

Impact of Influenza on mortality in Portugal

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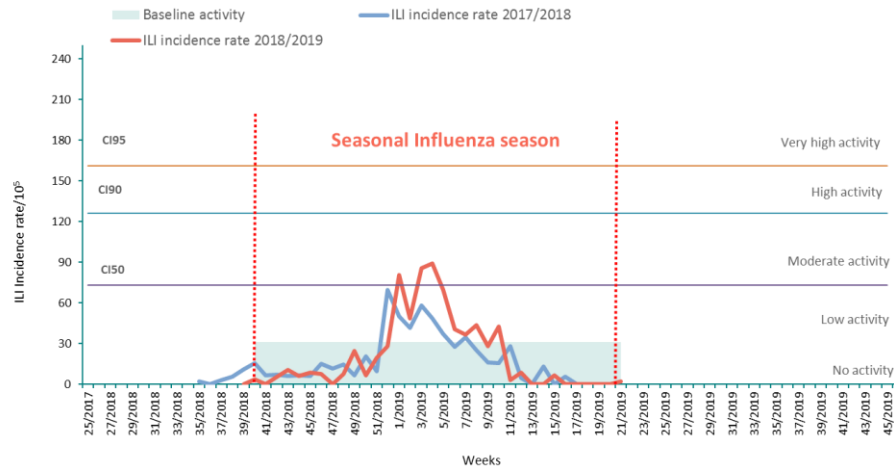


Figure 1. Weekly influenza-like illness incidence rate in 2018/19 season, Portugal (provisional data 23/05/2019)

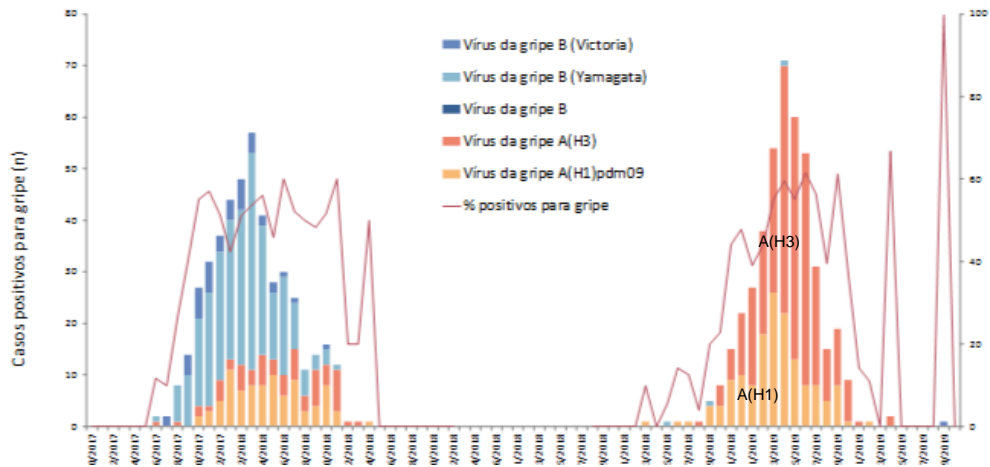


Figure 2. Weekly influenza virus distribution in 2017/18 and 2018/19 seasons, Portugal (provisional data 23/05/2019)

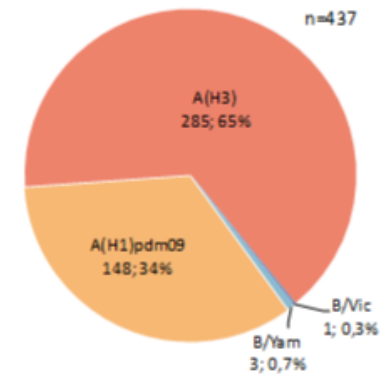


Figure 3. Cumulative influenza virus distribution in 2018/19 season, Portugal (provisional data 23/05/2019)

