Respiratory Viruses in Luxembourg (ReViLux)

Sentinel Network Report -Week 08

Summary

At the end of week 2024/08, rates of influenza-like illness remained above baseline and the sentinel network detected a medium epidemic activity, based on 6.4% of consultations being associated with influenza-like illness. Among the specimens collected by the sentinel network over the last week, the percentage of positive tests for Influenza virus A was 25.3%, 16.3% for Human rhinovirus and 12.2 % for Adenovirus. RSV positivity has remained low at 2.0% and SARS-CoV-2 positivity below 5% over the past 5 weeks.

Influenza A positivity rates decreased from 32.9% to 25.3% compared to previous week, with 70% of strains subtyped. Among those A viruses subtyped (N=258) there was a mix of A(H1)pdm09 viruses with 90.7% and A (H3) 9.3% .

Overall during this season (23/24) the sentinel network detected 209 RSV cases with 73% 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 (2024/08), 6.4% of the consultations were reported as ILI, representing a medium epidemic activity for Luxembourg, according to ECDC and the Moving Epidemic Method. Since week 2023/02 reported rates were at medium levels. 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 (25.3%), followed by Human rhinovirus (16.3%) and Adenovirus (12.2%). 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, peaked in week 2024/06 (52.7%) and decreased to 25.3 % in 2024/08. Two hundred and fifty eight of 370 (70%) samples have been further characterized with 90.7% as A (H1)pdm09 and 9.3% 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 remained at 2% over the last two weeks. 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, 86.2%) or RSV B (N=21, 13.8%).

 SARS-CoV-2 positivity has decreased since the start of 2024, from 14.1% in week 2024/01 to 2.4% in week 2024/07 and remained below 5% for the last 5 weeks. During week 2024/08, eighty three samples were tested and no new cases of SARS-CoV-2 were detected within the sentinel network. Hundred fifty two of 223 SARS-CoV-2 detections (68.6%) have been further

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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 (Figure 4).

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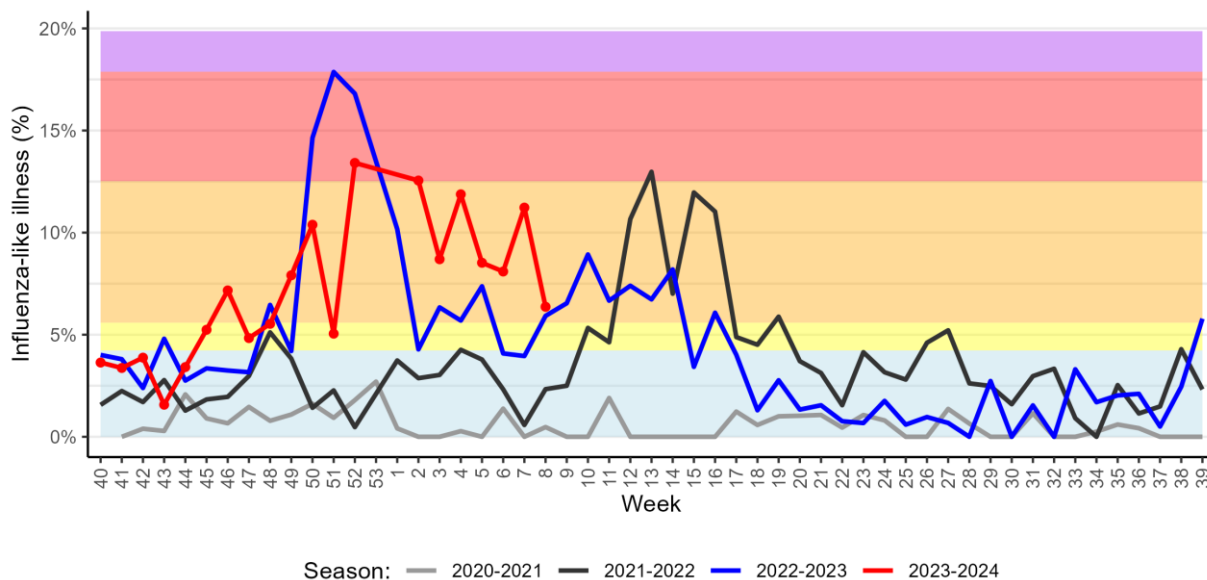

Figure 1. Percentage of patients with influenza-like illness over the last three seasons
Background colours according to intensity of circulation: baseline, low, medium, high, very high. Data from 2024/01 not presented as low return

