Respiratory Viruses in Luxembourg (ReViLux)

Sentinel Network Report -Week 05

Summary

At the end of week 2024/05, rates of influenza-like illness remained elevated and the sentinel network detected a medium epidemic activity, based on 8.5% of consultations being associated with influenza-like illness. Out of the specimens collected by the sentinel network over the last week, the percentage of positive tests for Influenza virus A was 42.7%, 3.8% for SARS-CoV-2 and 3.1% for RSV.

Influenza A positivity rates maintained at above 40% for the last three weeks (2024/03-2024/05), with 61 % of strains subtyped. Among those A viruses subtyped (N=163) there was a mix of A(H1)pdm09 viruses with 90.2% and A (H3) 9.8% . RSV positivity decreased slightly from 4.7% (week 2024/04) to 3.1% (week 2024/05). Overall during this season (23/24) the sentinel network detected 205 cases with 74% of samples subtyped. Genotyping analyses showed that the most frequent RSV strain during this season is RSV-A (86.2%).

Sentinel Surveillance Network

The Sentinel Surveillance aims at monitoring the circulating respiratory viruses, from traditional ones like Influenza to more recent ones like SARS-CoV-2, and hence underpin public health actions. The Sentinel Network is a group of general practitioners and paediatricians spread across the country. They report the weekly number of patients showing symptoms suggestive of acute respiratory infection (ARI) and influenza-like illness (ILI), and those patients are then sampled and tested for a panel of respiratory viruses. The circulation of respiratory viruses in the north hemisphere is generally monitored by seasons that go from week 40 to week 20. The period between weeks 20 and 40 is usually called inter-season.

Clinical results

Last week (2024/05), 8.5% of the consultations were reported as ILI, representing a medium epidemic activity for Luxembourg, according to ECDC and the Moving Epidemic Method. Since week 2023/51 reported rates were between medium/high levels. Of note, only a few surgeries participated due to holiday season and therefore, results for week 2024/01 are not presented. The history of ILI consultations is displayed in Figure 1, and a detailed summary of the number of ARI and ILI cases during the last four weeks is included in Table 1.

Laboratory results

Over the last week, the most frequently detected viruses (according to positivity rates) were Influenza virus A (42.7%), followed by Human rhinovirus (14.1%) and Metapneumovirus (4.7%). Positivity rates of Influenza A decreased from 35.3% (2023/52) to 22.5% (2024/02), but rates nearly doubled to 43.3% in week 2024/03 and remained above 40% in weeks 2024/04 and 2024/05. Hundred sixty three of 262 (62.2%) samples have been further characterized with 90.2% as A (H1)pdm09 and 9.8% as A (H3). Thirty samples from the sentinel network were genetically characterised with 13 (H1) samples reported as clade 5a.2a (A/Sydney/5/2021), 13 (H1) samples as subclade 5a.2a.1 (A/Victoria/4897/2022) and 4 (H3) samples as clade 2a.3a.1 (A/Thailand/8/2022). All of the genetically characterised clades belong to clades of the recommended vaccine components.

Over the last few weeks low Influenza B circulation was detected.

Test positivity for RSV decreased slightly from 4.7% (2024/04) to 3.1% (2024/05). Of note, not all samples from week 2024/05 have been tested yet, and results will be displayed next week. Overall, this season (23/24), the highest impact of RSV was seen among the 0-4 years age group (Figure3). To date, 152 RSV detections were further subtyped as either RSV A (N=131, 86.1%) or RSV B (N=21, 13.8%).

Positivity of SARS-CoV-2 decreased over the past 5 weeks from 13.1% in week 2024/01 to 3.8% in week 2024/05. Hundred seventeen of 216 SARS-CoV-2 detections (54.1%) have been further genetically characterised. From week 2023/40 to week 2023/44, XBB.1.9 and EG.5, a sub-variant of XBB.1.9, were responsible for the highest number of infections, but since week 2023/47 JN.1 a sub-variant of BA.2.86, has been dominant in Luxembourg.

An overview of the circulating viral pathogens during the current and previous inter- season is displayed in Figure 2 and Table 2.

