

Genomic surveillance of SARS-CoV-2 in Belgium

Report of the National Reference Laboratory (UZ Leuven & KU Leuven)

Situation update – 13 of July 2021
(report 2021_36)

Executive summary

32.588 Belgian sequences of SARS-CoV-2 are now publicly available on GISAID.

Among these, 744 sequences of positive SARS-CoV-2 samples collected between 28 June and 11 July were reported in the context of baseline surveillance in the context of baseline surveillance,

- B.1.617.2 (*Delta*) represented 62,6% (compared to 50,2% in the last report) ↗
- B.1.1.7 (*Alpha*) represented 28,1% (compared to 42,6% in the last report) ↘
- P.1 (*Gamma*) represented 6,3% (compared to 4,6% in the last report) ↗
- B.1.351 (*Beta*) represented 0,5% (compared to 1,1% in the last report) ↘

Other points of attention:

- The NRC performed 212 VOC PCRs on unselected positive samples analyzed during the week of June 28. B.1.617.1/.2 represented 93% (↗) of the results.

- Among departing travellers tested at the NRC, the positivity rate increased from 0,28% to 0,58% and the positivity rate among returning travellers increased from 2% to 8,5% between the week of 28 June and the week of 5 July.

- The increased number of infections diagnosed in Belgium is the result of increased testing AND an increasing number of symptomatic individuals. For the moment, this phenomenon mainly involves young (unvaccinated) age groups. Therefore, a discrete (but not alarming) increase in hospitalisations is expected in the coming weeks. This situation may rapidly evolve as transmission in older age groups (mostly vaccinated, but with still an important number of unvaccinated and incompletely vaccinated and incompletely vaccinated individuals) will occur. Therefore, avoiding further uncontrolled importation and spread of the virus should still remain considered as necessary interventions at this stage, complementing the current vaccination level.

Authors (National Reference Laboratory – UZ Leuven and KU Leuven):

Lize Cuypers, Guy Baele, Piet Maes, Simon Dellicour, Tom Wenseleers, Barney Potter, Els Keyaerts, Sunita Janssenswillen, Elke Wollants, Marc Van Ranst, Emmanuel André.

With the collaboration of the laboratories of UCL, ULB, UMONS, UNAMUR, ULIÈGE, UGENT, UZA/UAntwerpen, JESSA ZH, AZ DELTA, AZ KLINA, IPG, AZ ST LUCAS GENT, OLVZ AALST, BRIANT NETWORK, ZNA, AZ ST JAN BRUGGE, and UZ Leuven/KU Leuven.

Previous reports can be downloaded using the following link:

<https://www.uzleuven.be/nl/laboratoriumgeneeskunde/genomic-surveillance-sars-cov-2-belgium>

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1. Monitoring of VOCs

International evolution

The Delta variant (B.1.617.2) has continued to spread globally. It has become the dominant lineage in several European countries, and other EU countries are expected to follow this evolution during the summer period.

- Infections in the **European Region** are rising, and all countries are expected to experience a **rapidly increasing number of infections** in the coming weeks.

