

Title: Variants of Concern Cases and Processes in Ireland, including an update on Global Epidemiology for NPHE

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News:

- The first cases of Brazilian variant P.1 are reported in the UK (ECDC Round Table report 08/02/2021)
- Phase 3 trials of the AstraZeneca vaccine in South Africa, report low protection against mild and moderate infection. No conclusions were made with regards to protection against severe infection, as the sample cohort was young and not considered at high risk of severe infection.

Update:

Section 1: International epidemiology of Variant of Concern

1.1 South African Variant (501Y.V2)

Table 1 presents the international detected cases of the South African variant:

Country	Confirmed cases reported
EU/EEA	
Austria	75
France	40
Belgium	33
Netherlands	22
Germany	17
Ireland	9
Denmark	5
Finland	2
Luxembourg	2
Spain	2
Greece	1
Italy	1
Norway	1
Portugal	1
Sweden	1
Total	212
Non-EU/EEA	
South Africa	549
United Kingdom	112
Mozambique	19
Israel	12
Canada	11
Switzerland	11
Australia	10
Botswana	10
New Zealand	7
South Korea	7
UAE	5
USA	5
Japan	4
China	2
Kenya	2
Turkey	2
Brazil	1
Cuba	1
Panama	1
Serbia	1
Taiwan	1
Zambia	1
Total	774
Worldwide total	986

Table 1: International cases S. African variant (Data source – ECDC Round Table report 08/02/2021)

1.2 Brazilian Variant

International epidemiology of the Brazilian variants (P.1 – variant of concern; P.2 – variant of interest)

Table 2 presents the international detected cases of the Brazilian P.1 variant of concern (Data source – ECDC Round Table report 08/02/2021):

Country	Confirmed cases reported
EU/EEA	
France	4
Italy	4
Netherlands	2
Germany	1
Total	11
Non-EU/EEA	
Brazil	51
United Kingdom	9
South Korea	5
Japan	4
USA	3
Canada	1
Colombia	1
Faroe Islands	1
Peru	1
Turkey	1
Total	77
Worldwide total	88

Table 2: International cases Brazilian P.1 variant of concern

Sections 2: Variant of Concern processes and Covid-19 cases in Ireland

2.1: Variant of Concern Processes

1. Nationally agreed processes have been established to identify Persons Under Investigation (those with confirmed Covid-19 infection and relevant travel history) to ensure appropriate isolation advice is given and all contacts appropriately traced and tested, as per national guidance for VOC. Weekly data reports have been agreed. Of note: Enhanced measures for travellers from GB are now not being undertaken, given that this is now considered the predominant variant in circulation in Ireland.
2. A working group has been established across Departments of Public Health and the CMP to ensure clear processes are in place for actions required from probable and confirmed cases, and for monitoring of processes within and between Departments of Public Health and the CMP / CTC.
3. A National Oversight Group for Variants of Concern has been established, with a broad appropriate multi-disciplinary membership, to ensure the challenges identified with new VOC are discussed and addressed, and the situation across the island of Ireland is monitored and discussed. This group includes membership from colleagues in Northern Ireland.
4. The National Clinical Director of Health Protection will meet weekly with the clinical lead in Public Health England on VOC.

2.2: South African Variant Covid-19 cases in Ireland

(Based on NVRL results up to 8th February 2021. Definitions in Appendix One)

Confirmed 501Y.V2 cases (new in the last week): **11 (2)**

Probable cases (new in the last week): **5 (2)**

Prior to the week commencing 8th February 2021, all **confirmed** and **probable** cases had been identified and followed up through CTCs initially or Departments of Public health and appropriate public health actions undertaken.

With regards to the new **confirmed** and **probable** cases:

- One case was recorded as a **probable** case in last week's report and subsequent sequencing confirmed the virus as a South African variant. Case is an aid worker in Zambia. Returned to Ireland on 11th January 2021. Contacted by PH England on 17/01/21 to say she was a contact on the plane. Became symptomatic on 17th January and tested positive. She has been self-isolating since arrival and has no close contacts. Followed up by Public Health.
- One case returned from South Africa, via Dubai, on 31st December 2020; became symptomatic on 1st January 2021 and was tested on 5th January 2021. Sequencing requested retrospectively by Public Health. Result confirmed South African variant

on 6th February 2021. Index case travelled with her parents and self-isolated in Ireland before travelling to the UK, where she works. 6 close contacts traced from flight following her positive PCR test – 5 were tested; 1 was positive (not sequenced – dealt with according to guidelines at the time). Parents became symptomatic and subsequently tested positive on 8th and 11th January – samples have now been sent for sequencing, as they are **probable** cases. Parents have been self-isolating and no additional close contacts were recorded.

