

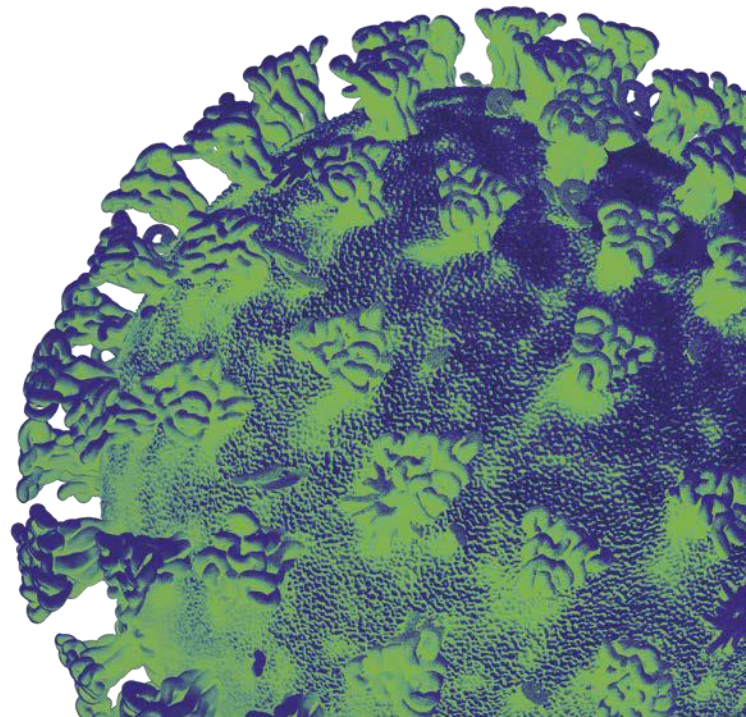
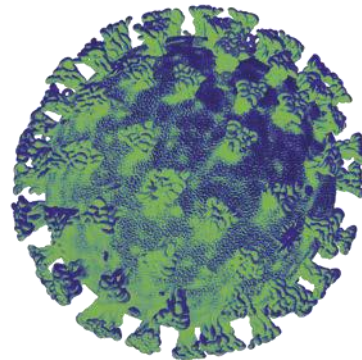
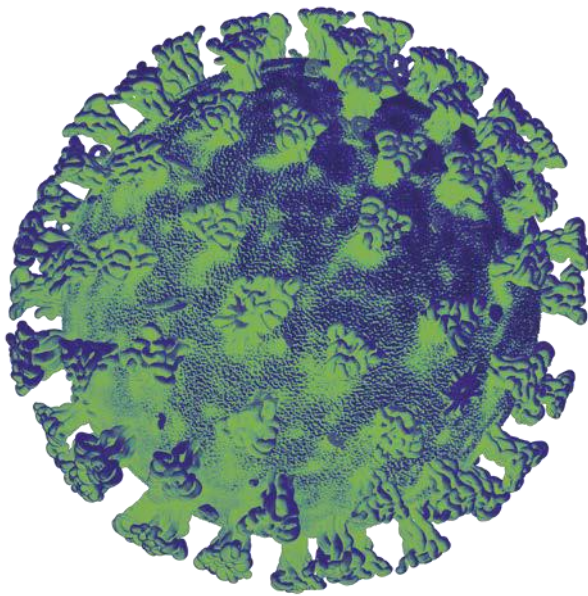


Llywodraeth Cymru
Welsh Government

Technical Advisory Cell

Summary of Advice

21 January 2022



Technical Advisory Cell: Summary of Advice

21 January 2022

Contents

| | |
|--|-----------|
| Top line summary | 3 |
| Wales Sit-Rep | 10 |
| COVID-19 evidence - round-up | 14 |
| SARS-CoV-2 Variants and vaccine effectiveness | |
| UKHSA technical briefing 34 and Omicron Risk assessment: 14 January 2022 | 14 |
| UKHSA: Booster Vaccine effectiveness in adults aged 65+ | 17 |
| TAC advice note: Evidence on Impact of vaccination on infection and transmission | 19 |
| Immunity | |
| PREPRINT: Comparison of Natural and Vaccine-induced Immunity, with and without an Enhancer or Booster Dose, on the Risk of COVID-19-Related Hospitalization in Israel .. | 22 |
| 'Robust and durable immune response following COVID-19 infection in children' | 23 |
| Clinical | |
| PREPRINT: Association between vaccination status and Long COVID symptoms | 24 |
| CO-CIN: Child admissions and severity by wave, update January 2022 | 26 |
| COVID-19 infection, vaccination rates and outcomes in pregnant women | 26 |
| Children and schools | |
| Transmission by children and young people in households and schools | 27 |
| Modelling | |
| PREPRINT: Mitigating isolation: The use of rapid antigen testing to reduce the impact of self-isolation periods | 28 |
| Non-pharmaceutical interventions and Behavioural Insights | |
| YouGov Poll: Whose pandemic approach is better: England or Wales? | 29 |
| PREPRINT: The effect of COVID certificates on vaccine uptake, health outcomes and the economy' | 30 |
| Wales COVID-19 Evidence Centre (WCEC) | |
| Have infection control and prevention measures resulted in any adverse outcomes for care home and domiciliary care residents and staff? | 32 |
| What innovations help to attract, recruit and retain social care workers within the UK context? | 33 |
| What is the risk of SARS-CoV-2 transmission in vaccinated populations? | 34 |
| Barriers and facilitators to personal protective behaviours uptake in public settings | 35 |

Top line summary

Wales sit-rep summary

- **Surveillance data will be affected by behavioural changes and the recent policy change across the UK that those who receive a positive lateral flow test will no longer be required to take a follow-up PCR test. As a result, there will be a period where extra caution should be taken when interpreting trends based on population testing and a variety of indicators should be considered, particularly indicators that are less impacted by policy changes and with fewer biases, such as the ONS Coronavirus Infection Survey.**
- Overall case incidence has **decreased to 500.8** per 100,000 population in the 7 day period ending 15 January (compared to 1,494 for the previous week). Test positivity has also **decreased to 34.8%** during this period (compared to 44.6% for the previous week).
- Estimates from the ONS Coronavirus Infection Survey on the percentage of people testing positive in Wales decreased in the week ending 15 January. During this period, it is estimated **1 person in every 25, or 112,100 people**, had COVID-19. This compares to 1 in 20 people in England, Scotland and Northern Ireland.
- Since January 3 **case numbers have fallen rapidly in all age groups**. The ONS Coronavirus Infection Survey also shows a decrease in positivity estimates for age groups in Wales over the past 6 weeks up to 15 January, although to a lesser extent than case data.
- Lateral flow test reporting shows that the number of LFTs reported decreased slightly to 383,021 in the latest reporting week (19 January). The positivity rate increased from **7.43%** in the previous week to **7.99%**. The under-20 age group showed a marked increase in the incidence rate of positive testing episodes per 100,000 population, with a test positivity rate of **15.41%**. (Note some of this data is experimental and should be interpreted with caution.)
- As at 20 January, the total number of patients occupying a NHS bed with COVID-19 has **reduced to a total of 1025, 133 (12%) lower than last week**. Confirmed COVID patients in hospital also decreased with the total at **626; 260 (29%) lower than the same day last week**. COVID related patients occupying a critical care bed total is at **27; 4 lower than last week**. The total occupied core and surge beds in a critical care environment was stands at **173; 7 higher** than the same day last week. This is 21 higher than the pre-COVID baseline of 152 for critical care beds.
- The 7 day rolling sum of COVID-19 b has remained **stable at 64** during the most recent 7-day period ending 16 January, according to PHW data. Note that PHW death data is limited to deaths in Welsh hospital or care home residents where COVID-19 has been confirmed with a positive test and a clinician suspects this was a causative factor in death so the true figure may be higher.
- ONS report that in the week ending b the number of deaths involving COVID019 registered in Wales increased **from 24 to 61**. Total deaths increased by 217 to 776; this was **8.9% below** the five-year average (76 deaths). **Note that ONS reporting of death registrations was affected by the Christmas and Boxing Day bank holidays.**

- The UKHSA consensus estimate of the reproduction number (R) for Wales is between **0.4 and 0.9** and a growth rate time of **halving every 5 days to flat**, while PHW's estimate of R is **0.44** with a **halving time of 4 to 8 days** as at 20 January.
- PHW's estimate of R for Wales is **0.44** (0.44 to 0.45) with a **halving time of 5 days** (3.7 to 7.9) as at 19 January. The UKHSA estimate is typically lagged by 2-3 weeks while PHW, which uses a different methodology, is lagged by around 1 week.
- For the 7 day period ending 19 January 2022, 2,503,547 first doses (**+4,424** compared to previous week), 2,347,972 second doses (**+15,636**), 1,795,980 booster doses (**+37,669**) and 53,230 third dose primary course (**+564**) vaccinations were received in Wales. PHW's reports there remains considerable vaccine inequality gaps by ethnicity and deprivation. Booster vaccination in pregnant women also remains lower than the general population.
- Cases of the **Omicron** variant increased by **11,652** compared to the previous week, the previous week, while Delta increased by **167** and **AY.4.2** increased by **139**. No other variants of concern were confirmed by genomic sequencing in Wales. A sub-lineage of Omicron, called BA.2 has been observed to be growing in some countries and was by WHO designated as a "Variant Under Investigation" VUI. Analysis by UKHSA of samples uploaded to GISAID identified 352 BA.2 samples in the UK dataset: 303 cases in England, 4 in Northern Ireland, **6 in Wales** and 2 in Scotland as at 17/01/2022.
- The number of influenza cases have increased in recent weeks however influenza is not yet circulating widely in Wales. Confirmed cases of Respiratory Syntactical Virus (RSV) in children aged under 5 years continued to decrease and are now at baseline levels.
- In mobility data, public transport remains $\approx 40\%$ below baseline (defined as January to February 2020), residential (people spending time at home retail and recreation increased but remains $\approx 16\%$ below baseline, supermarkets and pharmacy increased by to $\approx 2\%$ above baseline and workplaces rose to $\approx 21\%$ below baseline.

COVID-19 evidence top line summary

SARS-CoV-2 variants and vaccine effectiveness

- UKHSAs' [Omicron Risk Assessment](#) has been updated to reflect high confidence that the risk of hospitalisation from Omicron is reduced in adults, despite its rapid growth. An additional section has been added for infection severity in children, given AMBER status with low confidence due to limited data, following emerging data of increasing paediatric hospitalisations with fever and respiratory conditions since late December, with highest numbers in infants aged under 1. However paediatricians are not reporting Omicron to be a more serious or severe disease in children and young people in the UK (see also: CO-CIN paper, Clinical).
- [Preliminary vaccine effectiveness data](#) for boosters confirms that **protection against symptomatic disease** from current vaccines is lower for Omicron than seen against Delta. Among those who had received **2 doses** of AstraZeneca, effectiveness dropped to **almost no effect against Omicron from 20 weeks after the second dose**. Among those who had received 2 doses of Pfizer or Moderna

effectiveness dropped from around 65 to 70% down to around **10% by 20 weeks after the 2nd dose.**

- For Omicron, **vaccine effectiveness against symptomatic disease** for people who received two doses of AstraZeneca or Pfizer followed by a Pfizer or Moderna booster was between **~45% and ~65% after 10+ weeks**, depending on vaccine combination.
- For people who received two doses of Moderna followed by either a Pfizer or Moderna booster, vaccine effectiveness against symptomatic disease with the Omicron variant was **~65% after 2-4 weeks** (more data needed for longer timeframe).
- **VE against hospitalisation** was 92% after 2-4 weeks, this wanes slightly but remains high at **83% after 10+ weeks**. Overall the risk of hospitalisation for someone who is boosted is almost **half of that** of someone who received their second dose more than 25 weeks ago. Further data is needed to estimate the duration of protection against hospitalisation.
- A UKHSA [analysis on vaccine effectiveness \(VE\) against symptomatic COVID-19 and hospitalisation in adults aged 65+](#) suggests that booster VE against symptomatic disease with the Omicron variant is significantly lower than compared to the Delta variant and wanes rapidly in those aged 65 years or older. Nevertheless, protection against hospitalisation is much greater than that against symptomatic disease, in particular after a booster dose, where estimated VE against hospitalisation is around 90 to 95%.
- A commission to TAC on the impact of vaccination on infection and transmission of SARS-CoV-2, drawing largely on the above UKHSA evidence concludes:
 - Vaccination reduces infection and therefore transmission in turn, as uninfected individuals cannot spread the infection. Vaccinated individuals who become infected appear less likely to transmit infection. The protective effects of vaccination tend to wane over time, although to a lesser extent for severe disease and hospitalisation.
 - The reduction in transmission provided by vaccination wanes over time but the booster reverses this significantly.
 - ONS data based on a small sample indicates the vast majority of unvaccinated individuals (for whatever reason) will self-isolate on testing positive. Data based on other sampling shows varying degrees of self-isolation in the population.

