KABALE UNIVERSITY

A MATHEMATICAL MODEL FOR THE DYNAMICS OF POLIO

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ABSTRACT

There is lack of treatment for poliomyelitis and it is only prevented by means of immunization with live oral polio vaccine (OPV) or/and inactivated polio vaccine (!PY). Poliomyelitis is a very contagious viral infection caused by poliovirus. Children are principally attacked. In this project, we assessed the impact of vaccination in the control of spread of poliomyelitis via a deterministic SVEIR (Susceptible-Vaccinated-Exposed-Infectious-Recovered) model of infectious disease transmission, where vaccinated individuals are also susceptible, although to a lesser degree. Using Lyapunov-Lasalle methods, we proved the global asymptotic stability of the dynamics of the disease whenever $Ra < I$. Numerical simulations, using poliomyelitis data from **Kabale Regional Referral Hospital in Kabale district,** have been conducted to approve analytic results and to show the importance of vaccination coverage in the control of disease spread.