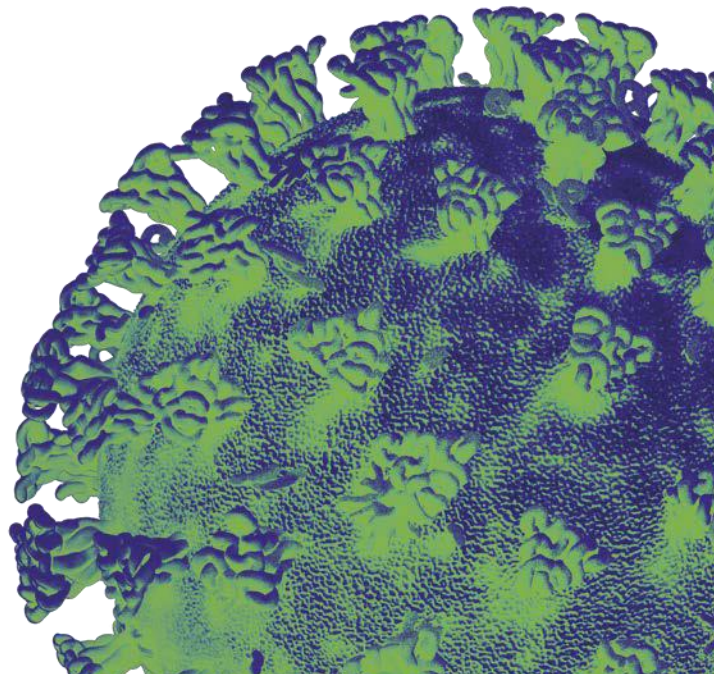
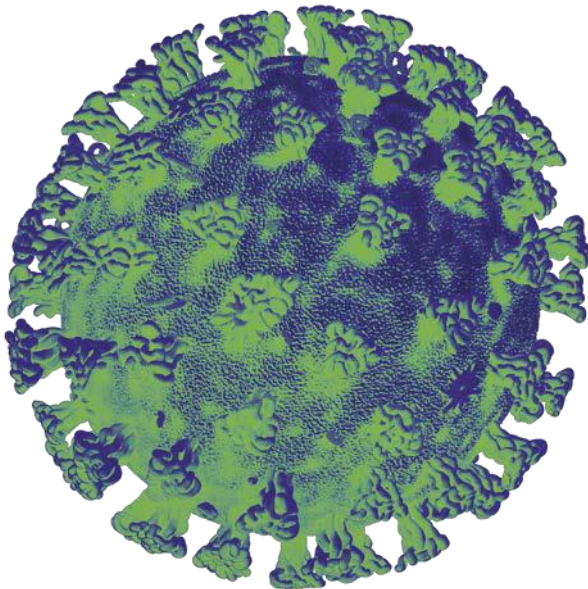
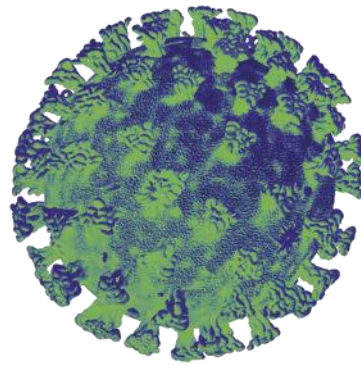


Advice from the Technical
Advisory Cell and Chief
Scientific Advisor for Health
21 Day Review

28th October 2021



Advice from Technical Advisory Cell and Chief Scientific Advisor for Health for the 21 Day Review

28 October 2021

This report provides:

1. Modelling and risk assessment
2. Advice on reducing the prevalence of COVID-19 if that approach is required
3. Advice from previous review cycles, including the 'COVID-Code'¹ which remains highly relevant.²

Summary

We are in a period of significant uncertainty within the COVID-19 epidemic in Wales. Most epidemic models suggested that population level immunity would be reached in October, which would be followed by a period of reduced infections. This has not yet happened.

Now would be an appropriate moment to consider strengthening the communications and the protective behaviours available at the current Alert level in Wales, and to seek to reduce the reproduction number of the epidemic below one with a combination of vaccination and Non-Pharmaceutical Interventions (NPIs).

The most effective tools available would include:

- Increasing the take up of vaccines in both 12-15 year-olds and 3rd dose receivers.
- Increasing the encouragement to work from home where possible
- Encouraging household contacts of positive cases to isolate until they receive a negative test result.
- Continuing to teach the COVID-Code lessons of: staying home if ill; wearing a face covering in indoor public places; minimising contacts; keeping distance; meeting outdoors where possible or increasing ventilation if indoors; and regular handwashing.
- Social and financial support for self-isolation also remains important.

¹ [Technical Advisory Group: sustaining COVID-safe behaviours in Wales | GOV.WALES](#)

² See for example [Advice from the Technical Advisory Cell and Chief Scientific Advisor for Health: 21 day review | GOV.WALES](#).

1. Wales situation update

- Overall cases of COVID-19 and test positivity rates have increased across Wales compared to last week, with cases at over 600 per 100,000 population and test positivity at 21%.

Cases per 100k (PHW Data) (7 day rolling sum)

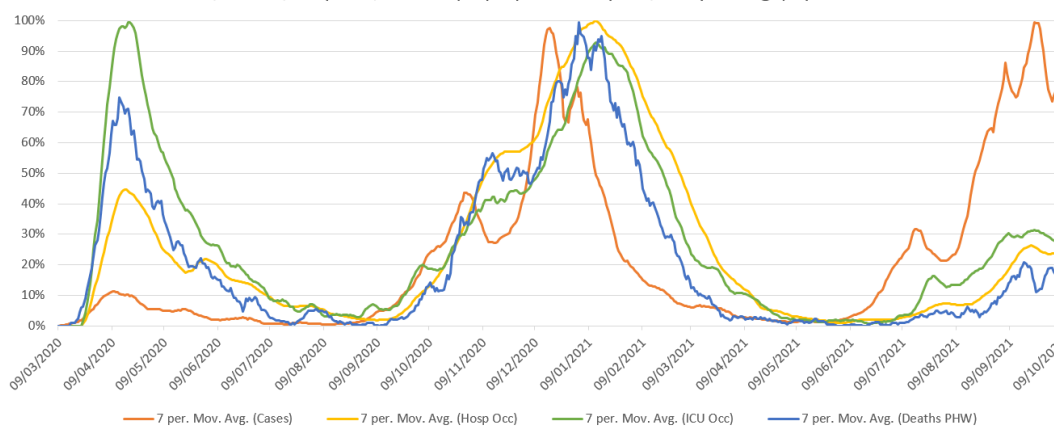


Positivity rate for COVID-19 (PHW Data) (7 day rolling average)



- COVID-19 pressure on the NHS has increased in the most recent 7 day period, with an increase in admissions, hospital bed occupancy and invasive ventilated bed occupancy. As at 16 October 2021, there were 625 COVID-19 related patients (Suspected, Confirmed and Recovering) occupying a hospital bed.
- As at 16 October there are 52 patients with Suspected or Confirmed COVID-19 in critical care beds in Wales. The total number of patients in critical care for both COVID-19 and non-COVID-19 stands at 166.
- The number of deaths has increased slightly in the most recent week to 52 according to PHW, although it remains lower than previous waves at similar case incidence (see below).

