

# GIHSN : Results of the 2018-2019 season, Lyon France

Séïlah Amour<sup>1</sup>, Rym Bouslama<sup>1</sup>, Agathe Esposito<sup>1</sup>, Laetitia Henaff<sup>4</sup>, Bruno Lina<sup>2,3</sup>, Mitra Saadatian-Elahi<sup>1</sup>, Philippe Vanhems<sup>1,4,5</sup>

<sup>1</sup>Service d'Hygiène, Epidémiologie, Infectiologie et Prévention, Groupement Hospitalier Centre, Hôpital Edouard Herriot, Hospices Civils de Lyon, Lyon; <sup>2</sup>Centre National de Référence des Virus Influenzae, Région Sud; <sup>3</sup>Laboratoire de Virologie, Hôpital de la Croix-Rousse, Groupement Hospitalier Nord, Hospices Civils de Lyon, Lyon; <sup>4</sup>Équipe Épidémiologie et Santé Internationale, Laboratoire des Pathogènes Émergents, Fondation Mérieux, CIRI, INSERM U1111, CNRS UMR 5308, ENS de Lyon, Université Claude Bernard Lyon 1, <sup>5</sup>Inserm, F-CRIN, Innovative Clinical Research network in Vaccinology (I-REIVAC), CIC 1417, Paris, France.

## Site presentation

- ✓ The department of Hygiene, Epidemiology and Prevention, is affiliated to the university-affiliated Edouard Herriot hospital (Lyon-France). The latter is the largest hospital in the Rhône-Alpes region with 1100 beds and 102 units located in 32 buildings.
- ✓ The main missions of this department are directed towards surveillance of nosocomial infections, development of practical recommendations to reduce the risks of hospital acquired infections, and continuous improvement of the quality of care. The department is also involved in a large number of research projects on community-acquired infections including influenza and other respiratory pathogens. In particular, we have extensive experience in conducting surveillance and epidemiology of nosocomial influenza.
- ✓ Our experience with GIHSN started in the 2015-2016 influenza season via a national network surveillance. The GIHSN protocol has therefore been already used and has been an advantage for the smooth running of the study for this season. The study focused on adults (≥18 years old) and high-risk groups (diabetics, transplanted individuals, etc...).
- ✓ Since 2004, a surveillance of nosocomial influenza in patients and health-care workers has been set up and is still on-going (Figure 8). The main objective of this surveillance is to estimate the risk of hospital acquired-ILI for patients hospitalized in short-stay units, and to identify determinants associated with nosocomial Influenza infection. Community-related (influenza incidence, vaccine coverage, etc.) and hospital-related information (underlying diseases, two-bed rooms, vaccine coverage among HCW, etc.) are explored and analyzed with the objective of initiating preventive measures that could limit hospital outbreak of influenza. Our department is also involved in vaccine effectiveness measurement.

## Methods

**Design:** Prospective epidemiological active surveillance study

**Study setting and population:** The study took place in Edouard Herriot hospital. All adults patients (≥18years) that fulfilled the GIHSN eligibility criteria and hospitalized in the previous 24 hours were identified by a doctor via hospital admission registries, chart review or available records.

**Swabbing procedures:** A nasopharyngeal swab was performed by the staff of the unit for all patients after getting the signed consent form. The nasal swab was sent to the national influenza reference center. Multiplex real-time RT-PCR was performed on the samples to detect the presence of influenza A (H1N1 or H3N2), influenza B (B/Yamagata, B/Victoria). All samples were then kept at -20°C for future analysis of other respiratory viruses.

**Data collection:** Trained research nurses or clinical research associates collected relevant clinical and socio-demographic information by a combination of face-to-face interviews of patients and attending physicians, and by reviewing clinical records.

**Vaccination status:** Information on influenza vaccination status (vaccinated or not and date of vaccination) for the studied influenza season was obtained by asking the patient (or representative). As requested by the GIHSN core protocol, we validated this information by existing registers, vaccination cards or through contacting the person who administered the vaccine (patient's general practitioner, nurse, specialist or pharmacist).

