

Background and aims

- After years of no cases, measles have returned to Estonia
- Incidence remains low (0.1-2.0 cases / 100 000 yearly in 2014-2019)
- Worries about the risk of an outbreak – increased cases in Europe and uncertain quality of Soviet era vaccines
- Immunisation rates of measles: 94.7% for 1 and 82.5% for 2 doses
- Aim: to measure the level of measles IgG antibody concentrations among healthcare workers (HCWs) to determine the seropositivity rate depending on their immunisation programme

Methods

- **Study population:** HCWs from two level 2 hospitals (n=1083)
- **Time of enrollment:** January to June 2019
- **Laboratory criteria:** specific measles IgG >250 mIU/ml by ELISA (Alegria®, Orgentec, Germany)
- **Distribution of participants** (Soviet era vaccines were used in 1964-1994):
 - Born prior to measles immunisation (before 1964)
 - One-dose immunisation with low coverage (1964-1979)
 - Two-dose with low coverage (1980-1994)
 - Two-dose with high coverage (after 1994)

Results

- Oldest age group had significantly more HCWs with IgG above cut-off level than the other birth cohorts (Fisher's exact test $p < 0.0001$) (Figure 1);
- Other 3 cohorts showed no statistical difference between each other ($p = 0.127$ to 0.433) (Figure 1);
- No gender difference in IgG concentrations;
- Younger birth cohorts had seropositivity rates far below the threshold recommended for herd immunity. However, seroprotection can not be correlated with seropositivity alone

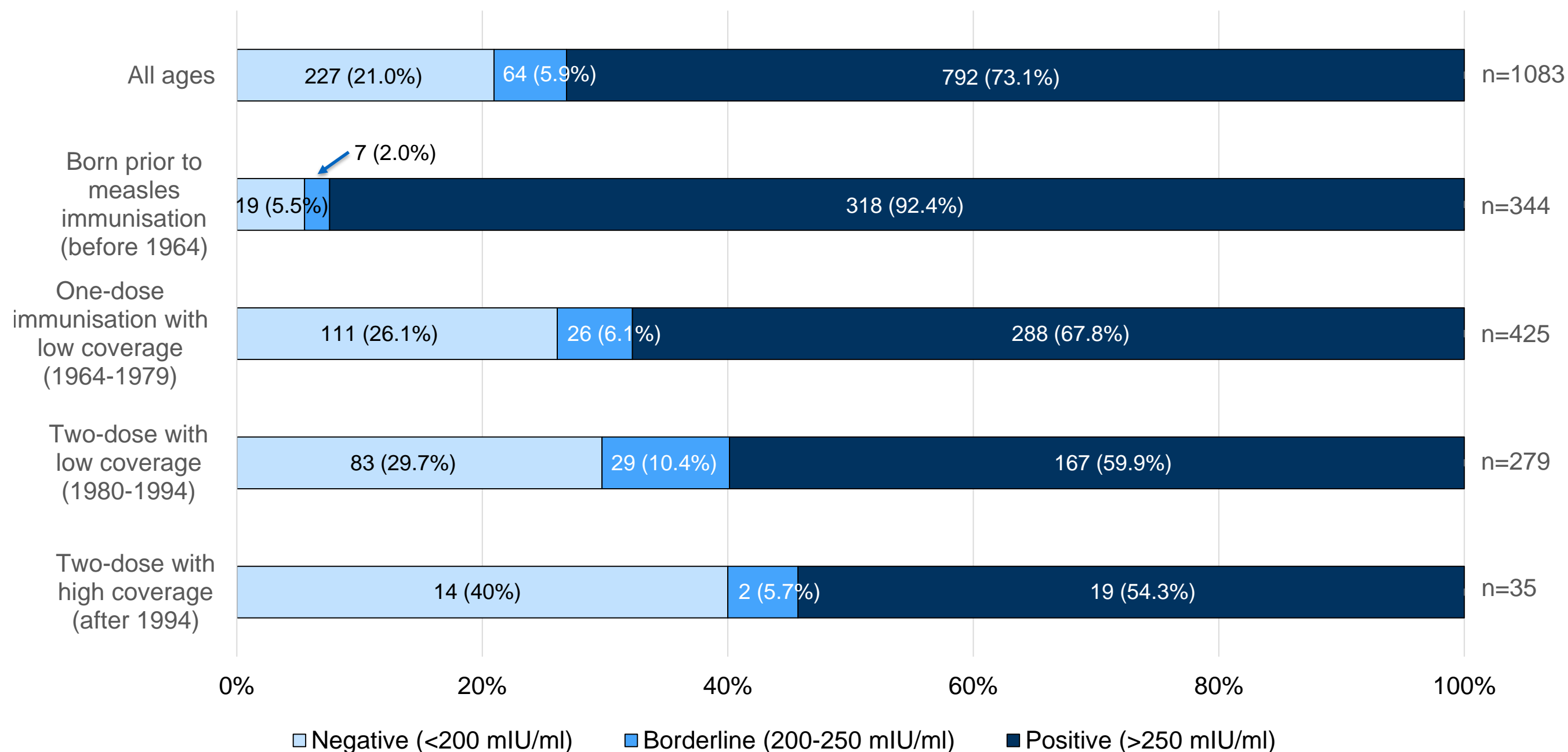


Figure 1: Seroprevalence of measles IgG antibodies in different birth cohorts of medical workers in Ida-Viru Central Hospital and Viljandi Hospital. Total n=1083

Conclusions

- The level of measles IgG is low among significant number of HCWs born in 1964 and later
- The high seroprevalence in those born in the prevaccine era is likely due to long lasting immunity following wild-type measles
- As seroprotection cannot be evaluated based on these data, further population-based seroprevalence studies using WHO recommended tests are warranted prior to taking further actions