Notes from the Field

Baseline Assessment of the Use of Ebola Rapid Diagnostic Tests — Forécariah, Guinea, October–November 2015

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The Ebola virus disease (Ebola) epidemic in West Africa began in Guinea in early 2014 (*1*). The reemergence of Ebola and risk of ongoing, undetected transmission continues because of the potential for sexual transmission and other as yet unknown transmission pathways (*2*). On March 17, 2016, two new cases of Ebola in Guinea were confirmed by the World Health Organization (*3*). This reemergence of Ebola in Guinea is the first since the original outbreak in the country was declared over on December 29, 2015. The prefecture of Forécariah, in western Guinea, was considerably affected by Ebola in 2015, with an incidence rate of 159 cases per 100,000 persons (*4*). Guinea also has a high prevalence of malaria; in a nationwide 2012 survey, malaria prevalence was reported to be 44% among healthy children aged ≤5 years (*5*). Malaria is an important reason for seeking health care (*6*); during 2014, 34% of outpatient consultations were related to malaria (*7*).

Malaria and Ebola share similar presenting symptoms, including fever, chills, body aches, nausea, and vomiting (*1*). Rapid diagnostic testing (RDT) for malaria and monitoring of febrile illnesses are currently recommended as part of the National Malaria Programme in Forécariah (*7*). In October 2015, in response to a surge of Ebola cases in cases in Forécariah, rapid diagnostic testing for Ebola (RDT-Ebola) was implemented by the National Ebola Coordination Cell to enhance surveillance efforts to detect new Ebola cases and ensure that Ebola cases are not clinically misdiagnosed as malaria. The RDT-Ebola used the OraQuick Ebola Rapid Antigen test, which for whole blood, has a manufacturer-reported sensitivity of 84% (95% confidence interval (CI) = 63.92–95.46) and a specificity of 98.0% (95% CI = 89.35–99.95) (http://www.fda.gov/downloads/MedicalDevices/Safety/EmergencySituations/UCM456912.pdf).

The Ebola and malaria RDTs have similar testing and sample collection procedures, which made the implementation plan straightforward and feasible. The CDC-Guinea RDT-Ebola testing protocol dictated that both RDT-Malaria and RDT-Ebola be conducted simultaneously for each patient with febrile illness who did not have an epidemiologic link to a patient with Ebola; patients with potential exposure to Ebola were sent to Ebola treatment centers (*8*). Because patients with known risk factors for Ebola were not tested with the RDT-Ebola tests, the same infection prevention control precautions as for malaria (i.e., use of gloves and gowns) were recommended.

To evaluate implementation of RDT-Ebola in Forécariah, 10 health centers (one in each of the 10 Forécariah subprefectures), two large hospitals within the prefecture, and three health posts located near the Sierra Leone border were selected as sentinel sites. Initial visits were conducted 1 month after the distribution of the RDT-Ebola test kits; by November 23, 2015, 13 of the 15 sentinel sites had been visited. Clinic registries were reviewed to establish a baseline for seven variables of interest, including the number of consultations for fever (reported and measured), the number of RDT-Malaria tests used, and the number of RDT-Ebola tests used (Table), and to collect information about lessons learned from this first large-scale RDT-Ebola implementation.

During October 1–November 23, 2015, at the 13 sentinel sites, among a total of 2,115 consultations 1,544 (73%) were for evaluation of febrile illness (subjective fever reported by patients and measured [≥100.4°F (≥38°C)] by a health care worker). Among these 1,544 consultations, a total of 1,553 RDT-malaria tests were reported to have been conducted (101% of patients tested) and 1,000 RDT-Ebola tests were conducted (65% of patients tested). Overall, 1,112 (72%) persons tested positive

TABLE. Implementation of RDT-Ebola program in 13 sentinel sites — Forécariah, Guinea, October 1–November 23, 2015

Variable	Sentinel site													
	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Consultations (no.)	89	41	327	138	206	507	25	140	274	100	88	67	113	**2,115**
Recorded fevers (no.)	68	21	276	88	169	426	18	30	148	76	65	60	99	**1,544**
Fevers >100.4°F (>38°C) (no.)	6	21	36	9	26	44	10	8	5	16	5	18	3	**207**
RDT-Ebola used (no.)	36	24	262	69	96	116	15	28	113	76	36	44	85	**1,000**
RDT-Malaria used (no.)	71	31	262	87	177	437	21	29	133	80	61	66	98	**1,553**
RDT-Malaria positive (no.)	51	25	137	66	131	334	18	17	105	62	45	38	83	**1,112**
Ratio of RDT-Ebola used to RDT-Malaria used	0.51	0.77	1.00	0.79	0.54	0.27	0.71	0.97	0.85	0.95	0.59	0.67	0.87	**0.64**
Consultations with recorded fever (%)	76.4	51.2	84.4	63.8	82.0	84.0	72.0	21.4	54.0	76.0	73.9	89.6	87.6	**73.0**
Positivity of malaria (%)	71.8	80.6	52.3	75.9	74.0	76.4	85.7	58.6	78.9	77.5	73.8	57.6	84.7	**71.6**

Abbreviations: RDT-Ebola = rapid diagnostic testing for Ebola; RDT-Malaria = rapid diagnostic testing for malaria.

for malaria by RDT (range of percentage of positive malaria tests among 13 sentinel sites = 52.3%–85.7%); none tested positive for Ebola by RDT-Ebola. The ratio of RDT-Ebola to RDT-Malaria tests used was 0.64 overall and ranged from 0.27 to 1.00 (Table). Reported barriers to RDT-Ebola use included inadequate stock of RDT-Ebola kits, lack of understanding of the CDC RDT-Ebola testing protocol, and patient refusal of RDT-Ebola testing, which might have contributed to the differences in the numbers of malaria and Ebola tests conducted.

Ongoing data collection from the sentinel sites can help to monitor the success of RDT-Ebola implementation, inform supply chain management, and identify and address barriers to RDT-Ebola use. RDT-Ebola implementation at the sentinel sites can also aid in screening for undetected Ebola cases to prevent establishment of new transmission chains.

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