# Bronchiolitis dynamics in the region of Valencia: An aged Bayesian discrete-time model.

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Bronchiolitis is the most common cause of hospitalization due to acute lower respiratory tract  infection in children younger than 2 years, and the leading cause of morbidity during first year of life . Although the majority of epidemiological studies focus on hospitalizations, most of the bronchiolitis cases are treated in primary care offices. Consequently, literature in this field usually reflects an underestimation of incidence and burden of bronchiolitis in general population.

 We present a Bayesian model in discrete time to study bronchiolitis dynamics in a population of children aged less than 2 years-old in Valencia. We divide the population in four age groups and describe the interaction among them.  The seasonality that explains the cyclical pattern of cases infected is treated through indicator variables that account for monthly effects.

The Bayesian analysis of the model allows us to calculate both the posterior distribution of the model parameters and the posterior predictive distribution, which facilitates the computation of point forecasts and prediction intervals for future observations.

**Keywords**: Bronchiolitis, Bayesian analysis, discrete time model.