

**INCIDENCE OF RE-INFECTION AFTER  
RECOVERY FROM NATURAL INFECTION  
WITH SARS CoV-2 – A COHORT STUDY**

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# INTRODUCTION

- A representative sample of 5000 participants in PCMC area were tested for SARS-CoV-2 antibodies in Oct 2020.
- In the above study, 1726 (34.52%) were found to have IgG antibodies against SARS-CoV-2.
- This formed the cohort for the follow up study to see the rates of reinfection.
- Study was funded by PCMC.



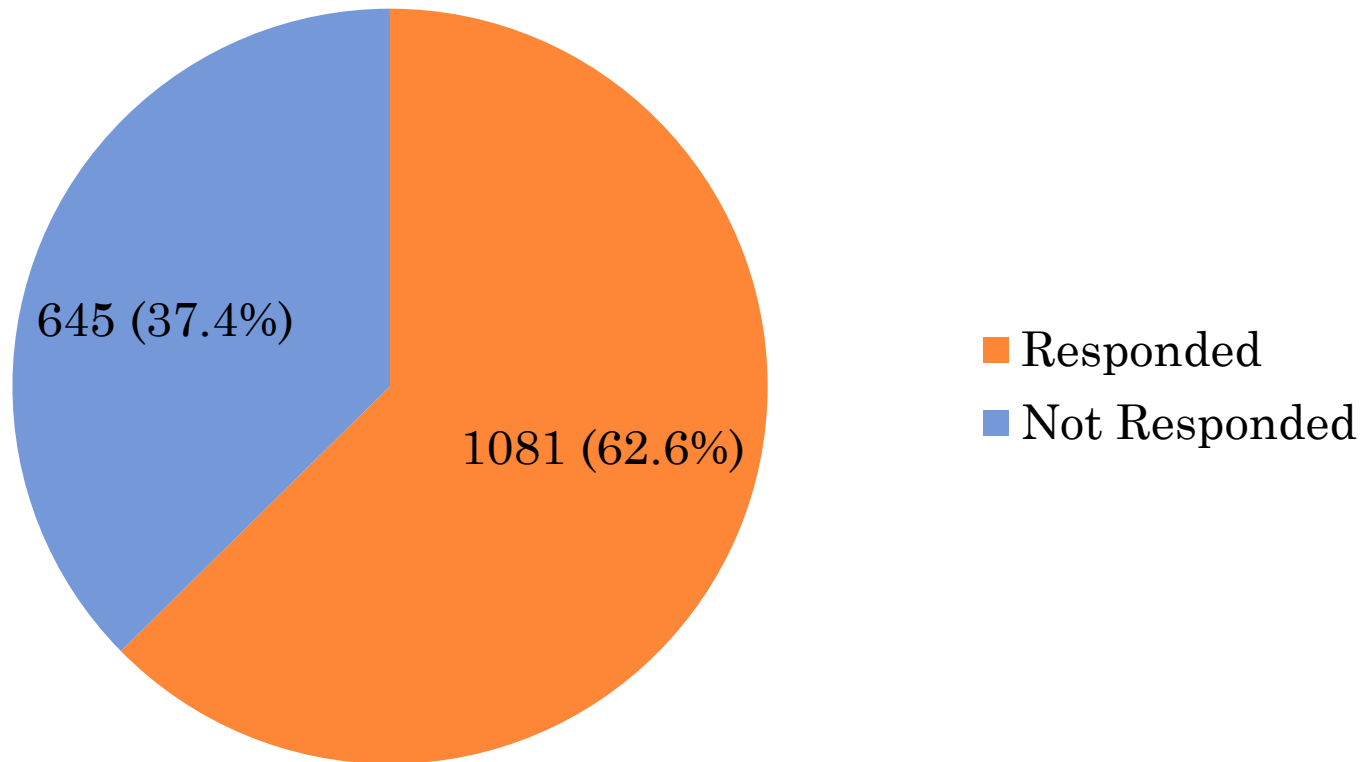
# METHODS

- An attempt was made to contact all the 1726 previously sero-positive participant through telephone.
- 1081 responded.
- Re-infection was identified by asking for symptoms of fever, cough, body ache, loss of smell etc, history of contact with positive patient as well as being found positive by RT-PCR.