Cases, deaths, hosp Occ, MV occ (as proportion of peak, 7 day average) up to 9 October



- As at 22:00 19 October 2021, 2,419,276 (+16,065 compared to previous week) first doses and 2,237,199 (+5,395) second doses have been received by the Welsh population. A breakdown of uptake by priority group and age is below (Source: PHW)

Group	Group size (n)	Received 1st dose (n)	Received 2nd dose (n)	1st dose uptake (%)	2nd dose uptake (%)
Severely immunosuppressed	19,313	19,060	18,772	98.7%	97.2%
Care home residents	14,106	13,847	13,616	98.2%	96.5%
Care home worker	38,957	36,709	35,638	94.2%	91.5%
80 years and older	166,355	159,967	158,482	96.2%	95.3%
Health care worker	143,905	139,709	137,341	97.1%	95.4%
Social care worker		45,705	45,162		
Aged 75-79 years	131,069	127,103	126,220	97.0%	96.3%
Aged 70-74 years	182,042	175,385	174,292	96.3%	95.7%
Clinically extremely vulnerable aged 16-69 years	80,413	76,593	75,287	95.2%	93.6%
Aged 65-69 years	179,688	170,969	169,443	95.1%	94.3%
Clinical risk groups aged 12-64 years	358,816	322,372	308,529	89.8%	86.0%
Aged 60-64 years	205,141	191,902	189,512	93.5%	92.4%
Aged 55-59 years	233,392	214,324	210,970	91.8%	90.4%
Aged 50-54 years	228,352	205,568	201,400	90.0%	88.2%
Aged 40-49 years	395,076	336,344	324,638	85.1%	82.2%
Aged 30-39 years	428,516	336,546	314,517	78.5%	73.4%
Aged 18-29 years	487,978	380,155	342,880	77.9%	70.3%
Aged 16-17 years*	70,083	51,865	16,456	74.0%	23.5%
Aged 12-15 years*	164,480	51,707	436	31.4%	0.3%

- The JBC consensus estimate of the reproduction number for Wales is between 0.9 and 1.1 with a flat doubling time, while PHW's estimate is around 1.15 with a doubling time of 20 days, as at 20 October 2021. Note that JBC's estimate is typically lagged by 2-3 weeks while PHW, which uses a different methodology, is lagged by around 1 week. The Immensa lab issue may have affected the estimate of R_t and there are a considerable number of caveats around this estimate as a result.
- Rollout of first dose vaccination to all 12–15 year-olds is making steady progress, with 31% of this cohort vaccinated as at 19 October. There are some high 'did not attend' rates, although text-rebooking has recently begun which may alleviate this.
- Roll out of a third booster dose to JCVI priority groups 1-9 began on 20 September. Data on progress to date is not yet formalised, however early reporting from PHW³ as at 19 October suggests 268,000 doses have been given to date, with group coverage as follows:
 - Care home residents - 38%;
 - Care home workers - 46%;
 - HCW - 54%;
 - SCW - 49%;
 - Over 80s - 36%;
 - 75+ - 21%
 - 70+ - 16%
 - 60 + few% [sic]

³ [Rapid COVID-19 virology - Public | Tableau Public](#)

- The most recent [ONS Coronavirus \(COVID-19\) Infection Survey](#) results, 3 to 9 October, estimates that **2.31%** of the community population had COVID-19 (95% credible interval: 1.90% to 2.78%). This is the highest recorded positivity rate for Wales from the Covid Infection Survey.
- This equates to approximately **1 person in every 45** (95% credible interval: 1 in 55 to 1 in 35), **or 70,300 people** during this time (95% credible interval: 57,800 to 84,400). This compares to around 1 in 55 people in England, around 1 in 90 people in Scotland, and around 1 in 130 people in Northern Ireland.
- PHW data suggests flu activity remains stable with seven confirmed influenza cases since the previous week. Incidence of confirmed Respiratory syncytial virus (RSV) cases has decreased but remains above the threshold that would normally indicate very high intensity seasonal activity, although testing levels are also currently higher than in previous seasons.
- While levels of self-reported adherence to personal protective measures remain high in Wales, including physical distancing⁴ and use of face coverings⁵, these have been falling in recent weeks to the lowest levels recorded throughout the pandemic. At the same time, the proportions reporting the importance of such measures remains high and it would be an opportune time to make every effort to address this intention-action gap. Similarly, of those in work, the proportion reporting doing so from home has fallen significantly from those levels recorded in spring 2020 and winter 2021, such that this figure is now one in five, having peaked at around half of the working population earlier in the pandemic⁶.
- Rates of confirmed COVID-19 episodes had risen sharply in those aged 5-11 and 12-16 inclusive, and to a greater extent than for other age groups. The rates in these age groups remain high. Testing episode rates in age groups 0-4, 5-11 and 12-16 had risen sharply but are now decreasing.
- AY.4.2. (VUI-21OCT-01) is a new variant under investigation and accounts for a slowly increasing proportion of cases in the UK. It is also present in multiple other countries and is seen in travellers to the UK from a large number of countries. It is not clear where it originated or when.
- AY.4.2. appears to have a modestly increased growth rate compared to Delta. It is still uncertain whether AY.4.2 is growing due to a biological difference (transmissibility or immune escape) or to epidemiological context, such as being introduced into an area or population subgroup with high existing levels of transmission.⁷
- Data from the UK Health Security Agency⁵ indicates shows that the secondary attack rate for household contacts of cases with VUI-21OCT-01 was 12.4% (95%

