

European Centre for Disease Prevention and Control

Developing integrated respiratory surveillance systems in the EU/EEA - an update

EU/EEA Respiratory Virus Network meeting, session 2

Nick Bundle, ECDC, 12 June 2024

Overview

Surveillance objective 1: monitor spread, intensity and temporal patterns of respiratory viruses in different populations

Surveillance objective 2: monitor severity, risk factors for severe disease, impact on healthcare systems

For each of the objectives:

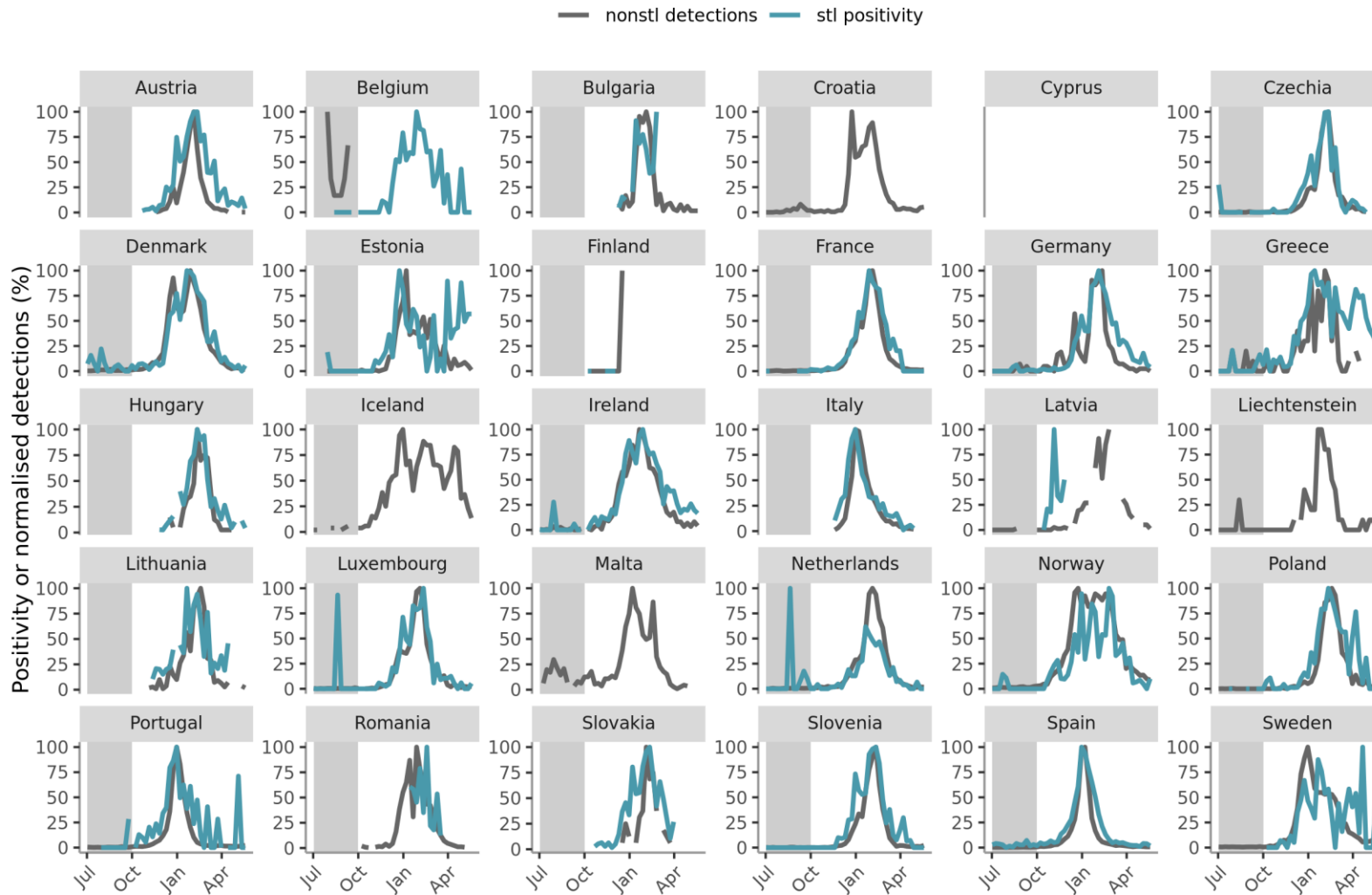
- **How well can we monitor individual pathogen activity year-round?**
- **Do our data support a year-round integrated assessment?**

Focus on country-level data, but also reflect on regional implications

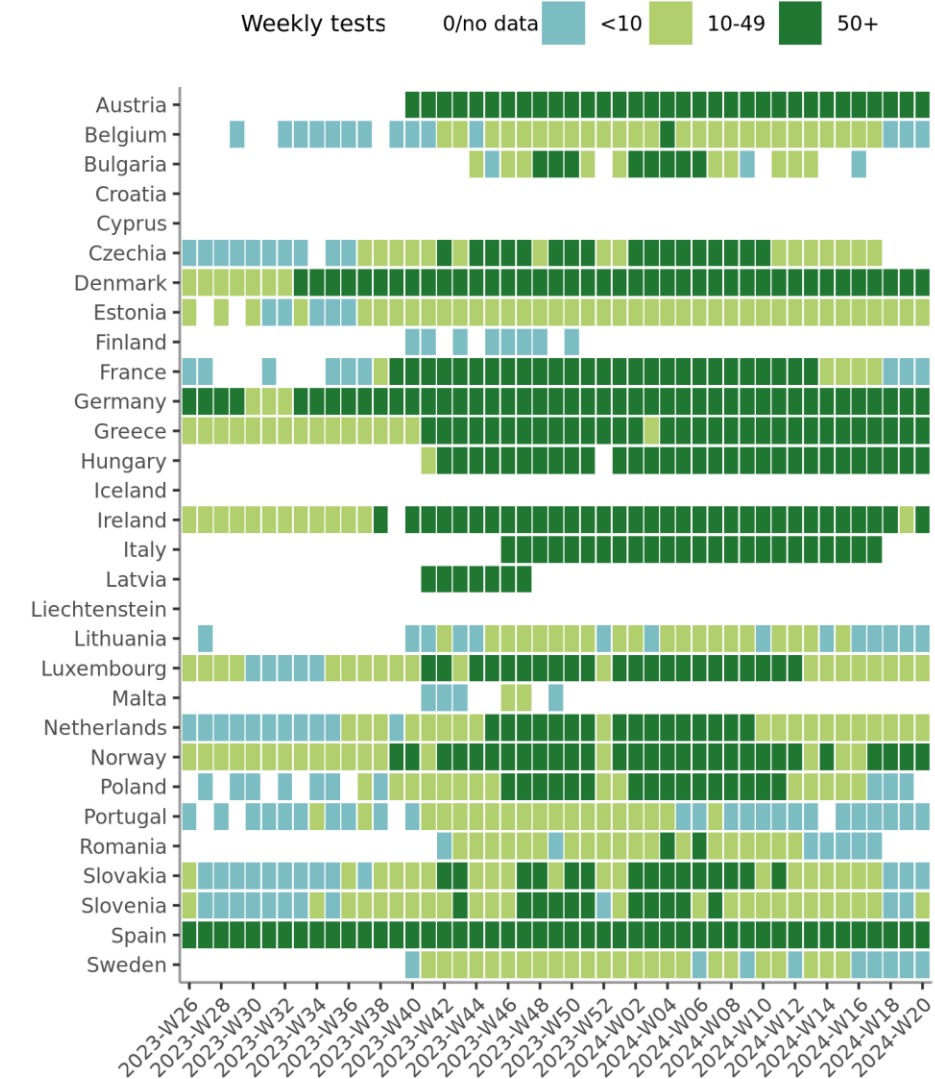
How well can we monitor influenza activity year-round?

