A Perpetual Observational Study for Acute Respiratory Infections in Europe (POS ARI-ER): Etiology of respiratory infections amongst adults presenting at the emergency room and other acute hospital care settings in Europe
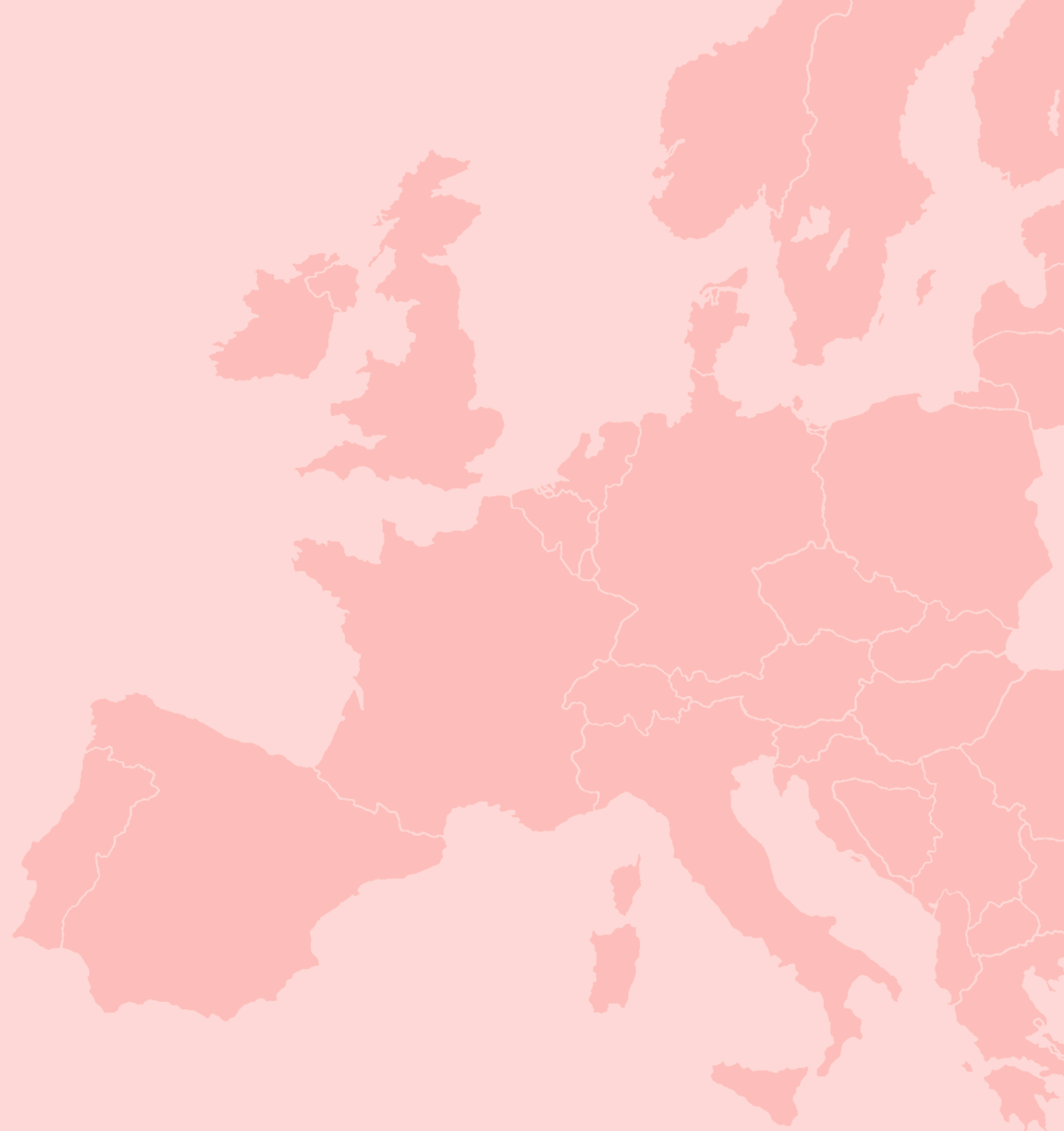
K. Loens, Y. Themistocleous, C. Betts, G. Gommeren, M. Bonten, E. van Deuren, F. Leus, H. Goossens, P. Horby, J. Dunning, M. Ieven and POS-ARI-ER Investigators on behalf of the ECRAID-BASE Consortium