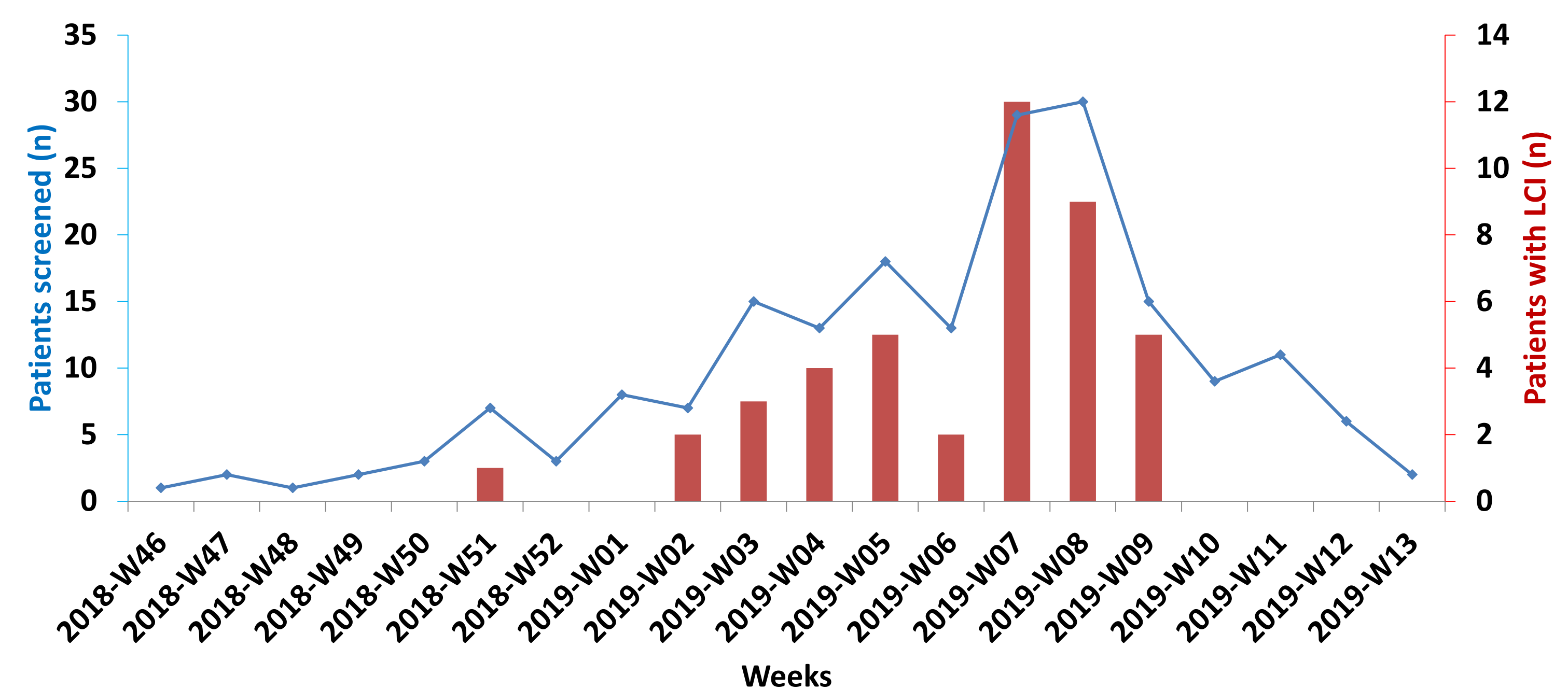
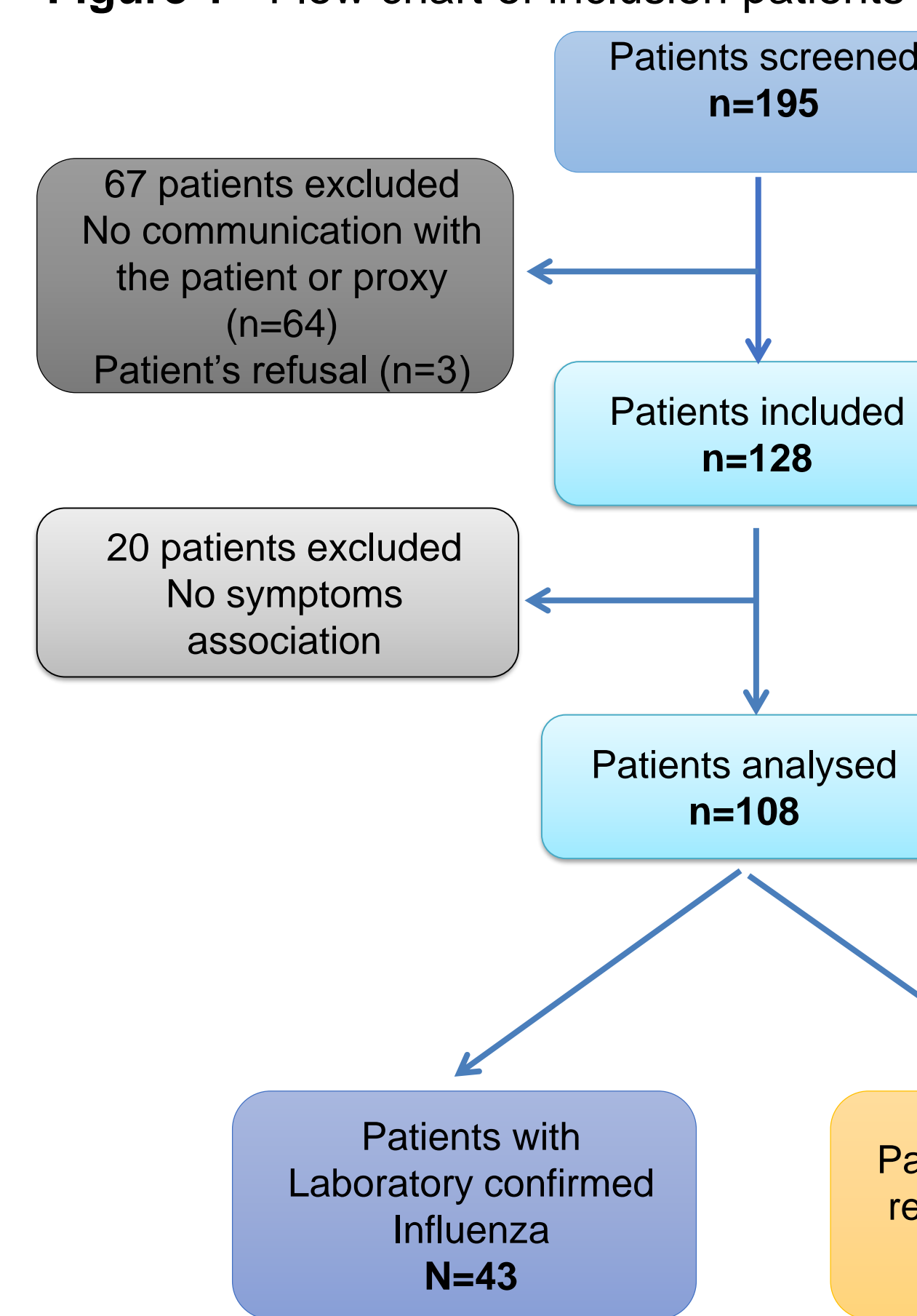


