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Geneva Centre for
Emerging Viral Diseases

Division of Infectious
Diseases

Department of Medicine

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Diagnostic Department

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

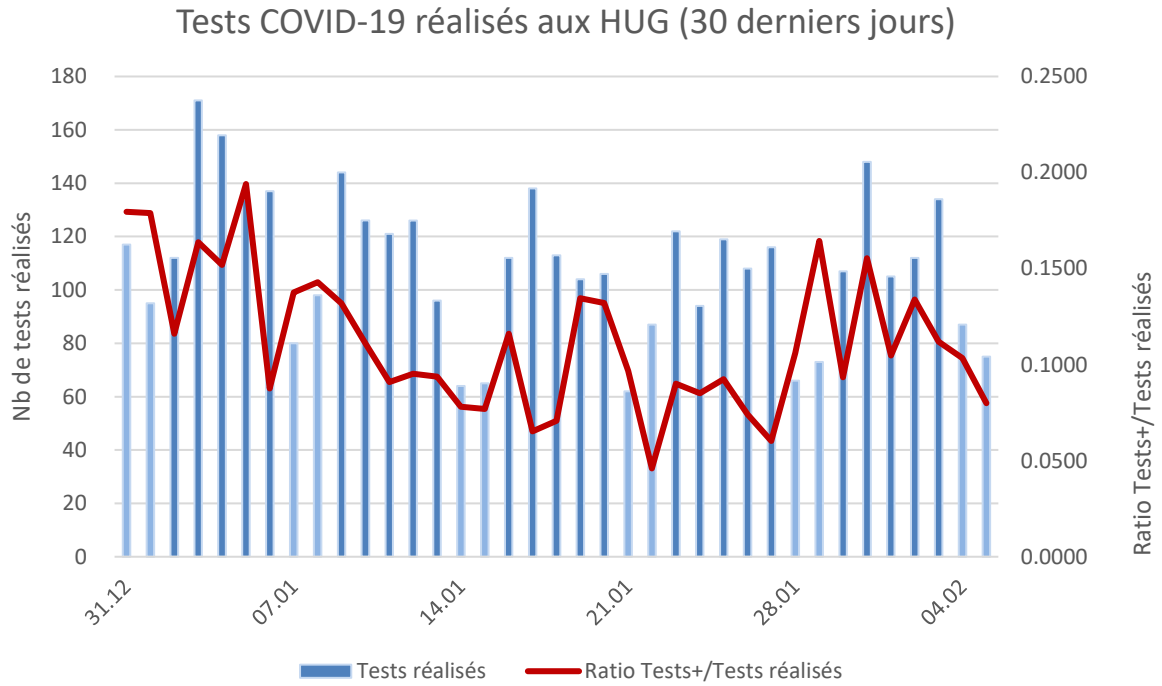
Highlights:

- After an important decrease in the positivity rate and the number of tests done in the first weeks of January to a level not recorded since approximately November 2021, there has been a slight increase in the positivity rate and the number of tests done since the end of week 4, 2023 (Figure 1).
- Since September 2022, hospitalization rates of COVID+ patients reached a lower limit on 28 January with n=32 patients, but started to increase again to reach n=48 patients on 6 February 2023.
- Starting 1 January 2023, up to 30 samples from the Geneva area will be sequenced weekly. Statistics and trends published by our laboratory biweekly might give some hints about the local epidemiology but are not optimally representative.
- For weeks 3 and 4 only 7 and 3 samples from Geneva residents were sequenced, respectively. Results from the 4th week will be completed with the following report.
- **XBB.1.5** appeared in week 3, representing 3/7 samples, and became dominant in week 4 with 3/3 samples.
- **BQ1.1**, the dominant variant in the Geneva area since the end of November 2022, was last detected in week 3, 2023.
- In wastewater-based surveillance of SARS-CoV-2 variants in the Geneva area, the relative proportion increased to 29% for XBB-, to 21% for BA.2.75- and decreased to 29% for BQ.1.1-sublineages, which had been the predominant variant until the 2nd week of January.*
- The presence of XBB sublineages in wastewater was found in all other collection sites across Switzerland.*

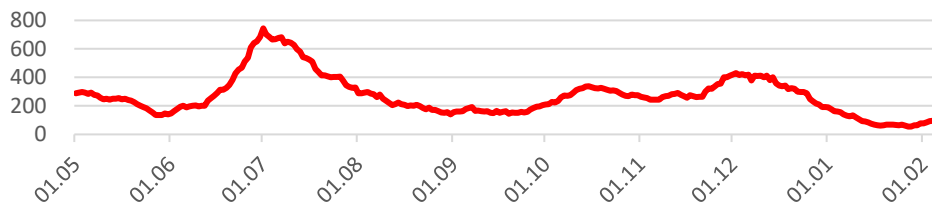
More information:

*Information from <https://bsse.ethz.ch/cbg/research/computational-virology/sarscov2-variants-wastewater-surveillance.html>

Figure 1: Total number of SARS-CoV-2 tests performed at the HUG per day and over 30 days (PCR and antigenic tests). The positivity rate is displayed as a red curve. **Bottom left:** SARS-CoV-2 positive tests over 7 sliding days. **Bottom right:** mean SARS-CoV-2 tests performed over 7 sliding days.