Immunity

- A [preprint study](#) comparing the impact of natural and vaccine induced immunity and boosters on COVID-19 related hospitalisation in Israel suggests natural immunity (enhanced by subsequent vaccination or not) provides better protection against COVID-19-related hospitalisation than two doses 5 months prior, but less protection than from booster vaccination. Additionally, the results suggest that vaccinating individuals who have natural immunity through prior infection further enhances their protection.

- A [serological study](#) of 328 households in Germany when the Delta variant was dominant suggests children are five times more likely to be asymptomatic compared to adults and have higher specific antibody levels, indicating increased protection. Both symptomatic and asymptomatic infections induce similar humoral immune responses in all age groups. Overall, the long-term humoral immune response to SARS-CoV-2 infection in children is of longer duration than in adults even after asymptomatic infection.

Clinical

- A self-reported survey [study](#) of the association between vaccination status and reported incidence of Long COVID incidence in individuals who were PCR-tested in Israel suggests that in addition to preventing severe disease and death, COVID-19 vaccines, or at least the Pfizer vaccine used in Israel, may play a critical role in preventing outcomes that fit the WHO definition of long COVID, in particular among older adults. It should be noted this cohort reflects the mild end of the COVID-19 spectrum, and the results cannot necessarily be extrapolated to patients who were more severely ill and does not include children.
- Preliminary [data](#) from CO-CIN suggests that hospital admissions of children under 1 years old with COVID-19 have risen rapidly, coinciding with the rise of the Omicron variant. The proportion of children admitted 'with' rather than 'because of' COVID-19 is uncertain. UK Clinical guidelines mandate a period of observation in hospital for babies under the age of three months who develop a fever. However, absolute numbers are low and the data also suggests children admitted to hospital with Omicron are less sick, requiring less support than previous waves and are discharged earlier.
- Two [studies](#) have been published which add to the growing literature supporting the benefits of vaccination for pregnant women. A Scottish study reports that between December 2020 and October 2021, approximately 77.4% of SARS-CoV-2 infections, 90.9% of SARS-CoV-2 associated with hospital admission and 98% of SARS-CoV-2 associated with critical care admission in pregnant women occurred in individuals who were unvaccinated at the time of COVID-19 diagnosis. All perinatal deaths following SARS-CoV-2 infection in pregnancy also occurred in women who were unvaccinated. A second US cohort study assessing the impact of infection on birth outcomes suggests COVID-19 infection early in pregnancy is an important risk factor for negative birth outcomes that should be monitored in health systems.

Children and schools

- A [meta-analysis](#) of the role of children and young people (CYP) in transmission of SARS-CoV-2 in household and educational settings when the Alpha variant was dominant suggests no difference in transmission of SARS-CoV-2 from CYP compared with adults within household settings. Secondary attack rates were markedly lower in school compared with household settings, suggesting that household transmission is more important than school transmission in this pandemic. School infection prevalence was associated with community infection

incidence, supporting hypotheses that school infections broadly reflect community infections.

- Updated [advice](#) from TAG-E on the role air purifiers can play to improve poor ventilation in schools, colleges and universities concludes air purifiers should be used to supplement other safety measures such as masks, screens and social distancing but not to replace them since the reduction in infection risk is modest compared to these other interventions. Rooms that are poorly ventilated may reach acceptable safety if an appropriate air purifier is used. Most studies (with strong purifiers) report significant concentration reduction at all locations measured. Optimal positioning of an air purifier (or several purifiers) depends on environmental circumstances.

Modelling

- A preprint [study](#) (Bays et al, 2021) modelling the use of lateral flow tests to support a reduction in minimum self-isolation periods of cases. The paper presents estimates of the percentage of the initially 100% infectious population that will still be infectious after defined periods, estimating that 5% of individuals will still be infectious after 10 days, reducing to 1% after 14 days.
- The results of modelling from the same paper estimates that taking lateral flow tests from day 6 and requiring 2 consecutive negative tests 24 hours apart would release 79% of people correctly on day 7, with 6% of people requiring to stay in isolation until day 10. It is key to this regimen that people do not end isolation early, without the two negative rapid antigen tests, as there is significant risk that they will still be infectious.
- The authors advise that caution must still be exercised for the period following someone's release from isolation as in all scenarios there is a risk of releasing an infective person.

Non-pharmaceutical interventions and behavioural insights

- A [poll](#) published by YouGov on whether England and Welsh individuals prefer the English or Welsh Government approach to mitigating the impact of the Omicron variant suggests English participants were split over which approach they preferred (31 and 32% respectively), while Welsh participants were more likely to prefer the way their country is handling restrictions (17% and 60% respectively). However 40% of Welsh individuals said they would prefer Westminster to make decision for the UK as a whole, emphasising the perceived importance of an aligned approach between the 4 nations.
- A preprint [study](#) from an economic policy think tank suggests that COVID certificates may have had measureable benefits on vaccine uptake, health outcomes and the economy. Using counterfactuals for France, Germany and Italy, the authors suggest certificates led to increased vaccine uptake of 13% in France, 6.2% in Germany and 9.7% in Italy. For admissions and deaths this may have avoided a figure, at the end of 2021, of 31.3 and 31.7% higher respectively for France, 5 and 5.6% higher respectively for Germany and 15.5 and 14% higher respectively in Italy. The findings suggest vaccine certificates had a big impact in

France, where vaccine uptake was lower, but a smaller impact was found on uptake and outcomes in Germany and Italy where vaccine uptake was higher, aligning with similar evidence previously presented at SAGE.

Wales Covid-19 Evidence Centre – recent publications

- The Wales COVID-19 Evidence Centre (WCEC), have published a number of new rapid evidence reviews with the following key findings and implications:
- Have infection control and prevention measures resulted in any adverse outcomes for care home and domiciliary care residents and staff?
 - Whilst there is some evidence to show that there may be a link between IPC measures and adverse outcomes, causation cannot be assumed. Increased IPC procedures during the COVID-19 pandemic increased stress and burden among care staff because of increased workload and dilemmas between adhering well to IPC procedures and providing the best care for care recipients.
 - IPC procedures and evidence from 2021 suggests that good adherence to IPC measures can enable visitations by family members and medical professionals into care homes. Confidence in the strength of evidence about adverse outcomes of COVID-19 IPC procedures was rated as 'low' overall.
- What innovations help to attract, recruit and retain social care workers within the UK context?
 - Only 3 out of 9 initiatives for social work had been evaluated. Findings included that pre-employment initiatives, graduation from a fast-track programme and apprenticeships potentially contribute to retention. High caseloads and excessive workload, combined with organisational stress were frequently cited factors causing social workers to leave.
 - Only 4 out of 11 initiatives for social care had been evaluated. Findings included that care workers as ambassadors, pre-employment training initiatives, interview preparation and confidence, National recruitment campaigns and values-based recruitment can potentially have a positive effect. Negative factors affecting turnover were identified as: poor terms and conditions, low pay, unsociable working hours, and inexperience of both employees and managers. Positive factors included: pay and retention bonuses, good working environment and celebrating achievements
- What is the risk of SARS-CoV-2 transmission in vaccinated populations?
 - Evidence shows a reduction in SARS-CoV-2 transmission from vaccinated people; however, the dominant variant at the time of these studies was B.1.1.7 (Alpha) rather than B.1.617.2 (Delta).
 - Most direct evidence is limited to transmission within household settings therefore there is a gap in the evidence on risk of transmission in other settings such as schools, care homes, hospitals, workplaces and social venues, and in vulnerable populations.

- Overall, the effectiveness of vaccination in reducing transmission appears to be higher in fully vaccinated individuals, compared with partial vaccination. Protection against onward transmission waned within 3 months post second vaccination, for both Alpha and Delta. Although cycle threshold (Ct) values are used as a proxy for viral load, the relationship between viral load and infectiousness is not fully evidenced.
- Barriers and facilitators to the uptake of personal protective behaviours in public settings
 - Factors associated with higher rates of adherence to PPBs include being older, female, more educated, non-white, higher socio-economic status, increased trust in government, increased risk perception of COVID-19, informed by traditional news media, perceived susceptibility, greater belief in effectiveness of PPB and heightened levels of general anxiety.
 - Use of social media and belief in conspiracy theories were associated with lower rates of adherence. Barriers to social distancing and mask wearing include perceived adverse impact and potential to attract social stigma, lack of knowledge and comprehension of consequences, resource constraints, beliefs about infection transmission, personal vulnerability to respiratory infection, and experience or perception of personal discomfort and sense of embarrassment. Law enforcement (as a perceived deterrent) was not associated with adherence. It was acknowledged that adherence to some behaviours may wane over time.
- The new WCEC work programme is now published [here](#).

Technical Advisory Cell: Summary of Advice

21 January 2022

Wales Sit-Rep

- The latest fortnightly COVID-19 Situational Report dated 13 January, containing periodic data on epidemiological surveillance, NHS status, wastewater monitoring, education and children, international travel, mobility, vaccination and population immunity and forward projections for Wales is available [here](#).
- Surveillance data will be affected by behavioural changes and the recent policy change across the UK on 6 January that those who receive a positive lateral flow test will no longer be required to take a follow-up PCR test. As a result, there will be a period where extra caution should be taken when interpreting trends based on population testing and a variety of indicators should be considered, particularly indicators that are less impacted by policy changes and with fewer biases, such as the ONS Coronavirus Infection Survey.**
- Overall case incidence has **decreased to 500.8 per 100,000 population** in the 7 day period ending 15 January (compared to 1,494 for the previous week). Test positivity has also **decreased to 34.8%** during this period (compared to 44.6% for the previous week). There are regional variations across Wales, with the highest rates in Newport (629 per 100,000), Neath Port Talbot (617 per 100,000), Carmarthenshire (594 per 100,000) and Wrexham (591 per 100,000), although all areas have seen a substantial reduction since the previous week.

