

Impact of Beliefs on the Spread of Ebola

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Ebola spreads by contact with fluids of an infected person such as sweat, blood, saliva, etc. The factors that can enhance the spread of Ebola are hygienic, cultural and religious. African villages and towns have communal water collection points that use borehole pumps. Individuals whose disease status is still asymptomatic can spread the disease to many people before anybody is aware there is an infectious disease around. In Africa we queue for anything in the banks, post offices, etc. In these places we meet friends whom we greet by shaking hands. If an infected person has sweaty hands the possibility of passing on the disease is there (small probability though). African funerals are probably the most likely places where Ebola thrives. Africans enjoy washing dead relatives, clothe the dead relatives, etc. All these are are ways in which Ebola can spread.

The health care systems are over burdened. Children are made to share beds in most hospitals. One child can easily pass on the disease to the other and to family of each child. Cultural practices are responsible for most of the disease spread. In Africa we eat from a common plate and wash hands from the same dish. As part of the Christian faith we shake hands to show our love for each other. Potentially this is another way Ebola can spread.

We have developed a mathematical model to investigate the impact of various practices on the spread of Ebola. The model includes infection of susceptible individuals by the reservoir, infected humans and the dead. Reference will be made to the current Ebola epidemic in West Africa. Can deterministic models explain the characteristics of Ebola dynamics? We compare the results given by deterministic and stochastic models.