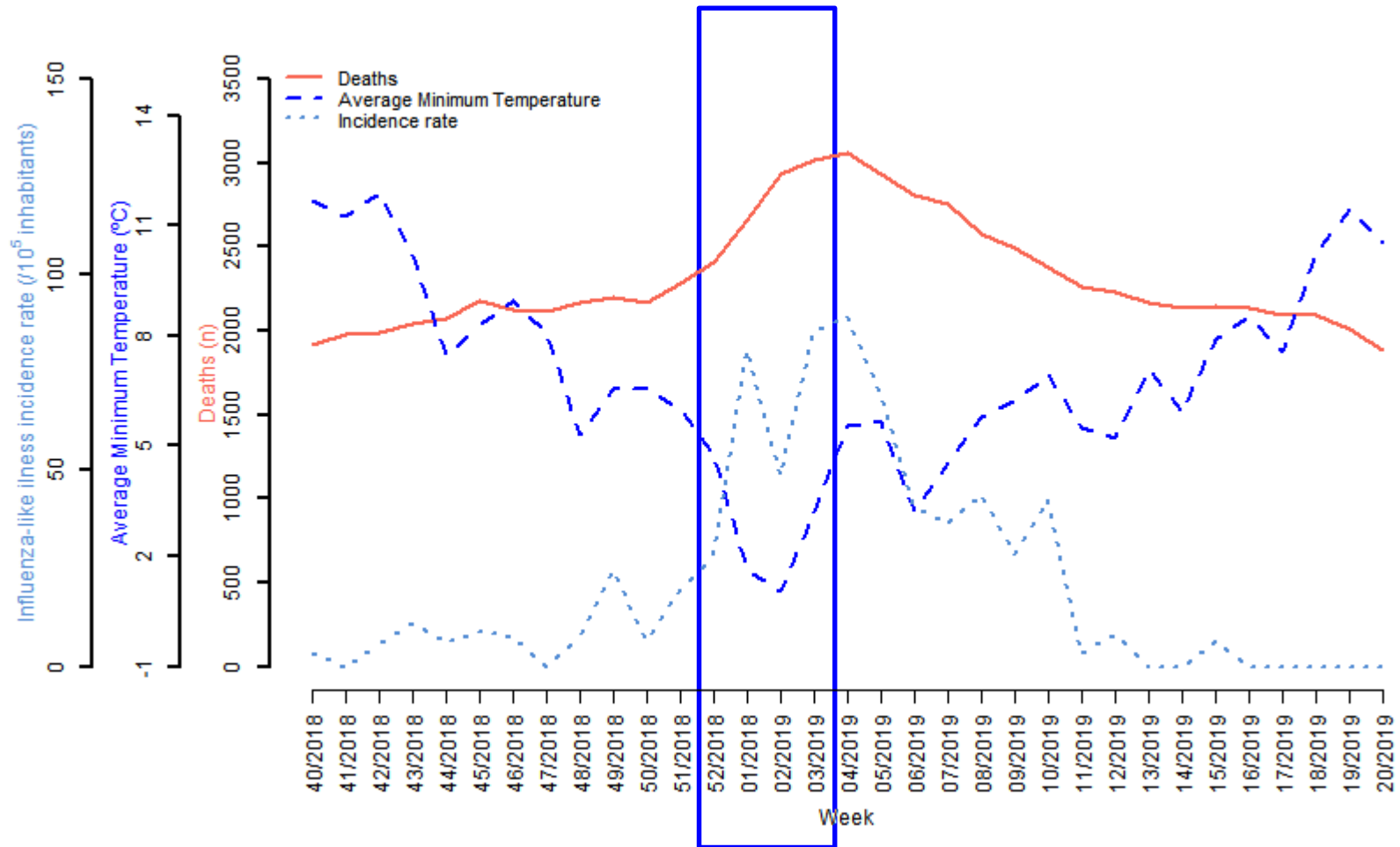


Figure 4. All-cause mortality, Influenza-like illness rate and average minimum air temperature in Portugal during 2018/19 season (provisional data 23/05/2019)

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)

