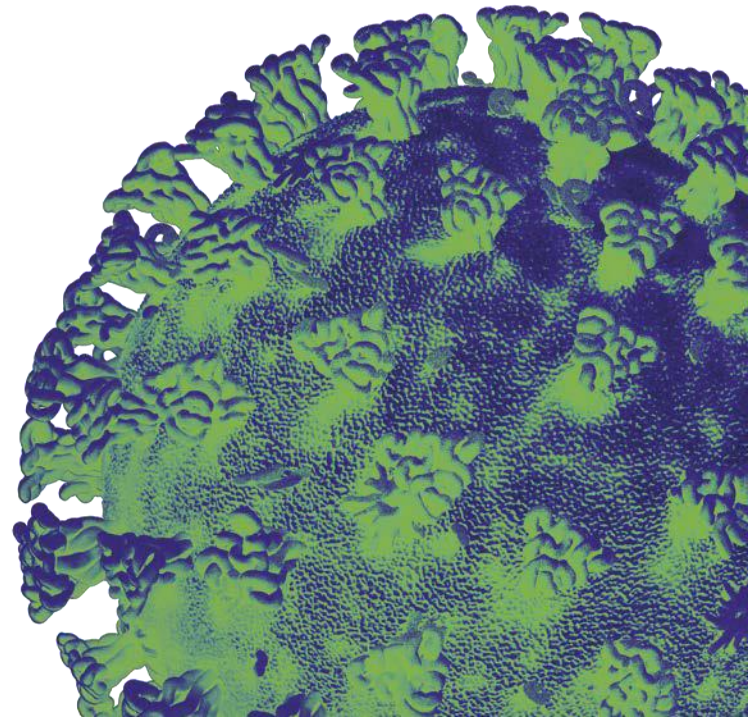
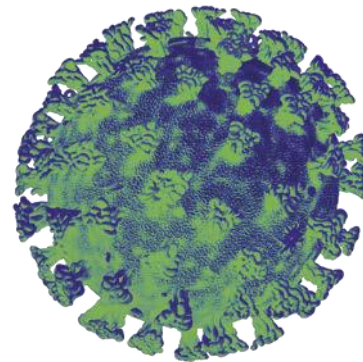
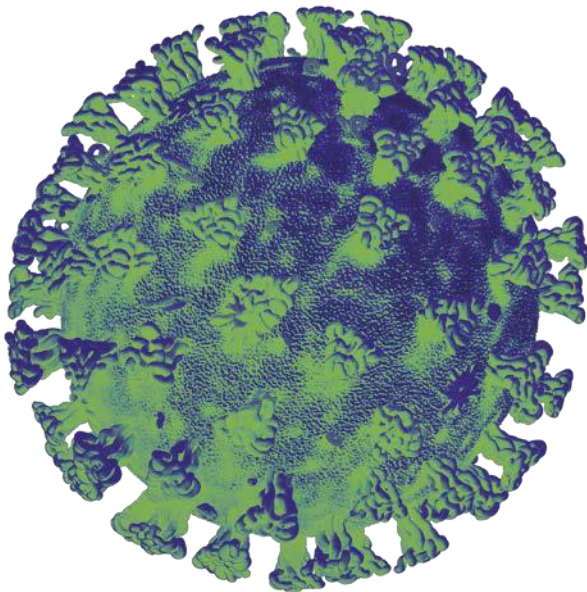




Updated advice from the Technical Advisory Group and Chief Scientific Advisor for Health on the evidence for the use of COVID Passes

2nd December 2021



Background

The COVID Pass was introduced in Wales on 11 October 2021, requiring individuals to provide evidence of being fully vaccinated, having been infected with COVID-19 in the last six months or a recent negative lateral flow test result (48 hours) in order to attend large events and venues considered to pose a higher risk of infection¹. This was extended to cover cinemas, theatres and concert halls on 15 November 2021. The updated advice presented below is in response to a request for the Technical Advisory Group (TAG) and Chief Scientific Advisor for Health to consider emerging evidence to inform future decisions around further extension of the scope of the scheme in Wales, including hospitality settings.

