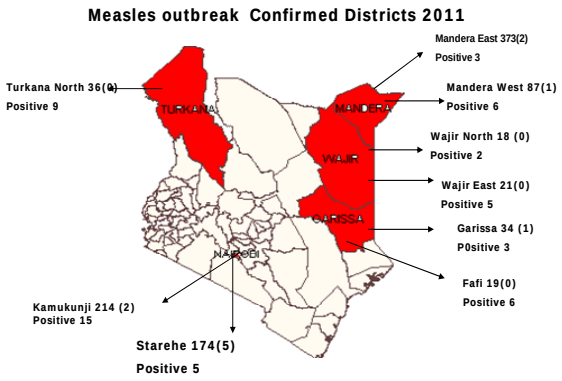
Response to alert and action thresholds

If a single case is suspected:

- Report case-based information immediately to the next level.
- Treat and manage the patient with supportive care administered under a bednet (ORS, paracetamol for dehydration, fever) and strict isolation procedures.
- Collect specimen for laboratory confirmation.
- Investigate the case to determine how transmission occurred.
- Plan for an immunization activity

If a single case is confirmed:

- Mobilize community early to enable rapid case detection and treatment.
- Conduct a mass campaign in appropriate age group in the area (ages 6 months and older) and in areas with low vaccine coverage.
- Identify high risk population groups and take steps to reduce exposure to mosquitoes.
- Improve routine and mass vaccination campaigns to include yellow fever in high risk areas



1.2. Measles outbreak, Kenya

From 27th December 2010 to 11th April 2011, the Ministry of Public Health and Sanitation of the Republic of Kenya reported 983 suspected cases of measles including 11 deaths (case fatality ratio: 0.1%). As of 11th March the epidemic has been confirmed in 8 districts in North Eastern (**Wajir East, Mandera West, Mandera East, Garissa and Fafi**.), Nairobi (**Kamukunji and Starehe**) and Rift Valley (**Turkana North**) Provinces. The index case was reported from Turkana North District on 27th December 2011. The outbreak has been confirmed serologically in 60 patients in all the 14 districts reporting suspected cases.

In Kenya three laboratory confirmed cases of measles are required to declare an outbreak while 5 suspected cases would constitute an alert. Six (Turkana South, Lagdera, Wajir North, Masinga, Butere and Nairobi West) other districts are on the alert and specimens have been collected for processing.

The Ministry of Public Health and Sanitation is carrying out enhanced surveillance, health education and intensified routine vaccination of children in order to contain the outbreak. In Kenya measles vaccination is routinely given to children at 9 months of age or first contact with the health facilities at any time thereafter. Plans are underway to conduct supplementary measles vaccination to residents of targeted districts.

Background on measles

- Measles is a febrile rash illness due to paramyxovirus (*Morbillivirus)* transmitted human-to-human via airborne droplet spread. It is the fourth leading cause of death in children less than 5 years of age in many African countries.
- The incubation period is 7 to 18 days from exposure to onset of fever.
- Among children with vitamin A deficiency and malnutrition, measles may result in severe illness due to the virus itself and associated bacterial infections, especially pneumonia; only the minority of cases are severe.
- Measles is among the most transmissible of human infections. Large outbreaks occur every few years in areas with low vaccine coverage and where there is an accumulation of persons who have never been infected or vaccinated. The true incidence of measles far exceeds reported cases.
- Risk factors include low vaccine coverage (<85 to 90%) which allows accumulation of susceptible persons at high risk for measles. Outbreaks can be explosive in areas of high population density.
- Other viral illnesses such as rubella may cause or contribute to similar outbreaks

Standard case definitions

Suspected case of Measles:
Any person with fever and maculopapular (non-vesicular) generalized rash and cough, coryza or conjunctivitis (red eyes) or any person in whom a clinician suspects measles.

Confirmed case of Measles:
A suspected case with laboratory confirmation (positive IgM antibody) or epidemiological link to confirmed cases in an outbreak.