Follows epidemic well in most countries. Non-sentinel fills some gaps

Influenza: non-sentinel detections and sentinel positivity



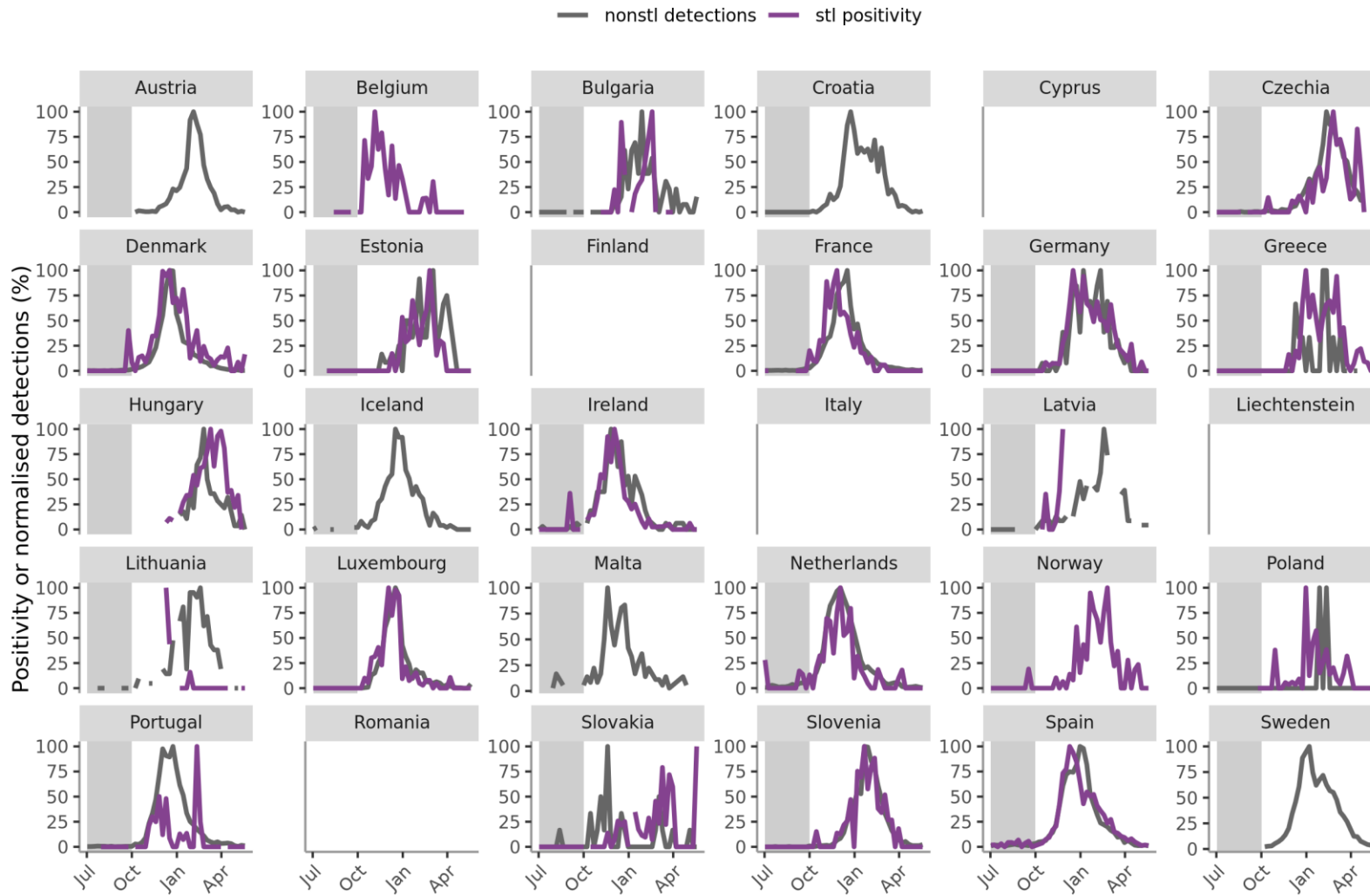
Influenza: primary care sentinel weekly testing



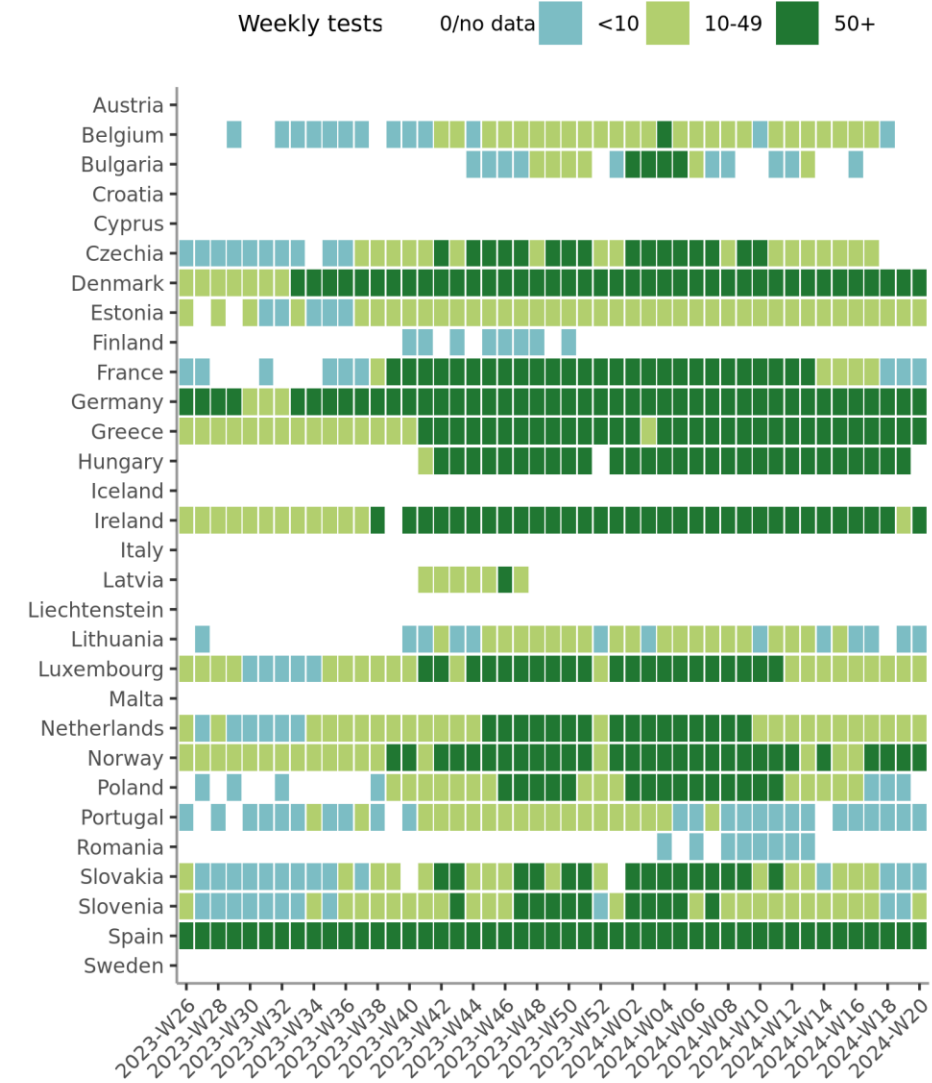
How well can we monitor RSV activity year-round?

