

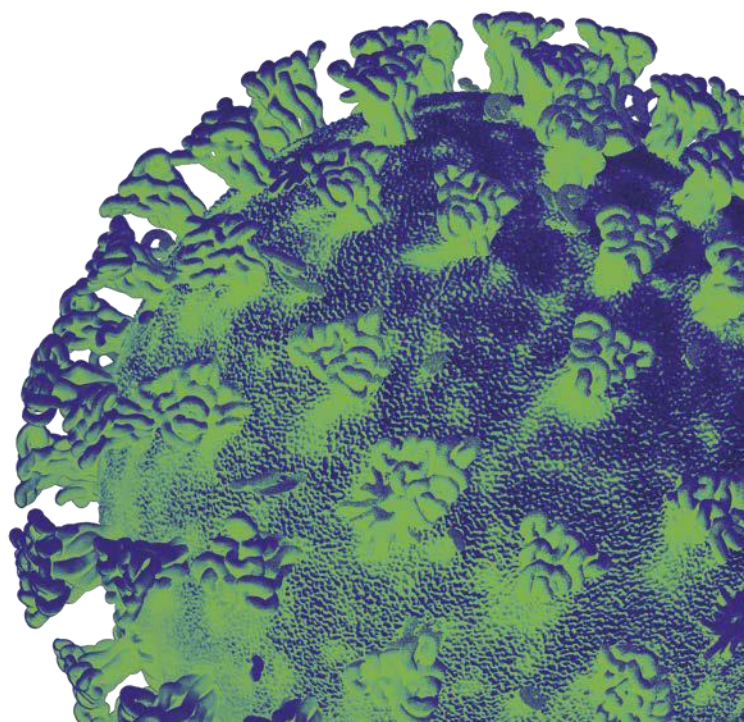
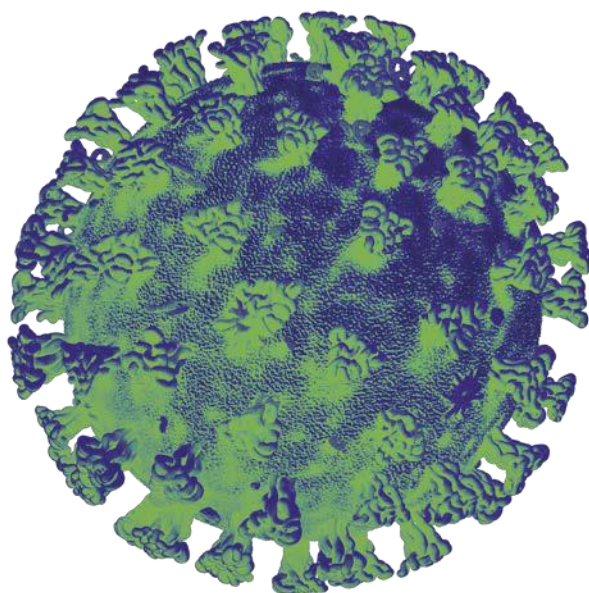
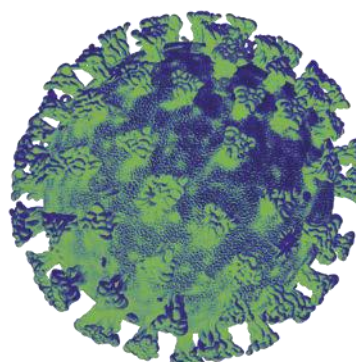


Llywodraeth Cymru
Welsh Government

Technical Advisory Group

Advice from TAG and the Chief Scientific Advisor for Health on the Delta Variant (B.1.617.2)

15 June 2021



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Summary of Advice

- The UK is now clearly in the pre-peak stage of a third wave of the COVID-19 epidemic. England is slightly further ahead than Wales and has a doubling time of less than 10 days. In Wales, the effective reproductive number (R_t) for delta variant rose above 1 around 24 May and has been between 2 and 3 since late May. To date 304 cases of delta have been reported in Wales.
- The genomic data suggests that there have been at least 52 introductions of delta into Wales. Amongst the introductions observed, we see both single, sporadic cases, and multi-case clusters. The presence of multi-case clusters provides evidence of subsequent community spread of delta variant in Wales.
- At present, the number of COVID-19 hospital admissions remains low - but they are now increasing steadily in England and Scotland. The relationship between cases, hospitalisations and deaths has changed, but it is not broken and the new relationship is not fully understood. Exponential growth in cases will still produce exponential growth in hospital admissions; recent increases in hospitalisations from delta may have been masked by larger decreases in the alpha variant.
- The growth advantage of delta over alpha is estimated by PHE to be 41% in the community and 64% in the household, while SAGE estimates a possible range of between 40 and 80%. This represents an R_0 (basic

reproduction number) of 7, which would require 80% population vaccine coverage, uniformly distributed across the whole population, for herd immunity.

- Because of the uncertainties around the potential magnitude of harm and the benefits of giving the vaccination programme time to fully vaccinate more of the population, the SAGE consensus was to recommend a four week delay to 21 June relaxations in England – increasing vaccine coverage before relaxation decreases peak.
- The most recent data for the period 4 to 8 June indicate that despite reductions following the easing of restrictions, generally levels of adherence to key protective behaviours remain high. The number of people mixing with someone outside their household has increased during the summer, with the majority meeting for social reason and mobility trends suggest an upward trajectory exceeding levels recorded in Summer 2020.
- As more data emerges around increased transmissibility of the Delta variant and the high vaccine effectiveness with two doses it will be important to emphasise the continued drive to reduce risk of infection by following guidelines and the importance of vaccine uptake, particularly in young and vulnerable groups.
- Labour market data indicates that the weekly loss of GDP in Wales associated with the remaining restrictions could be valued at around £10 million; if the extension of restrictions for a limited period reduces uncertainty about the future course of the pandemic and the likelihood of future restrictions this could result in a positive impact on GDP. However there is no way to make a reliable assessment of this and it is possible that a further period of restrictions could result in the loss of a number of businesses currently on the brink of failure
- Wales is currently in a different position and behind England in terms of incidence, and is ahead in its vaccination programme. Given the observed growth of the delta driven epidemic in England and Scotland, with increasing cases in Wales, alongside key uncertainty of case to hospitalisation conversion rate the main recommendation from TAG is to pause further relaxations for one review cycle. A pause of 21 days should be sufficient to better understand the likely impact on hospitalisations in Wales as well as provide a longer period for two doses of vaccine to be offered to adults.

Situation Report - Wales

- As at 15 June, the estimated weekly cases per 100K in Wales are 29.1, in England and Scotland they are 81.1 and 122.3 respectively and Northern Ireland is 37.9. Broadly Wales is tracking below Scotland and with a 2-3 week lag behind England (excluding regional variation e.g. North West of England)

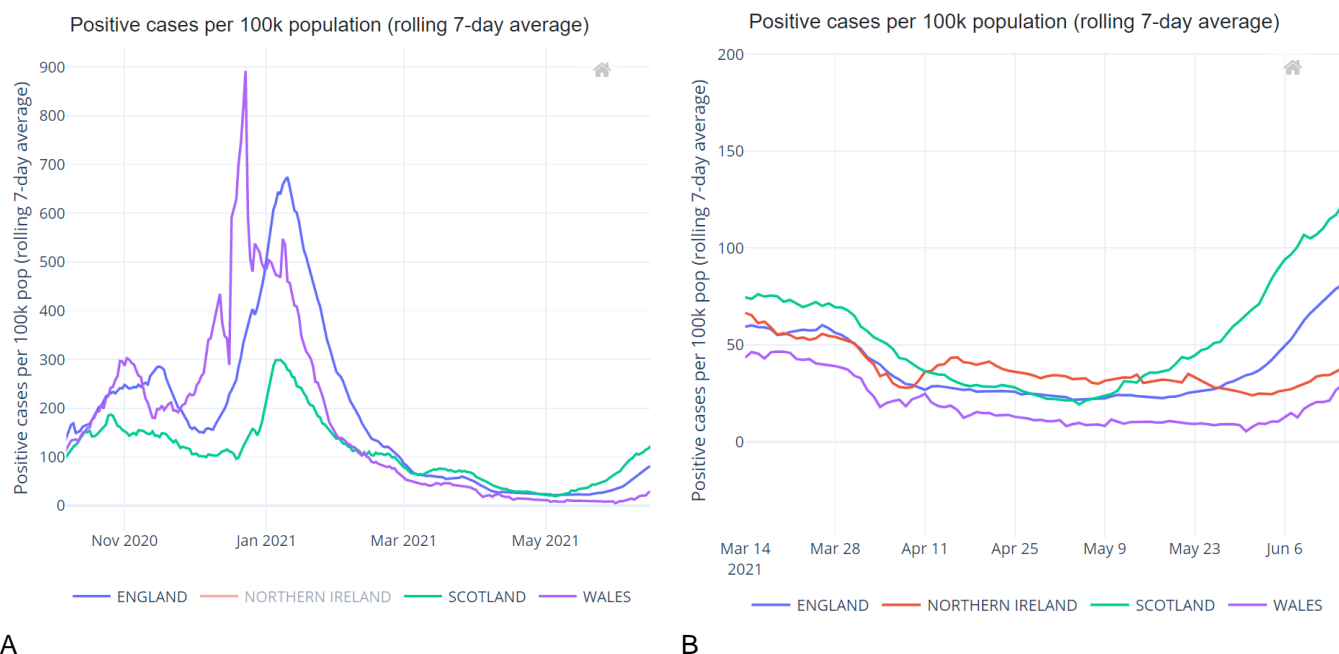


Figure 1. Comparison of UK case rates by nation. 1A. November 2020 to June 2021 1B. March 2021 to June 2021

- As at 9 June, Public Health Wales estimate R_t of COVID-19 to be 1.6 in Wales and the doubling time to be 9.1 days, however this represents a combination of an $R > 1.0$ for Alpha and $R > 2.0$ for Delta. At a regional level, the majority of health board areas now have an R_t above 1.0, with the fastest rate of increase in Swansea Bay at 2.2, doubling every 7.1 days. This estimate is less lagged than SAGE, representing a period of around a week ago.

Table 1. Doubling times and R_t values across Health Boards (PHW 9 June)

PHW – R_t and Doubling/Halving times as at 9 June		
Area	Doubling/ halving time in days (95% CI)	R_t (95% CI)
All Wales	9.1 (6.3 to 16.5) DOUBLING	1.6 (1.5 to 1.7)
Swansea Bay UHB	7.1 (4.1 to 27.2) DOUBLING	2.2 (1.8 to 2.6)
CTM UHB	24.5 (5.5 to -9.8) HALVING	0.85 (0.6 to 1.1)
Aneurin Bevan UHB	17.0 (4.7 to -10.3) DOUBLING	1.3 (1.0 to 1.6)
Cardiff & Vale UHB	10.6 (5.5 to 143.8) DOUBLING	1.2 (0.95 to 1.5)
Hywel Dda UHB	11.3 (4.2 to -16.0)* DOUBLING	1.5 (1.1 to 1.9)*
Powys THB	14.0 (3.2 to -5.8)* HALVING	0.9 (0.5 to 1.3)*
Betsi Cadwaladr UHB	11.3 (5.5 to -162.2) DOUBLING	1.4 (1.2 to 1.6)

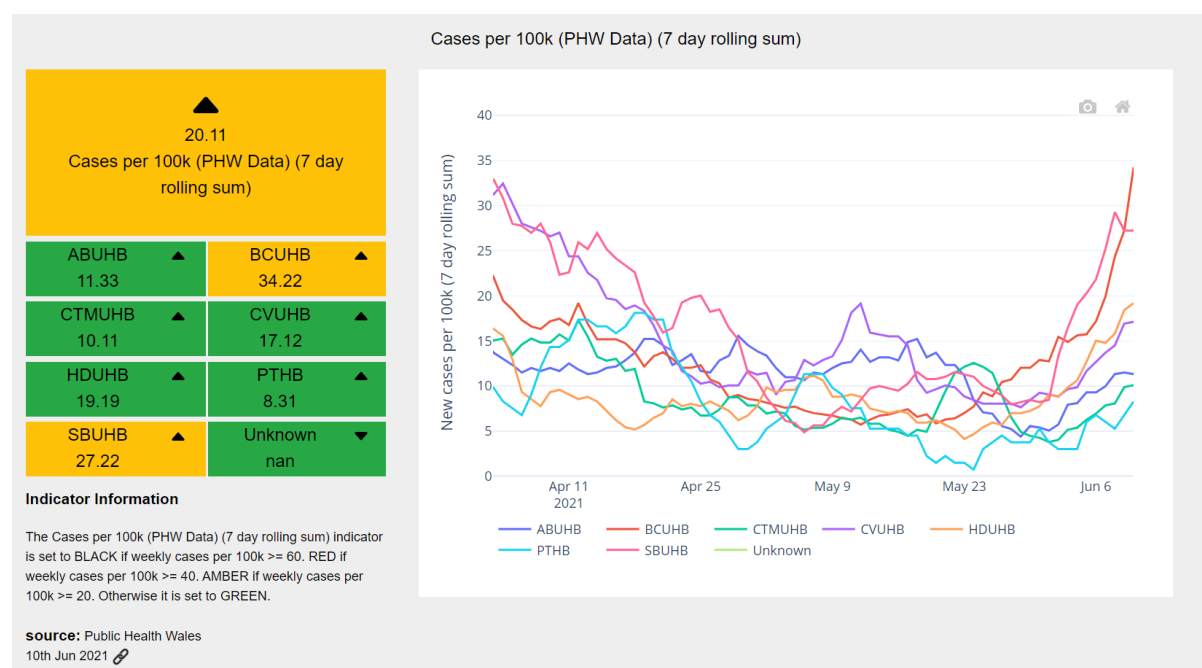


Figure 2. Rolling cases per 100k by health board in Wales (PHW 10 June)

Situation Report - UK

- The delta variant now represents the majority of cases in almost all areas in England. In the most recent week in Wales out of 279 cases, 207 (74%) were of the delta variant.
- Areas that have shown decreases due to intensive interventions, such as Bolton, appear to have plateaued rather than declined and it has been recommended wider inferences around epidemic trends should not be drawn from these outliers¹. The most recent S-gene data from England shows a strong pattern of decreasing S gene target failure (which may indicate decreasing prevalence of Alpha variant as it is out-competed by Delta) and increasing Rt for English local authorities since March, culminating in the majority of local authorities now having an Rt of over 1.0 and over 80% of cases being the delta variant.
- At a UK level R has continued to increase nationally and is estimated by SPI-M to be between 1.2 and 1.4 in England and in Scotland, between 1.0 and 1.4 in Wales, and between 0.8 and 1.3 in Northern Ireland¹. These estimates represent a period 2-3 weeks ago and will not yet fully reflect the recent rapid increases in transmission of the delta (B.1.617.2) variant. It is difficult to separate the effects of the delta variant's growth from any recent changes to COVID-19 restrictions, such as those related to the relaxation of measures on 17 May in England.