⁴ [Survey of public views on the coronavirus \(COVID-19\): 8 to 11 October 2021 | GOV.WALES](#)

⁵ [Ad-hoc statistical requests: 3 November 2021 | GOV.WALES](#)

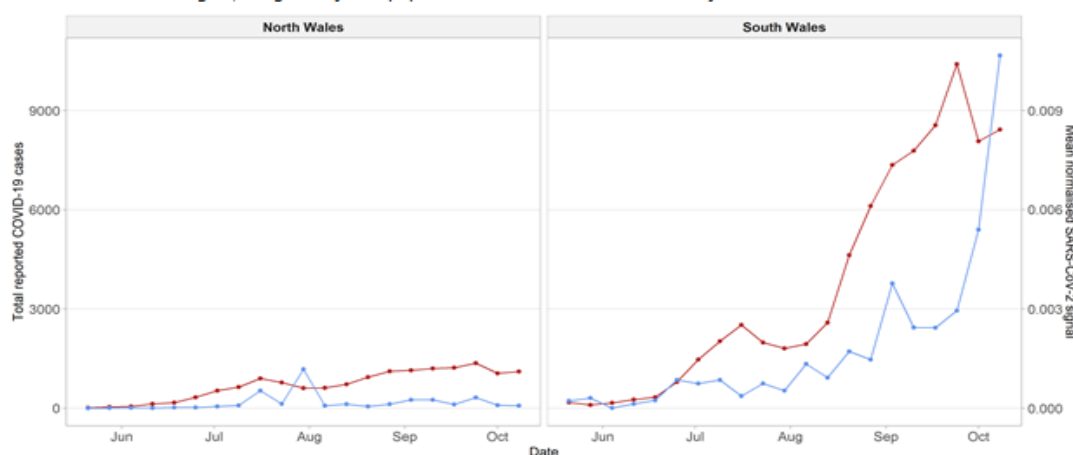
⁶ [Ad-hoc statistical requests: 3 November 2021 | GOV.WALES](#)

⁷ [SARS-CoV-2 variants of concern and variants under investigation in England, UK Health Security Agency, Technical Briefing 26, 22 October 2021](#)

CI: 11.9% to 13.0%), higher than that observed for other Delta cases where it was 11.1% (95% CI: 11.0% to 11.2%). In non-household settings, the secondary attack rate was higher for VUI-21OCT-01 than other Delta cases, but this difference was not significant. No significant variation between regions was observed. Comparative analyses of deaths, hospitalisation, and vaccine effectiveness have commenced and will be reported once available.

- Although still in development, the signal from wastewater surveillance is demonstrating that it is an unbiased indicator not impacted by testing policy or test-seeking behaviour. Subsequently wastewater can give a more representative level of infection than just positive case data alone, making it a useful control for other signals, and accelerating its growth into an indicator in its own right.
- Between 1 – 8 October, the wastewater signal in South Wales showed an increase in detectable viral material in wastewater within the monitored catchments. Figure 1 shows the wastewater signal for South and North Wales (blue line) against the reported positive cases for those catchments (red line) for that period.

Figure 1. Weekly comparisons COVID-19 cases and normalised SARS-CoV-2 signal by region
Total reported COVID-19 cases (red) within each catchment for each region; mean normalised SARS-CoV-2 signal (blue) for catchments in each region, weighted by their population size. Data taken from 15 May 2021



- Based on the current relationship between wastewater surveillance and positive case data, the current increase in wastewater signal suggests the amount of infection is higher than during the 'second wave'. Data collected since 8 October is suggesting a stabilisation of the signal in some limited sites in South Wales, whilst these indications are reassuring, some sites are still observing an increase in signal.

International comparators

- Overall, the UK is currently performing worse than international comparators with regard to the number of cases, the vaccination rate, and the rate of hospitalisations and deaths. The daily rate of new vaccines administered in the UK is now one-third of the average rate among comparators. As at 15 October,

Wales had the sixth highest cases relative to population in the world, at 617 cases per 100,000 (the UK as a whole had the ninth highest at 446)⁸.

- COVID-19 restrictions are being relaxed in more European comparators, and several are using COVID-19 certification to mitigate risk. Cases are rising in several north-European countries, particularly those such as Denmark, the Netherlands, Belgium and Ireland who have recently relaxed or are soon due to relax social restrictions. Recent analysis suggests the observed impact of certification appears dependent on average pre-intervention levels of vaccine uptake, with those with lower-than-average levels having a more pronounced effect and countries with high uptake seeing limited impact⁹.
- Over the summer, there have been more hospitalisations and deaths per-positive case and as a proportion of overall population in the US than in Europe. Low vaccination coverage is thought to be a likely factor in the high rate of hospitalisations and deaths in the US- 40% of people were fully vaccinated at the end of May, and by 3rd of October this had only risen to 56%.
- In the UK, 72% of the population has been at least one-dose vaccinated, 67% have been fully vaccinated and 4% have been booster vaccinated. The comparator average is 72% for one-dose, 69% for fully vaccinated and 7% for booster vaccinated (2% without Israel). Belgium has ordered vaccines for booster campaigns in 2022 and 2023 but are not planning a booster jab for under 65s in 2021. Singapore booster-vaccinated over-59s in September and extended to over-49s in October. Italy will proceed with administering booster vaccines to over-70s from late-October. Austria, Hungary and Canada have recently commenced their booster campaigns.
- Despite Israel's high vaccination rate, waning immunity from vaccines has contributed to severe health outcomes. The inter-dose interval between dose 1 and 2 was 3 weeks in Israel, as opposed to 8-12 weeks in UK, which JCVI advised as preferable for mounting optimal immune response. Israel has since focused on disseminating vaccine boosters rather than extending overall coverage, with 43% of the population now being booster vaccinated. Data from the Israel Ministry of Health suggests this is having a significant impact in reducing the rate of severe disease in 60 and 40-60 age groups, potentially up to a 95% reduction compared to two-doses¹⁰.

Welsh policy modelling

- Overall, the latest Swansea University modelled scenarios estimate that cases, hospitalisations and deaths will continue to decrease following a peak at the end of September/October 2021. COVID-19 cases were estimated to reach a higher peak than that observed in previous waves. COVID-19 hospitalisations, and deaths were estimated to peak at a significantly lower level than previous waves.