Possible to follow epidemic in sentinel, more reliance on non-sentinel than influenza

RSV: non-sentinel detections and sentinel positivity



RSV: primary care sentinel weekly testing

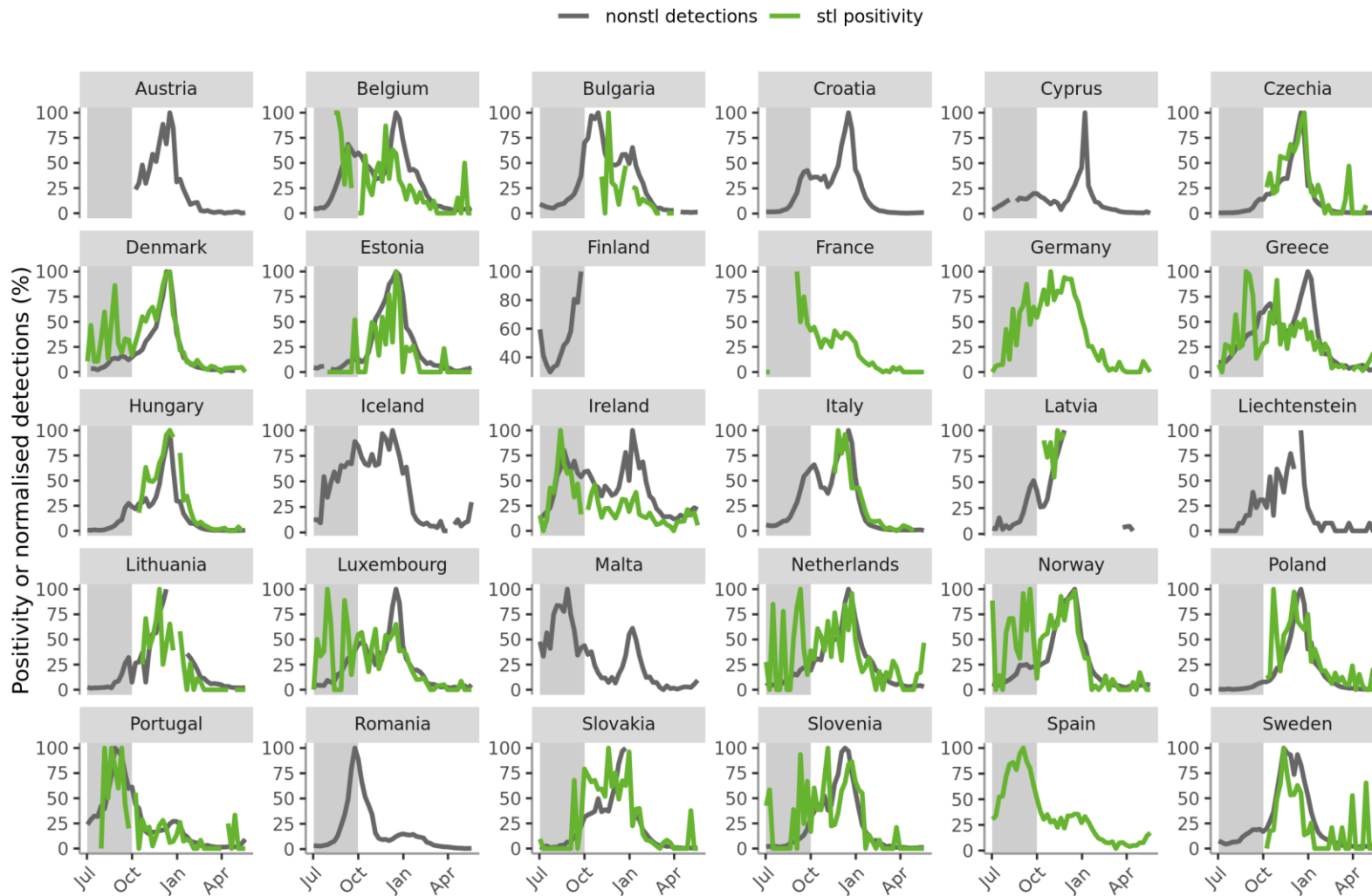


How well can we monitor SARS-CoV-2 activity year-round?