¹ [SPI-M-O: Consensus statement on COVID-19, 9 June 2021](#)

- R is now estimated by SAGE to be **40–80% higher for the delta** variant compared to alpha² (B.1.1.7) based on analysis by five independent modelling groups at SAGE, although a figure higher or lower than this cannot be ruled out³. However Public Health England estimates the secondary attack rate of Delta to be 41% higher than Alpha, after revising their estimates of 60% and 50% in previous technical briefings.⁴
- The number of new infections continues to increase, and SPI-M estimates that there are between 7,000 and 13,000 new infections per day in England¹. During its most recent week ending 5th June the ONS community infection survey estimates that an average of 96,800 people in the community had COVID-19, with 2,300 in Wales⁵.
- The doubling time in England is estimated by SAGE to be 7-10 days³, compared with Wales which is estimated by PHW on 8 June to be doubling every 9 days.

In England approximately 80 to 90% of lower tier local authorities are seeing increasing cases, of which 20-30% can be attributed to spill over from neighbouring areas of higher prevalence, suggesting the epidemic is expanding spatially.

- Whilst the precise herd immunity threshold cannot be calculated, SPI-M estimate an R_0 of 5-8 (compared to 4.5-5.5 for Alpha and 3 for wild-type virus) would require **over 80% of all people (not just adults) to be immune for herd immunity to be reached** and for the epidemic to begin to shrink without further measures⁶. Although at low levels in absolute numbers, currently younger adults (under 30) play a disproportionately large role in transmission due in large part to being a less penetrated vaccine group and generally having more contacts than other age groups (see below).

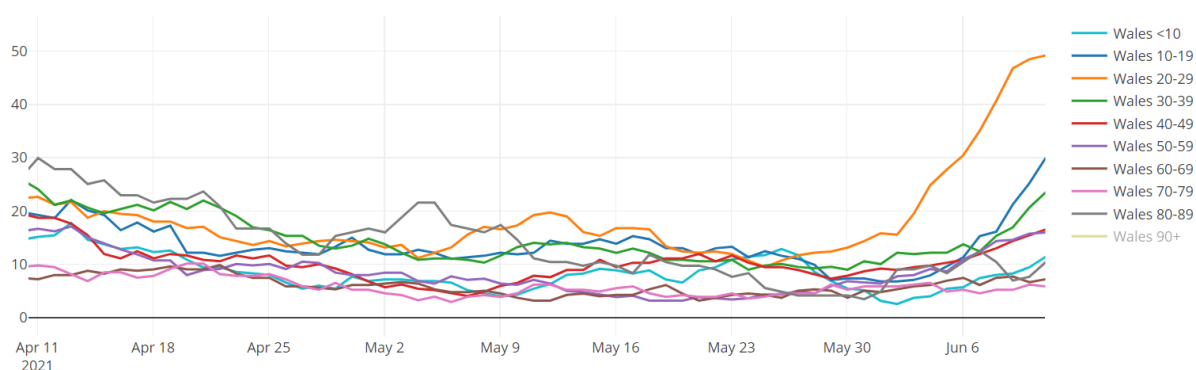


Figure 3. Cases per 100,000 population by age as at 11 June (PHW 11 June)

² Note this is in addition to the 40% increase of Alpha over the original 'wild-type' variant

³ [SAGE 92 minutes: Coronavirus \(COVID-19\) response, 9 June 2021](#)

⁴ [SARS-CoV-2 variants of concern and variants under investigation in England: technical briefing 15](#)

⁵ [Coronavirus \(COVID-19\) Infection Survey, UK : 11 June 2021](#)

⁶ [SPI-M-O: Summary of further modelling of easing restrictions – roadmap Step 4](#)

- While highly effective, vaccines do not provide perfect protection against infection and so more than 80% of the population will need to be either vaccinated or infected to prevent ongoing chains of transmission. Despite the success of the vaccine rollout, without behavioural change, the growth in cases in England is expected to increase for many more weeks.
- **While the relationship between cases and hospitalisation has decreased significantly due to vaccination it has not been entirely broken.** It is highly likely that at least one doubling of admissions will occur within the next two weeks as a result of the recent doubling in cases. This relationship will become clearer as hospitalisations increase from the low levels they are currently at; however previous experience has demonstrated that exponential growth can cause rapid changes. At present, this proportion is one of the key uncertainties in modelling the impact of changes to measures.
- CO-CIN analysis at SAGE continues to show that older people are making up a decreasing proportion of those in hospital, further demonstrating that vaccines are protecting against hospitalisations. There is some emerging evidence of better outcomes for those who are in hospital, which may be related to hospitalised people being younger on average than in previous waves, although this is still based on a small sample. In Scotland there is evidence of reduced length of stay and a reduction in the proportion of people requiring oxygen.
- PHE data shows an increase in positivity rates in care homes in London, though the total number of cases remains low. Care homes may lag community transmission and data in these settings should continue to be closely monitored.

Public Health England Variant Technical - Report 15

- The most recent Public Health England variants of concern technical briefing has been [published](#). There has been a substantial increase in cases of the Delta variant in the most recent report, from 9,426 to 33,207 and this has been attributed to use of a new genotyping assay which uses a specific mutation as an indicator of the Delta variant to provide more accurate and real-time data.
- The most recent data on the transmissibility of the delta variant suggests a 41% increased transmissibility for Delta compared to Alpha in the community, a decrease from previous reports (60% and 50%). This may be a result of additional data, a shifting demographic of Delta cases or the impact of additional vaccination.

Table 2 Secondary attack rate comparison for variants - PHE variant report 15.

Table 8. Secondary attack rates for Kappa, Delta and VUI-21APR-03 (B.1.617.3), presented with Alpha, time restricted for comparison (29 March 2021 to 19 May 2021, variant data as at 7 June 2021, contact tracing data as at 9 June 2021)

Variant	Cases in those that have travelled (% with contacts)	Cases in those that have not travelled or unknown (% with contacts)	Case proportion that have travelled	Secondary Attack Rate among contacts of cases that have travelled (95% CI) [secondary cases/contacts]	Secondary Attack Rate among contacts of cases that have not travelled or unknown (95% CI) [secondary cases/contacts]
Alpha	2,042 (70.0% with contacts)	36,812 (82.4% with contacts)	5.3%	1.5% (1.4% - 1.6%) [510/34,130]	8.0% (7.8% - 8.2%) [7,801/97,404]
Kappa	185 (76.2% with contacts)	132 (80.3% with contacts)	58.4%	2.0% (1.6% - 2.6%) [62/3,103]	10.8% (7.9% - 14.6%) [36/334]
Delta	656 (70.6% with contacts)	8,248 (83.9% with contacts)	7.4%	2.4% (2.1% - 2.7%) [254/10,756]	11.3% (10.9% - 11.8%) [2,719/23,971]
VUI-21APR-03	5 (20.0% with contacts)	5 (100.0% with contacts)	50.0%	Unavailable [0/201]	Unavailable [1/12]

Secondary attack rates are marked as 'Unavailable' when count of contacts is less than 50 or count of exposing cases is less than 20. Travel-linked cases for secondary attack rates are identified positively in NHS Test and Trace data using multiple PHE sources. A case is considered as being travel-linked if EpiCell or Health Protection Teams have found evidence of international travel, their NHS Test and Trace record mentions an event associated with international travel, their NHS Test and Trace record was created after notification via IHR NFP, their contacts were traced by the international contact tracing team or they have been marked for priority contact tracing in NHS Test and Trace for reasons of travel. Some travel-linked cases may be missed by these methods and would be marked as non-travel-linked or unknown.

- A new analysis of household transmission is also included, which found a 64% increase transmissibility associated with the Delta variant compared to Alpha after adjusting for other factors.
- Vaccine effectiveness figures continue to show a significant reduction to 33% effectiveness after a single dose, rising to 81% after both doses. Note that this is for protection against symptomatic infection and it is likely that effectiveness is significantly higher for protecting against severe disease.

Table 3. Vaccination status and effectiveness for alpha and delta variant (PHE Technical Report 15)

Vaccination status	Vaccine Effectiveness	
	Alpha	Delta
Dose 1	50.2 (46.7 to 53.5)	33.2 (25.8 to 39.9)
Dose 2	88.4 (85.7 to 90.7)	80.8 (76.3 to 84.4)

- The risk of hospitalisation with Delta continues to be 126% greater for Delta compared to Alpha, although there remains considerable uncertainty in this estimate, with wide confidence intervals (95% CI 36%-289% increase). Overall, hospitalisations and deaths remain low relative to case numbers, with 3.7% (1,234 people) admitted to A&E, 1.2% admitted (383) and 0.1% (42) having subsequently died.
- There is strong evidence that vaccination continues to provide strong protection against infection and severe disease, with 58% of cases being unvaccinated and 5% fully vaccinated. Of hospital admissions, 65% were unvaccinated compare with 11% fully vaccinated.
- For deaths (associated with delta) 55% were unvaccinated compared with 29% fully vaccinated. It should be noted that currently the fully vaccinated category is largely made up of those in older age groups with a higher level of risk of hospitalisation and death compared, resulting in a deaths figure that may

appear concerning despite representing a significant reduction in severe outcomes. Work is ongoing to understand the profile of fully vaccinated people with severe outcomes.

- There is currently limited evidence of significant increased immune escape in delta cases observed through PHE reinfection surveillance, with the number of reinfections increasing almost parallel to the number of cases. Data from the SARS-CoV-2 Immunity and Reinfection Evaluation (SIREN study) in England, which monitors a largely (95%) fully vaccinated cohort (44k) of NHS healthcare workers states there was no increase in positive cases overall and reinfections remain at very low levels.

Summary of Public Health Wales Genomic Analysis Technical Report

Summary ([full paper in Annex 1](#))

- Data on sequenced cases of SARS-CoV-2 were linked to vaccination, hospitalisation and contact tracing data to described the spread of variants
- Delta variant is the third most frequently identified (n=315) after wild-type and alpha, with the earliest cases sampled in 8 April 2021
- The alpha variant was seen from November 2020 and became the dominant strain in Wales in January 2021

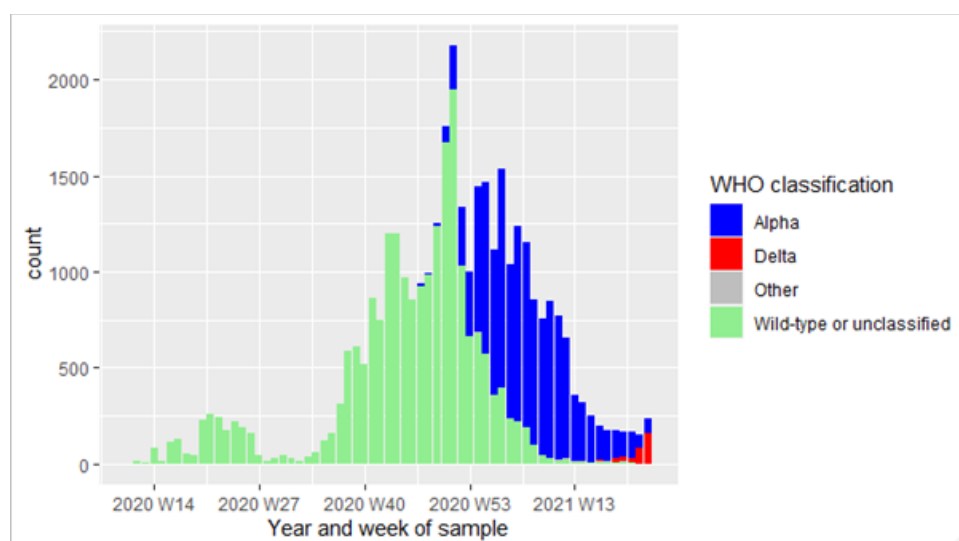


Figure 4. Distribution of variants over time (PHW data)

- The delta variant became the dominant variant in Wales in late May/June, accounting for nearly 2/3 of cases in week 22 2021
- The percentage of delta cases in the most recent week ranged from 25 to 97%, being 75% or higher in ABUHB, BCUHB, CVUHB and CTMUHB
- Only a small proportion (5/315) of delta cases have been hospitalised
- Delta cases have a slightly higher proportion of older cases than do alpha cases in the most recent 21 days
- Cases in the 16-25 year age group have increased in the most recent for both delta and alpha variants; for all other age groups, alpha cases are declining

- Most cases are now not linked to international travel, being contacts of confirmed cases or with no link (sporadic cases).
- Cases with a travel link have a higher peak age (around 45) than sporadic cases and those who are contacts of a confirmed variant case (peak around 25)
- The proportion of sporadic cases in the most recent week is slightly higher in CVUHB and ABUHB than in BCUHB. Nearly all recent cases in other Health Boards are sporadic
- Sporadic cases have increased week on week. A proportion of these have workplaces outside Wales.
- The first 315 delta cases had a higher proportion of workplaces outside Wales than seen in the earliest 315 alpha cases (8% vs 2%), with workplaces in NW England and London
- The majority (203/315, 64%) of delta cases were unvaccinated. Vaccination status reflects the underlying uptake by age groups, with 82% of those aged 60 and over having had at least 1 dose of vaccine compared to 33% of cases aged under 60.
- The effective reproductive number (R_t) for delta variant rose above 1 around May 24th and has been between 2 and 3 since late May.
- R_t for alpha variant rose above 1 in early June

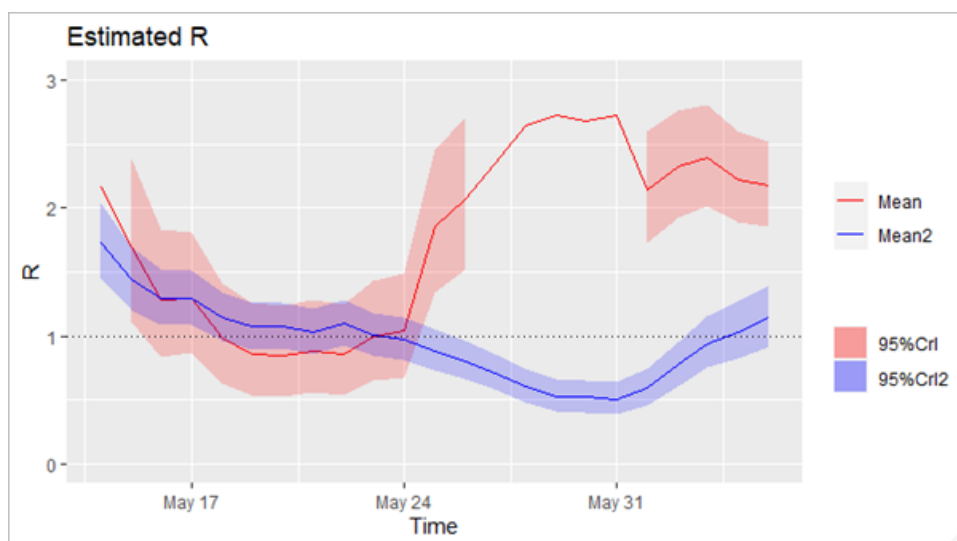


Figure 5. R_t values for alpha (blue) and delta (red) over time (PHW).