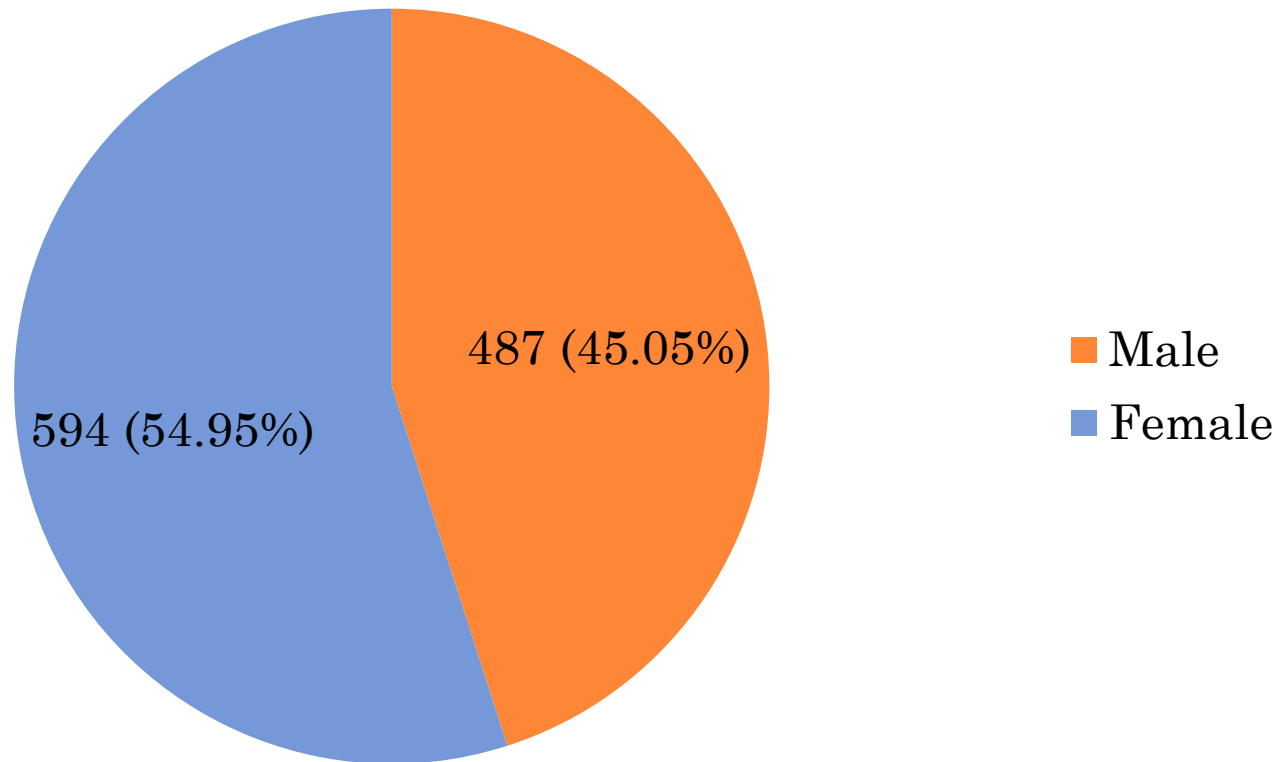
# RESULTS

## Number of Participants (1726)



# DEMOGRAPHIC STATUS OF RESPONDENTS

**Total number of respondents (1081)**



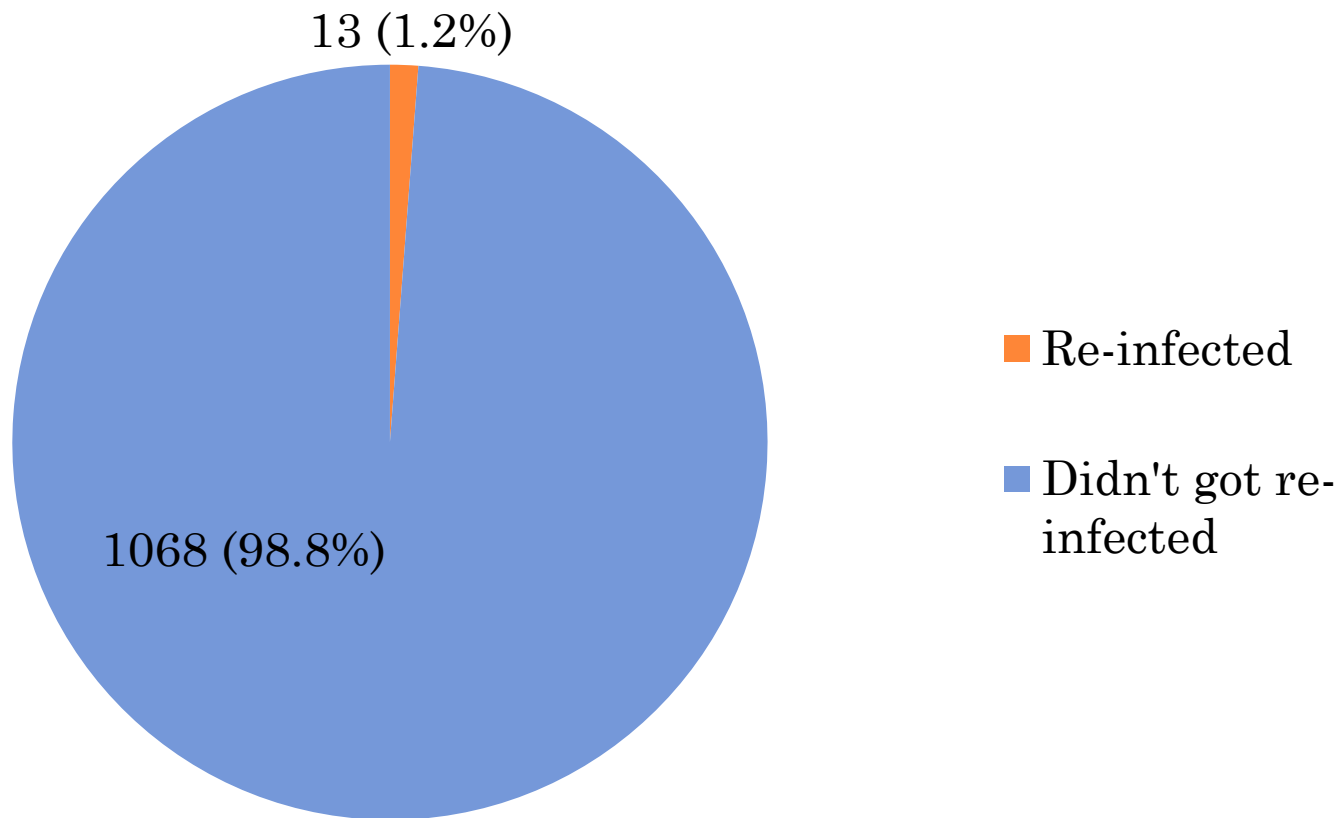
# ICMR'S DEFINITION FOR RE-INFECTION OF COVID-19

Any individual who tested positive for SARS-CoV-2 on two separate occasions by either molecular test or rapid antigen test at an interval of at least 102 days with one negative molecular test in between.



# NUMBER OF RE-INFECTED PEOPLE

**Number of respondents (1081)**



## SEVERITY OF RE-INFECTION

- All were having mild sign and symptoms of COVID-19 during their re-infection.
- Out of 13 re-infected previously sero-positive participants, Nine got treatment in home and four went for hospital admission.
- The median duration between first and second infection was 5 months (4 to 7 months).





## EFFECT OF COVID-19 PATIENTS WHO WERE IN CLOSE CONTACT ON PREVIOUSLY ANTIBODY POSITIVE PARTICIPANTS.

- Amongst 1081 participants, 35 of them had one or more Covid-19 patient in home. 28 of them were having mild clinical features of Covid-19, 4 of them had moderate and 3 had severe form of disease.



## EFFECT OF COVID-19 PATIENTS WHO WERE IN CLOSE CONTACT ON PREVIOUSLY ANTIBODY POSITIVE PARTICIPANTS (CONTD..)

- Only 5 out of 35 previously sero-positive got infected for second time along with their family members.
- Amongst the 13 re-infected, 5 got infected along with their family members.