Table 1. Syndromic surveillance over the last 4 weeks

Week	ARI		ILI		Total consultations
	N	%	N	%	
2024/05	54	15.34	30	8.52	352
2024/06	71	16.90	34	8.10	420
2024/07	74	37.76	22	11.22	196
2024/08	54	20.22	17	6.37	267

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

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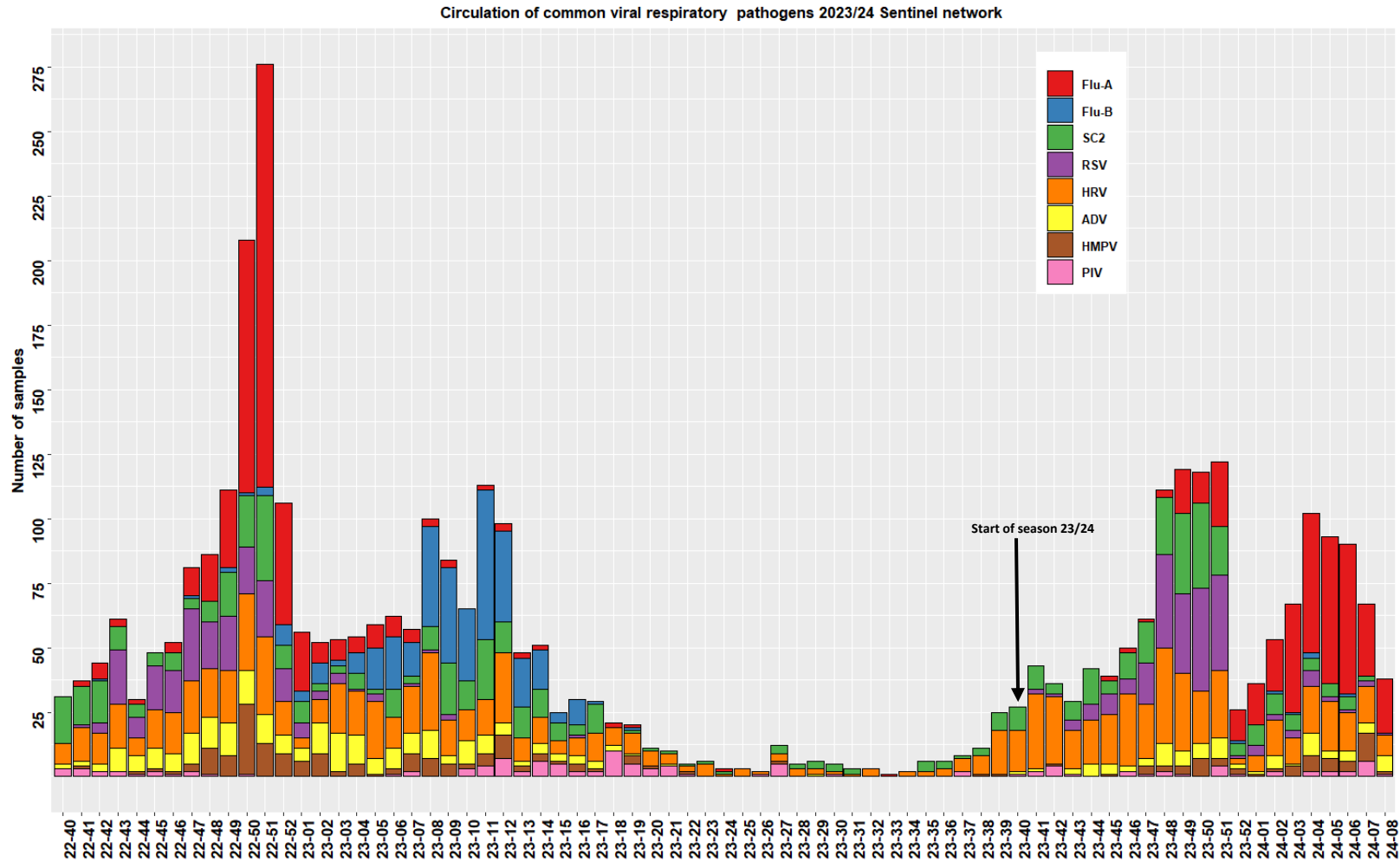T : (+352) 28 100 556 | F : (+352) 28 100 556 | microbiology@lns.etat.lu | www.lns.lu

