

**TITLE:** A DIFFERENT APPROACH TO UNDERSTAND CONGENITAL AND GESTATIONAL SYPHILIS: A SEASONAL STUDY

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**ABSTRACT:**

Syphilis is a Sexually Transmitted Infection (IST) with significant importance to public health, due to its impact during pregnancy (Gestational Syphilis - GS); especially because it can affect fetus and neonates' development (Congenital Syphilis – CS), by increasing susceptibility to abortion, premature birth, skeletal malformations, meningitis and pneumonia. Although measures to control and eliminate congenital syphilis have failed on the last few years, this research aimed to identify the seasonality of notified cases of syphilis in a deprived region of Sao Paulo state. The studied region, *Pontal do Paranapanema*, has 32 cities located in the West of Sao Paulo state. Data collected from the *Sistema Nacional de Agravos e Notificação* (SINAN) website was used to calculate the incidence rate of GS and CS. The incidence rate of GS was acquired dividing number of cases by number of habitant and CS using number of live births in each year (from 2007 to 2013). This result was then, standardized by multiplying incidence rate by 10,000 and expressed as incidence/10,000 habitant or live births, for GS and CS, respectively. To identify possible endemic/epidemic periods, a control diagram was elaborated using the standard deviation (SD) of incidence rate. The alert line was calculated using incidence multiplied by twice the SD and control line multiply by 3 times the SD. 80 cases of GS and 61 cases of CS were notified from 2007 to 2013. In 2011 and 2012, an increase of GS and CS notifications, respectively, was detected in *Pontal do Paranapanema*. This trend might suggest that the treatment of syphilis during gestational period was fallible, once there was an increase in the number of congenital cases in the subsequent year. Most of those cases were reported on February and November which demonstrated the seasonality of this IST. The control diagram, based on the inputs collected from SINAN, showed no endemic period; however, the most susceptible month to happen an endemic event of congenital and gestational syphilis is February, suggesting a correlation between the number of cases to Summer. The inefficiency of the method used to control syphilis might be related to the incoherent approach to comprehend STI's dynamics in a population. The present study provides a new methodology to understand the syphilis dynamics, and also can be used as a tool to improve the success of future measures to control and possibly eliminate congenital syphilis.

**Keywords:** congenital syphilis, gestational syphilis, seasonality, control diagram

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