Hôpitaux Universitaires Genève

REPUBLIQUE ET CANTON DE GENEVE
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Direction générale de la santé
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Geneva Centre for Emerging Viral Diseases

Division of Infectious Diseases

Department of Medicine

Laboratory of virology

Division of Laboratory Medicine

Diagnostic Department

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

Highlights:

- We observe an increase of the total number of positive tests and of the overall positivity rate. (Figure 1).
- Lineage BA.2.12.1 has not been detected in 7 weeks in a row in the Geneva area while BQ.1 (=BA.5 sublineage with S:444T and S:460K) and BQ.1.1 (=BQ.1 with additional S:346T which possibly increases the growth advantage) sublineages detection seems to increase among Geneva residents (Figure 2).
- S Drop out screening (week 40-41): two of the 89 (2.2%) and 92 (2.2%) specimens tested during weeks 40 and 41, respectively, did not displayed the S-gene target failure. Of note, considering the low prevalence of BA.2.75 variant in the Geneva area (Figure 2), S-Drop out screening will be stopped from week 42.

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.*

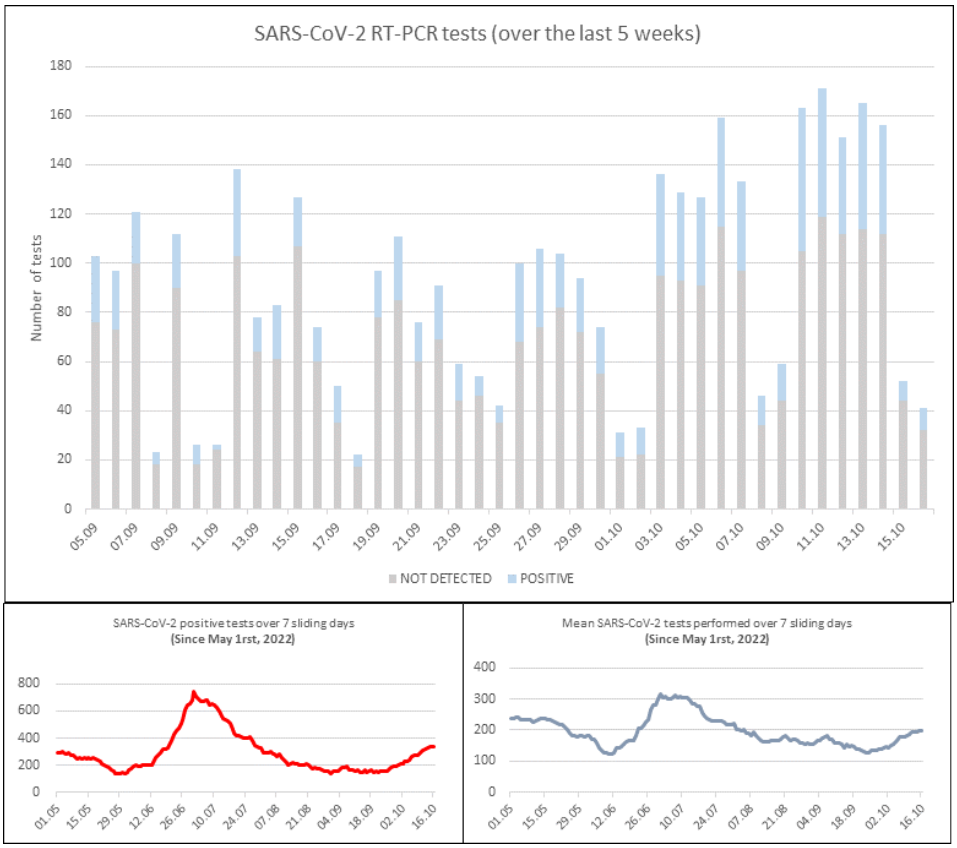
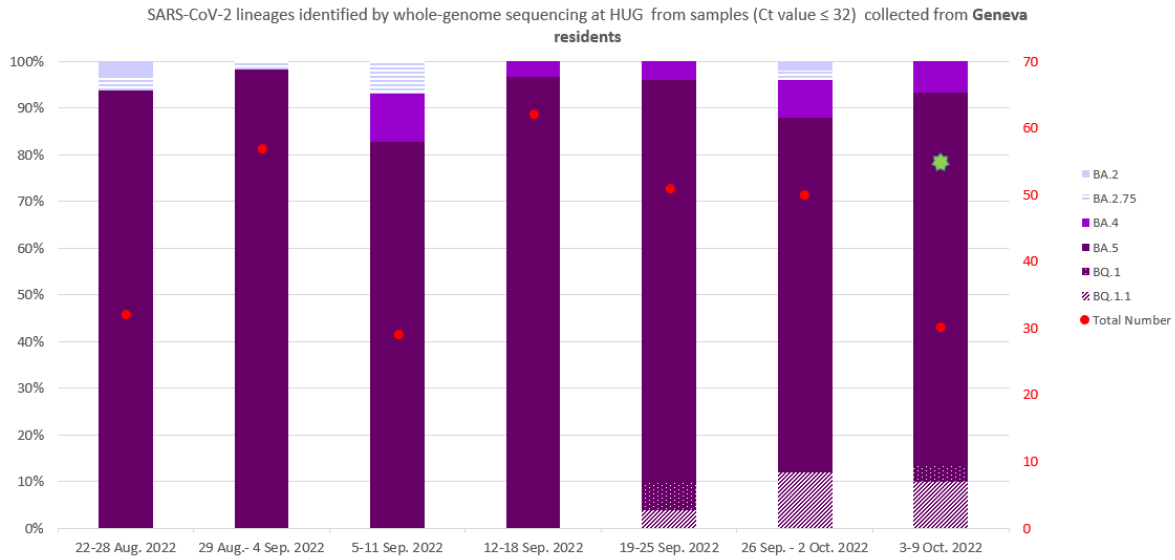


Figure 2: *SARS-CoV-2 lineages identified by whole-genome sequencing at HUG from samples (Ct-value ≤32) collected from Geneva residents (Sentinella specimens excluded). *Sequencing is still ongoing for week 40 (from October 03 to October 09, 2022). A total of 311 sequences were included in this analysis.*



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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 29.1% (1258/4317) and 29.5% (1387/4705) of the total number of tests performed in the canton of Geneva during weeks 40 and 41 of 2022, respectively. Roughly 19% and 21% of the positive specimens collected in the Geneva area were processed at HUG during weeks 40 and 41 (276/1417 and 332/1576), 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)).
During weeks 40 and 41 in the canton of Geneva, the number of RT-PCR tests and the proportion of positive tests increased compared to the two previous weeks. The number of confirmed cases doubled.

Methods and collaborations

The laboratory has reintroduced from week 37 the screening for the "S Drop out" (Taqpath RT-PCR assay) in order to monitor BA.2.75. Considering the low prevalence of BA.2.75 variant in the Geneva area (Figure 2), S Drop out screening will be stopped from week 42

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.