EVOLUTION OF COLLECTIVE SARS-COV-2 HUMORAL IMMUNITY

AMONG THE POPULATION OF THE REPUBLIC OF BELARUS

SUPPLEMENTARY DATA

**Table S1.** Shares of seropositive and seronegative individuals by age and seromonitoring stage.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Age group, years | Value, % (95% confidence interval) | | | |
| Nc-RBD- | Nc+RBD- | RBD+Nc- | Nc+RBD+ |
| Stage 1 | | | | |
| 1-17 | 34.6 (30.6-38.7) | 5.3 (3.6-7.5) | 22.1 (18.7-25.8) | 38.0 (33.9-42.2) |
| 18-29 | 38.7 (33.9-43.6) | 3.7 (2.1-6.0) | 29.8 (25.4-34.5) | 27.8 (25.3-32.5) |
| 30-39 | 36.6 (32.9-40.4) | 4.4 (2.9-6.2) | 27.7 (24.3-31.3) | 31.3 (27.8-35.0) |
| 40-49 | 33.2 (30.0-36.5) | 4.6 (3.3-6.3) | 25.5 (22.5-28.6) | 36.7 (33.4-40.1) |
| 50-59 | 26.9 (23.8-30.1) | 7.2 (5.5-9.2) | 19.4 (16.7-22.4) | 46.5 (43.0-50.1) |
| 60-69 | 32.0 (28.5-35.6) | 6.2 (4.6-8.3) | 15.2 (12.6-18.1) | 46.6 (42.9-50.4) |
| 70+ | 27.5 (24.3-30.9) | 5.2 (3.7-7.1) | 22.6 (19.6-25.8) | 44.7 (41.1-48.4) |
| OVERALL | 32.2 (30.8 -33.5) | 5.4 (5.1-6.1) | 22.7 (21.7-24.0) | 39.7 (38.4-41.2) |
| Stage 2. | | | | |
| 1-17 | 30.7 (26.9-34.8) | 2.9 (1.7-4.7) | 42.1 (37.9-46.3) | 24.3 (20.8-28.1) |
| 18-29 | 29.8 (25.4-34.5) | 2.2 (1.0-4.2) | 47.3 (42.4-52.3) | 20.7 (16.8-25.0) |
| 30-39 | 28.0 (24.6-31.6) | 4.7 (3.2-6.6) | 42.6 (38.8-46.5) | 24.7 (21.5-28.2) |
| 40-49 | 24.3 (21.4-27.4) | 4.9 (3.5-6.6) | 42.2 (38.8-45.7) | 28.6 (25.6-31.9) |
| 50-59 | 19.4 (16.7-22.4) | 4.0 (2.7-5.5) | 36.4 (33.1-40.0) | 40.2 (36.8-43.7) |
| 60-69 | 19.6 (16.7-22.7) | 3.4 (2.2-5.0) | 35.9 (32.4-39.6) | 41.1 (37.4-44.8) |
| 70+ | 22.0 (19.1-25.2) | 2.9 (1.8-4.4) | 34.0 (30.5-37.6) | 41.1 (37.5-44.8) |
| OVERALL | 24.2 (23.0-25.4) | 3.7 (3.2-4.2) | 39.5 (38.1-40.9) | 32.7 (31.3-34.0) |
| Stage 3 | | | | |
| 1-17 | 16.1 (13.1-19.4) | 2.0 (1.1-3.6) | 37.1 (33.1-41.3) | 44.8 (40.6-49.1) |
| 18-29 | 15.3 (11.9-19.1) | 1.7 (0.7-3.5) | 44.3 (39.4-49.3) | 38.7 (33.9-43.6) |
| 30-39 | 13.7 (11.2-16.6) | 3.5 (2.2-5.2) | 39.6 (35.9-43.4) | 43.2 (39.4-47.1) |
| 40-49 | 11.6 (9.5-14.0) | 3.3 (2.2-4.8) | 35.8 (32.6-39.2) | 49.3 (45.8-52.8) |
| 50-59 | 10.3 (8.3-12.7) | 1.8 (1.0-2.9) | 33.0 (29.8-36.4) | 54.9 (51.3-59.4) |
| 60-69 | 9.2 (7.2-11.6) | 2.3 (1.3-3.7) | 33.5 (30.0-37.1) | 55.0 (51.2-58.7) |
| 70+ | 11.3 (9.1-13.8) | 2.1 (1.1-3.4) | 33.0 (29.6-36.6) | 53.6 (49.9-57.3) |