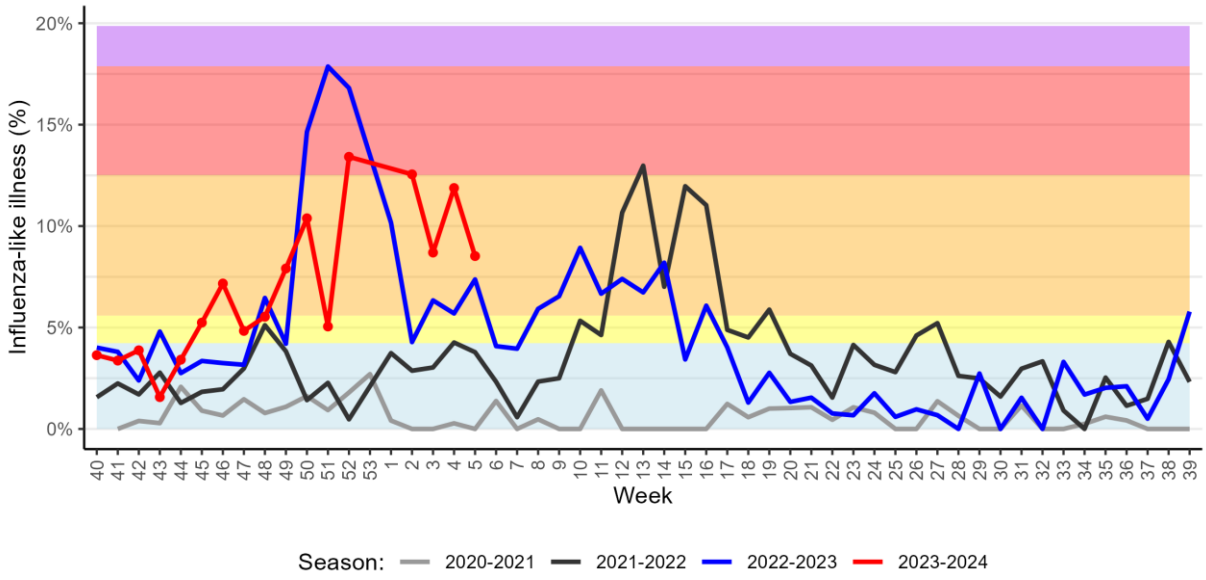

Figure 1. Percentage of patients with influenza-like illness over the last three seasons
Background colours according to intensity of circulation: baseline, low, medium, high, very high. Data from 2024/01 not presented as low return

Table 1. Syndromic surveillance over the last 4 weeks

Week	ARI		ILI		Total consultations
	N	%	N	%	
2024/02	34	13.77	31	12.55	247
2024/03	60	18.63	28	8.70	322
2024/04	79	18.76	50	11.88	421
2024/05	54	15.34	30	8.52	352

ARI: Acute Respiratory Infections; ILI: Influenza-Like Illness.
Data from 2024/01 not presented as low return

