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PREVIOUS EXPOSURE TO NATURAL INFECTION MATTERS



NATIONAL INSTITUTE FOR HEALTH AND WELFARE

The effect of influenza A infection in 2016/17 on influenza A and B infection in 2017/18 in the Finnish elderly

DISCLOSURE

- Conflict of Interest

- None

- Project Funding

- Integrated Monitoring of Vaccines in Europe (I-MOVE+)

This project has received funding from the European Union's H2020 research and innovation programme under grant agreement No 634446.

- Development of Robust and Innovative Vaccines Effectiveness (DRIVE)

This work has received funding from the Innovative Medicines Initiative 2 Joint Undertaking under grant agreement No 777363.

This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and EFPIA.

- Travel Grant

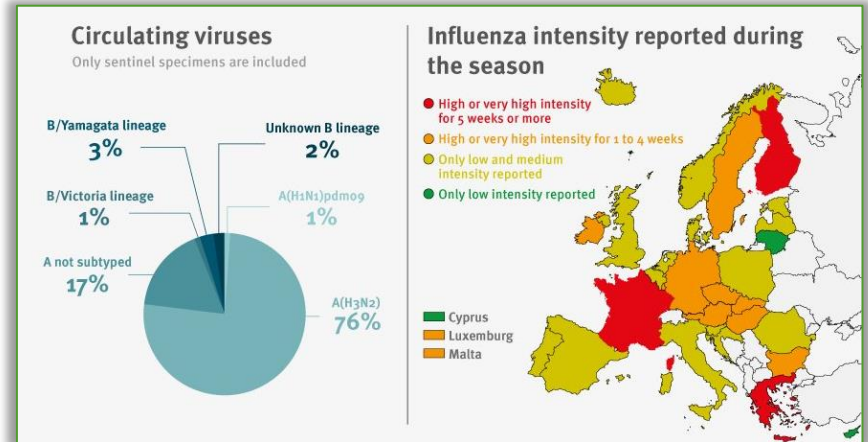
- Funding Initiative at ESCAIDE 2018



RESEARCH QUESTION

What happened to the more than 7000 elderly 2016/17 influenza A cases in the following season?

<https://ecdc.europa.eu/en/seasonal-influenza/season-2016-17>

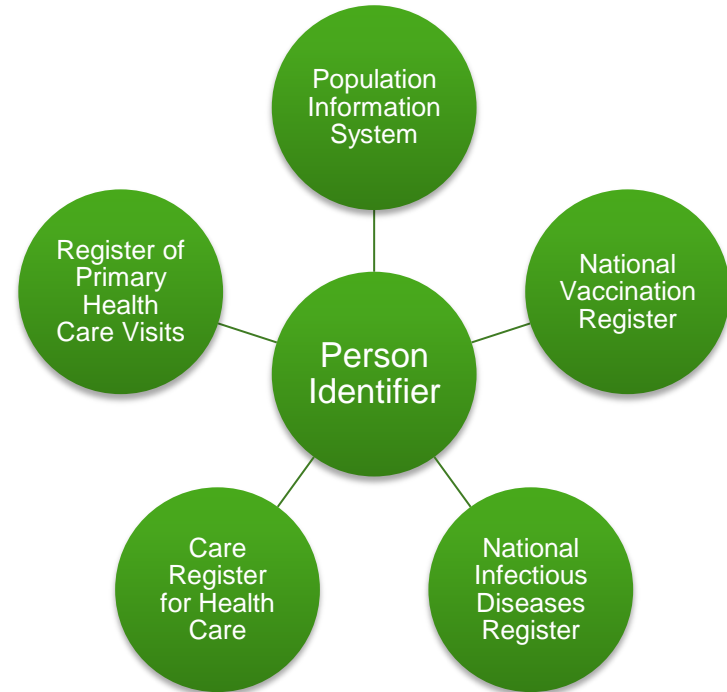


BACKGROUND

- Register-based cohort studies to estimate influenza vaccine effectiveness
- Acquired active immunity
 - Artificial through vaccination
 - Natural through infection
- Exposure to natural infection very difficult to cover in large-scale observational studies

