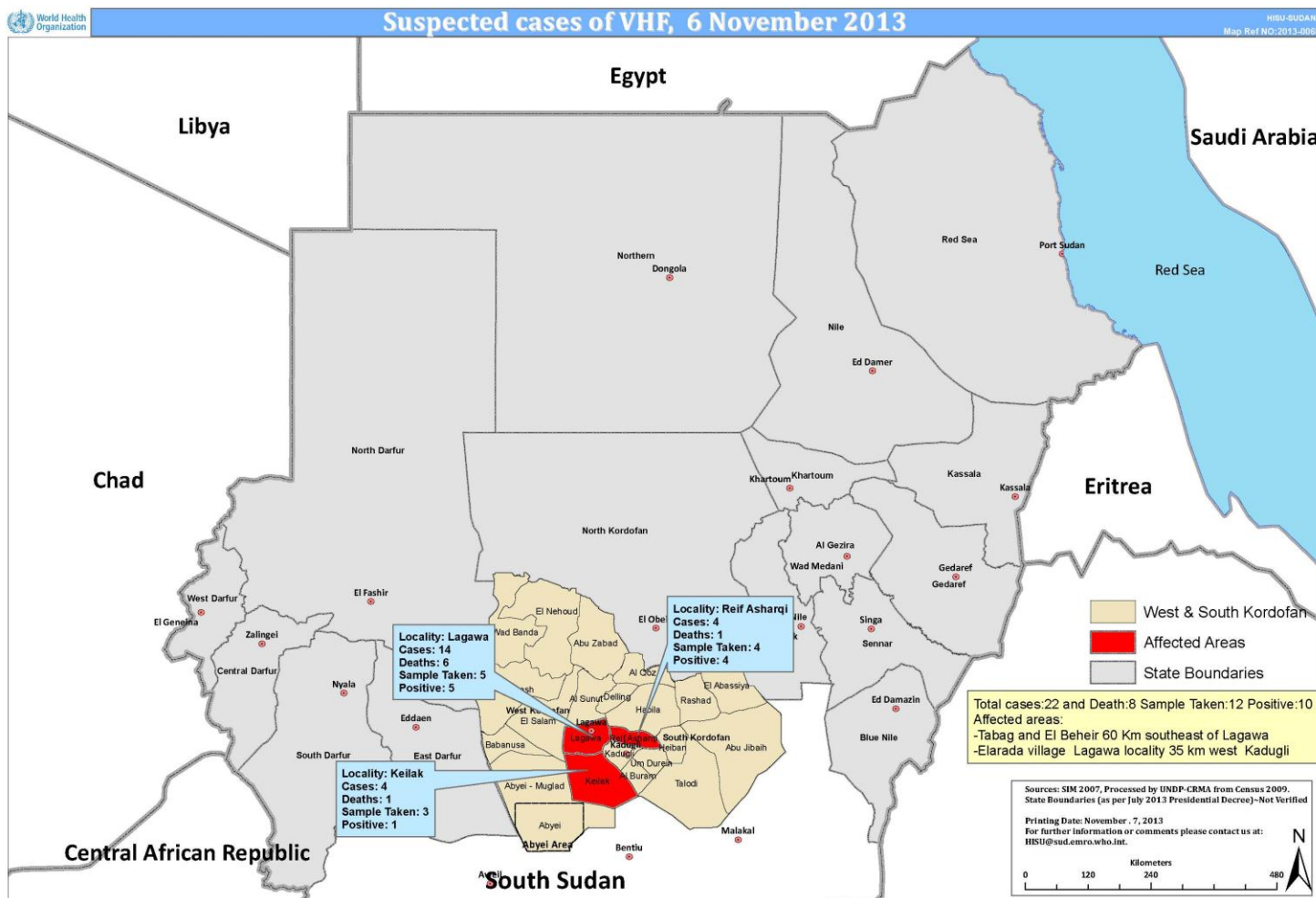




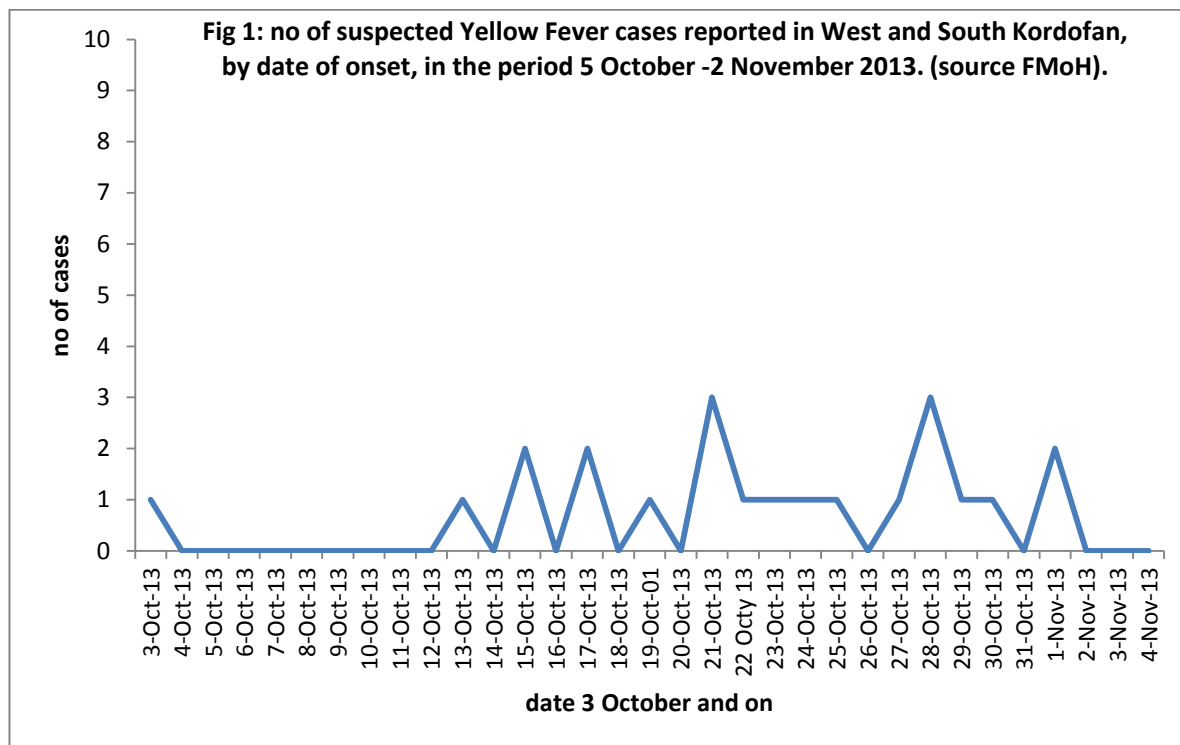
Highlights

- Sudan's Federal Ministry of Health (FMoH) has notified the World Health Organization (WHO) of a yellow fever outbreak in West Kordofan.
- Between 3 October and 6 November 2013, a total of 22 suspected cases of yellow fever were reported, including eight deaths, presenting a case fatality rate of 36.3%
- YF positive samples will arrive to Institute Pasteur in Dakar, WHO Collaborating Centre for Yellow Fever on Friday 8 November 2013 for re-confirmation procedures.
- WHO through the FMoH has sent supplies to the State Ministry of Health (SMoH) comprising of medical equipment, life-saving medicines, laboratory tools, cleaning tools and disinfectant, mosquito nets and insecticides to the affected areas.
- Communicable disease surveillance system is strengthened in the states of White Nile, Gezira, Kassala, Gedarif and Khartoum.



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Between 3 October and 5 November 2013, a total of 22 cases of suspected viral hemorrhagic fever (VHF) were reported with seven deaths, presenting a case fatality rate of 36.3%. According to initial investigation, patients who acquired the infection came from Gengaro, Selegi, Masalit, Ghara, Alkarkar in Lagawa locality, Dumaik and Barno in Elreef Alshargi locality and Umaddar in Kailak locality. Please see map and figure below.