17 SEP 2025

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Content

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Introduction

- ECRAID: European Commission funded research infrastructure to reduce the impact of infectious diseases on individual and population health
- ECRAID-Base advances clinical research in infectious disease in Europe
- Warm Base: a fully operational pan-European clinical research network to:
    - directly enroll patients with infectious diseases for generating evidence to support testing and development of new diagnostic, preventive and/or therapeutic strategies and therapies;
    - conduct a broad range of rigorous clinical studies efficiently, and rapidly;
    - function as a platform for a rapid research response in the face of serious infectious disease outbreaks.

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Introduction

- POS ARI ER:
  - Prospective perpetual multicentre observational study
    - Provide data for clinical characterisation of acute respiratory infections (ARIs) in adults presenting to hospital settings across Europe, 3.5 years
    - Inclusion criteria: Age ≥ 18 years, clinical suspicion of new episode of ARTI with onset in the last 10 days, patient presents to an or secondary care setting, informed consent given
    - Exclusion criteria: Patient transferred from another hospital, admitted to hospital for >2 days at time of enrolment, previously enrolled in POS-ARI-ER
  - 25% of patients sampled at baseline for research
  - Focus is on results obtained with the research sample

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Materials and methods

- Standardised research sample collection and shipment:
  - Combined nose/throat swab at baseline within 24 hours of enrolment, maximum of 3 days after hospital presentation
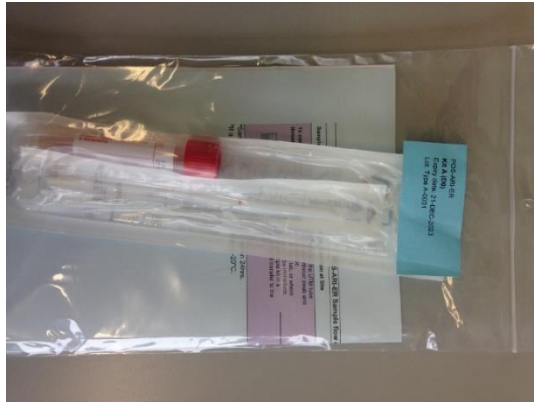
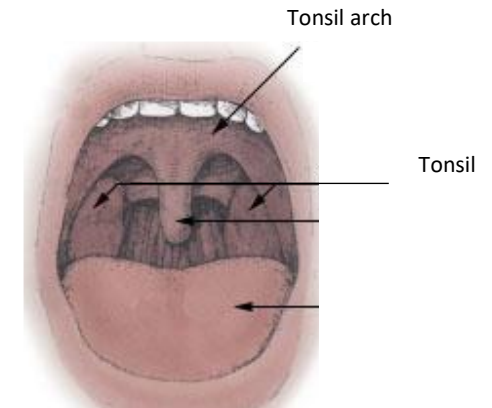 - Stored frozen till frozen shipment to the central laboratory (temperature logger)