| For the 7 day period ending at 23:59 on 15-01-2022 | All Confirmed Episodes | | | | | | | |
|---|------------------------|--|-----------------|------------------------------|-----------------|------------------------------|----------------------------------|---------------|
| | n | % of All Wales Total (location known) | 7-day incidence | Change from previous week | Test positivity | Change from previous week | Testing Incidence per 100,000 | |
| Blaenau Gwent | 409 | 2.6% | 585.4 | 1170.9 | ↓ | 33.2% | 10.3% | 1764.9 |
| Caerphilly | 940 | 6.0% | 519.1 | 1153.7 | ↓ | 35.1% | 10.5% | 1480.6 |
| Monmouthshire | 428 | 2.7% | 452.5 | 487.4 | ↓ | 34.2% | 2.1% | 1324.7 |
| Newport | 973 | 6.2% | 629.1 | 957.5 | ↓ | 38.2% | 5.7% | 1644.7 |
| Torfaen | 454 | 2.9% | 483.2 | 902.5 | ↓ | 31.3% | 9.2% | 1545.3 |
| Aneurin Bevan | 3204 | 20.4% | 539.2 | 958.8 | ↓ | 35.0% | 8.0% | 1542.2 |
| Conwy | 590 | 3.8% | 503.4 | 1082.7 | ↓ | 35.7% | 10.6% | 1410.4 |
| Denbighshire | 418 | 2.7% | 436.8 | 940.5 | ↓ | 30.3% | 10.8% | 1441.0 |
| Flintshire | 553 | 3.5% | 354.3 | 1173.6 | ↓ | 34.1% | 12.5% | 1039.7 |
| Gwynedd | 414 | 2.6% | 332.4 | 805.2 | ↓ | 34.1% | 10.4% | 974.6 |
| Isle of Anglesey | 304 | 1.9% | 434.0 | 1005.1 | ↓ | 37.5% | 11.2% | 1156.4 |
| Wrexham | 804 | 5.1% | 591.4 | 1034.9 | ↓ | 37.6% | 9.7% | 1572.6 |
| Betsi Cadwaladr | 3083 | 19.6% | 440.7 | 1017.1 | ↓ | 35.0% | 10.8% | 1260.4 |
| Cardiff | 2020 | 12.9% | 550.6 | 830.7 | ↓ | 39.0% | 6.9% | 1412.6 |
| Vale of Glamorgan | 521 | 3.3% | 390.0 | 848.1 | ↓ | 29.0% | 12.4% | 1346.7 |
| Cardiff and Vale | 2541 | 16.2% | 507.7 | 835.4 | ↓ | 36.4% | 8.3% | 1395.0 |
| Bridgend | 740 | 4.7% | 503.2 | 1128.2 | ↓ | 32.7% | 13.1% | 1539.6 |
| Merthyr Tydfil | 328 | 2.1% | 543.7 | 1060.9 | ↓ | 31.6% | 12.2% | 1720.7 |
| Rhondda Cynon Taf | 1220 | 7.8% | 505.7 | 1152.3 | ↓ | 33.4% | 13.0% | 1513.7 |
| Cwm Taf Morgannwg | 2288 | 14.6% | 510.0 | 1132.1 | ↓ | 32.9% | 12.9% | 1550.0 |
| Carmarthenshire | 1122 | 7.1% | 594.4 | 934.5 | ↓ | 35.8% | 6.7% | 1658.1 |
| Ceredigion | 232 | 1.5% | 319.1 | 630.0 | ↓ | 27.6% | 11.5% | 1156.9 |
| Pembrokeshire | 462 | 2.9% | 367.2 | 848.1 | ↓ | 28.6% | 14.9% | 1284.4 |
| Hywel Dda | 1816 | 11.6% | 468.9 | 849.2 | ↓ | 32.5% | 9.8% | 1442.6 |
| Powys | 501 | 3.2% | 378.3 | 913.7 | ↓ | 31.5% | 12.8% | 1202.9 |
| Powys | 501 | 3.2% | 378.3 | 913.7 | ↓ | 31.5% | 12.8% | 1202.9 |
| Neath Port Talbot | 884 | 5.6% | 616.8 | 1276.9 | ↓ | 38.2% | 9.7% | 1616.7 |
| Swansea | 1396 | 8.9% | 565.2 | 1095.2 | ↓ | 38.4% | 9.6% | 1472.9 |
| Swansea Bay | 2280 | 14.5% | 584.2 | 1161.9 | ↓ | 38.3% | 9.7% | 1525.7 |
| Total | 15713 | 100.0% | 498.4 | 986.6 | ↓ | 34.9% | 10.0% | 1428.9 |
| Unknown | 78 | | | | | | | |
| Total (including location unknown) | 15791 | N/A | 500.8 | 993.5 | ↓ | 34.8% | 10.1% | 1441.2 |

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

- Since January 3 case numbers have fallen rapidly in all age groups. In the week ending 15 January the highest case incidence by age group (left chart) was 846 cases per 100,000 in the 30-39 age group (90+ excluded due to small denominators). However, PCR test positivity (right chart) remains high in age groups under 50 years old, with the highest positivity in the 0-16 age group (46%).

Cases per 100k by age and local authority

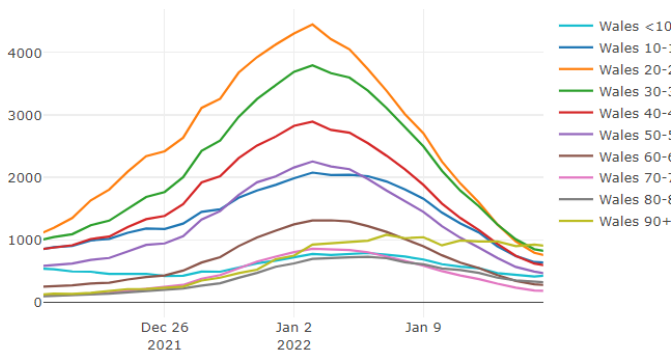
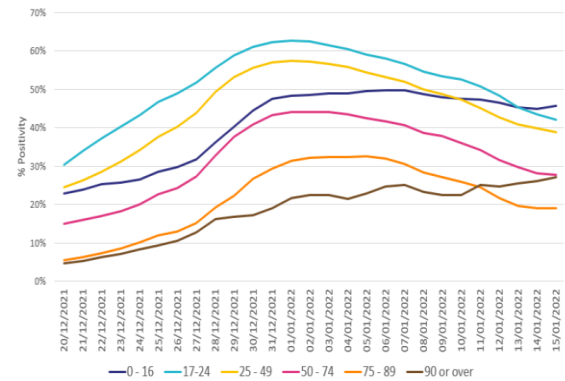


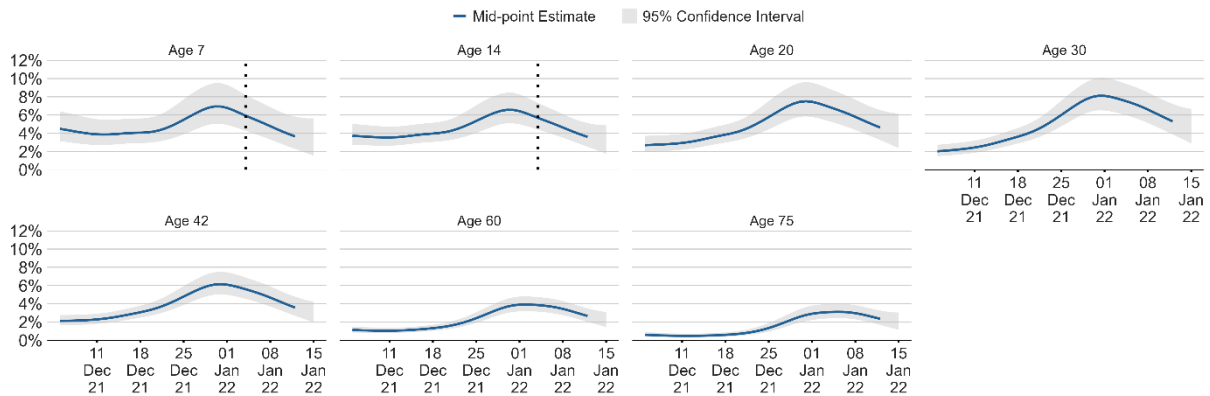
Figure 11 - Percentage of COVID-19 testing episodes positive for SARS-CoV2 in the previous 7 days, by sample date and age, in the last 28 days



- ONS Coronavirus Infection Survey positivity estimates for age groups in Wales over the past 6 weeks up to 15 January also suggest the percentage of people testing positive is decreasing in all ages, although to a lesser extent and the credible intervals are wide due to high uncertainty (see charts below).

Percentage of people testing positive for COVID-19 for reference ages in Wales

Modelled daily estimates

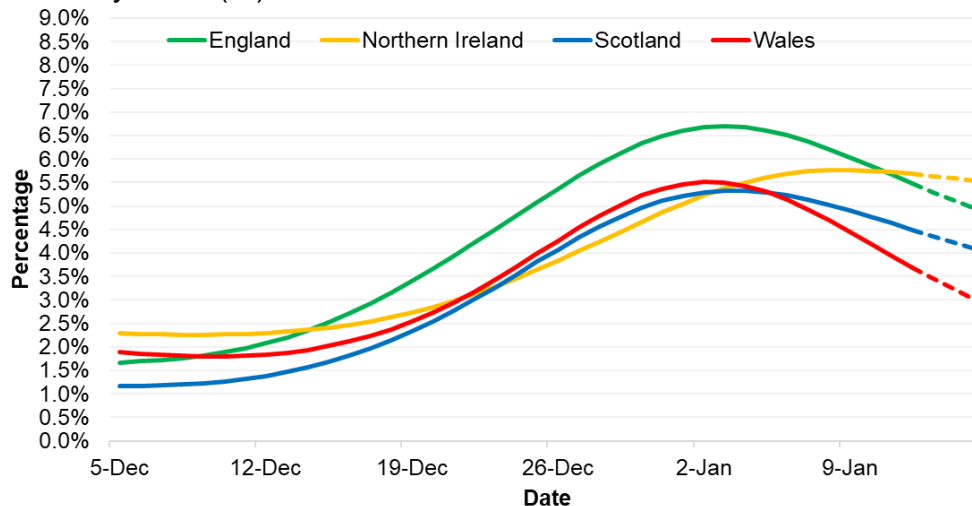


Estimates in the most recent week have a lower level of certainty due to lab results still being processed for this period. The dotted line represents children starting to return to school after the Christmas holiday in Wales. Data from 05 December 2021 to 15 January 2022

Source: Coronavirus (COVID-19) Infection Survey, ONS, 19/01/22

- Estimates from the COVID-19 Coronavirus Infection Survey on the percentage of people testing positive in Wales has decreased in the week ending 15 January. During this period it is estimated that 3.69% of the community population in Wales had COVID-19 (95% credible interval: 3.13% to 4.23%). This equates to approximately 1 person in every 25 (95% CI: 1 in 30 to 1 in 25), or 112,100 people during this time (95% CI: 95,200 to 128,700). This compares to 1 in 20 people in England (1 in 20 to 1 in 20), Scotland (95% CI 1 in 25 to 1 in 20) and Northern Ireland (95% CI 1 in 20 to 1 in 15).

Positivity rates (%) across UK countries since 5 December 2021



Source: Coronavirus (COVID-19) Infection Survey, ONS, 19/01/22

- As of this week, Public Health Wales have begun publishing daily lateral flow test (LFT) data from the UK Government lateral flow testing portal on their [dashboard](#). It is important to note that there is currently no de-duplication of results between LFT and PCR results, so adding the two figures together does not provide total case numbers. Over the coming weeks, PHW will develop a measure of the number of individuals with a positive LFT and no PCR follow up within 3 days of the positive LFT result.
- Lateral flow test reporting recently begun by Public Health Wales shows the number of LFTs reported decreased from 396,977 in the previous week to 383,021 in the latest reporting week (19 January). The number of positive testing episodes increased from 15,312 in the previous week to 15,393. The positivity rate increased from 7.43% in the previous week to 7.99%. Swansea Bay recorded the highest incidence rate of 601.6 positive testing. Note some of this data is experimental and should be interpreted with caution. Source: [LFT Public Weekly Report .pdf \(wales.nhs.uk\)](#)
- As at 20 January, the total number of patients occupying a NHS bed with COVID-19 has reduced to a total of 1025; 133 (12%) lower than last week. Confirmed COVID patients in hospital also decreased with the total at 626; 260 (29%) lower than the same day last week. COVID related patients occupying a critical care bed total is at 27; 4 lower than last week. The total occupied core and surge beds in a critical care environment stands at 173 today; 7 higher than the same day last week. This is 21 higher than the pre-COVID baseline of 152 for critical care beds.
- The 7 day rolling sum of COVID-19 deaths has remained stable at 64 during the most recent 7-day period ending 16 January, according to PHW data. Note that PHW death data is limited to deaths in Welsh hospital or care home residents where COVID-19 has been confirmed with a positive test and a clinician suspects this was a causative factor in death.
- ONS report that in the week ending 7 January the number of deaths involving COVID-19 registered in Wales increased from 24 to 61. Total deaths increased by 217 to 776; this was 8.9% below the five-year average (76 deaths). Note that ONS

reporting of death registrations was affected by was affected by the Christmas and Boxing Day bank holidays.

