Assessing the Effectiveness of Ebola Control Measures in Kikwit, DRC 1995

<u>Faraimunashe Chirove</u>[1], Adamu Hassan[2], Irene Kyomugisha[3],
Sylvie Djiomba[4], Justin Munganga[5], Salisu Garba[6]
[1] University of KwaZulu-Natal
Chirovef@ukzn.ac.za
[2,6] University of Pretoria
[2] Adamu.Hassan@tuks.co.za, [6] Salisu.Garba@up.ac.za
[3,4] Stellenbosch University
[3] irenekyomu@gmail.com, [4] sylvie@sun.ac.za
[5] University of South Africa
Mungajmw@unisa.ac.za
1

Keywords: Ebola, outbreak, Kikwit, equilibrium, stability, reproduction number.

We develop mathematical models to replicate the Ebola infection dynamics in Kikwit District of Congo DRC 1995. The models are used to assess various control measures undertaken during the outbreak and determine the type of control measures that were most effective in controlling the outbreak. Two models were designed for two distinct periods of the Ebola outbreak, that is the period before Ebola was declared an epidemic in Kikwit (January 1995 to April 1995) and the period after Ebola was declared an outbreak in Kikwit (May 1995 to August 1995. We also carry out cost benefit analysis for each intervention method. The aim of this study is to assess and suggest the best possible measures for effectively combating Ebola infection.