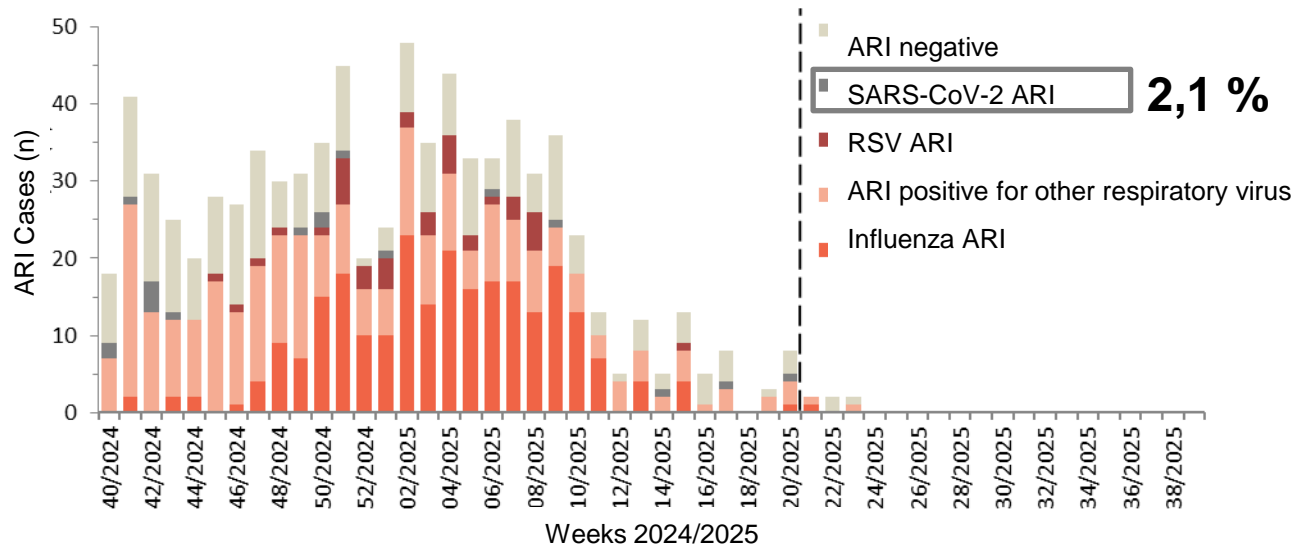


# Low numbers of COVID-19 in the 2024/25 winter season: potential seasonality pattern

Ana Paula Rodrigues, Susana Silva

Nacional Institute of Health Doctor Ricardo Jorge- Epidemiology Department

VEBIS Annual Meeting, June 2025  
Stockholm



### Fall/Winter COVID-19 Vaccination Campaign

- ≥ 60 years (coverage: 45 %)
- Medical risk conditions
- Pregnant women

**Figure 1 .** Portugal, weekly number of sentinel primary care ARI cases positive for SARS-CoV-2, Influenza and RSV (n=826). Last update: 2025-06-12.

