Title: Understanding the Impact of an HIV Intervention Package for Adolescents

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Abstract: With the high HIV prevalence among young people in South Africa, HIV prevention programs that target adolescents are vital in reducing HIV incidence in this high risk population. We develop a stochastic individual-based model that estimates the HIV incidence among adolescents over a relatively short period of time. The model is then used to simulate the impact of an HIV prevention package among adolescents participating in a hypothetical randomized controlled trial (RCT). The simulation aims to assist with the design of a RCT by determining which components to include in an HIV prevention package to achieve the greatest effectiveness, as well as determining the sample size requirements for an optimally powered trial.