| OVERALL | 12.1 (11.2-13.1) | 2.4 (2.0-2.9) | 36.0 (34.6-37.4) | 49.5 (48.0-50.9) |
| Stage 4 | | | | |
| 1-17 | 1.8 (0.9-3.3) | 2.9 (1.7-4.7) | 13.0 (10.3-16.1) | 82.3 (78.8-85.4) |
| 18-29 | 2.0 (0.8-3.8) | 2.7 (1.4-4.8) | 15.7 (12.4-19.7) | 79.6 (75.3-83.4) |
| 30-39 | 2.9 (1.7-4.4) | 2.4 (1.4-3.9) | 15.7 (13.0-18.6) | 79.0 (75.8-82.1) |
| 40-49 | 1.1 (0.5-2.1) | 1.8 (0.9-2.8) | 15.4 (13.0-18.0) | 81.7 (78.9-84.3) |
| 50-59 | 2.0 (1.2-3.3) | 1.3 (0.6-2.3) | 15.0 (12.6-17.7) | 81.7 (78.8-84.4) |
| 60-69 | 2.6 (1.5-4.0) | 2.8 (1.7-4.4) | 18.5 (15.7-21.5) | 76.1 (72.8-79.2) |
| 70+ | 2.5 (1.5-3.9) | 1.5. (0.8-2.7) | 16.5 (13.4-19.4) | 79.5 (76.4-82.4) |
| OVERALL | 2.1 (1.7-2.6) | 2.1 (1.7-2.6) | 15.8 (14.7-16.8) | 80.0 (78.8-91.2) |

Note for Tables (S1, S2, S3): Nc‒RBD‒ — SARS-CoV-2 Ab seronegative individuals; Nc+RBD‒ — those seropositive for Nc Abs only; RBD+Nc‒ — those seropositive for RBD Abs only; Nc+RBD+ — those seropositive for both Abs.

**Table S2.** Shares of seropositive and seronegative individuals by region and seromonitoring stage.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Administrative region or city | Value, % (95% confidence interval) | | | |
| Nc-RBD- | Nc+RBD- | RBD+Nc- | NC+RBD+ |
| Stage 1 | | | | |
| Brest | 29.6 (26.1-33.4) | 6.0 (4.2-6.1) | 22.7 (19.5-26.2) | 41.7 (37.9-45.6) |
| Vitebsk | 35.7 (34.5-40.0) | 5.1 (3.3-7.3) | 23.2 (19.6-27.1) | 36.0 (31.9-40.4) |
| Grodno | 30.3 (26.6-34.3) | 5.7 (4.0-7.0) | 19.9 (16.7-23.4) | 44.1 (40.0-48.3) |
| Gomel | 32.3 (27.8-37.0) | 7.2 (5.0-10.1) | 22.7 (18.8-27.1) | 37.8 (33.1-42.6) |
| Mogilev | 31.4 (28.6-34.4) | 5.2 (3.9-6.7) | 25.2 (22.6-28.0) | 38.2 (35.2-41.2) |
| Minsk | 33.6 (29.7-37.6) | 4.3 (2.8-6.3) | 25.1 (21.6-28.8) | 37.0 (33.1-41.1) |
| Minsk city | 32.9 (29.9-36.1) | 4.9 (3.6-6.5) | 20.0 (17.5-22.8) | 42.2 (38.9-45.4) |
| OVERALL | 32.2 (30.8-33.5) | 5.4 (5.1-6.1) | 22.7 (21.6-24.0) | 39.7 (38.3-42.2) |
| Stage 2 | | | | |
| Brest | 25.8 (22.4-29.4) | 2.6 (1.5-4.2) | 39.4 (35.6-43.4) | 32.2 (28.5-36.0) |
| Vitebsk | 25.7 (22.0-29.7) | 2.7 (1.5-4.5) | 42.9 (38.6-47.3) | 28.7 (24.5-32.8) |
| Grodno | 25.4 (21.9-29.2) | 4.4 (2.8-6.4) | 38.8 (34.8-43.0) | 31.4 (27.6-35.3) |
| Gomel | 27.8 (23.5-32.3) | 7.6 (5.3-10.6) | 34.2 (29.7-39.0) | 30.4 (26.0-35.0) |