Public Health Wales- Wales delta variant importations and wider transmission within Wales

- The Public Health Wales Pathogen Genomics Unit (PenGU) have been providing real time analysis of genomics data to identify and confirm cases of the delta variant (VOC-21APR-02). To date, sequence data has been used to identify 208 cases of the delta variant (VOC-21APR-02) in Wales as of 2021-06-11. The delta variant has been circulating in India since at least October 2020, meaning that the delta variant is, in fact, a genetic lineage that has

accumulated genetic diversity. This means, that when there are imports into Wales, what we see from a genomic perspective is a range of clusters, all of which are genetically distinct from one another, and are separated on the viral phylogenetic tree by cases from other parts of the world and the UK.

- **Introductions into Wales.** In essence, Welsh cases are samples taken from a much larger cloud of diversity, and using phylogenetics we are able to establish not only that there is evidence for multiple introductions of delta into Wales, but also to identify a minimum bound on that number of introductions. The genomic data suggests that there have been at least 52 introductions of delta into Wales. This estimate is conservative and additional analysis of patient travel history would potentially increase this estimate, as there are multiple larger clusters which include cases from across Wales which would be consistent either with spread within Wales or import into Wales.
- **Evidence for community transmission:** Amongst the introductions observed, we see both single, sporadic cases, and multi-case clusters. The presence of multi-case clusters provides evidence of subsequent community spread in Wales, with several of these clusters forming the basis of current outbreak investigations. While genomics on its own cannot prove that a set of cases represent a local transmission chain, the close relatedness of the cases and the wider phylogenetic context of these clusters and other cases is consistent with a conclusion of transmission associated with the Cardiff and Conwy local areas. Interestingly, the genomic data also suggests that the cases of Delta in Conwy are actually at least two clusters, not a single cluster. Also note that the clusters in Cardiff and Conwy are under local investigation at present.
- **Evidence for origin of imports into Wales:** In addition to clear clusters associated with Cardiff and Conwy, we also observe a large cluster (including 61 Welsh cases) which sees Welsh cases scattered across a much larger group of sequences from across the UK. This cluster includes numerous cases from the North West of England. Without linked travel history and contact tracing this data is more difficult to make complex inference from using the genomic data alone, however, in broad terms this cluster would be consistent with cross border transmission leading to multiple introductions of the delta variant into Wales from high incidence areas within the North West of England such as Bolton and Manchester. The evidence from this lineage would also be consistent with community transmission within this wider lineage in other locations across the UK. The wider UK perspective is instructive, both from the timescale of observed cases for this lineage and the lineage phylogenetic tree.
- **Evidence for wider transmission within Wales:** In ten of the 52 genomic clusters that have been identified, cases fall across more than one Welsh local authority, with one cluster having cases across eight local authorities. One cluster encompasses cases in both North and South Wales. Collectively this data may be consistent with non-local transmission within Wales, in addition to evidence of localised community transmission.

SAGE Modelling advice

- There remains **considerable uncertainty** about the scale of the expected resurgence in infections and hospital admissions, although the modelled scenarios show a larger wave than equivalent scenarios modelled ahead of roadmap step 3, due to the emergence of the more transmissible delta variant.
- A doubling time in infections of around one week is consistent with growth in hospitalisations akin to the **blue line** ($R=1.5$) in the below figure (**England only**). **Note the y axis is on a log scale.**

Figure 3: Eight-week scenarios for daily hospital admissions in England over a range of R values (1.2 – green; 1.5 – blue; 1.8 – yellow; 2.1 – red) reflecting the possible impact of the easements from 21st June. The grey line is SPI-M-O's medium-term projection of current trends. All scenarios show interquartile ranges of model combinations as the shaded band. Note the logarithmic scale.

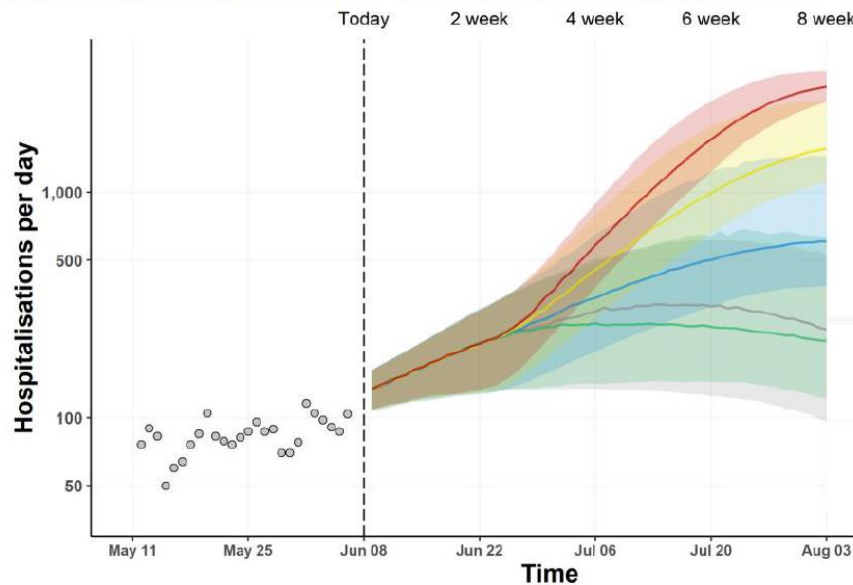


Figure 6. Eight week scenarios for daily admissions in England over a range of R -value (SPI-M)

- The same chart for Wales is shown below. Wales is likely to be following somewhere between the $R=1.2$ and the $R=1.5$ line at the moment.

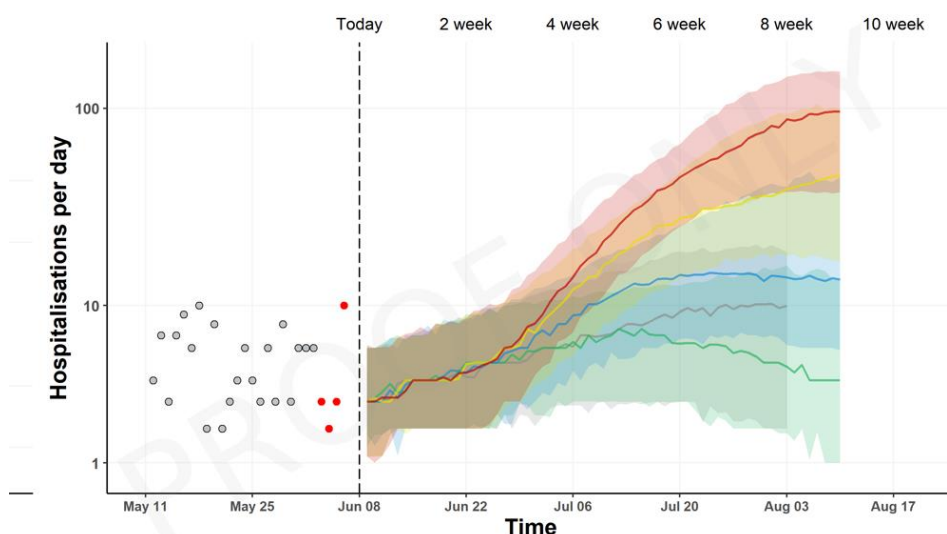
Wales

Figure 7. Eight week scenarios for daily admissions in Wales over a range of R -value (SPI-M)

- Key sources of uncertainty are the growth advantage of delta, the effectiveness of vaccines against severe disease caused by delta, and the extent to which behaviours and therefore transmission will change, particularly after step 4 is taken. Some continued transmission reduction from baseline measures and/or behaviour change beyond step 4 is assumed in the modelling, but the impact of these factors cannot be estimated with any certainty.
- A number of scenarios have been modelled with results which are highly sensitive to the assumptions made. In any of these scenarios, taking step 4 of the roadmap in England at a later date than 21st June **reduces the total number of hospital admissions and deaths that occur over the duration of the wave**, by allowing more people to be protected by vaccination before transmission increases further. **It is important to recognise that these would be COVID-19 admissions and deaths avoided rather than simply delayed.**
- Longer delays prevent more hospitalisations and deaths, but **most of the benefit comes from the first 4 weeks of delay** (from 21st June) in the main scenarios modelled. This is partly because 4 weeks is a long enough to ensure significantly more vaccination coverage and would push step 4 **close to the school holidays, when transmission is expected to be reduced.**
- Although the absolute impact varies depending on the scenario and associated scale of resurgence, the proportional impact of a 4-week delay across multiple scenarios is consistently around a third to a half reduction in the peak number of daily hospital admissions. This peak is expected to occur around August, though seasonal and behavioural factors are still not fully understood and may affect this timing.
- A 2 or 4-week delay would also allow **more data** to accumulate, meaning that the risks of proceeding with step 4 would be better understood before it was taken. In particular, the impact of the delta variant on hospitalisations (particularly for vaccinated people) could be better understood. The modelling does not reflect preliminary estimates from PHE and PHS of a higher rate of hospitalisation of cases for the delta variant compared with the alpha variant, which are still highly uncertain.
- Reducing uncertainty about whether there may be unsustainable pressure on the NHS also reduces the risk of needing to consider reimposing measures. Although there is a risk of unsustainable pressures even with a delay, it is much lower.
- A delay of **2 weeks** would have a **significant effect** when compared to no delay, **but less effect than 4 weeks**. Splitting step 4 into two stages could also have some benefits.
- **Taking step 4 of the roadmap on the 21st June carries significant uncertainty and risk.** It is not possible at this point to determine whether this would result in unsustainable pressure on the NHS. The level of uncertainty is such that it is not possible to know if step 4 were taken on this date, whether the resurgence would be considerably smaller or larger than previous waves.
- Currently, most people who are admitted to hospital are not fully vaccinated, though this proportion will decrease over time as the number of unvaccinated people reduces. It should be expected that the proportion of hospital admissions that are vaccinated people will rise as more vaccines are

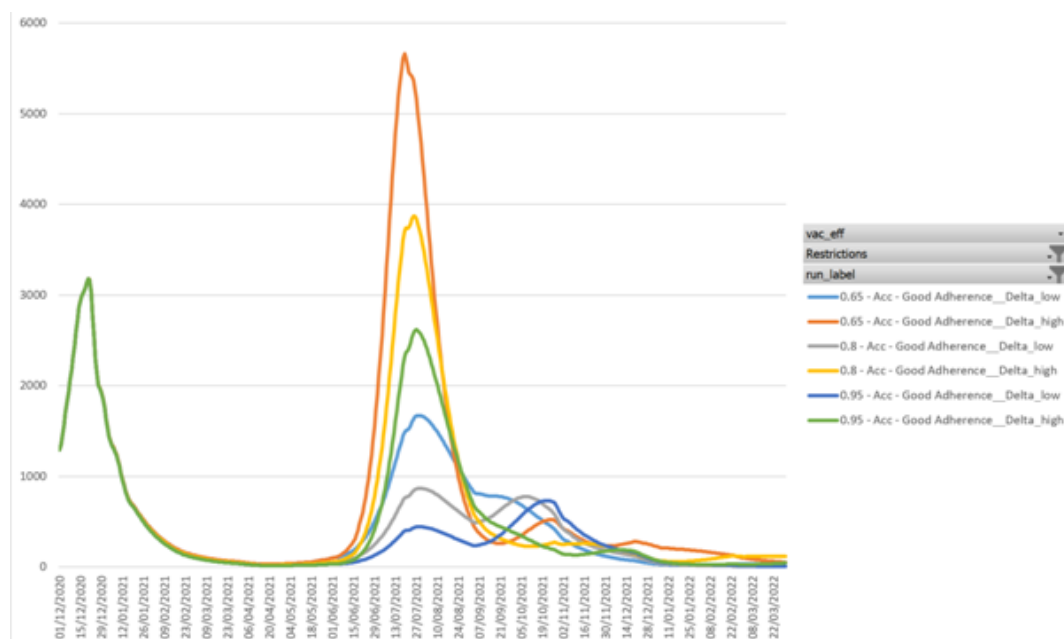
administered. The potential impact of waning immunity and the possible role of revaccination remain unclear.

- There are further uncertainties during and beyond the period covered by the scenarios, including the potential impact of any new variants. In some scenarios from one modelling group, much lower transmission over summer and rapidly waning immunity could result in a second peak in the autumn, or an extended period of high prevalence.