The advice sets out the current evidence in six areas: the epidemiological position in Wales and elsewhere in Europe; current intelligence on SARS-CoV-2 transmission in Wales; transmission in vaccinated and unvaccinated individuals; waning immunity; evidence for the impact of COVID passes; and relevant public opinion.

Current epidemiological position

The situation in Wales and Europe was recently described in the Covid Situation Report² and TAC brief of 19 November 2021³. In Wales there is high prevalence (just under 500 cases per 100,000), high positivity of around 19% and a relatively stable growth rate over recent weeks, with an R_t around 1, meaning cases rates are stable but high. High prevalence creates a near constant pressure on the NHS in terms of direct COVID harms (e.g. COVID admissions) and indirect (e.g. staff absence, reduction in elective care).

Elsewhere in Europe the situation is generally deteriorating with significant growth rates, including in older adults, in several European Member States despite high vaccination levels⁴. This suggests vaccination alone may not be sufficient to maintain manageable rates of COVID-19 driven by the Delta variant, but that currently other measures are also required to control the epidemic (e.g. community testing and self-isolation). However, the most recent pre-print data from London School of Hygiene and Tropical Medicine suggests that the UK is in a different position, with both high cumulative attack rates and high vaccination coverage of more vulnerable populations⁵.

¹ [Use the NHS COVID Pass to attend large events and venues | GOV.WALES](#)

² [COVID-19 Wales situational report: 19 November 2021 | GOV.WALES](#)

³ [Technical Advisory Cell: summary of advice 19 November 2021 | GOV.WALES](#)

⁴ [Country Overview Report: Week 46, 2021 \(europa.eu\)](#)

⁵ [Unexposed populations and potential COVID-19 burden in European countries | medRxiv](#)

There is uncertainty about what the future shape of the epidemic in Wales will look like, with some models suggesting a decline in cases and other models with different assumptions showing an increase in cases – these models are not forecasts or projections⁶. Key uncertainties which drive these different models are mixing patterns, waning immunity and - to a lesser extent - seasonality.

The recent discovery of the Omicron variant of SARS-CoV-2⁷, with recorded cases in the UK, will be carefully monitored in the coming weeks. As further evidence emerges, particularly on vaccine effectiveness and transmission, the evidence presented below will be updated accordingly.

Current intelligence on SARS-CoV-2 transmission in Wales

The TTP programme in Wales collects data from positive cases on settings they visited. These are known as ‘exposure locations’ but this information alone does not imply a causal effect, rather that it may be indicative of a potential cluster if a number of cases identify visiting the same venue at the same time. Increased community mixing since the relaxation of control measures and moving to Alert Level 0 has resulted in a considerable increase in the number of exposure locations being identified. This together with high case rates makes it extremely challenging to clearly identify venue-specific clusters and outbreaks.

In Wales, we receive the most reliable and timely information on sources and drivers of transmission from our Incident Management Teams (via structured risk assessments, called SBARs) and our Consultants in Communicable Disease Control (CCDCs) via our COVID-19 Intelligence Group. This information is collated and reported in the fortnightly, published, COVID Situation Report (CSR). The current situation is described below:

- Population level community mixing since the relaxation of control measures and moving to Alert Level 0 has driven case numbers upwards.
- Where workplace clusters are identified they are generally small and those associated with open workplaces such as retail and hospitality tend to be associated with staff. As COVID-19 is present throughout our communities it is often not clear whether these clusters are associated with venue transmission, or simply reflective of wider social transmission and extended households.
- Over the last month CCDCs have noted clusters of infection associated with corporate award ceremonies and ‘one-off’ events such as weddings, armistice

⁶ [SPI-M-O: Consensus statement on COVID-19, 9 June 2021 - GOV.UK \(www.gov.uk\)](#)

⁷ [Update on Omicron \(who.int\)](#)

social events and male voice choirs. Large closed workplaces including manufacturing, warehousing and industrial units were also reported; these clusters are reported to 'rumble along' at a low level reflecting wider community transmission. Genomics analysis will likely provide greater insights into whether there are single or multiple routes of introduction.

