Impact of Influenza on mortality in Portugal

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Figure 1. Weekly influenza-like illness incidence rate in 2018/19 season, Portugal (provisional data 23/05/2019)

Figure 2. Weekly influenza virus distribution in 2017/18 and 2018/19 seasons, Portugal (provisional data 23/05/2019)

Figure 3. Cumulative influenza virus distribution in 2018/19 season, Portugal (provisional data 23/05/2019)
Figure 4. All-cause mortality, Influenza-like illness rate and average minimum air temperature in Portugal during 2018/19 season (provisional data 23/05/2019)
Mortality during influenza epidemics depends:
- Influenza type and subtype
- Incidence
- Age groups affected
- Characteristics of the population (ageing, chronic health conditions, social conditions)
Methods

All-cause mortality monitoring: Multiple linear regression model adjusted for long term trends and seasonal pattern of mortality. Excluded all periods potentially associated with excess mortality (e.g. influenza epidemic and heat wave periods)

✓ Age group, sex and region
✓ Data from week 40/2007 to 20/2019 (available data at 3rd June 2019)
✓ Excess mortality categorized accordingly its magnitude (0-2, 2-4 6-8; >8 Z-scores)

Influenza attributable mortality: Poisson regression model adjusted for influenza activity and extreme temperatures (Flumomo V4.2)

✓ Age group
✓ Data from week 40/2012 to 20/2019 (available data at 3rd June 2019)
**Figure 5.** Overall all-cause mortality (Z-score) in Portugal since week 20/2013 (provisional data 03/06/2019)

**Figure 6.** All-cause mortality (Z-score categories) in Portugal during 2018-19 by age group (provisional data 03/06/2019)

**W2/2019-W6/2019**
Low-moderate intensity
Above 75 years
Table 1. Excess all-cause mortality by sex and age group, 2018/19, Portugal.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Ratio O/E (95 CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1.07 (1.04; 1.09)</td>
</tr>
<tr>
<td>Female</td>
<td>1.12 (1.09; 1.15)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Ratio O/E (95 CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-84</td>
<td>1.08 (1.04; 1.11)</td>
</tr>
<tr>
<td>85+</td>
<td>1.15 (1.12; 1.18)</td>
</tr>
</tbody>
</table>

Note: Ratio O/E: ratio between observed and expected (baseline) number of deaths during the influenza epidemic period. 95IC: 95% confidence interval.
Figure 7. Excess all-cause mortality, week 4/2019 (provisional data 03/06/2019)

Figure 8. ILI consultations by region, week 4/2019 to week 6/2019 (provisional data 03/06/2019)

Figure 9. Excess all-cause mortality (Z-score categories) in Portugal during 2018-19 by region (provisional data 03/06/2019)
Figure 10. Overall Influenza and temperature attributable mortality in Portugal since week 40/2012 (provisional data 03/06/2019), FluMOMO, version 4.2.
Conclusions

• Influenza epidemics moderate intensity (W1/2019 to W10/2019)
  – A(H3) dominance

• Impact on all-cause mortality (W2/2019 to W6/2019)
  – Low to moderate
  – Above 75 years (+ 85 years and more)
  – Mortality due to influenza probably overestimated
Acknowledges

- **Epidemiology Department**
  - Susana Silva, Ana Rita Torres, Verónica Gómez, Ausenda Machado, Baltazar Nunes, Rita Roquette

- **National Influenza Centre**
  - Raquel Guiomar, Pedro Pechirra, Patrícia Conde, Paula Cristóvão, Inês costa

- **General Practitioners Sentinel Network, Intensive Care Units Network, Emergency Departments Network.**

Thank you