- The UKHSA consensus estimate of the reproduction number (R) for Wales is between **0.4 and 0.9** and a growth rate time of **halving every 5 days to flat** (more than 40 days doubling or halving) as at 20 January 2022. UKHSA estimate R in England as between 0.8 to 1.1, Scotland 0.7 to 1.1 and Northern Ireland 0.5 to 0.9.
- PHW's estimate of R for Wales is **0.44** (0.44 to 0.45) with a **halving time of 5 days** (3.7 to 7.9) as at 19 January.
- Note the UKHSA estimate is typically lagged by 2-3 weeks while PHW, which uses a different methodology, is lagged by around 1 week. These estimates should be interpreted with caution and the confidence intervals taken into account. **Estimates will likely be effected by changes in testing patterns following changes to testing policy on January 6.**
- As at 22:00 19 January 2022, a total of 6,700,729 doses of COVID-19 vaccine were given in Wales and recorded in the COVID-19 Welsh Immunisation System. 2,503,547 (**+4,424** compared to previous week) were first doses. 2,347,972 (**+15,636**) were second doses, 1,795,980 (**+37,669**) were booster doses and 53,230 (**+564**) were third dose primary course recommended for severely immunosuppressed individuals. Source: [PHW](#).
- The roll-out of the COVID-19 vaccination programme has now entered delivery phase for reinforcing (booster) doses, however primary vaccination remains available and there remain opportunities to reduce inequities. The narrowing of inequalities seen in coverage over the past months highlights the importance of offering opportunities to catch-up and local interventions to address barriers. The most recent monthly [PHW vaccine equality report](#) (December) shows there remains considerable inequality gaps by sex and deprivation quintile in coverage of the booster dose. Booster coverage by ethnic group is not currently available, although for two doses coverage varies between individual ethnic groups, with lowest coverage currently in the Black African, Black Caribbean and Mixed groups. The inequality gaps in coverage of two doses between those living in the most deprived and least deprived quintiles of areas in Wales remained stable in most age-groups and expanded in the 16-17 years cohort since the previous report.
- COVID-19 vaccination coverage in pregnant women who have delivered up to the end of November 2021 is also presented. Vaccination coverage at the time of delivery in December improved considerably but remains lower than in the general population. However, coverage continues to increase after delivery. Of the women delivering in November 2021, 49.0% were vaccinated with at least one dose at the time of delivery and 37.0% had two doses. 4% had received a booster.
- As at 18 January 2021, Wales has had 36,676 confirmed cases of the **Omicron** variant (**+11,652** from the previous week), 90,963 cases of the **Delta** variant (**+167** from the previous week) and 14,930 cases of the variant **AY.4.2** (**+139** since previous week). No other variants of concern were confirmed by genomic sequencing in Wales.
- A sub-lineage of Omicron, called BA.2 has been observed to be growing in some countries and was by WHO designated as a "Variant Under Investigation" VUI.

Analysis by UKHSA of samples uploaded to GISAID identified 352 BA.2 samples in the UK dataset: 303 cases in England, 4 in Northern Ireland, **6 in Wales** and 2 in Scotland as at 17/01/2022.

- The most recent PHW [weekly Influenza and Acute Respiratory Infection report](#) dated 19 January reports that although influenza is not yet circulating widely according to surveillance indicators, confirmed case numbers have increased in recent weeks. Confirmed cases of Respiratory Syncytial Virus (RSV) in children aged under 5 years continued to decrease and are now at baseline levels. COVID-19 cases continue to be detected in symptomatic patients in hospital and in the community. Rhinovirus and adenovirus are the most commonly detected cause of non-COVID-19 Acute Respiratory Infection (ARI).
- Google mobility data as at 19 January suggests public transport mobility increased by 9.12 percentage points compared to the previous week to -39.8 % below the baseline. Residential (i.e. people spending time at home) decreased by 4.4 percentage points compared to the week before to 7.6%. Retail & recreation mobility increased by 4.7 percentage points from the previous week, -16.3% below the baseline. Supermarkets & pharmacy increased by 3.8 percentage points from the previous week to 2.3% above the baseline. Workplaces rose increased by 13 percentage points at -21.1% below the baseline. The baseline for much of the data is during January to February 2020 and changes are relative to that period. It is not possible to determine if mobility is higher/lower than would have been expected prior to the pandemic as data for 2019 or earlier years is not published.

COVID-19 evidence - round-up

This section aims to highlight a selection of the recent COVID-19 papers, reports and articles that are relevant to a Welsh context or contain new data, insights or emerging evidence relating to COVID-19. It may contain pre-print papers, which should be interpreted with caution as they are often not yet peer-reviewed and may be subject to change when published. The exclusion of any publication in this section should not be viewed as a rejection by the Technical Advisory Cell.

SARS-CoV-2 Variants and vaccine effectiveness

UKHSA technical briefing 34 and Omicron Risk assessment: 14 January 2022

Updated Omicron Risk assessment

- Since the previous risk assessment dated 22 December ([link](#)) UKHSA have updated Infection severity in adults (GREEN) to high confidence and added a new section titled 'infection severity in children' (AMBER) with low confidence due to insufficient data). This is based on data showing a rise in child admissions with fever and respiratory conditions since late December, with highest numbers in infants aged under 1. However paediatricians are not reporting Omicron to be a more serious or severe disease in children and young people in the UK¹.

¹ [RCPC comments on reports of increased admissions of under 5s in hospital with COVID-19 | RCPC](#)

- There remains high confidence that the risk of hospitalisation from Omicron is reduced in adults, despite its rapid growth.

| 12 January 2022 | | Risk assessment for SARS-CoV-2 variant: Omicron VOC-21NOV-01 (B.1.1.529) | | UK Health Security Agency |
|---|------------------------------|--|---|---------------------------|
| Indicator | Red, amber, or green status* | Confidence level | Assessment and rationale | |
| Growth advantage | Red | High | Omicron is the dominant circulating variant Omicron displayed a pronounced growth advantage in the UK and rapidly rose to dominance. This growth advantage is also apparent in other countries with equivalent surveillance. We have high confidence that immune evasion is a substantial contributor to the growth advantage, but the very high growth rate and laboratory findings raise the possibility that other properties may also be contributing. | |
| Transmissibility | Amber | Low | Omicron is at least as transmissible as Delta Increased transmissibility compared to Delta is biologically plausible. There are extensive changes to the receptor binding domain and other regions of spike, and increased ACE2 binding is measured in some assays. Several studies find that Omicron can use the endosomal pathway as an additional cell entry pathway although the clinical significance of this is unclear. There is evidence for increased replication of Omicron over Delta in upper airway cells in vitro. Generation time and transmissibility as distinct properties of Omicron still require further confirmatory analysis. | |
| Immune evasion (including natural and vaccine derived immunity) | Red | High | Omicron displays substantial immune evasion properties in the current population context Neutralisation data, real world vaccine effectiveness against symptomatic disease, and reinfection rate all confirm substantial immune evasion properties. Whilst vaccine effectiveness (VE) is lower for Omicron than Delta after 2 doses of vaccine, boosting returns it to a higher level. Early data on hospitalisations following confirmed symptomatic infection indicates the VE against hospitalisation is high after 3 doses. Waning of vaccine effectiveness against symptomatic infection occurs more rapidly with Omicron than Delta. Further data is required to assess the duration of protection against hospitalisation. | |
| Infection severity (adults) | Green | High | Reduction in the relative risk of hospitalisation Multiple laboratory studies indicate considerable change in phenotype including changes in cell entry and fusogenesis, although these cannot be directly correlated to virulence. Preliminary animal studies are consistent with reduced virulence. Iterated UK analyses (more than one study) find a reduction in the relative risk of hospitalisation for adult Omicron cases compared to Delta. This is consistent with data from South Africa. Available data suggests that the observed reduction in risk of hospitalisation in adults is likely to be partly a reduction in intrinsic severity of the virus and partly to protection provided by prior infection. | |
| Infection severity (children) | Amber | Low | Insufficient data Increased numbers of hospital admissions in young children are reported in the UK and some other countries although early data suggests that admitted children are not severely unwell. Further analyses are required to compare the risk of hospitalisation between Omicron and Delta, and to assess the clinical nature of the illness in children. | |

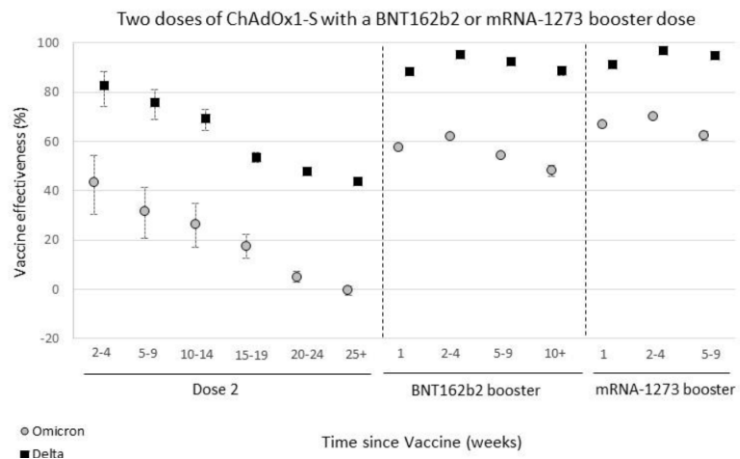
* Refer to scale and confidence grading slide.

UKHSA Variant Technical Briefing 34

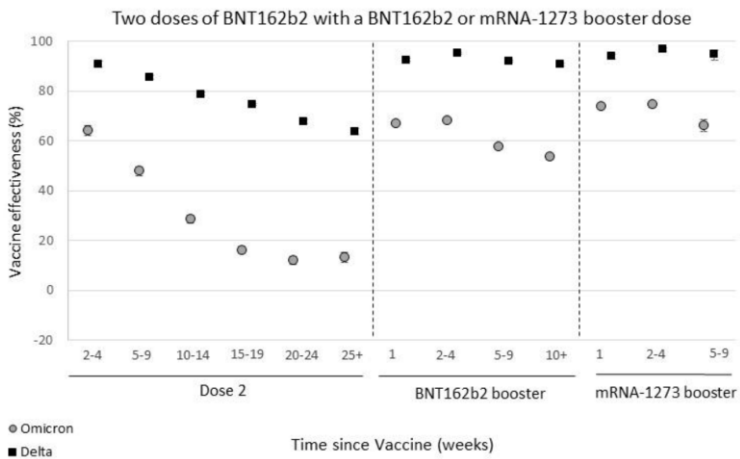
- Analysis suggests similar symptoms for Delta and Omicron, although Omicron is more likely to result in a sore throat and less likely to result in loss of taste or smell.
- Preliminary vaccine effectiveness data for boosters confirms that protection against symptomatic disease from current vaccines is lower for Omicron than seen against Delta. Among those who had received 2 doses of AstraZeneca, effectiveness dropped from 45 to 50% to almost no effect against Omicron from 20 weeks after the second dose. Among those who had received 2 doses of Pfizer or Moderna, effectiveness dropped from around 65 to 70% down to around 10% by 20 weeks after the 2nd dose.
- 2 to 4 weeks after a booster dose, vaccine effectiveness ranged from around 65 to 75%, dropping to 55 to 65% at 5 to 9 weeks and 45%-50% from 10+ weeks after the booster, depending on which vaccine was given (details below).