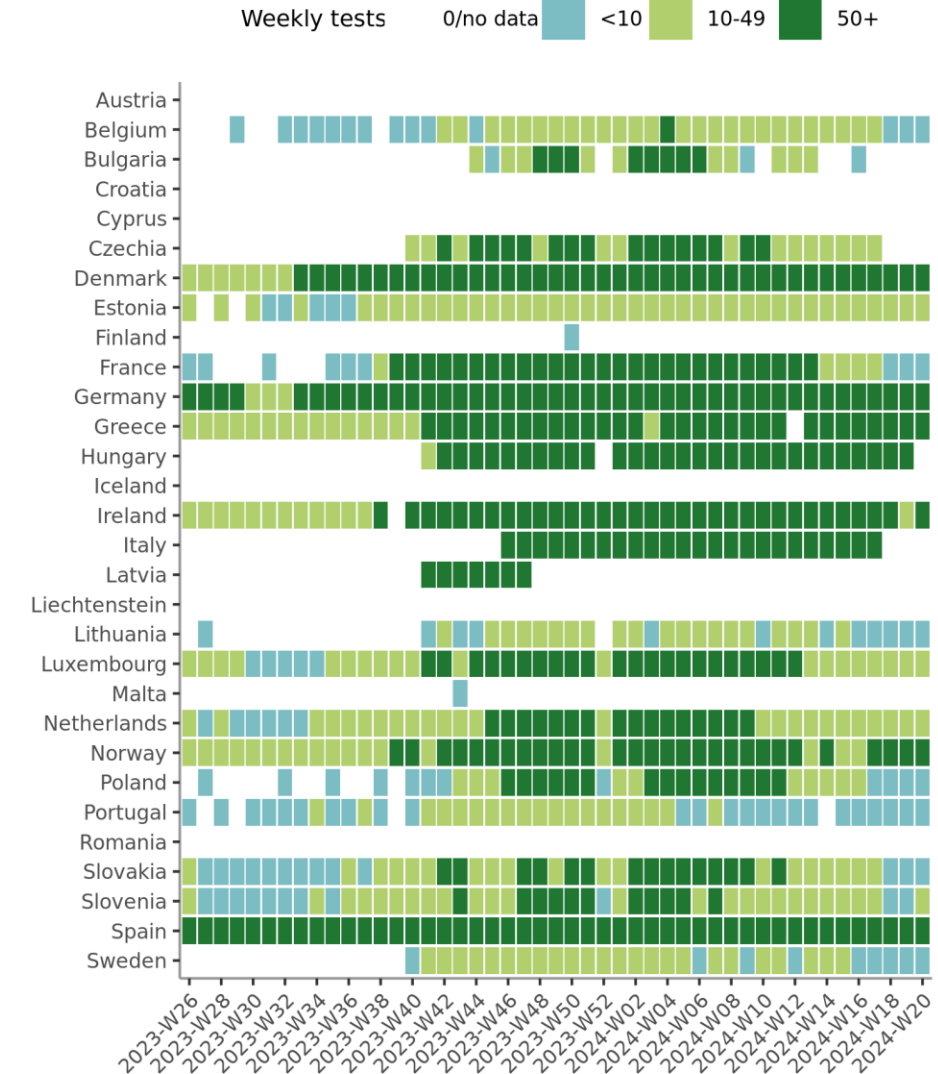
Challenging to interpret except where testing is high. Year-round testing important!



SARS-CoV-2: non-sentinel detections and sentinel positivity

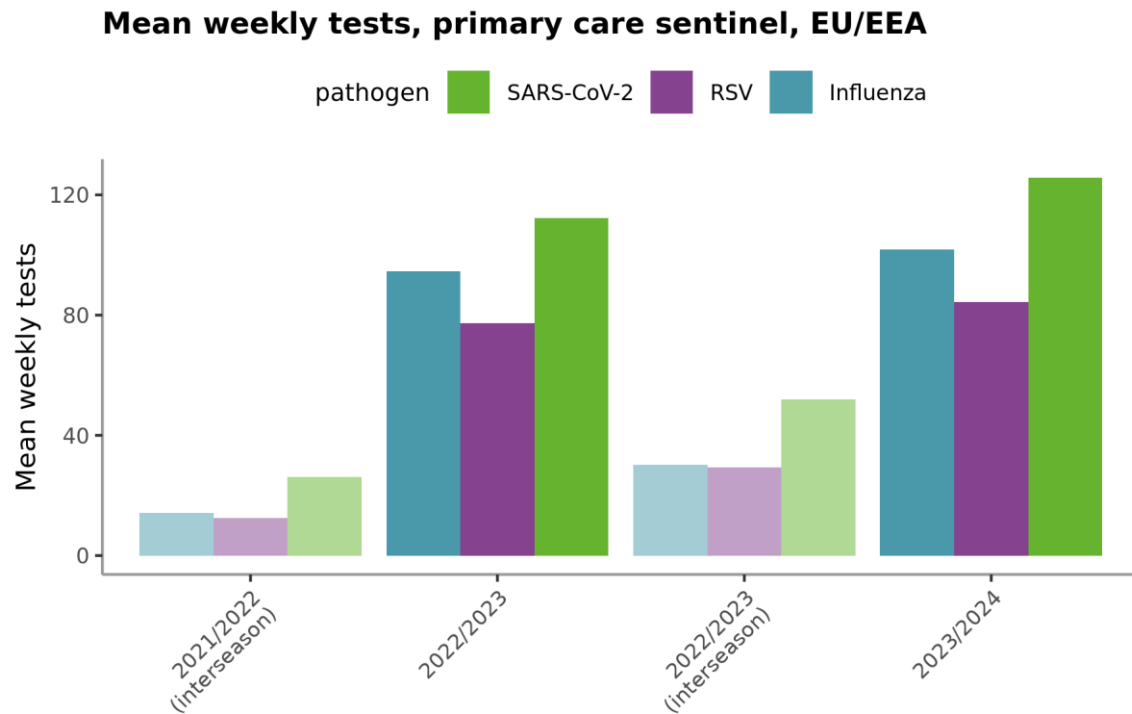


SARS-CoV-2: primary care sentinel weekly testing



Do our data support a year-round integrated assessment?

Increase in multiplex testing in primary care sentinel



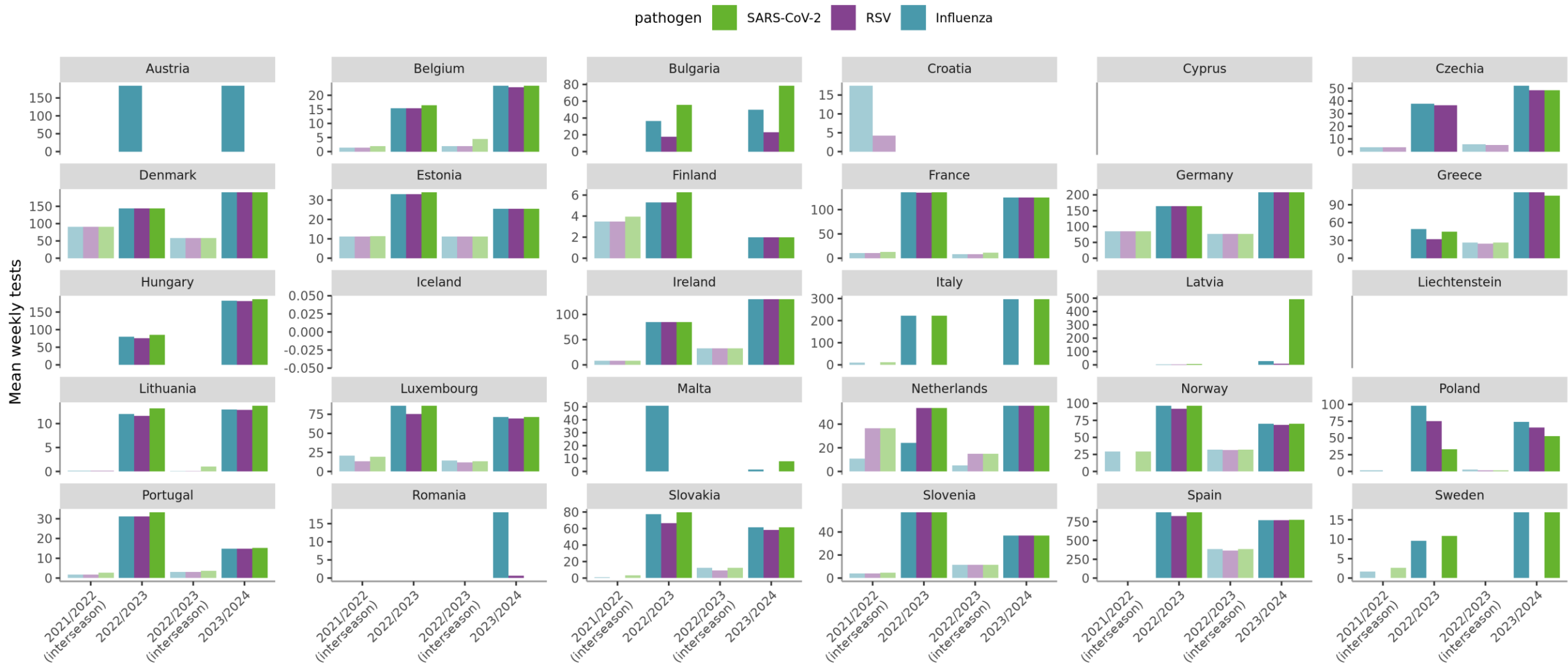
- Evidence of expanded multiplex testing, including out of season
- But considerable variation between countries

