

SARS-CoV-2 antibody prevalence among blood donors in Kenya: January – March 2021

Policy Brief



Key messages

- We have generated updated estimates of seroprevalence of antibodies against SARS-CoV-2 from 3020 residual donor samples collected from the six Kenya National Blood Transfusion Service (KNBTS) regional blood transfusion centres between 2nd January 2021 and 10th March 2021 (before the 3rd wave).
- National SARS-CoV-2 antibody prevalence increased 5.6-fold from the previous sero-survey (9.1%) to 51.6%.
- Nairobi had the highest seroprevalence at 62.4% while Western region had the lowest at 39.6%
- Interpretation relies on the generalisability of blood donor data to the population - donors may have different behaviour. Blood donors are likely to be more mobile than the general population, and in rural Counties are more likely to be drawn from urbanized centres. Their seroprevalence may be an overestimate of the general population.

Introduction

We previously reported a SARS-CoV-2 seroprevalence of 9.1% (95%CI 7.6-10.8%) in 10,258 blood donor samples collected between 30th April to 30th September 2020 providing evidence that SARS-CoV-2 had spread widely in Kenya.

Here, we report the prevalence of antibodies against SARS-CoV-2 among Kenyan blood donors before the 3rd wave of the on-going pandemic.

Samples from 3020 donor blood donors aged 15-64 years collected from six Kenya National Blood Transfusion Service (KNBTS) regional blood transfusion centres between 2nd January 2021 and 10th March 2021 were assayed for anti-SARS-CoV-2 IgG antibodies to whole length spike antigen by ELISA.

Results

- The overall adjusted SARS-CoV-2 antibody prevalence increased 5.6-fold from the previous sero-survey to 51.6% (95%CI 47.6 – 55.9%).
- Based on former administrative regions, Nairobi has the highest seroprevalence of 62.4% (95%CI 53.9 – 70.8%) followed by Rift Valley 52.0% (95%CI 46.9 – 57.4%) and Central 51.6% (95%CI 41.7 – 62.1%) respectively. The Western region had the lowest seroprevalence of 39.6% (95%CI 28.4 – 50.4%).
- Antibody prevalence was similar for both sexes.
- Antibody prevalence was slightly higher among blood donors aged 25 – 34 years than other age groups at 51.1% (95%CI 46.8 - 55.6%) (Table 1).

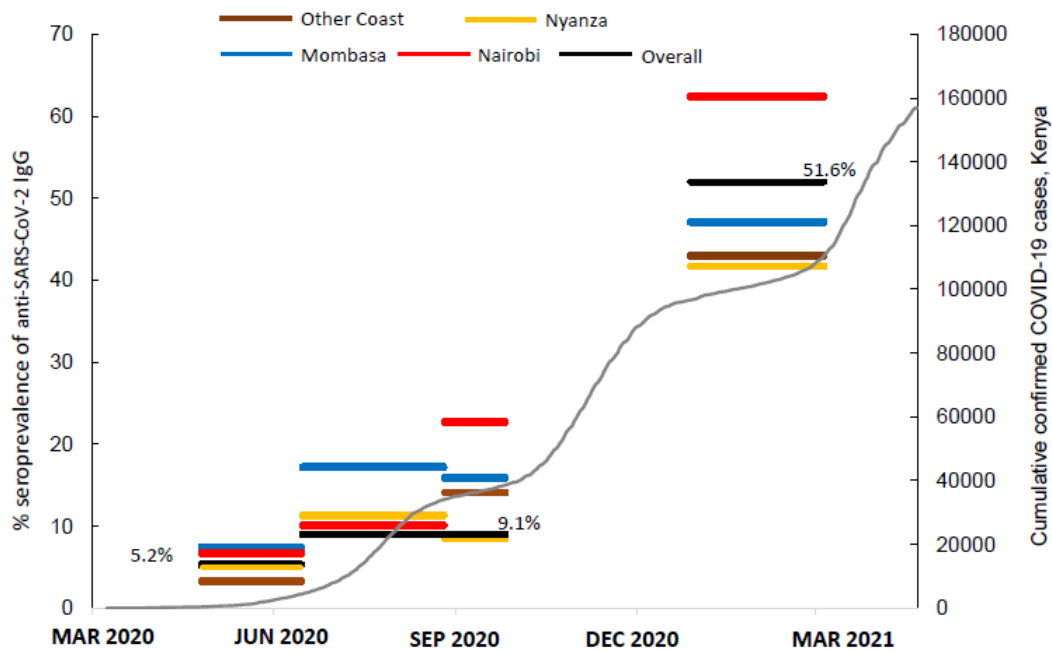


Figure 1. Percentage of blood donors positive for anti-SARS-CoV-2 IgG antibodies against cumulative COVID-19 case-based surveillance.

Table 1. SARS-CoV-2 Antibody prevalence in Kenyan blood donors by sex, age and region.

| | All samples | Seropositive samples | Crude seroprevalence % (95% CI) | Kenya population exposed (2019 Census) | Bayesian population weighted, test-adjusted seroprevalence** % (95% CI) |
|----------------------|--------------|----------------------|------------------------------------|--|--|
| Age | | | | | |
| 15 - 24 years | 1,122 | 465 | 41.4 38.5 - 44.4 | 9,733,174 | 48.4 44.0 - 52.9 |
| 25 - 34 years | 1,073 | 494 | 46.0 43.0 - 49.1 | 7,424,967 | 51.1 46.8 - 55.6 |
| 35 - 44 years | 586 | 259 | 44.2 40.1 - 48.3 | 4,909,191 | 47.6 43.3 - 51.9 |
| 45 - 54 years | 198 | 96 | 48.5 41.3 - 55.7 | 3,094,771 | 47.5 42.4 - 54.0 |
| 55 - 64 years | 41 | 20 | 48.8 32.9 - 64.9 | 1,988,062 | 46.6 40.1 - 54.9 |
| Sex | | | | | |
| female | 662 | 295 | 44.6 40.7 - 48.4 | 13,761,922 | 48.4 43.3 - 53.8 |
| male | 2,358 | 1,039 | 44.1 42.0 - 46.1 | 13,388,243 | 48.0 44.6 - 51.8 |
| Regions | | | | | |
| Central | 90 | 44 | 48.9 38.2 - 59.7 | 3,452,213 | 51.6 41.7 - 62.1 |
| Mombasa | 441 | 192 | 43.5 38.9 - 48.3 | 792,072 | 47.1 41.5 - 52.9 |
| Other Coast | 431 | 171 | 39.7 35.0 - 44.5 | 1,671,097 | 43.0 37.6 - 48.9 |
| Eastern / N. Eastern | 595 | 273 | 45.9 41.8 - 50.0 | 5,176,080 | 49.6 44.5 - 54.9 |
| Nairobi | 177 | 108 | 61.0 53.4 - 68.2 | 3,002,314 | 62.4 53.9 - 70.8 |
| Nyanza | 577 | 216 | 37.4 33.5 - 41.5 | 3,363,813 | 41.7 36.2 - 48.0 |
| Rift Valley | 637 | 307 | 48.2 44.3 - 52.2 | 7,035,581 | 52.0 46.9 - 57.4 |
| Western | 72 | 23 | 31.9 21.4 - 44.0 | 2,656,995 | 39.6 28.4 - 50.4 |
| Total | 3,020 | 1,334 | 44.2 42.4 - 46.0 | 27,150,165 | 51.6 47.6 - 55.9 |

Next steps

We plan to continue conducting serosurveillance in target populations to generate up to date estimates on the extent of the pandemic in Kenya. The data is also utilized to develop mathematical models to understand the course of the epidemic.

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