| Mogilev | 22.3 (19.8-25.0) | 3.4 (2.4-4.6) | 37.5 (34.5-40.5) | 36.8 (33.9-39.8) |
| Minsk | 24.1 (20.6-27.8) | 4.0 (2.5-5.9) | 44.6 (40.5-48.8) | 27.3 (23.7-31.2) |
| Minsk city | 21.9 (19.2-24.7) | 2.9 (2.0-4.3) | 39.4 (36.2-42.6) | 35.8 (32.7-39.0) |
| OVERALL | 24.1 (23.0-25.4) | 3.7 (3.2-4.3) | 39.5 (38.1-40.9) | 32.7 (31.3-34.0) |
| Stage 3 | | | | |
| Brest | 13.2 (10.4-19.1) | 2.6 (1.5-4.2) | 34.4 (30.8-38.3) | 49.8 (45.8-53.8) |
| Vitebsk | 11.7 (9.0-14.8) | 2.3 (1.2-4.1) | 38.6 (34.4-43.0) | 47.4 (43.0-51.8) |
| Grodno | 14.5 (11.7-17.6) | 3.7 (2.3-5.5) | 36.2 (32.3-40.3) | 45.6 (41.5-49.8) |
| Gomel | 9.8 (7.1-13.1) | 2.9 (1.5-5.0) | 34.0 (29.4-38.7) | 53.3 (48.4-58.2) |
| Mogilev | 11.7 (9.8-13.8) | 2.2 (1.4-3.3) | 36.0 (33.0-40.0) | 50.1 (47.1-53.2) |
| Minsk | 13.1 (10.5-16.2) | 1.2 (0.5-2.5) | 38.8 (34.5-42.9) | 46.9 (42.8-51.1) |
| Minsk | 11.0 (9.1-13.3) | 2.4 (1.5-3.6) | 34.7 (31.6-37.9) | 51.9 (48.6-55.1) |
| OVERALL | 12.1 (11.2-13.1) | 2.4 (2.0-2.9) | 36.0 (34.6-37.4) | 49.5 (48.0-50.9) |
| Stage 4 | | | | |
| Brest | 2.7 (1.5-4.2) | 2.7 (1.6-4.4) | 15.4 (12.7-18.6) | 79.2 (75.8-82.4) |
| Vitebsk | 2.3 (1.2-4.1) | 1.9 (0.9-3.6) | 17.0 (13.8-20.5) | 78.8 (75.0-82.2) |
| Grodno | 1.9 (1.0-3.4) | 3.0 (1.7-4.7) | 13.2 (10.6-16.2) | 81.9 (78.5-85.0) |
| Gomel | 1.9 (0.8-3.7) | 1.0 (0.2-2.4) | 19.1 (15.5-23.2) | 78.0 (73.7-81.9) |
| Mogilev | 1.9 (1.2-3.0) | 2.4 (1.6-3.5) | 17.7 (15.5-20.2) | 78.0 (75.3-80.4) |
| Minsk | 1.7 (0.8-3.2) | 2.1 (1.1-3.6) | 15.6 (12.7-18.8) | 80.6 (77.2-83.8) |
| Minsk | 2.4 (1.5-3.6) | 1.5 (0.8-2.4) | 13.1 (11.0-15.5) | 83.0 (80.4-85.4) |
| OVERALL | 2.1 (1.7-2.6) | 2.1 (1.7-2.6) | 15.8 (14.7-16.8) | 80.0 (78.9-81.2) |

**Table S3.** Shares of seropositive and seronegative individuals by professional category.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Occupational Group | Value, % (95% confidence interval) | | | |
| Nc-RBD- | Nc+RBD- | RBD+Nc- | NC+RBD+ |
| Stage 1 | | | | |
| Health workers | 22.5 (19.4-25.7) | 4.8 (3.4-6.7) | 33.9 (30.4-37.6) | 38.8 (35.1-42.5) |
| Scientists | 25.7 (12.5-43.3) | 2.9 (0.07-14.9) | 31.4 (16.8-49.3) | 40.0 (23.9-57.9) |
| Business | 42.3 (35.2-49.7) | 6.4 (3.3-10.8) | 18.0 (12.8-24.2) | 33.3 (26.7-40.5) |
| Education | 29.1 (24.8-33.6) | 5.8 (3.8-8.5) | 25.1 (21.1-29.5) | 40.0 (35.3-44.8) |