Figure 3 - Evolution of the number of patients screened and patients with LCI by weeks (n=195)

## Results

Figure 1 - Flow chart of inclusion patients



Patients were included from November 19, 2018 to March 28, 2019 according to the data from virological surveillance system. Of the **195 patients screened** during the study period, a total of **108 were included**. Overall, **43 patients (40%) were laboratory confirmed influenza (LCI)** and 14 (13%) had other respiratory viruses (ORV) (Figure 1). The 2018-19 season was dominated by **A/H3N2 (68%)**. **Vaccine coverage** for this season was **44% for patients analyzed**.

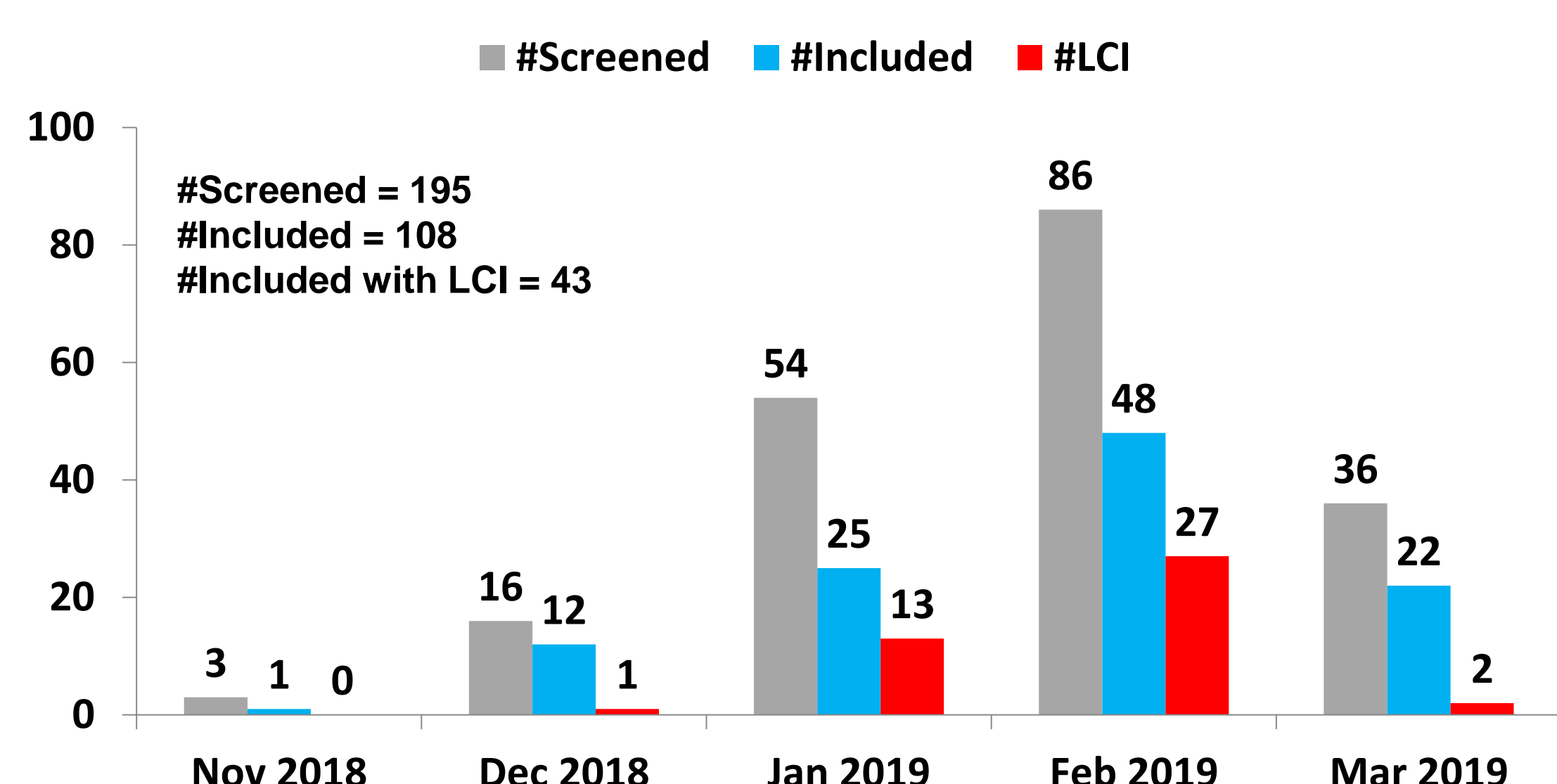


Figure 2 - Distribution of patient by criteria and month

Funding: Foundation for Influenza (Fondation de France)