**Sporadic cases of SARS-CoV-2 cases in primary care sentinel surveillance in 2024/2025 season**



**Real low activity?**

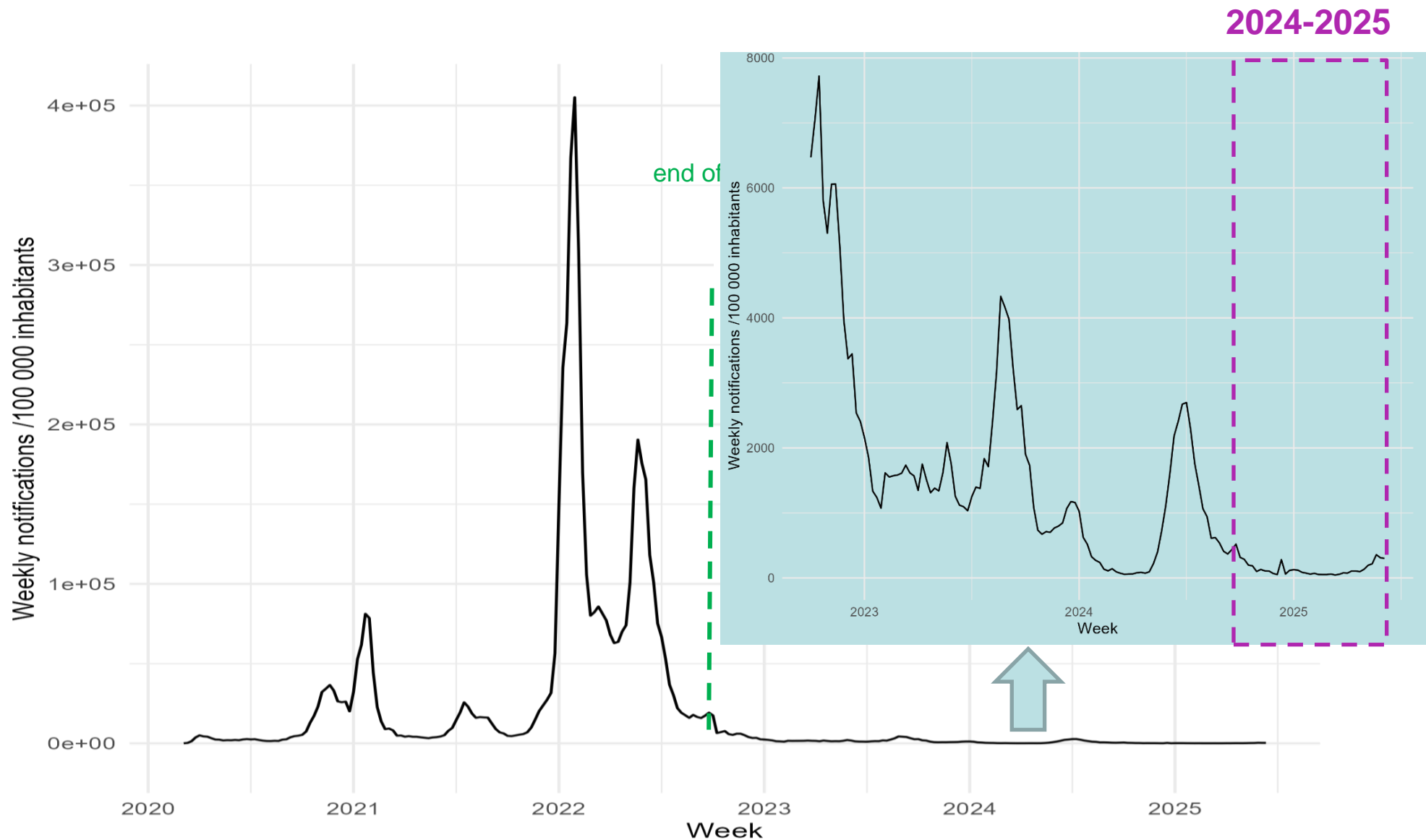
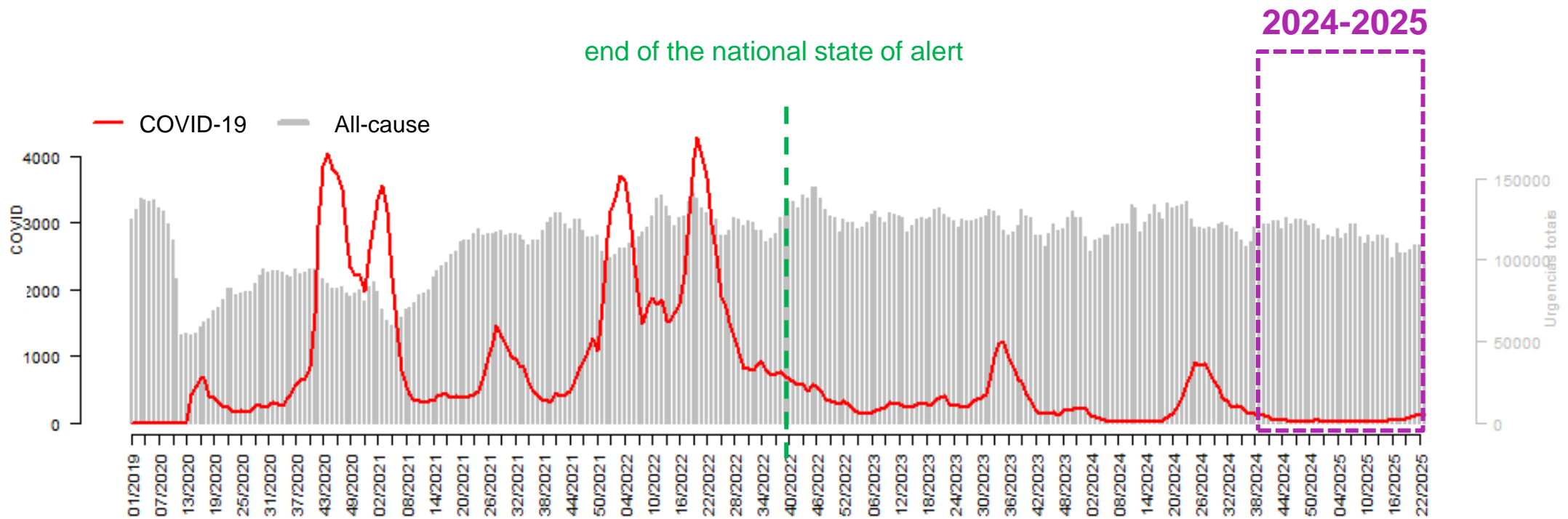