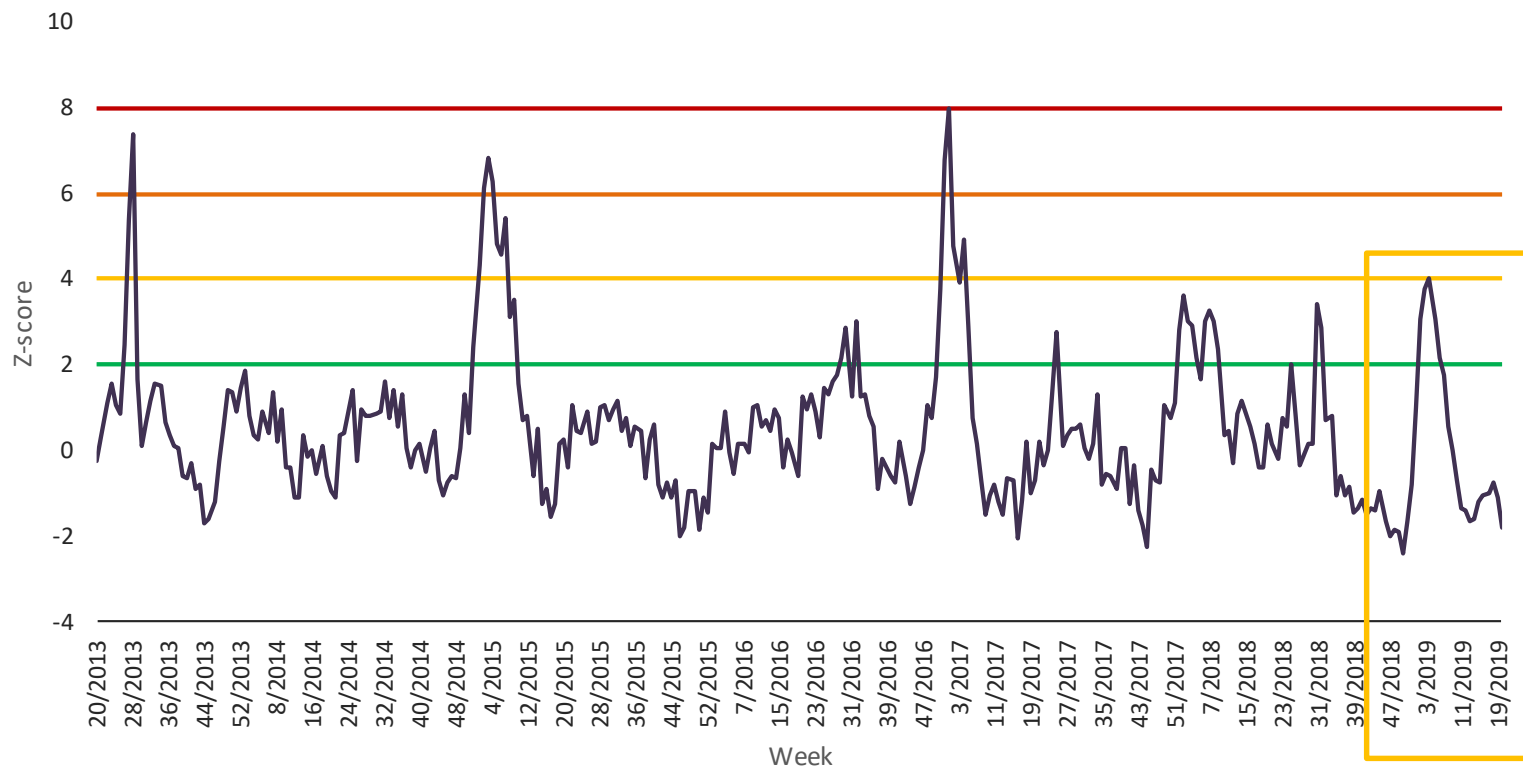


Figure 5. Overall all-cause mortality (Z-score) in Portugal since week 20/2013 (provisional data 03/06/2019)

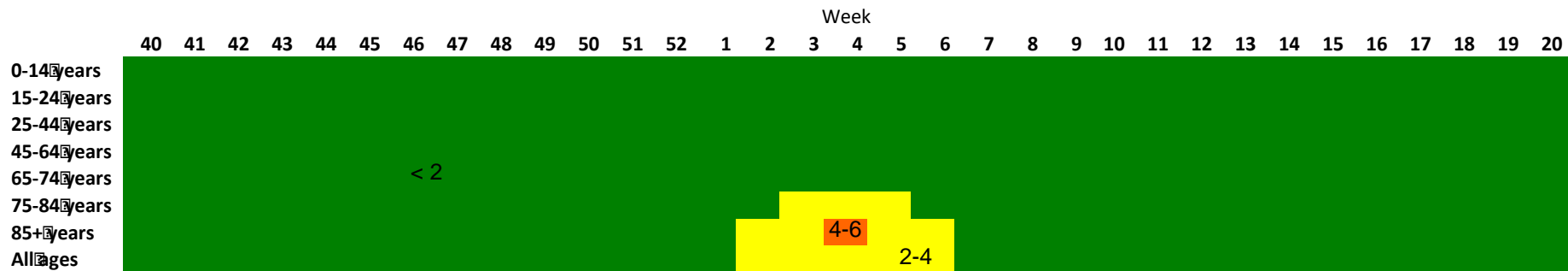


Figure 6. All-cause mortality (Z-score categories) in Portugal during 2018-19 by age group (provisional data 03/06/2019)