Swansea University modelling

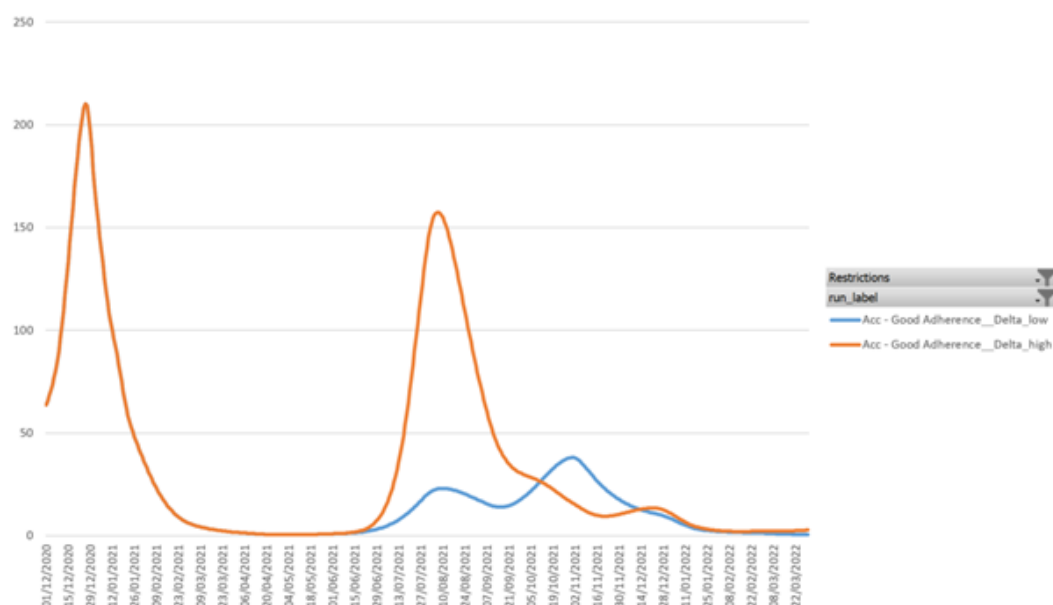
- Swansea University have refreshed their models to take into account current data, and the impact of vaccine effectiveness and the delta variant (B.1.617.2) having increased transmission compared to the previously dominant alpha (B.1.1.7) variant.
- The charts below shows cases under different scenarios of increased transmission (delta low, c.30% more transmission, and delta high, c.80% more transmission) and different scenarios of vaccine effectiveness, for a complete move to level 1.
- There is a lot of uncertainty on the size of the third wave in cases, depending on how much more transmissible the Delta variant is once it becomes dominant and reaches a steady state in the population, and how effective vaccines are at preventing infection and onward transmission. The wave in cases could be higher than the winter wave. This finding is consistent with the SPI-M models of the situation in England, but Wales is currently in a better position and may be 3-5 weeks behind England in terms of incidence, and is ahead of England in its vaccination programme.

Figure 8. Cases under different scenarios of variant transmission (delta low 30% more transmission, vs. delta high, 80% more transmission) and vaccine effectiveness (0.65, 0.8, 0.95 where 0.65 is 65% effective, etc.); all under good adherence, accelerated 2 scenario.



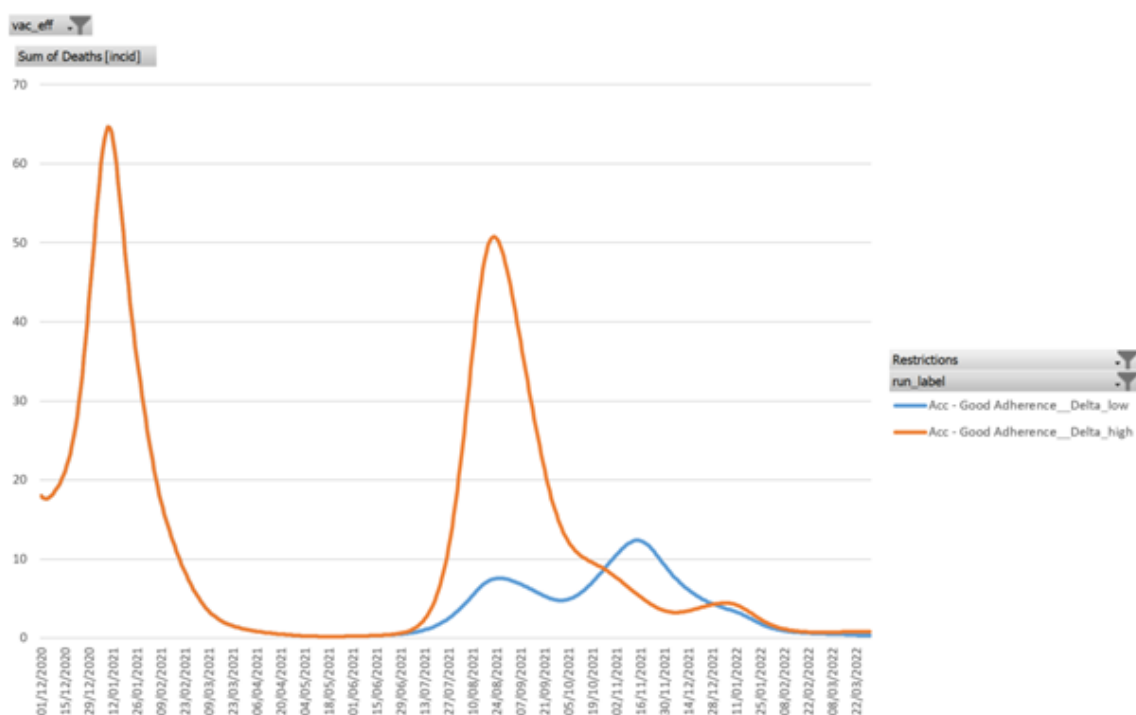
- We assume that vaccines will be around 95% effective at preventing hospital admissions; this leads to a wave that is up to two thirds of the height of winter wave if the delta variant is at the high end of the range of increased transmissibility, but this wave could be a lot lower, and show more of a double peak. The peak in daily admissions is between around 40 and 160 admissions per day.

Figure 9. Hospital admissions for 95% vaccine effectiveness, under 2 scenarios of new variant transmission (delta low 30% more transmission, vs. delta high, 80% more transmission)



- The shape of the curve for deaths is the same as admissions with 95% vaccine effectiveness, with peaks at between around 15 and 50 deaths per day.

Figure 10. Deaths for 95% vaccine effectiveness, under 2 scenarios of new variant transmission (delta low 30% more transmission, vs. delta high, 80% more transmission)



NHS Wales Capacity Modelling

- The current Covid-19 related bed occupancy across NHS Wales is amongst the lowest levels observed since we started recording the bedstate position during the initial wave back in April 2020 – there are currently 118 patients occupying a bed of which 24 have confirmed Covid-19 whilst the remainder are either suspected and are awaiting a test result or are recovered and no longer being treated for Covid-19 but are awaiting their next phase of care or discharge home.
- The chart below outlines the current Covid-19 related patients occupying a hospital bed and how that position relates back to that from September 2020 – incorporating the second wave that was experienced across Wales.

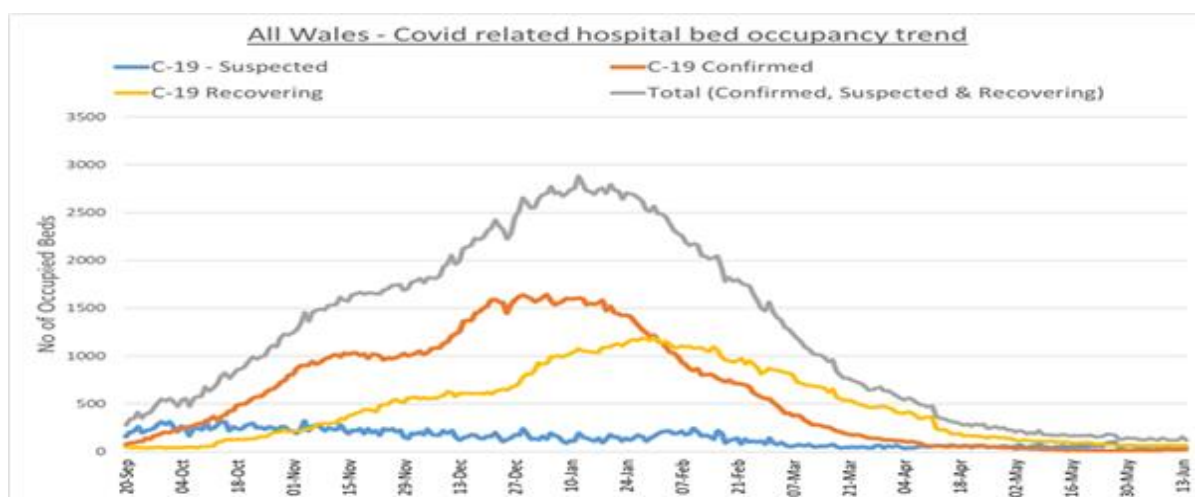


Figure 8. All Wales COVID-related hospital bed occupancy trends

- In order to ensure the NHS remains prepared for any further Covid-19 waves, Swansea University modelling outputs have previously been and continue to be considered in planning guidance that has been issued to the NHS.
- The guidance issued during 2020/21 was very much in relation to the Covid-19 related capacity that would be required, however as we move into a phase where Covid-19 bed occupancy is low and public confidence through the release of restrictions and the success of the vaccination programme, the NHS across Wales has seen non-Covid demands for services reach historic demand levels and this is compounded by the significant elective backlogs that are now in the system as well as a workforce that has to continue to adhere to Covid-19 related restrictions such as the use of PPE, patient testing etc it is also fatigued by the past 15 months experience.
- So in order to support the NHS preparedness for the remainder of 2021/22 – guidance was issued to all health boards on the 2nd June 2021 that outlined the potential bed occupancy that they could expect to encounter, the modelling considers the historic occupancy profile and trends that NHS Wales has experienced over the past 7 years and provides an average “lower projection” scenario and an average plus reasonable worst case (RWC) scenario “higher

projection" output. The RWC is inclusive of a future COVID wave as well as scenarios where prevalence of influenza or meningitis are at escalated levels.

- The outputs of the work at an all Wales level is outlined in the charts below – the first articulating the anticipated critical care position whilst the second considers all other hospital beds.

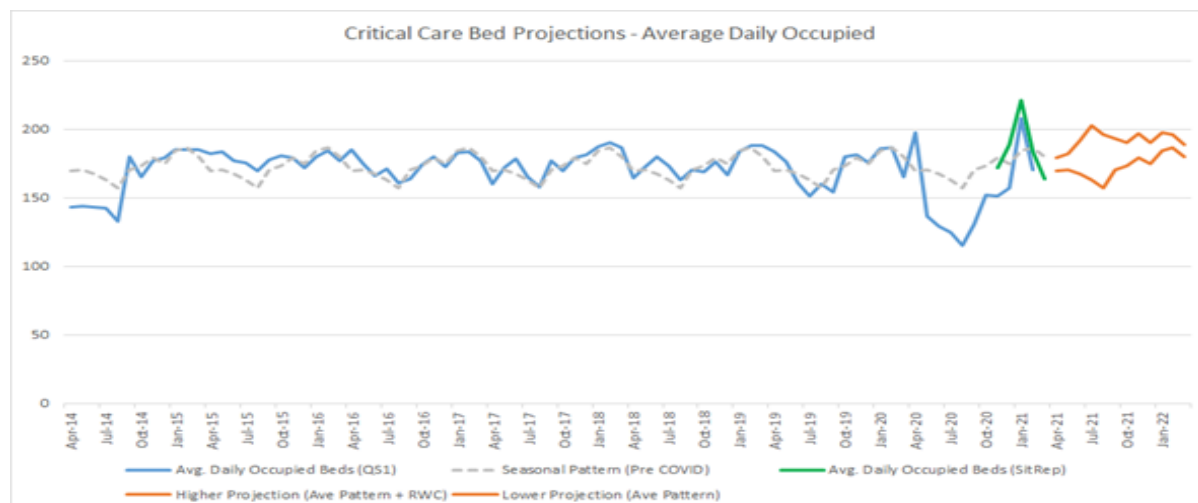


Figure 9. All Wales critical care bed projections - daily occupied (NHS Wales)

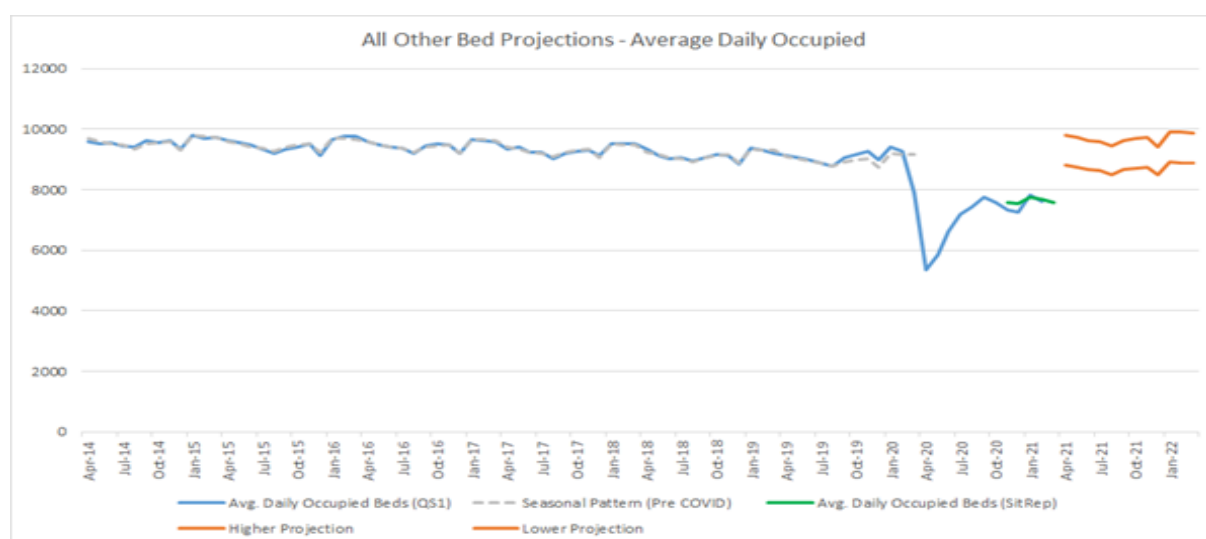


Figure 10. All Wales other bed projections - daily occupied (NHS Wales)

Behavioural considerations

Current levels of adherence

- It is important to acknowledge the high levels of adherence to the regulations and guidance in place in the UK throughout the pandemic and the factors most likely to explain any non-adherence⁷. To assess the current position in Wales, data are available via various sources, including Welsh Government commissioned survey research from [Ipsos MORI](#). The most recent data for the

⁷ [Pandemic fatigue? How adherence to covid-19 regulations has been misrepresented and why it matters | The BMJ](#)

period 4 to 8 June indicate that levels of adherence to key protective behaviours remain high. For example, as can be seen in Figure 14 below, more than four in five report wearing a face covering, while three in five report ensuring they are more than two metres apart from others. Similarly, around a third of those in employment report working from home and around half still report avoiding non-essential travel and non-essential use of public transport.

