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Adaptive Changes in Sexual Behavior in Response to Monkeypox Can Control the Outbreak: Insights from an Epidemic Model

Monkeypox, a zoonotic disease caused by the monkeypox virus, is emerging as a potential sexually transmitted disease (STD). Starting from the end of April 2022, a monkeypox outbreak is ongoing. Mathematical modelling plays a crucial role in monitoring, controlling, and forecasting infectious disease outbreaks, including those generated by STDs. In this talk, I will present a compartmentalized epidemiological model that we designed to track the dynamics of Monkeypox and the results we obtained from analyzing the model. The model incorporates sexual behaviour dynamics and stratified the population into high- and low-risk groups. We explore and compare different intervention strategies targeting the high-risk population: i) a scenario of control strategies, implementing a policy geared towards the use of condoms and/or sexual abstinence (robust control strategy); ii) a scenario of control strategies with risk compensation behaviour change, assuming a compensation through conducting more sexual encounters for adopting protective behavioural strategies (risk compensation strategy); and, iii) a scenario of control strategies with behaviour change in response to the doubling rate (adaptive control strategy).