

Rijksinstituut voor Volksgezondheid  
en Milieu  
*Ministerie van Volksgezondheid,  
Welzijn en Sport*

# COVID-19

Technical briefing To  
Parliament

22 april 2020

Jaap van Dissel





# Background

## role of children in the COVID-19 outbreak – data

- › Analysis of reports of notified, infected patients and infected pairs
- › Sentinel surveillance by GP's NIVEL polling stations
- › Targeted research among Dutch COVID-19 patients and their family contacts (FF100; preliminary, first round results)
- › 'PIENTER Corona study' into seroimmunity of Dutch population
- › Sanquin: seroimmunity among Dutch blood and plasma donors
- › Literature study on children & COVID-19 (i.e., other countries)

NB. studies performed mostly at the time of school closure.

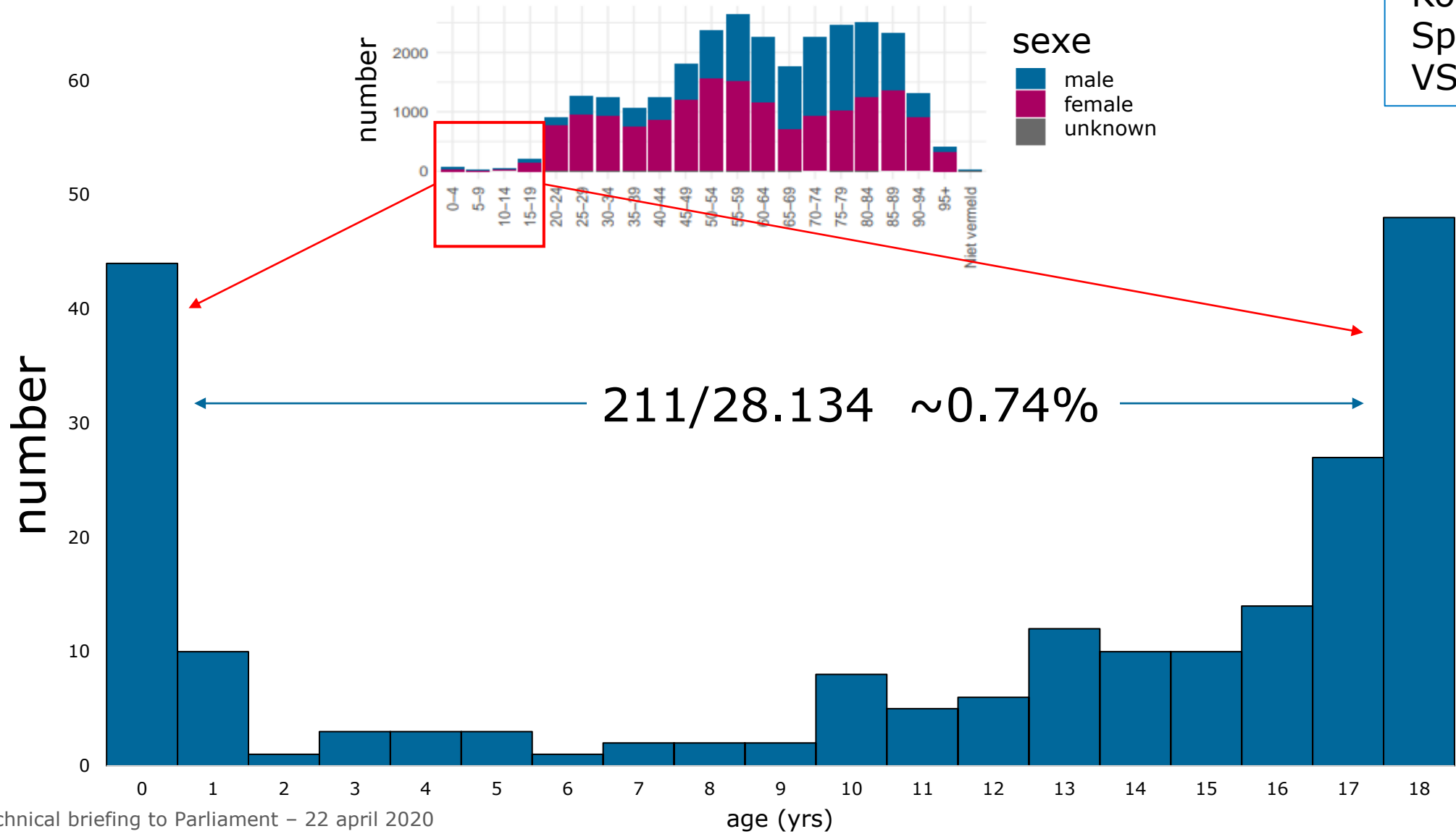
# COVID-19 outbreak

## children 0-18 yr



age and sexe distribution of notified COVID-19 patients