- However, not surprisingly, as restrictions have been relaxed in moving through the alert levels⁸, there is emerging evidence of changing behaviours. The proportions reporting mitigating behaviours have fallen to some degree, in particular ensuring two metre distancing from others (from 74% in early-March to 62% in early-June).

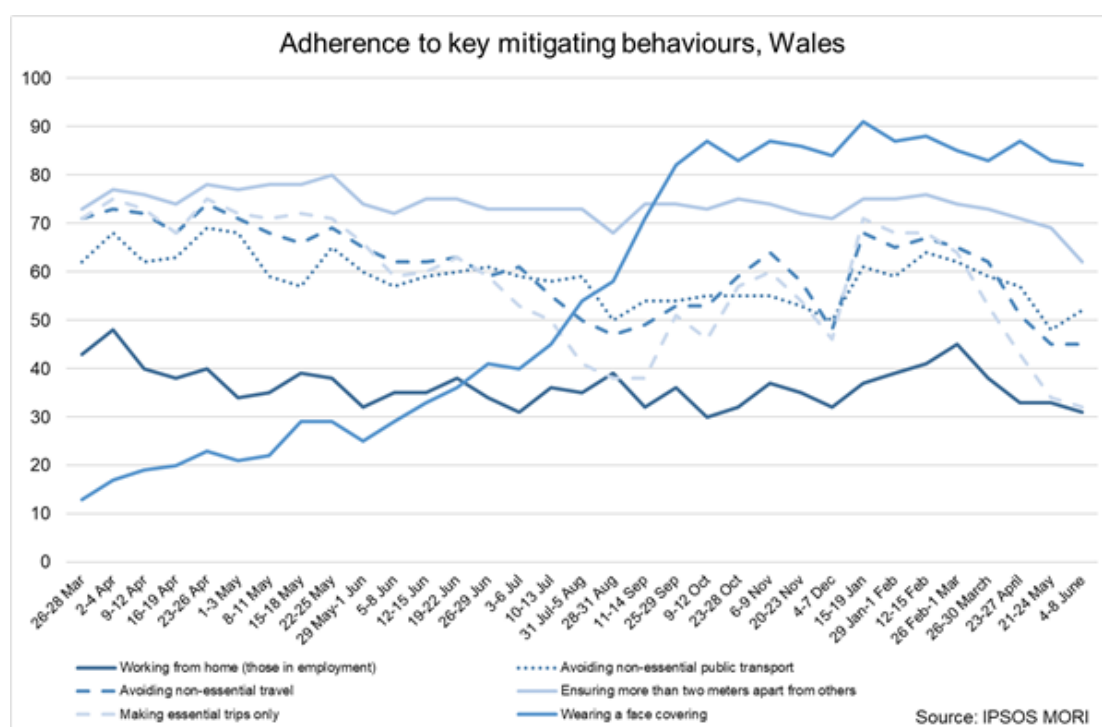


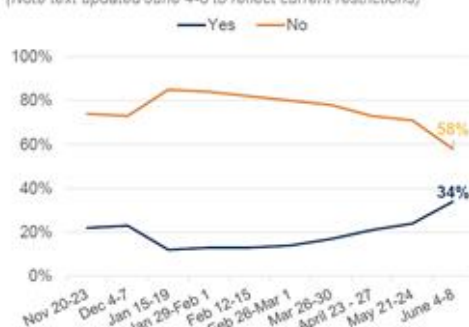
Figure 11. Adherence to key mitigating behaviours Base: c. 500 adults in Wales aged 16-74 per wave. Source: Ipsos MORI.

- Data on mixing in private dwellings are also available from the Ipsos MORI survey. Figure 15 indicates the proportion reporting mixing with somebody outside their own household (or extended household) has doubled, from 17% in late-March to 34% in early-June, with almost three in five (57%) reporting doing so to socialise. These estimates relating to respondents socialising in their own home should be interpreted with caution given the relatively small sub-sample size and self-reported nature of the data.

⁸ [Coronavirus control plan: revised alert levels in Wales \(March 2021\) | GOV.WALES](#)

In the last week, has anyone from outside your household (or extended household) been in your home?
Note that at the start of June, two households were allowed to join to form an 'extended household' (in effect, forming a single household). The Welsh Government has indicated that, if public health conditions allow, this may be extended to three households from 7th June.

(Note text updated June 4-8 to reflect current restrictions)



For which, if any, of the following reasons have people from outside your household (or exclusive support bubble) been in your home in the last week?
Note that support bubbles can only be formed by single parents, people living alone or where parents have a child under one.

*Caution: small sample size

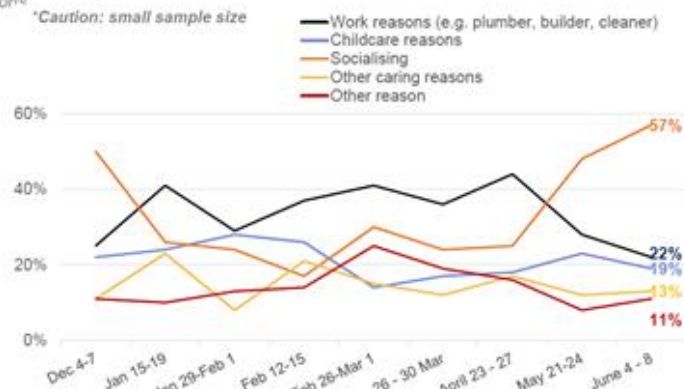
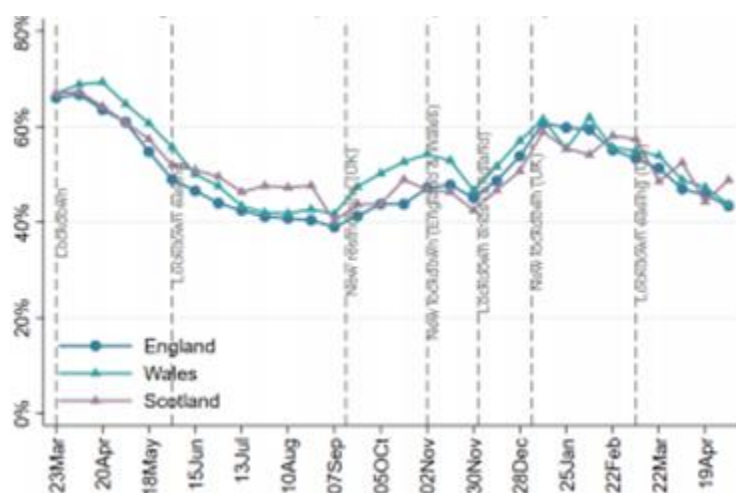


Figure 12. Mixing in own household. Overall base: approximately 500 adults in Wales aged 16-74 per wave. Base for those who had someone from outside their household in their home: Dec = 109; Jan 15-19 = 59; Jan 29-Feb 1 = 64; Feb 12-15 = 66; Feb 26-Mar 1 = 70; 26-30 Mar = 85; April 23-27 = 99; May 21-24 = 122; June 4-8 = 170.

- While other surveys use different measures for monitoring adherence, similar conclusions can be drawn. For example, the most recent data for Wales from the UCL Covid-19 Social Study⁹, covering the period March 2020 to May 2021, show that while majority compliance remains high, complete compliance has fallen away somewhat¹⁰ (see Figure 16). ONS data¹¹ also show a similar shift in behaviours at GB level and it is important to note an age gradient apparent across all data sources, such that younger people are less likely to be following protective behaviours, including limiting their social mixing.



⁹ [RESULTS | COVID Social Study](#)

¹⁰ Respondents were asked to what extent they were following the recommendations from government, such as social distancing and staying at home, ranging from 1 (not at all) to 7 (very much so), with a score of 7 described as 'complete' compliance and 5-7 'majority compliance'.

¹¹ [Coronavirus and the social impacts on Great Britain - Office for National Statistics \(ons.gov.uk\)](#)

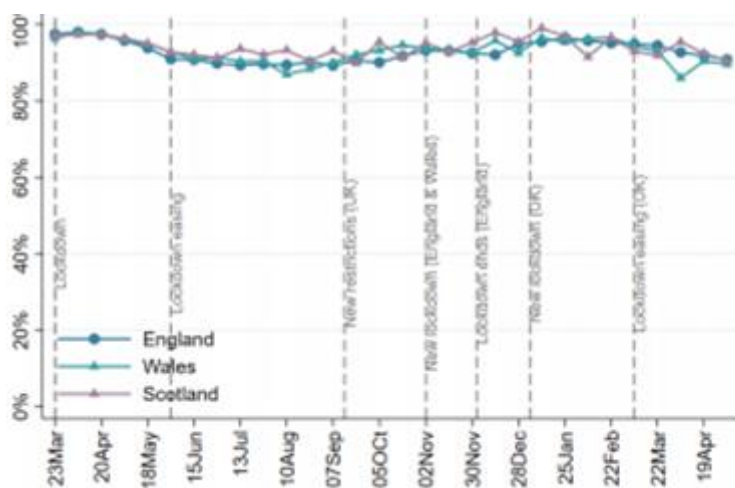


Figure 13. Complete and majority compliance with guidelines by nation

Source: UCL Covid-19 Social Study, results release 34, May 21 2021

Mobility

- Mobility data are also available from various sources and while they do not measure adherence per se, they can provide rapid insights into movement in the population. These data are regularly summarised elsewhere¹². The data require careful consideration, given fluctuations linked, for example, to bank holidays and weather patterns but in recent months mobility has been on an upward trajectory, exceeding levels seen in summer 2020 (see Figure 17). Google mobility data can also be used to assess various types of locations visited, suggesting a significant increase in parks and smaller but consistent increases in retail/recreation, supermarkets/pharmacy, workplaces and public transport (see Figure 18).

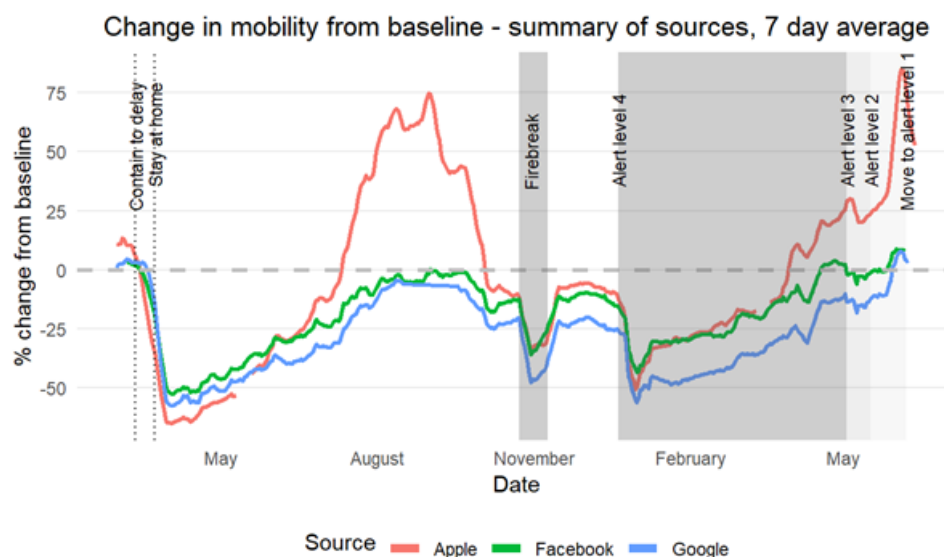


Figure 14. 12 month summary of mobility data, Wales

¹² [Technical Advisory Cell: summary of advice 8 June 2021 | GOV.WALES](#)

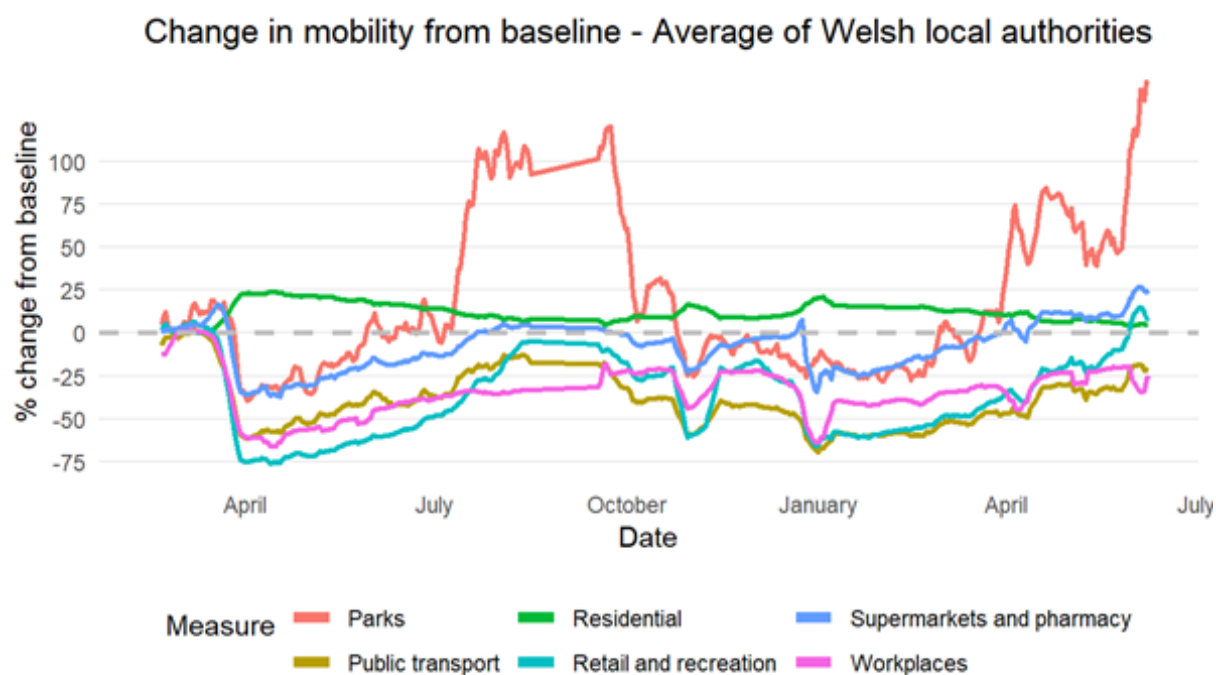


Figure 15. 12 month summary of types of location visited, Wales

Current behavioural priorities

- Previous TAG advice included key behavioural considerations in relation to the Delta variant, reinforcing the importance of personal, procedural, engineering and societal mitigations¹³. As further epidemiological evidence emerges, notably increased transmissibility and the importance of two vaccine doses, these mitigations are more important than ever and should include: the continued drive to reduce infection risk through limiting the number and duration of social contacts and ensuring adequate ventilation; emphasising the relatively lower risk in meeting outdoors; seeking a test when symptomatic and self-isolating as necessary; and the importance of communications that explains the importance of vaccine uptake, including the need for both doses and the two week post-vaccination period before protection is fully active. Reaching the young and most vulnerable groups and deploying behaviourally-informed interventions (policy, communications and services) is critical to maximise individual and population level protection.