Tonsil arch

Tonsil

Figure 6

Materials and methods

- Nucleic acid extraction and analysis at central laboratory in Antwerp
- Targeted organisms important for this presentation: INF A, INF A H1, INF A H3, INF B, HAdV, HBoV, HCoV-229E, HCoV-HKU1, HCoV-NL63, HCoV-OC43, HRV, HPeV, EV-D68, EV, HPIV1-4, RSV A, RSV B, HMPV, SARS, SARS-CoV-2, MERS, *M. pneumoniae, C. pneumoniae, Bordetella spp., B. pertussis, L. pneumopila, HRNAseP*
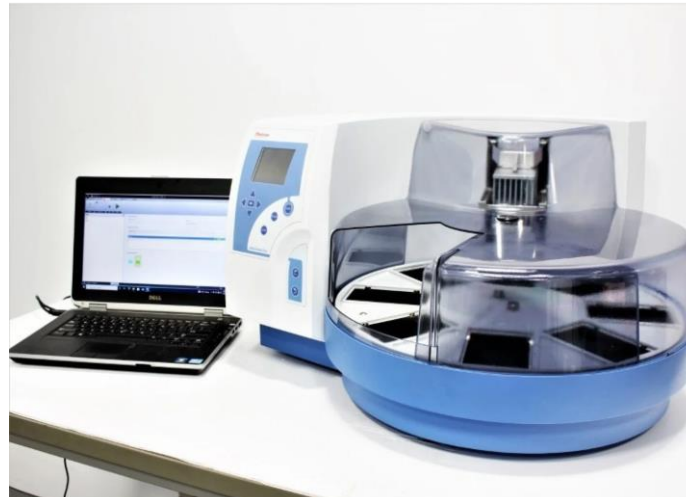
KingFisher™ 7Flex and MagMAX Viral Pathogen II Nucleic Acid Kit
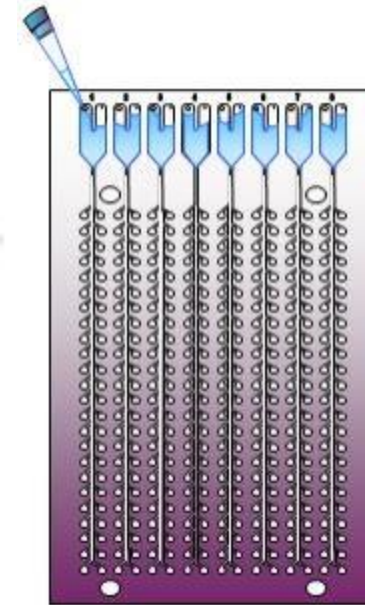
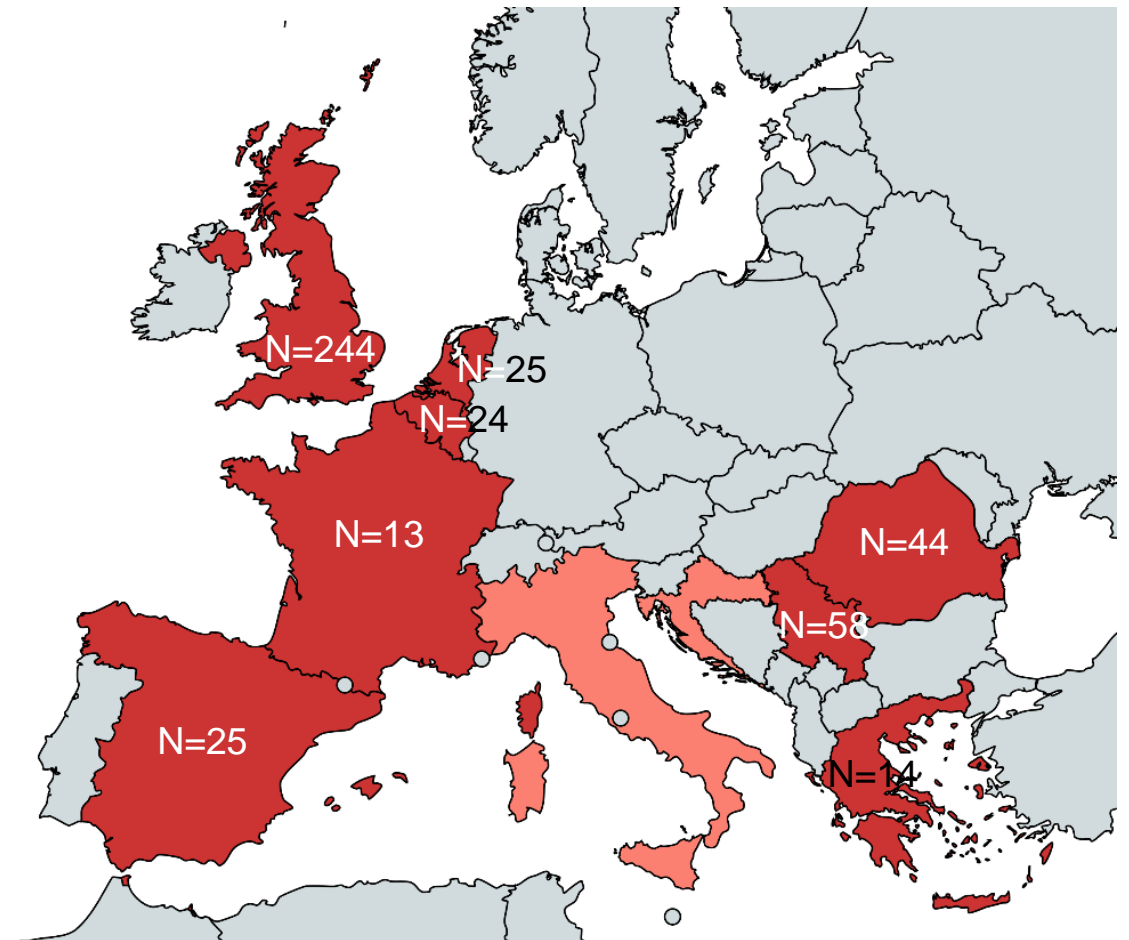Applied Biosystems TrueMark Respiratory Panel 2.0 TaqMan

