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Geneva Centre for
Emerging Viral Diseases

Division of Infectious
Diseases

Department of Medicine

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SARS-CoV-2 genomic surveillance in Geneva: bi-weekly update

Highlights:

- Both the number of positive tests and the positivity rate have decreased over the last 2 weeks (Figure 1) indicating a decrease of the circulation level of the virus in the community. Of note, the absolute number of tests performed both in our outpatient center and in hospitalized patients also progressively decreased over the last 3 weeks.
- BA.5 and its sub-lineages are predominant in the Geneva area (Figure 2). BA.4 accounts for a small fraction (less than 10%), while BA.2 disappeared at the beginning of July.
- The BA.1 variants and their sub-lineages have not been detected in the Geneva area over the last 7 weeks.
- Of note, no BA.2.75 has yet been detected in the canton of Geneva in clinical samples. The variant has been detected in wastewater in the Geneva area at the end of June.

Figure 1: Number of SARS-CoV-2 tests performed at the HUG laboratory of virology (per day). Positive tests are displayed in light blue (top). Bottom left: SARS-CoV-2 positive tests over 7 sliding days. Bottom right: mean SARS-CoV-2 tests performed over 7 sliding days.

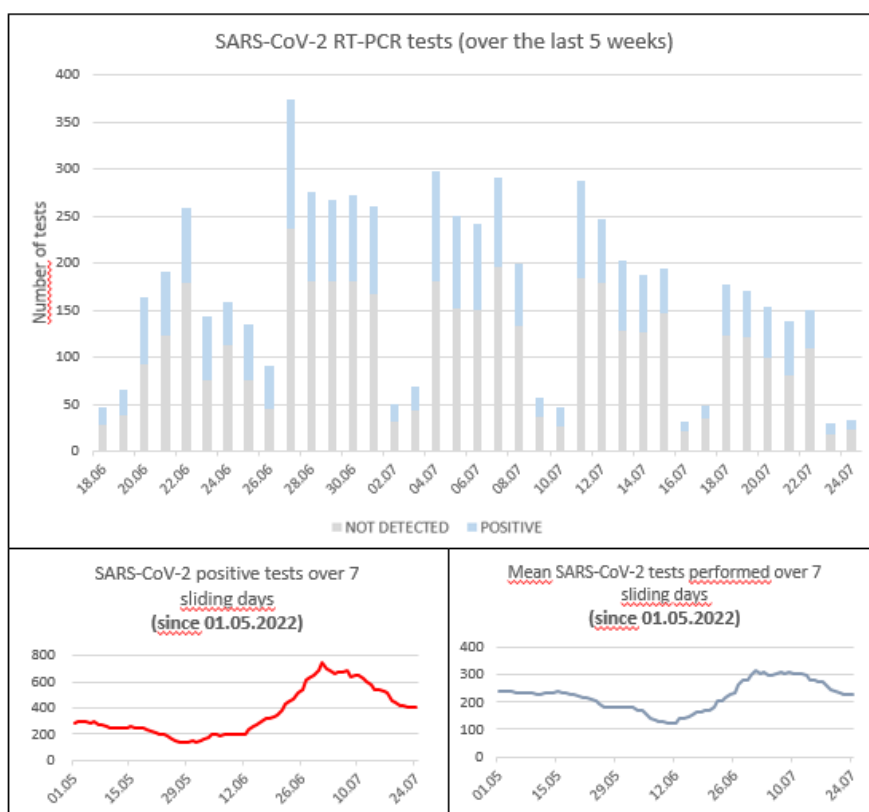
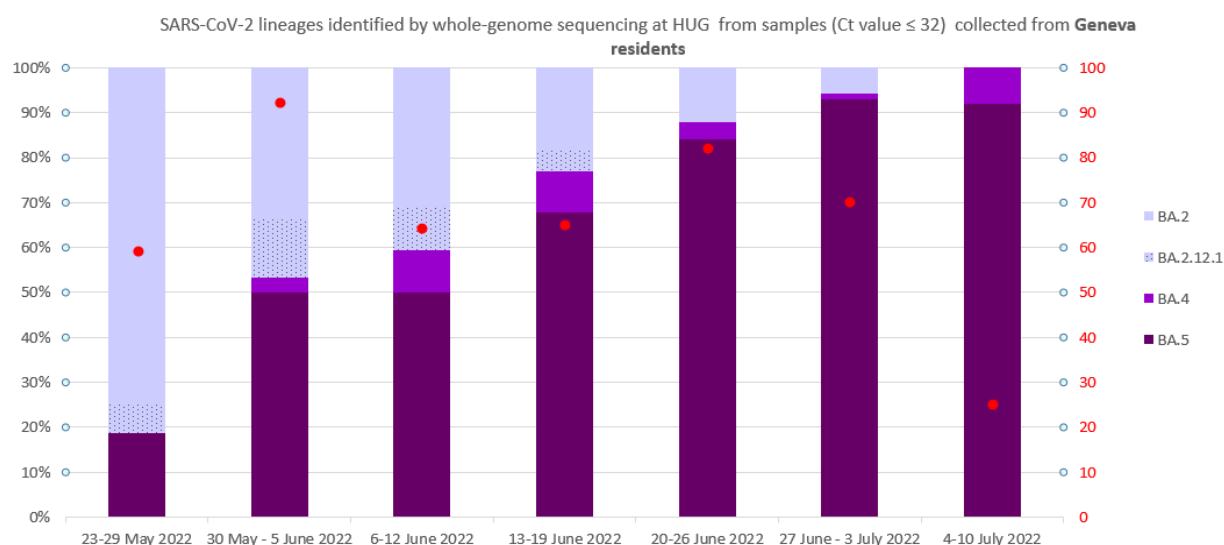


