



## GIHSN study results – Romania 2018/19 influenza season

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### Site presentation

The National Institute for Infectious Diseases (NIID) "Prof. Dr. Matei Balș", Bucharest, Romania is a tertiary care hospital specialized in infectious diseases, with wide addressability for patients from the Bucharest and also from an area covering South Eastern Romania. We present the data for the GIHSN study, for patients hospitalized for influenza-like illness (ILI) in NIID "Prof. Dr. Matei Balș", in the influenza season 2018/19, weeks 1 to 18/2019).

### Methods

Prospective epidemiological active surveillance study. Patients were included in the study according to the GIHSN study protocol.

**Study procedures:** informed consent, eligibility, medical questionnaire, nasopharyngeal + pharyngeal swab for adults (≥14 years), nasopharyngeal + nasal swab for children (<14 years)

**Laboratory procedures:** Real-time PCR (Xpert FLU/RSV Xpress, Cepheid) was used to detect influenza A or B in respiratory samples. The positive samples were tested with a second r-RT-PCR to identify influenza A subtype H1 or H3 (Allplex Respiratory panel 1 – Seegene) or influenza B lineages (Yamagata or Victoria).

### Results

We screened in the study 1389 patients during weeks 1-18 of 2019. Out of these, 938 met the eligibility criteria (Figure 1), of which 419 (44.7%) were positive for influenza. The main circulating type was influenza A; 365 samples were subtyped, among which 69.3% were A/H1 and 30.7% were A/H3 (Figures 2-4). Only one case of influenza B (Victoria lineage) infection was identified this season, in week 17, in a 4-year-old child. Also, influenza/RSV co-infection was detected in 7 cases: 6 pediatric patients under 5 years (of which 3 were complicated cases: 2 with acute respiratory distress, and one presented pneumonia) and one elderly female patient, who presented pneumonia. The characteristics of the studied group are presented in Table 1. Patients hospitalized for ILI had an increased rate of chronic conditions (42.8%), particularly in adult patients. We identified a low overall rate of influenza vaccinations (5.0%). A total of 16 patients (2 children and 14 adults) positive for influenza A (8 patients with A/H1 and 8 patients with A/H3) had been vaccinated against influenza in the current season (10 patients with trivalent vaccine and 6 patients with tetravalent vaccine).

Table 1. Patient characteristics

	Total cases n=938, N (%)	Influenza positive n=419, N (%)	Influenza negative n=519, N (%)
Gender			
Male	466 (49.7%)	192 (45.8%)	274 (52.8%)
Female	472 (50.3%)	227 (54.2%)	245 (47.2%)
Age group			
Less than 6 months	25 (2.7%)	15 (3.6%)	10 (1.9%)
6 months - 4 years	341 (36.4%)	150 (35.8%)	191 (36.8%)
5 - 17 years	110 (11.7%)	55 (13.1%)	55 (10.6%)
18 - 64 years	327 (34.9%)	134 (32.0%)	193 (37.2%)
65 years and over	135 (14.4%)	65 (15.5%)	70 (13.5%)
Chronic conditions ≥ 1	401 (42.8%)	179 (42.7%)	222 (42.8%)
Cardiovascular disease	173 (18.4%)	69 (16.5%)	104 (20.0%)
COPD	30 (3.2%)	19 (4.5%)	11 (2.1%)
Asthma	24 (2.6%)	20 (4.8%)	4 (0.8%)
Diabetes	71 (7.6%)	38 (9.1%)	33 (6.4%)
Immunodeficiency	60 (6.4%)	20 (4.8%)	40 (7.7%)
Renal impairment	46 (4.9%)	17 (4.1%)	29 (5.6%)
Rheumatologic disease	32 (3.4%)	16 (3.8%)	16 (3.1%)
Neurological disease	37 (3.9%)	13 (3.1%)	24 (4.6%)
Liver disease	62 (6.6%)	26 (6.2%)	36 (6.9%)
Neoplasm	50 (5.3%)	20 (4.8%)	30 (5.8%)
Obesity	82 (8.7%)	39 (9.3%)	43 (8.3%)
Active tuberculosis	3 (0.3%)	1 (0.2%)	2 (0.4%)
HIV infection	25 (2.7%)	8 (1.9%)	17 (3.3%)
Other	172 (18.3%)	81 (19.3%)	91 (17.5%)
Influenza vaccination for the current season	47 (5.0%)	16 (3.8%)	31 (6.0%)
ICU admission	26 (2.8%)	16 (3.1%)	10 (2.4%)
Death	8 (0.9%)	4 (1.0%)	4 (0.8%)