Do our data support a year-round integrated assessment?

Country-level variation in trends of reported testing



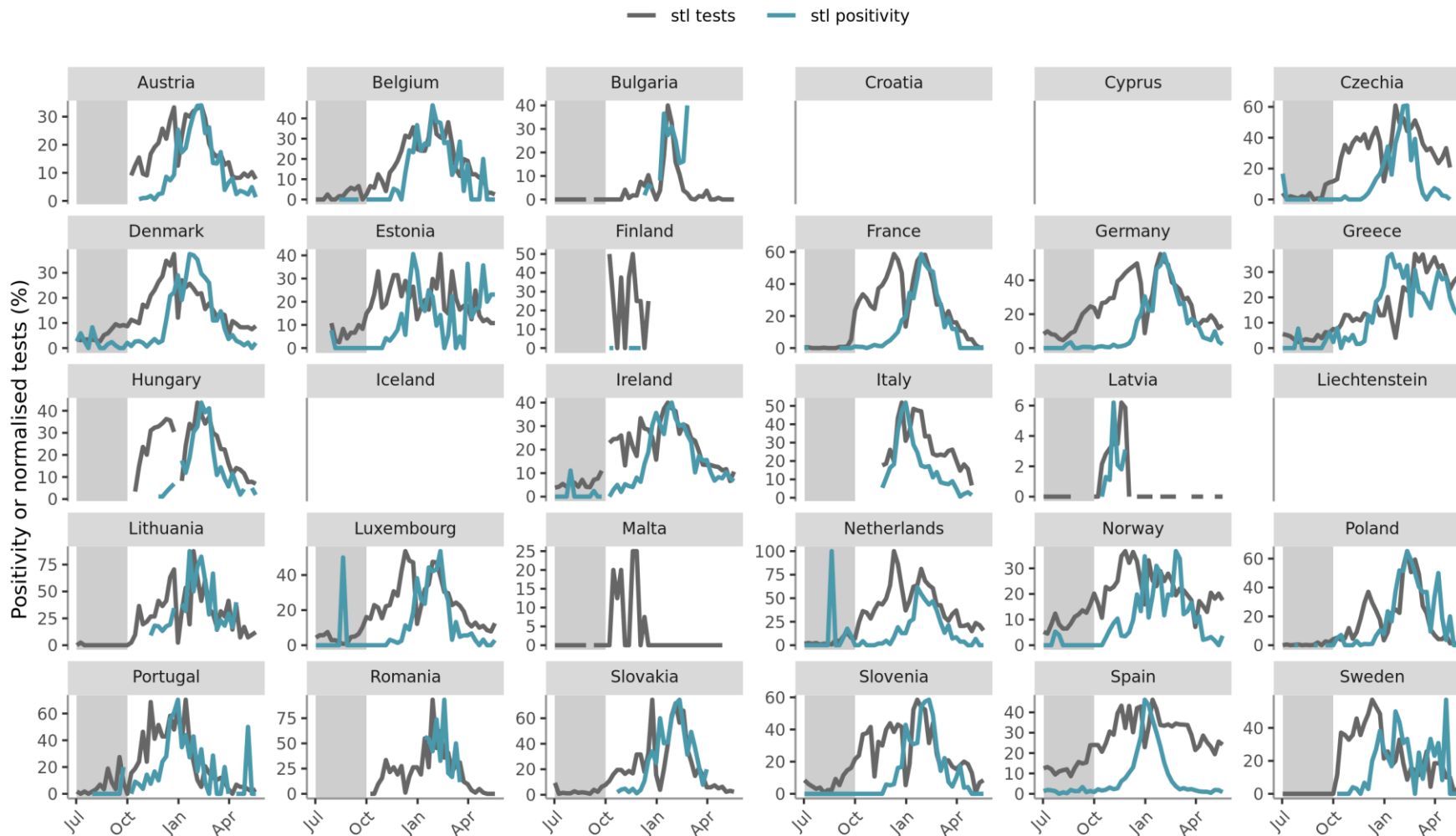
Mean weekly tests, primary care sentinel



Do our data support a year-round integrated assessment?

PC sentinel testing varies in-season and follows/driven by influenza activity?

Influenza primary care sentinel tests and test positivity



- Increasing in testing from week 40.
- Testing tends to peak when influenza peaks
- Is there a difference between testing based on ILI or ARI case definitions?
- What does this mean for representativeness of SARS-CoV-2 and RSV in primary care?

Do our data support a year-round integrated assessment of severity?