Figure 2: SARS-CoV-2 lineages identified by whole-genome sequencing at HUG from samples (Ct-value ≤ 32) collected from Geneva residents (Sentinella specimens excluded). *Sequencing is still ongoing for week 27 (from July 4 to July 10, 2022). A total of 457 sequences are included in this analysis.



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 Emma Hodcroft for the Geneva Center for Emerging Viral Diseases.
 Pauline Brindel for the Geneva Cantonal Physician team.

The laboratory of virology of the Geneva University Hospitals as a sentinel site for the Geneva area

The number of tests (PCR and antigen tests) performed at the Geneva University Hospitals represented around 23% (1936/8525) and 25% (1596/6468) of the total number of tests performed in the canton of Geneva during weeks 28 and 29 of 2022, respectively. Roughly 17% and 19% of the positive specimens collected in the Geneva area were processed at HUG during weeks 28 and 29 (510/2999 and 404/2160), respectively. Samples collected from symptomatic individuals at our outpatient testing center are tested by RT-PCR. Specimens analyzed in our laboratory originate from ambulatory and hospitalized patients as well as symptomatic and/or asymptomatic health care workers.

The number of positive tests in the canton and the total number of tests done during the surveilled weeks are available on the website from Federal Office of Public Health ([COVID-19 Suisse | Coronavirus | Dashboard \(admin.ch\)](https://covid19.suisse.admin.ch)). During weeks 28 and 29 in the canton of Geneva, the number of RT-PCR tests decreased by 25% compared to the two previous weeks. The number of confirmed cases also decreased by one third in comparison to the past 2 weeks and the proportion of positive tests initiated a slight decrease below 40 % for several days in a row.

Methods and collaborations

The laboratory has stopped the systematic screening for the “S Drop out” (Taqpath RT-PCR assay) at the end of week 26 of 2022, after the replacement of BA.2 by BA.4/5.

WGS is carried out in close collaboration with the Health 2030 Genome Center in Geneva and Philippe Le Mercier from the Swiss Institute of Bioinformatics. The national genomic surveillance program is ongoing in Switzerland since March 1, 2021 and includes specimens collected at HUG with a Ct-value ≤ 32 . In some instances, sequencing can be done on specimens sent by other laboratories in Switzerland within the surveillance program or by request of the cantonal physician team. Phylogenetic analysis data are produced by Nextstrain, in collaboration with Richard Neher’s group at the University of Basel and analyzed by Emma Hodcroft, from the Geneva Center of Emerging Viral Diseases and University of Geneva. In addition, partial Sanger sequencing may be done by our laboratory.

Geographic distribution, transmission advantage estimates and detailed numbers of available sequences over time in the canton of Geneva are available on the covSPECTRUM platform, run by Tanja Stadler’s group at ETH Zurich.

These reports are produced in collaboration with the Geneva Cantonal Physician team, which provides information on epidemiological links. For epidemiological data, please refer to the report of the cantonal physician team.