Economic summary

- Estimating the effect of restrictions on the economy is subject to extreme uncertainty as it depends on an assessment both of how restrictions affect the behaviour of businesses and consumers and an assessment of how businesses and consumers would behave in the absence of restrictions but a

¹³ [Technical Advisory Group: briefing on variant of concern B.1.617.2 | GOV.WALES](#)

continuing pandemic. The following estimates should therefore be seen only as indicative of a broad order of magnitude.

- The latest forecasts produced by NIESR, and based on the most recent official GDP data for April, indicate that in June (prior to the removal of the final restrictions), UK GDP may be around 1.7% below the figure in February 2020, i.e. immediately prior to the pandemic. The Bank of England has recently assessed that the pandemic will have caused a permanent annual loss of a little over 1% of GDP. On this basis, and assuming no underlying productivity growth during the course of the pandemic, the reduction in GDP associated with the remaining restrictions may be around 0.7% of GDP. Labour market data indicates that the economy in Wales has been affected similarly to the UK as a whole, so it would be reasonable to apply this estimate to Wales. On this basis, the weekly loss of GDP in Wales associated with the remaining restrictions could be valued at around £10 million.
- However, in reality the level of economic losses will be influenced by the longer term consequences of extending restrictions for the future course of the pandemic and on the expectations of businesses and consumers. If the extension of restrictions for a limited period reduces uncertainty about the future course of the pandemic, and in particular, reduces the likelihood of future restrictions, this could result in spending and GDP being higher, rather than lower, than if the restrictions were removed. On the other hand, it is possible that a further period of restrictions could result in the loss of a disproportionate number of businesses that are currently on the brink of failure. There is no way to make a reliable assessment of the likelihood of this eventuality.
- The scale of the effects in the labour market of the extension of restrictions would be dependent on the direction and scale of the effect on GDP and on the continuation of high levels of government support. However, it appears reasonable on balance to assume that there could be some additional adverse effects, impacting particularly on the young, labour market entrants, and groups that are disadvantaged in labour market terms.

Sectoral impacts

- Businesses are affected by a number of impacts relating to COVID-19 and associated restrictions, including on labour supply; supply chains; reduced demand; and operational impacts such as reduced cash flow etc.
- The impacts of COVID-19 have been felt across a broad range of sectors, but have been largest in Accommodation and Food and Arts, Entertainment and Recreation. Restrictions in these sectors have been present in varying forms across all 'alert levels' in Wales.
- For example, even at the lowest alert level (level one), nightclubs and adult entertainment venues are to remain closed, as is the case across the four alert levels. Additionally, Hospitality (pubs, restaurants, cafes, bars, members clubs) can only serve alcohol between 6am and 10pm at this level. Social distancing will also constrain capacity and hence revenues in these settings. Sporting events have also been subject to restrictions across the alert levels with limits to attendance even under the lowest alert level.

- Depending on events in the pandemic, a delay to the move to level one may also entail Welsh business remaining at level one for a longer period once it is initiated. However, if the effect of a cautious move between current restrictions and alert level one is to constrain the spread of the virus (and in particular, the Delta variant), businesses may be subject to fewer restrictions in future. Of course, adherence to the restrictions by both business and the public will have a considerable bearing on this.
- The impacts on sectors would be dependent on the extent to which businesses are able to adapt to the restrictions they are subject to. For example, some premises are able to move activities outside to enable greater capacity, whereas for some this might not be feasible. Additionally, potential changes in consumer behaviour is unclear and may have some bearing on the viability of firms in impacted sectors going forward.
- Assessing the sectoral impact of a delay to the easing of restrictions is therefore subject to uncertainty. It is likely that those firms remaining under restrictions for the extended period would be impacted the most. However, some impacts may also transmit to other sectors through the supply chain.
- It should be noted that the actions associated with opening up premises and ensuring adequate stocks of goods (and attaining workers) can be costly (as can the restrictions of activity). Many firms have faced substantial financial pressures and could be placed in precarious positions when faced with such costs.
- The section below outlines some of the data on enterprises and employment in sectors associated with alert levels one and two.

Alert Level 1 - Low risk

- Total employment in 'Alert level one' sectors¹⁴ (i.e. those which would be restricted under this tier) is estimated to be around 8,000¹⁵, representing 0.6% of total employment in Wales. There are just over 800 enterprises in this tier.
- Assessing the effect on sectors that remain open but with restrictions (for example limits on the number of customers and hours of selling alcohol up to 10.00pm, with premises closing by 10.20pm) is challenging.
- Even though assessing the impact on sectors which remain open but with restrictions is challenging, there is some indication that they would struggle under such restrictions. For example, Emma McClarkin, chief executive of the

¹⁴ Standard Industrial Classification sectors included in the level one tier are 56301 Licensed Clubs, 9001 Performing arts, 9002 Support activities to performing arts, 9004 Operation of arts facilities – although some activity could continue.

¹⁵ Source: 2019 Business Register and Employment Survey; NOMIS

British Beer & Pub Association, has said the rule of six would have an “immediate cooling impact” on the public’s confidence to visit pubs. “It will also have a direct impact on trade that will be felt hard across an industry that is already struggling to get back on its feet,” [she added](#).

Alert Level 2 - Medium risk

- Total employment in ‘Alert level 2’ sectors¹⁶ is estimated to be around 17,000¹⁷, representing 1.3% of total employment in Wales. There are almost 1,400 enterprises in this tier¹⁸.
- Official earnings figures are not available for these sectors but it seems likely that jobs in these sectors are relatively low paid. As context, average median full-time weekly earnings in the Food and Beverage service activities sector (which has Licensed clubs as a component subsector) is less than two-thirds of the Welsh figure¹⁹.

¹⁶ Standard Industrial Classification sectors included in the level 2 tier are 56301 Licensed Clubs, 9001 Performing arts, 9002 Support activities to performing arts, 9004 Operation of arts facilities, 9311 Operation of sports facilities and 9319 Other sports activities

¹⁷ Source: 2019 Business Register and Employment Survey; NOMIS

¹⁸ Source: 2020 UK Business Counts; ONS

¹⁹ Source: 2020 Annual Survey of Hours and Earning; ONS

Annex 1: Public Health Wales Genomic Analysis Technical Report – Evidence of importation into Wales and subsequent transmission

Summary

- Data on sequenced cases of SARS-CoV-2 were linked to vaccination, hospitalisation and contact tracing data to described the spread of variants
- Delta variant is the third most frequently identified (n=315) after wild-type and alpha, with the earliest cases sampled in 8 April 2021
- The alpha variant was seen from November 2020 and became the dominant strain in Wales in January 2021
- None of the other variants took hold significantly in Wales
- The delta variant became the dominant variant in Wales in late May/June, accounting for nearly 2/3 of cases in week 22 2021
- The percentage of delta cases in the most recent week ranged from 25 to 97%, being 75% or higher in ABUHB, BCUHB, CVUHB and CTMUHB
- Only a small proportion (5/315) of delta cases have been hospitalised
- Delta cases have a slightly higher proportion of older cases than do alpha cases in the most recent 21 days
- Cases in the 16-25 year age group have increased in the most recent for both delta and alpha variants; for all other age groups, alpha cases are declining
- Most cases are now not linked to international travel, being contacts of confirmed cases or with no link (sporadic cases).
- Cases with a travel link have a higher peak age (around 45) than sporadic cases and those who are contacts of a confirmed variant case (peak around 25)
- The proportion of sporadic cases in the most recent week is slightly higher in CVUHB and ABUHB than in BCUHB. Nearly all recent cases in other Health Boards are sporadic
- Sporadic cases have increased week on week. A proportion of these have workplaces outside Wales.
- The first 315 delta cases had a higher proportion of workplaces outside Wales than seen in the earliest 315 alpha cases (8% vs 2%), with workplaces in NW England and London
- The majority (203/315, 64%) of delta cases were unvaccinated. Vaccination status reflects the underlying uptake by age groups, with 82% of those aged 60 and over having had at least 1 dose of vaccine compared to 33% of cases aged under 60.
- The effective reproductive number (R_t) for delta variant rose above 1 around May 24th and has been between 2 and 3 since late May.
- R_t for alpha variant rose above 1 in early June

Background

- Sequencing of SARS-CoV-2 in Wales started in March 2020, through the Pathogen Genomics Unit (PenGU), and working with colleagues in the UK, a number of variants have been identified. These are detected via a horizon scanning process, then assigned as variants under investigation or concern based on a risk assessment process.
- In November 2020, a variant now designated VOC-20DEC-01 or Alpha was detected from samples in Kent, following an increase in growth rates in that area. The first sequenced case was sampled in Wales on 5th November 2020. Monitoring of spread was also possible using some of the routine PCR tests, and this showed a rapid increase in cases of Alpha variant across Wales, resulting in it becoming the dominant variant in January 2021.
- Further variants under investigation and of concern have been identified, some with likely origins outside the UK, and enhanced identification and control measures specific for these variants have been adopted, with the aim of containment.
- The delta variant (VOC-21APR-02, initially linked to India) is the most frequent recent variant in the UK, and following introduction in spring 2021 it has rapidly become the predominant variant in England. As initial efforts at containment have not been successful, the approach in England has shifted to controlling spread and impact, with health protection resources focusing on clusters and outbreaks rather than individual cases.
- This paper describes the identification and spread of delta variant in Wales, with some comparisons with the introduction of alpha variant, in order to draw conclusions to inform the approach to management in the future. A parallel paper describes the genomic evolution and clustering of delta variant in Wales.

Methods

- This analysis includes only episodes of infection for which sequencing results are available. Episodes without attempts at sequencing or for which sequencing results were not available are not included, but in the wider dataset, inconclusive or unclassified sequences are included.
- COG-UK data published in the weekly variant report shows that over 50% of positive cases are sequenced in Wales, with a lag between sample date and availability of full sequence data. In week 19, between 25% and 80% of all cases were sequenced (by Health Board), with most (5/7) Health Boards having between 57 and 80% of cases sequenced. The two lower percentages (25% and 32%) were based on small numbers of cases in two health boards.
- The sequenced episodes were deduplicated on a 42 day episode length, meaning that no individual can have more than one positive episode in a 42 day period but can experience reinfection after this. The data was linked to information from the Test, Trace, Protect database (CRM), hospitalisations (via ICNET), travel status (from the ports and borders team), and vaccination (Via the Wales Immunisation System). Geolocation for workplace locations was derived via linkage to the ONS UK postcode lookup file.

- Analyses were done in R. Growth rate calculations used the EpiEstim package. The data was taken as that correct on 14/6/2021. Hospitalisations may not be full up to date as linkages are not done daily.

Results

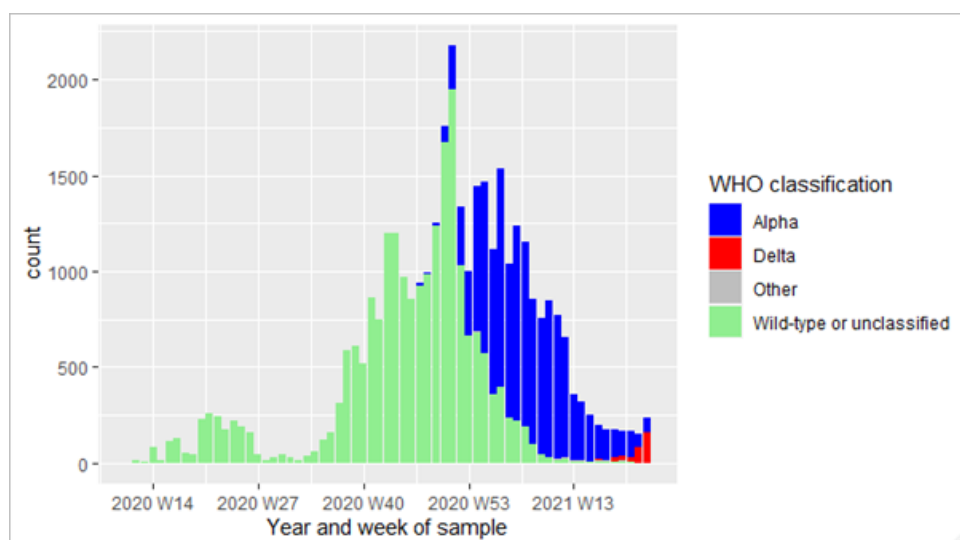
- Summary table for all variants (excluding E484 alone, n=2)

variant	pango	greek	Cases	Earliest case	Latest case	Median age	Hospitalised	Community admissions	Possible HCAI
Wild-type or unclassified	Wild-type or unclassified	Wild-type or unclassified	21825	2020-03-12	2021-05-30	50.0	5449	2369	3080
VOC-20DEC-01	B.1.1.7	Alpha	12801	2020-11-05	2021-06-05	39.0	1425	906	519
VOC-21APR-02	B.1.617.2	Delta	315	2021-04-08	2021-06-06	30.0	5	5	0
VOC-20DEC-02	B.1.351	Other	40	2020-12-26	2021-05-11	32.0	2	1	1
VUI-21APR-01	B.1.617.1	Other	15	2021-03-09	2021-05-02	33.0	0	0	0
VUI-21FEB-03	B.1.525	Other	10	2021-01-21	2021-04-03	29.0	0	0	0
VOC-20DEC-01 + E484K	B.1.1.7 + E484K	Alpha	7	2020-12-29	2021-04-15	35.0	1	1	0
VUI-21MAY-02	C.36.3	Other	4	2021-03-18	2021-05-21	47.5	0	0	0
VOC-21JAN-02	P.1	Other	2	2021-04-18	2021-04-19	35.0	0	0	0
VUI-21APR-03	B.1.617.3	Other	1	2021-04-26	2021-04-26	55.0	0	0	0
VUI-21JAN-01	P.2	Other	1	2021-01-22	2021-01-22	38.0	0	0	0

- The delta variant is now the 3rd most frequent type, with 315 cases of which 5 were hospitalised (community admissions). The earliest case was sampled on 8 April 2021. The overall median age is slightly lower than for alpha variant. No other variants are present in large numbers.