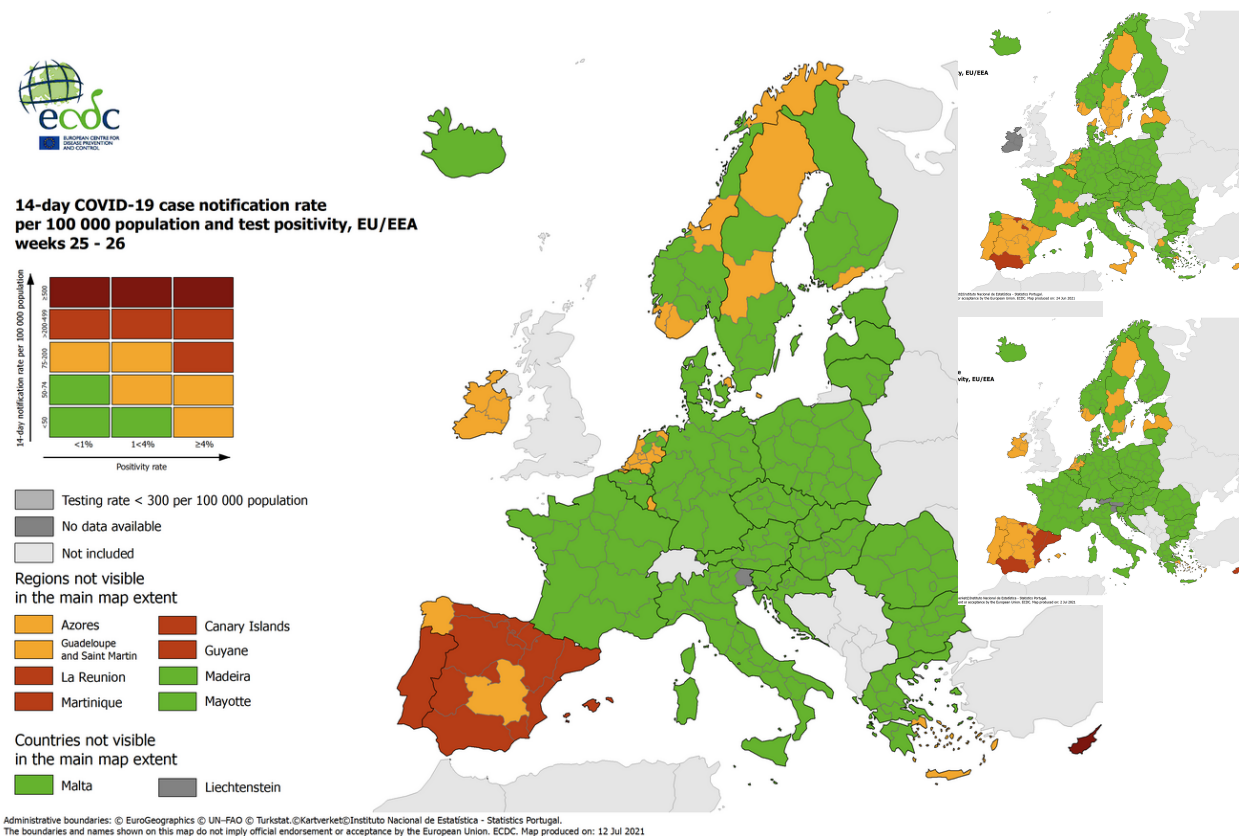


Figure 1. 14-day COVID-19 case notification rate per 100,000 inhabitants and test positivity rate (and comparison with the previous weeks, starting from the top).

