LNS LUXEMBOURG

Respiratory Viruses in Luxembourg (ReViLux)

Report – Sentinel Week 17, 2025

Summary

At the conclusion of **Week 17 of 2025**, the sentinel surveillance network reported **baseline epidemic activity**, with **4.2 % of clinical consultations** linked to influenza-like illness (ILI)—a slight decrease of **0.5%** from the previous week.

Analysis of respiratory specimens collected during the past week revealed the highest positivity rate for ***Human rhinovirus*** **(32.4%).** Moderate positivity was observed for ***Adenovirus*** and ***Parainfluenza virus***, each at **14.7%**, followed by ***Human metapneumovirus*** at **11.8%**. Both ***Influenza B virus*** and ***Respiratory syncytial virus*** **(RSV)** demonstrated lower activity, with positivity rates of **5.9%**. No detections were reported for *Influenza A virus*, while ***SARS-CoV-2*** was detected in **2.9%** of tested samples.

During the 2024/25 influenza season, a total of 2,816 respiratory specimens were tested, of which 901 (32.0%) were positive for influenza viruses. Among these, 500 (55.5%) were identified as ***Influenza A*** and 401 (44.5%) as ***Influenza B***. Of the Influenza A-positive specimens, 477 (95.4%) were successfully subtyped, revealing circulation of both A(H1)pdm09 and A(H3) viruses. Subtyping results showed that 195 cases (40.9%) were attributable to **A(H1)pdm09**, while 282 cases (59.1%) were **A(H3),** indicating co-circulation with a predominance of the latter.

Syndromic surveillance over the last 4 Weeks (Table 1)

Week	Acute Respiratory Infection (ARI)		Influenza Like Illness (ILI)		Total consultations
	N	%	N	%	
2025/14	56	15.0	13	3.5	373
2025/15	36	15.9	5	2.2	226
2025/16	34	17.6	9	4.7	193
2025/17	16	11.2	6	4.2	143

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 of the upcoming calendar year.

Clinical Results

In Week 17 of 2025, 4.2% of reported consultations met the case definition for influenza-like illness (ILI), indicating baseline epidemic activity in Luxembourg as defined by the European Centre for Disease Prevention and Control (ECDC) using the Moving Epidemic Method (MEM). This marks a continued decline in ILI activity compared to previous weeks, with a further decrease of 0.5 percentage points from Week 16. It is important to note that only four sentinel physicians reported data during this period, and thus the observed trend should be interpreted with caution due to reduced representativeness.

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.