W2/2019-W6/2019
Low-moderate intensity
Above 75 years

Table 1. Excess all-cause mortality by sex and age group, 2018/19, Portugal.

	Ratio O/E (95 CI)
Sex	
Male	1.07 (1.04; 1.09)
Female	1.12 (1.09; 1.15)
Age group (years)	
75-84	1.08 (1.04; 1.11)
85+	1.15 (1.12; 1.18)

Note: Ratio O/E: ratio between observed and expected (baseline) number of deaths during the influenza epidemic period. 95IC: 95 % confidence interval.

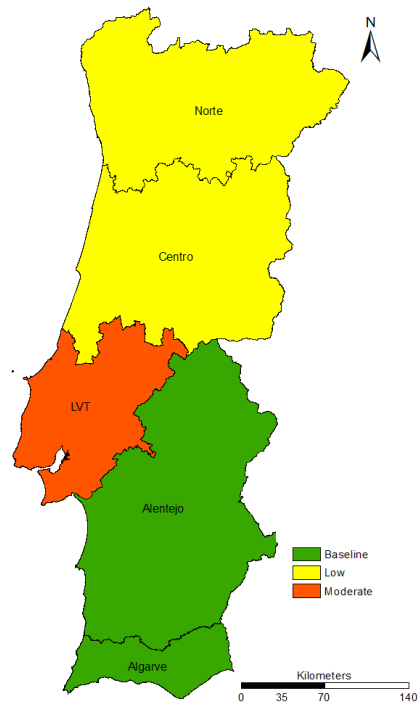


Figure 7. Excess all-cause mortality, week 4/2019 (provisional data 03/06/2019)

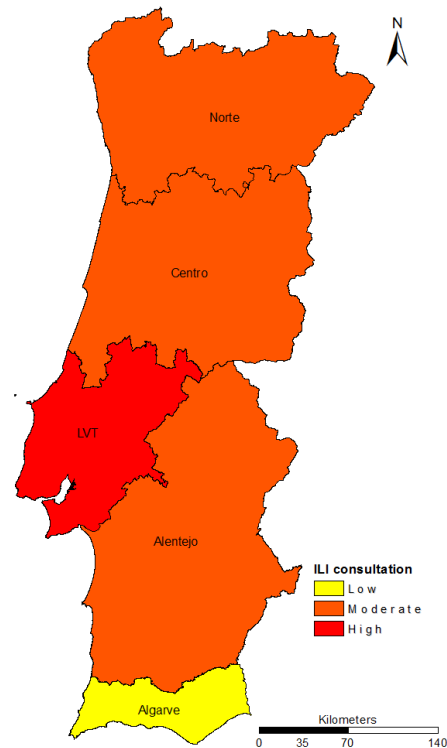


Figure 8. ILI consultations by region, week 4/2019 to week 6/2019 (provisional data 03/06/2019)

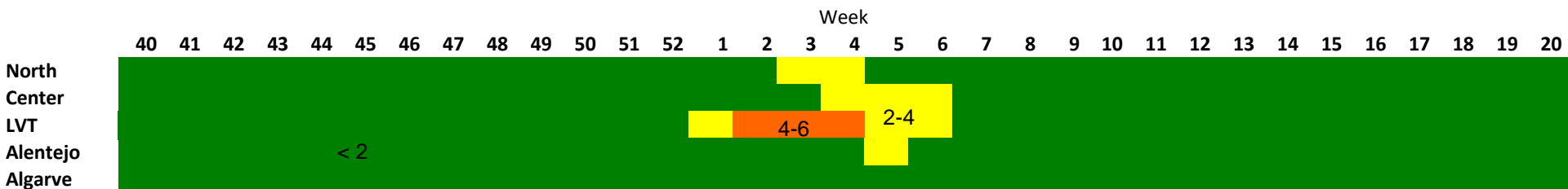


Figure 9. Excess all-cause mortality (Z-score categories) in Portugal during 2018-19 by region (provisional data 03/06/2019)

