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Modelling the impact of early versus late antiretroviral treatment on HIV epidemics

In absence of effective vaccines pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) demonstrate substantial impact on HIV epidemics. Antiretroviral treatment (ART) has the potential to reduce mortality and disease progression among HIV infected individual. ART can reduce the viral load to an undetected level help preventing new infections. Whether the treatment should begin early or delayed is still an unanswered question. This study consider the impact of early versus delay ART on the HIV epidemic and demonstrate the optimum timing of ART initiation. Our results highlights the long-term consequences of early treatment in the subjects of reduction of new infection, treatment, disease death and adult prevalence.