World Health Organization
Regional Office for the Eastern Mediterranean

Weekly Epidemiological Monitor

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Current major events

Acute diarrhoea outbreak in Northern Sudan

Since March 2010, more than 10,000 cases of mild diarrhoea have been reported from different States of Northern Sudan. No deaths have so far been reported from the affected areas. The clinical features resemble diarrhoea, mainly affecting adult males and females, with no visible signs of dehydration. The stool samples collected from the patients in the affected areas and tested at the National Public Health Laboratory (NPHL) in Khartoum has been positive for *Escherichia coli (E. coli)* and negative for other diarrhoeagenic organisms like salmonella, shigella and cholera.

Water samples collected from the areas were also tested at NAMRU-3 in Cairo. Non-enterotoxigenic *E Coil* was detected in all the water samples tested.

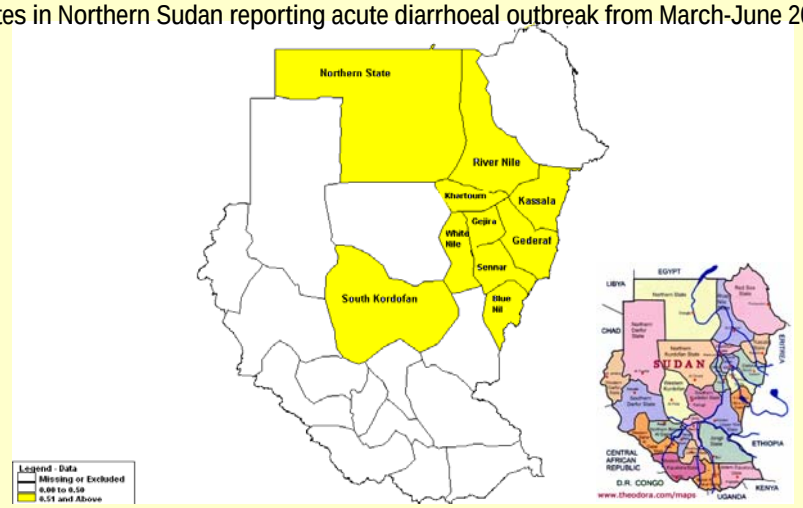
Editorial note

On a global scale, diarrhoeal illness due to *E.coli* is a major cause of morbidity and mortality specially in children. Numerous types of diarrhoeagenic *E coli* strains have been identified worldwide, including enteropathogenic (EPEC), enterohaemorragic (EHEC), enteroinvasive (EIEC), enterotoxigenic (ETEC), enteroaggregative (EAEC) and other diffusely adherent strains. (DAEC). The prevalence of these strains and the burden of disease they cause are however poorly understood. What is known, though, is that each type of *E. coli* causes diarrhoeal disease through different mechanisms and each causes a different clinical presentation.

The reservoir for *E. coli* is the intestines of man and other warm-blooded animals, both mammals and birds. Although *E. coli* will survive in the environment, it doesn't appear to reproduce itself and ultimately dies out. Consequently when *E.coli* is detected in the environment (as has been the case in Sudan), it is taken as an indicator of feacal pollution. Most of the time, when *E.coli* causes infection in humans, it is due to spread of the bacteria from the intestinal flora when the patient has some other deficit or problem. Infection, thereafter, follows direct or indirect faecal-oral spread from either humans or animals. Person to person transmission appears uncommon.

Of all the strains of *E coli*, the most common diarrhoeagenic agent, specially amongst children below 5 years of age, is the enterotoxigenic E coli (ETEC). The epidemiological and clinical presentations of the cases reported from Northern Sudan may not be similar to what is typically observed with any acute diarrhoea outbreaks in tropical temperate countries caused by ETEC, it is important that exact sero-typing of the *E.coli* isolates are done at the NPHL or in any other reference laboratory in order to determine the causative strain of this outbreak. Given the sensitivity of *E. coli* to chlorine and other disinfectants, prevention of waterborne outbreaks of diarrhoeagenic *E.coli* rests effectively on adequate disinfection of drinking water supplies. Therefore, such control measures, in addition to health education, should continue to be emphasized.

States in Northern Sudan reporting acute diarrhoeal outbreak from March-June 2010



Facts on diarrhoea caused by ETEC

- **Burden:** Estimated 200 million episodes of diarrhoea with 380,000 deaths annually;
- **Risk groups;** Children < 5 years, travellers to tropical countries
- **Symptoms:** Profuse watery diarrhoea lasting for several days leading to dehydration, abdominal cramps, fever, nausea with or without vomiting.

Update on outbreaks

in the Eastern Mediterranean Region

Cholera in Djibouti; **Dengue** in Yemen and Sudan

Current public health events of international concern
[cumulative N° of cases (deaths), **CFR %**]

Avian influenza	
Egypt	[109 (34), **31.1%**]
Indonesia	[165 (136), **82.4 %**]
China	[39 (26), **66.6%**]
Global total	[499(295), **59.1%**]
Dengue fever	
Sudan	[3000 (12), **0.4%**]
Yemen	[8109 (10), **0.1%**]
Meningococcal meningitis	
Sudan	[819 (38), **4.6 %**]
Chad	[167 (12),**7.1%**]
Pandemic (H1N1) 2009	
AFRO	No of deaths: 168
AMRO	No of deaths: At least 8427
EMRO	No of deaths: 1019
EURO	No of deaths: At least 4879
SEARO	No of deaths: 1838
WPRO	No of deaths: 1841
GLOBAL Total	No of deaths: 18,172

CFR=Case-Fatality Rate