Somme des tests positifs sur 7 jours coulissants depuis 01.05.2022



Moyenne des tests réalisés sur 7 jours coulissants depuis 01.05.2022

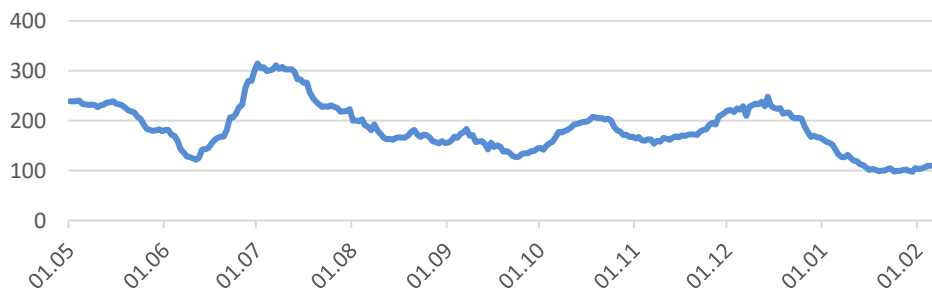
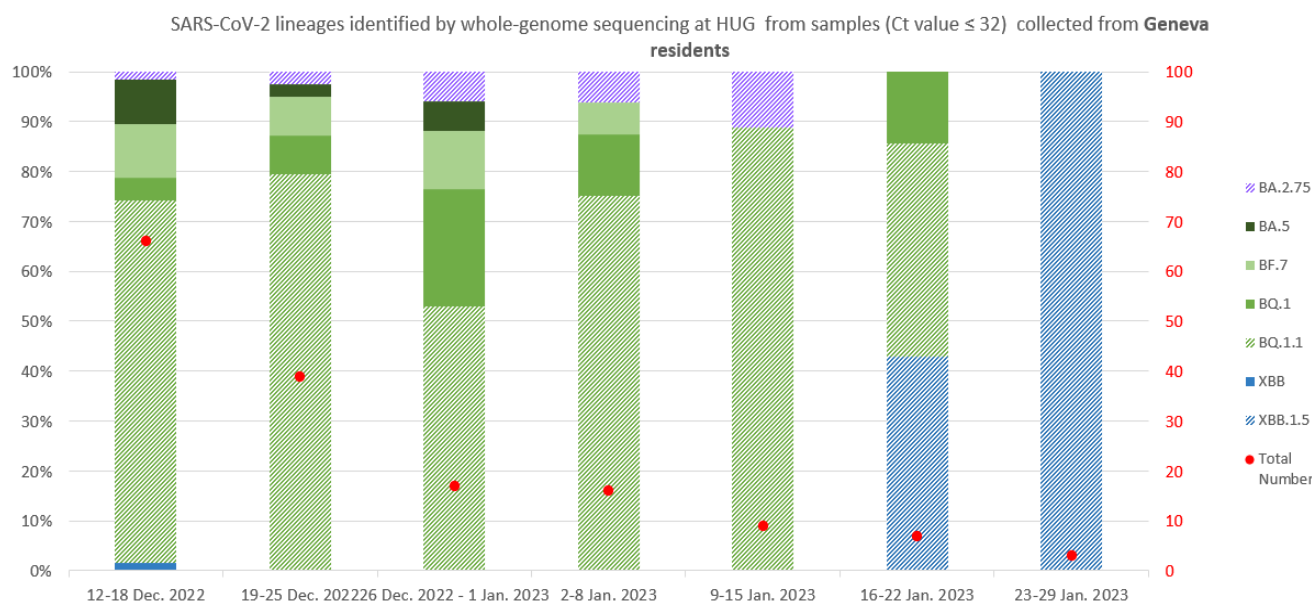


Figure 2: SARS-CoV-2 lineages identified by whole-genome sequencing at HUG from samples (Ct-value ≤ 32) collected from Geneva residents (Sentinella specimens excluded). A total of 157 sequences were included in this analysis. Please note the low sample number starting from Week 52 and reaching $n=3$ on week 4 (samples from week 4 will be completed with the following report).



Laurent Kaiser, Samuel Cordey, Manuel Schibler, Yerly Sabine and Iris Najjar for the HUG and the Geneva Centre for Emerging Viral Diseases.

Emma Hodcroft for the Geneva Center for Emerging Viral Diseases.

Geraldine Duc, 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 **70%**(722/1031), and **68,9%**(698/1013) of the total number of tests performed in the canton of Geneva during weeks 3 and 4 of 2023, respectively. Roughly **71,6%**(68/95) and **72.7%**(64/88) of the positive specimens collected in the Geneva area were processed at HUG during weeks 3 and 4, respectively. Specimens analyzed at the HUG originate from ambulatory and hospitalized patients and symptomatic and/or asymptomatic healthcare 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 of the Federal Office of Public Health ([COVID-19 Suisse | Coronavirus | Dashboard \(admin.ch\)](https://www.bfs.admin.ch/bfs/fr/home/actualites/actualites-2023/20230104-covid-19-suisse-coronavirus-dashboards-admin.ch)).

During weeks 3 and 4 in the canton of Geneva, the total number of tests, confirmed cases, and positivity rate **decreased** compared to the previous weeks to very low levels. However, since the end of week 4, we have seen a slight increase in the positivity rate and the number of tests done.

Methods and collaborations

WGS is conducted 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 has been ongoing in Switzerland since March 1, 2021, and includes specimens collected at the 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 Centre of Emerging Viral Diseases and the 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.