

SARS-CoV-2 seroprevalence among nursing home residents in March 2022

BRIEF COMMUNICATION ON RESULTS OF THE SCOPE-2 STUDY
(Sars-COV-2 seroPrEvalence)

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MAIN FINDINGS

- **In March 2022**, approximately 5 months after the COVID-19 booster campaign among nursing home residents, **100% (95% CI: 98-100) of residents had anti-SARS-CoV-2 antibodies**. At that time, at least 95% of nursing home residents had received at least 1 booster dose. A similar seroprevalence (98%, 95% CI: 96-99) was measured in December 2021, soon after the booster vaccination campaign.
- By March 2022, **51% of residents reported a previous SARS-CoV-2 infection** (defined as a previous positive PCR/antigen test/CT-scan between February 2020 and March 2022). 33% of these infections occurred during the 5th epidemic (omicron) wave (between December 2021 and March 2022).
- Although 17% (n=82) of residents in the cohort reported a SARS-CoV-2 infection upon the COVID-19 booster campaign, **COVID-19 hospitalizations and deaths remained low**. Between December 2021 and March 2022, two COVID-19 deaths (one deceased in the hospital) were reported in the cohort. No other residents were hospitalized because of a COVID-19 infection in this period.

1 BACKGROUND

From February until December 2021, the [SCOPE study](#) bi-monthly assessed the prevalence of anti-SARS-CoV-2 antibodies among a representative sample of 1,640 residents and 1,368 staff in 69 Belgian nursing homes, as part of a national serosurveillance program.

In 2022, we continue the monitoring of the SARS-CoV-2 seroprevalence among part of the cohort of nursing home residents (SCOPE-2). Starting from March 2022, we three-monthly measure the SARS-CoV-2 seroprevalence among 492 residents in 30 nursing homes selected from the original SCOPE cohort. The 30 nursing homes were selected proportional to the population of Belgian provinces, so that the sample of nursing home residents is geographically representative for Belgium. In SCOPE-2, the presence of anti-SARS-CoV-2 antibodies was determined by anti-SARS-CoV-2 S1RBD IgG ELISA on dried blood spot samples, whereas previously, SARS-CoV-2 antibody rapid tests were used.

The current brief communication reports on the prevalence of anti-SARS-CoV-2 antibodies among nursing home residents in March 2022. At that moment, the majority of nursing home residents (at least 95%) received their booster vaccination approximately 5 months earlier, as the booster vaccination campaign started on October 6th 2021. The previous testing timepoint, which took place shortly after the booster vaccination campaign among nursing home residents, reported a SARS-CoV-2 seroprevalence of 98% (95% CI: 96-99)¹.

¹ Sciensano Belgium COVID-19 dashboard – Seroprevalence studies. 2022.
<https://datastudio.google.com/embed/reporting/7e11980c-3350-4ee3-8291-3065cc4e90c2/page/ZwmOB>. June 6th 2022.

2 RESULTS

2.1 Participant characteristics of the SCOPE-2 cohort

The characteristics of the nursing home residents participating in the SCOPE-2 study can be found in Table 1.

Table 1: Overview of the participant characteristics of the SCOPE-2 cohort.

	Nursing home residents (n=492)	
Brussels, n, %	43	9
Wallonia, n, %	167	34
Flanders, n, %	282	57
Median age, IQR	87	81-91
Female, n, %	366	75
At least 1 comorbidity as listed below, n, %	353	72
Cardiovascular disease	212	43
Hypertension	185	38
Diabetes	74	15
Severe heart-/lung-/renal disease	54	11
Active cancer	24	5
Immunosuppression	7	1
Care dependency level (Katz Index), n, %		
O	58	12
A	89	18
B	179	36
C	76	15
Cd	74	15
D	15	3

2.2 Vaccination status and history of COVID-19 infection among nursing home residents in March 2022

An overview of the vaccination and infection status of nursing home residents can be found in Table 2.

During the testing period in March 2022, at least **95% of the nursing home residents in the cohort had received at least 1 booster dose** (7 residents received also a second booster vaccine dose, 1%). All administered booster doses were Pfizer-BioNTech.