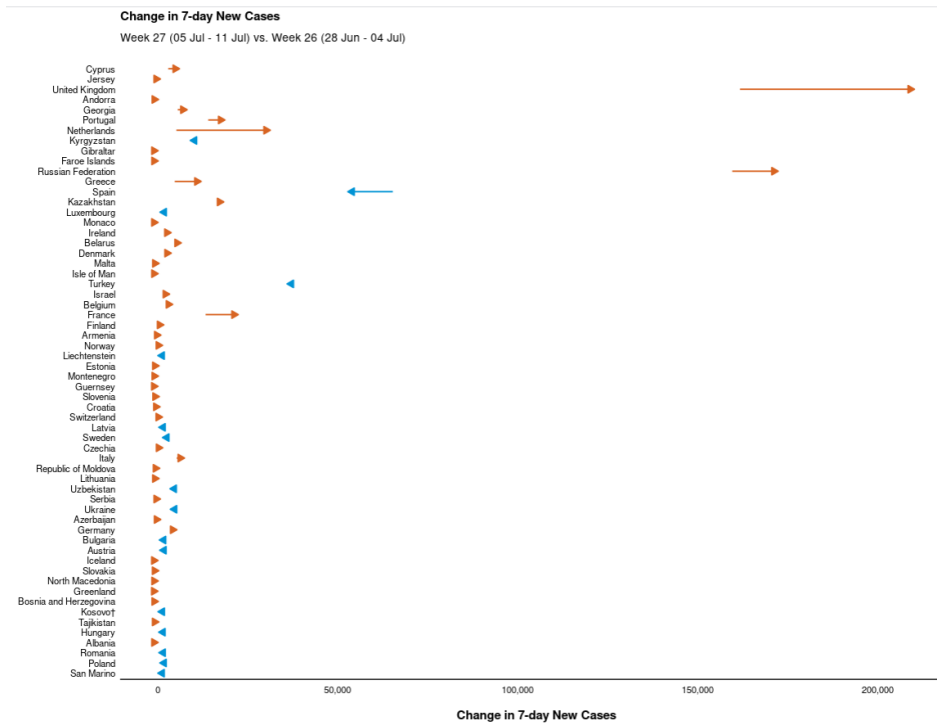


Figure 2. In the European Region, the most rapid increase in terms of new infections is currently observed in the United Kingdom, the Netherlands, Russia and France (*source: WHO, <https://worldhealthorg.shinyapps.io/covid/>*).

- In other regions of the world, the situation is rapidly evolving in continents where vaccination coverage is very low (Africa, Latin America, Asia), but also in the United States where the vaccination coverage is >50% and in China.

The Delta variant is the cause of the surge of infections and deaths currently experienced by most countries around the world. This highly infectious variant seems to be outpacing all previous “variants of concern”, regardless of the pre-existing variants circulating.

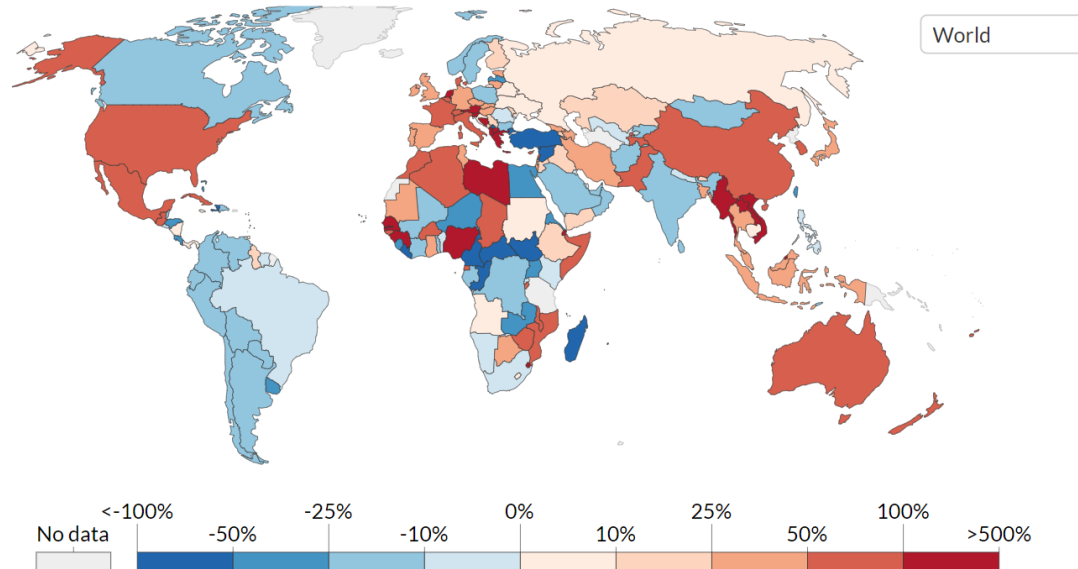


Figure 3 : Week by week change (% evolution compared to the previous week) in confirmed COVID-19 cases (source: Our World in Data).