Response to alert and action thresholds

If an outbreak is suspected:

- Report suspected case to the next level.
- Collect blood sample for confirming the outbreak.
- Treat cases with oral rehydration, vitamin A, and antibiotics for prevention of bacterial super-infection. Use airborne isolation precautions where feasible.
- Investigate the case or outbreak to identify causes for outbreak.

If an outbreak is confirmed:

- Improve routine vaccine coverage through the EPI, and lead supplemental vaccination activities in areas of low vaccine coverage.
- Mobilize the community early to enable rapid case detection and treatment.

2. Tanzania takes measures to avert outbreaks following huge migration to Loliondo as a result of a "magic herbal cure" for chronic illness by retired pastor

Towards the end of February 2011 it came to the attention of the Government of the United Republic of Tanzania that there was a huge influx of people to a rural village in Loliondo, Ngorongoro District, Arusha region. Initial investigation revealed that people were coming for a "magic herbal medicine" administered by a retired pastor who lived in the village. The retired pastor claimed that this herb could treat five major illnesses (diabetes, hypertension, HIV/AIDS, Epilepsy and Cancer) and was also linked to faith.

The immediate major concerns of the Government were; the safety and efficacy of the herb as claimed by the retired pastor, the possibility of disease outbreaks and patients on medications for chronic illnesses abandoning treatment thus exposing the them to the risk of exacerbation of their illness and drug resistance.

Consequently the Government of Tanzania sent a team of experts to Loliondo to investigate the safety of the herb. The cooperative retired pastor willingly showed the experts the plant and explained how it is processed and administered. Laboratory tests done included toxicology, heavy metal analysis and microbiology indicated that the remedy its current formulation did not have any obvious adverse effects. Botanical analysis confirmed that the plant used was *Clarissa spinarum* (Formerly *Clarissa edulis)* a known medicinal plant that had been used by several tribes in Tanzania. The National Institute for Medical Research and other experts are planning to undertake studies to determine the efficacy of the herb and factors that influenced the health seeking behavior.

In order to avert possible disease outbreaks, the Government of the Republic of Tanzania took measures to improve the sanitation status and control the human traffic to the village. In addition health education is ongoing regarding measures to take in order to prevent disease outbreaks and urging those who are seeking care to continue taking their regular medication.

3. Review of Integrated Disease Surveillance and Response (IDSR) technical guidelines in Kenya

Kenya adopted the WHO recommended Integrated disease Surveillance and Response (IDSR) Strategy in 2000 and began implementation in 2002. Significant progress has been made including among others

- Timely detection of disease outbreaks e.g. polio, cholera, pandemic influenza outbreaks etc
- Approximately 140 of the original 149 districts are already submitting weekly reports on the priority diseases
- There is an operational database at the national level on the priority diseases
- Epidemiological feedback bulletin on the priority diseases is disseminated on a weekly basis

In the last decade there have been changes in disease landscape and also in the broader context, for example

- There has been an increase in non-communicable diseases, injuries (probably associated with the increase in motorcycles) etc
- Zoonotic disease outbreaks have highlighted the need for better coordination between animal and human health surveillance e.g. rift valley fever outbreak
- There is need to implement IHR 2005 which not only includes all public events of international concern e.g. chemical event, radionuclear events etc
- Impact of climate change leading to shifting disease patterns e.g. drought leading to severe acute malnutrition etc
- As we continue to work towards achieving the millennium development goals there is need to monitor the progress we are making e.g. monitor weekly maternal mortality thus being able to map

out mortality hotspots hence more targeted interventions.

In light of these developments, the Ministry of Public Health and Sanitation and other stakeholders in the Republic of Kenya held a meeting from the 28th Feb to 4th March 2011 as part of the process of adapting the revised second edition of the WHO IDSR Technical Guidelines. During the meeting an updated list of priority diseases was proposed that included both communicable and non-communicable diseases and other public health events of international concern. The Country is now in the process of finalizing the draft revised IDSR technical guidelines. The steps that would follow include pre-testing parts of the new Technical Guideline, holding consensus workshops and dissemination of the Revised New Technical Guideline.

4. Community Based Disease Surveillance efforts in Kenya

The Integrated Disease Surveillance System in Kenya is currently largely health facility based. This therefore means that cases can only be detected when they come to health facilities. Due to the poor health seeking habits of some of the communities in the country, some of the diseases may be detected late when a significant number of people have been affected or died.