Omicron, VE against symptomatic disease:

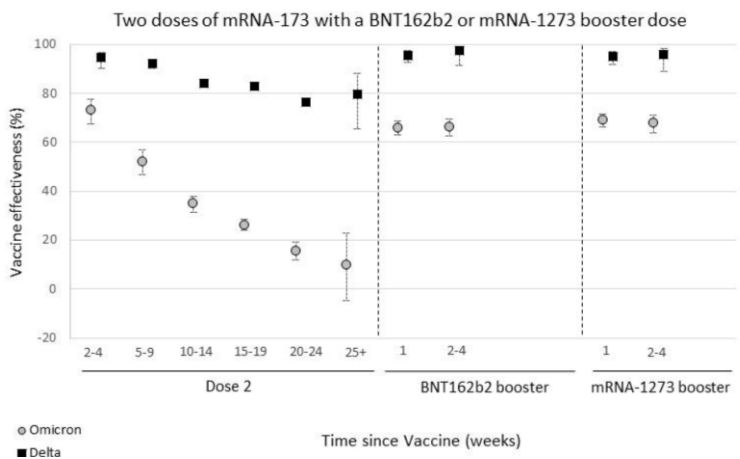
For Omicron, vaccine effectiveness against symptomatic disease for people who received two doses of AstraZeneca following by either a Pfizer or Moderna booster was ~45-50% and ~62%, respectively, after 10+ weeks.



Vaccine effectiveness against symptomatic disease for people who received two doses of Pfizer following by either a Pfizer or Moderna booster was ~55% and ~65%, respectively, after 10+ weeks.



For people who received two doses of Moderna followed by either a Pfizer or Moderna booster, vaccine effectiveness against symptomatic disease with the Omicron variant was ~65% after 2-4 weeks.



- UKHSA have also updated their estimates of vaccine effectiveness (VE) against severe disease resulting in hospitalisation for the Omicron variant. Together, these continue to show that although vaccine effectiveness wanes faster for symptomatic disease caused by the Omicron variant than it does for the Delta variant, protection against severe disease appears well maintained.

Omicron, VE against hospitalisation:

- VE against hospitalisation for Omicron is **44% 25 weeks after a second dose** (95% confidence interval 30-54%) and **83% 10 weeks after a booster dose** ((5% CI 78-87%) The risk of hospitalisation for someone who is boosted is almost **half of that** of someone who received their second dose more than 25 weeks ago (hazard ratio 0.34 and 0.6 respectively).

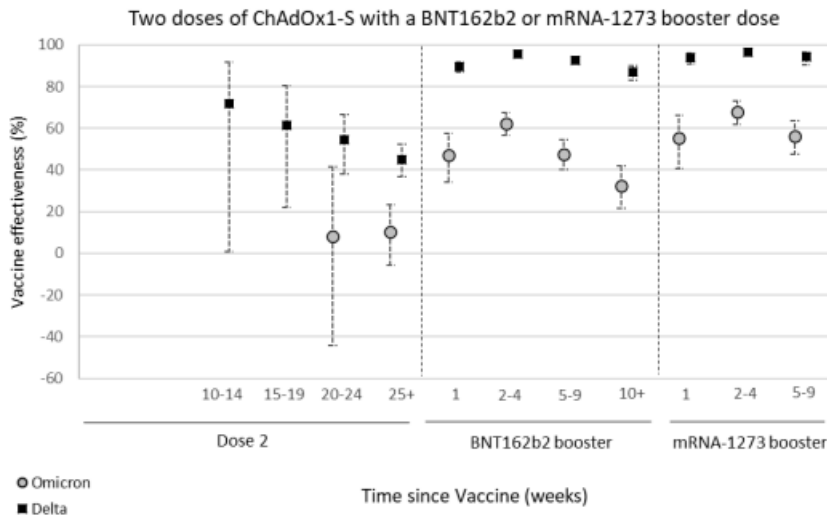
Table 2. Hazard ratios and vaccine effectiveness against hospitalisation (all vaccine brands combined). OR = odds ratio, HR = hazards ratio, VE = vaccine effectiveness

| Dose | Interval after dose (weeks) | OR v symptomatic disease | HR vs hospitalisation | VE vs hospitalisation |
|------|-----------------------------|--------------------------|-----------------------|-----------------------|
| 1 | 4+ | 0.74 (0.72-0.76) | 0.57 (0.38-0.85) | 58% (37-72) |
| 2 | 2 to 24 | 0.81 (0.8-0.82) | 0.45 (0.36-0.56) | 64% (54-71) |
| 2 | 25+ | 0.94 (0.92-0.95) | 0.6 (0.49-0.74) | 44% (30-54) |
| 3 | 2 to 4 | 0.32 (0.31-0.33) | 0.26 (0.19-0.35) | 92% (89-94) |
| 3 | 5 to 9 | 0.42 (0.41-0.43) | 0.29 (0.23-0.37) | 88% (84-91) |
| 3 | 10+ | 0.5 (0.49-0.51) | 0.34 (0.26-0.44) | 83% (78-87) |

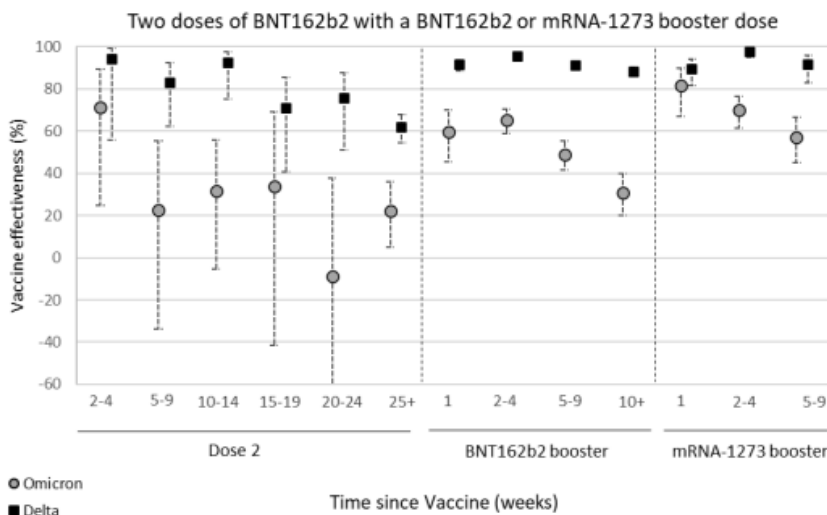
- Full papers: [Investigation of SARS-CoV-2 variants of concern: variant risk assessments - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/research-data-and-analysis/publications/investigation-of-sars-cov-2-variants-of-concern-variant-risk-assessments)
[SARS-CoV-2 variants of concern and variants under investigation- Technical briefing 34 \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/94444/sars-cov-2-variants-of-concern-and-variants-under-investigation-technical-briefing-34.pdf)

UKHSA: Effectiveness of 3 doses of COVID-19 vaccines against symptomatic COVID-19 and hospitalisation in adults aged 65 years and older

- This study from UKHSA considers updated analysis on the effectiveness of 3 doses of COVID-19 vaccines against symptomatic COVID-19 and hospitalisation specifically in adults aged **65 years and older**.
- Results show minimal or no effect against symptomatic COVID-19 with the Omicron variant from 20 weeks after a second dose of either an AstraZeneca or Pfizer primary vaccination course.
- Among those who had initially received 2 doses of AstraZeneca, at 2 to 4 weeks after a booster dose (either Pfizer or Moderna), vaccine effectiveness against symptomatic disease from Omicron ranged from around 62% to 65%, dropping to 48% and 56% at 5-9 weeks for the Pfizer and Moderna booster, respectively. For the Pfizer booster, VE dropped further to 32% at 10+ weeks.



- Among those who had initially received 2 doses of Pfizer followed by a Pfizer booster, VE against symptomatic disease from Omicron was 65% at 2 to 4 weeks post booster, dropping to 49% at 5 to 9 weeks and 31% at 10+ weeks. For those who had received 2 doses of Pfizer followed by a Moderna booster, VE was 70% at 2 to 4 weeks post the booster, dropping to 57% at 5 to 9 weeks.



- Overall when combined, VE against hospitalisation among symptomatic Omicron cases was 94% at 2-9 weeks post booster dose and 89% at 10 weeks post booster dose in those aged ≥65 years, with 98 hospitalisations in total after 3 doses.

Table 1. Vaccine effectiveness against hospitalisation for Omicron (all vaccine brands combined). OR = odds ratio, HR = hazard ratio, VE = vaccine effectiveness, (CI=Confidence interval).

| Interval after dose | OR against symptomatic disease (95% CI) | HR against hospitalisation (95% CI) | VE against hospitalisation (95% CI) |
|---------------------|---|-------------------------------------|-------------------------------------|
| 2 to 9 weeks | 0.51 (0.43-0.6) | 0.11 (0.06-0.21) | 94% (89-97) |
| 10+ weeks | 0.72 (0.61-0.85) | 0.15 (0.08-0.27) | 89% (80-95) |

- These estimates suggest that VE against symptomatic disease with the Omicron variant is significantly lower than compared to the Delta variant and wanes rapidly in those aged 65 years or older. Nevertheless, protection against hospitalisation is much greater than that against symptomatic disease, in particular after a booster dose, where estimated VE against hospitalisation is around 90 to 95%.
- Limitations of the study include low numbers and possible biases related to differences in vaccine coverage and exposure to Omicron in different population groups.
- Full paper: [Effectiveness of 3 doses of COVID-19 vaccines against symptomatic COVID-19 and hospitalisation in adults aged 65 years and older \(khub.net\)](#)

TAC advice note on evidence around Impact of vaccination (including booster dose) on infection and transmission of SARS-CoV-2

1. What is the evidence on risk of transmission and how is this influenced by vaccination? Do unvaccinated individuals pose a greater onward transmission risks in comparison to those who have been vaccinated?

- Several studies² have provided evidence that vaccines are effective at preventing infection. Uninfected individuals cannot transmit; therefore, the vaccines are also effective at preventing transmission.
- There may be additional benefit, beyond that due to prevention of infection, if some of those individuals who become infected despite vaccination are also at a reduced risk of transmitting (for example, because of reduced duration or level of viral shedding).
- A recent evidence review by the Wales COVID-19 Evidence Centre (CEC)³ found reduction in SARS-CoV-2 transmission from vaccinated people when Alpha was dominant, and that effectiveness for reduced transmission was greater in fully vaccinated people than partially vaccinated.
- Studies of transmission and vaccination status between household contacts are available but are for the most part **pre-Omicron**:

² For example:

- [Impact of vaccination on new SARS-CoV-2 infections in the UK | medRxiv](#)
- [COVID-19 vaccine coverage in health-care workers in England and effectiveness of BNT162b2 mRNA vaccine against infection \(SIREN\): a prospective, multicentre, cohort study - The Lancet](#)
- [Vaccine effectiveness of the first dose of ChAdOx1 nCoV-19 and BNT162b2 against SARS-CoV-2 infection in residents of long-term care facilities in England \(VIVALDI\): a prospective cohort study - The Lancet Infectious Diseases](#)
- [Vaccine side-effects and SARS-CoV-2 infection after vaccination in users of the COVID Symptom Study app in the UK: a prospective observational study - The Lancet Infectious Diseases](#)

³ [RR00012 Wales COVID-19 Evidence Centre-Rapid Review What is the risk of Sars-CoV-2 transmission in vaccinated populations November 2021.pdf \(primecentre.wales\)](#)

- A household transmission study in England found household contacts of cases vaccinated with a single dose had approximately 35-50% reduced risk of becoming a confirmed case of COVID-19.⁴
- Data from Scotland has shown that household contacts of vaccinated healthcare workers are at reduced risk of becoming a case, which is in line with the studies on infection.⁵
- An analysis from the ONS Community Infection Survey found that contacts of vaccinated index cases had around 65-80% reduced odds of testing positive with the Alpha variant and 35-65% reduced odds of testing positive with the Delta variant compared to contacts of unvaccinated index cases.⁶

2. Is the transmission risk affected by having received a booster vaccine or not?

- A review by the COVID-19 Evidence Centre⁷ found some evidence that protection against onward transmission waned within three months after the second vaccination, for both Alpha and Delta.
- Preliminary vaccine effectiveness data confirms that protection against symptomatic disease from current vaccines is lower for Omicron than for Delta. Among those who had received two doses of AstraZeneca, effectiveness dropped from 45-50% to almost no effect against Omicron from 20 weeks after the second dose. Among those who had received two doses of Pfizer or Moderna effectiveness dropped from around 65-70% down to around 10% by 20 weeks after the second dose.
- Two to four weeks after a booster dose, vaccine effectiveness ranged from around 65-75%, dropping to 55-65% at 5-9 weeks and 45-50% from 10+ weeks after the booster (See [SARS-CoV-2 variants of concern and variants under investigation- Technical briefing 34 \(publishing.service.gov.uk\)](#) for details)

3. Is there relevant behavioural insights research in relation to whether individuals who are declining vaccination are more or less likely to self-isolate?