Cohort ≤18 jr:	
China	0.9%
Korea	0.8%
Spanje	0.8%
VS	1.7%

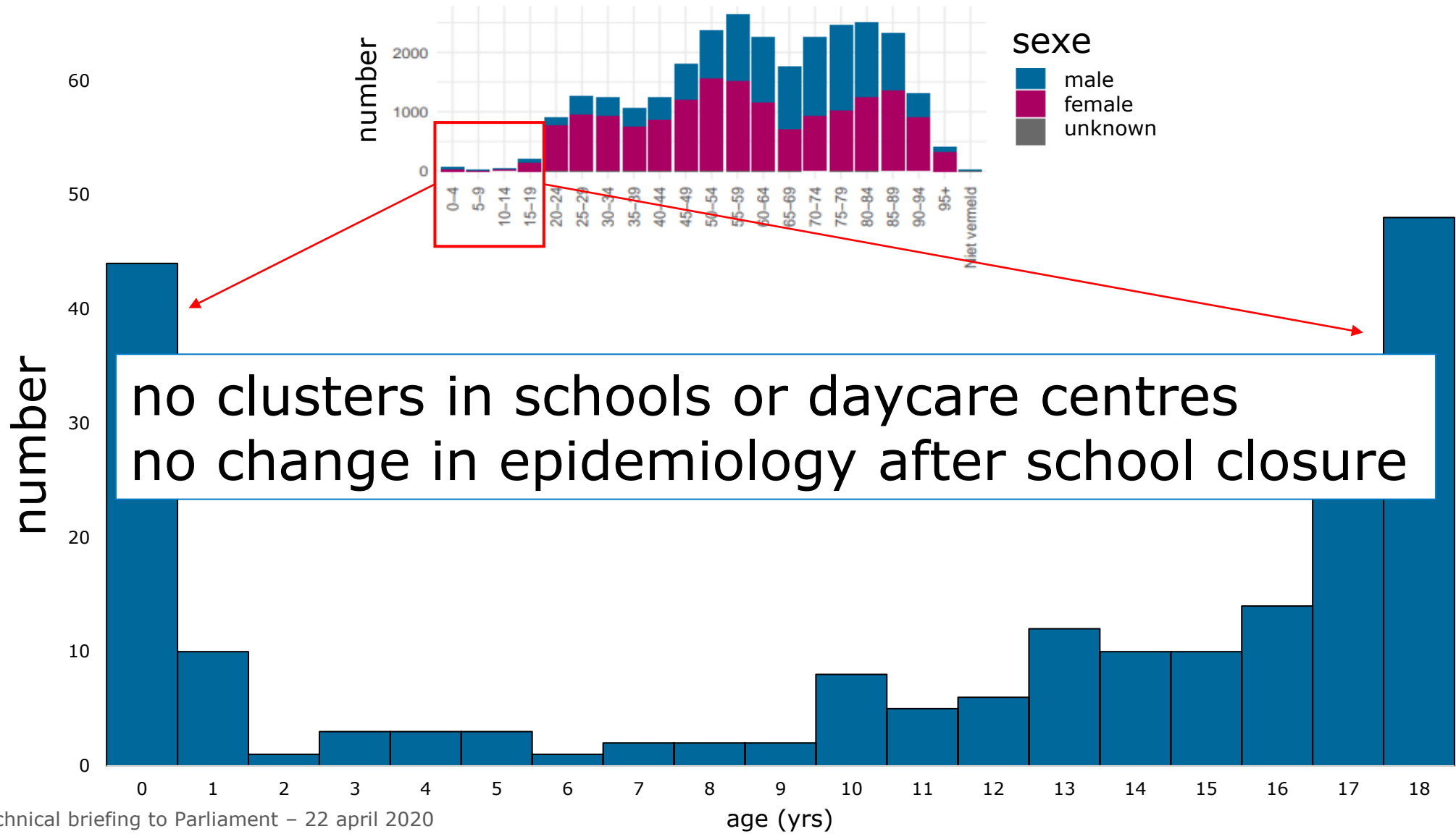


# COVID-19 outbreak

## children 0-18 yr



age and sexe distribution of notified COVID-19 patients

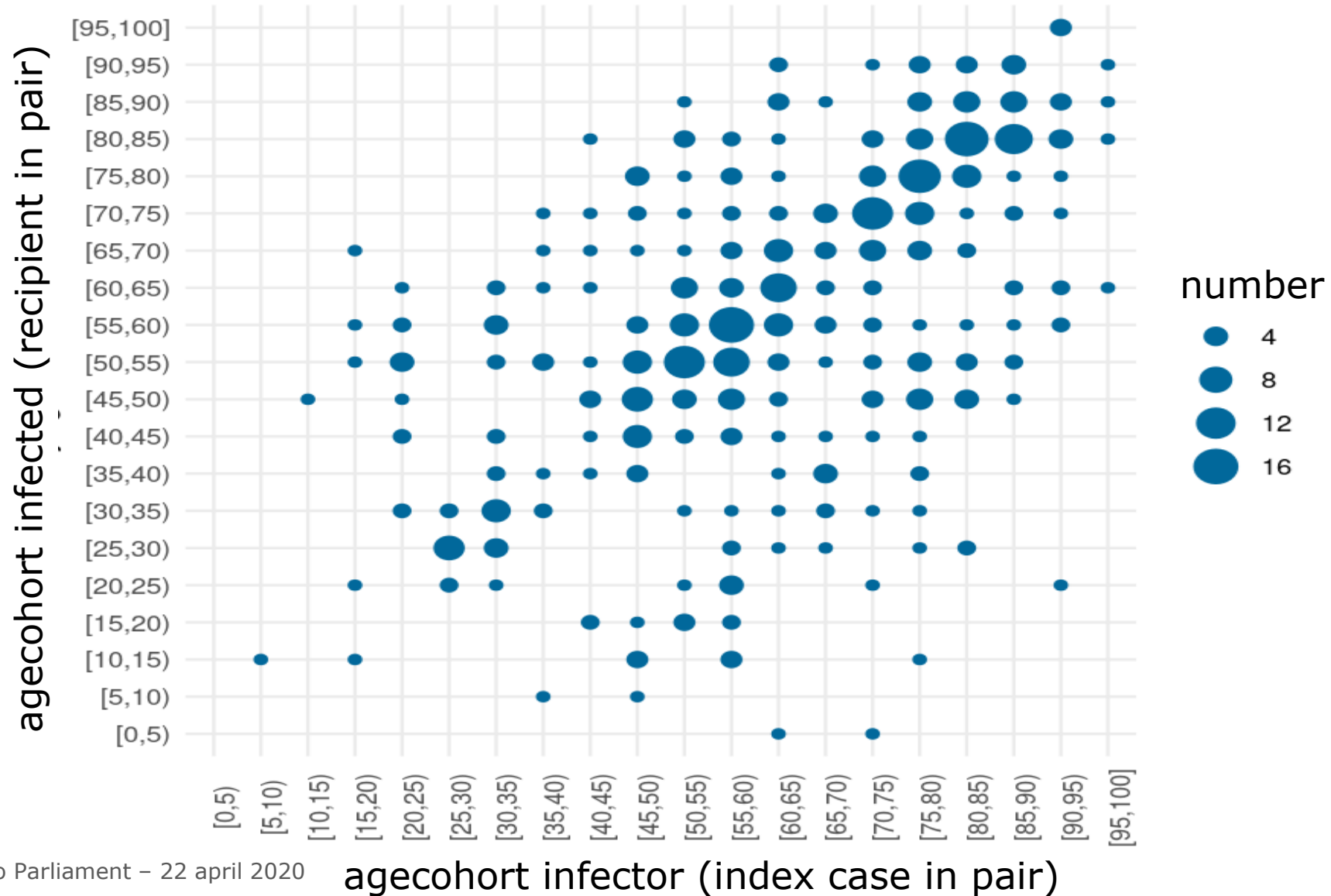


# COVID-19 outbreak

## who infected who?



Epi-CIb/RIVM



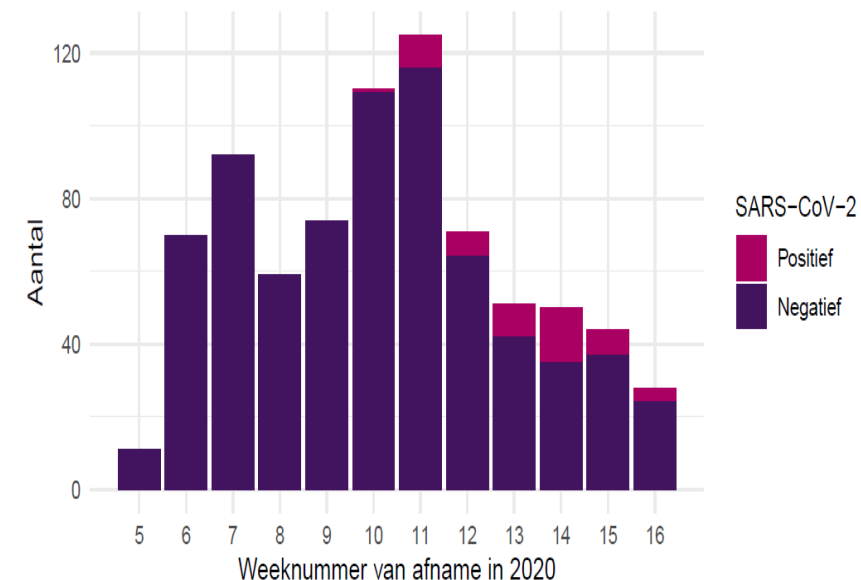


# Background

## role of children in the COVID-19 outbreak – data

- › Analysis of reports of notified, infected patients
- › Sentinel surveillance by GP's NIVEL polling stations
  - over 40 GP polling stations collect data on influenza-like illness
  - sampling in first cases each day, tested at RIVM for influenza and corona
  - no samples of children found positive for coronavirus

NIVEL/RIVM GPs (covering ~0.8% Dutch population)  
since 4 February:  
785 patients of which 52 positively (6.6%),  
but 0/137 sampled children