| The Arts | 38.2 (25.4-52.3) | 3.7 (0.4 -12.5) | 25.4 (14.7-39.0) | 32.7 (20.7-46.7) |
| Industry | 36.4 (31.9-41.1) | 5.0 (3.2-7.5) | 20.0 (16.4-24.1) | 38.6 (34.1-43.4) |
| Transport | 27.7 (19.3-37.5) | 10.9 (5.6-18.6) | 23.8 (15.9-33.3) | 37.6 (28.1-47.8) |
| Military employees | 26.7 (12.3-45.9) | 6.6 (0.8-22.1) | 10.0 (2.1-26.5) | 56.7 (37.4-74.5) |
| Civil servants | 25.8 (18.4-34.4) | 4.8 (1.8-10.2) | 16.1 (10.1-23.8) | 53.3 (44.1-62.2) |
| Office workers | 36.3 (32.5-40.3) | 5.4 (3.8-7.6) | 19.8 (16.7-23.2) | 38.5 (34.6-42.4) |
| Unemployed | 42.2 (31.9-53.1) | 8.9 (3.9-16.8) | 20.0 (12.3-29.8) | 28.9 (19.8-39.4) |
| Children | 58.8 (44.2-72.4) | 3.9 (0.5-13.5) | 15.7 (7.0-28.6) | 21.6 (11.3-35.3) |
| Other | 36.4 (30.6-42.3) | 3.5 (1.6-6.5) | 24.0 (19.0-29.7) | 36.1 (30.2-42.2) |
| Schoolchildren | 32.5 (28.1-37.1) | 4.7 (2.9-7.1) | 23.1 (19.2-27.4) | 39.7 (35.1-44.5) |
| Students | 41.3 (27.0-56.8) | 4.3 (0.5-14.8) | 26.1 (14.3-41.1) | 28.3 (16.0-43.5) |
| Pensioners | 31.4 (28.7-34.3) | 5.7 (4.4-7.2) | 18.7 (16.4-21.2) | 44.2 (41.2-47.2) |
| OVERALL | 32.2 (30.8 -33.5) | 5.4 (5.1-6.1) | 22.7 (21.6-24.0) | 39.7 (38.3-41.2) |
| Stage 2 | | | | |
| Health workers | 17.9 (15.1-20.9) | 2.4 (1.4-3.9) | 46.9 (43.1-50.7) | 32.8 (29.3-36.4) |
| Scientists | 25.7 (12.5-43.3) | 2.9 (0.7-14.9) | 37.1 (21.5-55.1) | 34.3 (19.1-52.2) |
| Business | 30.7 (24.2-37.8) | 3.7 (1.5-7.5) | 37.6 (30.6-44.9) | 28.0 (21.8-35.0) |
| Education | 19.5 (15.9-23.6) | 3.0 (1.6-5.1) | 44.2 (39.4-42.0) | 33.3 (28.8-37.9) |
| The Arts | 25.5 (14.7-39.0) | 3.6 (0.4-12.5) | 41.8 (2.9-55.9) | 29.1 (17.6-42.9) |
| Industry | 23.9 (20.0-28.1) | 5.2 (3.3-7.7) | 41.6 (36.9-46.4) | 29.3 (25.1-33.8) |
| Transport | 20.8 (13.4-30.1) | 13.9 (7.8-22.2) | 33.7 (24.6-43.8) | 31.7 (22.8-41.7) |
| Military employees | 20.0 (7.7-38.6) | 13.3 (3.8-30.7) | 23.3 (9.9-7-42.3) | 43.3 (25.5-62.6) |
| Civil servants | 23.4 (16.3-31.8) | 4.0 (1.3-9.2) | 29.0 (21.2-37.9) | 43.6 (34.7-52.7) |
| Office workers | 28.0 (24.5-31.8) | 3.6 (2.3-5.5) | 38.0 (34.1-42.0) | 30.4 (26.7-34.2) |
| Unemployed | 30.0 (20.8-40.6) | 4.4 (1.2-11.0) | 35.6 (25.7-43.4) | 30.0 (20.8-40.6) |
| Children | 45.1 (31.1-60.0) | 2.0 (0.5-10.4) | 31.3 (19.1-45.9) | 21.6 (11.3-35.3) |
| Other | 25.6 (20.4-31.4) | 4.7 (2.4-8.0) | 39.9 (33.9-46.2) | 29.8 (24.3-35.8) |
