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# STD AND INFECTIOUS DISEASES CONGRESS

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### Modeling syphilis in older population in Taiwan: Testing adequate but education lacking

**Background/Objective:** Sexually transmitted disease is an ancient disease, although efficient treatment is available. Taiwan disease surveillance system disclosed that syphilis is the most common sexually transmitted disease. Among different age groups, the older population over 50 years of age had a relatively higher incidence. The study aims to focus the current syphilis epidemic in the  $\geq 50$  population in Taiwan.

**Material & Methods:** Government syphilis surveillance data is used to infer the number of infected persons over 50 years age. Moreover, we utilize a discrete-time compartmental model to estimate important epidemiological parameters (i.e., infection rate, reporting rate) for two time periods, namely 2003-2006 and 2012-2014, in order to ascertain the recent trends of the epidemic.

**Results:** Estimates for the first period (2003-2006) reveal that, new numbers entering  $\geq 50$ -year old age group that are at risk of infection are 39.41% of 49-year-old population annually. The syphilis incidence of 50-plus age group is 1.6 cases per 100,000 persons. Estimate from the second period (2009-2011) indicate that, new numbers entering  $\geq 50$ -year old age group that are at risk of infection are 1.26% of 49-year-old population annually. The syphilis incidence among 50-plus is 12.6 cases per 100,000 persons. Comparing the two period estimates, syphilis incidence surged sharply from 1.6 to 12.6 cases per 100,000 persons, even though we have a decrease in newly entering syphilis at risk population (39.41% to 1.26%). However, there has been a 3-fold increase in infection rate among the at-risk population.

**Conclusions:** Syphilis incidence among age 50 and over population is increasing. Significant progress has been made on syphilis testing/surveillance program which led to substantial reduction in susceptible cases in general population. However, sexually transmitted disease prevention education program still need to be improved, to reduce infection in all adults, including the older aged population.

### Biography

Ying-Hen Hsieh is an Applied Mathematician and a Professor at the College of Public Health, China Medical University in Taiwan. His primary research interests focus on mathematical and statistical modeling of infectious diseases as well as analysis of infectious disease epidemiology relating to public health policies.

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