

2016 Sydney MacDonald Russell Family Fellow

J. Daniel Kelly, MD, Masters of Public Health Candidate, UC Berkeley

Dan Kelly obtained his medical degree at Albert Einstein College of Medicine, where he pursued a Global Health Fellowship in his 3rd year working in Sierra Leone. He is a founding member of Wellbody Alliance, a health and human rights non-profit that provides high-quality healthcare to the rural poor. Dr. Kelly was an infectious disease fellow at UC San Francisco, and a Masters of Public Health student at UC Berkeley, when Ebola struck Sierra Leone. He took a leave of absence from his training and returned to Sierra Leone to take a full-time leadership role in the Ebola response. Dr. Kelly returned to UCSF and UCB to finish his fellowship and MPH, but he continues to conduct Ebola research. Dr. Kelly has become an international expert on Ebola and has published on the topic in *New England Journal of Medicine*, *Nature*, and *The Lancet*.



Fellowship Proposal

Dr. Kelly proposes a pilot study to investigate the impact of HIV infection on Ebola Virus Disease (EVD) clinical outcomes in Kono District, Sierra Leone. To date, studies assessing Ebola clinical outcomes have traditionally focused on Ebola-infected persons who died or survived. However, the extent to which HIV-infected persons were disproportionately affected by the Ebola virus or had asymptomatic Ebola virus infections remains unknown.

Dr. Kelly's study will explore the burden of HIV infection in Ebola-infected populations and determine Ebola-related clinical outcomes. It has been suggested that HIV-infected persons may be at disproportionate risk for Ebola virus infections and worse clinical outcomes. For this reason, Dr. Kelly plans test the following hypotheses:

1. Ebola-infected persons will have higher rates of HIV-infection than Ebola-uninfected persons.
2. People who were co-infected with HIV/Ebola had more severe Ebola-related clinical outcomes than people who were infected with Ebola

Dr. Kelly will sample Ebola clinical outcomes, divided into dead, alive, and asymptomatic infection. Based on the number of co-infected persons he identifies, he will be able to capture epidemiologic and clinical data on the characteristics of these persons to understand this newly identified population. The results of this project will shed light on scientific question about whether HIV-infected persons were disproportionately affected by Ebola virus infection. If disproportionate risk is associated with HIV/Ebola co-infection, larger studies may be powered to assess the risk factors.

At a public health level, if HIV-infected persons are shown to have been disproportionately affected EVD, government health bodies, such as the Sierra Leone National AIDS Secretariat, might place additional priority on understanding the reasons for the disproportionate risk and engage in strategic and planning processes so that co-infections can be prevented for future outbreak and crisis situations.