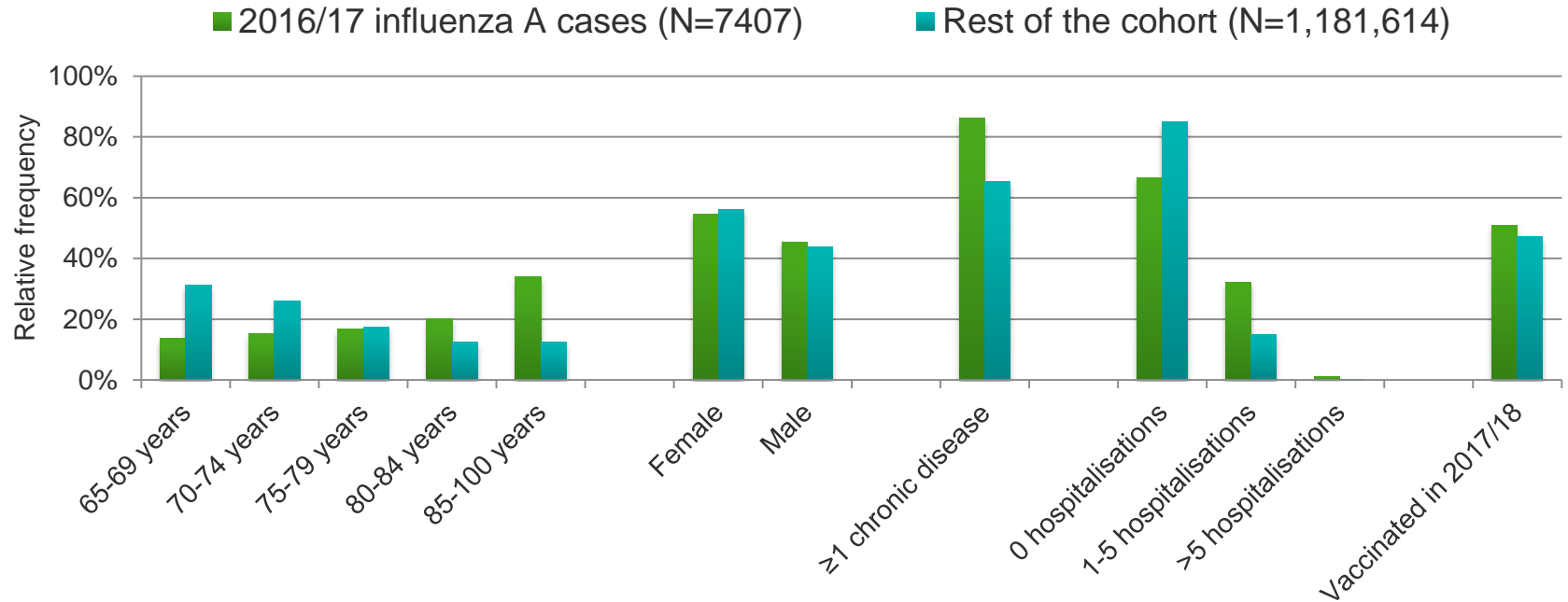
REGISTER-BASED COHORT STUDY

- Elderly aged 65-100 years
- Laboratory-confirmed influenza A in 2016/17
- Laboratory-confirmed influenza A or B in 2017/18
- Influenza vaccinations 2012/13-2017/18
- Potential confounders

