

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

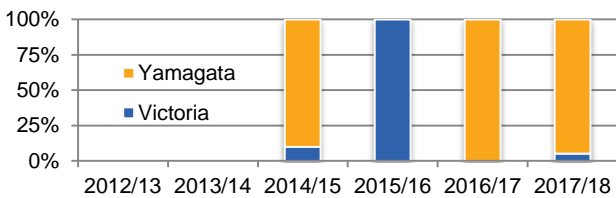


Figure 1: Proportion of circulating influenza B virus by lineage

Objective

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

Results

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

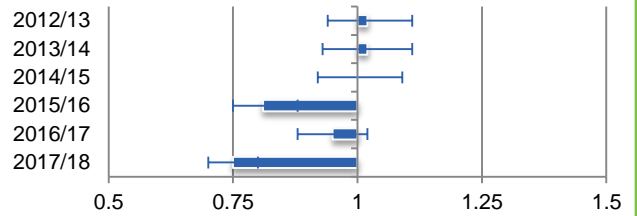


Figure 3: 2017/18 influenza B hazard ratios comparing those vaccinated with those not vaccinated in the respective season

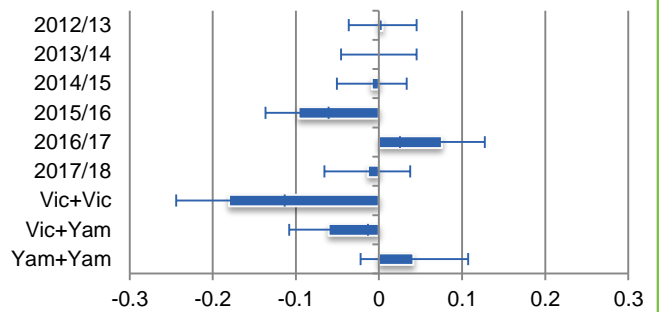


Figure 4: Regression coefficients (betas), sensitivity analysis

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

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.

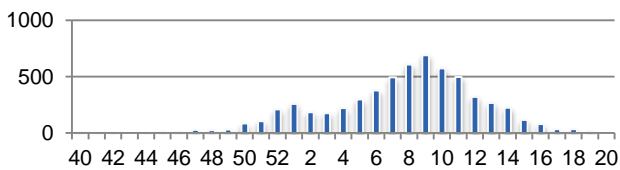


Figure 2A: Number of laboratory-confirmed influenza B cases among the study subjects by calendar week

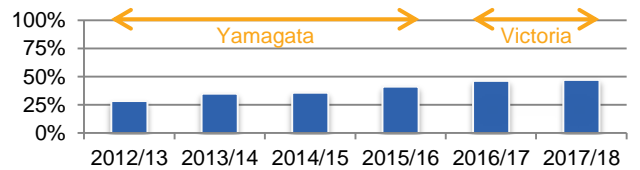


Figure 2B: Percentage of cohort vaccinated with IIV3 in the respective season; vaccination in 2017/18 was modelled as time-dependent covariate

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

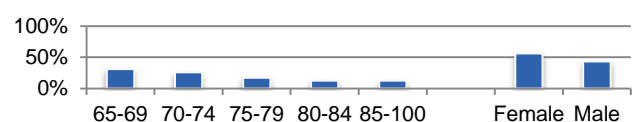


Figure 2D: Distribution of baseline characteristics (number of hospitalisations in 2016, presence of chronic diseases) included in the model