Variant changes over time

Figure- epidemic curve of sequenced cases by variant name (WHO terms)



- The alpha variant is seen from late 2020 and became the dominant type in early 2021. In recent weeks, the delta variant has become the dominant type. In the most recent week (22), delta cases constituted 65% of all new cases in Wales.

Figure: epicurve of cases by WHO classification and Year/week of sample

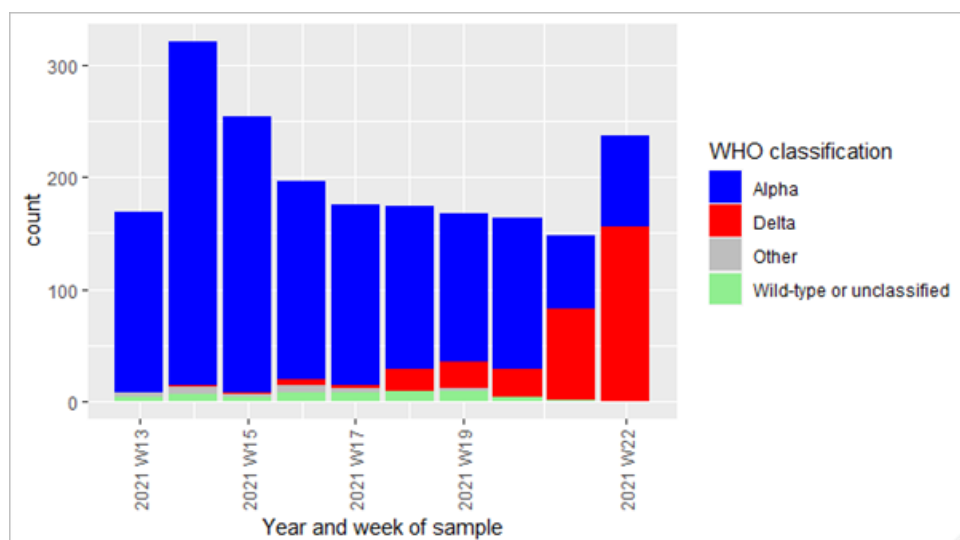
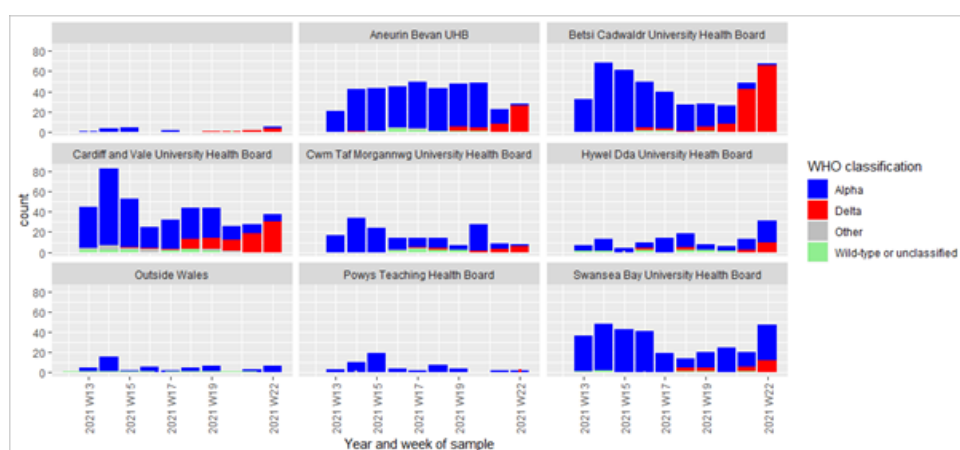


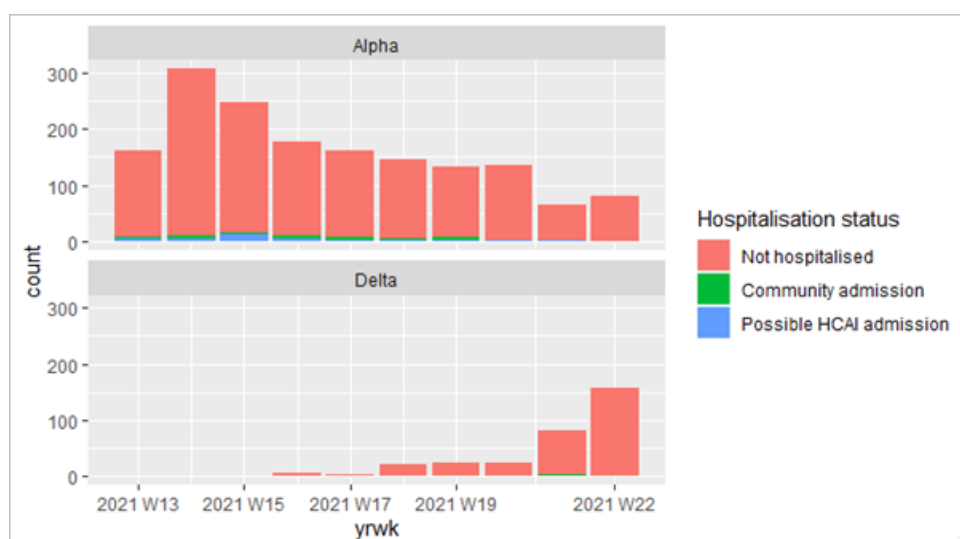
Figure – epicurves of variant cases by Year/week of sample and Health Board



- The percentage of delta cases in the most recent week ranged from 25 to 97%, being 75% or higher in ABUHB, BCUHB, CVUHB and CTMUHB.

Hospitalisation status of recent cases by Variant type

Figure: Hospital admissions for variant cases over time (source ICNet)



- Very few delta cases have been hospitalised, and none in the most recent week. Updates to the ICnet linkage may identify further recent hospitalisations.

Change in age distribution of recent cases

Figure: Age distribution of recent alpha and delta cases, by year and week

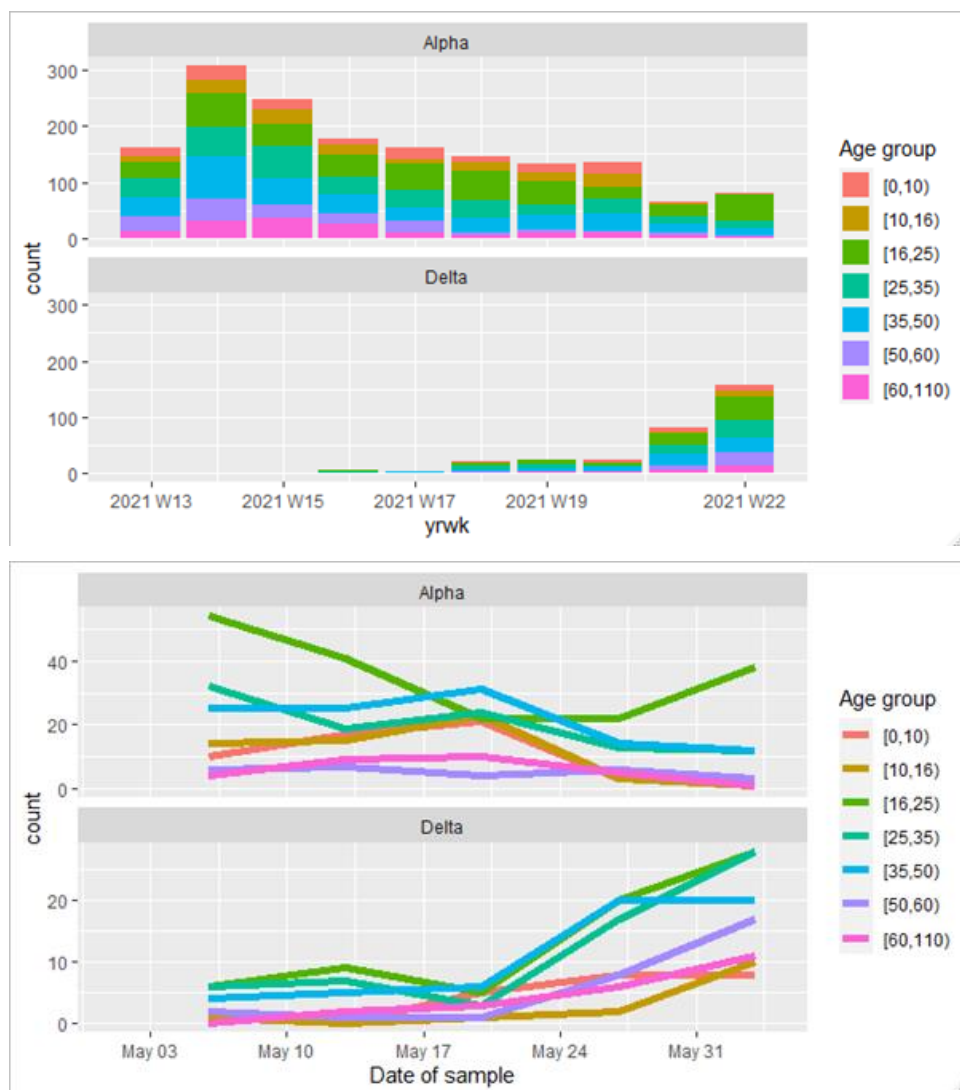
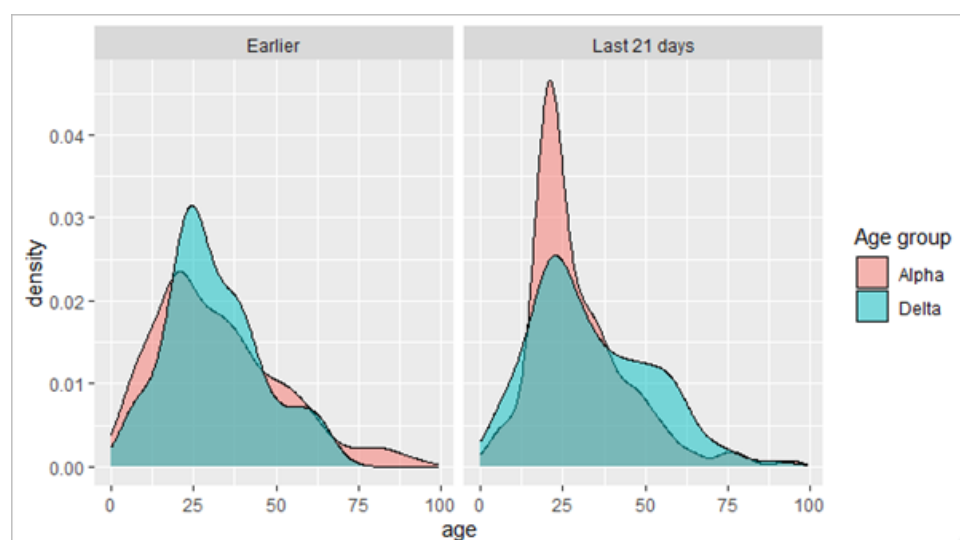


Figure: Age distribution of alpha and delta cases since 1st April, by most recent 21 days



- Delta cases have a slightly higher proportion of older cases than do alpha cases in the most recent 21 days. A recent increase in the number of cases aged 16-25 is seen in alpha cases as well as delta, but for alpha the case numbers in other age groups have declined.

Travel and contact status for delta cases

Figure: Epicurve of recent delta cases by travel and contact status

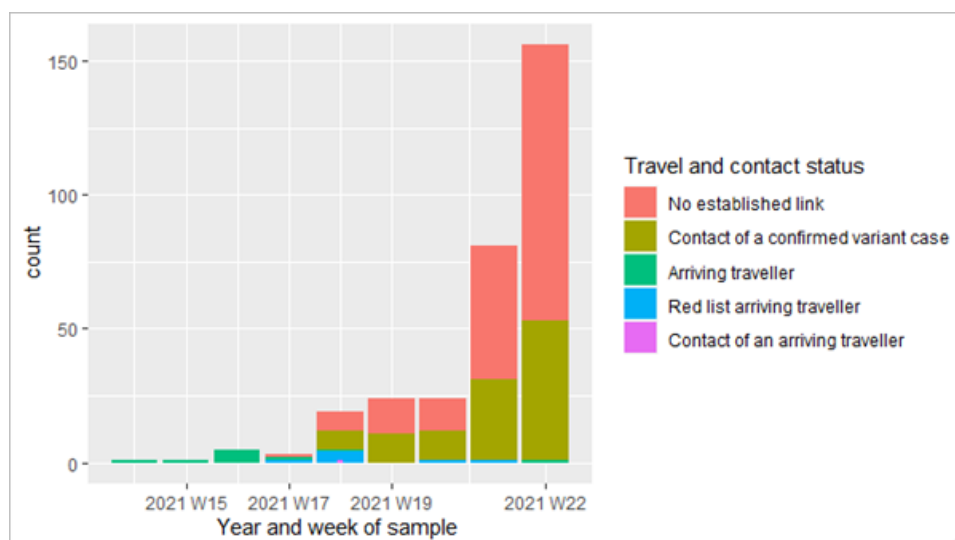
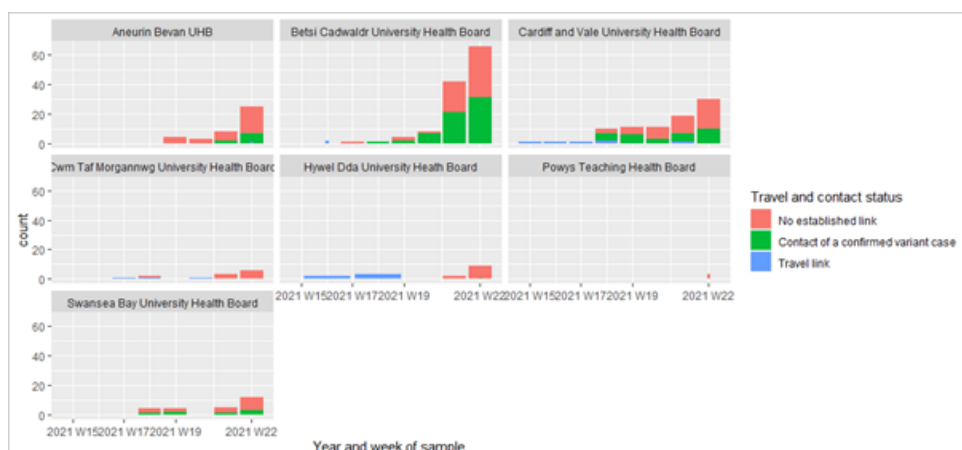