The Ministry of Public Health and Sanitation of the Republic of Kenya, has partnered with the African Medical and Research Foundation (AMREF) to pilot community based disease surveillance system to detect influenza and other IDSR priority diseases in Kenya.

The goal of the project is to strengthen communities and the health care system at peripheral level to monitor, detect, report and respond to possible outbreaks of influenza A (H1N1) and other IDSR priority diseases. The project aims at providing vulnerable populations with the capacity and means to participate in disease surveillance and response to outbreaks, and to provide health care personnel with the tools and mechanisms to detect and manage H1N1 and IDSR priority disease outbreaks in communities. The districts that have been prioritized for piloting include Kisumu East, Nakuru Central and Kilindini Districts. These districts were prioritized based on the facts that they had community units that had been trained already on the community strategy, had a high burden of disease and had reported many cases of pandemic influenza A (H1N1).

Activities undertaken already include

- The development of lay case definitions to be used at the community level
- Training of District Health Management Teams (DHMTs) including Community Strategy Coordinators on IDSR and community based Disease Surveillance
- Training of health care providers in IDSR and Community Based Disease Surveillance
- Training of community health workers in organized community units on Community Based Surveillance and IDSR
- Development of disease reporting tools to be used by community health workers and community health extension workers

The community health workers are currently being encouraged to report on a weekly basis to a trained community health extension worker on priority diseases occurring at home among residents. The training of Community Health Workers on disease surveillance is currently being mainstreamed in the curriculum for training of CHWs which is undergoing review.

5. The East African Public Health Laboratory Networking (EAPHLN) Project

The East African Community (EAC) is a regional inter-governmental organization of the five (5) Partner States, namely; the Republic of Burundi, the Republic of Kenya, the Republic of Rwanda, the Republic of Uganda and the United Republic of Tanzania, with its Headquarters located in Arusha, Tanzania. (www.eac.int). In accordance with the provisions of the Treaty for the establishment of the East African Community as set out in Article 118 (a), the Partner States undertake to co-operate and take joint action towards the prevention and control of communicable and non-communicable diseases and to control pandemics and epidemics of communicable and vector-borne diseases that might endanger the health and welfare of the residents of the Partner States, among others.

Currently, the East African Community is collaborating with the EAC Partner States, the East, Central and Southern Africa Health Community Secretariat (ECSA-HC), the World Health Organization (WHO), the US Centers for Disease Control and Prevention (US CDC) and the Microsoft Corporation (USA) in the implementation of the World Bank supported **"East Africa Public Health Laboratory Network Project (EAPHLNP)"** which will also contribute to the strengthening of the **"East African Integrated Disease Surveillance Network (EAIDSNet)"** which is a regional collaborative initiative of the EAC Partner States' national ministries responsible for human and animal health, including wildlife as well as the national health research and academic institutions in both the public and private sector.

The main objective of the **"East Africa Public Health Laboratory Network Project (EAPHLNP)"** is to establish a network of efficient, high quality, accessible public health laboratories for the diagnosis and surveillance of Tuberculosis (TB) and other communicable diseases. Specifically, the project will complement ongoing regional and global initiatives to improve Integrated Disease

Surveillance and Response (IDSR) country systems which will enhance the availability of quality information by: (i) strengthening competence of lab and facility personnel to collect, analyze, and use surveillance data; (ii) reinforcing laboratory networking and district capacity (particularly those in border areas) to report, investigate, and adequately respond to disease outbreaks; and (ii) strengthening communications and data sharing to respond rapidly to outbreaks, including those which are: (a) ***outbreak prone*** (*cholera, meningitis, hemorrhagic fever*), (b) ***endemic*** (*multi-drug resistant TB*), or have (c) ***pandemic potential*** (*influenza*). *In addition,* the project will also provide complementary support to the EAC for the ***East Africa Integrated Disease Surveillance Network*** to enhance its effectiveness, and facilitate the production of quarterly regional surveillance bulletins.

Figure: GeoMap of EAPHLN Project laboratory networks