

HOW EBOLA INFECTION SPREADS AND TERMINATES IN RURAL SIERRA LEONE

An analytical note

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Paul Richards

NJALA UNIVERSITY

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Social knowledge ends Ebola spread

Ebola is a new disease in Upper West Africa. Populations have taken time to learn the nature of the risk it poses. Persons carrying infection initially do not know that they have the sickness. They carry out their daily activities, and seek help from their families and traditional remedies when and where they become symptomatic. Nearly all infection, so far as is known, is associated with the "wet" phase of the illness and handling the corpse of a deceased victim. This period of major infection risks extends for 2-3 days either side of death.

Key strategies for preventing further infection are isolation of the patient in an Ebola care facility, "safe burial", and quarantine of those exposed to Ebola cases. Equally important is social recognition that isolation, safe burial and quarantine are necessary to break the transmission chain. Thus it is important to ask how, and how quickly, communities learn about the risks of infection and the necessity of steps to reduce and eliminate these risks.

Ebola does not aerosol, so there is little or no airborne risk. Nor is it spread by "random" body contact, since the patient is immobilized during the final "wet" phase. Like HIV-AIDS Ebola is a disease of intimate body contact. But unlike HIV-AIDS (a largely sexually transmitted disease) the body contact is a more public matter. Focus group enquiries about procedures for nursing the sick and handling dead bodies provided an abundance of explicit description.

Evidence shows that rural communities learn about Ebola transmission pathways very quickly, and thus rather rapidly lower risk of exposure and accept imposed control measures. Eight cases of outbreaks of Ebola in the rural Mende-speaking part of southern and eastern Sierra Leone have been examined in detail, and in every case transmission was quickly ended, mainly before the recent big international "push" on Ebola prevention.

A common feature of these outbreaks is that villagers could give the names, genders and ages of all victims. In many cases the names shared the same *sii* (patronym) showing that these persons belonged to a single lineage (*ndehun*). This is consistent with information that nursing the sick is normally the responsibility of close family members. Persons nearing death may wish to reveal secrets ("confess"); thus the more serious the sickness the closer the ties of the nurse with the sick person will need to be.

Mende villages are relatively stable communities. There is a good deal of mutual familiarity among members of these communities. *Talisia* (town's-people) will recognize the significance of the fact that many of those infected by an index case are family members. Nursing the sick by family members will be readily perceived as a major infection pathway.

Inferring infection pathways from handling the corpse is a less straightforward matter. A number of older Mende villagers are elders of the local "secret societies" (sodalities) - notably Poro, Wunde, and Sande. The body of society elders belongs to the society, unless it is redeemed by the family. The body of a wife, unless her marriage payments have been completed, also belongs to her

own lineage, and its members may live in a different village. The bodies of society elders will be prepared for burial by other society elders. The body of a wife in an "incomplete" marriage may have to be returned to her village of birth. The risks of infection from handling an Ebola victim's corpse, therefore, may be diffused beyond the immediate family.

Even so, the network connections will be perceived by most villagers. It will be clear to older women, for example, that further infection has broken out among the women associated with the preparation of the body of a Sande elder for burial, even though activities associated with such a burial are kept secret. If Ebola cases follow in a second village, after a wife's body was removed for burial, the inference, implicating corpse handling with the disease, will be equally clear.

Villagers, in focus groups, gave very clear descriptions of the different steps to be taken in preparing bodies for burial, and readily name those who, typically, undertake the work. In one village, different focus groups gave us the same names of 13 people who died of Ebola and four who survived. The survivors were all young men. It is known that survival rates for younger adults are better than for older adults. What also seems significant is that focus groups in this village stated that bodies are carried to the grave by young male volunteers. It is an activity that is rewarded not by money but by "blessing". Follow-up is being made to determine whether these four young survivors had been corpse bearers.

Conclusion

Villagers are readily able to pick up patterns of Ebola infection from social data, and thus quickly learn the risks associated with nursing and burial. Illustrating the claim of Durkheim and Mauss that social taxonomy (in face-to-face communities) is the taxonomy of things, the need for "barrier" nursing, "safe burial" and quarantine quickly becomes apparent. Villagers regret the necessity for these measures, and would prefer to be trained to implement them themselves, but they do not reject them outright. Proof is to be found in the evidence that local efforts are made to meet these needs, even in the absence of an outside response. When outside rules are imposed, villagers strengthen them (for example, by making quarantine and controls over the movements of "strangers [*hoteisia*] even stronger than those mandated by the government). There is an important caveat, however. Face-to-face social knowledge necessary to halt Ebola is not found in all communities. In urban areas the mutual accountability found in villages is absent or less intense. Here, everyone is a "stranger". In some mining villages the flow of migrants is seasonal, or responsive to the ebb and flow of diamond "finds". Village authorities cannot keep account of all movements, and quarantine is readily evaded. It is in these more fluid social environments that Ebola is more likely to persist.