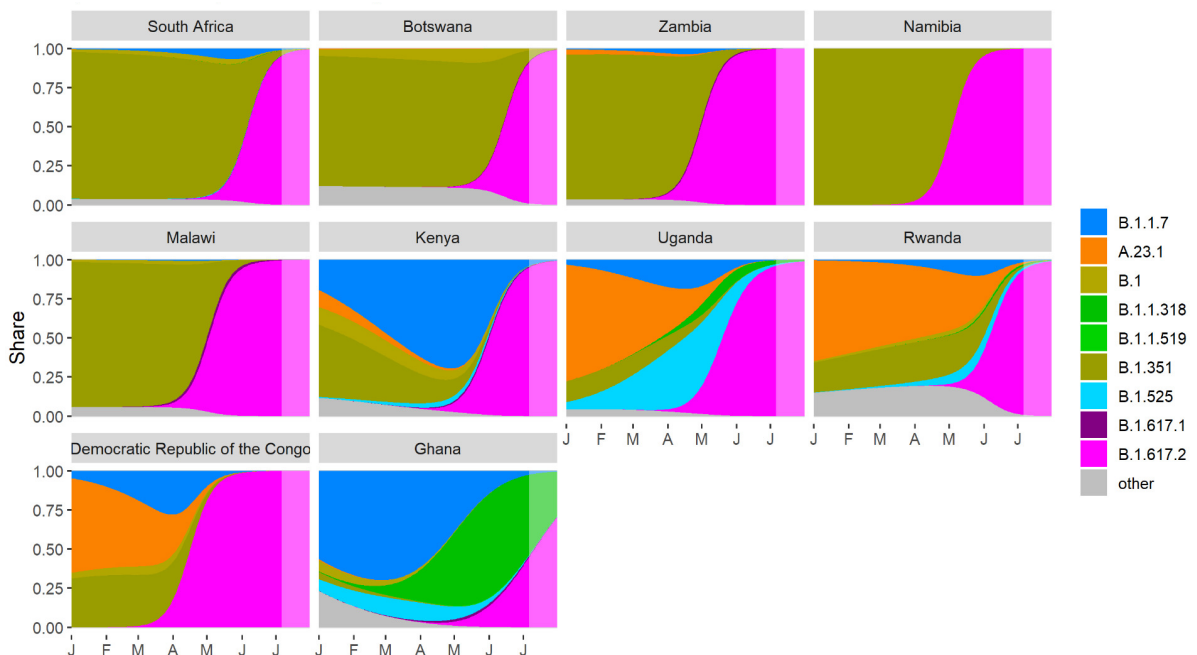
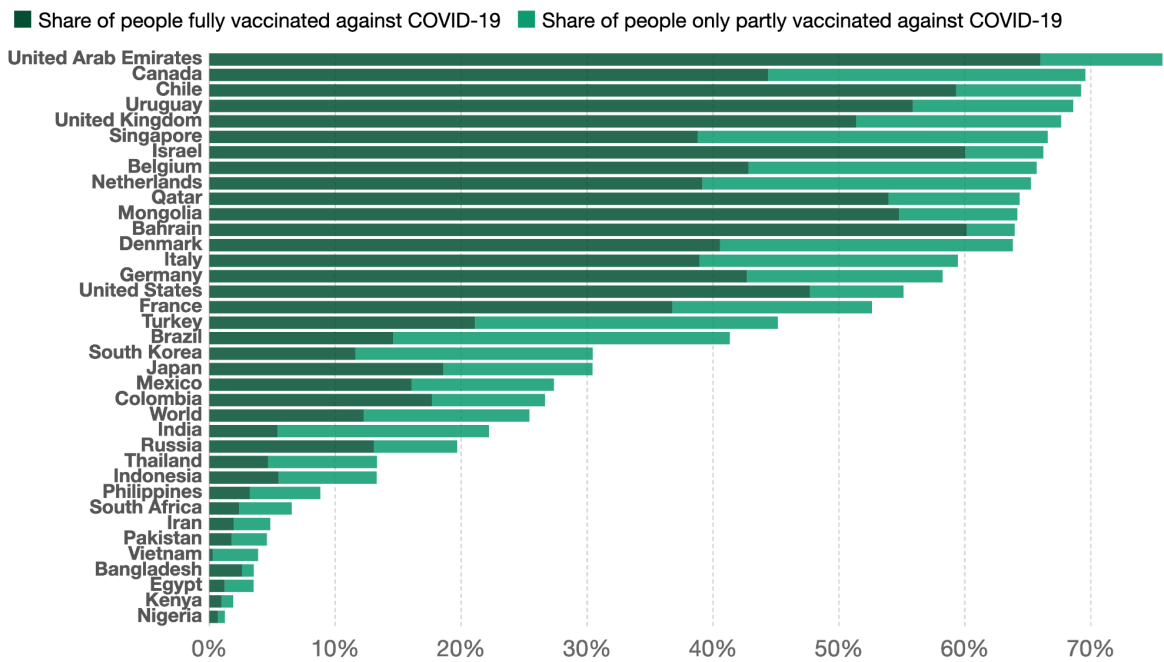


Figure 4 : Spread of SARS-CoV-2 variants of concern in Africa. The Delta variant (B.1.617.2) has become dominant in all countries providing genomic surveillance information (source: GISAID, Tom Wenseleers).