⁸ [Weekly confirmed COVID-19 cases per million people \(ourworldindata.org\)](https://ourworldindata.org/)

⁹ [The impact of mandatory COVID-19 certificates on vaccine uptake: Synthetic Control Modelling of Six Countries | medRxiv](#)

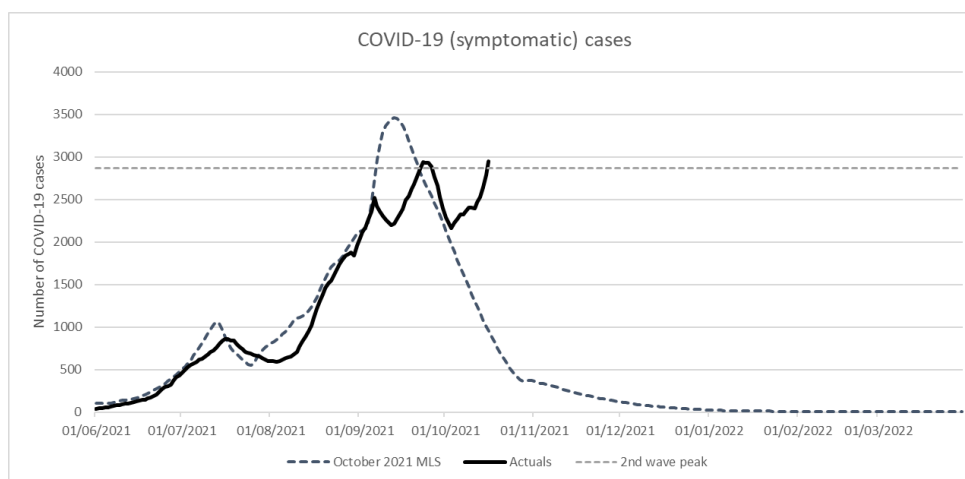
¹⁰ [Vaccines and Related Biological Products Advisory Committee October 14, 2021 Meeting Presentation - Booster protection across ages - data from Israel \(fda.gov\)](#)

Hospitalisations and deaths usually peak after cases, however there are indications that earlier peaks could occur due to the currently low average age of cases.

- All of the model scenarios suggest we may have recently surpassed the peak number of COVID-19 cases. We have a level of equilibrium based on current levels of vaccinations, susceptibility, restrictions and behaviour, but this can change again quite quickly, for instance as people start mixing more indoors with less ventilation in the colder weather, or changes to isolation behaviour.
- A new most likely scenario (MLS) has been chosen. In this scenario the peak is delayed by the mid-July plateau of cases, with the resulting peak following level 0 pushed further into the autumn. Scenarios in this specific period are therefore more pessimistic than the previous ones produced in June 2021.

Figure 4: COVID-19 (symptomatic) cases

Observed 7 day rolling average of COVID-19 cases (solid black line); October 2021 most likely scenario (MLS) from Swansea University (dashed navy blue line)



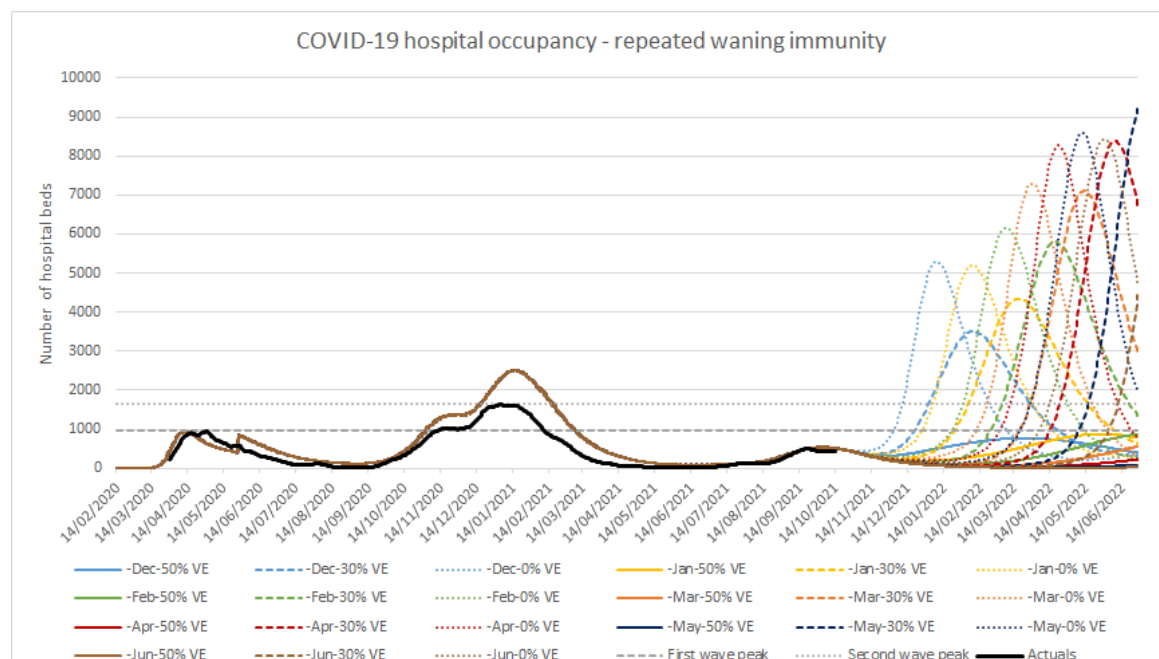
What does a pessimistic scenario look like for winter?

- In terms of the modelling, many of the most recent scenarios produced by modelling groups that input into SPI-M-O look less concerning for Winter compared to what was observed in Winter 2020/21. Only with a new variant or a high level of vaccine escape do we see a greater wave in hospital activity. The most recent scenarios from Swansea University suggest we are near the peak as of October 2021 and then cases and other harms may fall again.
- Scenarios from University of Warwick for Wales suggest if vaccine effectiveness wanes very quickly, there could be a significant further wave of hospital admissions leading to high levels of occupancy for COVID-19 hospital cases in Spring-Summer 2022, but if vaccine effectiveness does not wane quickly then the scenarios suggest hospital occupancy would peak around 5th October 2021 (so around now) at around 530 beds occupied for COVID-19+ patients (the modelling data does not include the additional COVID recovering patients). However if vaccine effectiveness wanes quickly, there could be a further wave in May-June 2022, which is modelled at peaking at over around 8,000 (eight thousand) COVID-19+ beds occupied in the absence of other measures – close to the entire NHS capacity.