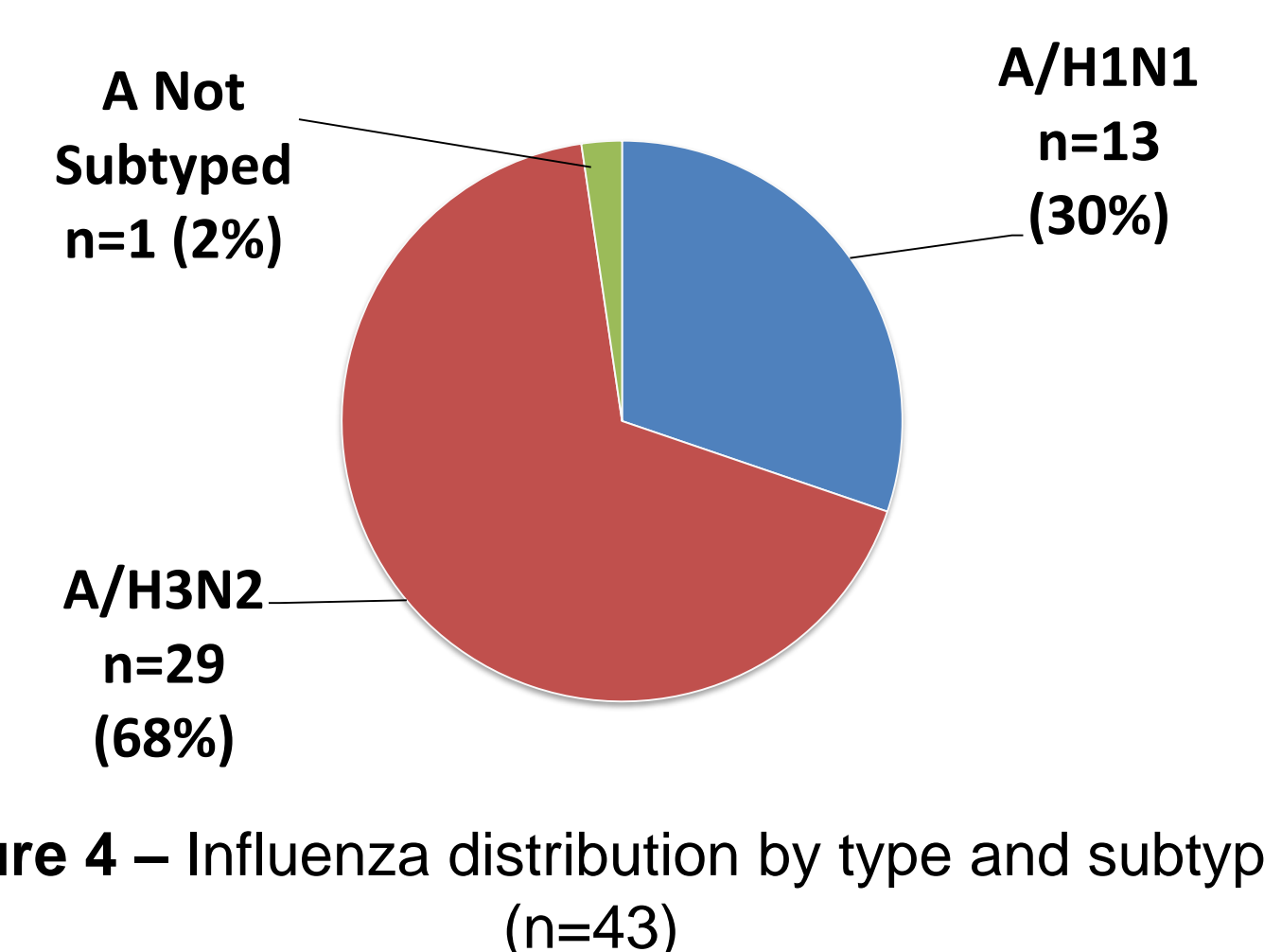


Figure 4 - Influenza distribution by type and subtype (n=43)