Source: Official data collated by Our World in Data

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Figure 5 : Share of people vaccinated against COVID-19, July 2021. In the context of the Delta variant, only fully vaccinated populations (dark green) should be considered as efficiently protected against severe disease.

Situation in Belgium

While it was first identified on 6 April 2021 in Belgium, the B.1.617.2 Variant of Concern (Delta) is now the dominant lineage in the country.

B.1.617.2 (delta), P.1 (gamma), B.1.351 (Beta), B.1.1.7 (alpha) and Others

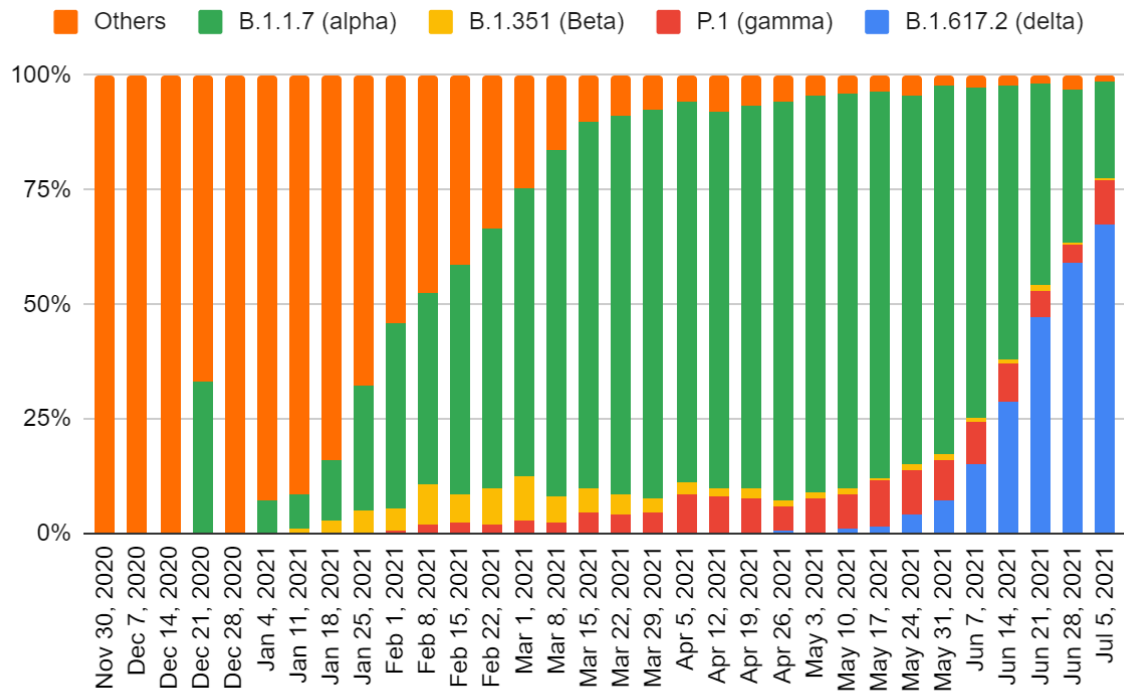


Figure 6: Weekly evolution of the frequency of variants of concern reported by the baseline surveillance network using a whole genome sequencing (WGS) approach.