| Schoolchildren | 29.7 (25.4-34.2) | 3.3 (1.8-5.4) | 42.5 (37.8-47.4) | 24.5 (20.5-28.9) |
| Students | 26.1 (14.3-41.1) | 2.1 (0.6-11.5) | 52.2 (3.7-6.7) | 19.6 (9.4-33.9) |
| Pensioners | 23.2 (20.7-25.8) | 2.9 (2.0-4.2) | 34.1 (31.3-37.0) | 39.8 (36.8-42.7) |
| OVERALL | 24.1 (23.0-25.4) | 3.7 (3.2-4.3) | 39.5 (38.1-40.9) | 32.7 (31.3-34.0) |

(continued on the next page)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Occupational Group | Value, % (95% confidence interval) | | | |
| Nc-RBD- | Nc+RBD- | RBD+Nc- | NC+RBD+ |
| Stage 3 | | | | |
| Health workers | 9.0 (7.1-11.4) | 1.7 (0.9-3.0) | 40.1 (36.4-43.8) | 49.2 (45.5-52.9) |
| Scientists | 2.8 (0.7-14.9) | 0 | 54.3 (36.6-71.2) | 42.9 (26.3-60.6) |
| Business | 14.8 (10.1-20.7) | 4.2 (1.8-8.2) | 34.4 (27.6-41.6) | 46.6 (39.3-53.9) |
| Education | 11.4 (8.6-14.8) | 2.6 (1.3-4.5) | 39.3 (34.7-44.1) | 46.7 (42.0-51.6) |
| The Arts | 14.5 (6.5-26.7) | 1.8 (0.05-9.7) | 36.4 (23.8-50.4) | 47.3 (33.6-61.2) |
| Industry | 12.1(9.2-15.5) | 2.1 (0.9-3.8) | 35.2 (30.8-39.9) | 50.7 (45.9-55.5) |
| Transport | 6.9 (2.8-13.8) | 4.0 (1.1-9.8) | 37.6 (28.2-47.8) | 51.5 (41.3-61.6) |
| Military employees | 6.7 (0.8-22.1) | 3.3 (0.08-13.2) | 36.7 (19.9-56.1) | 53.3 (34.3-71.7) |
| Civil servants | 8.9 (4.5-15.3) | 2.4 (0.5-6.9) | 31.4 (23.4-40.4) | 57.3 (48.1-66.1) |
| Office workers | 13.7 (11.1-16.7) | 2.8 (1.6-4.4) | 32.0 (28.3-35.9) | 51.5 (47.4-55.5) |
| Unemployed | 12.2 (6.3-20.8) | 1.1 (0.03-6.0) | 36.7 (26.8-47.5) | 50.0 (39.3-60.7) |
| Children | 25.5 (14.3-39.6) | 2.0 (0.1-10.5) | 37.2 (24.1-51.9) | 35.3 (22.4-49.9) |
| Other | 14.0 (10.0-18.8) | 3.9 (1.9-7.0) | 38.0 (32.0-44.2) | 44.1 (38.0-50.5) |
| Schoolchildren | 15.0 (11.7-18.7) | 2.1 (1.0-4.0) | 37.2 (32.6-41.9) | 45.8 (41.0-50.6) |
| Students | 8.7 (2.4-20.8) | 0 | 56.5 (41.1-71.1) | 34.8 (21.4-50.2) |
| Pensioners | 12.2 (10.3-14.3) | 2.4 (1.6-3.5) | 32.7 (29.9-35.6) | 52.6 (49.6-55.7) |
| OVERALL | 12.1 (11.2-13.1) | 2.4 (2.0-2.9) | 36.0 (34.6-37.4) | 49.5 (48.0-50.4) |
| Stage 4 | | | | |
| Health workers | 1.4 (0.7-2.6) | 1.4 (07-2.6) | 19.0 (16.2-22.1) | 78.1 (74.9-81.1) |
| Scientists | 0 | 0 | 25.7 (12.5-43.3) | 74.3 (56.7-87.5) |
| Business | 2.1 (0.6-5.3) | 1.6 (0.3-4.6) | 16.4 (11.4-22.5) | 79.9 (73.5-85.4) |