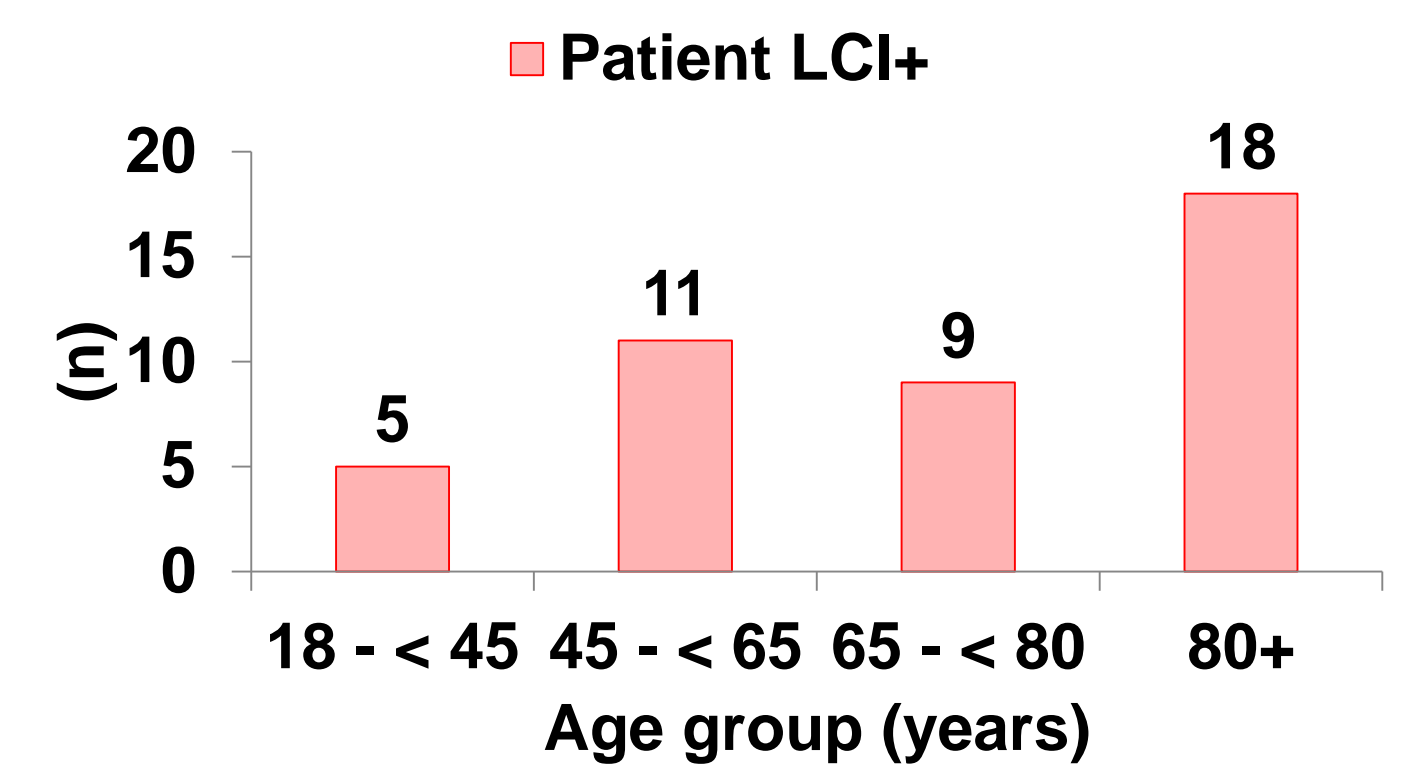


Figure 5 - Distribution of LCI+ patients by age group (n=43)