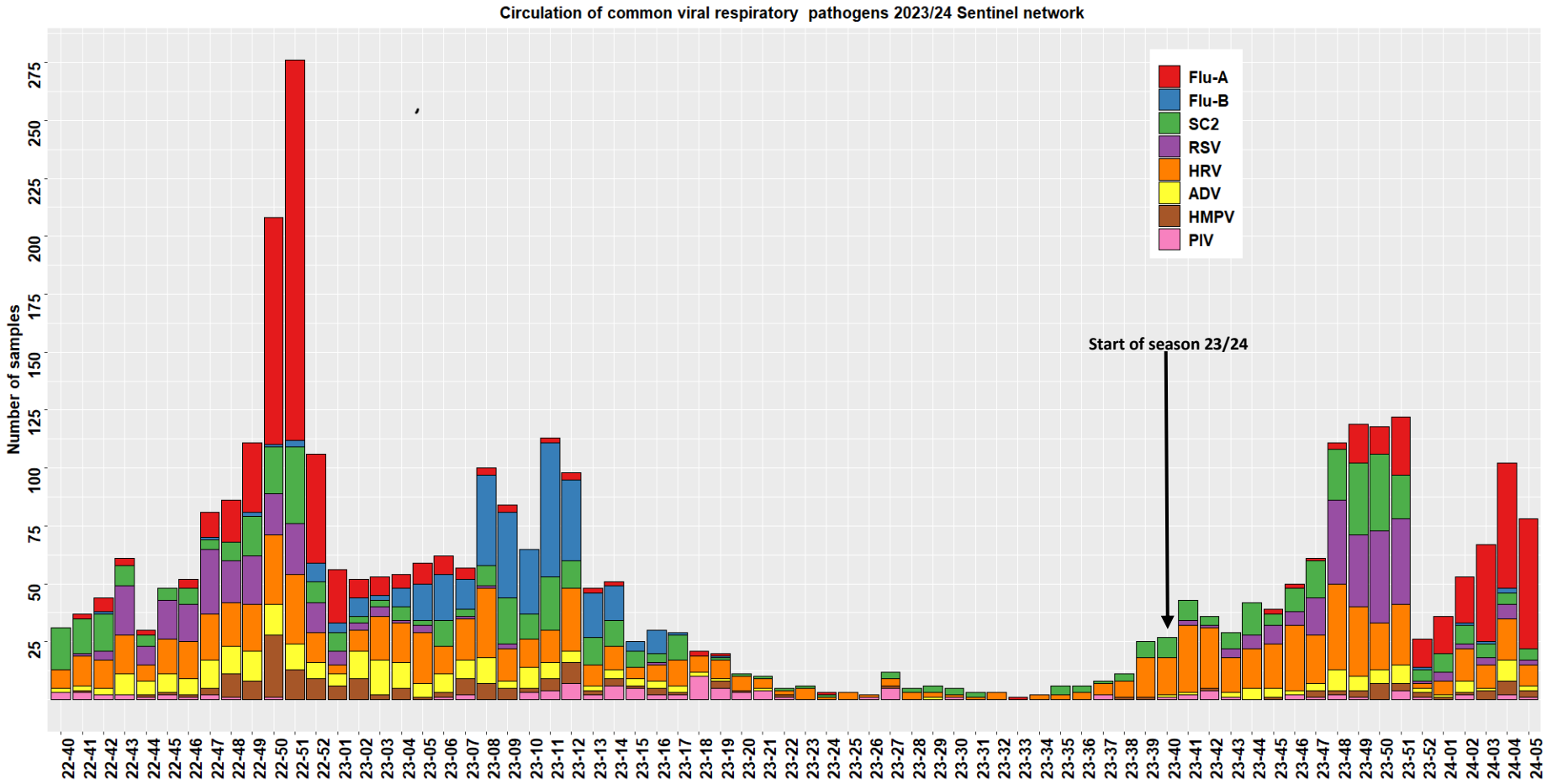

Figure 2. Distribution of respiratory viruses detected within the Sentinel Network, by calendar week. Results from last weeks are not yet consolidated.
FLU-A: influenzavirus A; FLU-B: influenzavirus B; PIV: parainfluenzavirus; RSV: respiratory syncytial virus; ADV: adenovirus; MPV: metapneumovirus; HRV: human rhinovirus; SC2: SARS-CoV-2.

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Table 2. Distribution of respiratory viruses detected within the Sentinel Network previous 4 weeks compared to previous year.

Virus	Season 2023/24					Season 2022/23
	Positivity Rate in %					
	w02	w03	w04	w05	Trend	w05
Influenzavirus A	22.5	43.3	40.6	42.7	↑	11.7
Human rhinovirus	16.3	10.9	14.1	14.1	→	31.9
Adenovirus	5.8	1.1	7.0	3.1	→	8.7
Respiratory syncytial virus	2.3	3.3	4.7	3.1	→	4.3
Metapneumovirus	1.2	4.3	4.7	4.7	→	1.4
SARS-CoV-2	9.0	6.2	3.8	3.8	↓	2.6
Influenzavirus B	1.1	1.0	1.5	0.0	→	20.8
Parainfluenzavirus	2.3	0.0	1.6	1.6	→	0.0

**Co-detection counted once for each virus detected.*

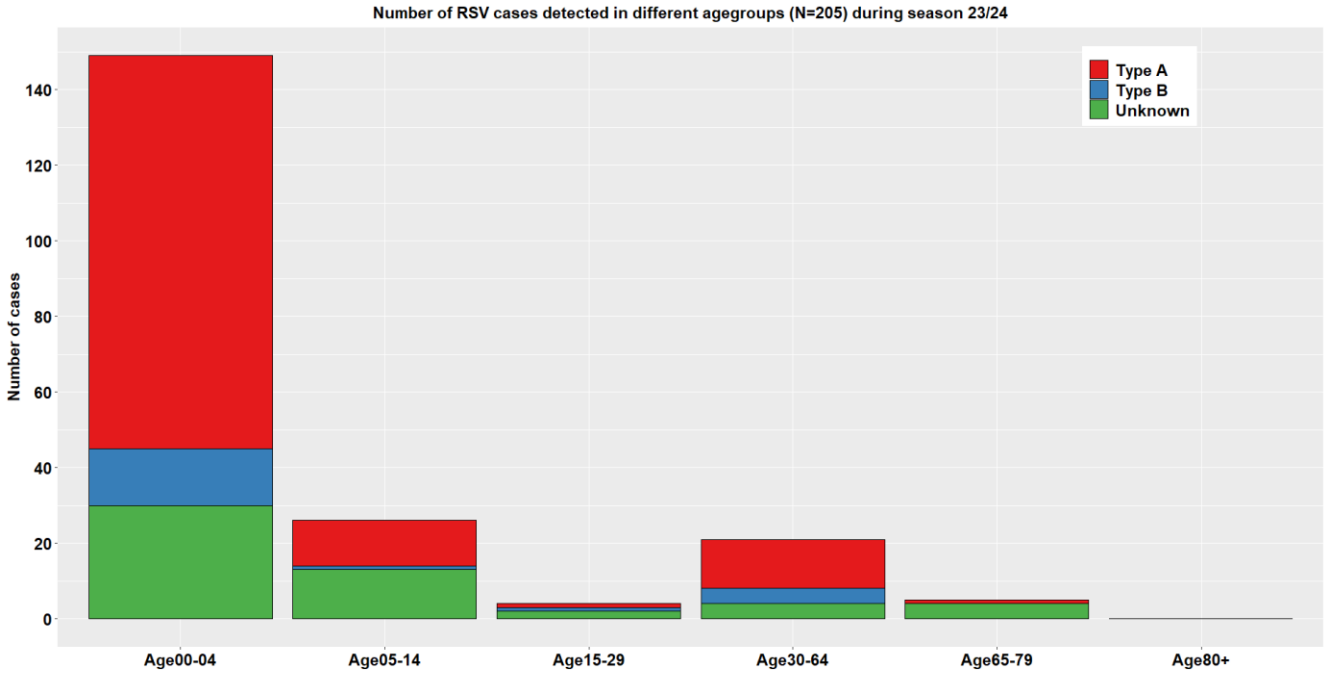

Figure 3. Displays RSV cases according to different age groups with highest impact among the 0-4 years old.

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