| Education | 0.9 (0.2-2.4) | 2.1 (1.0-3.9) | 15.1 (11.7-18.9) | 81.9 (77.9-85.4) |
| the Arts | 3.6 (0.4-12.5) | 3.6 (0.4-12.5) | 14.6 (6.5-26.7) | 78.2 (65.0-88.2) |
| Industry | 2.5 (1.3-4.4) | 0.9 (0.2-2.3) | 13.9 (10.8-17.4) | 82.7 (78.9-86.1) |
| Transport | 1.0 (0.03-5.4) | 3.0 (0.6-8.4) | 14.8 (8.6-23.3) | 81.2 (72.2-88.3) |
| Military employees | 0 | 0 | 16.7 (5.6-34.7) | 83.3 (65.3-94.4) |
| Civil servants | 0 | 3.2 (0.9-8.1) | 11.3 (6.3-18.2) | 85.5 (78.0-91.2) |
| Office workers | 2.8 (1.6-4.4) | 2.2 (1.2-3.6) | 13.5 (10.9-16.5) | 81.5 (78.2-84.5) |
| Unemployed | 0 | 2.2 (0.3-7.8) | 15.6 (8.7-24.7) | 82.2 (72.7-89.5) |
| Children | 2.0 (0.05-10.4) | 7.8 (2.2-18.9) | 11.8 (4.4-23.9) | 78.4 (64.5-88.7) |
| Other | 1.9 (0.6-4.5) | 1.6 (0.4-3.9) | 20.9 (16.1-26.4) | 75.6 (70.0-80.7) |
| Schoolchildren | 1.9 (0.8-3.6) | 2.8 (1.5-4.8) | 11.0 (8.2-14.3) | 84.3 (80.6-87.7) |
| Students | 0 | 0 | 13.0 (4.9-26.3) | 87.0 (73.7-95.1) |
| Pensioners | 3.2 (2.3-4.5) | 2.7 (1.8-3.8) | 17.1 (14.8-19.4) | 77.0 (74.4-79.5) |
| OVERALL | 2.1 (1.7-2.6) | 2.1 (1.7-2.6) | 15.8 (14.7-16.8) | 80.0 (78.8-81.2) |

**Table S4.** Distributions by volunteer Nc Ab level and age.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Age group, years | Antibody interval, BAU/ml | | | | |
| 16.8-31.2  % (95% CI) | 31.3-125.6  % (95% CI) | 125.8-251.2  % (95% CI) | 251.4-502.5  % (95% CI) | >502.5  % (95% CI) |
| Stage 1 | | | | | |
| 1-17 | 13.7 (10.9-16.9) | 21.8 (18.4-25.4) | 5.7 (3.9-8.0) | 1.3 (0.5-2.6) | 0.7 (0.2-1.9) |
| 18-29 | 9.8 (7.1-13.2) | 17.0 (16.1-22.2) | 2.5 (1.2-4.5) | 1.2 (0.4-2.8) | 1 (0.3-2.5) |
| 30-39 | 9.3 (7.2-11.8) | 19.0 (16.1-22.2) | 4.7 (3.2-6.6) | 2.1 (1.2-3.5) | 0.6 (0.2-1.5) |
| 40-49 | 9.5 (7.6-11.7) | 20.5 (17.8-23.4) | 6.8 (5.2-8.8) | 2.9 (1.9-4.3) | 1.6 (0.7-2.7) |
| 50-59 | 11.3 (9.2-13.8) | 25.6 (22.6-28.8) | 9.6 (7.6-11.8) | 4.2 (2.9-5.8) | 3 (2.0-4.5) |
| 60-69 | 7.8 (5.9-10.1) | 22.3 (19.3-25.6) | 11.8 (9.5-14.4) | 6.1 (4.5-8.1) | 4.8 (3.3-6.7) |
| 70+ | 6.9 (5.2-9.0) | 20.6 (17.8-24.8) | 10.4 (8.3-12.9) | 7.7 (5.9-9.9) | 4.3 (2.9-6.0) |
| OVERALL | 9.7 (8.8-10.5) | 21.3 (20.1-22.5) | 7.8 (7.1-8.6) | 3.9 (3.4-4.5) | 2.5 (2.2-3.0) |
| Stage 2 | | | | | |
| 1-17 | 9.1 (6.9-11.9) | 14.1 (11.3-17.3) | 2.6 (1.4-4.3) | 0.7 (0.2-1.9) | 0.7 (0.2-1.9) |