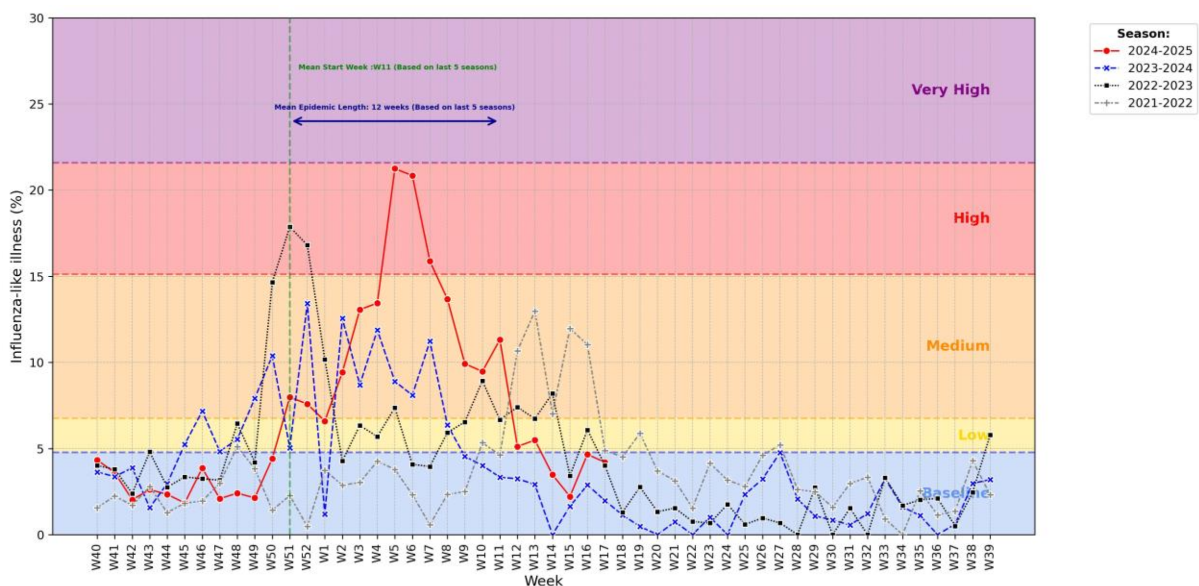

Figure 1. Percentage of patients with influenza-like illness over the last four seasons
Background colours according to intensity of circulation: baseline, low, medium, high, very high.

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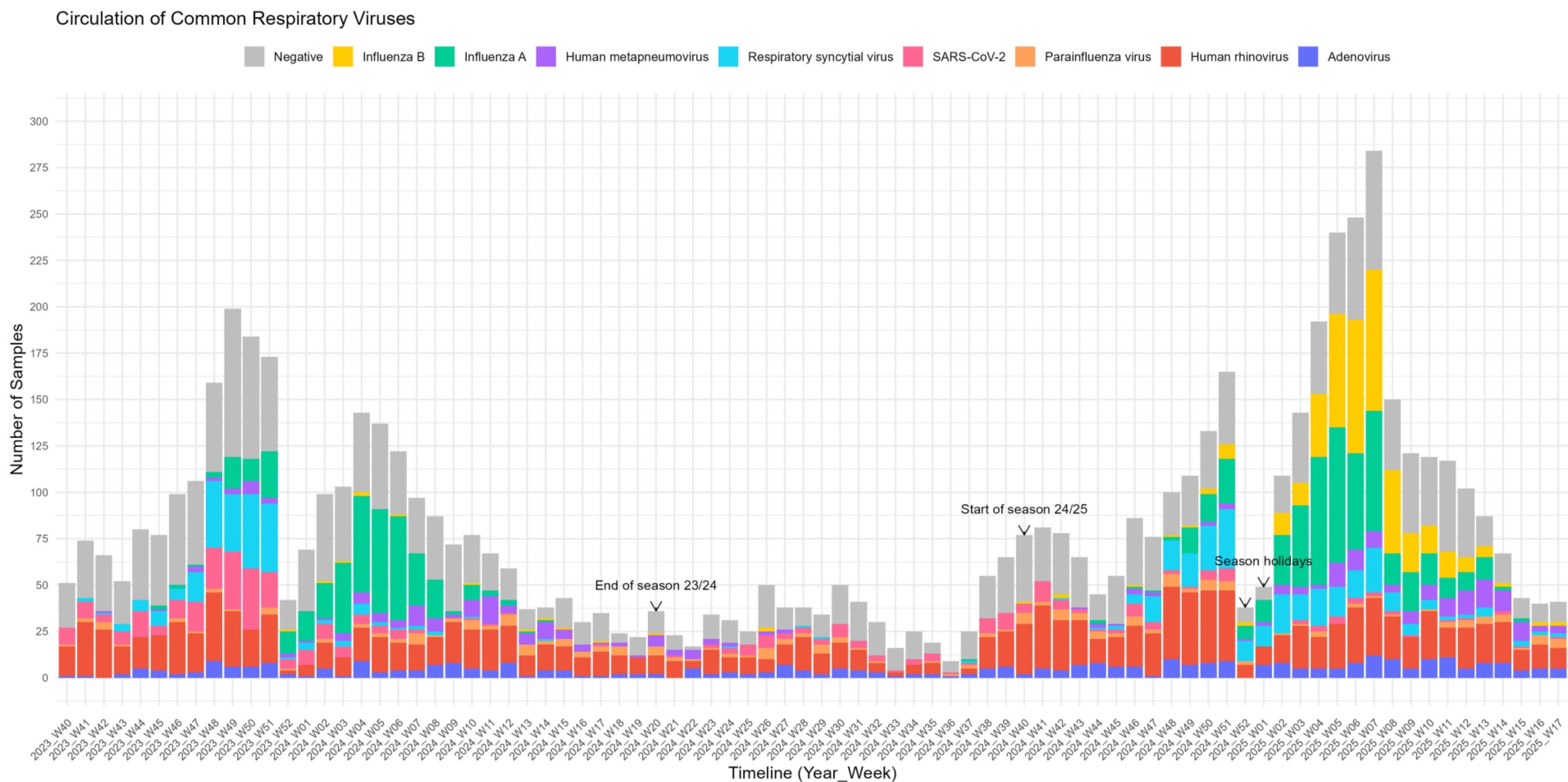