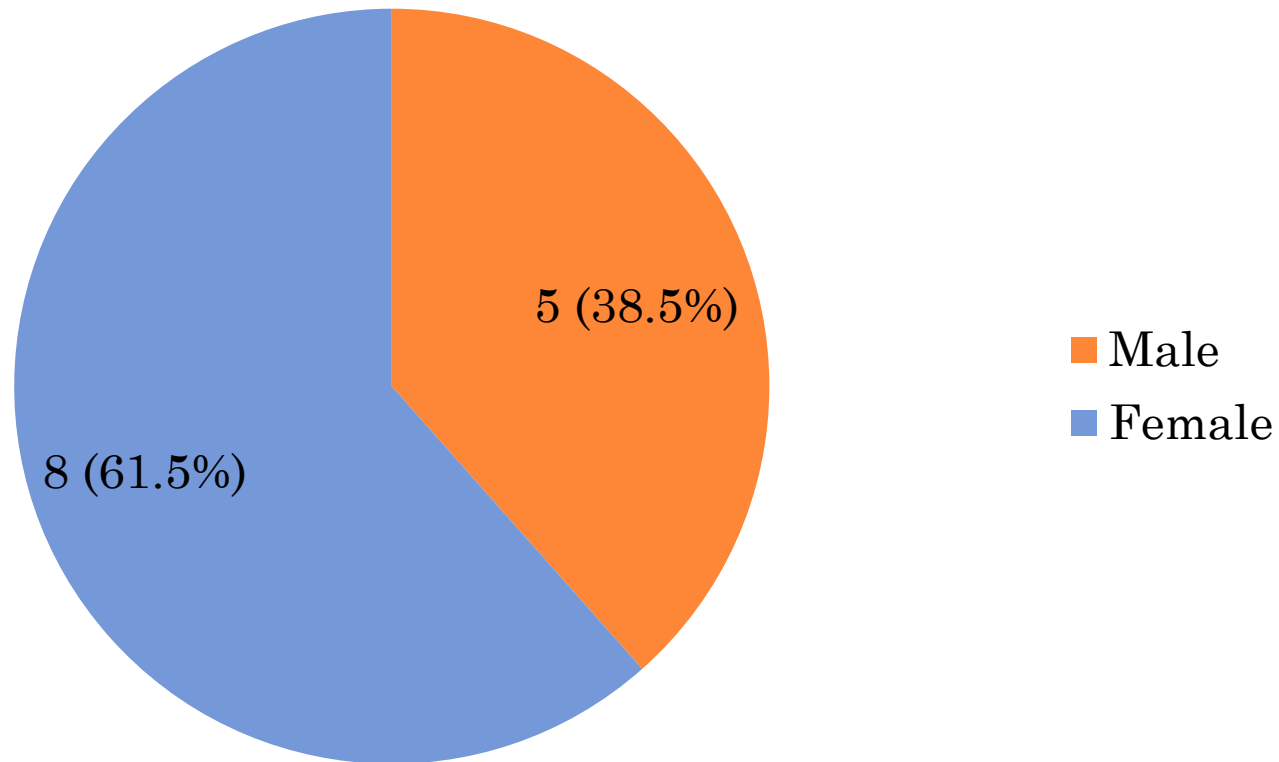


# SOCIO-DEMOGRAPHIC STATUS OF RE-INFECTED PARTICIPANTS



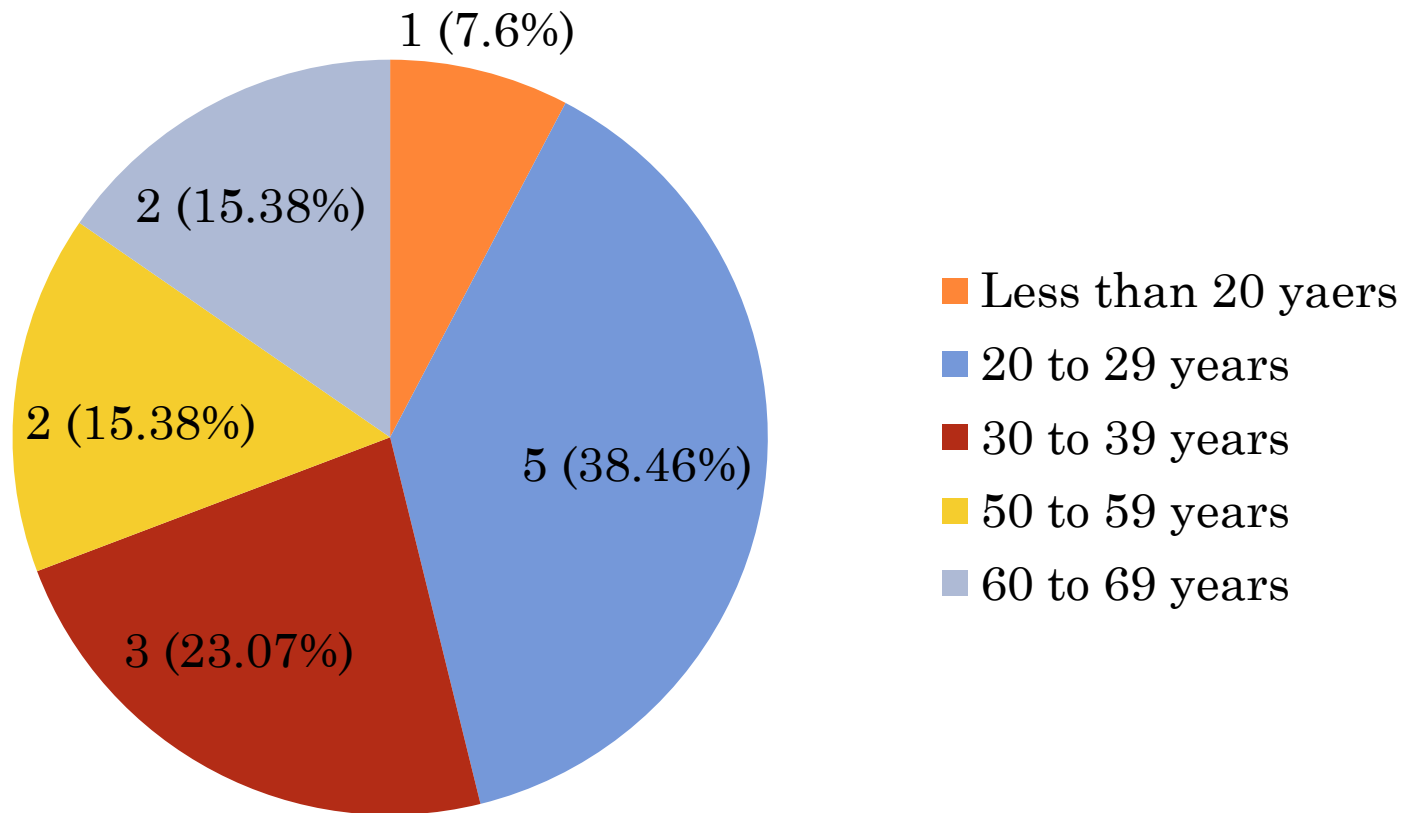
# GENDER-WISE DISTRIBUTION OF RE-INFECTED PEOPLE

**Re-infected participants (13)**



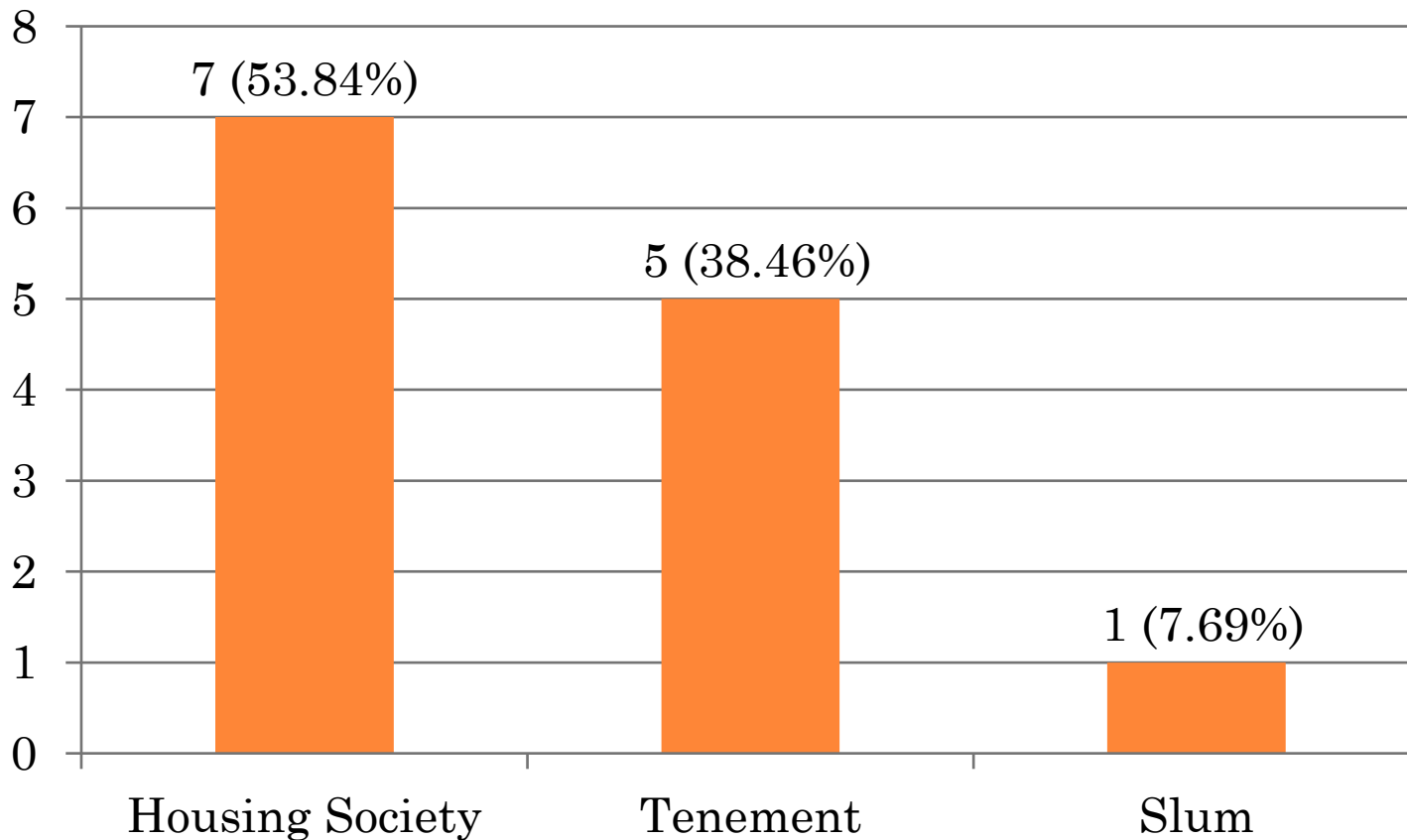
# AGE-WISE DISTRIBUTION OF RE-INFECTED PEOPLE

## Number of re-infected participants (13)



# LIVING STANDARD OF RE-INFECTED PEOPLE

## Number of re-infected participants (13)



## RESULT (CONTD..)

- Only 296 (27%) of 1081 had taken the vaccine, amongst them 284 had taken one dose and 12 took both the doses.
- Out of the 13 re-infected cases, 2 had taken vaccine after re-infection and one developed re-infection post vaccination.



# TAKE HOME MESSAGE

- Only 1.2% of 1081 previously sero-positive people got re-infected.
- Low rate of re-infection, people who have recovered from natural infection should be last priority for vaccination.
- This can be an important public health policy in developing countries who are facing crises of supply of vaccines.