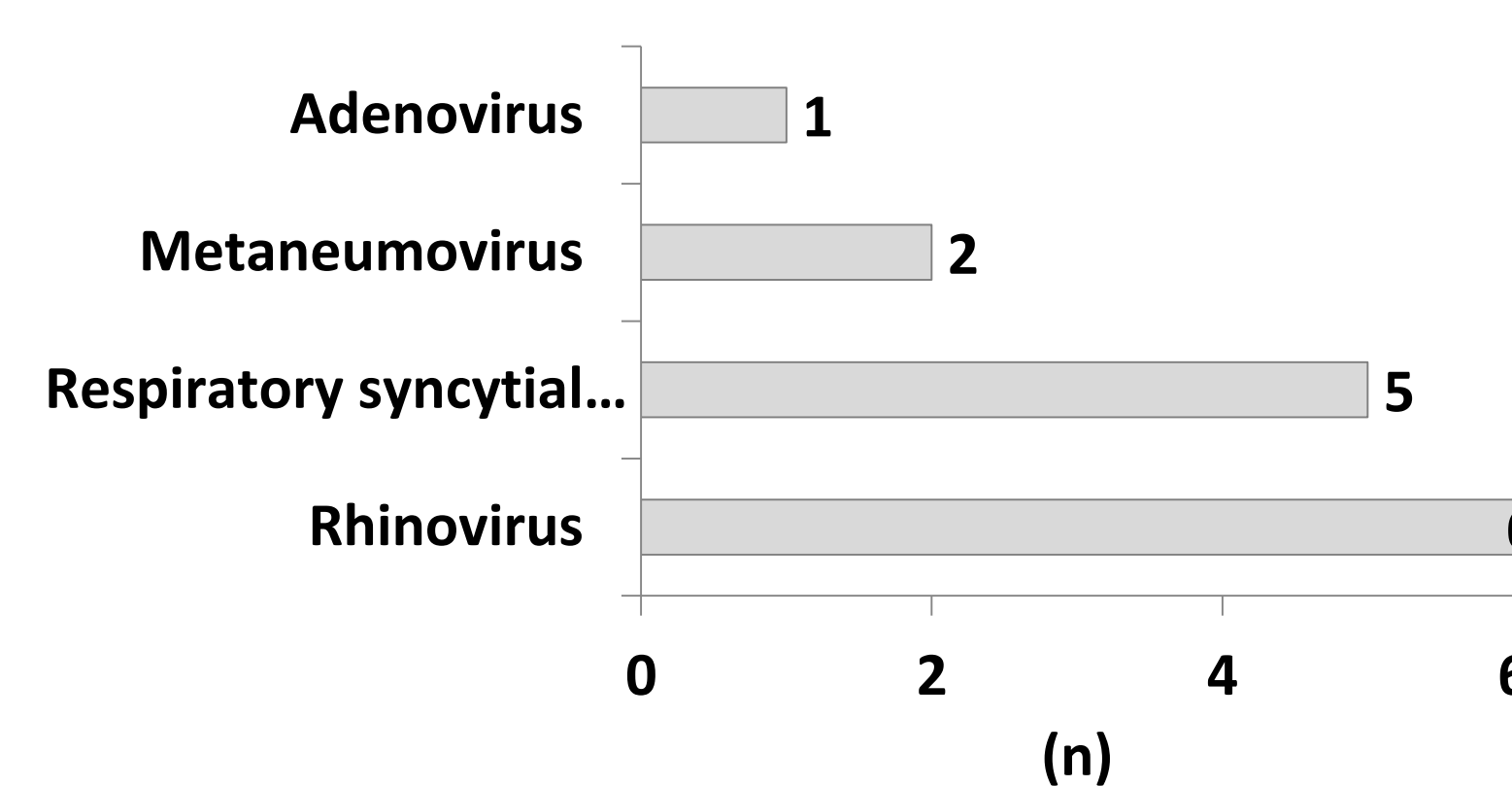


Figure 6 - Other respiratory viruses (n=14)