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Figure 2. Distribution of respiratory viruses detected within the Sentinel Network, by calendar week. Results from last weeks are not all 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 %					
	w05	w06	w07	w08	Trend	w08
Influenzavirus A	43.2	52.7	32.9	25.3	↓	2.5
Human rhinovirus	14.6	14.2	16.5	16.3	→	27.0
Adenovirus	2.3	3.8	4.7	12.2	↑	9.9
Metapneumovirus	3.8	3.8	12.9	2.0	↓	6.3
Respiratory syncytial virus	1.5	0.9	2.4	2.0	→	0.9
Parainfluenzavirus	1.5	1.9	7.1	2.0	→	0.0
SARS-CoV-2	3.8	4.5	2.4	0.0	↓	7.5
Influenzavirus B	0.0	0.9	0.0	0.0	→	32.5

*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.
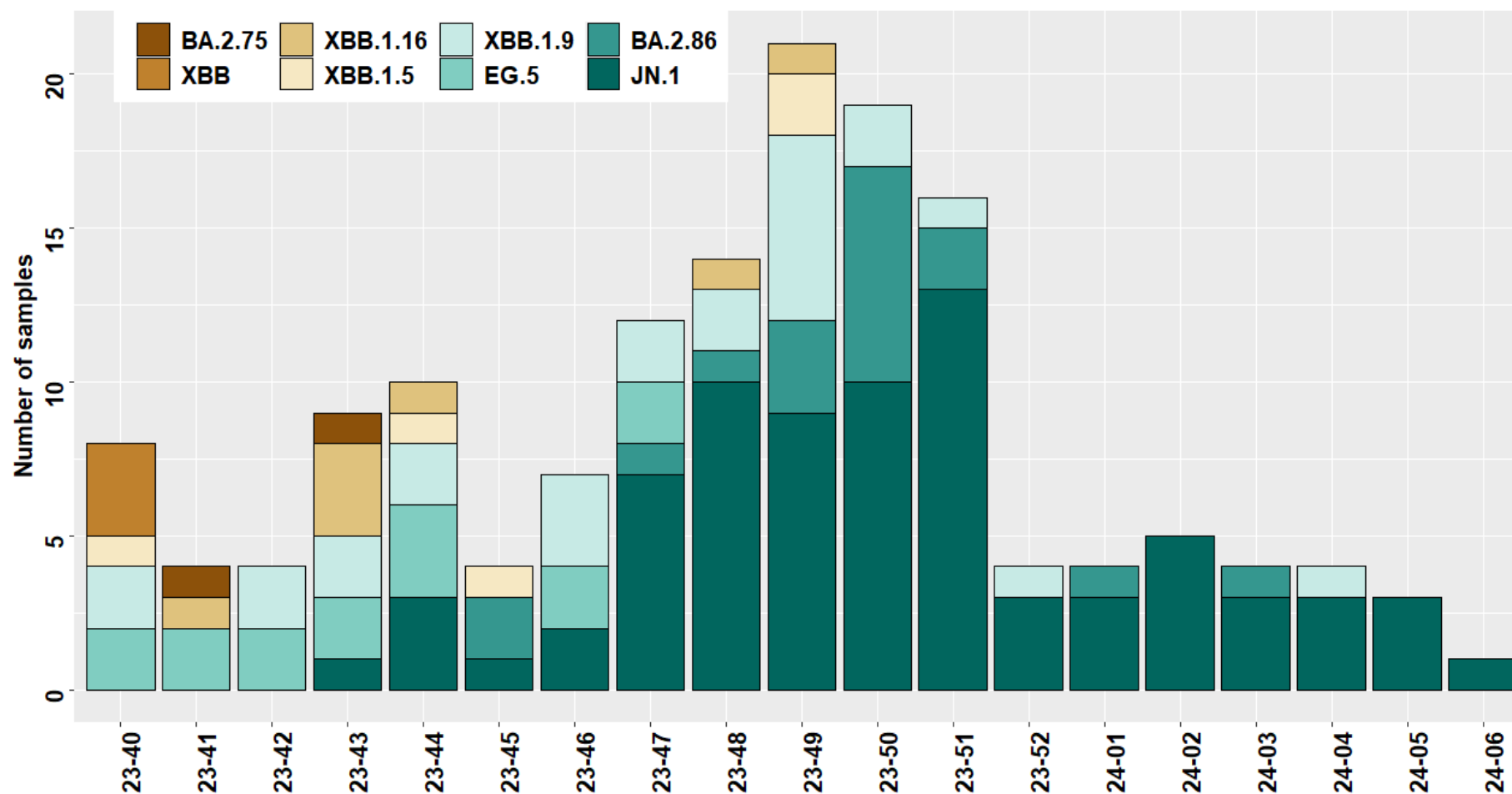