Very limited data on influenza and RSV severity. Pandemic legacy for SARS-CoV-2











Severity data reporting, 2023-W21 to 2024-W40



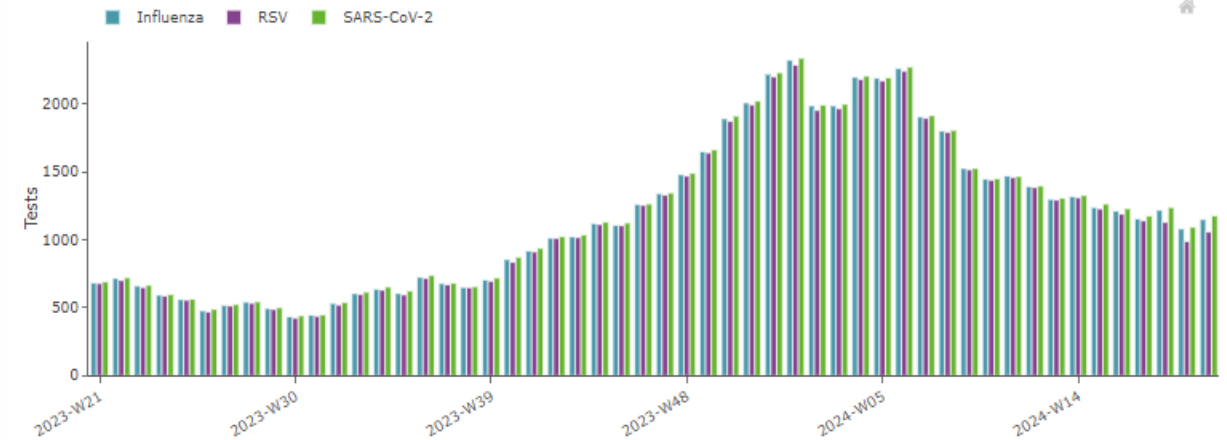
- Limited SARI reporting, but testing generally year-round
- Diverse set of non-sentinel data for SARS-CoV-2, but comparability and definitions unclear
- Some countries report no severity data

Do our data support a year-round integrated assessment of severity?

Inter-season SARI testing quite high, but challenging to interpret small systems

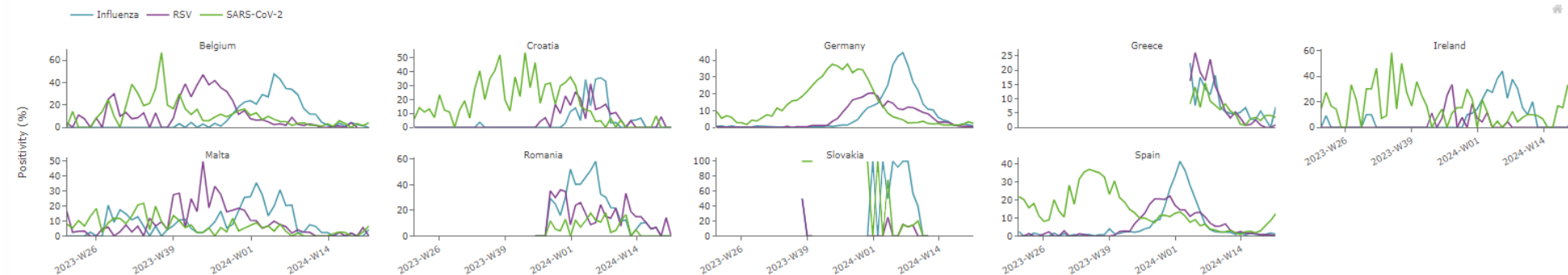
Country ↕	SARI rates	SARS-CoV-2		
		Number of tests ↓	Number of detections ↕	Positivity (%) ↕
Germany		437	3	0.7
Spain		307	77	25.1
Greece		101	8	7.9
Ireland		22	2	9.1
Malta		21	6	28.6
Slovakia				
Romania				
Croatia				
Belgium				
Austria				

Aggregate weekly tests



Test positivity by country

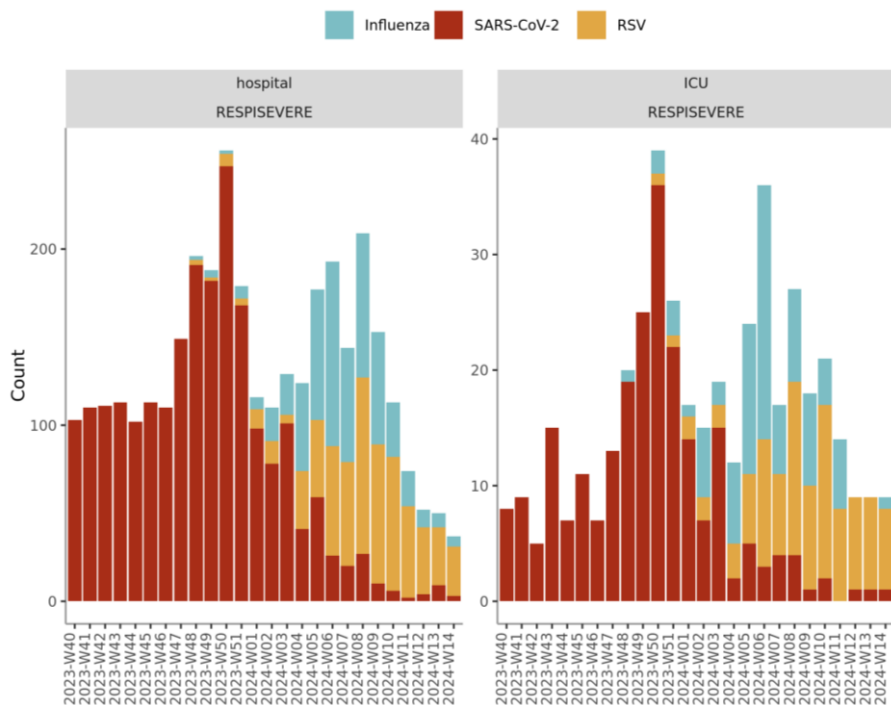
● weekly ○ 3-week moving average



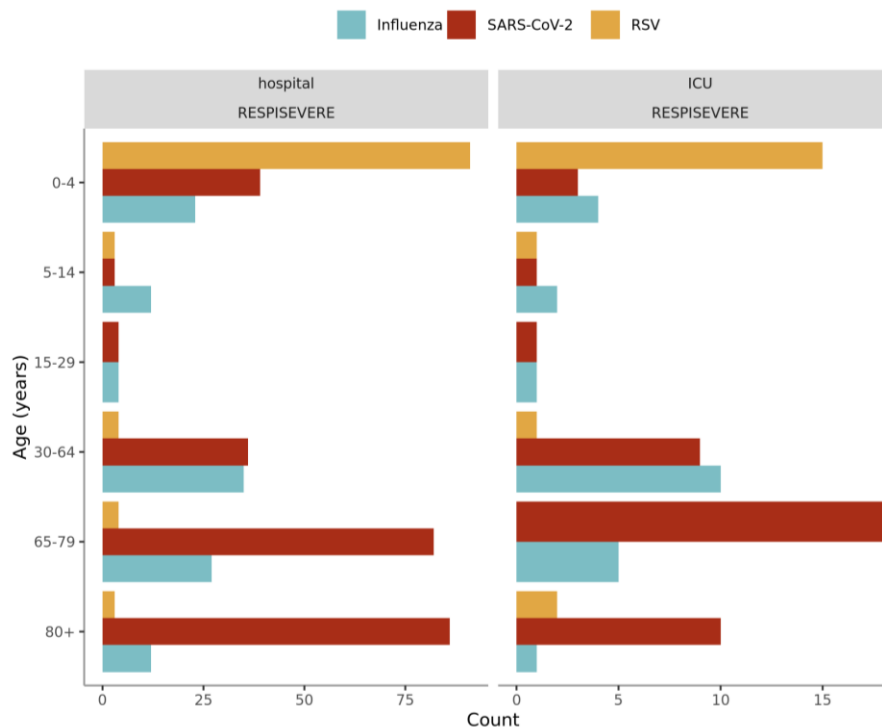
Do our data support a year-round integrated assessment of severity?