| 18-29 | 9.6 (6.9-12.1) | 8.9 (6.3-12.1) | 2.7 (1.4-4.8) | 1.2 (0.4-2.8) | 0.5 (0.1-1.8) |
| 30-39 | 10.4 (8.2-13.0) | 13.7 (11.2-16.6) | 3.3 (2.1-5.0) | 1.1 (1.1-2.2) | 0.9 (0.3-2.0) |
| 40-49 | 10.4 (8.4-12.7) | 16.1 (13.6-18.8) | 4.5 (3.2-6.2) | 1.5 (0.8-2.5) | 1.1 (0.5-2.1) |
| 50-59 | 11.6 (9.5-14.4) | 23.1 (20.2-26.2) | 6.3 (4.7-8.2) | 2.4 (1.4-3.7) | 0.8 (0.3-1.6) |
| 60-69 | 10.6 (8.5-13.2) | 20.9 (17.9-24.1) | 7.4 (5.6-9.6) | 3.7 (2.4-5.4) | 1.8 (1.0-3.1) |
| 70+ | 10.4 (8.3-12.9) | 20.5 (17.6-23.6) | 7.7 5.9-9.9) | 2.9 (1.8-4.4) | 2.5 (1.5-2.9) |
| OVERALL | 10.4 (9.6-11.3) | 17.5 (16.4-18.6) | 5.2 (4.6-5.9) | 2.0 (1.6-2.5) | 1.2 (1.0-1.6) |
| Stage 3 | | | | | |
| 1-17 | 10.1 (7.7-12.9) | 21.2 (17.8-24.9) | 8.2 (6.1-10.8) | 3.1 (1.8-4.9) | 4.2 (2.7-6.2) |
| 18-29 | 9.6 (6.9-12.9) | 18.5 (14.8-22.6) | 4.9 (3.0-7.5) | 3.4 (1.9-5.7) | 3.9 (2.3-6.3) |
| 30-39 | 14.1 (11.5-16.9) | 20.3 (14.3-23.6) | 5.4 (3.8-7.4) | 3.0 (1.8-4.6) | 3.9 (2.6-5.7) |
| 40-49 | 12.6 (10.4-15.0) | 23.9 (21.0-27.0) | 7.8 (6.1-9.9) | 4.0 (2.8-5.6) | 4.3 (3.0-5.9) |
| 50-59 | 10.5 (8.4-12.8) | 28.0 (24.9-31.2) | 7.8 (6.1-9.9) | 5.3 (3.8-7.1) | 5.0 (3.6-6.8) |
| 60-69 | 11.1 (8.8-13.6) | 24.2 (21.0-27.5) | 9.5 (7.4-11.9) | 6.4 (4.7-8.5) | 6.1 (4.5-8.1) |
| 70+ | 10.7 (8.6-13.2) | 23.8 (20.7-27.1) | 8.2 (6.4-10.5) | 6.3 (4.7-8.4) | 6.6 (4.9-8.7) |
| OVERALL | 11.4 (10.5-12.3) | 23.3 (22.1-24.6) | 7.6 (6.9-8.4) | 4.7 (3.2-5.3) | 5.0 (3.9-5.6) |
| Stage 4 | | | | | |
| 1-17 | 11.0 (8.5-13.9) | 34.4 (30.4-38.5) | 20.3 (17.0-23.9) | 11.2 (8.6-14.1) | 8.4 (6.2-11.1) |
| 18-29 | 15.3 (11.9-19.1) | 36.7 (32.0-41.6) | 17.2 (13.7-21.0) | 7.9 (5.4-10.0) | 5.2 (3.2-7.8) |
| 30-39 | 13.9 (11.3-16.7) | 38.7 (35.0-42.5) | 14.5 (11.9-17.4) | 7.7 (5.8-10.0) | 6.8 (5.0-9.0) |
| 40-49 | 14.8 (12.4-17.4) | 33.8 (30.6-37.1) | 16.0 (14.0-18.7) | 11.3 (9.2-13.7) | 7.7 (6.0-9.7) |
| 50-59 | 12.4 (10.2-14.8) | 32.3 (29.0-35.7) | 16.6 (14.1-19.4) | 7.8 (6.1-9.9) | 13.9 (11.5-16.5) |
| 60-69 | 11.9 (9.6-14.6) | 31.7 (28.2-35.3) | 14.6 (12.1-20.1) | 9.1 (7.1-11.5) | 11.6 (9.4-14.2) |
| 70+ | 10.4 (8.3-12.9) | 34.7 (31.2-38.2) | 17.2 (14.5-20.1) | 8.2 (6.4-10.5) | 10.4 (8.3-12.9) |
| OVERALL | 12.7 (11.8-13.7) | 34.4 (33.0-35.8) | 16.5 (15.4-17.6) | 9.1 (8.3-9.9) | 9.5 (8.7-10.4) |

Ta**ble S5.** Distributions by volunteer RBD Ab level and age.