- Household transmission remains prevalent (however this may be subject to ascertainment bias) and continues to drive transmission along with clear widespread transmission within communities.

Wherever people mix and are in close contact for periods of time transmission will occur and this has been acknowledged in known 'super-spreader' events such as music festivals where outbreaks are likely driven by a small number of individuals. Over the summer IMTs and CCDCs recorded a significant number of cases who reported attending the Green Man and Boardmasters festivals for example. IMTs have also previously reported the significant role of individuals' behaviours prior to and after attending 'nights out'; these include sporting events and visiting hospitality venues (e.g. getting together before the event, congregating in the street after the pub has closed, sharing taxis home, using crowded public transport, keeping the party going by going to a friend's house). These 'wrap-around' activities also pose transmission risks and make it difficult to identify where transmission may have taken place.

In summary, for a number of reasons when there is high prevalence it is difficult to have a high-definition view of when and where transmission is occurring in communities. We do know that transmission is widespread and there are examples of transmission occurring in different settings. It is easier to provide evidence of casual links to transmission when data are well-described (e.g. people in your household or workplace) compared to places that are not well-described (e.g. people in a hospitality venue or shop). We do know we have high case rates across local authorities in Wales.

Other than well-defined settings, like households, it is difficult to assign a precise location to a transmission event, and is more difficult at high prevalence. However, we do know transmission occurs where infectious people meet, or have been. Early SAGE evidence suggests that smaller groups contribute more to the epidemic than large groups⁸, especially for people who know each other. Further evidence describes the types of environment that could be higher risks⁹. In essence, the longer/closer you are in contact with an infectious person, the higher the probability that there will be an exposure. There is, however, also an ascertainment bias;

⁸ [S1214 SPI- M The Population Attributable Fraction PAF of cases due to gatherings and groups with relevance to COVID-19 mitigation strategies.pdf \(publishing.service.gov.uk\)](#)

⁹ [S0921 Factors contributing to risk of SARS 18122020.pdf \(publishing.service.gov.uk\)](#)

individuals are more likely to be able to identify a contact they know, than a contact they don't. Given this uncertainty, defining the most appropriate setting for COVID passes to be used is difficult. If COVID passes have a positive impact in reducing the likelihood of transmission at an event then a broad and easy to understand set of requirements would likely be most sensible. However, the costs to organisations and inequalities that a broad policy would likely introduce would need careful consideration.

Transmission in vaccinated and unvaccinated individuals

In general, wherever people mix and are close to each other for a period of time, there is a risk of transmission – this risk is increased in closed, confined and crowded environments.

The most recent UKHSA vaccine surveillance report supports that vaccines are effective at preventing infection. Uninfected individuals cannot transmit; therefore, the vaccines are effective at preventing transmission¹⁰. A recent household study of transmission for Delta showed that in vaccinated individuals there was a 25% (about 1 in 4) chance of secondary transmission (e.g. one person infecting another) and a 38% chance in unvaccinated individuals¹¹. Delta is also estimated to be 70% more transmissible than Alpha¹². This study of over 600 households shows the following:

1. Vaccination lowers the risk of transmission by a measurable amount;
2. Vaccinated people can be infected but clear the virus more quickly than unvaccinated individuals;
3. Once infected, delta replicates in people very quickly; and
4. Delta is more transmissible than alpha.

