

## Innovation to confront Ebola in Sierra Leone: the community-care-centre model

The 2014–15 west African outbreak of Ebola virus disease is unprecedented in scale, especially in Sierra Leone, which as of May 15, 2015, had reported 8598 confirmed cases and 3538 confirmed Ebola-related deaths.<sup>1</sup> Sierra Leone's response to this emergency has been compromised by a fragile health system with scant resources, limited infrastructure, and one of the world's severest shortages of health-care workers,<sup>2,3</sup> tragically compounded by the deaths of 221 health-care workers from Ebola virus disease since the outbreak began.<sup>4</sup> Despite support from donors and partner organisations, Ebola treatment units were able to provide only 60% of necessary treatment beds as the outbreak neared its peak in November, 2014.<sup>5</sup> Limited access to treatment centres forced individuals with suspected Ebola virus disease to remain in the community and for families to care for such individuals at home, putting caregivers and household members at high risk of infection.

Facing the gravity of the outbreak and the scarce resources at hand, the Government of Sierra Leone developed innovative but untested approaches to confront the Ebola threat. One such model was the development of community care centres. Based on experience in Liberia,<sup>6</sup> these centres were designed to enable rapid isolation and palliative care for people with suspected Ebola virus disease pending availability of beds in Ebola treatment units, thus reducing household exposure and community transmission. In view of the scale of the outbreak, the promise of this approach, and the lack of alternatives, the model was launched in November, 2014, with

support from the UK Department for International Development and implementing partners.

We did a rapid cross-sectional assessment of community care centres in December, 2014, assessing 11 purposively selected centres through direct observation, a site assessment survey, and review of on-site data and documents. Additionally, we did 58 key informant interviews with national and regional stakeholders including governmental officials, implementing partners, staff at community care centres, and community members. The study was approved by the Sierra Leone Ethics and Scientific Review Committee and the Columbia University Medical Center Institutional Review Board.

We noted that implementation of community care centres was brisk, with implementing partners reporting a median time from community engagement to launch of 10 days. The 11 centres that we visited used a range of structures, from tents to repurposed hospital wards and schools (figure). Common characteristics included proximity to target communities, fairly small size (8–28 beds), ability to swiftly triage and isolate people with suspected or confirmed Ebola virus disease, and ability to transport patients

to Ebola treatment units as beds became available. All sites had the capacity to provide oral rehydration solution, empirical antibiotics, empirical treatment for malaria, and Ebola diagnostic testing according to national guidelines. At the time of the assessment, two sites were able to provide intravenous hydration. Essential safety measures were in place at all sites, although some safety challenges were noted such as patients being left unattended overnight at some centres owing to lack of electricity. Some factors differed among community care centres including staffing patterns, supervisory approaches, patient flow, and presence of specific innovations.

Implementing partners made concerted efforts to engage communities in the planning of these centres, recruiting community members to provide non-clinical services and to act as liaisons between the centres and local communities. Despite the initial intention to staff community care centres entirely with laypeople, partners were able to recruit trained health workers for all centres on the basis of their concern about safety of the lay staff model. Staff from the Ministry of Health and Sanitation, implementing partners, staff at community care centres, and



Figure: Repurposed hospital wing to serve as an Ebola community care centre

community members noted that the model was acceptable and feasible.

Several parallel systems were created to support the functions of the community care centres. Although hazard payments for health-care workers were provided, challenges included delayed and duplicate payments and lack of standard payment levels across partners. Parallel systems for supply chain management were also created for drugs, equipment, and supplies. Nonetheless, five community care centres reported stock-outs or shortage of basic supplies.

Few data were available to assess the outcome or effectiveness of community care centres. Registers and forms were not standardised, and most centres collected data only about occupancy and triage decisions rather than outcomes. Informants noted that data were reported "up" to the district level on a daily basis, but were not used to inform operational changes or quality of services. At the time of the assessment, use of community care centres was low, with an overall occupancy rate of 14%.

Community care centres were conceptualised as a stopgap measure in response to the Ebola crisis. However, the rapidity of their launch, their ability to engage and support communities and foster trust, and their potential to reduce spread of Ebola virus disease suggest that they could also have the potential to be a nimble first response to emergent Ebola hotspots or similar threats to public health. Creation of a community-care-centre package—including standardised design, patient flow, job aides, monitoring and evaluation instruments, training, and supervision manuals—that is ready to rapidly deploy and scale-up could enhance the future effectiveness of the model and facilitate effective public health responses.

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