## Reinfection rare, immunity lasting in those who contracted Covid-19, finds Pune study

Umesh Isalkar | TNN | Updated: Jul 9, 2021, 15:36 IST



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PUNE: Long-term follow-ups of over a 1,000 people from Pune, who have recovered from Covid-19, suggest that reinfection after recovery is rare and natural immunity after illness could be long-lasting. The research (still in pre-print) by epidemiologists and community

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recovered from Covid, suggest that reinfection after recovery is rare and natural immunity after illness could be long-lasting. The research (still in pre-print) by epidemiologists and community medicine experts from D Y Patil Medical College and Hospital tracked 1,081 residents of the Pune Metropolitan Region (PMR) from last September — when they had shown SARS-CoV-2 antibodies during a sero survey — to this year.

### Live: Coronavirus pandemic

Only 13 of the 1,081 study participants went on to test positive for Covid again during the nine-month study — a 1.2% reinfection rate, the research found. Importantly, the second bout of Covid in all 13 was mild and they went on to recover fully.

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# REFERENCE

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- 2) Havervall S, Falk A J, Klingström J, Ng H, Greilert-Norin N, Gabrielsson L, et al. SARS-CoV-2 induces a durable and antigen specific humoral immunity after asymptomatic to mild COVID19 infection. medRxiv 2021.01.03.21249162; doi: <https://doi.org/10.1101/2021.01.03.21249162>



## REFERENCE (CONTD..)

- 3) Gaebler, C., Wang, Z., Lorenzi, J.C.C. et al. Evolution of antibody immunity to SARS-CoV-2. *Nature* 591, 639–644 (2021).  
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- 4) Hanrath A T, Brendan A I P, Duncan C J A, Prior SARS-Cov-2 Infection is associated with protection against symptomatic reinfection. *Journal of Infection* 2021; 82: 4: E29-E30. 5.
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**Thank you**