- Although this scenario is unlikely, it may be that measures to avert this would be required if weekly growth in bed occupancy is above 30% and Wales has over 1,000 beds occupied with COVID-19 patients. The Warwick modelling has an increase of around 50% in one week but a 30% increase in one week would be enough to cause concern that pressure on the NHS as a result of COVID-19 was getting out of control. This would need to be contextualised in relation to other pressures on the NHS. This would be in a situation of a new variant and/or rapid waning of vaccine effectiveness in the population that was overtaking the impact of any boosters.
- In the scenarios on the following chart showing projections of COVID-19 hospital bed occupancy, the month shown in the scenario names in the legend refers to the month each scenario assumed there was a return to pre-pandemic levels of behaviour. The percentage refers to the percentage that vaccine effectiveness wanes to. Source for actuals: StatsWales

Figure 5. University of Warwick modelling of hospital occupancy

Modelling of hospital occupancy from University of Warwick, up to June 2022. All models account for waning immunity, differing vaccine effectiveness is shown by solid or dashed lines, different months of return to pre-pandemic behaviour indicated by the different colours. Actual values (black) from StatsWales



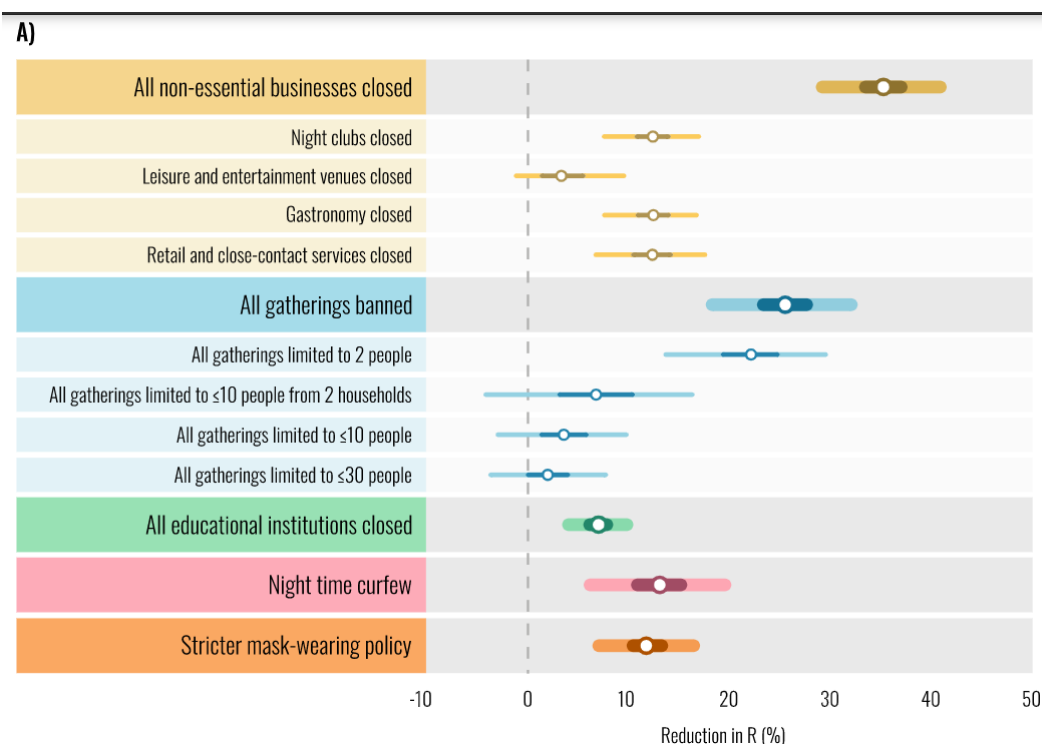
What will the impact be of NPIs in a COVID-19 urgent situation?

- There is some evidence¹¹ every time NPIs are implemented, they have less effect than in previous waves, although this may be confounded by more transmissible variants in each wave and more precautionary social distancing being present. However, recent SPI-B analysis suggests no sign of decline in effectiveness

¹¹ [Understanding the effectiveness of government interventions against the resurgence of COVID-19 in Europe | Nature Communications](#)

where behavioural interventions have been reintroduced a second or third time¹². The October 2020 firebreak had a very clear effect of reducing transmission for the weeks after it was implemented in Wales, but unfortunately cases began to increase again in December 2020 as the Alpha variant was becoming dominant and there was more mixing indoors. The most effective NPIs are also often those that cause the most economic and social harm, for instance by closing hospitality, or asking people not to meet others in their homes.

- Work is underway to produce a 'ready reckoner' NPI tool that can be used in a 'COVID-19 urgent' situation to test possible combinations of NPIs that would be required to bring transmission under control again.
- The estimated reductions to R_t in the NPI tool are taken from various studies. It should be noted that these studies apply worldwide and are not specific to Wales, and they mainly occurred before Delta and some before Alpha variant became dominant. The studies are useful in their breadth because this means they can estimate the effect size for more subtle interventions like face coverings where the effect size may be difficult to estimate at a Wales level, and also can estimate the effect size of NPIs that may often be implemented at the same time by comparing data for countries that have implemented a different combination of NPIs. An example of the effectiveness of different NPIs from one of the studies is shown below¹³.



- An example use of the tool is to take an initial R number of 1.2, select a study such as the '[Effectiveness of Government Interventions](#)' Nature Paper. Select

¹² [SPI-B: Behavioural considerations for maintaining or reintroducing behavioural interventions and introducing new measures in autumn 2021, 14 October 2021 - GOV.UK \(www.gov.uk\)](#)

¹³ [Understanding the effectiveness of government interventions against the resurgence of COVID-19 in Europe | Nature Communications](#)

NPIs from the options available. For instance, 'Gatherings limited to 30 people', a stricter mask wearing policy, and closure of leisure and entertainment venues, is estimated to lead to an R value of 1.0, an overall reduction of 0.2 (subject to the above caveats).

- The NPI tool is also designed to include a subjective evaluation of the economic and social cost of each selected NPI which can be developed with policy makers.

