

## **Abstract**

**1.To estimate the number of HIV-infected persons in hard-to-count, high-risk Men who have Sex with Men (MSM) groups from data of a voluntary HIV serotesting program targeted at the high-risk group of gay saunas patrons in Taipei area.**

**2.Using longitudinal viral load data from a clinical study of HIV-infected patients in Taiwan, we described the viral trajectories by applying a nonparametric mixed-effects model. We were then able to compare the efficacies of highly active antiretroviral therapy (HAART) and conventional therapy by using Young and Bowman's (1995) test.**

**3.Using longitudinal data from a clinical study of HIV-infected patients in Taiwan, we estimate the survival time to ascertain the efficacy of highly active antiretroviral therapy (HAART).**

**Keywords : HIV/AIDS ; Mathematical model ; HAART ; generalized removal model ; empirical Bayesian analysis**