- TAC are not aware of robust published evidence directly addressing this question, although there is some evidence about adherence to personal protective behaviours. As such, it is important to be cautious about making assumptions, or extrapolating from evidence or data collected for other purposes.
- Encouraging self-isolation has been a critical issue in the attempt to minimise rates of infection throughout the pandemic, as has establishing the degree of adherence. Evidence from the CORSAIR⁸ study for the period March 2020 to January 2021

⁵ [Effect of Vaccination on Transmission of SARS-CoV-2 | NEJM](#)

⁶ [The impact of SARS-CoV-2 vaccination on Alpha & Delta variant transmission | medRxiv](#)

⁷ http://www.primecentre.wales/resources/RR/Clean/RR00012_Wales_COVID-19_Evidence_Centre-Rapid_Review_What_is_the_risk_of_Sars-CoV-2_transmission_in_vaccinated_populations_November_2021.pdf

⁸ [Adherence to the test, trace, and isolate system in the UK: results from 37 nationally representative surveys | The BMJ](#)

suggests across all waves of data collection, duration adjusted adherence to full self-isolation was 42.5% (95% confidence interval 39.7% to 45.2%), although in the January 2021 wave this figure reached 51.8% (40.8% to 62.8%). Non-adherence was associated with being male, younger age, having a dependent child in the household, lower socioeconomic grade, greater financial hardship during the pandemic, and working in a key sector.

- Experimental data are also available from the ONS for England, for both those testing positive for COVID-19⁹ and those in contact with a positive case¹⁰. For positive cases, data collected between the 29th November and 4th December 2021 suggest three in four (74%) fully adhered to the requirements during their self-isolation period. For contacts of positive cases, last collected between 9th and 16th August, the corresponding proportion was 88%. Similar proportions were also reported by Public Health Wales¹¹, with some four in five (78%) reporting to be fully adherent.
- Estimating rates of self-isolation is challenging, relying to date on self-reported survey data. Recognising these limitations is critical, as is an understanding of the marked differences in estimates between survey sources¹². The key difference with the figures noted above is the ONS/PHW studies are limited to those already engaged with the Test and Trace systems in place in England and Wales. In contrast, the lower estimates associated with the CORSAIR study are based on a general population sample of anyone with COVID-19 symptoms. It is suggested the issue goes beyond one of self-isolation alone to engaging with the Test and Trace system in the first place.
- The ONS experimental data for those testing positive for COVID-19 do break down adherence by vaccination status, presenting data for those reporting 'no doses' and 'one dose or more'. For the most recent data, the proportions are 71% and 74%, respectively. Similarly, for those in contact with a COVID-19 case, the proportions reporting adherence are 89%, 88% and 89%, for 'no doses', '1 dose' and '2 doses', respectively. Given the small sample size in both studies, there is no clear evidence of an association. A brief search of the literature did not identify other empirical evidence investigating this association.
- However, there is a significant volume of literature that would still be relevant, which could be complemented by research with those yet to be vaccinated to assess their past and/or intended practice. Reviews highlight the range of factors most likely to predict adherence among the general population, including a clear understanding of what is required, financial and practical support, culturally relevant materials and an

⁹ [Coronavirus and self-isolation after testing positive in England - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/coronavirus/articles/self-isolation-after-testing-positive)

¹⁰ [Coronavirus and self-isolation after being in contact with a positive case in England - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/coronavirus/articles/self-isolation-after-being-in-contact-with-a-positive-case)

¹¹ <https://phw.nhs.wales/publications/publications1/self-isolation-confidence-adherence-and-challenges-behavioural-insights-from-contacts-of-cases-of-covid-19-starting-and-completing-self-isolation-in-wales/>

¹² [Contrasting figures on adherence to self-isolation show that support is even more important than ever - The BMJ](#)

understanding of risk¹³. Such evidence should continue to be drawn on to inform ongoing policies to increase rates of self-isolation.

4. What is the evidence that vaccination – with or without a booster – confers protection against disease and hospitalisation?

- UKHSA have updated their estimates of vaccine effectiveness against severe disease resulting in hospitalisation for the Omicron variant, taking advantage of the longer follow-up time since the previous briefing. Together, these continue to show that, although vaccine effectiveness wanes faster for symptomatic disease caused by the Omicron variant than it does for the Delta variant, protection against severe disease appears well-maintained.
- As stated in Q2, VE against symptomatic disease for Omicron varies from 45% to 65% depending on which vaccine an individual was given for their primary course and booster.
- VE against hospitalisation for Omicron is 44% 25 weeks after a second dose (95% confidence interval 30-54%) and **83% 10 weeks after a booster dose** ((5% CI 78-87%). The risk of hospitalisation for someone who is boosted is half of that of someone who received their second dose more than 25 weeks previously (hazard ratio 0.34 and 0.6 respectively). (See [SARS-CoV-2 variants of concern and variants under investigation- Technical briefing 34 \(publishing.service.gov.uk\)](#) for details)

Immunity

PREPRINT: Comparison of Natural and BNT162b2 Vaccine-induced Immunity, with and without an Enhancer or Booster Dose, on the Risk of COVID-19-Related Hospitalization in Israel

- This preprint (not peer-reviewed) paper compares COVID-19 related hospitalisation incidence in almost 2.5 million individuals in Israel aged over 16 (over half the population), from July 2021 to November 30 2021, a period of the booster campaign when the Delta variant was dominant.
- Individuals included were separated into four groups- those with two BNT162b2 (Pfizer) vaccine doses 5 months prior (non-recent vaccine immunity), those who had received 3 doses of Pfizer (boosted vaccine immunity), previous COVID-19 infection without a vaccine (natural immunity) and previous infection, plus a subsequent Pfizer vaccine (enhanced natural immunity).
- After adjusting for a range of confounders, the rate of COVID-19 related hospitalisation (compared with non-recent vaccine immunity as a baseline) was 11% (9-13%) for boosted vaccine immunity; 34% (23-50%) for natural immunity and 25% (17-39%) for enhanced natural immunity.

¹³ See for example [Compliance with self-isolation and quarantine measures: literature review - gov.scot \(www.gov.scot\)](#) and [SPI-B: Impact of financial and other targeted support on rates of self-isolation or quarantine, 16 September 2020 - GOV.UK \(www.gov.uk\)](#).

- Overall this suggests natural immunity (enhanced by subsequent vaccination or not) provides better protection against COVID-19-related hospitalisation than two doses 5 months prior, but less protection than from booster vaccination. Additionally, the results suggest that vaccinating individuals who have natural immunity through prior infection further enhances their protection.
- The study is subject to a number of limitations. As in any observational study there is the possibility of residual confounding, although the authors attempt to adjust for many confounders. The study also focuses on the first three months following booster vaccination, which is likely the period with peak immunity, and further studies will be required to assess the protection from booster vaccination over the longer term.
- Another potential limitation is individuals with peak immunity from a recent booster vaccination were compared to individuals with natural immunity, possibly attained over a year previously, or enhanced natural immunity up to 8 months following the subsequent vaccine dose. However a sensitivity analysis of the enhanced natural immunity group, including only those who received a vaccine less than 5 months ago (recent enhanced natural immunity) suggested the rate of hospitalisation remained at 25% compared with non-recent vaccine immunity, albeit with a wider confidence interval reflecting the reduced sample size. Finally, the results were limited to vaccination with the Pfizer vaccine, previous infection with non-Delta variants and hospitalisation with Delta variants, meaning the results may not be generalizable to different settings and vaccines.
- Full paper: [Comparison of Natural and BNT162b2 Vaccine-induced Immunity, with and without an Enhancer or Booster Dose, on the Risk of COVID-19-Related Hospitalization in Israel | Research Square](#)

Nature Communications: ‘Robust and durable serological response following paediatric SARS-CoV-2 infection’

- This article, published in Nature Communications, highlights a serological study of 328 households (548 children and 717 adults) with at least one member with previous SARS-CoV-2 infection in Germany. Participants were assessed for COVID-19 antibodies 3-4 months (May-August 2020) and 11-12 months (February-March 2021) after infection. Neutralization against wild type SARS-CoV-2 and the Delta VOC were analysed in a pseudotyped virus assay.
- Results suggest children are five times more likely to be asymptomatic compared to adults and have higher specific antibody levels, indicating increased protection. Both symptomatic and asymptomatic infections induce similar humoral immune responses in all age groups. Children and adults have similar neutralisation responses, but both demonstrate reduced neutralisation against Delta VOC. Overall, the long-term humoral immune response to SARS-CoV-2 infection in children is of longer duration than in adults even after asymptomatic infection.
- These findings are in line with one pre-print study but in contrast to two previous studies, which found that children generated a lower humoral response to SARS-CoV-2 than adults, with a corresponding reduction in neutralization activity, although this study had a considerably larger sample size and scope. These higher antibody

levels in children also persist longer (96.2% versus 82.9% still seropositive 11-12 months post infection).

- Limitations of the study include the potential recall-bias inherent to retrospective self- or parent-reporting of symptoms via questionnaires and physician-interviews. Additionally, PCR tests for SARS-CoV-2 during the first wave in Germany were mostly limited to the household index case, meaning it is possible that infected individuals were not identified as such, despite the multi-assay serological approach. While all samples were analysed using a range of serological assays, only a subset of samples were analysed for their neutralizing capabilities, and as such, caution should be applied in extrapolating the implications regarding the neutralizing response to all study participants.
- Full paper: [Robust and durable serological response following paediatric SARS-CoV-2 infection | Nature Communications](#)

Clinical

PREPRINT: Association between vaccination status and reported incidence of post-acute COVID-19 symptoms in Israel: a cross-sectional study of patients tested between March 2020 and November 2021

- This study examines the effectiveness of COVID-19 vaccines against long-COVID symptoms and whether vaccination was associated with the incidence of reporting long-term symptoms post-SARS-CoV-2 infection through a self-reported survey of 951 infected and 2437 uninfected individuals who received a PCR test at participating hospitals.
- Individuals who were PCR tested for SARS-CoV-2 infection at participating hospitals in Israel between March 2020-November 2021 were invited to fill an online questionnaire that included baseline demographics, details of their acute episode and information about symptoms they were currently experiencing. The authors compared vaccinated individuals (Pfizer) with those unvaccinated and those uninfected by COVID-19 in terms of self-reported symptoms post-acute infection.
- Of those COVID-positive, 637 (67%) were vaccinated. The most commonly reported symptoms were; fatigue (22%), headache (20%), weakness (13%), and persistent muscle pain (10%). After adjusting for follow-up time and 'baseline' symptoms, those who received two vaccine doses were less likely than unvaccinated individuals to report any of these symptoms by 64%, 54%, 57%, and 68% respectively. Strikingly, those who were infected and received two doses were no more likely to report any of these symptoms than individuals reporting no previous SARS-CoV-2 infection.
- These results suggest that, in addition to reducing the risk of acute illness, COVID-19 vaccination may have a protective effect against long COVID. Commonly reported post-acute COVID-19 symptoms are not specific to COVID-19 and are commonly reported regardless of infection status. It is not therefore expected that any group would report 0 incidence of such symptoms. However, the absence of difference in symptoms-frequency among those who received two doses and those who were never infected suggests the excess reporting of these symptoms

associated with COVID-19 infection in unvaccinated individuals is eliminated by vaccination.

