

## Notes from the Field

### Development of a Contact Tracing System for Ebola Virus Disease — Kambia District, Sierra Leone, January–February 2015

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Kambia District is located in northwestern Sierra Leone along the international border with Guinea. The district is dominated by forest and swamp habitat and has a population of approximately 270,000 persons (approximately 5% of the nation's population) who live in rural villages and predominantly subsist on farming and trading. During 2014–2015, the remoteness of the area, a highly porous border with Guinea, and strong traditional beliefs about health care and sickness led to unique challenges in controlling the Ebola Virus Disease (Ebola) outbreak within the district.

When the first Ebola cases in Kambia District were confirmed in September 2014, the Ministry of Health and Sanitation introduced a contact tracing system. Contact tracers were to monitor all contacts of confirmed Ebola cases daily for signs and symptoms of Ebola and report contacts' health status to contact tracing supervisors daily. However, by December 2014, the system's performance and efficacy remained unknown because reporting was irregular and status assessments lacked quality control. Therefore, the number of contacts traced daily and the number of suspected cases arising from contacts were unknown.

In January 2015, the District Ebola Response Center created two new positions to quantify contact tracing indicators and to ensure daily action related to these indicators. The first position was a database manager responsible for ensuring that each contact tracing supervisor received a current list of contacts to be monitored and a subsequent daily status report on each contact, and for recording daily status results for every contact in a centralized database. The second position was a field coordinator who provided on-site quality control of contact tracing visits, ensuring that contact tracing visits were conducted appropriately. The coordinator confirmed that each contact being followed appeared for monitoring, stood

for 3–5 minutes (if physically able to do so), and received an individual status assessment.

To improve system management and accountability, new staff members as well as existing contact tracers, supervisors, and surveillance officers received training and on-site mentoring. Goals for daily monitoring of contact tracing indicators included 100% of contacts being visited by a contact tracer, receiving an appropriate status assessment, and having their status reported and recorded in the centralized database, as well as investigation by a surveillance officer within 24 hours, when indicated by signs or symptoms.

From January 8–February 18, 2015, an average of 201 contacts required daily monitoring; among these, an average of 193 (95.7%) received appropriate daily follow-up. During this interval, 47 contacts who displayed signs or symptoms of Ebola were identified and investigated; among these 47 contacts, 13 (28%) had confirmed Ebola, one (2%) had probable Ebola, and 16 (34%) had suspected Ebola, according to the national case definitions (1).

In Kambia, managed contact tracing through required daily visits and follow-up by contact tracers was effective in identifying 13 Ebola cases that might previously have been missed, before the introduction of clear accountability for daily follow-up and status recording. Based on the findings from this pilot contact tracing program, recommendations and training materials for improvements in data management and quality control to increase the effectiveness of Ebola contact tracing were subsequently developed for widespread use in Sierra Leone.

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#### Reference

1. Dietz PM, Jambai A, Paweska JT, Yoti Z, Ksaizek TG. Epidemiology and risk factors for Ebola virus disease in Sierra Leone—23 May 2014 to 31 January 2015. *Clin Infect Dis* 2015;61:1648–54.