QuantStudio™ 7Flex

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Interim results

- 447 samples collected and analysed between 29/06/2023 and 25/06/2025 from 8 European countries

	Male (n=229)	Female (n=218)
18-50 y	43	61
51-65y	46	48
≥65y	140	109

- 3 samples were not interpretable due to absence of human marker

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N=244
N=25
N=24
N=13
N=44
N=58
N=25
N=14

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Results

Results

Number of samples positive for ≥1 respiratory virus(es)
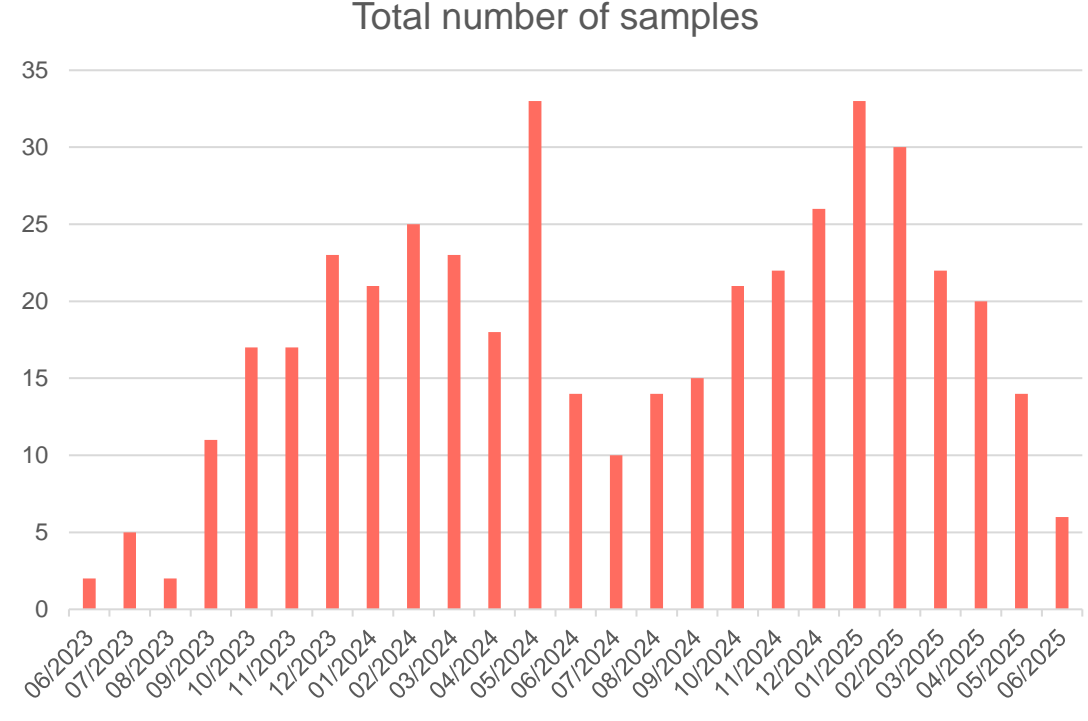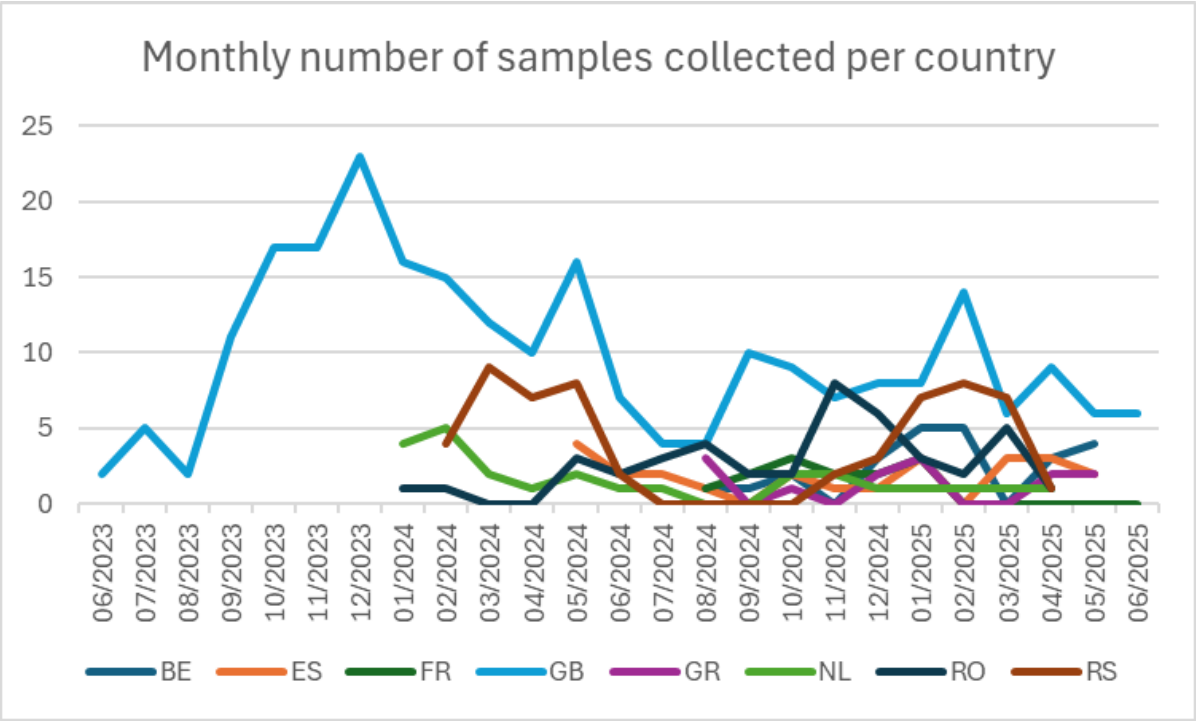
Legend: Nr of samples collected · Nr positive for 1 respiratory virus · Nr positive for 2 respiratory viruses · Nr positive for 3 respiratory viruses
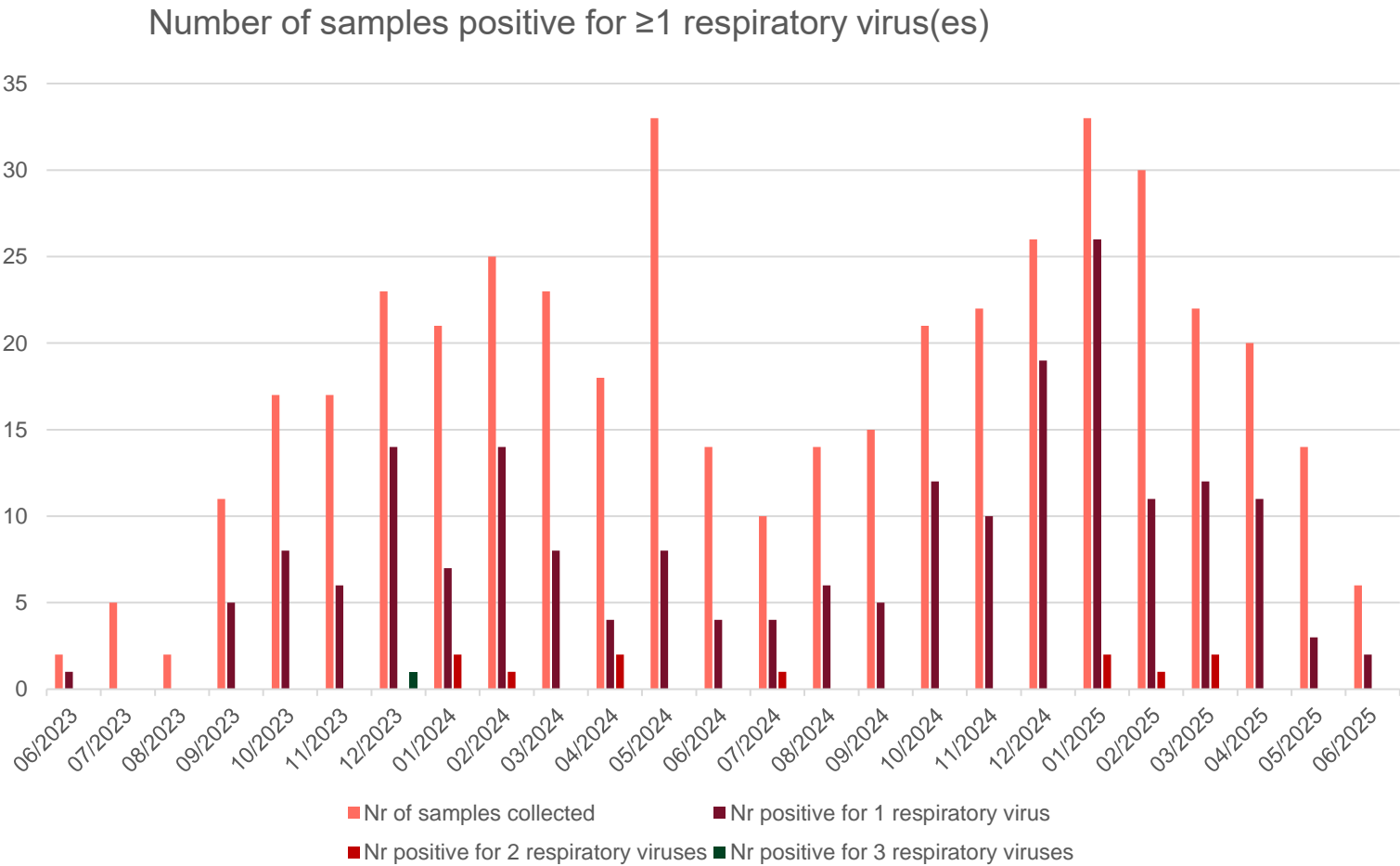
Month	Nr of samples collected	Nr of samples positive for *M. pneumoniae* (%)
Sep-23	11	1 (9.1)
Oct-23	17	0 (0)
Nov-23	17	1 (5.9)
Dec-23	23	2 (8.7)
Jan-24	21	1 (4.8)
Feb-24	25	2 (8.0)
Mar-24	23	0 (0)
Apr-24	18	1 (5.6)
May-24	33	2 (6.1)
Jun-24	14	2 (14.3)
Jul-24	10	1 (10.0)
Aug-24	14	1 (7.1)
Sep-24	15	1 (6.7)
Oct-24	21	1 (4.8)
Nov-24	22	2 (9.1)
Dec-24	26	1 (3.8)
Total	310	19 (6.1)