Number of RSV cases detected in different agegroups (N=209) during season 23/24
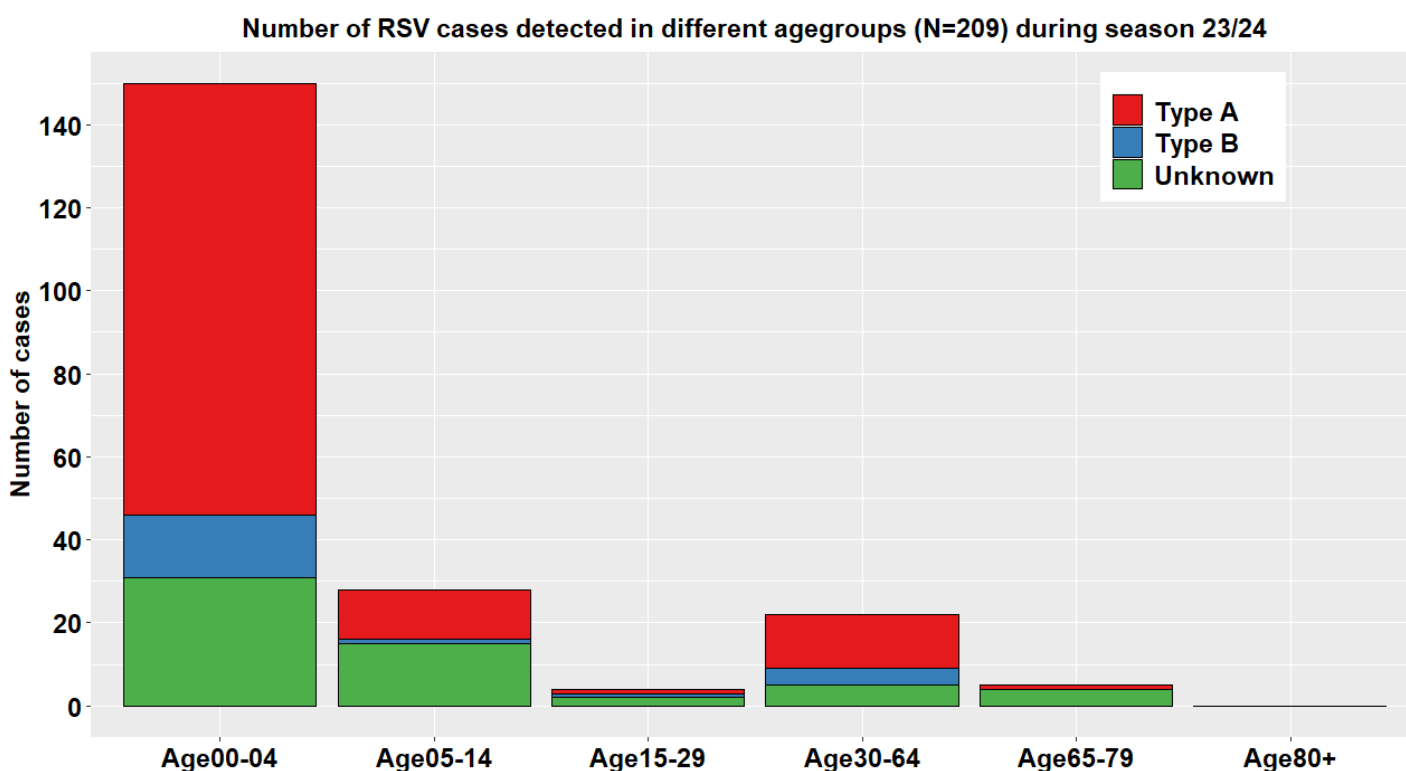
Figure 4. Distribution of variants since 2023/40 within sentinel network

* All displayed variants include descendant lineages, except those specified on the legend. For example, XBB does not include XBB.1.5, XBB.1.16, EG.5 and XBB.1.

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