Patients were seasonal workers for gum Arabic plantation. In addition, patients were originally from east Sudan who travelled a month ago to Kordofan and have started residing in the affected area. The workers usually travel in groups from east Sudan. Currently, an estimated number of 200 people are residing in the camp. However, six suspected cases were reported amongst indigenous community whose age is between 11 and 32 years old.

91% of the cases are male and 9% female. 59% of the reported cases and deaths are in the age group 15 to 29.9 years and 27.4% in the age group 30-44.9.

Patients' profile

Sex	
Male	91%
Female	9%
Age	
5-14.9	13.6%
15-29.9 years	59%
30-44.9 years	27.4%

Most of the patients presented with fever, joint pains, bleeding manifestations and some with jaundice. See Table 1.

Table 1: Shows most prevailing symptoms and frequency among the suspected cases of Yellow Fever in West and South Kordofan in the period 3 October to 5 November 2013. (Source: FMOH)

Symptom	Frequency of the symptom
Fever	95%
Joint pain	90%
Bleeding manifestations	45.5%
jaundice	31.8%

More than 15 serum samples were collected and sent to the National Public Health Laboratory (NPHL) in Khartoum. Based on the investigation conducted by NPHL, the tested blood samples showed nine (09) positive cases for yellow fever by ELISA and one (01) by PCR. All tested samples were negative for dengue fever, rift valley fever and Crimean Congo hemorrhagic fever (CCHF). Seven samples were also collected from among the contacts and two of them tested negative for YF. Please see table 2 below. Samples collected from indigenous population showed 2 positive for YF (one from Barno in Elreef Alshargi and one from Masalit from Lagawa).

Table 2: Laboratory results of the collected sera from suspected cases of Yellow Fever in West and South Kordofan in the period 3 October to 5 November 2013. (Source: FMOH).

State	Locality	No of cases	Attack rate	No of deaths	No of serum samples collected	Laboratory results					
						Y. Fever		Dengue F.		CCHF	
						+ve	-ve	+ve	-ve	+ve	-ve
West Kordofan	Lagawa	14	0.60	6	5	5	2	0	0	0	7
	Kailak	4	0.87	1	3	1	2	0	2	0	3
South Kordofan	Elreef Alshargi	4	0.80	1	4	4	0	0	3	0	4
Total		21	0.61	8	12	10	4	0	5	0	14

Actions taken

- On 31 October 2013, in response to WHO request for verification, the FMOH declared the outbreak based on the laboratory analysis done at the NPHL.
- YF positive samples will be sent to Institute Pasteur in Dakar on Thursday 7 November 2013 for re-confirmation using PRNT.
- Entomological surveys were conducted in the affected areas. The total number of households inspected in the eastern area was 37; along with this 110 containers were also inspected. House index for *A. aegypti* was 7% and container index *A. aegypti* of 5.2%. In Kadugli, the total households inspected were 20 and 61 containers, house index for *A. aegypti* was 20% and container index for *A. aegypti* of 9.8%
- Small scale vaccination campaign commenced on 29 October 2013. So far vaccination team covered more than 400 individuals against YF in the affected area (target of 1 000 individuals).
- Seasonal workers travelling from east Sudan to affected area undergo vaccination prior their departure to Kordofan. On 30 October 2013, a total of 2 000 doses were availed in the two states.

- FMOH is planning to conduct YF vaccination campaigns in three localities namely Kadugli, Lagawa and Elreef Alshargi, awaiting reconfirmation of the diagnosis.
- WHO through the Federal Ministry of Health has sent supplies to the State Ministry of Health comprising of medical equipment, life-saving medicines, laboratory tools, cleaning tools and disinfectant, mosquito nets and insecticides to the affected area. WHO is supporting the staff in isolation wards in Lagawa and Kadugli; support the deployment of investigation/rumor verification teams and health education campaign teams.
- Communicable disease surveillance system is strengthened in White Nile, Gezira, Kassala, Gedarif and Khartoum.

Recommendations:

1. Should the confirmatory test be positive for YF, a plan with possible scenarios will be prepared by the FMOH Sudan. In consultation with WHO Sudan, FMOH will organize a mass vaccination campaign against YF in the affected areas.
2. Ensure adherence International Health Regulation (2005) in handling this event.