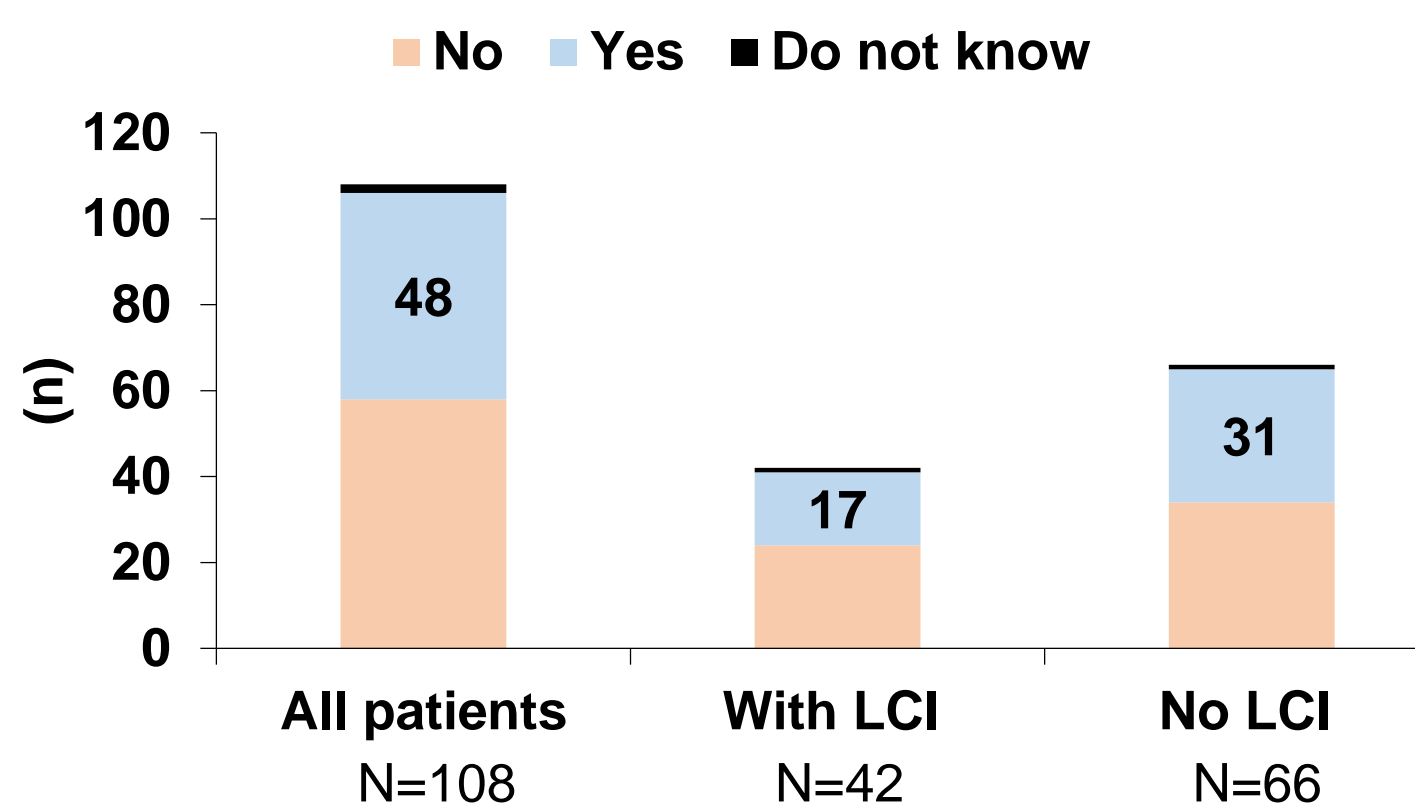
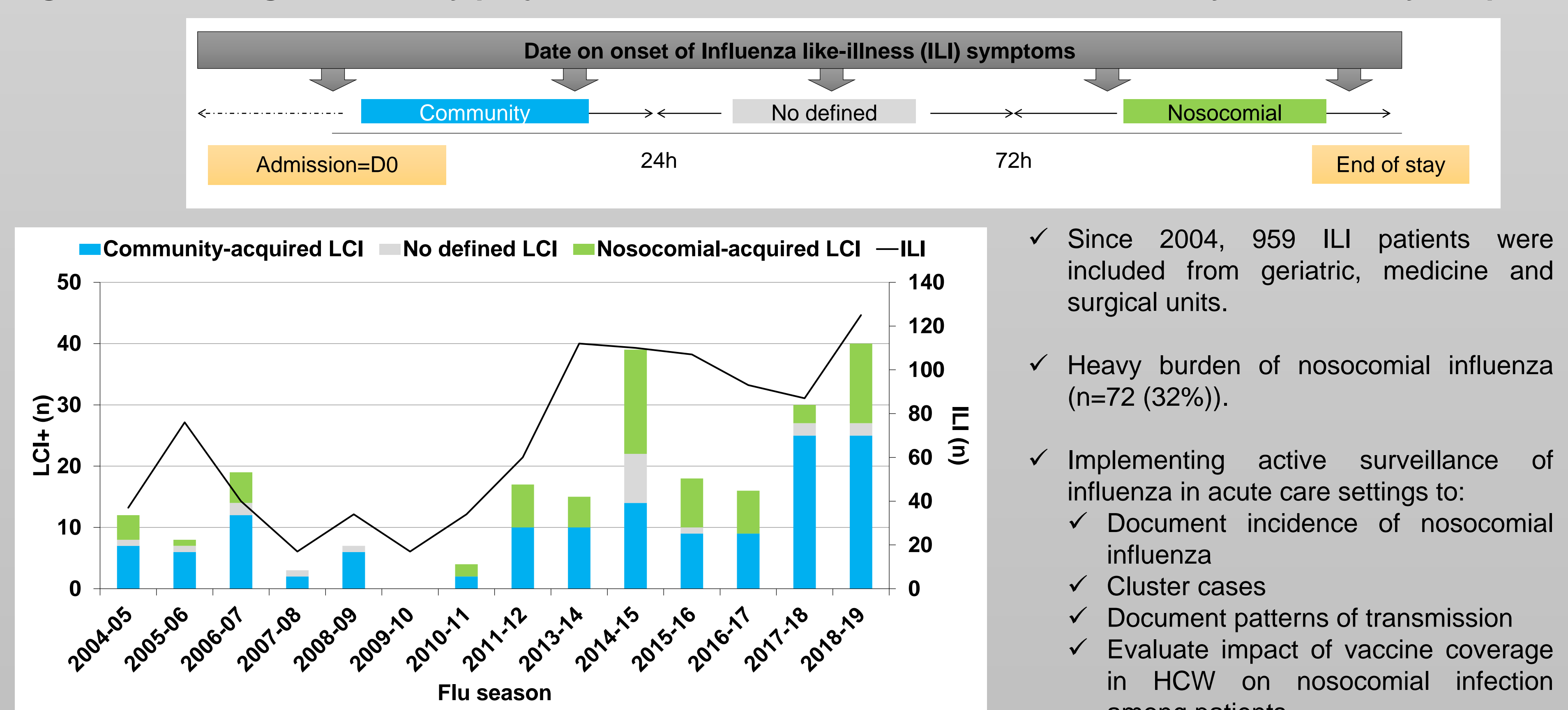


Figure 7 - Vaccine coverage by type of patient (n=108)

Figure 8: Challenges - ancillary project : surveillance of nosocomial influenza at Lyon University hospital



- ✓ Since 2004, 959 ILI patients were included from geriatric, medicine and surgical units.
- ✓ Heavy burden of nosocomial influenza (n=72 (32%).)
- ✓ Implementing active surveillance of influenza in acute care settings to:
  - ✓ Document incidence of nosocomial influenza
  - ✓ Cluster cases
  - ✓ Document patterns of transmission
  - ✓ Evaluate impact of vaccine coverage in HCW on nosocomial infection among patients