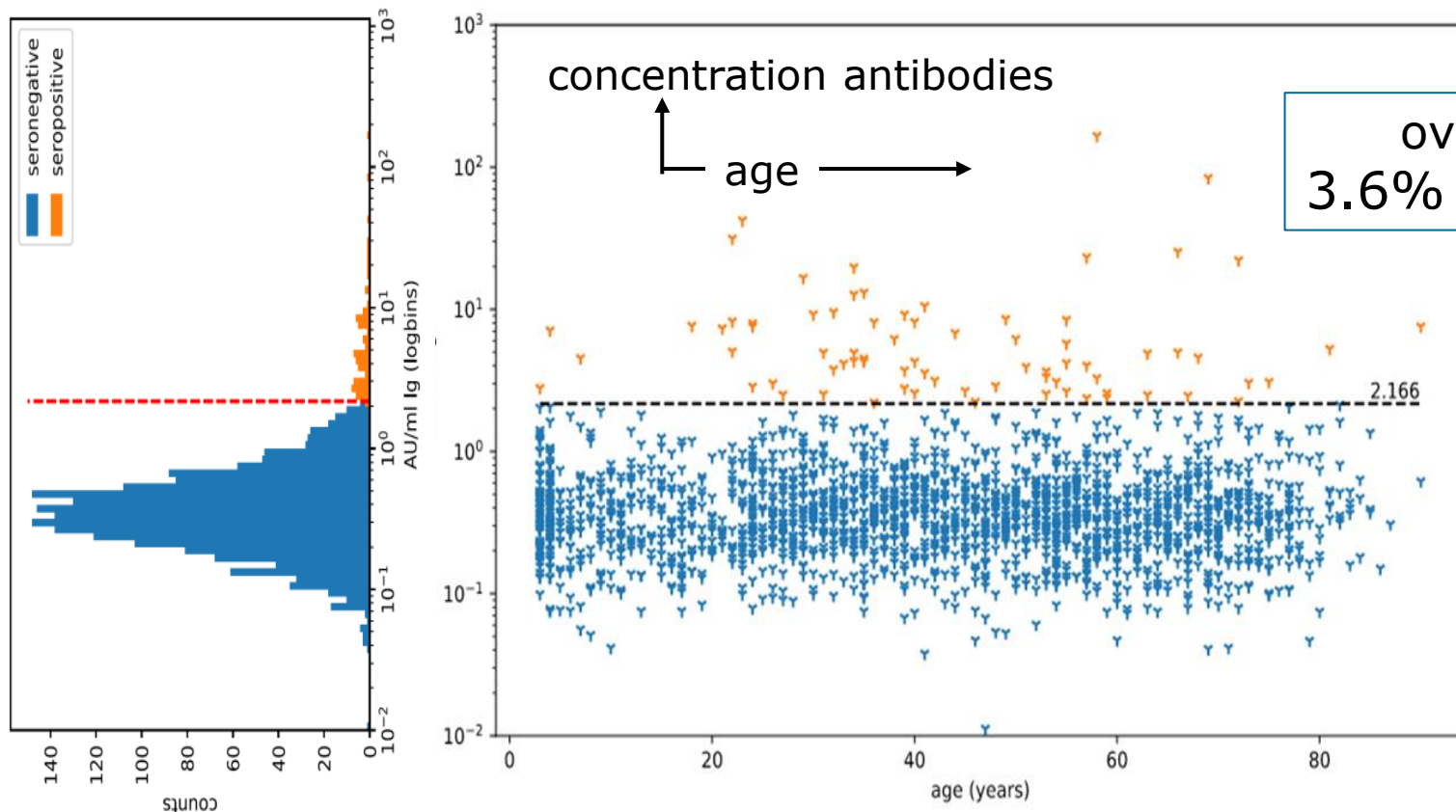
# COVID-19 – Pienter study

## how many people have been infected?

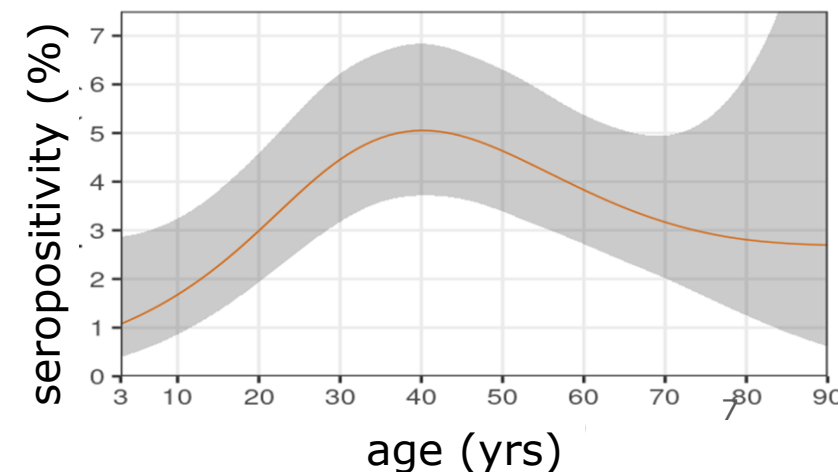
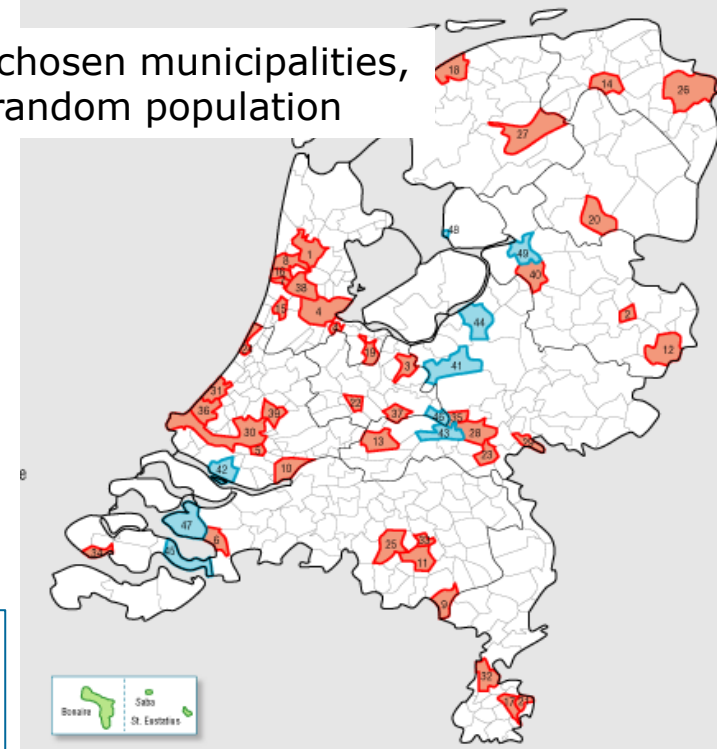


F van der Klis et al, IIV-CIb/RIVM

Research on multiple antibodies (**Luminex**) detection  
multiple hCov/SARS-Cov-2 antigens  
99% spec, sens 85% based on response to S1 spike protein.

