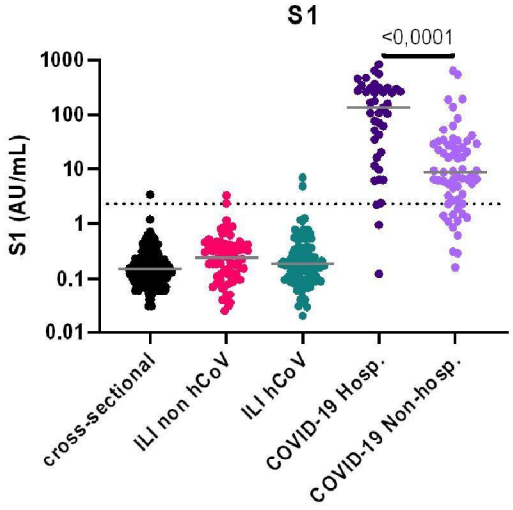
Longitudinal assessment of serop

RIVM, NL | 03-09-2020

Essential building block: assay characteristics

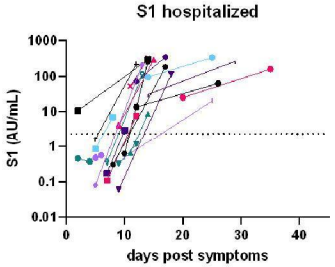
- Assay specificity and sensitivity
  - Validation panels
  - Matching population characteristics
- Correct seroprevalence estimates

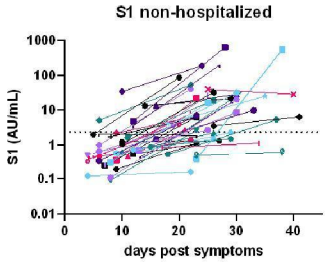


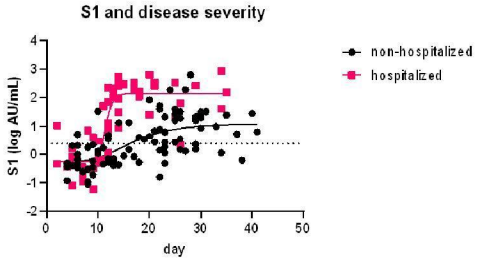
Den Hartog et. Al. *The Journal of Infectious Diseases*, jiaa479, https://doi.org/10.1093/infdis/jiaa479

Seroconversion in relation to disease severity

- Time to seroconversion
- Concentration







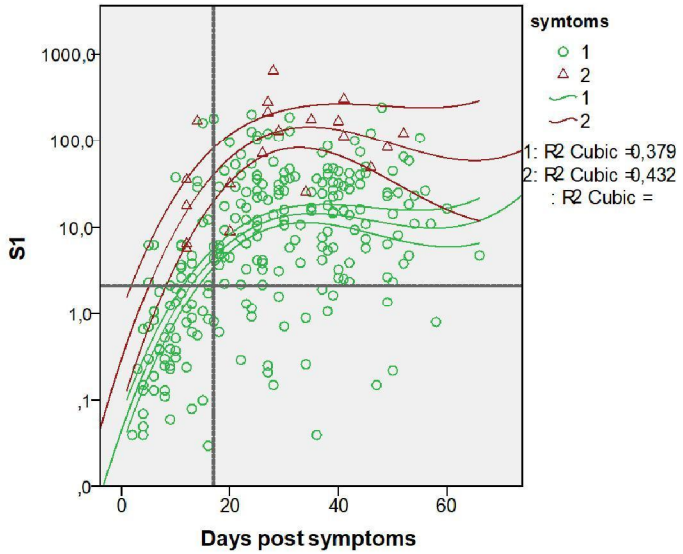
S1	Hospitalized	
	No	Yes
Slope	3.64	51.1
R^2	0.293	0.753
P value	<0,0001	

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

Sampling relative to time since onset of disease symptoms

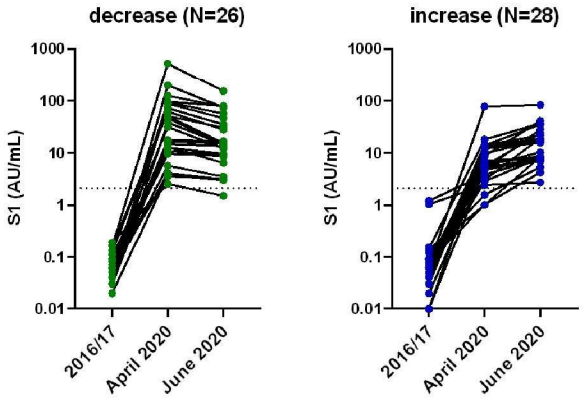
- Household setting(N=95)
  - Case or linked case (case=lab confirmed)
  - Representation of mild cases
- Seroconversion before day 17

		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%)	

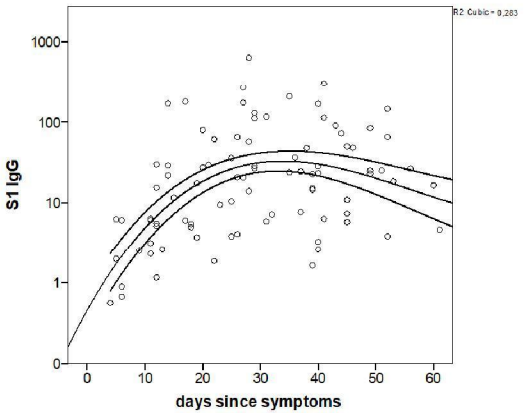


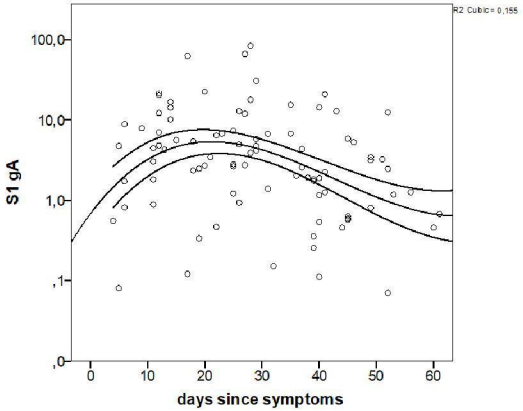
Pienter-Corona cross-sectional nationwide antibody kinetics

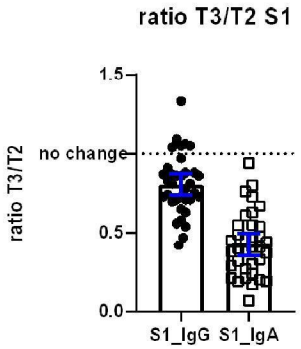
- Sampling
  - Serum from fingerstickblood (self-sampling)
  - T1 (pre) 2016/2017
  - T2 1st week of April 2020 (n=3207)
  - T3 2st week of June 2020 (n=7278)
  - Seroconversion (concentrations) 14-17 day delay
- Seroprevalence (across all age groups nationwide)
  - April: 2.8%
  - June: ~ 4.1% (preliminary)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