SAGE modelling

- SPI-M-O modelling from SAGE 96 considering future scenarios of the COVID-19 epidemic **in England** suggest that, while further waves of infection are still expected, it is that short-term trajectories to end of 2021 are mainly driven by behaviour, whereas any future peaks in 2022 are mainly due to the speed and level of waning and associated booster regimes. It is expected poor results in **both** of these areas, i.e. rapid and repeated waning of vaccination protection and a quick return to pre-pandemic levels of behaviour, would be required to reach levels of winter activity from the previous wave.¹⁴
- These models are not predictions or forecasts, but indicative scenarios with considerable uncertainty attached to them. Main assumptions are:
 - No social distancing measures are re-imposed and that behaviours do not change in response to prevalence.
 - The delta variant remains dominant.
 - The booster vaccination programme is not extended to further groups than those currently announced.
- To reduce or possibly even rule out the risk of a large COVID-19 wave over the next six months or so, SPI-M recommend behaviour is the key factor that can be influenced. If behaviour change to normal or pre-pandemic levels are encouraged to be only gradual, then there is both the potential to avoid a large wave as well as providing more time to gather more data to respond to potential future problems
- Booster vaccinations (who gets them and when) may also be particularly important in future years. Other key factors are biological unknowns that are not controllable, such as the patterns of waning of vaccine- and infection-derived immune protection and the effectiveness of boosters.

2. Reducing prevalence if there is an unsustainable pressure on the NHS

- Non-COVID-19 urgent & emergency pressure is currently comparable to that we would experience at the height of winter, with above seasonal prevalence of non-COVID-19 respiratory diseases evident whilst the NHS also continues to try and recover from the considerable backlogs that have developed over the past 18

¹⁴ [SPI-M-O: Summary of modelling for scenarios for COVID-19 autumn and winter 2021 to 2022, 13 October 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/spi-m-o-summary-of-modelling-for-scenarios-for-covid-19-autumn-and-winter-2021-to-2022)

months. On top of this COVID-19 is acting as a continued complication that necessitates different behaviours which constrain the NHS' ability to delivery day to day healthcare. There is also a considerable staffing challenge in the health and care system, with staff sickness absence rates (currently 7.2%, pre-COVID around 5%), culminating in a lack of flow through the system and extended ambulance and emergency department waiting times.

- Currently, the majority of hospital occupancy is emergency admissions with an average length of stay (LOS) of 10 days; however given the scale of respiratory admissions, including non-COVID-19, it is likely these patients are staying longer. Historically only around 10% of occupied beds are elective inpatients and current numbers are likely considerably lower than this, with an average LOS of 2-3 days.
- There are also significant “medically fit” volumes across the system (c.1400) and whilst moving these patients to their next point of care would create capacity and system flow in secondary care, it would also put additional pressure on community and care homes which are also experiencing significant capacity concerns.
- Overall there is the potential for significant harm in the community (and our hospitals) for people with non-COVID-19 illnesses or injuries, which may exceed the direct harm from COVID-19 at this point in time.

Covid urgent outline

- Wales' Coronavirus Control Plan has outlined two distinct planning scenarios; **Covid Stable**, where Wales remains at the current alert level zero, with all businesses able to open, and **Covid Urgent**, where Wales experiences similar pandemic pressures on the NHS to winter 2020. This results in the need to return to previous alert levels, potentially including lockdown at level 4 if no other options are available. Any future use of the alert level system would be proportionate to the specific risks observed.
- Current actions at Wales' Alert Level 0 include:
 1. People must use the NHS Covid-19 Pass to show they have been vaccinated or have a negative lateral flow test to go to nightclubs, indoor non-seated events where over 500 people are mixing closely for prolonged periods, outdoor non-seated events where over 4,000 people are mixing closely for prolonged periods or any event of more than 10,000 people.
 2. Face coverings remain compulsory in indoor public spaces and public transport, with the exception of hospitality settings such as restaurants, pubs, cafes or nightclubs. Face masks are no longer advised in schools, but still recommended in crowded spaces like school buses.
 3. College and secondary school staff and students should keep testing regularly, and positive or symptomatic people should isolate until a negative test is returned.
 4. Work from home wherever possible.
 5. Vaccinate the population appropriately.

- These current restrictions create a framework very similar to the proposed 'Plan B' measures in England, for implementation should the English NHS face unsustainable winter pressures over the autumn¹⁵. To date these interventions appear to have had limited impact on substantially reducing cases, test positivity, hospital occupancy and deaths in Wales, resulting in significant pressure on the NHS. This may be a result, at least in part, of the declining levels of adherence to such measures noted above.
- As previously advised by TAG¹⁶, there are both benefits and harms associated with any response or return to stronger restrictions, all of which need to be considered systematically with an appropriate evidence base.
- There is no strong evidence to suggest that fundamentally different mitigations are required against the Delta variant, but mitigations may be less effective than previous waves (medium confidence¹⁷). For example, although current evidence suggests that vaccines remain highly effective at preventing severe disease and deaths from COVID-19, recent data from the ATACCC study on community household infections suggests the secondary attack rate (likelihood of onward transmission) among fully vaccinated household contacts is around 20%-25%, compared with around 35% in the unvaccinated. This suggests vaccination may not be sufficient to fully prevent efficient transmission of the Delta variant in closed settings with prolonged exposures.¹⁸ The AY.4.2 variant may increase these rates by a small amount.
- Tackling unmitigated or poorly mitigated settings is likely to give more benefit than applying more stringent environmental guidelines (e.g. around ventilation rates) to those settings which have already applied good control measures (medium confidence).
- Below is a summary of how the current Alert Level 0 measures could be strengthened to avoid the need to return to stronger non-pharmaceutical interventions and reduce the reproduction number to a level sufficient to reduce the number of cases, hospitalisations and deaths.

'Doing Alert level 0 better'

- It is important to note that interventions are likely to be most effective in combination rather than implemented sequentially. There are no silver bullets (high confidence), however increasing vaccine uptake (including boosters) continues to be the most important measure in mitigating the health impacts of COVID-19. Coverage is high in older ages, but decreases with age, and unvaccinated populations are clustered within areas and specific communities.
- SPI-M modelling on the impact of re-imposition of non-pharmaceutical interventions in England suggests the higher the growth rate at the time that

¹⁵ [Prime Minister sets out autumn and winter Covid plan - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/prime-minister-sets-out-autumn-and-winter-covid-plan)

¹⁶ [technical-advisory-group-5-harms-arising-from-COVID-19_0.pdf \(gov.wales\)](https://www.gov.wales/technical-advisory-group-5-harms-arising-from-covid-19-0.pdf)

¹⁷ [EMG and NERVTAG: Update on transmission and environmental and behavioural mitigation strategies, including in the context of Delta, 13 October 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/emg-and-nervtag-update-on-transmission-and-environmental-and-behavioural-mitigation-strategies-including-in-the-context-of-delta-13-october-2021)