Delta (WGS) and Delta (genotyping)

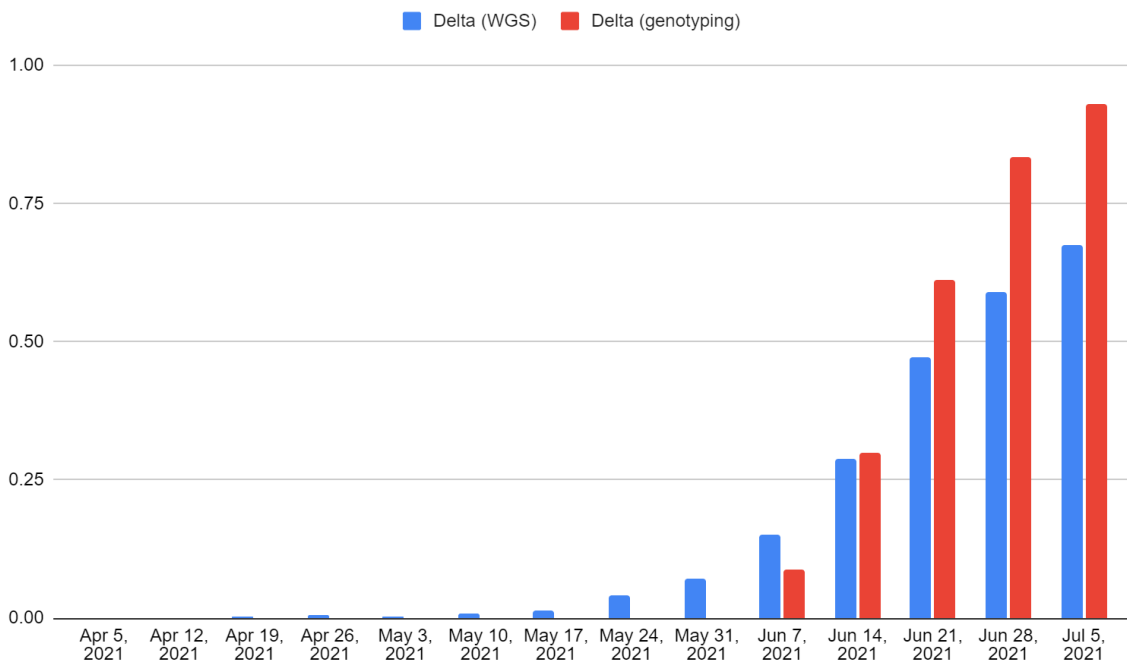


Figure 7: Weekly evolution of the proportion of the Delta variant reported by the baseline national surveillance network using whole genome sequencing (blue), and rapid VOC PCRs performed among all positive cases received at the national reference laboratory in Leuven (red: mainly unbiased sampling, but limited geographical representativeness).

The situation in Belgium is currently characterized by:

- A recent rise in the number of infections, a phenomenon directly associated with the variant Delta which has recently become the dominant lineage in Belgium (Figure 8) in the context of increased social contacts within the community (yet to be quantified, could be associated with the start of the summer holidays, increased international travels and the UEFA soccer tournament) and increased testing.
- The rise in the number of infections has not translated at this stage in an increase of infections requiring hospitalisation, but this situation will evolve if infections continue to rise (most probable scenario considering the current inadequacy between disease control measures and the infectiousness of the Delta variant).