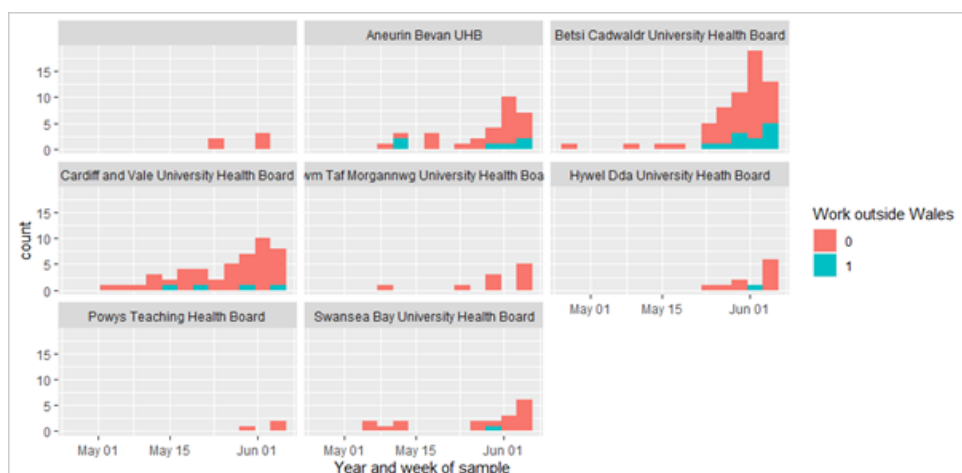
Figure: Epicurve of recent delta cases by travel and contact status, and Health Board



- The number of cases with any travel links have declined, with most cases now being contacts of confirmed cases or with no link (sporadic cases).
- The proportion which are sporadic in the most recent week is slightly higher in CVUHB and ABUHB than in BCUHB. Nearly all recent cases in other HB are sporadic.

Sporadic delta cases and work location

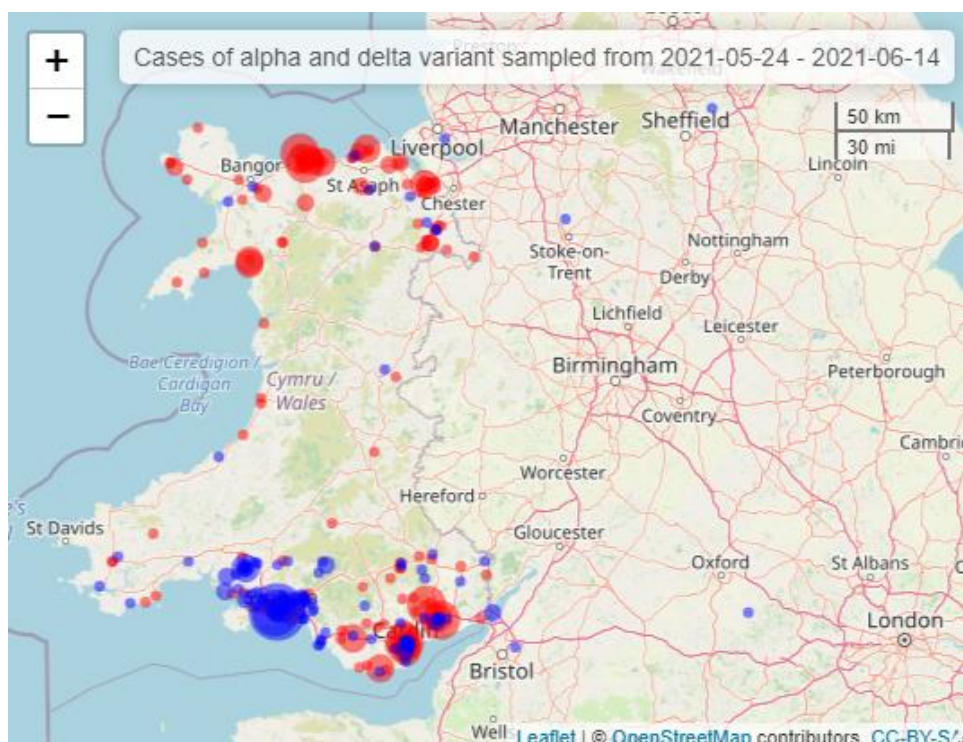
Figure: epicurve of sporadic delta cases by work location outside Wales and Health Board



- Sporadic case numbers have increased week on week. In ABUHB several early cases worked outside Wales. In BCUHB the proportion of cases working outside Wales has increased in recent weeks. In CVUHB several cases over the past few weeks have worked outside Wales, but with no upward trend.

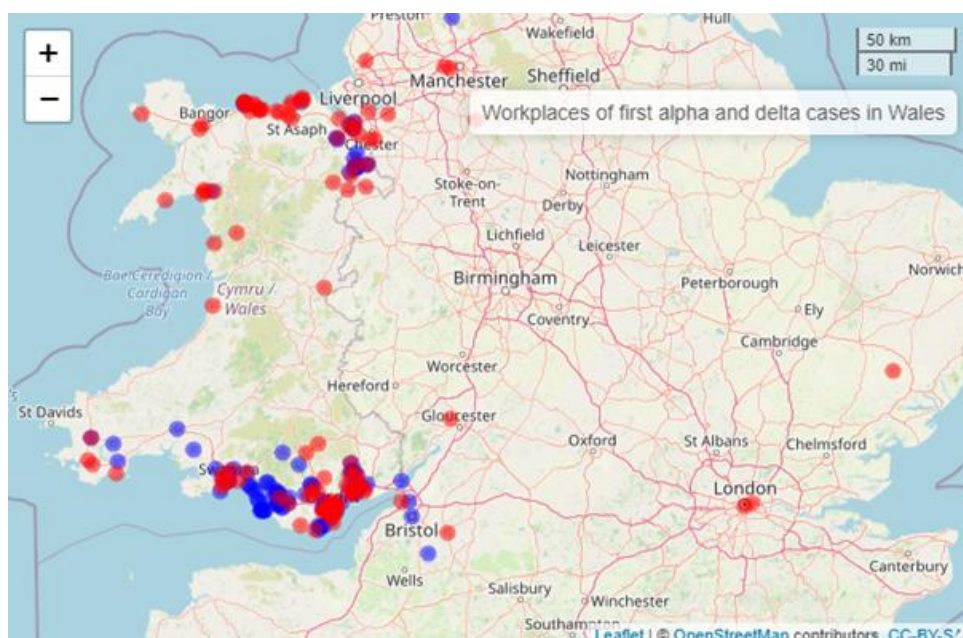
Locations of recent alpha and delta cases

Figure- cases of alpha (blue) and delta (red) variant from 24/5 to 14/6, by postcode of residence (size = number of cases)



- In this last 21 day period, delta cases (red) predominate in the northern part of Wales. In southeast Wales, both delta and alpha cases are present, with more alpha cases in the southwest.

Workplaces of the first 315 alpha (blue) and delta (red) cases, by postcode

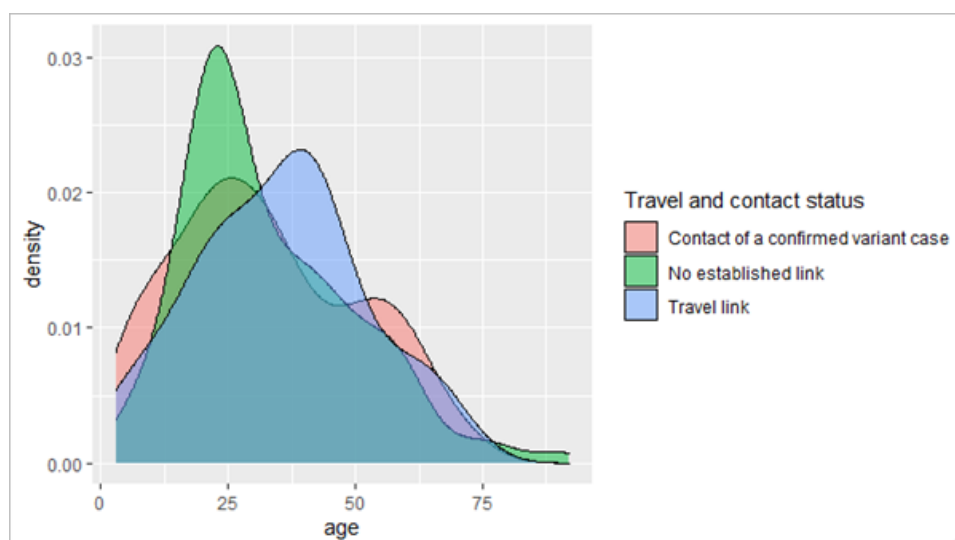


- Red circles = workplaces for first 315 alpha cases; Blue circles = workplaces for first 315 delta cases
- The alpha cases were the earliest 315 cases, showing possible workplace links for seeding for the initial alpha wave. There are more workplaces in England, particularly in the northwest and London, for the first delta cases, suggesting

possible seeding from these areas for delta more than for alpha. English workplaces for early alpha cases are more prominent in the Briston/SW area.

- 8% (7/315) of the earliest 315 alpha cases had workplaces outside Wales, compared to 26/315 (8%) of the first 315 delta cases.

Figure: Age distribution of delta cases by travel/contact status



- Cases with a travel link have a higher peak age (around 45) than those without an established link (sporadic) and those who are contacts of a confirmed variant case (around 25). There is a second smaller peak age for contacts of confirmed variant cases at around age 60.

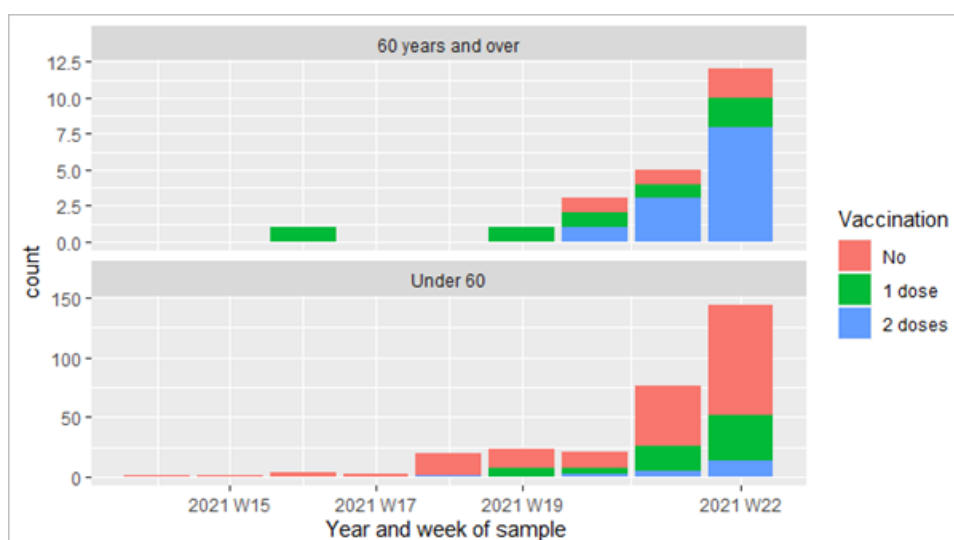
Vaccination status

Table: vaccination status of delta cases, by age group

	Cases	Median age	Hospitalised	Community admissions	Possible HCAI	No vaccine	Vaccinated 1 dose	Vaccinated 2 doses	Percentage unvaccinated
over60									
60 years and over	22	64.5	1	1	0	4	6	12	18
Under 60	293	27.0	4	4	0	199	72	22	67

- The majority (203/315, 64%) of delta cases were unvaccinated. Vaccination status reflects the underlying uptake by age groups, with 82% of those aged 60 and over having had at least 1 dose of vaccine compared to 33% of cases aged under 60. An assessment of vaccine effectiveness cannot be made from these data alone.

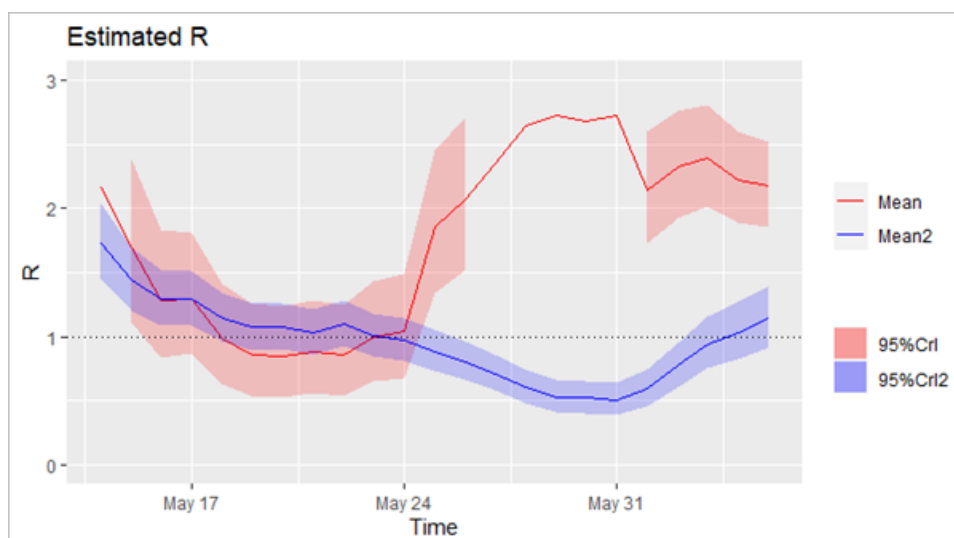
Figure: Epicurve of delta cases by age group and vaccination status



- More recent cases in the over 60's have been vaccinated, whereas in the under 60's a minority have had 1 or 2 doses. Earlier cases in the under 60's were nearly all unvaccinated.

Reproductive number estimates for alpha and delta variant

Figure: Estimation of R_t using EpiEstim, over time- comparison of delta (red) and alpha (blue)



- R_t for delta variant rose above 1 around May 24th and has been between 2 and 3 since late May. The results should be interpreted with caution due to the small numbers. R_t for alpha variant also rose above 1 in early June.