2.3: Brazilian variant of concern cases in Ireland

- No confirmed cases of Brazilian P.1 (variant of concern)
- Four confirmed cases of Brazilian P.2 (variant of interest) in Ireland to date (one new in the last week). All followed up by CTC

Section 3: CTC / CMP update Brazil / South Africa Travel-related Cases / Close contacts

Updated to to 9.00am on 8th February 2021.

Compiled by:

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Table 3 presents the numbers of travel-related (South Africa and Brazil) cases identified by the Contact Management Programme.

	Brazil	South Africa
Travel-related Referrals for Testing identified through Healthlink	1447	296
Travel-related Positive Results (Cases) identified through Healthlink	53	9
Travel-related Detection Rate for cases identified through Healthlink	3.66%	3.04%
Additional Cases identified through CMP Contact Tracing	23	7
Total Brazil & South Africa Travel-Related Cases	76	16
VOC (Variant of Concern) Detected by WGS, NVRL	0	9

Table 3: Brazil and South Africa Travel-Related cases and Variant Testing outcome to 09:00am 8th February 2021

Enhanced Contact Tracing has been completed for all cases to date with a travel history of concern.

Of cases for whom Contact Tracing complete:

- Detailed travel history has been established in so far as possible (dates, route, flight numbers, seat numbers). Further details may be required for some cases if identified as having a VOC.
- Close contacts of cases have been identified and scheduled for testing, self-isolation advice has been provided, and contacts have been advised to advise their household members to restrict their movements for 14 days.
- Exposure Investigations have been created for flights undertaken during infectious period (n=12)

Passenger details from flight manifests is sourced by the Data Processing Team (DPT).

The passenger details for 4 flights have been sourced so far. Details of Contact Tracing of passengers on these four flights are given in Table 4:

Date Received	Flight Number	Route	Flight Date	Total Passengers	Uncontactable (No number or not answered)	Successfully Contacted
25.01.21	EI2595	Madrid-Dublin	14.01.21	114	38	76 (67%)
26.01.21	LH980	Frankfurt-Dublin	15.01.21	96	24	72 (75%)
26.01.21	TP1324	Lisbon-Dublin	18.01.21	134	41	93 (74%)
02.02.21	TP1324	Lisbon-Dublin	26.01.21	91	32	59 (65%)

Table 4: Exposure Investigation of Eligible Flights

- Contact tracing completed for all passengers who could be contacted, tests arranged, self-isolation advice and household contact advice provided.

Consideration given to emailing non-responders / those who are uncontactable if an email address is available. Consideration also given to arrange testing for those with valid phone numbers who have not been reached supported by Public Health.

Section 4. Update from the Variants of Concern National Steering Group meeting (10th February 2021)

With regards to the list of countries deemed at high risk of transmission of the covid-19 Variants of Concern (VOC):

Currently enhanced measures are taken when incoming travellers are identified as having an origin of travel from either South Africa or Brazil. Travellers are required to self-isolate for a total of 14 days from arrival and to seek a PCR test on day 5, or as soon as possible afterwards. All PCR-positive samples are further investigated for the presence of a VOC and enhanced public health measures are initiated upon identification of a “probable” or “confirmed” VOC.

These measures are taken in order to minimise the risk of introduction of VOC into Ireland, and to minimise the risk of local transmission.

The list of countries reporting VOCs 501Y.V2 (South African) and VOC-202101-02 (Brazilian P.2. variant) is growing each week. For example, the number of confirmed 501Y.V2 cases in Austria was reported as 75 in the ECDC Round Table discussion document, dated 8th February 2021. On the evening of the 9th of February, media reported 239 confirmed cases in Austria, due to local transmission in the Tyrol region. Only 1 confirmed case of 501Y.V2 was reported verbally at the WHO’s Variants and Mutations Updates meeting on the 4th of February, whereas 40 confirmed cases were reported in the ECDC document of February 8th.

The true incidence of VOC transmission in countries neighbouring both South Africa and Brazil is poorly reported, mainly due to limited ability to perform sequencing tests on positive samples. Nevertheless, significant increases in covid-19 incidence have been observed in many of these neighbouring countries over the last few weeks.

In response to the increasing numbers of VOCs, the **United Kingdom** has published a list of countries, from which travel (including transit) is prohibited:

Countries from which travel to the UK is prohibited	
<ul style="list-style-type: none"> • Angola • Argentina • Bolivia • Botswana • Brazil • Burundi • Cape Verde • Chile • Colombia • Democratic Republic of the Congo • Ecuador • Eswatini • French Guiana • Guyana • Lesotho • Malawi 	<ul style="list-style-type: none"> • Mauritius • Mozambique • Namibia • Panama • Paraguay • Peru • Portugal (including Madeira and the Azores) • Rwanda • Seychelles • South Africa • Suriname • Tanzania • United Arab Emirates (UAE) • Uruguay • Venezuela • Zambia • Zimbabwe

Table 5. List of countries from which travel to the UK is prohibited

In light of the increasing numbers of cases of VOC occurring in many different countries worldwide, the Variants of Concern National Steering Group discussed the expansion of the list of countries from which travellers to Ireland should be subjected to enhanced Public Health measures.