Figure 2. Portugal, weekly notifications of COVID-19 cases (/10<sup>5</sup>) since march 2020. Last update 2025-06-09. Source: DGS

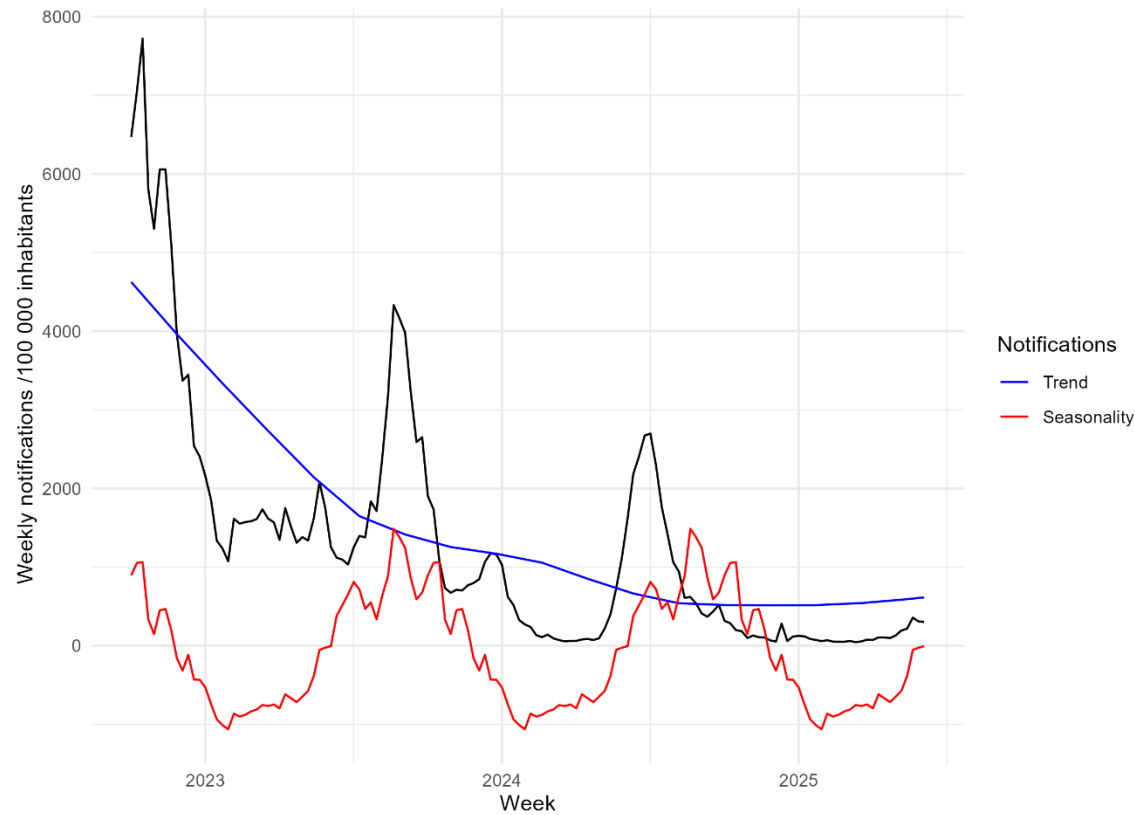


**Figure 3.** Portugal, weekly all-cause emergency episodes (gray) and COVID-19 emergency episodes (red) in NHS hospitals since week 1/2020. Last update 2025-06-11.