Probably overestimated

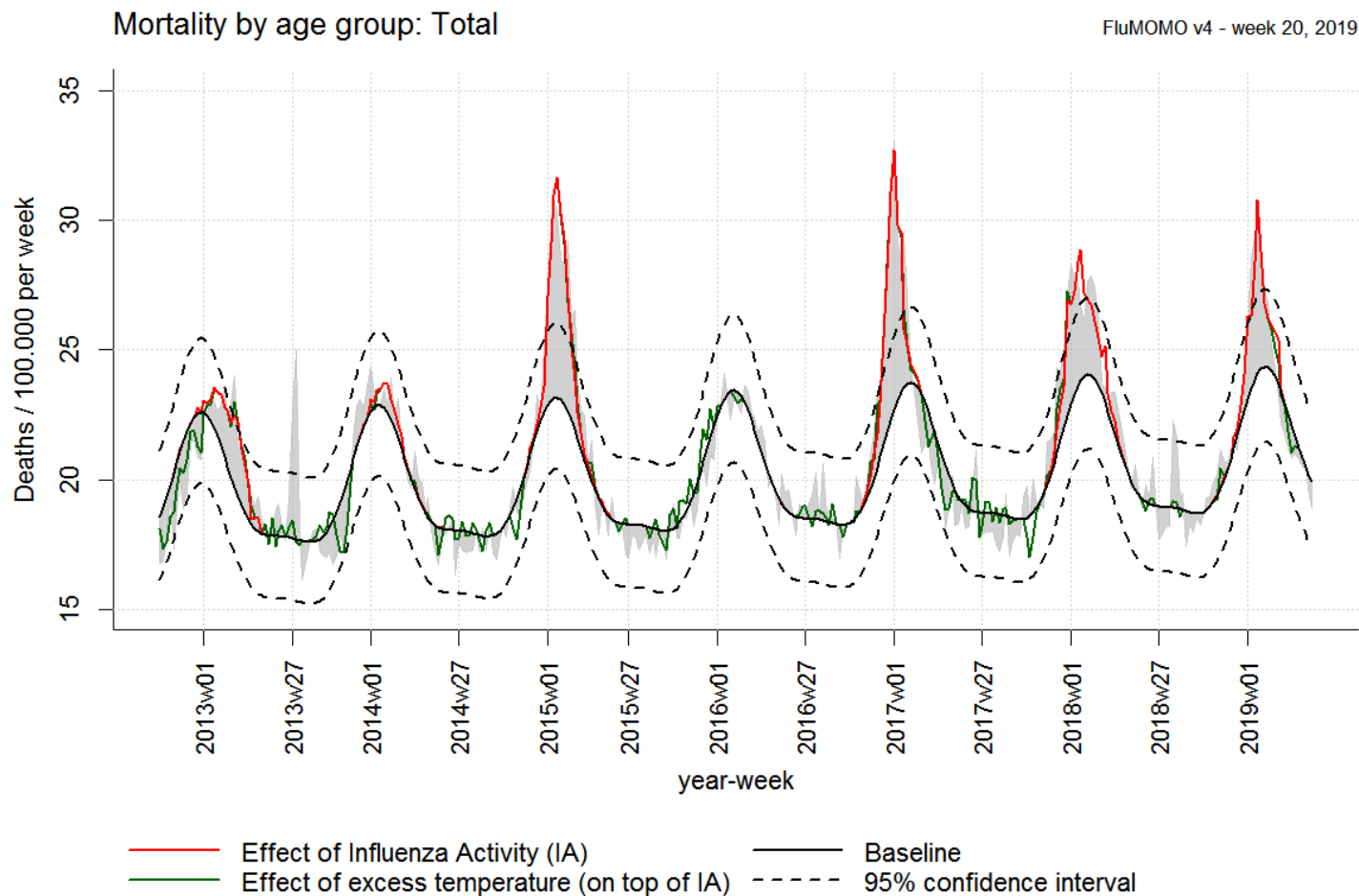


Figure 10. Overall Influenza and temperature attributable mortality in Portugal since week 40/2012 (provisional data 03/06/2019), FluMOMO, version 4.2.

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

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Thank you