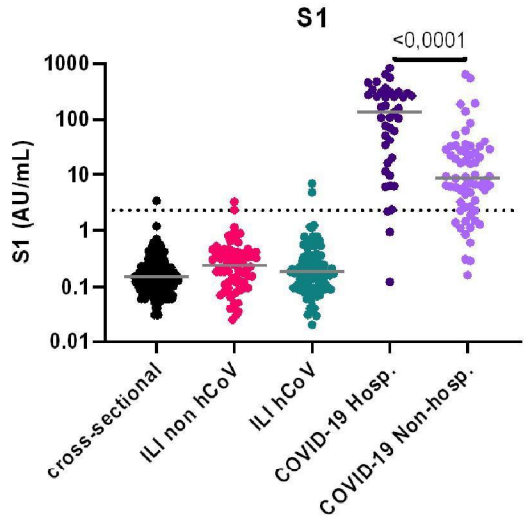
# Longitudinal assessment of serop

RIVM, NL | 03-09-2020

# Essential building block: assay characteristics

- Assay specificity and sensitivity
  - Validation panels
  - Matching population characteristics
- Correct seroprevalence estimates

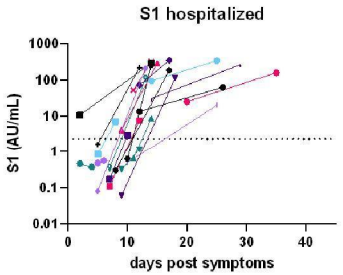


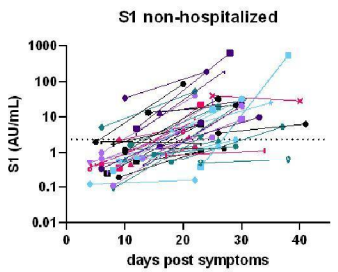


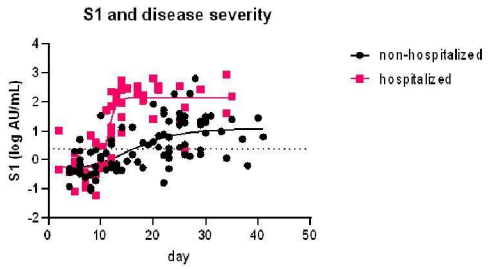

Den Hartog et. Al. *The Journal of Infectious Diseases*, jiaa479, https://doi.org/10.1093/infdis/jiaa479

# Seroconversion in relation to disease severity

- Time to seroconversion
- Concentration




| S1 | Hospitalized | |
|---|---|---|
| | No | Yes |
| Slope | 3.64 | 51.1 |
| $R^2$ | 0.293 | 0.753 |
| *P value* | <0,0001 | |



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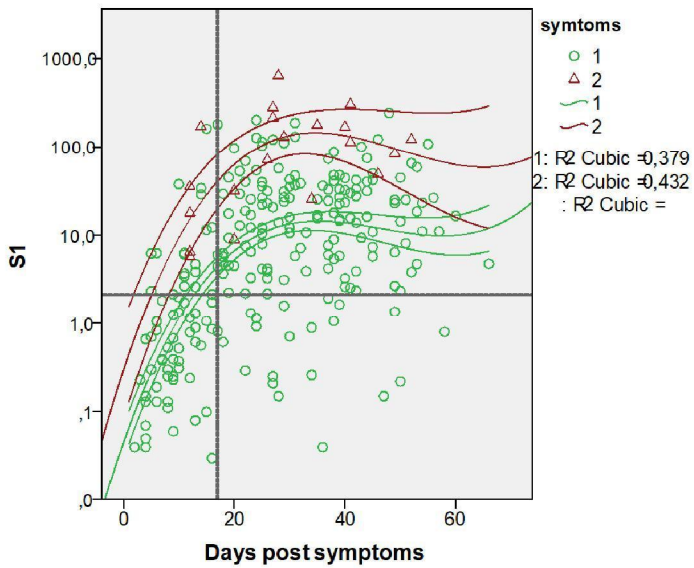
# Sampling relative to time since onset of disease symptoms