1. It was acknowledged that, in order to maximise the likelihood of preventing importation and onward transmission of VOC, travel restriction from countries per se, or the option of mandatory 14-day self-isolation upon arrival should always be considered.
2. A less impactful measure is to identify countries at high-risk of VOC transmission and to include them on the list of countries for which enhanced Public Health measures, i.e. self-isolation for 14 days and a PCR test at day 5, should be imposed.

The risk from all countries was discussed and the following recommendation made:

That the current “high-risk” list of countries be expanded to include (in addition to South Africa and Brazil):

- **All African countries currently included on the UK list, for alignment with NI.** There is little direct evidence available of the level of Variants of Concern in other countries, and therefore alignment with the UK was considered most reasonable, until a more specific risk assessment as outlined in point 4 below can be undertaken.
 - **Austria (in light of the current high transmission, particularly in the Tyrol region)**
 - **United Arab Emirates (following its identification as a major origin for travel-related VOC cases in the UK)**
 - **Dubai based on concerns from UAE, connectedness between Ireland and Dubai, and Dubai and its significant international connectivity.**
3. The issue of including transit through UAE and Dubai was considered, but requires assessment of operational capacity, given the large number of passengers arriving in Ireland from these countries every week.
 4. The steering group also recommends that a risk assessment be undertaken of the threat caused by travel from other countries currently not included as high risk.

Section 5: COVID-19 Vaccine Effectiveness in Ireland

Many critical questions remain about the effectiveness of Covid-19 vaccines in real-world settings. These questions can only be answered in post-introduction vaccine effectiveness (VE) studies. Real-world VE studies can answer questions about Covid-19 vaccine effectiveness by age-group and risk factors, duration of vaccine protection, protection against transmission, relative effectiveness of different vaccines, relative effectiveness of one dose vs. two doses, and effectiveness of the vaccines against new strains of SARS-CoV-2 and variants of concern. HPSC will lead and coordinate several proposed Covid-19 VE studies

in Ireland, which will be conducted over an initial 12-month period to evaluate the effectiveness of Covid-19 vaccines in preventing laboratory-confirmed SARS-CoV-2 infection. These studies will form part of larger international european and global VE studies coordinated by the European Centre for Disease Prevention and Control and WHO.

Appendix One

How are SARS-CoV-2 variants identified?

Following initial confirmation that SARS-CoV-2 RNA is detected using PCR assay, specimens are currently screened using either a 501 allele-specific PCR assay or the ThermoFisher TaqPath assay.

The 501 allele-specific PCR identifies the N501Y amino acid (AA) change in the spike protein: this AA change (or mutation) is present in B117, 501Y.V2, and P1

- If the N501Y AA change is not detected, then no further testing is required. The virus can be reported as wild-type SARS-CoV-2.
- If the N501Y is present, then further testing is required to distinguish between the three variants.

The ThermoFisher TaqPath assay is a PCR assay that detects three distinct SARS-CoV-2 targets: orf1-ab, N gene, and S gene. Due to a deletion (at position 69-70) in the Spike protein of the UK variant (lineage B.1.1.7) the TaqPath assay S gene component yields a Not Detected result when testing the UK variant (but the two other targets are Detected). This is referred to as S gene target failure (SGTF) or 'S dropout'.

- If S drop out/S gene target failure is seen, then in the Irish setting, this is most probably the UK variant. Of note, SGTF has been reported in other (non-B.1.1.7) lineages, but none of these has been detected in Ireland to date.
- If all three targets are detected in the TaqPath assay, then the specimen does not contain the UK variant.

These samples (N501Y Detected, S gene Detected on TaqPath) require further testing. They may go for Sanger sequencing of the S gene alone (or a portion thereof) or for whole genome sequencing (WGS); either of these sequencing methods can identify the P1 and 501Y.V2 variants.

Testing Timescales

The 501 allele-specific PCR and the TaqPath can be completed within 24-48 hours, depending on when samples arrive at the laboratory; these tests are undertaken when the NVRL receives samples of interest. Sanger sequencing of the relevant portion of the S gene takes approximately 36 hours and is done on an as required basis. Whole Genome Sequencing takes 3-4 days and is currently being done weekly.