In light of this, two issues are worthy of note in relation to COVID passes. First, Delta is very infectious, it replicates quickly¹³ and can transmit more quickly and easily between people than Alpha, with high levels of virus present in the nose and throat. If negative lateral flow tests are to be used as proof of non-infectiousness, then they should be used as near as possible to entry to any venue (e.g. immediately before or within the previous 24 hours). More generally, the use of lateral flow devices immediately prior to people meeting others in different settings and from different households, should be encouraged. This will be particularly important as we approach the festive period and should be applied to both vaccinated and

¹⁰ [COVID-19 vaccine surveillance report - week 46 \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/95422/covid-19-vaccine-surveillance-report-week-46.pdf)

¹¹ [Community transmission and viral load kinetics of the SARS-CoV-2 delta \(B.1.617.2\) variant in vaccinated and unvaccinated individuals in the UK: a prospective, longitudinal, cohort study - The Lancet Infectious Diseases](https://www.thelancet.com/journal/S0140-6736(21)00617-2)

¹² [Household transmission of COVID-19 cases associated with SARS-CoV-2 delta variant \(B.1.617.2\): national case-control study - The Lancet Regional Health – Europe](https://www.thelancet.com/journal/S0140-6736(21)00617-2)

¹³ [Generation time of the Alpha and Delta SARS-CoV-2 variants | medRxiv](https://www.medrxiv.org/content/10.1101/2021.11.18.21264441v1)

unvaccinated individuals. However, it should be noted that LFDs will pick up most but not all infected or infectious individuals¹⁴.

Second, vaccination provides a measurable reduction in the likelihood of transmission and then a further measurable reduction in the likelihood of transmission should infection occur. This is true in a well-defined, but variable, setting (households) and is highly likely to be true in other settings. Even though vaccination offers measurable protection against infection and onward transmission, this protection is not 100%, and hence some vaccinated people can be infected, and transmit to others. As a result even vaccinated people should wear face coverings where appropriate and adhere to other protective measures (e.g. isolate and get tested on symptoms).

There are caveats that should also be considered. Firstly, in a rapid review of evidence on transmission risk in vaccinated populations, findings suggest that vaccination is associated with a reduction in transmission. However most published studies focused on the Alpha variant, with a relative lack of evidence on transmission of the Delta variant and settings other than households. In light of this, further research is required to understand transmission of Delta and other variants of concern in vaccinated groups, and measures other than vaccination may still be required¹⁵.

There may be benefits in considering both proof of a recent negative lateral flow test and vaccination status in combination to further reduce risk, however equity issues would still remain. Proof of recent recovery of infection and lateral flow test negativity, in combination, could also reduce risk and act to reduce inequalities, although previously noted concerns around equity given variations in vaccine uptake would need consideration¹⁶.

If vaccinated individuals believe they are at much lower risk than unvaccinated individuals this could lead to their engaging in more non-protective behaviours in different settings, which could cancel the benefits of reduced transmission from vaccination. However evidence from earlier in the pandemic suggests this will not necessarily be the case¹⁷ and further scrutiny of the likelihood of compensatory behaviours is warranted¹⁸. As a result, use of face coverings and other protective behaviours should continue to be encouraged. In any case further evidence is

¹⁴ [Validation testing to determine the sensitivity of lateral flow testing for asymptomatic SARS-CoV-2 detection in low prevalence settings: Testing frequency and public health messaging is key \(plos.org\)](#)

¹⁵ Wales Covid-19 Evidence Centre Rapid Review: Risk of Sars-CoV-2 transmission in vaccinated populations, November 2021, in press, to be published here: [Wales COVID-19 Evidence Centre | Health Care Research Wales \(healthandcareresearchwales.org\)](#).

¹⁶ [Behavioural responses to Covid-19 health certification: a rapid review | BMC Public Health | Full Text \(biomedcentral.com\)](#)

¹⁷ [Do people reduce compliance with COVID-19 guidelines following vaccination? A longitudinal analysis of matched UK adults | medRxiv](#)

¹⁸ [Is risk compensation threatening public health in the covid-19 pandemic? | The BMJ](#)

required to better understand the relationship between vaccination and transmission, particularly for boosters.