By March 2022, **51% of the residents reported a previous COVID-19 infection** (defined as a previous positive PCR/antigen test/CT-scan between February 2020 and March 2022). 33% (n=82) of these infections occurred between December 2021 and March 2022.

Table 2: Vaccination coverage among nursing home residents in March 2022.

	Not vaccinated		Fully vaccinated ¹		+ Booster dose ²		History of COVID-19 infection	
	Number	%	Number	%	Number ³	%	Number	%
Residents (n=492)	4	1	487	99	465	95	250	51

¹ Participants who received at least all required doses (i.e. 1 dose for Johnson & Johnson vaccine, 2 doses for the others), at least 14 days before the antibody testing. ² Participants who received at least one booster vaccine, at least 14 days before the antibody testing. ³ This number will be an underestimate of the true number of participants who received at least one booster vaccine. A Last Observation Carried Forward (LOCF) method is applied to handle missing survey information on the vaccination status. In 17 (3%) participants, information on the booster vaccine may be missing due to at least one missing survey since the start of the booster campaign. Exclusion of these 17 participants results in 465/475 (98%) of participants who received at least one booster vaccine. n, total number of participants that completed vaccination data in the questionnaires. One resident was partially vaccinated at the moment of testing (not presented in the table).

2.3 SARS-CoV-2 seroprevalence in March 2022

Between February 28th and March 24th 2022, we assessed the presence of anti-SARS-CoV-2 antibodies among nursing home residents in Belgium (Table 3).

In March 2022, approximately 5 months after the booster vaccination campaign among nursing home residents, **100% had anti-SARS-CoV-2 antibodies**.

Table 3: Number and adjusted prevalence of anti-SARS-CoV-2 antibodies among residents in Belgian nursing homes in March 2022.

SARS-CoV-2 seroprevalence	
Number positive/total ¹	Prevalence % (95% CI)
470/472	100 (98-100)

¹Total number of available test results. CI, confidence interval. NA, not available

2.4 COVID-19 mortality and hospitalizations

Between December 2021 and March 2022, two COVID-19 deaths (one deceased in the hospital) were reported in the cohort. No other residents were hospitalized because of a COVID-19 infection.

3 CONCLUSION

In March 2022, approximately 5 months after the COVID-19 booster campaign among nursing home residents, we measured a SARS-CoV-2 seroprevalence of 100% (95% CI: 98-100). This was similar to what was measured in December 2021, shortly after the COVID-19 booster campaign, when 98% (95% CI: 96-99) of residents had anti-SARS-CoV-2 antibodies².

Although a relatively high number of COVID-19 infections were reported in the period between December 2021 and March 2022, COVID-19 hospitalizations and deaths remained low in the cohort. Most probably, this is due to the effect of the high COVID-19 vaccination coverage in this population and the lower pathogenicity of SARS-CoV-2 variant of concern dominant during this period.

² Sciensano Belgium COVID-19 dashboard – Seroprevalence studies. 2022. <https://datastudio.google.com/embed/reporting/7e11980c-3350-4ee3-8291-3065cc4e90c2/page/ZwmOB>. June 6th 2022.

For general methods and study protocol we refer to:

Study Protocol SCOPE/SCOPE-2: <https://www.sciensano.be/nl/biblio/sars-cov-2-seroprevalence-among-nursing-home-staff-and-residents-belgium-protocol>

Report visit 1 (SCOPE, February 2021): https://www.sciensano.be/sites/default/files/sars-cov-2_seroprevalence_in_nh_report_june_2021.pdf

Report visit 2 (SCOPE, April 2021): [SARS-CoV-2 seroprevalence among nursing home residents and staff in Belgium - Results visit 2 – April 2021 | sciensano.be](#)

Report visit 3-4 (SCOPE, June-August 2021): https://www.sciensano.be/sites/default/files/sars-cov-2_among_nh_residents_brief_communication_20210831_1.pdf

Report visit 5 (SCOPE, October 2021): <https://www.sciensano.be/en/biblio/effect-booster-dose-prevalence-anti-sars-cov-2-antibodies-among-nursing-home-residents-brief>