Integrated reporting from well-defined systems is the goal when SARI not available

Weekly counts by pathogen



Cumulative counts by pathogen and age group



Discussion with countries needed for a clear system description

- age groups per pathogen
- hospital/ICU/outcome
- integrated from same source

Also need to agree the most appropriate way to display/analyse these data

- E.g. time series or description of case characteristics

Progress/Gaps towards data that meets out surveillance objectives



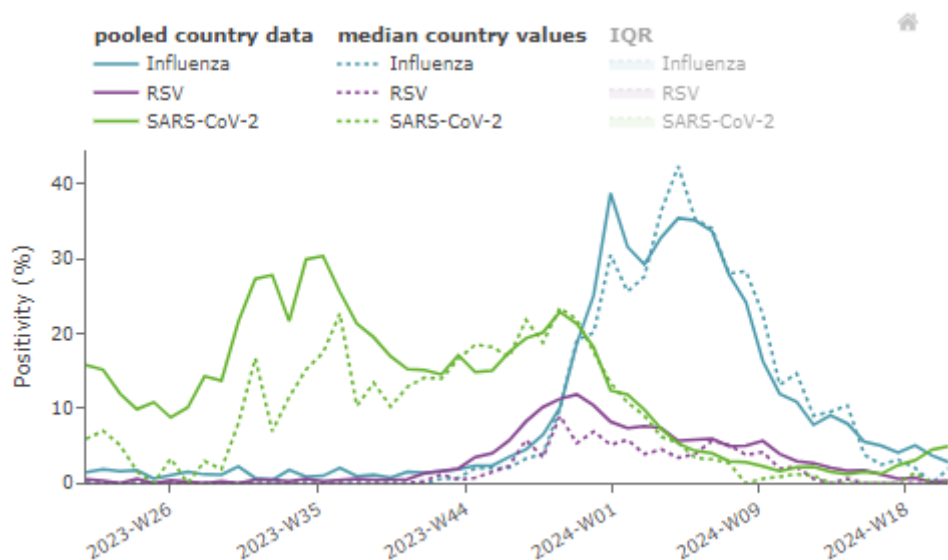
Activity	<ul style="list-style-type: none"> • Expansion of primary care sentinel testing in some countries • Good reporting of non-sentinel data as important complement, especially out of season, increasing integrated 	<ul style="list-style-type: none"> • Still limited reporting outside of winter period • Testing in primary care sentinel too low to interpret country-level data with confidence for all pathogens • Many sentinel systems inadequate for tracking SARS-CoV-2 and RSV activity
Severity	<ul style="list-style-type: none"> • Continued expansion of SARI surveillance including reporting to weekly data to TESSy • Some integrated reported of data from well-defined non-SARI hospital-based systems 	<ul style="list-style-type: none"> • No data for many countries especially for influenza and RSV. Comparability of data across countries unclear • Patchwork of non-sentinel hospital/ICU/death data • A need to better understand of underlying systems and appropriate use of data
Regional	<ul style="list-style-type: none"> • ERVISS (platform and data process) and move to integrated metadata 	<ul style="list-style-type: none"> • Challenges with thresholds • Pooled data dominated by countries with large systems and country-level interpretation challenging • Need to revisit regional guidance and optimise displays/performance in ERVISS

Thank you!