¹⁸ [Community Transmission and Viral Load Kinetics of SARS-CoV-2 Delta \(B.1.617.2\) Variant in Vaccinated and Unvaccinated Individuals](https://www.gov.wales/community-transmission-and-viral-load-kinetics-of-sars-cov-2-delta-b-1-617-2-variant-in-vaccinated-and-unvaccinated-individuals)

contingency measures were put in place, the greater the transmission reduction that would be needed to reduce R below 1. Estimates of the reproduction number in Wales in recent weeks from both SAGE and PHW suggest that Wales is close to $R_t = 1$ (0.9-1.1, SAGE; 1.15, PHW as at 20 October) which, combined with the high prevalence of COVID-19 infections, is resulting in fluctuations as the epidemic changes between growing and shrinking. It is likely that measures to bring R_t to a sustained reduction would result in a rapid reduction in cases.

1. **Certification**

- The NHS COVID-19 Pass implemented in Wales, unlike the vaccine-only version of certification proposed in England's Plan B, is similar to versions implemented in many other countries, but is relatively narrow in the range of settings to which it applies. As a result, it may only have a limited direct impact on transmission, but could be expanded to increase effect once it is embedded.
- Increasing the range of applicable settings and time-limiting certificates based on last vaccination date could be considered to help keep society open, increase the potential impact on transmission, with the potential to increase vaccine uptake, although inequalities and potential harms should be strongly considered. Clear and consistent communications (with sufficient notice and positive framing) are also likely to influence outcomes.¹⁹ TAG has previously advised on this issue.²⁰
- The most recent Ipsos MORI survey data for Wales²¹ suggest just under three in five report being in favour of COVID-19 Passes across the settings where they are currently required, although these proportions dropped slightly in the last wave of data collection. When asked about support for their possible extension to other settings, proportions ranged from two in three for visiting care homes and hospitals, to half in, for example, pubs/restaurants and on public transport.
- An analysis of the impact of COVID-19 certification on age-specific vaccine uptake and infections in six European case study countries²² suggests the introduction of COVID-19 certification does increase vaccine uptake, particularly in younger age groups when linked to settings such as nightclubs and large events, and additionally in older age groups (particularly 20-50) when applied to broader settings such as the entire hospitality sector. However, impact was dependent on average pre-intervention levels of vaccine uptake, with those with lower-than-average levels having a more pronounced effect and countries with high uptake seeing limited impact. The relationship of certification with reported infections was difficult to assess based on available data, with a downward trend in some countries and an increase in others.

¹⁹ [SPI-B, SPI-M and EMG: Considerations for potential impact of Plan B measures, 13 October 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/spi-b-spi-m-and-emg-considerations-for-potential-impact-of-plan-b-measures-13-october-2021)

²⁰ See for example [Technical Advisory Group: advice on vaccine passports | GOV.WALES](https://www.gov.wales/technical-advisory-group-advice-on-vaccine-passports)

²¹ [Ad-hoc statistical requests: 3 November 2021 | GOV.WALES](https://www.gov.wales/ad-hoc-statistical-requests-3-november-2021)

²² [The impact of mandatory COVID-19 certificates on vaccine uptake: Synthetic Control Modelling of Six Countries | medRxiv](https://www.medrxiv.org/content/10.1101/2021.11.03.21257811v1)

2. Face Coverings

- Face coverings worn as source control can reduce transmission at population level when worn by enough people, with implications beyond COVID-19 to other viruses. Their effectiveness as a source control is strongly influenced by material quality and fit (including covering the nose and mouth), the proportion of people wearing face coverings and the frequency with which they wear them. The wider their use, the more likely it is that an infected person will be wearing a face covering (high confidence).
- When used correctly, face coverings can reduce the risk of transmission when people are in close proximity or small spaces even for short durations of time (medium confidence)
- Face coverings cannot compensate for poor ventilation but may further reduce risks of longer-range airborne transmission when people are in shared air for longer periods of time, and this effect may be more important in poorly ventilated spaces (low confidence).²³
- A recent overview of evidence regarding the role of face coverings from UKHSA is available [here](#).
- Self-reported use of face coverings in Wales remains high, with three in four (77%) still reporting their use, although this proportion has been in gradual decline for a number of weeks despite remaining mandatory for those without an exemption on public transport and numerous venues.²⁴ Most recently, data from the CoMix study²⁵ suggests a sharper decline in face covering use in recent weeks, albeit followed by a small increase, such that the proportion is similar to that found in the Ipsos MORI data. While caution should be taken not to over-interpret a small number of data points, this will need to be monitored in the coming weeks.
- There is public confusion regarding face coverings' effectiveness, required settings and who is responsible for enforcement. If introduced, there are potentially higher demands on police and businesses, which may lead to lack of compliance and confrontations. [medium to low confidence]²⁶Clear face covering regulations could focus on:
 - Settings where they are required with explicit definitions (defining for example, what constitutes a crowded indoor space);
 - The settings where face coverings are mandatory or voluntary;
 - Who will be responsible for enforcing regulations; and,
 - Implications of lack of adherence (e.g., health, financial).

²³ [SPI-B: Behavioural considerations for maintaining or reintroducing behavioural interventions and introducing new measures in autumn 2021, 14 October 2021 - GOV.UK \(www.gov.uk\)](#)

²⁴ [Ad-hoc statistical requests: 3 November 2021 | GOV.WALES](#)

²⁵ [Comix Report Survey Week 81 \(cmmid.github.io\)](#)

²⁶ [SPI-B: Behavioural considerations for maintaining or reintroducing behavioural interventions and introducing new measures in autumn 2021, 14 October 2021 - GOV.UK \(www.gov.uk\)](#)

- Communications regarding reinforcing the role of face coverings would benefit from a focus on:
 - Emphasising updated scientific evidence on effectiveness;
 - Clarifying how and why they work;
 - Reiterating correct usage and which face coverings are effective; and
 - The high adherence levels seen throughout the pandemic.