Figure 2. Distribution of respiratory viruses detected within the Sentinel Network, by calendar week.

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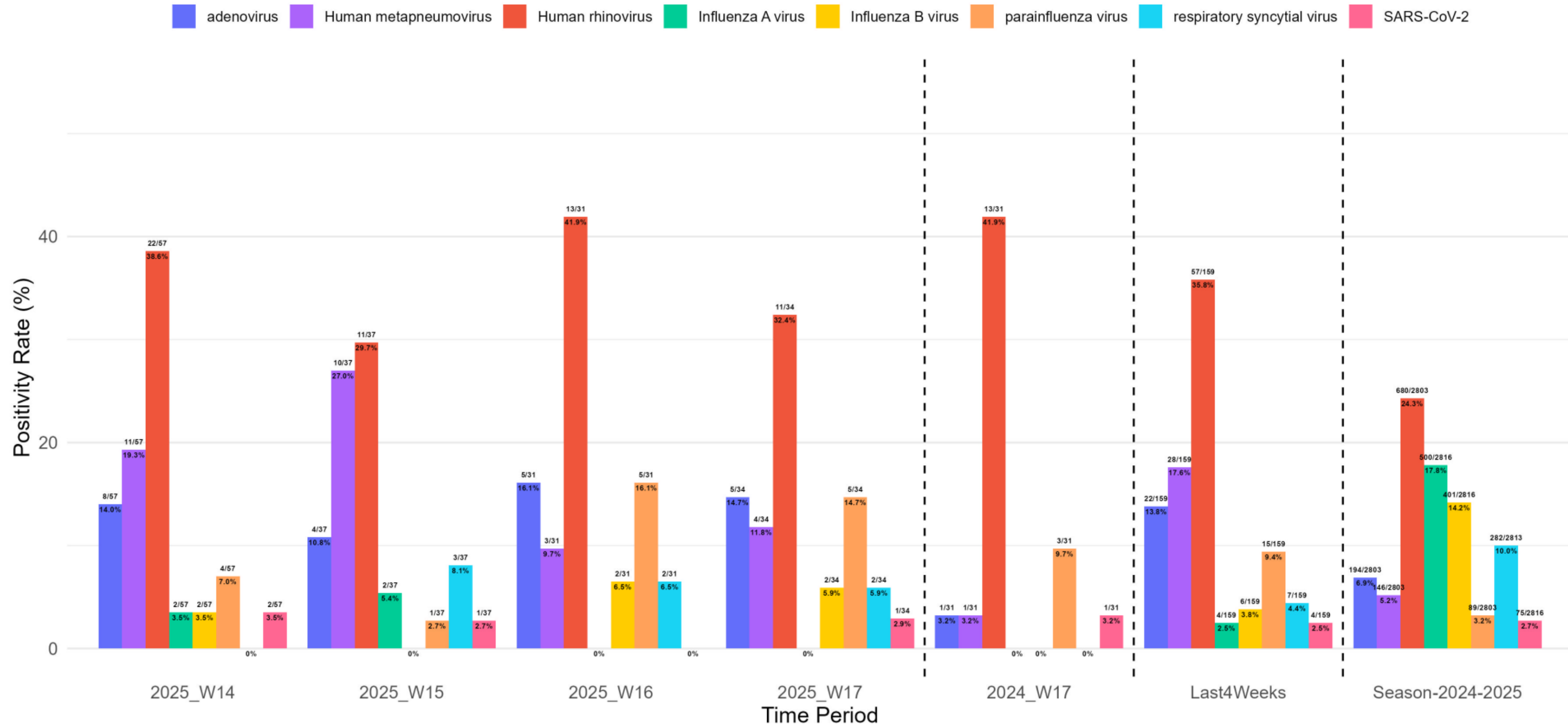