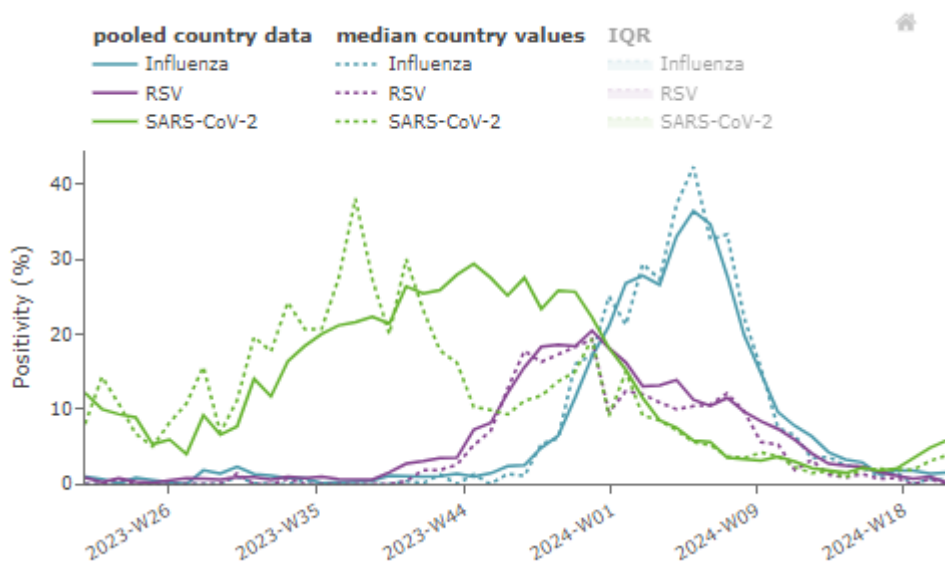
Helper slides

Main basis for our regional assessment

Activity



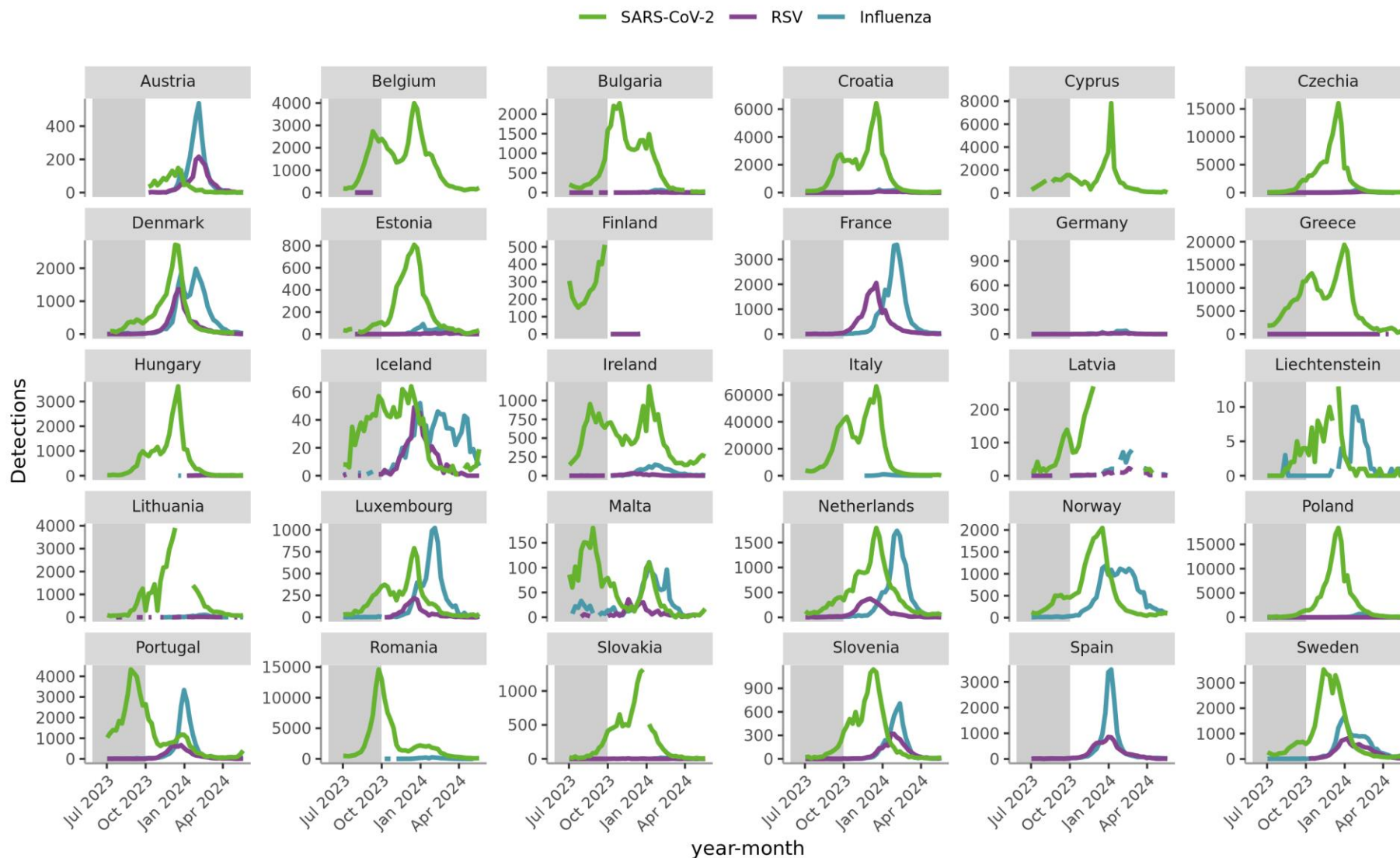
Severity



Do our data support a year-round integrated assessment?

Non-sentinel data a valuable complement for country-level assessment

Non-sentinel detections by pathogen

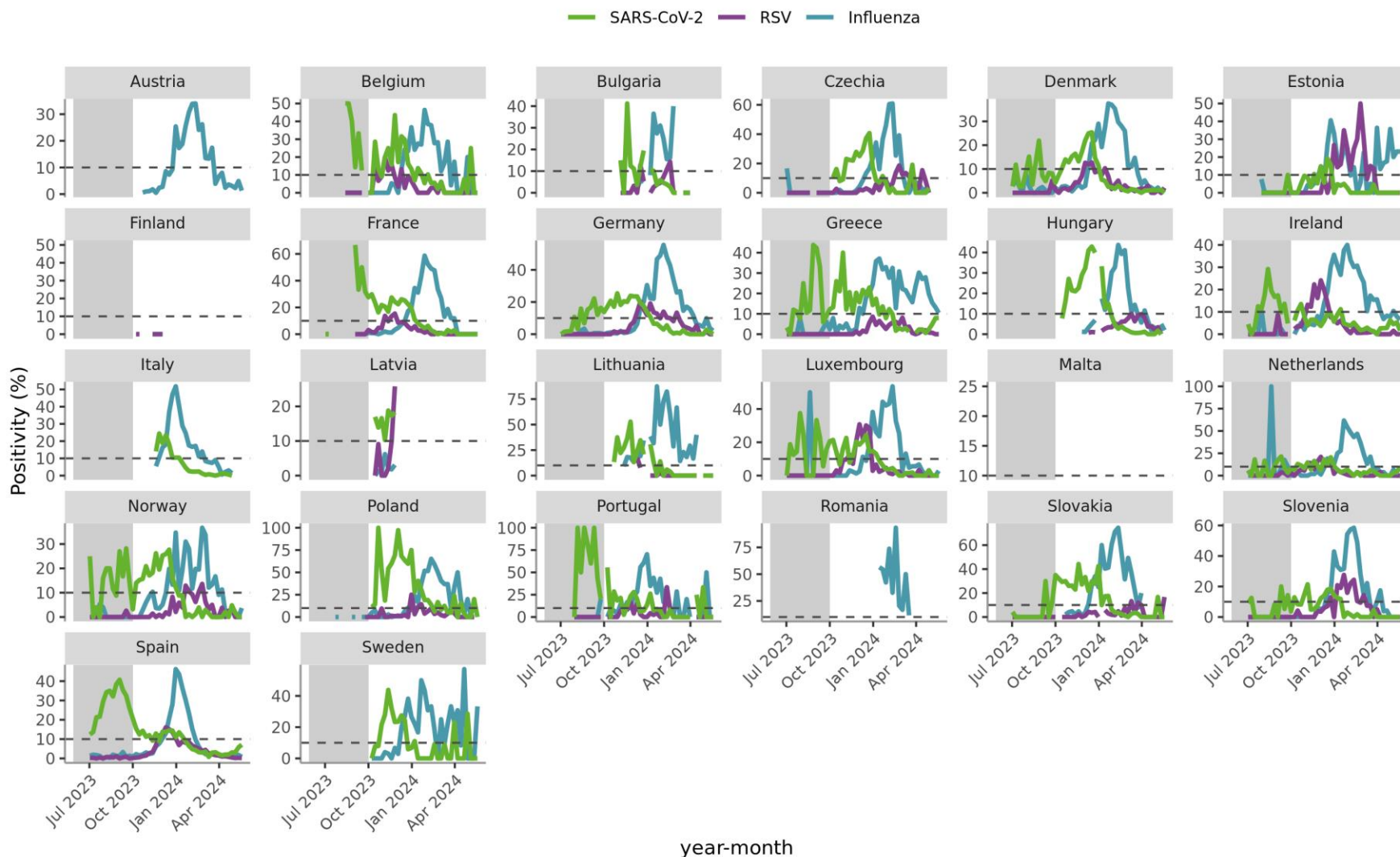


- More countries report than sentinel
- SARS-CoV-2 testing levels becoming more comparable – integrated systems?
- Less noisy, eases year-round interpretation

Do our data support a year-round integrated assessment?

Quite good sentinel coverage of all pathogens but noisy data

Primary care positivity by pathogen



- SARS-CoV-2 especially hard to interpret, particularly inter-season (grey shaded)
- Applicability of 10% positivity threshold beyond influenza?