# PERSISTENCE OF SARS-COV-2 ANTIBODIES IN CHILDREN AND ADULTS ONE YEAR AFTER INFECTION

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## BACKGROUND

Understanding the long-term kinetics of the immune response against SARS-CoV-2 infection is crucial in guiding public health policies and optimizing of vaccination strategies. While it is known that SARS-CoV-2 specific antibodies may persist in adults 12 months after infection, data are lacking in the pediatric population.

We herein describe the long-term immune response in children following SARS-CoV-2 infection.

## METHODS

- Single-center, prospective observational cohort study
- Evaluating the SARS-COV-2 immune response on COVID-19 family clusters (including children, older siblings, and their parents) attended the Department of Women's and Children's Health of the University Hospital of Padua
- All COVID-19 confirned cases underwent serological follow-up with a minimum of 1 and a maximum of 3 collected blood samples at 1-4, and/or 5-9, and/or ≥10 months up to 18 months after baseline
- Plasma was analyzed to quantify anti-SARS-CoV-2 S-RBD IgG, by chemiluminescent immunoassay, performed on MAGLUMI™2000 Plus (Snibe Diagnostics). IgG title >4.3 kBAU/L was considered positive.

## ADDITIONAL KEY INFORMATION

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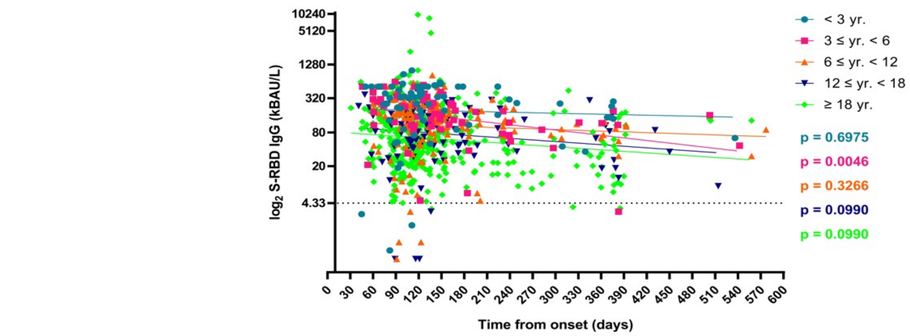
## RESULTS

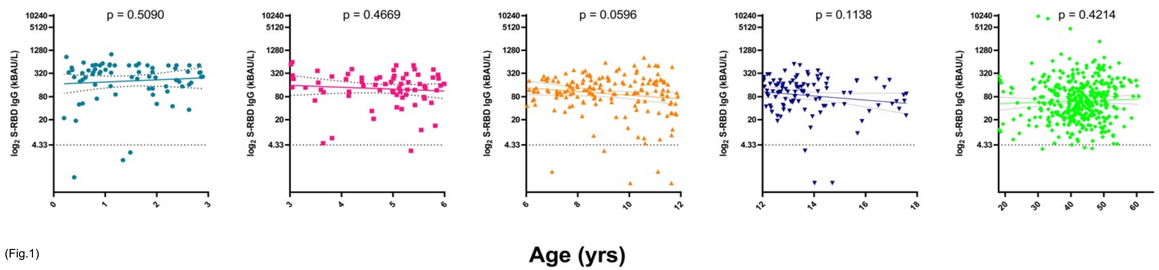
- Among 902 subjects (252 COVID-19 family clusters), 698 had confirmed COVID-19, including 352 children/older siblings aged 8.6 ±5.1 years, and 346 parents aged 42.5 ±7.1 years
- 96.5% cases had asymptomatic/mild COVID-19

- During follow-up, 99.7% of subjects still recorded positive titers (Fig.1)

**Children** showed significantly **higher S-RBD IgG titers than older subjects** across all follow-up time points, with an overall mean **S-RBD IgG** titer **<3 years** of age **five-fold higher than adults** (282.3 [139-516.6] kBAU/L vs 56.7 [24.6-136.9] kBAU/L, p<0.001)

- The longitudinal analysis of 60 subjects sampled at least twice during follow-up demonstrated the persistence of antibodies up to 10 months from infection in all age classes despite a progressive significant decline over time (Fig.2).



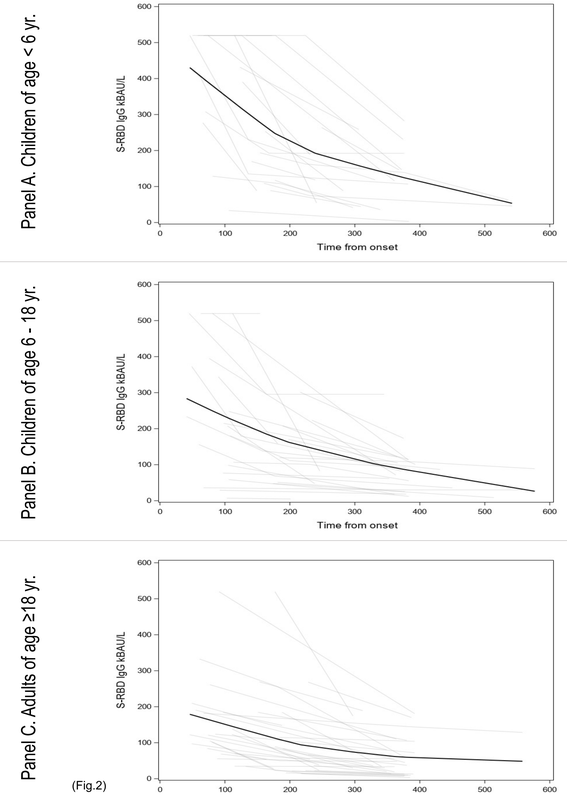

(Fig.1)

## CONCLUSIONS

In our unique family-cluster cohort,

- We confirmed the persistence of antibodies up to 10 months from infection in all age classes
- We observed the different humoral response and kinetics of the SARS-CoV-2 antibodies across several age classes of asymptomatic/mild COVID-19 cases
- We proved that children presented an higher S-RBD IgG titer at every time point up to 10 months of follow-up

Our work confers further evidence of a sustained immune response in children up to one year after primary SARS-CoV-2 infection, and could help in optimizing COVID-19 vaccination strategies and prevention policies.




(Fig.2)