COPD – chronic obstructive pulmonary disease; ICU – intensive care unit

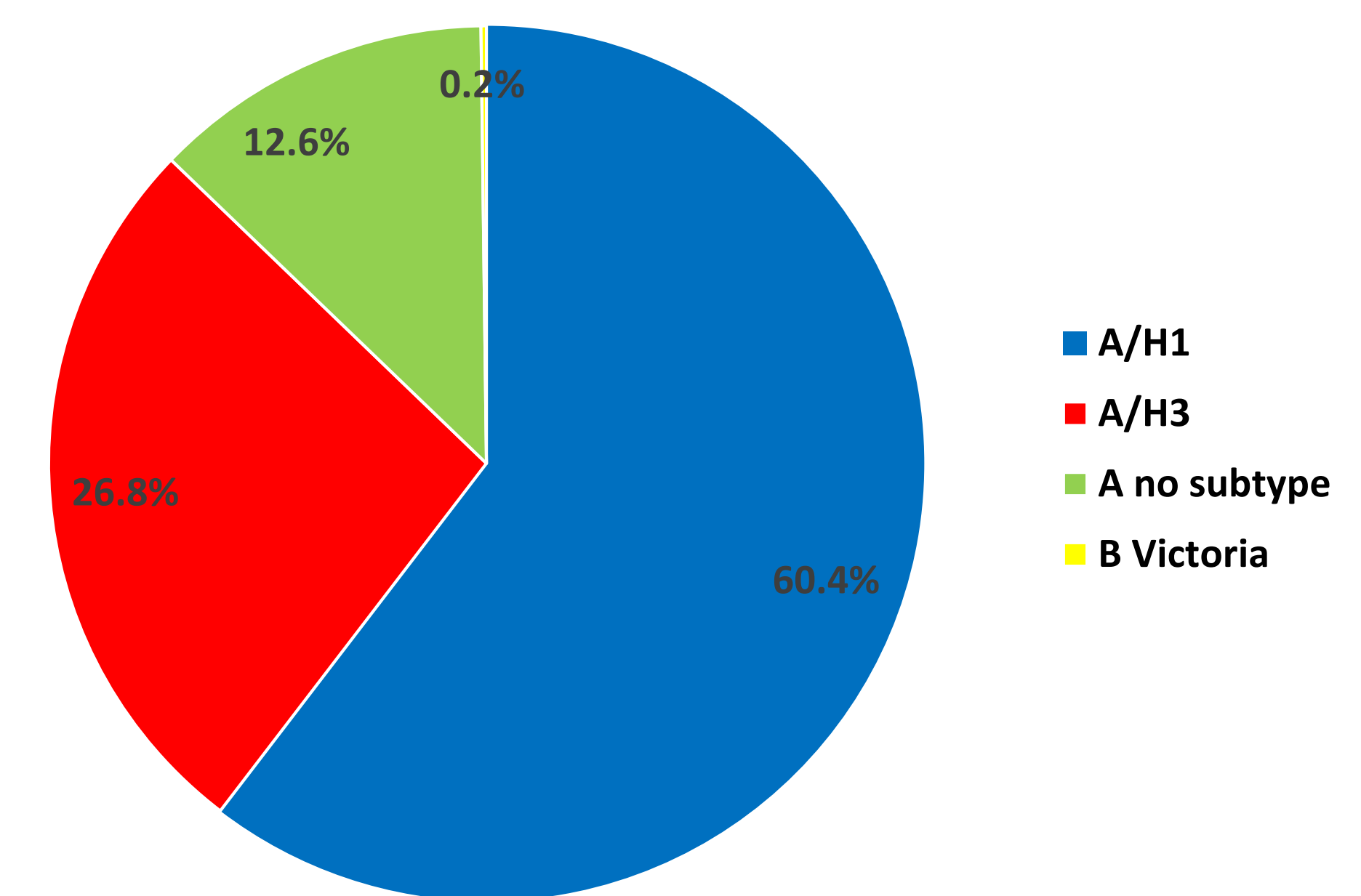


Figure 3. Distribution of influenza subtypes

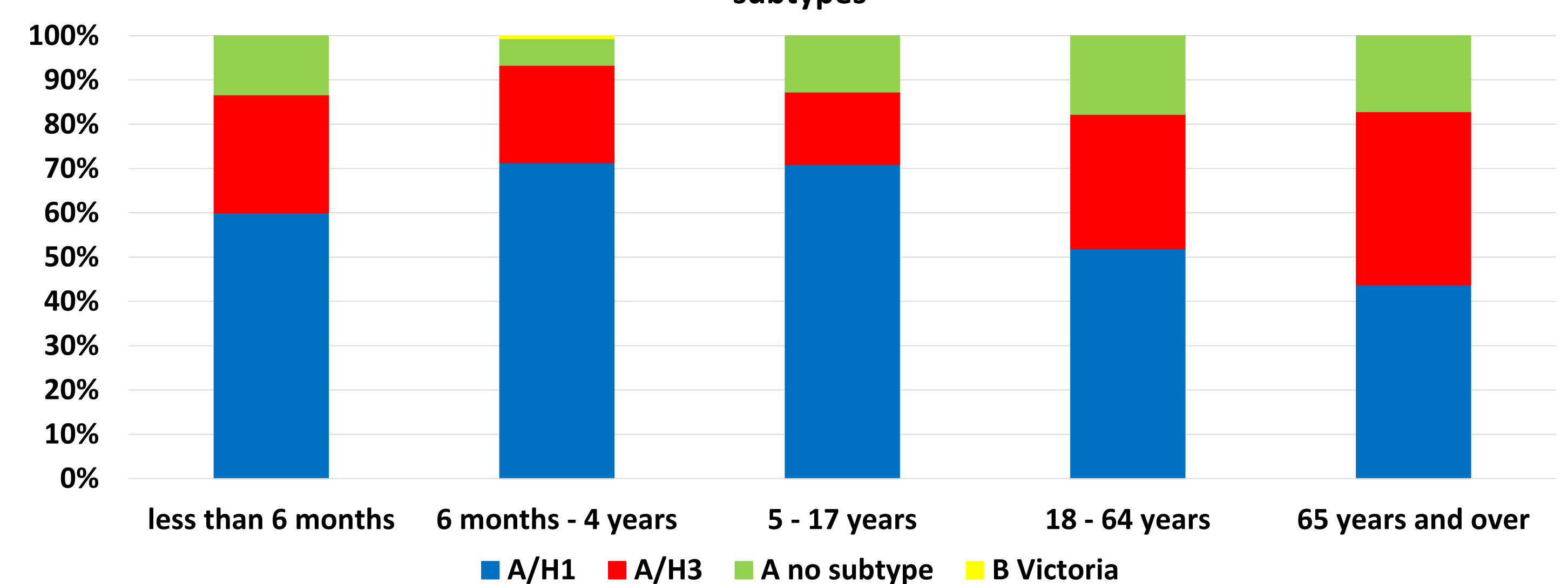


Figure 4. Distribution of influenza strains in age groups

