

Prevalence of measles antibodies in healthcare workers in Estonia

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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/mI 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)



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



Results

- n=1083 n=344 n=425 n=279 n=35 100%

- 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 IgG in concentrations;
- Younger birth cohorts had seropositivity rates far below the treshold recommended for herd immunity. However, seroprotection can not be correlated with seropositivity alone

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 populationbased seroprevalence studies using WHO recommended tests are warranted prior to taking further actions