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Virus	Nr detected (n=443)	%
HBoV	0	0.0
INF A	62	14.0
INF B	8	1.8
HPIV-1	1	0.2
HPIV-2	1	0.2
HPIV-3	12	2.7
HPIV-4	3	0.7
RSV A	9	2.0
RSV B	9	2.0
hMPV	27	6.1

Virus	Nr detected (n=443)	%
HCoV-229E	0	0.0
HCoV-HKU1	3	0.7
HCoV-NL63	2	0.5
HCoV-OC43	10	2.3
EV-D68	8	1.8
HPeV	0	0.0
HRV	38	8.6
HAdV	6	1.4
SARS-CoV-2	24	5.4
M. pneumoniae	19	4.3
B. pertussis	3	0.7
C. pneumoniae	1	0.2

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Results

Prevalence respiratory viruses
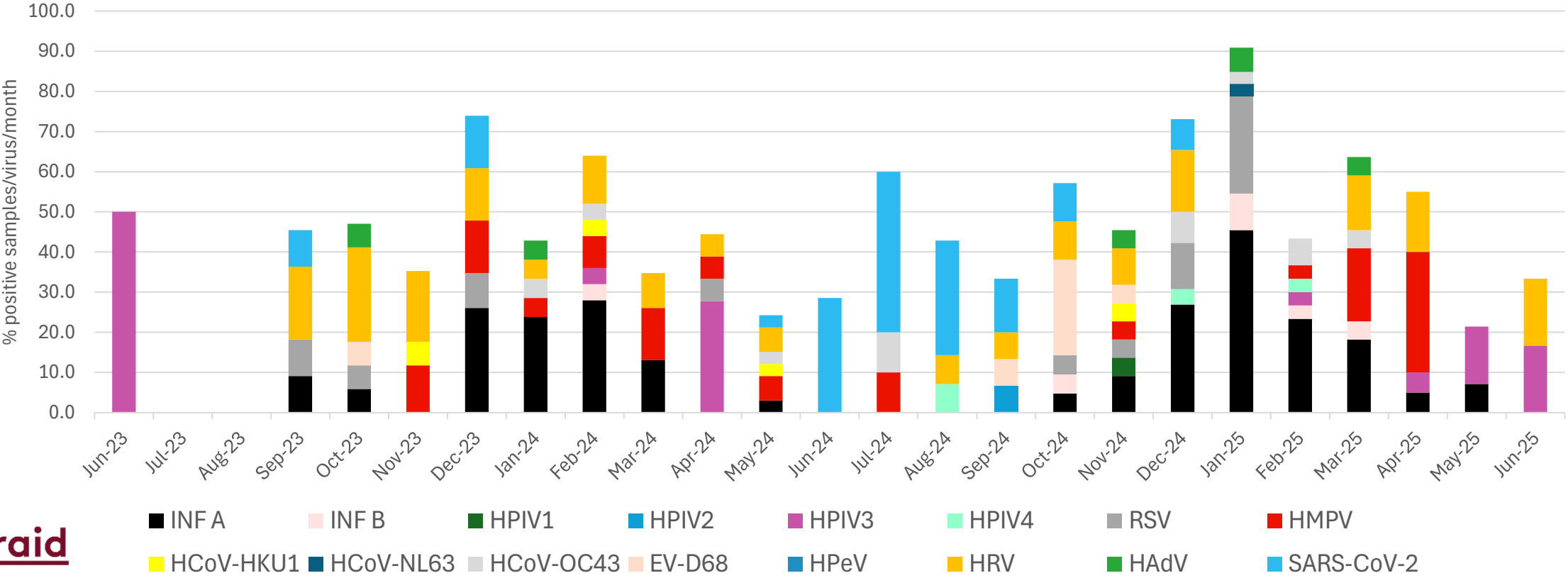
Conclusions

- INF A virus (14,0%), HRV (8,6%) and HMPV (6,1%) most frequently detected
- INF, RSV and HMPV mainly detected in winter and spring
- HRV detected almost all year round
- SARS-CoV-2 mainly detected in summer and autumn of 2024
- HPIV3 mainly detected in spring
- *M. pneumoniae* also detected in 4,3% of samples (so far not in 2025), confirming literature and other reports

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Thank you for your attention!

Please visit also our poster (P304) on the Aetiology of respiratory viruses amongst older adults in Europe (Session: Seasonal respiratory viruses, 18/09/2025)

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