

Excess pneumonia and influenza hospitalizations associated with influenza epidemics in Portugal from 1998 to 2015

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BACKGROUND & OBJECTIVES

In Portugal there is no severe acute respiratory infection surveillance system in place.

Estimation of influenza burden has been accessed using hospital discharge database that covers the mainland Portuguese population.

The objective of this study was to estimate the excess of pneumonia or influenza (P&I) hospitalizations during influenza epidemics from seasons 1998-99 to 2014-15 in mainland Portugal.

METHODS

Data

- ▶ Weekly P&I hospitalizations (ICD-9:480-487) as main diagnosis for the <2; 2-4; 5-14; 15-49; 50-64 and ≥65 age groups: National Hospital Discharge database.
- ▶ Influenza epidemic periods: General Practitioner Sentinel Network.

Study period: Week 40 of 1998 to 40 of 2015.

Methods

- ▶ Age-specific baseline hospitalization rates were estimated by ARIMA model without time periods associated with excess of hospitalizations (EH) using *Flubase R package*.
- ▶ EH were calculated by subtracting expected hospitalizations rates from the observed during influenza epidemic periods.

RESULTS

Overall and age-group

- ▶ The average EH per season was $19.4/10^5$ ($0-46.1/10^5$).
- ▶ Higher EH was observed in children <2 years ($79.8/10^5$) and in 65 years and more ($68.3/10^5$).
- ▶ For remain age groups, EH were $17.5/10^5$ (2-4 years); $5.1/10^5$ (5-14 years); $3.5/10^5$ (15-49 years) and $11.2/10^5$ (50-64 years).

Influenza type and sub-type

- ▶ No EH was observed in 3 seasons in which influenza B virus was dominant.
- ▶ In seasons with A(H3) dominance, the highest EH was observed amongst 65 and over.
- ▶ Seasons with influenza B/A(H1)pdm09 dominance the highest EH was observed in younger children (less than 2 years).

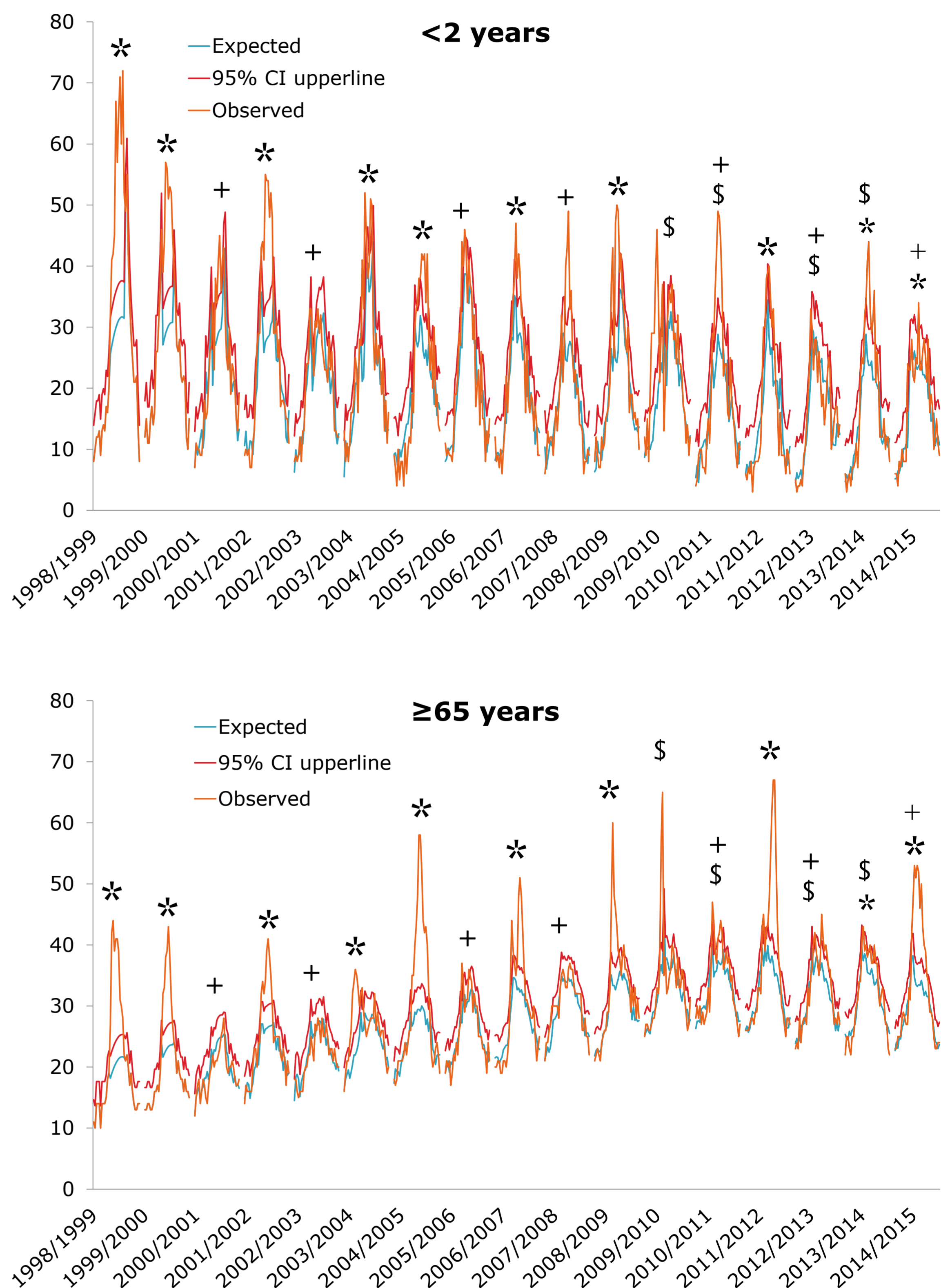


FIGURE 1: Observed and expected hospitalizations on each season

NOTE: * A(H3); + B; \$ A(H1)pdm09

CONCLUSIONS & LIMITATIONS

- ▶ EH is observed in almost influenza epidemics, especially in young children and the elderly.
- ▶ Influenza associated P&I EH pattern differs from age group and epidemic dominant virus.
- ▶ Given the ecological study design, the effect of others respiratory agents that co-circulate during influenza epidemics cannot be excluded.