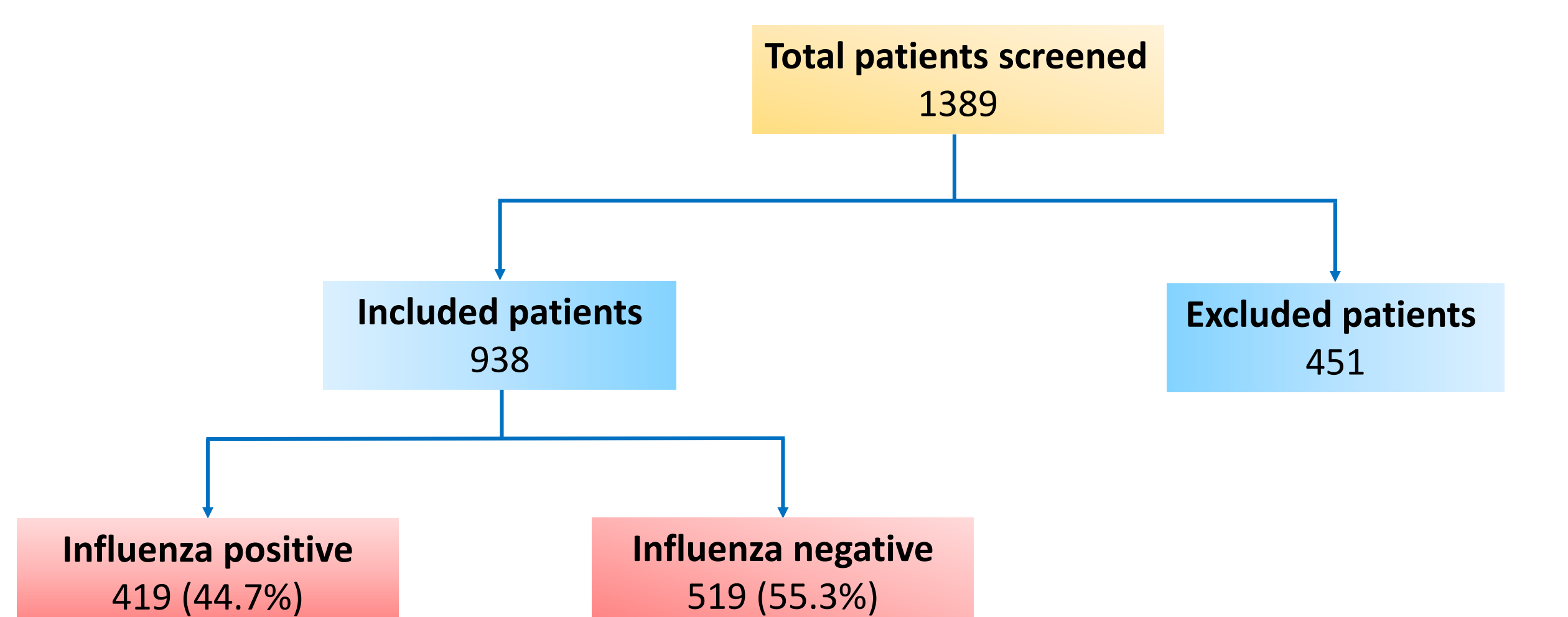


Figure 1. Study flowchart

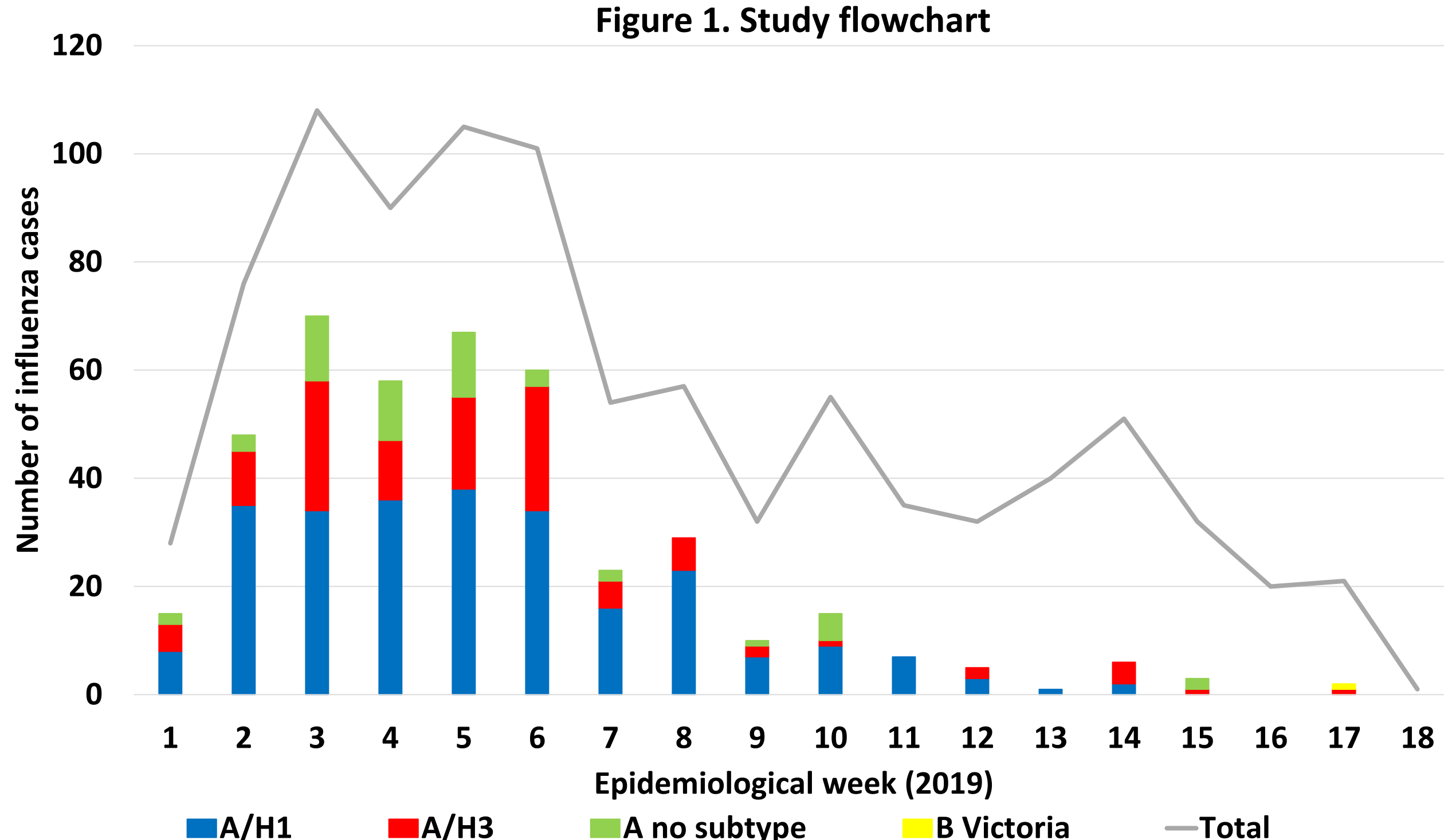


Figure 2. Distribution of viral subtypes by calendar week during the influenza season

### Key aspects & challenges

- A major circulation of influenza A (A/H1 69.3%; A/H3 - 30.7%) was identified this season, with only one influenza B strain (Victoria) this season, as compared to the previous season, when B viruses (specifically, B/Yamagata), predominated in our study population.
- A percentage of 3.1% of influenza positive patients required hospitalization in the ICU, and the case fatality rate among patients with laboratory-confirmed influenza was 1%; none of these patients had been vaccinated against influenza.