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# ICMR Second Sero-survey for SARS-CoV-2 Infection

# Understanding COVID Sero-survey

- **What is a serological survey?**
  - Blood samples collected from general population and tested for IgG antibodies
  - If a **person is IgG positive**, it means they **got exposed with SARS-CoV-2 sometime in the past**
- **Serosurveys are expected to answer the following questions**
  - What percentage of the general population has been exposed and infected by the virus?
  - Who (age group/gender) are at higher risk of getting infection?
  - Areas (urban/rural) where containment efforts need to be strengthened?

# Background

- Population based sero-surveys in representative samples are recommended to measure the spread of infection
- ICMR First countrywide serosurvey (May 11–June 4, 2020)
  - 700 villages/wards from 70 Indian districts
  - Conducted among adults
  - **Overall prevalence of infection was 0.73% (95% CI: 0.34–1.13)**

# Second National Serosurvey

- **Objective: To estimate the prevalence of SARS-CoV-2 infection among individuals aged 10 years and above**
- **The survey was conducted in the same 700 villages/wards (in urban) from 70 districts from 21 States covered during the first survey**
- **The second survey was conducted during August 17–September 22, 2020**

# Data & Blood Sample Collection

- **Data collection**
  - Socio-demographic details
  - History of respiratory symptoms
  - Written informed consent and ethics clearance
- **Blood sample collection**
  - 3-5 ml of blood sample
- **Laboratory investigations**
  - Sera tested for IgG antibodies against SARS-CoV-2 using IgG assay

# Results

- Blood samples were collected from **29,082 individuals**
- Weighted and adjusted prevalence among individuals aged  $\geq 10$  years: **6.6%** (95% CI: 5.8–7.4)
- Prevalence not different by age group and gender
- Urban slum (**15.6%**) and non-slum (**8.2%**) areas had higher SARS-Cov-2 infection prevalence than that of rural areas (**4.4%**)
- Prevalence in adults ( $\geq 18$  years): **7.1%** (95% CI: 6.2–8.2)

# Results & Analysis

- Lockdown/containment and behavior change at population level have effectively checked potential spread of SARS-Cov-2
- **Susceptibility of a considerable section of people, yet unexposed to SARS-Cov-2, exists**
- **Risk in Urban slums twice than that in non-slum areas and 4 times than the risk in rural setting**
- 26–32 infections per reported case by August 2020 (81-130 in May 2020) – **underlines the effect of scaled up testing tracking and treating strategy**

# City Sero-prevalence in India - Contrasted

City	Samples tested	Study period	Seroprevalence (%)
Delhi (Round-1)	21,387	27 Jun-10 Jul	23.5
Delhi (Round-2)	15,000	1-7 Aug	29.1
Mumbai	6,936	29 Jun - 19 Jul	57.8 (slums), 17.4 (non-slum)
Ahmedabad	30,054	Jun 16- Jul 11	17.6
Chennai	12,405	17-28 Jul	21.5
Puducherry (Round-1)	869	11-16 Aug	4.9
Puducherry (Round-2)	898	10-16 Sept	22.7
Indore	7100	11-23 Aug	7.8



# Seroprevalence of SARS-CoV-2 in other countries

Country	Setting	Samples tested	Age range	Study period	Seroprevalence (%)
USA <sup>1</sup>	1300 dialysis units	28,503	Adults	July 2020	9.3*
Brazil <sup>2</sup> (2 <sup>nd</sup> round)	133 sentinel cities from 26 states	31,128	>1 year	June 4-7	2.8
Brazil <sup>2</sup> (1st round)	133 sentinel cities from 26 states	24,995	> 1 year	May 14-21	1.6
Spain <sup>3</sup>	50 provinces and 2 cities	51,958	All age	April 27 to May 11	4.6

<sup>1</sup> Anand S, Lancet 2020 (\*Estimates standardized to US adult population)

<sup>2</sup> Hallal PC, Lancet Global Health 2020

<sup>3</sup> Pollán M, Lancet 2020

# Main Conclusions

- One in 15 individuals aged  $\geq 10$  years were estimated to be exposed to SARS-CoV-2 by August 2020
- Sero-prevalence was not different by age group and gender
- **Risk gradient: Urban slum > Urban non-slum areas > Rural areas**
- Lower infection to case ratio in August compared to May reflects a substantial increase in testing and detection across India
- **Since, a large proportion of the population is yet susceptible – prevention fatigue to be avoided and 5T strategy (Test, Track, Trace, Treat, Technology) to be adhered**

# Main Conclusions

- **Non-Pharmacological Interventions: Physical distancing, use of face mask/cover, hand hygiene, cough etiquette still essential**
- People-centric & risk focused interventions in: Urban slums, urban non-slums and rural settings to be developed & implemented
- Elderly, individuals with comorbidities, pregnant women & children to be protected
- In the light of the upcoming festivities, winter season and mass gathering, **inventive containment strategies to be implemented by the States**