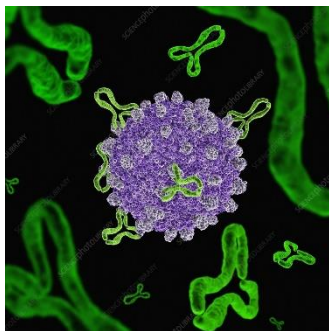


randomly chosen municipalities,  
sampling random population



# COVID-19 – Sanquin study

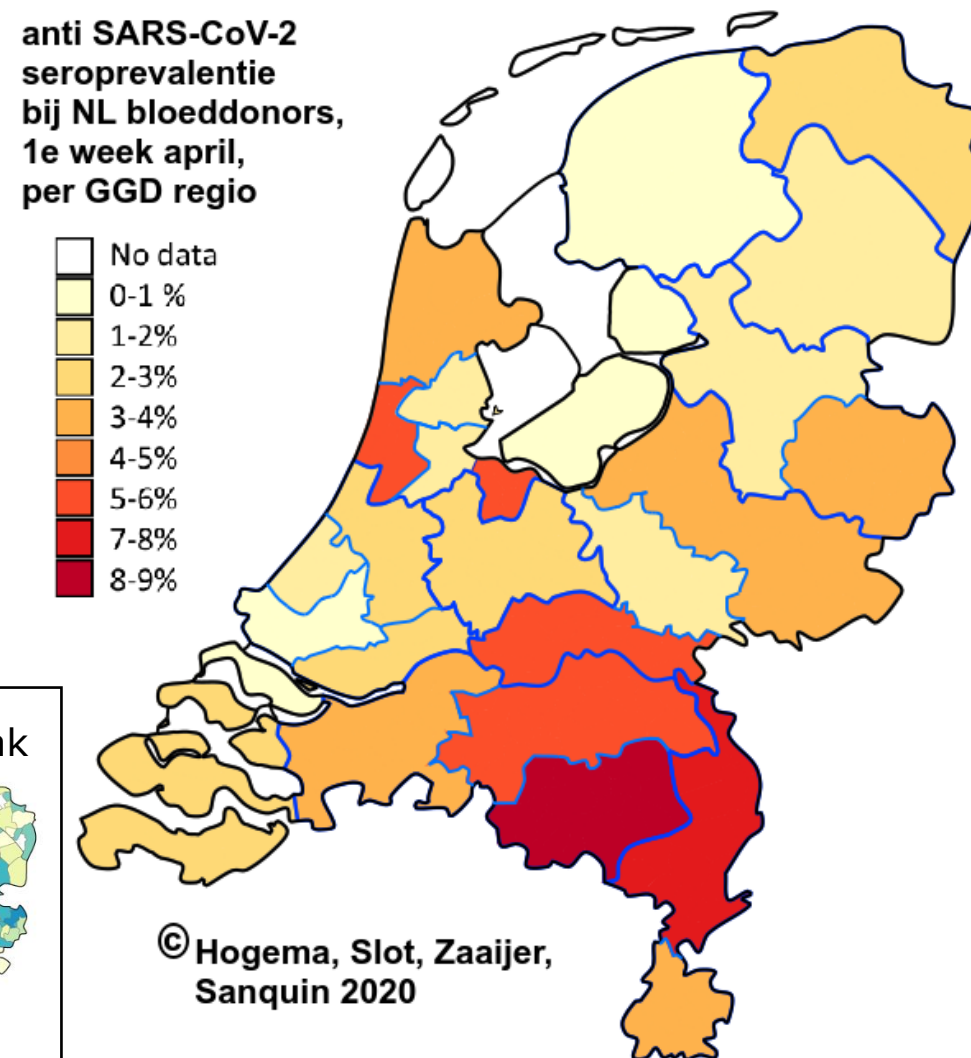
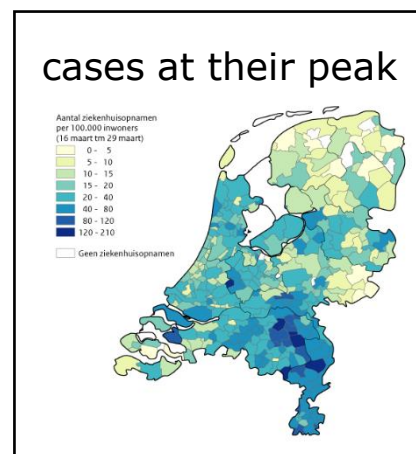
## how many people have been infected?



‘total antibody antigen sandwich assay’

Antibodies against SARS-CoV-2  
in ~3% Dutch blood donors

18-30 yr	25 / 688	3,6%
31-40 yr	17 / 494	3,4%
41-50 yr	26 / 752	3,5%
51-60 yr	38 / 1234	3,1%
61-70 yr	29 / 1030	2,8%
71-80 yr	0 / 10	(0%)





# Findings research so far children & spread COVID-19



- > Analysis notification reports: ~1% <20 yrs (but <20 yrs = 22% of Dutch population)
- > No clusters in schools/day child-care
- > NIVEL GP's polling stations: in 137 tested children <20 yrs: 0 infected
- > Research in households (FF100): No evidence that child was the first infected within family. Usually parents infect children, not the other way around.
- > Children found to be infected with COVID-19 had fewer and less severe symptoms than adults.
- > PIENTER-Corona: since 17 April 2,096 samples examined: 3.6% had antibodies against COVID-19 in blood.
- > Children <20 yrs only 1% seropositive, versus 4.2% in other age groups.
- > Literature study: disease in children milder than in adults. Symptoms in children: cough, fever and sore throat. Also: Iceland study!
- > Contact studies show that children have hardly infected other persons. (NB. prone to selection bias!)



# Summary

## role of children in covid-19 outbreak

Data so far confirms the picture that emerged already from other countries:

- › likely a small role for children in spreading COVID-19 (contrary to influenza!)
- › worldwide relatively few children reported with COVID-19
- › symptoms in children generally milder
- › hardly transfer of children to adults described
- › in families, children test less often positive (both PCR and antibodies) than parents
- › spread occurs between persons of about same age (between 40 and 80 years)

Open schools embedded in careful monitoring and accessible testing of teachers!