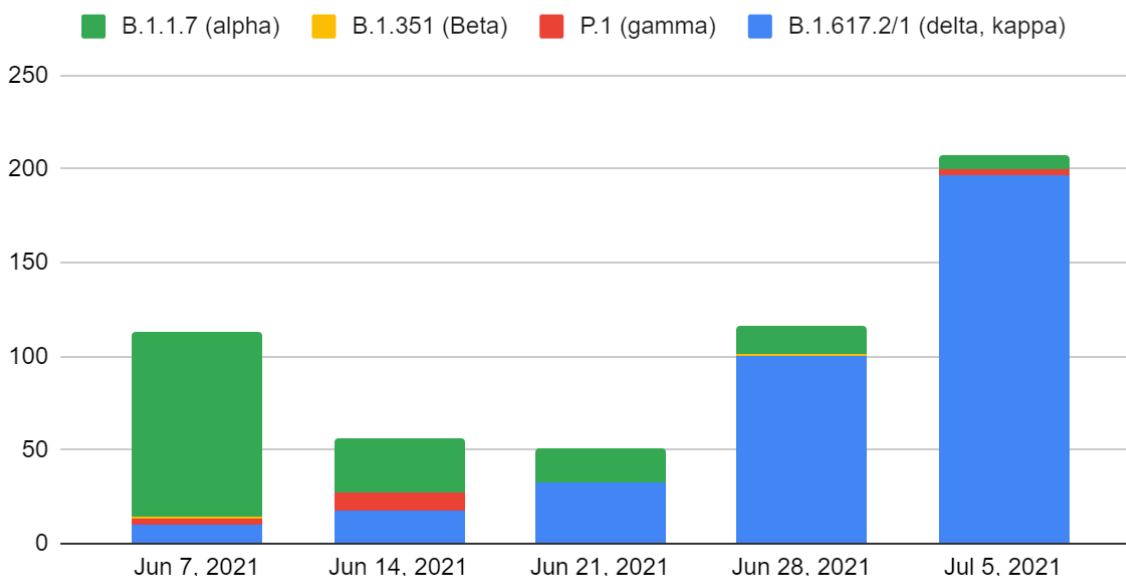


Figure 8: Weekly evolution of the number of variants of concern diagnosed at the national reference laboratory in Leuven (unbiased sampling, but limited geographical representativeness).

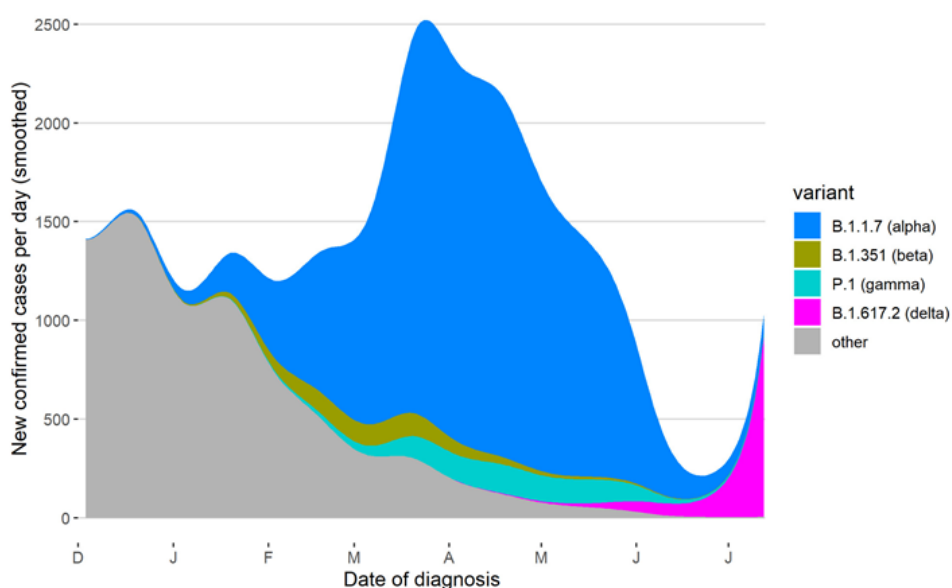


Figure 9: New confirmed COVID cases per day in Belgium per day by variant in Belgium (Source: Sciensano database & Tom Wenseleers).

| Lineage | Number of Belgian cases reported on GISAID | First reported |
|------------------------------|--|----------------|
| B.1.1.7 (Alpha) | 20.215 | 30/11/2020 |
| B.1.351 (Beta) and B.1.351.2 | 1.067 | 20/12/2020 |
| P.1 (Gamma) and P.1.1 | 1.714 | 29/1/2021 |
| B.1.617.2 (Delta) | 1.101 | 6/4/2021 |
| B.1.1.7 +S:E484K | 52 | 31/3/2021 |
| B.1.1.7 +S:S477R | 35 | 15/3/2021 |
| B.1.214.2 | 759 | 3/1/2021 |
| B.1.427 (Epsilon) | 1 | 18/1/2021 |
| B.1.525 (Eta) | 82 | 30/1/2021 |
| B.1.526 (Iota) | 8 | 9/2/2021 |
| P.2 (Zeta) | 2 | 9/2/2021 |
| C.36.3 | 28 | 23/3/2021 |
| B.1.620 | 30 | 31/3/2021 |
| B.1.1.318 | 62 | 3/3/2021 |
| A.27 | 20 | 11/1/2021 |
| B.1.617.1 (Kappa) | 16 | 25/3/2021 |
| C.37 (Lambda) | 2 | 20/6/2021 |