Waning immunity

A raft of studies has now demonstrated that immunity, at least for one and two doses of vaccine, wanes over time. Immunity is likely to wane differently in different people (e.g. faster in older people)¹⁹. It is also likely that vaccines will confer greater protection against death and serious illness in most people for a longer period than against infection and transmission²⁰. It is likely that those who experience breakthrough infections of SARS-CoV-2 following vaccination will experience mild disease and have a higher immune response following infection²¹. Recent studies show that a booster (third dose of vaccine) provides significant protection against symptomatic infection, serious illness and death²² and for those eligible a booster dose should be considered necessary to be ‘fully vaccinated’.

As described in TAC brief dated 5 November 2021 numerous studies have sought to investigate the relationship between immunity arising from infection and vaccination²³. Current evidence from case studies and large observational studies suggests that, consistent with research on other common respiratory viruses, a protective immunological response lasts for approximately 5–12 months from primary infection, with reinfection being more likely given an insufficiently robust primary immune response. Given the protective effects of natural immunity arising from past infection, some countries²⁴ are using evidence of past infection as an alternative to proof of vaccination for COVID passes, in preference to evidence of a negative lateral flow test.

The emerging data suggests that it may be sensible to consider limiting the duration of a COVID pass based on two doses of vaccine due to waning immunity and to introduce a requirement to have had a booster vaccine (depending on eligibility and time from second dose). Further consideration about using evidence from prior infection as a means of securing a COVID pass might also be sensible.

Evidence for the impact of COVID Passes

¹⁹ [Does infection with or vaccination against SARS-CoV-2 lead to lasting immunity? - The Lancet Respiratory Medicine](#)

²⁰ [S1332_How long will vaccines continue to protect against COVID-19.pdf \(publishing.service.gov.uk\)](#)

²¹ [Immune Responses in Fully Vaccinated Individuals Following Breakthrough Infection with the SARS-CoV-2 Delta Variant in Provincetown, Massachusetts | medRxiv](#)

²² [Effectiveness of a third dose of the BNT162b2 mRNA COVID-19 vaccine for preventing severe outcomes in Israel: an observational study - The Lancet](#)

²³ [technical-advisory-cell-summary-of-advice-5-november-2021.pdf \(gov.wales\)](#)

²⁴ See Table 2 in [Coronavirus \(COVID-19\) vaccine certification: evidence paper update - gov.scot \(www.gov.scot\)](#)

Since the last TAG advice was drafted (14 September 2021), the Scottish Government has published an update to its initial evidence paper²⁵. This notes a slight increase in vaccine uptake since the scheme was announced in Scotland but recognises this cannot be attributed directly to the introduction of certification. The paper notes the impact of certification cannot be measured directly.

As Scotland have very recently described the evidence relating to COVID passes in this paper, much of the information provided would be the same in TAC advice and therefore not everything will be repeated here. However, key studies and insights are cited below. In doing so, it is important to note the assessment of impact of a COVID Pass (or any other form of vaccine certification) will depend on the stated policy objective/s. In Wales, the objective is to minimise the risk of transmission in venues covered by the COVID Pass scheme²⁶, one of a suite of protective measures designed to minimise the risk of infection. Elsewhere, increasing vaccine uptake has also formed one of the policy objectives, for which some tentative evidence has recently been published, particularly in relation to younger age groups²⁷.

The most recent TAG advice²⁸ noted the lack of evidence to demonstrate the impact of vaccine passports in relation to reducing transmission risk (or vaccine uptake). This will remain a challenge when attempting to attribute change to a single intervention operating alongside several other measures²⁹. While applying COVID passes alongside other protective measures has the potential to reduce the number of infectious people in the relevant settings, at the time of writing there remains no peer-reviewed published evidence to demonstrate this. However, it is important to recognise an absence of evidence of impact should not necessarily be interpreted as evidence of absence of an impact.