- A higher proportion of those who received two doses were asymptomatic at the time of diagnosis compared to the unvaccinated group, and those who were symptomatic but uninfected reported less symptoms compared with those unvaccinated and infected. These figures reflect the protection against symptomatic disease conferred by vaccines, which may also partly explain the lower proportion of reporting long-term symptoms among those vaccinated. However, the protective effect of vaccination against long-term symptoms persisted after adjusting for asymptomatic disease, suggesting a reduction in reported long COVID symptoms even among those symptomatic at the time of infection.
- It is important to note that the vaccination policy in Israel, at the time of the survey, specified that SARS-CoV-2-infected individuals were in theory only eligible for a single dose of vaccine. Therefore, while those who received two doses will have mostly been infected after having been vaccinated, many among those who received a single dose will have been infected prior to vaccination. Infection prior to vaccination could partially explain the observed lack of effect of one dose of vaccine regarding long-term reported symptoms.
- The study has some limitations. With few patients reporting having been hospitalised, this cohort reflects the mild end of the COVID-19 spectrum, and the results cannot necessarily be extrapolated to patients who were more severely ill (and hospitalised) in the acute phase of the illness. The study did not include children who are less likely to develop severe acute illness following infection but do report long-term effects. There may also be limitations due to the self-reported nature of the symptoms, in particular since individuals who are eager to vaccinate may differ from those who do not vaccinate in terms of perceptions of health and illness.

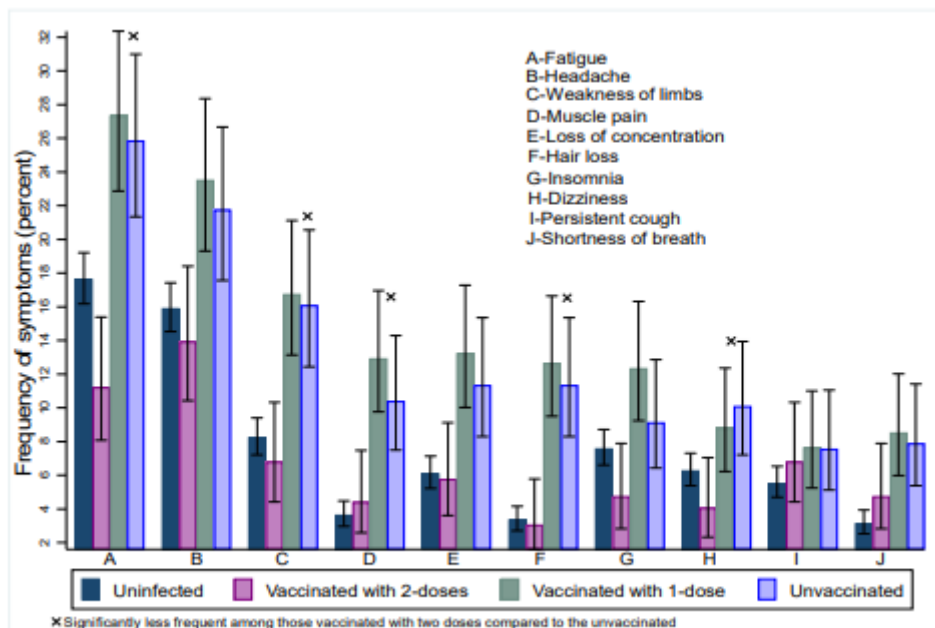


Figure 1. Frequency of most reported symptoms among the uninfected, the vaccinated and the unvaccinated

- Full paper: [Association between vaccination status and reported incidence of post-acute COVID-19 symptoms in Israel: a cross-sectional study of patients tested between March 2020 and November 2021 | medRxiv](#)

Sage: CO-CIN: Child admissions and severity by wave CO-CIN update January 2022, 6 January 2022

- Preliminary data presented to SAGE and subsequently published suggests that hospital admissions of children under 1 years old with COVID-19 have risen rapidly, coinciding with the rise of the Omicron variant. Detail on how many of these admissions were with COVID-19 as a primary cause of admission or incidental is not available in this data.
- The proportion of children admitted to hospital with covid-19 who were aged under 1 was 42.2% in the four week period studied (14 December 2021 to 12 January 2022), much higher than earlier in the pandemic. Under 1s made up 32.9% of children admitted during the first wave (January to August 2020), 30.4% in the second wave (September 2020 to April 2021), and 30.2% when delta was the most prevalent variant (May 2021 to 13 December 2021).
- However, there are also indications that children admitted to hospital with Omicron are less sick, requiring less support than previous waves and are discharged earlier. Oxygen use by children aged under 1 admitted in the past four weeks for whom data are available was 12%, compared with 22.5% in the first wave of the pandemic. Admission to intensive care was 9.9% (v 14%), use of mechanical ventilation was 2% (v 5.8%), use of non-invasive ventilation was 2% (v 7.2%), and mean length of stay was 1.7 days (v 6.6 days).
- The rise in the number of young children being admitted may also be partly a result of clinical guidelines that mandate a period of observation in hospital for babies under the age of three months who develop a fever.
- Full paper: [CO-CIN: Child admissions and severity by epoch CO-CIN update January 2022, 6 January 2022 - GOV.UK \(www.gov.uk\)](#)

Accompanying BMJ news article following Science Media Centre briefing: [Covid-19: Omicron variant is linked to steep rise in hospital admissions of very young children | The BMJ](#)

SARS-CoV-2 infection, COVID-19 vaccination rates and outcomes in pregnant women, Scottish and US studies

- A previous Wales COVID-19 Evidence Centre highlighted that pregnant women are at slightly increased risk of severe illness from COVID-19, particularly in the third trimester, and are more likely to have complications in pregnancy. Two additional studies have recently been published to support this finding.
- Firstly, a study of COVID-19 infection and vaccination rates of 18,457 pregnant women in Scotland between December 2020 and October 2021 shows considerably lower vaccination rates compared to the general female population of 18-44 years:

32.3% of women giving birth in October 2021 had two vaccine doses Vs. 77.4% in all women. The extended fetal and neonatal mortality rate for women giving birth within 28 days of COVID-19 diagnosis was 22.6 per 1,000 births (95% CI 12.9–38.5) against a background pandemic rate of 5.6 per 1,000 births (95% CI 5.1–6.2).

- Overall, 77.4% of SARS-CoV-2 infections, 90.9% of SARS-CoV-2 associated with hospital admission and 98% of SARS-CoV-2 associated with critical care admission, occurred in pregnant women who were unvaccinated at the time of COVID-19 diagnosis. All perinatal deaths following SARS-CoV-2 infection in pregnancy occurred in women who were unvaccinated at the time of SARS-CoV-2 infection.
- Secondly, a retrospective cohort study (March 2020 to July 2021) assessing the impact of maternal SARS-CoV-2 infection on birth outcomes using electronic health records suggests that those with mild or moderate SARS-CoV-2 infections in the first and second trimester had an increased risk of preterm birth and stillbirth. No one in this cohort had been vaccinated for COVID-19 at time of infection. The SARS-CoV-2 negative cohort were people with at least one negative SARS-CoV-2 PCR-based test and no positive tests during pregnancy.
- More negative birth outcomes were observed when infections occurred earlier in gestation, including increased risk for preterm birth and stillbirth. There were increased rates of small for gestational age (SGA) infants born to people who had a positive SARS-CoV-2 test result during pregnancy, suggesting that preterm delivery is induced via a mechanism that could impact fetal growth.
- Unlike previous studies the difference between mild and moderate severity of the SARS-CoV-2 infection does not appear to play a part in whether a pregnancy is likely to be negatively affected. It is suggested this is because other studies did not account for trimester of infection.
- Taken together, these findings suggest that SARS-CoV-2 infection early in pregnancy is an important risk factor that should be monitored closely by clinicians.
- Full papers: [SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland | Nature Medicine](#)
- [The effect of maternal SARS-CoV-2 infection timing on birth outcomes: a retrospective multicentre cohort study - The Lancet Digital Health](#)

Children and schools

Transmission of SARS-CoV-2 by children and young people in households and schools: A meta-analysis of population-based and contact-tracing studies

- This systematic review and meta-analysis considers the role of children and young people (CYP) in transmission of SARS-CoV-2 in household and educational settings using a contact-tracing and population-based study, excluding studies at high risk of bias such as under-ascertainment of asymptomatic infections.
- 4529 abstracts were reviewed, resulting in 37 included studies (16 contact-tracing; 19 population studies; 2 mixed studies). The pooled relative transmissibility of CYP

compared with adults was 0.92 (0.68, 1.26) in adjusted household studies. The pooled Secondary Attack Rate (SAR) from CYP was lower ($p = 0.002$) in school studies 0.7% (0.2, 2.7) than household studies (7.6% (3.6, 15.9)). There was no difference in SAR from CYP to child or adult contacts. School population studies showed some evidence of clustering in classes within schools. School infection prevalence was associated with contemporary community 14-day incidence (OR 1.003 (1.001, 1.004), $p < 0.001$).

- Overall the results saw no difference in transmission of SARS-CoV-2 from CYP compared with adults within household settings. SAR were markedly lower in school compared with household settings, suggesting that household transmission is more important than school transmission. School infection prevalence was associated with community infection incidence, supporting hypotheses that school infections broadly reflect community infections. The authors suggest these findings are important for guiding policy decisions on shielding, vaccination school and operations during the pandemic.
- The findings largely relate to SARS-CoV-2 transmission from children before highly transmissible variants such as Delta or Omicron became predominant and this work needs replication once sufficient data are available from periods dominated by other variants. A number knowledge gaps remain about transmission from CYP, particularly relating to potential age-differences between younger and older children, and effectiveness of various NPIs, especially face masks, to reduce transmission in child-specific settings.
- Full paper: [Transmission of SARS-CoV-2 by children and young people in households and schools: A meta-analysis of population-based and contact-tracing studies - Journal of Infection](#)

Modelling

PREPRINT: Mitigating isolation: The use of rapid antigen testing to reduce the impact of self-isolation periods

- This preprint study (Bays et al, 2021) models 500,000 infected individuals self-isolating under different scenarios, including use of high-specificity rapid antigen tests, (commonly known as lateral flow tests) at different time periods and ceilings on total isolation time. This reduces both the average time spent isolating unnecessarily and the time that people are released whilst infectious.
- The results suggest under a 10-day isolation period, 5% are released whilst still infectious; reducing to 1% under 14-day isolation period. However use of lateral flow devices from day 6 and requiring and requiring 2 consecutive negative tests 24 hours apart results in a regime that would release 79% of people correctly on day 7, with 6% of people requiring to stay in isolation until day 10. Excess isolation is reduced from 6 days to 3 days in return for a minimal cost of releasing those who are still infectious, roughly equivalent to mandatory isolation until day 10.

| Policy | Released infectious (%) | Mean time a released person is infectious for (hours) | Mean excess isolation per person (hours) |
|---|-------------------------|---|--|
| 7-day isolation | 15.8% [11.9 - 21.0] | 62.3 [56.5 - 69.2] | 76.8 [67.2 - 84.0] |
| 10-day isolation | 5.1% [3.4 - 7.6] | 59.3 [53.5 - 65.6] | 141.6 [129.6 - 151.2] |
| 14-day isolation | 1.0% [0.6 - 1.8] | 57.1 [51.4 - 63.1] | 235.2 [220.8 - 247.2] |
| 10-day isolation, or 1 negative tests from day 7 | 9.2% [6.5 - 12.8] | 61.1 [55.3 - 67.5] | 79.2 [69.6 - 86.4] |
| 10-day isolation, or 2 negative tests from day 6 | 6.2% [4.2 - 9.0] | 60.0 [53.9 - 66.3] | 81.6 [72.0 - 88.8] |
| 14-day isolation, or 2 negative tests from day 6 | 4.1% [2.6 - 6.0] | 61.3 [55.8 - 67.7] | 69.6 [64.8 - 74.4] |

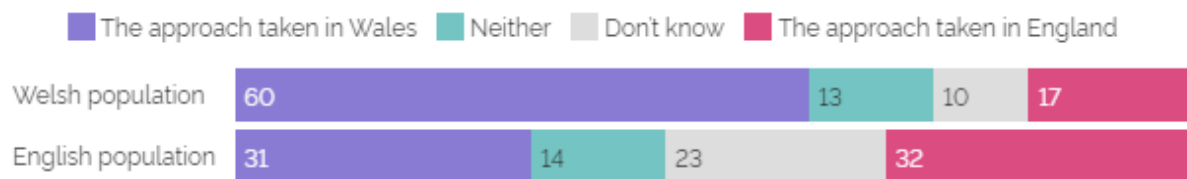
- The authors advise that caution must still be exercised for the period following someone's release from isolation as in all scenarios there is a risk of releasing an infective person. A 7-day isolation period alone is a notably poor solution as 16% of people could be released prematurely. A single negative rapid antigen test also does not appear sufficient to end isolation because there is still risk of a false negative and a 9% chance of premature release.
- Overall, outside of the current guidance the most beneficial scenario is one where the mandated minimum isolation period is reduced but allows for an unconstrained maximum isolation period whilst evidence of infection is still present. However for practical reasons some constraint on isolation period may be desirable, in which case this modelling supports 14 days may provide a sensible upper bound.
- Limitations of the study include that the model does not consider human behaviour or adherence to self-isolation periods, as this is beyond the scope of a similar physical-system model. Secondly, while the sensitivity of lateral flow tests within laboratory conditions carried out by trained individuals is well known, this is more difficult to quantify in real-world situations used by lay persons, although this is incorporated in the model using a random variable for each simulated individual. Finally, time within this model is strictly mathematical- considering precise 24-hour periods and therefore care is required in loose interpretation of time periods for those isolating.
- Full paper: [Mitigating isolation: The use of rapid antigen testing to reduce the impact of self-isolation periods | medRxiv](#)

Non-pharmaceutical interventions and Behavioural Insights

YouGov Poll: Whose pandemic approach is better: England or Wales?

