

## Notes from the Field

### Ebola Virus Disease Response Activities During a Mass Displacement Event After Flooding — Freetown, Sierra Leone, September–November, 2015

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Since the start of the Ebola virus disease (Ebola) outbreak in West Africa, Sierra Leone has reported 8,706 confirmed Ebola cases and 3,956 deaths (1). During September 15–16, 2015, heavy rains flooded the capital, Freetown, resulting in eight deaths, home and property destruction, and thousands of persons in need of assistance (2). By September 27, approximately 13,000 flood-affected persons registered for flood relief services from the government (3). On September 17, two stadiums in Freetown were opened to provide shelter and assistance to flood-affected residents; a total of approximately 3,000 persons stayed overnight in both stadiums (Sierra Leone Ministry of Health and Sanitation, personal communication, September 2015). On the same day the stadiums were opened to flood-affected persons, the Ministry of Health and Sanitation (MoHS) and Western Area Ebola Response Center (WAERC) staff members from CDC, the World Health Organization (WHO), and the African Union evaluated the layout, logistics, and services at both stadiums and identified an immediate need to establish Ebola response activities. The patient in the last Ebola case in the Western Area, which includes Freetown, had died 37 days earlier, on August 11; however, transmission elsewhere in Sierra Leone was ongoing, and movement of persons throughout the country was common (4,5).

After their evaluation on September 17, MoHS and WAERC staff members quickly established incident management systems to ensure a defined chain of command, effective resource management, and advance planning. Entrance screening and isolation for persons with suspected Ebola were established at both stadiums within 2 days. Population flow was restricted at access points, where screening consisted of temperature measurement and questions about recent diarrhea or vomiting and general health status. Persons staying in the stadiums who were ill or seeking medical care were directed to triage stations inside the stadiums for further Ebola screening using the national case definition (6). Persons meeting the suspected Ebola case definition were isolated until they could be transported by ambulance to an Ebola

holding center for testing. When resources became available, separate isolation areas for patients with diarrhea, vomiting, or bleeding were established.

Both stadiums were staffed 24 hours per day, 7 days per week by WAERC district surveillance officers with daytime supervision from a senior district surveillance officer and epidemiologists from CDC and WHO. WAERC partners provided infection prevention and control training to screeners, cleaning personnel, and hygienists, and routinely conducted assessments to improve operations. Clinical staff members from the Ebola holding center at Connaught Hospital in Freetown performed a review of the Ebola response infrastructure at one of the stadiums, and patient flow and staffing procedures were adjusted.

The presence of suspected Ebola cases among the stadiums' populations after the flooding resulted in increased transport, bed usage, and Ebola testing. Ambulances were stationed at each stadium to ensure rapid transport of suspected Ebola patients to a holding center. Expedited laboratory testing was requested for Ebola testing from the stadium population.

During September 17–October 25, among 1,198 living persons (alerts include both living and dead) whose signs and symptoms met the Ebola case definition from alerts in the Western Area, 47 (4%) originated from one of the two stadiums. Alerts were highest immediately after the flooding: 30 (61%) of the 47 suspected case reports occurred by September 23. No confirmed cases occurred in Western Area during this time period.

Challenges to Ebola response activities included resource, space, and personnel constraints; crowding; and flood-associated health needs. A rapid assessment conducted at both stadiums on September 25 identified concerns about crowding and sanitation (7). The large number of persons passing through medical triage, as well as overall crowding, posed challenges to organization, screening, and infection prevention and control during meal service, at pedestrian entrances, and in housing tents. In addition, differing hygiene practices implemented by different partners (e.g., recommendations for handwashing using water and soap, water mixed with soap, or chlorine in water) resulted in inconsistent community messaging and difficulty in determining supply needs. Screening lapses caused by inadequate supervision, staffing, or security; miscommunication; large crowds; and inclement weather occurred. Because of security lapses or confusion about oversight of the isolation area, some persons with suspected Ebola were lost from isolation, although most were located and tested.

Flooding in Freetown caused a disaster that resulted in the loss of life and property and the displacement of thousands of persons into two stadiums during an Ebola outbreak of unprecedented size. Ebola response activities were rapidly established to screen thousands of persons. When possible, Ebola response activities during a disaster need to be consistent with those of the national response. Additional important factors for success include implementation of incident management systems to ensure coordination by various governmental, technical, and implementing partners and to establish and maintain clear and documented protocols for consistent operations.

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