3. Testing and Isolation

- SPI-M-O have highlighted that daily testing of contacts of cases with lateral flow tests (LFTs) can have a comparable effect to quarantining contacts in terms of potential impact on transmission, and so is an important potential mechanism for controlling transmission; potentially more so than is currently achieved. At higher prevalence levels, positive LFTs are more likely to be true COVID-19 cases and so can be as informative as PCR tests, limiting the additional value of such follow up tests. PCR tests, however, are needed for subsequent sequencing and are important for community surveillance (ONS CIS), and in health and care settings. Identification of emerging variants of concern also requires PCR tests to enable sequencing.²⁷
- A recently published study of the accuracy of antigen lateral flow tests and PCR tests for SARS-CoV-2 suggests that calibrated sensitivity of the tests is markedly higher than the equivalent relative sensitivity, approaching or even exceeding 80% in certain circumstances. However, the reliability of LFTs is also dependent on sampling errors and capability of the person performing the sampling and the test²⁸.
- The importance of effective, cross-organisation communication of risks to the public and the importance of protective behaviours should not be underestimated at this stage of the pandemic. Communication about what symptoms should prompt a test should be explicit about the exact nature of these symptoms, how to access appropriate testing, and the need to order a test rapidly and stay at home upon emergence of any influenza-like symptoms. This will become ever more relevant as seasonal respiratory viruses begin to circulate. To be maximally effective, messages should come from a variety of trusted sources and be accompanied by support for employees and businesses.

²⁷ [SPI-M-O: Summary of modelling for scenarios for COVID-19 autumn and winter 2021 to 2022, 13 October 2021 - GOV.UK \(www.gov.uk\)](#)

²⁸ [Recalibrating SARS-CoV-2 antigen rapid lateral flow test relative-sens peer-reviewed](#)

- Previous TAG modelling of the impact of test, trace, protect on COVID-19 transmission²⁹ suggests at lower R values like those currently being observed, the magnitude of the effects are estimated to be reduced; although there could clearly be scenarios where R could be increased from below 1 to above 1. 'Full' is equivalent to previous restrictions when all identified contacts were required to isolate. This suggests that resumption of isolation for contacts under 18 could result in a reduction in R of up to 0.12.

Table: What happens when R reduces? Let observed R = 1

Contacts Traced	R _{eff} realised	Estimated R in absence of TTP (counterfactual)	Impact of TTP on R	Additional R compared to Full
Full (trace 90%)	1.0 (as observed)	1.6	0.6	-
No u18s (trace 63%)	1.12	1.6	0.48	0.12
No Vaccinated (trace 72%)	1.08	1.6	0.52	0.08
No u18s or Vaccinated (trace 45%)	1.19	1.6	0.41	0.19

4. Working from home

- As previously advised³⁰, reinforcing the message on working from home, for those who can, is estimated to potentially have the largest impact on transmission out of the potential Plan B measures.
- It is likely to also reduce transmission of other viruses and bacteria. The risk of infection from attending the workplace is a combination of infection risk at the workplace (which is also a combination of different risks affected by, for example, the ability to socially distance at the workplace and ventilation measures in place), risk from travelling to/from the workplace, and the risk from additional activities that would not otherwise be engaged in if working from home such as socialising with colleagues outside of the workplace.
- Increased working from home (by those able to do so) also provides a benefit to those unable to work from home by reducing their average number of contacts and risk of exposure through reducing occupancy of settings such as public transport.³¹
- Self-reported data from a range of sources suggests the proportion of those in work doing so from home has gradually declined through time, such that in Wales this figure is now one in five, having peaked around half of the working population earlier in the pandemic.³²

²⁹ [Technical Advisory Group: modelling the Impact of Test, Trace and Protect \(TTP\) on COVID-19 transmissions in Wales | GOV.WALES](#)

³⁰ [advice-from-the-technical-advisory-cell-and-chief-scientific-advisor-for-health-21-day-review_0.pdf \(gov.wales\)](#)

³¹ [SPI-B, SPI-M and EMG: Considerations for potential impact of Plan B measures, 13 October 2021 - GOV.UK \(www.gov.uk\)](#)

³² [Ad-hoc statistical requests: 3 November 2021 | GOV.WALES](#)

- Communication and measures to reinforce working from home at scale should recognise the ability to work from home is not universal and varies according to occupation, socioeconomic status, demographic traits and regional variations in industry. Factors outside of the workplace such as socioeconomic inequalities, household size, and barriers to self-isolation may also contribute to increased risk of infection for those unable to work from home.
- Communications would benefit from engagement with businesses and employers, emphasising this being an example of everyone doing what they can as part of the national effort and acknowledge differences and inequalities to ensure effectiveness.

5. **Booster vaccination**

- Swansea University modelling suggests waning immunity starts to have a bigger effect in spring 2022, but does not lead to a significant fourth wave in the coming winter period. Where immunity is assumed to wane more quickly (less than or equal to 240 days), introducing boosters for the over 50s can dramatically reduce the lengthy tail of infection.
- Early data on the impact of booster vaccination in Israel, which has been expanded to younger age groups, suggests a significant effect on infection rates, with an approximately 10-fold reduction in the booster vs non-booster group, ranging from 8.8 to 17.6-fold across five different age groups. Severe illness rates were also reduced by almost 19-fold, and for ages over 60, COVID-19 mortality was reduced by almost 15-fold, suggesting that rollout of booster vaccinations to those at risk will make a significant difference to harm from COVID-19.^{33 34}
- Modelling from the London School of Hygiene and Tropical Medicine³⁵ on the potential impact of boosters given to different proportions of the population suggest a substantial reduction in infections, deaths and hospitalisations because of its impact in reducing transmission and severe outcomes. Crudely extrapolating LHSTM's UK estimates for Wales (approximately 5% of the UK population), over the course of 2022 modelled infections for Wales range from 300k with 90% booster-uptake in all age groups, to 700k in 90% uptake over of 50s only, and 950k with 50% uptake in over 50s. Admissions range from 3,100 to 7,500 to 14,000 respectively and deaths range from 600 to 1,500 to 3,200, respective to these scenarios. Note that there are a number of uncertainties related to behaviour, waning immunity and boosters attached to this modelling.
- Communications regarding the booster programme could usefully emphasise the high level of uptake of first and second doses in Wales, building on existing social norms.

³³ <https://www.medrxiv.org/content/10.1101/2021.09.28.21264260v1>

³⁴ [Vaccines and Related Biological Products Advisory Committee October 14, 2021 Meeting Presentation - Booster protection across ages - data from Israel \(fda.gov\)](#)

³⁵ [LSHTM: autumn and winter scenarios 2021 to 2022, 13 October 2021 - GOV.UK \(www.gov.uk\)](#)