|  |  |  |  |
| --- | --- | --- | --- |
| Age group, years | Antibody interval, BAU/ml | | |
| 22.6-220  % (95% CI) | 221-450  % (95% CI) | >450  % (95% CI) |
| Stage 1 | | | |
| 1-17 | 44.6 (40.4-48.8) | 8.8 (6.5-11.5) | 6.8 (4.8-9.2) |
| 18-29 | 36.7 (32.0-41.6) | 8.6 (6.1-11.8) | 12.3 (9.3-15.9) |
| 30-39 | 39.5 (35.7-43.3) | 9.6 (7.5-12.1) | 9.9 (7.8-12.5) |
| 40-49 | 39.0 (32.7-42.5) | 8.7 (6.8-10.8) | 14.5 (12.2-17.7) |
| 50-59 | 33.7 (30.4-37.1) | 13.2 (11.0-15.8) | 19.0 (17.1-22.7) |
| 60-69 | 26.4 (23.2-29.8) | 13.8 (11.3-16.6) | 21.6 (18.6-24.8) |
| 70+ | 30 (26.7-33.5) | 14.2 (11.7-16.9) | 23.1 (20.1-26.4) |
| OVERALL | 35.3 (34.0-36.7) | 11.2 (10.3-12.2) | 15.9 (14.2-17.0) |
| Stage 2 | | | |
| 1-17 | 49.3 (45.0-53.7) | 8.3 (6.1-11.0) | 9.1 (6.8-11.8) |
| 18-29 | 41.7 (36.8-46.7) | 8.0 (5.6-11.2) | 17.6 (14.0-21.7) |
| 30-39 | 40.1 (36.2-44.0) | 9.8 (7.6-12.3) | 17.7 (14.8-20.9) |
| 40-49 | 37.6 (34.2-41.0) | 11.8 (9.6-14.2) | 21.2 (18.4-24.2) |
| 50-59 | 38.7 (35.3-42.2) | 12.7 (10.4-15.3) | 25.4 (22.3-28.6) |
| 60-69 | 36.7 (34.4-41.6) | 13.4 (10.9-16.1) | 25.0 (21.8-28.4) |
| 70+ | 37.9 (34.4-41.6) | 13.7 (11.3-16.5) | 20.6 (17.7-23.7) |
| OVERALL | 39.8 (38.4-41.2) | 11.5 (10.6-12.4) | 20.2 (19.1-21.4) |
| Stage 3 | | | |
| 1-17 | 53.41 (49.1-57.7) | 13.1 (10.4-16.2) | 16.0 (13.0-19.4) |
| 18-29 | 40.0 (35.2-45.0) | 18.3 (14.6-22.4) | 24.9 (20.8-29.4) |
| 30-39 | 40.5 (36.7-44.3) | 20.2 (17.2-23.5) | 22.4 (19.2-25.7 |
| 40-49 | 37.6 (34.3-41.1) | 18.1 (15.5-20.9) | 29.6 (26.5-32.8) |
| 50-59 | 34.5 (31.2-37.9) | 17.8 (15.2-20.6) | 35.7 (32.4-39.2) |
| 60-69 | 34.8 (31.3-38.4) | 14.6 (12.1-17.5) | 39.1 (35.4-42.8) |
| 70+ | 35 (31.5-38.6) | 15.8 (13.3-18.7) | 36.0 (32.4-39.6) |
| OVERALL | 38.7 (37.3-40.1) | 16.9 (15.8-18.1) | 30.0 (28.7-31.4) |
| Stage 4 | | | |
| 1-17 | 33.8 (29.9-38.0) | 25.6 (22.0-29.5) | 35.8 (31.8-40.0) |
| 18-29 | 28.8 (24.5-33.5) | 28.3 (24.0-33.0) | 38.2 (33.4-43.1) |
| 30-39 | 27.7 (24.3-31.3) | 23.0 (19.6-25.5) | 44.0 (40.2-47.8) |
| 40-49 | 23.7 (20.8-26.8) | 22.5 (19.6-25.5) | 51.0 (47.5-54.6) |
| 50-59 | 18.4 (15.7-21.3) | 18.7 (16.1-21.6) | 59.6 (56.1-63.1) |
| 60-69 | 16.8 (14.1-19.7) | 17.9 (15.1-20.9) | 59.9 (56.2-65.4) |
| 70+ | 19.1 (16.3-22.2) | 19.1 (16.3-22.2) | 57.8 (54.1-61.4) |
| OVERALL | 23.2 (22.1-24.5) | 21.6 (20.4-22.8) | 51.0 (49.6-52.4) |