Table 1: List of VOCs (red) and VOIs (orange) identified in Belgium to date and cumulative number of sequences available on GISAID (total of 29.658 sequences).

1. Testing of travellers

Since two full weeks (June 28 to July 11), the National Reference Center in Leuven has tested 16.136 departing travellers, among which 70 were tested positive. The positivity rate increased from 0,28% during the first week to 0,58% during the second week. The Delta variant represented 63% of the positive samples tested during the second week.

A rapidly increasing positivity rate among departing travellers signs a rapidly evolving epidemic in the community, and underlines the fact that the current “defences” (association of the current vaccination coverage and intensity of the other disease control interventions) are insufficient to contain an exponential spread of the Delta variant in the community.

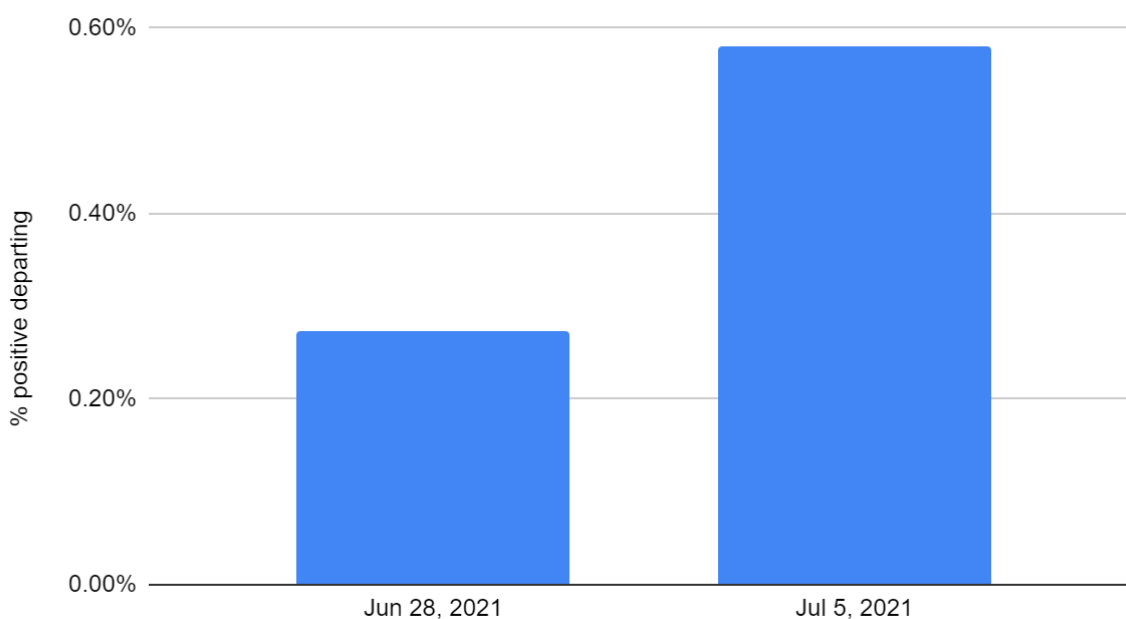


Figure 10: Positivity rate among departing travellers in the Leuven region (data aggregated per week).

Since two full weeks (June 28 to July 11), the National Reference Center in Leuven has tested 205 returning travellers, among which 11 were tested positive. The positivity rate increased from 2% during the first week to 8,5% during the second week. The Delta variant represented 77,8% of the positive samples tested during the second week.

A high and increasing positivity rate among returning travellers indicates that the situation in foreign countries is rapidly deteriorating, and that indications for testing returning travellers should be extended.