²⁵ [Coronavirus \(COVID-19\) vaccine certification: evidence paper update - gov.scot \(www.gov.scot\)](https://www.gov.scot)

²⁶ [COVID Pass: guidance for businesses and events \[HTML\] | GOV.WALES](#)

²⁷ [Research and analysis overview: University of Oxford and Nuffield College: The impact of mandatory COVID-19 certificates on vaccine uptake – synthetic control modelling of 6 countries, 14 October 2021 - GOV.UK \(www.gov.uk\)](#)

²⁸ [Technical Advisory Group: advice on vaccine passports | GOV.WALES](#)

²⁹ [Effectiveness of public health measures in reducing the incidence of covid-19, SARS-CoV-2 transmission, and covid-19 mortality: systematic review and meta-analysis | The BMJ](#)

Previous advice has also identified the need for caution in implementing vaccine certification schemes, summarised by TAG³⁰, SAGE³¹ and the wider literature³², as well as recognising the potential for disbenefits to impact disproportionately on socially excluded populations.

Some groups will be more or less likely to adhere to support and/or adhere to the use of Covid Passes. For example, factors such as being older, identifying as female, being more educated, higher socio-economic status, increased trust in government, increased risk perception of COVID-19, accessing information through traditional news media, greater belief in effectiveness of recommended protective behaviours and heightened state anxiety, have been identified as relating to higher rates of adherence to personal protective behaviours generally (e.g. mask wearing, hand hygiene and social distancing).³³ Whilst most evidence is from non-COVID-19 pandemics, or the first wave of the current outbreak, these factors may also apply to adherence to Covid passes and require ongoing consideration.

It is also important to consider the potential for longer-term impacts beyond the pandemic. For example, recent research examining the 'Corona passport' in Denmark suggests the potential for a reduction in trust in government among the unvaccinated, with implications for future vaccine rollout and engagement with health advice more broadly³⁴. To date, trust in government in Wales has remained consistently high³⁵.

While finding no published evidence of the impact of the implementation of COVID passes that have been deployed in several countries to reduce the risk of transmission, like other non-pharmaceutical interventions (NPIs), evidence on their effectiveness may become available in the future³⁶. Like face coverings and

³⁰ See for example [Technical Advisory Group: advice on vaccine passports | GOV.WALES](#)

³¹ SAGE and its subgroups have published various reports. See for example [SPI-B, SPI-M and EMG: Considerations for potential impact of Plan B measures, 13 October 2021 - GOV.UK \(www.gov.uk\)](#); [SPI-B: Behavioural considerations for maintaining or reintroducing behavioural interventions and introducing new measures in autumn 2021, 14 October 2021 - GOV.UK \(www.gov.uk\)](#); [SPI-B: Health status certification in relation to COVID-19, behavioural and social considerations, 9 December 2020 - GOV.UK \(www.gov.uk\)](#); and [SPI-B Policing and Security Subgroup: Health status certification in relation to COVID-19 legitimacy and enforcement considerations, 9 December 2020 - GOV.UK \(www.gov.uk\)](#).

³² [Behavioural responses to Covid-19 health certification: a rapid review | BMC Public Health | Full Text \(biomedcentral.com\)](#)

³³ Wales Covid-19 Evidence Centre Rapid Evidence Summary: Barriers and facilitators to the uptake of personal protective behaviours in public settings, November 2021, in press, to be published here: [Wales COVID-19 Evidence Centre | Health Care Research Wales \(healthandcarereseearchwales.org\)](#)

³⁴ [PsyArXiv Preprints | Increased Pressure Leads to Decreased Trust Among the Unvaccinated: Effects of the Announcement of the Re-Introduction of Covid Passports in Denmark](#)

³⁵ [Survey of public views on the coronavirus \(COVID-19\): 29 October to 1 November 2021 | GOV.WALES](#)