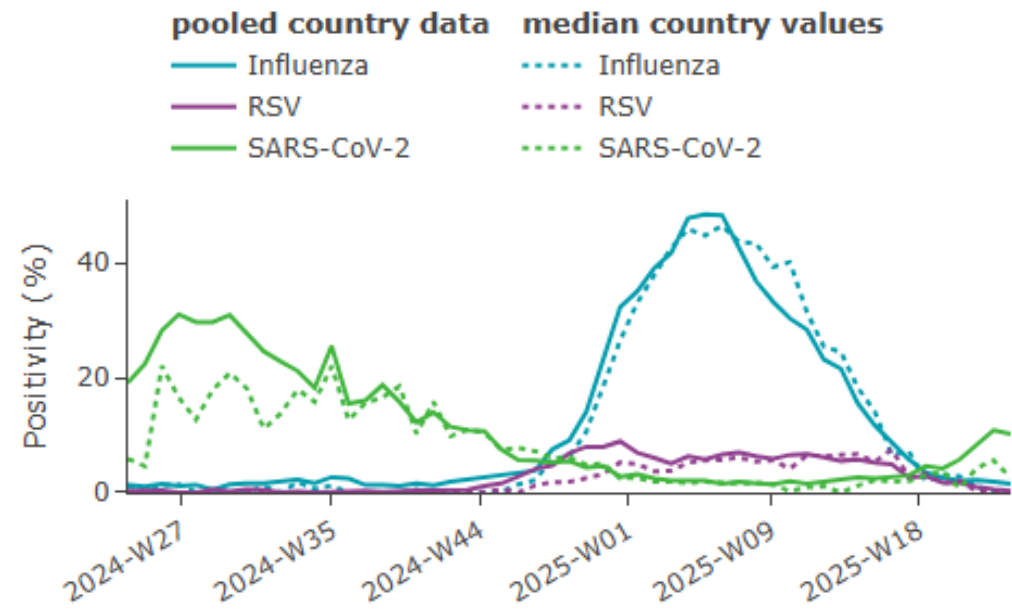
## Methods

- Time series spectral analysis to identify the dominant frequency in the data
- Data structured according 52 weeks per year
- Study period : between October 2022 (after the end of the national state of alert) and June 2025.

## Seasonal cycle of 48 weeks



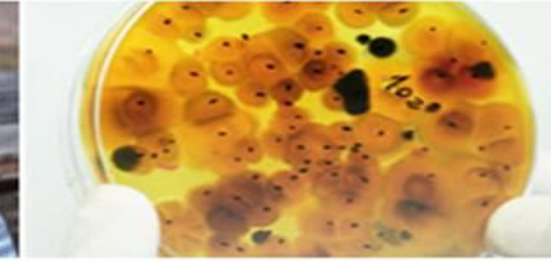
**Figure 4.** Portugal, weekly COVID-19 notifications ( $/10^5$ ) (black), trend (blue) and seasonality (red) since october 2022. Last update 2025-06-11.



**Figure 5.** Weekly positivity (%) for SARS-CoV-2, Influenza and RSV in Europe in sentinel cases in 2024-2025. Source: ECDC, ERVISS.

# Conclusions

- **Low number of seasons included is an important limitation**
- **Seasonal cycle repeating every 48 weeks, in summer-fall months**
  - suggesting the presence of a strong seasonal pattern that recurs nearly annually, but slightly earlier each year;
  - Importance of all-year around surveillance
- **Decreasing number of COVID-19 cases, specially in winter**
  - Sentinel systems have difficulties to capture COVID-19 cases in a such low activity;
  - Impact on surveillance and VE studies



# Acknowledgments

## Surveillance and VEBIS Teams (epi and lab)

Ausenda Machado, Verónica Gómez, Vânia Gaio, João Santos, Nuno Verdasca, Licínia Gomes, Camila Henriques, Daniela Dias, Miguel Lança, Raquel Guiomar

Thank you!



Extra slide

Notifications by 100 000 inhabitants

