Seasonal influenza vaccination in 2017/18 and two previous seasons lowered the risk of influenza B in 2017/18 in the elderly

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Background
- In Finland, elderly aged ≥65 years are eligible to free seasonal influenza vaccination
- In 2017/18, trivalent inactivated influenza vaccines (IIV3) containing only one influenza B virus were in use
- Sentinel surveillance data indicated a mismatch between the circulating and the vaccine B virus lineage (Fig.1)

Objective
- Study the effect of (repeat) vaccination with IIV3 on laboratory-confirmed influenza B in 2017/18

Conclusion
- Despite the mismatch between the circulating and the vaccine B virus, repeat IIV3 vaccination protected against influenza B suggesting the presence of cross-protection between the lineages. Interestingly, also the last IIV3 composition including Yamagata still had a beneficial effect indicating vaccine-induced immunity might persist over several seasons. These findings support the further use of IIV3 and repeat vaccination in the elderly. The interaction of different or identical vaccine antigens used in different seasons must yet be understood.

Methods
- Register-based cohort study (Fig.2)
- Cox proportional hazards regression

Results
- 1159710 elderly aged ≥65 years included
- 5995 laboratory-confirmed influenza B cases

Sensitivity analysis: Three explanatory variables (describing whether a study subject had received at least twice IIV3 containing the Victoria, Yamagata respectively, lineage and both a Victoria and a Yamagata lineage IIV3) were added to the model.

Figure 1: Proportion of circulating influenza B virus by lineage

Figure 2: Care Register for Health Care

Figure 3: 2017/18 influenza B hazard ratios comparing those vaccinated with those not vaccinated in the respective season

Figure 4: Regression coefficients (betas), sensitivity analysis

Figure 2A: National Infectious Diseases Register

Figure 2B: Deterministic, individual-level linkage

Figure 2C: National Vaccination Register

Figure 2D: Care Register for Health Care

Figure 2E: Population Information System

Figure 2F: Distribution of baseline characteristics (age in years, sex) included in the model

Figure 2G: Distribution of baseline characteristics (number of hospitalisations in 2016, presence of chronic diseases) included in the model

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