³⁶ [Effectiveness of public health measures in reducing the incidence of covid-19, SARS-CoV-2 transmission, and covid-19 mortality: systematic review and meta-analysis | The BMJ](#)

ventilation, COVID passes are likely at the lower end of interventions in terms of their impact on risk reduction benefits and harms as compared to other measures (e.g. closure of venues, reduction in number of people in a setting). TAC have previously recommended layers of lower impact measures in a 'Swiss cheese' model³⁷ that have lower associated harms (e.g. economic) and greater combined marginal gains. For example: when testing, face coverings, hand washing, self-isolation and vaccination are applied consistently and together these could help control COVID rates with minimum indirect harm (compared to stringent measures applied due to uncontrolled epidemic growth). This 'marginal gains' model only works if the measures are understood and there is a proportional uptake (e.g. wearing face coverings in closed settings, or isolating on symptoms). For all protective measures, identifying and reducing the introduction of inequalities is key, as is understanding public acceptance and providing a clear narrative and evidence as to why measures are necessary. It is important to add that there are no harm-free options to reduce the impact of COVID-19 on society and that any public health measures should only exist whilst there is a real likelihood of measurable societal harm (e.g. from overwhelming healthcare provision) and that every step should be taken to measure the benefits and harms of protective measures and seek to improve their effectiveness through iteration, and to reduce associated harms (e.g. economic support) or remove them if they cannot be evidenced as affording proportionate protection.

As outlined previously, well-defined epidemiological studies or comprehensive systematic reviews of evidence will be required to provide robust understanding of the impacts of COVID passes on reducing the risk of infection. This is difficult due to the basket of protective measures, complex pathways and behaviours involved. Even then, findings will not establish a causal link between the COVID Pass and associated measures.

Public opinion

The most recent data for Wales from Ipsos MORI³⁸ suggests that public support for COVID passes remains high in those settings currently covered by the scheme, such that around two in three support their introduction (e.g. 66% support for entry to nightclubs and 67% for large events). Similar levels of support can be seen elsewhere in the UK³⁹ and beyond⁴⁰, although the use of international comparators presents a challenge because of the different schemes in place. Slightly lower levels of support are found for other venues such as pubs or restaurants, although in this case more than half (56%) remain supportive. Recent data for Scotland⁴¹ show

³⁷ [Technical Advisory Group: sustaining COVID-safe behaviours in Wales \[HTML\] | GOV.WALES](#)

³⁸ Ipsos MORI data for Wales, unpublished.

³⁹ [Coronavirus \(COVID-19\) vaccine certification: evidence paper update - gov.scot \(www.gov.scot\)](#)

⁴⁰ [Globalism21_CovidPassports_AllCountries.pdf \(yougov.com\)](#)

⁴¹ [Public attitudes to coronavirus: tracker - data tables - gov.scot \(www.gov.scot\)](#)

support for their vaccine passport scheme being higher among older people, women and those in professional and managerial occupations.

When asked about attending an event where a COVID Pass is required, fewer than one in five (19%) report that it would make them less likely to attend. Half report they would feel more comfortable attending if the COVID Pass scheme is in place and around one in seven (15%) report that they would be less likely to take other protective measures with the scheme in place. With such data, it is important to note the self-reported nature of the data, to acknowledge that there will likely be a gap between stated intention and action, and the limitations in terms of population coverage and sub-group analysis (e.g. in assessing opinion from certain groups in society such as ethnic minorities and those with mental illness).

While a majority of the population support COVID Passes in the venues currently covered by the scheme and their extension to other settings, including hospitality, such support will need to be monitored on an ongoing basis. The socio-demographic differences will also need to be taken into account in the scheme's ongoing implementation. Furthermore, as noted above, the requirement to provide a clear rationale for the purpose of the scheme and perceived inconsistencies between venues remains important.

In concluding, the available evidence suggests any overt intervention to prevent infectious individuals from mixing with non-infected individuals will confer some benefit. The COVID Pass has the potential to reduce transmission through direct (fewer susceptible people at venues) and indirect (may increase vaccine uptake) means and has public support. However, this would require implementation, adherence and enforcement in a consistent manner. To date, there is no real world evidence of the impact of similar schemes on reduced transmission and demonstrating such an impact, when one of a wider suite of protective measures, remains a challenge.