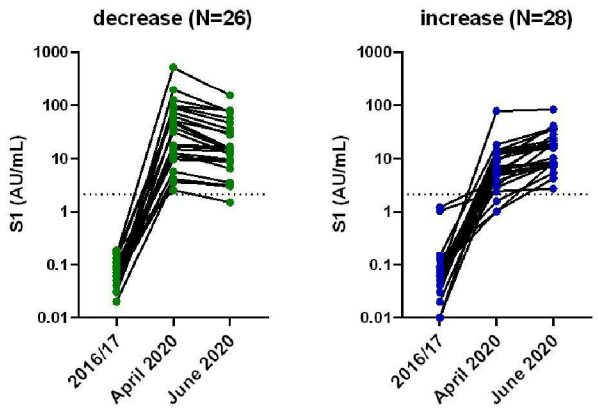
- Household setting(N=95)
  - Case or linked case (case=lab confirmed)
  - Representation of mild cases
- Seroconversion before day 17

| | | Age group 1-16 Mean | Count | 17 > Mean | Count | Significance |
|---|---|---|---|---|---|---|
| Age | | 12 | | 42 | | |
| Sex | male | | 14 (47%) | | 33 (37%) | |
| Days post symptoms | | 10 | | 12 | | 0.210 |
| Index case | | | 0 | | 55 | |
| Symtoms | | | | | | <0.001 |
| | Asymptomatic | | 9 (30%) | | 2 (2.5%) | |
| | Non-hospitalized | | 21 (70%) | | 71 (88.8%) | |
| | Hospitalized | | 0 (0%) | | 7 (8.8%) | |

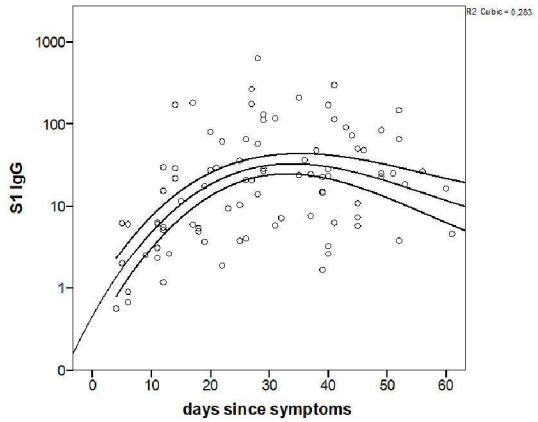


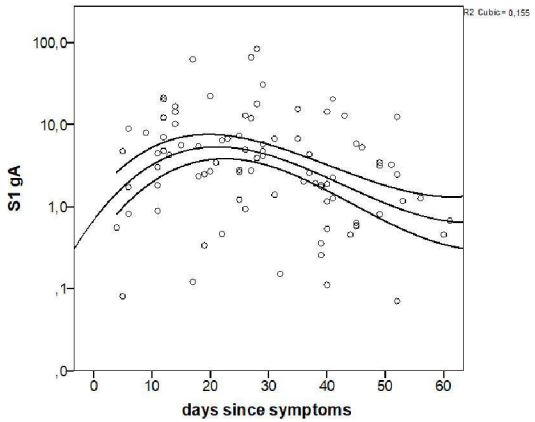
# Pienter-Corona cross-sectional nationwide antibody kinetics

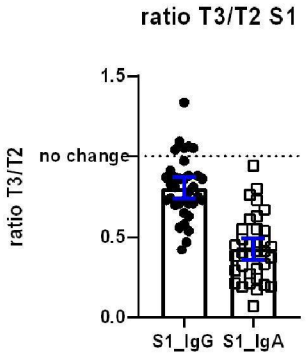
- Sampling
  - Serum from fingerstickblood (self-sampling)
  - T1 (pre) 2016/2017
  - T2 1st week of April 2020 (n=3207)
  - T3 2st week of June 2020 (n=7278)
  - Seroconversion (concentrations) 14-17 day delay
- Seroprevalence (across all age groups nationwide)
  - April: 2.8%
  - June: ~ 4.1% (preliminary)
- Decreasing and increasing concentrations
  - Visualizes time of sampling relative to onset of disease symptoms



# Kinetics of IgG and IgA



## Conclusions

- Assay characteristics
  - Define accurate assay criteria for reliable seroprevalency estimates
- Ig kinetics
  - Time to conversion (time of antibody detection)
  - Antibody decay (duration of antibody detection)
  - In relation top disease severity and other factors