*Figure 3. Distribution of respiratory viruses detected within the Sentinel Network over the last 4 weeks and Season 2024-2025. On the top of the bar is depicted the number of positive samples/total samples and inside the bar is depicted the positivity rate per respiratory virus in percentage. Last 4 weeks were Week 14, 15, 16 and 17. *Co-detection counted once for each virus detected.*

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Laboratory Results

During the most recent surveillance week, *Human rhinovirus* remained the predominant circulating pathogen, accounting for nearly one-third (32.4%) of all positive detections. A moderate level of activity was observed for both *Adenovirus* and *Parainfluenza virus*, each contributing 14.7% of positive cases, while *Human metapneumovirus* was identified in 11.8% of samples. Lower levels of circulation were noted for *Influenza B* and *Respiratory syncytial virus (RSV)*, both with positivity rates of 5.9%. *Influenza A virus* was not detected in any of the tested specimens, and *SARS-CoV-2* activity remained limited, with a positivity rate of 2.9%. These findings are consistent with a typical late-season pattern where non-influenza respiratory viruses dominate virological detections

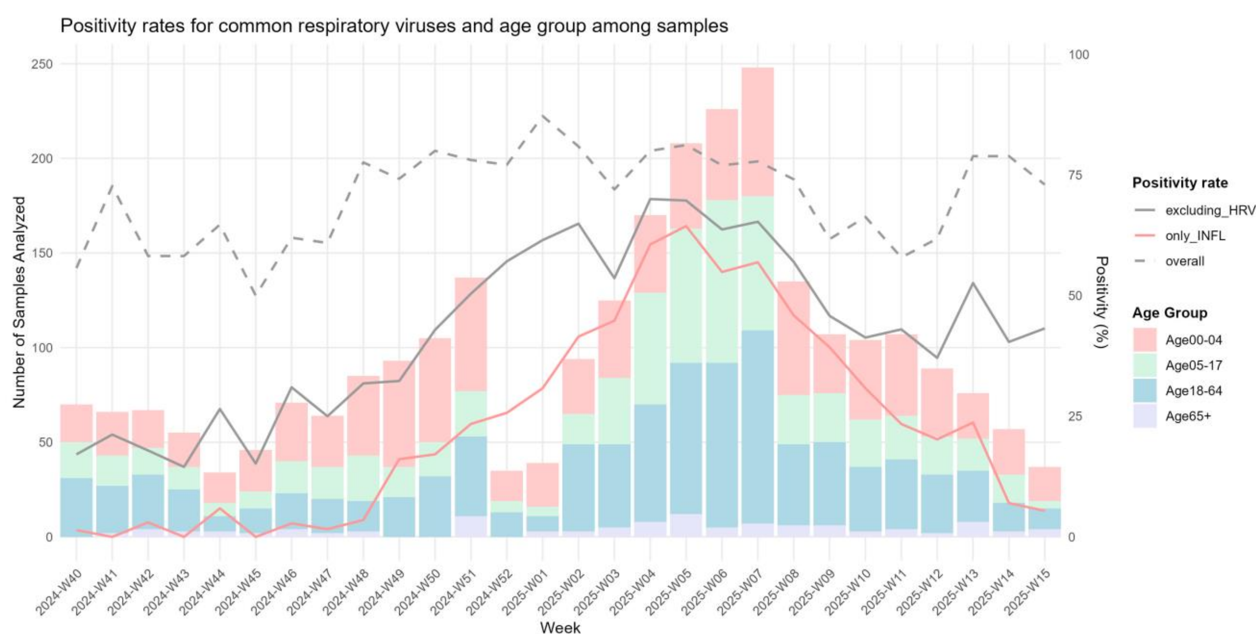

Figure 4. Displays number of sentinel samples received per week by age-group including overall sample positivity including Human rhinovirus (HRV, dotted line), excluding HRV (black line) and Influenza (red). Secondary axis corresponds to positivity

Overall positivity rates are shown with dashed line, continuous gray colored trendline is representing positivityrates after removal of Human Rhinovirus positivity rates and pink line is of positivity rates for Influenzavirus.