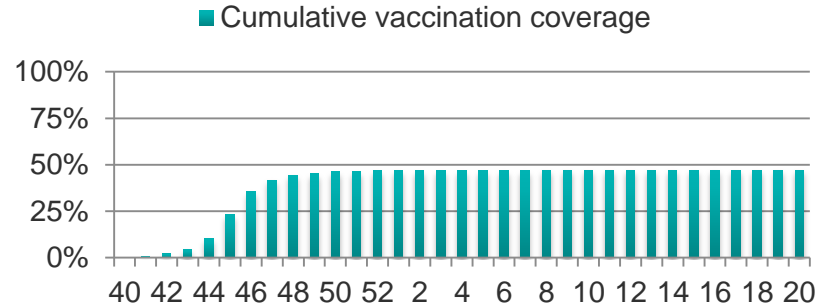
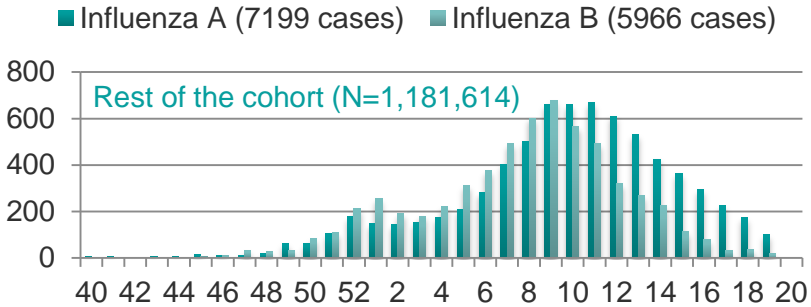
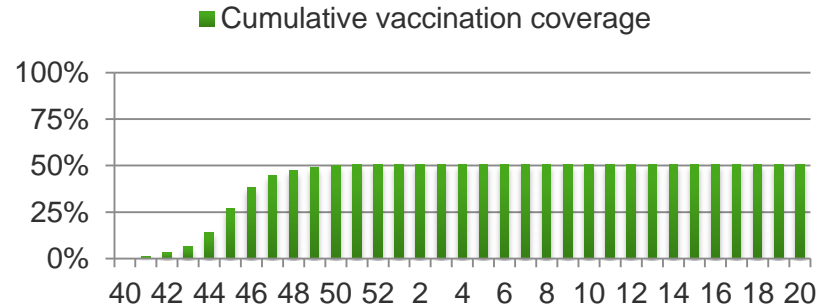
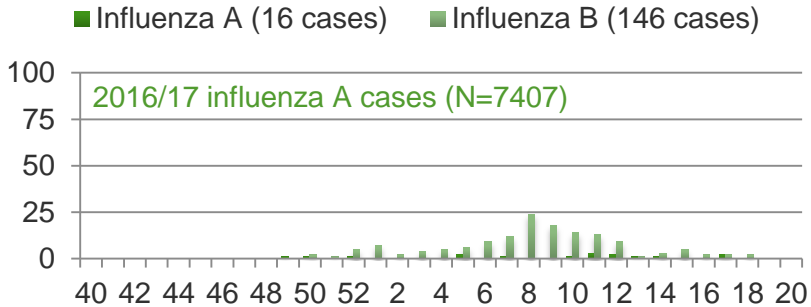


Baum, U. *et al.* (2018) 'Cohort study design for estimating the effectiveness of seasonal influenza vaccines in real time based on register data: The Finnish example', *Scandinavian Journal of Public Health*. doi: 10.1177/1403494818808635.

BASELINE CHARACTERISTICS



2017/18 INFLUENZA EPIDEMIC



TIME-TO-EVENT ANALYSIS

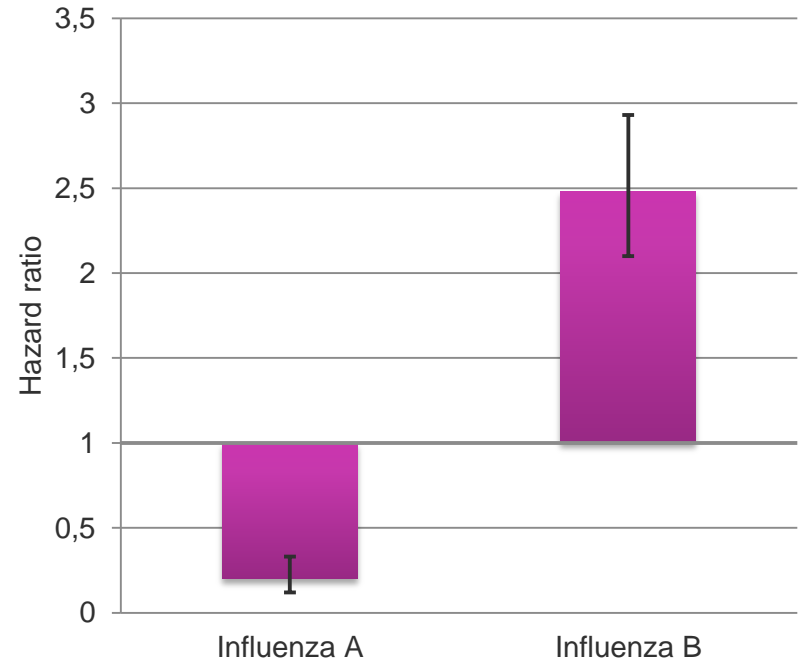
- Comparison of the influenza A, influenza B respectively, hazard rates in those who had a laboratory-confirmed influenza A infection in 2016/17 with the corresponding hazard rates in the rest of the cohort

Outcome	Hazard ratio* (95% confidence interval)
Influenza A	0.20 (0.12; 0.33)
Influenza B	2.48 (2.10; 2.93)

* adjusted for age, sex, presence of chronic diseases, number of hospitalisations in 2016, influenza vaccination in 2017/18 and five previous seasons

INTERPRETATION AND DISCUSSION

- Residual immunity against influenza A
- Replacement towards influenza B
- Increased frailty of previous season's influenza A cases
- Impact on vaccine effectiveness estimates





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