Hôpitaux Universitaires Genève

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Geneva, December 02, 2022

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

Highlights:

- We observe a tendency of increase of the number of positive tests and of the overall positivity rate over the last two weeks (Figure 1).
- Prevalence of SARS-CoV2 samples with 346T mutation was stable between 60% and 70% during weeks 46-48 (Figure 2). This mutation is found on several Omicron sub-variants, and is phenotypically associated with immune escape, notably regarding mAb treatments.

Important:

Due to technical problems, WGS of SARS-CoV-2 lineages of weeks 46 and 47 will only be available in the bi-weekly report of the 15.12.2022.

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.*

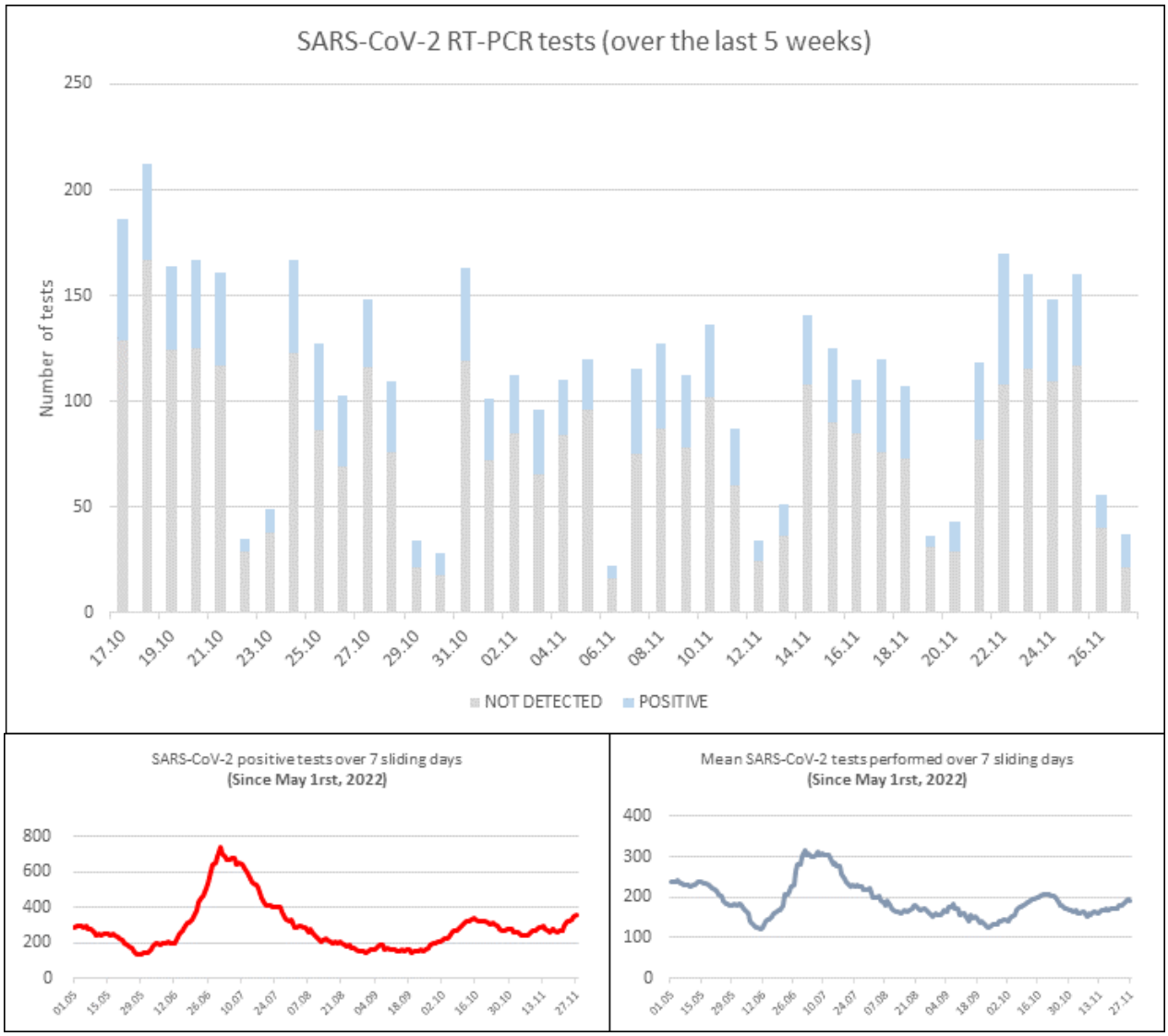
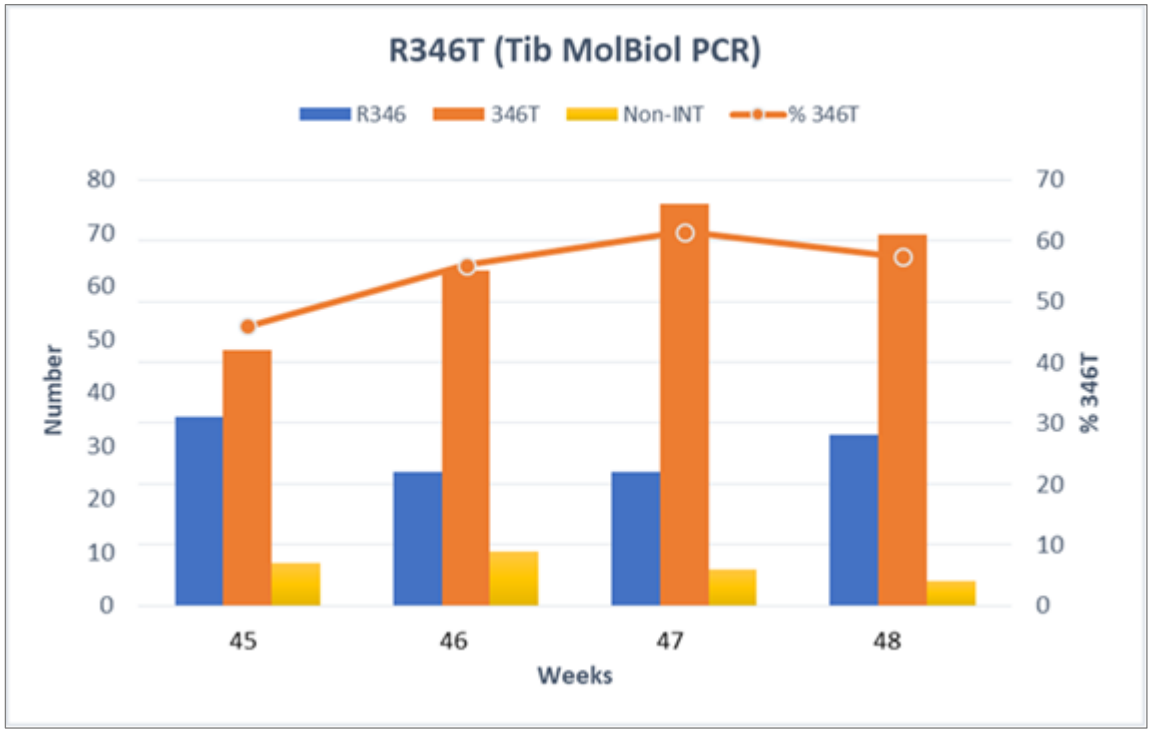


Figure 2: *Number and proportion of SARS-CoV-2 screened samples with and without the S:R346T mutation. Non-interpretable samples are displayed as "Non-INT".*



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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 30% (1208/4074) and 32% (1346/4267) of the total number of tests performed in the canton of Geneva during weeks 46 and 47 of 2022, respectively. Roughly 19% and 25% of the positive specimens collected in the Geneva area were processed at HUG during weeks 46 and 47 (265 /1376 and 356/1453), 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 46 and 47 in the canton of Geneva, the number of RT-PCR tests increased compared to the two previous weeks and the proportion of positive tests remained between 30 and 40%. The number of confirmed cases also increased.

Methods and collaborations

Of note, the laboratory has introduced from week 45 the screening of the S:346T mutation using the SARS Spike R346T kit (TIB Molbiol).

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.