Figure 4 illustrates respiratory virus activity from Week 40/2024 to Week 17/2025, showing both positivity rates and age distribution among tested samples. A clear seasonal trend is evident, with respiratory virus circulation beginning to increase around Week 47, peaking between Weeks 3 and 6 of 2025, and gradually declining thereafter. The excluding HRV positivity rate (solid line) exceeded 60% during the peak weeks, with the highest number of samples occurring among children aged 0–4 years, who consistently represented the largest proportion of tested samples. Adults aged 18–64 years also contributed significantly during the peak, while the elderly (65+) accounted for a smaller share. These findings highlight a typical winter respiratory virus season dominated by pediatric cases, with substantial contributions from adult age groups during peak weeks.

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Age groups analysis of RSV detections

Between Week 40 of 2024 and Week 17 of 2025, a total of 282 respiratory syncytial virus (RSV) detections were reported across all age groups. The burden of RSV was highest among children aged 0–1 years, particularly in the year old infants (Age01), which accounted for 63 cases (22.3% of total detections). RSV subgroup B predominated across most age groups, especially in Age01 and Age02, while subgroup A was less frequently reported. Detection among older children (5–14 years) and adults remained relatively low, with minimal activity observed in those aged 15–29 years. Notably, the Age30–64 group also showed a modest number of detections, suggesting some level of adult circulation. These findings reaffirm the well-established age-related vulnerability to RSV, with infants bearing the highest disease burden during the surveillance period.

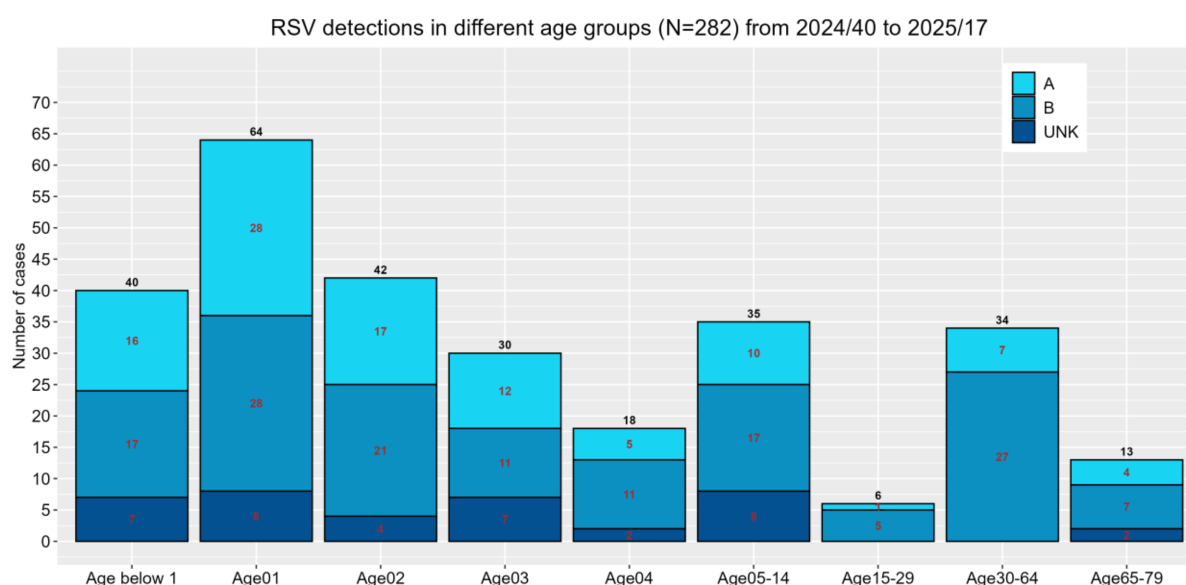

Figure 5. Displays RSV cases according to different age groups with highest impact among the 1-4 years old.

Influenza Subtype circulation across age groups

Figure 6 demonstrates the epidemiological distribution of influenza types across different age groups, highlighting significant variations in susceptibility and detection rates. These findings are critical for shaping public health measures, such as targeted vaccination programs and age-specific surveillance efforts. The predominance of AH3 detections in both the youngest (0–4 years) and oldest (65+ years) age groups underscores the heightened vulnerability of these populations, likely associated with underdeveloped or weakened immune systems[2]. In the 5–17 age group, Influenza B emerges as the most frequently detected type, reflecting active transmission dynamics among school-aged children, often facilitated by close interactions in educational and communal settings.

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In adults aged 18–64, the co-circulation of AH1pdm09 alongside Influenza B highlights the occupational and social exposure risks in workplaces and urban environments. For the retiree age group (65+ years), the relatively lower proportion of Influenza B detections compared to other groups could reflect the sampling peculiarity inherent in sentinel surveillance, where infant and pediatric samples dominates. This nuance should be considered when interpreting the data.

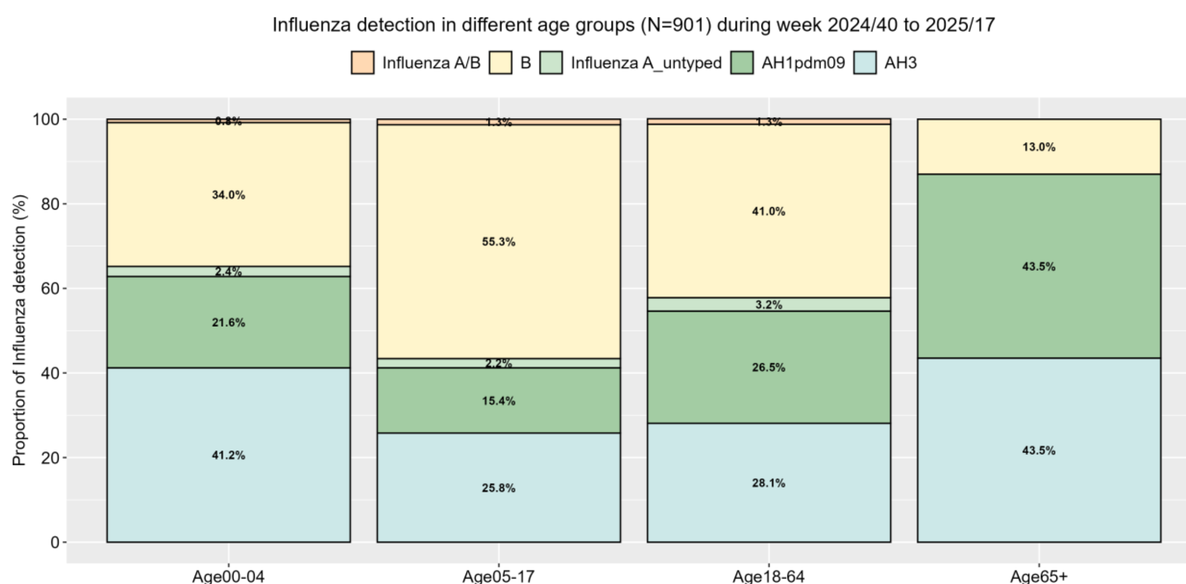

Figure 6. Displays detection of Influenza subtypes by age-group.

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Reference

1. European Centre for Disease Prevention and Control. Communicable Disease Threats Report Week https://www.ecdc.europa.eu/en/publications-data/communicable-disease-threats-report-19-25-april-2025-week-17
2. Jörg J. Goronzy, Claire E. Gustafson, Cornelia M. Weyand, 38 - Immune Deficiencies at the Extremes of Age, Editor(s): Robert R. Rich, Thomas A. Fleisher, William T. Shearer, Harry W. Schroeder, Anthony J. Frew, Cornelia M. Weyand, Clinical Immunology (Fifth Edition), Elsevier, 2019, Pages 535-543.e1,ISBN 9780702068966, https://doi.org/10.1016/B978-0-7020-6896-6.00038-7. (https://www.sciencedirect.com/science/article/pii/B9780702068966000387)

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