- A poll published on YouGov asked English and Welsh individuals whether they prefer the English or Welsh approach to mitigate the impact of the Omicron variant. The survey was carried out at the beginning of January 2022 and included a broadly representative sample of 1008 people from Wales and 1510 from England.

- Overall the English participants were split over whether they prefer the approach taken in England (31%) or the one taken in Wales (32%). The Welsh participants were much more likely to prefer the way their country is handling restrictions (60%), with only 17% of Welsh people preferring the English approach.



YouGov

4 - 7 January 2022

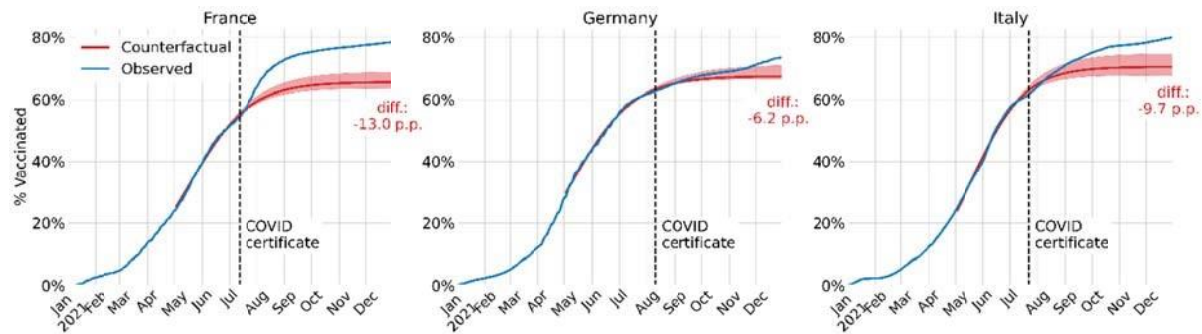
- While English people are split on which approach they prefer, they tend to have similar views on individual policies as the Welsh. Some 55% of people in England would support closing English nightclubs, versus 33% who would oppose doing so. This is compared to 66% of Welsh people who support the policy being in place.
- Another 51% of English people would support limiting indoor meetings to a maximum of six people, while two in five (40%) would oppose implementing this rule. The limit on gatherings has been in place in Wales since 26 December, with the support of 59% of Welsh people.
- When it comes to restricting people from meeting in groups of more than six outdoors, just 35% of people in England would back such a rule, compared to 57% who are opposed. The rule also divides the Welsh population, 46% of whom back the rule of 6 outside and 47% who oppose it.
- Despite a preference for their way of doing things, only 47% of Welsh people thought the devolved governments should decide which COVID-19 measures are introduced in their region. Compared to this are 40% who would prefer for Westminster to make decisions for the United Kingdom as a whole over what restrictions are in place.
- A further 50% of Welsh people say decisions around coronavirus measures should happen simultaneously across the UK, even if some parts have different case numbers. Just over a third (37%) think areas with differing infection rates should impose different levels of restriction.
- Full results for [Wales/ England](#).
- Full article: [Whose pandemic approach is better: England or Wales? | YouGov](#)

PREPRINT: The effect of COVID certificates on vaccine uptake, health outcomes and the economy'

- A preprint study from a Brussels-based economic policy think tank suggest that COVID certificates to access shops, restaurants, education or workplaces have measurable benefits on vaccine uptake, health outcomes and the economy.
- Using counterfactuals for France, Germany and Italy, the authors estimate that the announcement of COVID certificates during summer 2021 led to increased vaccine

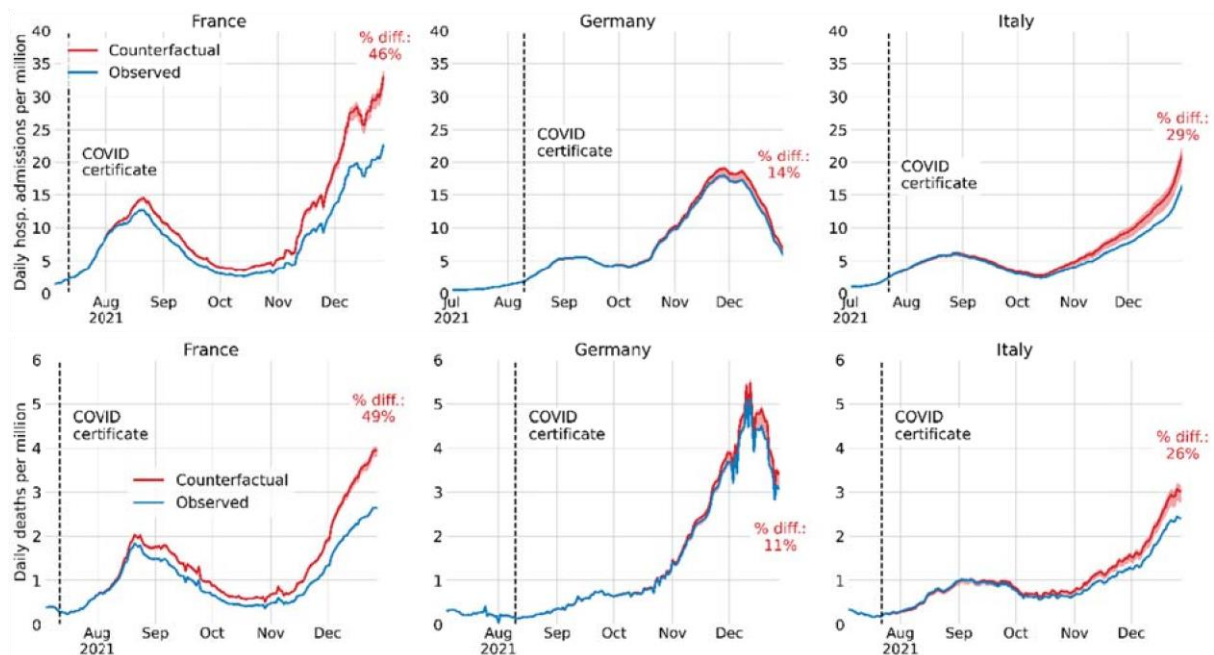
uptake in France of 13.0 (95% CI 9.7–14.9) percentage points (points) of the total population up to the end of the year, in Germany 6.2 (95% CI 2.6–6.9) p.p., and in Italy 9.7 (95% CI 5.4–12.3) p.p..

- Figure: Estimated vaccine uptake with and without COVID certificates



The cumulative proportion of the whole population who received at least one COVID-19 vaccine dose in the actual intervention deployment (blue) and in the no-intervention counterfactual scenario (red). The red shaded area is the 95% confidence interval. The black dashed vertical line is the date of the announcement of the COVID certificate.

- The findings suggest the effect of COVID certificates on vaccine uptake was also sizeable among the older population. By the end of 2021, the authors attribute for France 8.9 (8.0–9.4) percentage points (p.p.) to the incentives created by COVID certificates among the population over 60 years old, and for Italy 4.4 (2.9–5.2) p.p.. Lack of available data means it was not possible to build a counterfactual for vaccine uptake among the older population in Germany.
- Thus, from the introduction of COVID certificates until the end of 2021, the expected number of hospital admissions (and deaths) would have been 31.3% (31.7%) higher in France, 5.0% (5.6%) higher in Germany, and 15.5% (14.0%) higher in Italy, in their absence.



- The authors also suggest the application of COVID certificates substantially reduced the pressure on intensive care units (ICUs) and, in France, prevented occupancy levels being exceeded where prior lockdowns were instated. The authors suggest varying government communication efforts and restrictions associated with COVID certificates may explain country differences, such as the smaller effect in Germany.
- The authors argue their results are supported by their method of synthetic control to create counterfactuals, based on a weighted average of countries that did not implement the COVID certificate. However they also accept this model has limitations in context of this study, requiring a sufficiently large control group which becomes infeasible as more and more countries adopt COVID certificates as an intervention after September 2021. Further, synthetic control requires that the countries in the control group are not affected by interventions in other countries, which is questionable given the interdependence of COVID-related policies, and cross-border travel. Furthermore, when considering the impact of COVID certificates on health outcomes, the authors omit the contribution of vaccines to reducing overall transmission and the fact that COVID certificates may alter epidemic dynamics.
- Overall it is likely that vaccine certificates had a big impact on vaccine uptake, health outcomes and the economy in France; however a smaller impact was found on uptake and outcomes in Germany and Italy. This aligns with previous evidence presented at SAGE 96¹⁴, which also used a synthetic control model to compare six countries that introduced certification with 20 control countries.
- Full paper: [Microsoft Word - WP 2022 01 certificates \(bruegel.org\)](#)

Wales COVID-19 Evidence Centre (WCEC)

Have infection control and prevention measures resulted in any adverse outcomes for care home and domiciliary care residents and staff?

Key findings

- Whilst there is some evidence to show that there may be a link between IPC measures and adverse outcomes, causation cannot be assumed.
- Increased infection prevention control (IPC) procedures during the COVID-19 pandemic increased stress and burden among care staff because of increased workload, and dilemmas between adhering well to IPC procedures and providing the best care for care recipients.
- COVID-19 IPC procedures were not well developed at the beginning of the COVID-19 pandemic, but evidence from 2021 suggests that good adherence to IPC measures can enable visitations by family members and medical professionals into care homes.
- Only one study investigating domiciliary care was found.

¹⁴ [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 \(www.gov.uk\)](#)

- No published studies have reported on the costs or cost-effectiveness of IPC measures or have explored the cost implications of adverse outcomes.
- Confidence in the strength of evidence about adverse outcomes of COVID-19 IPC procedures was rated as 'low' overall.

Policy Implications

- Important issues such as care home visitation policies have changed in such a way that care home staff have felt it difficult to keep up with the changes, which in itself increased the burden on those staff.
- IPC policies should be clear, concise and tailored to care homes and domiciliary care settings.
- Increased attention to workforce planning is needed to ensure adequate staffing and to reduce individual burden.
- Restrictions (e.g. visitation) for care home residents needs to be balanced by additional psychological support.
- Further research with robust methods is urgently needed, especially in the domiciliary care setting.

Full report available [here](#).

What innovations help to attract, recruit and retain social care workers within the UK context?

- The shortage of social care workforce and the pressure on social care sector predates the COVID-19 pandemic. However, since BREXIT, international recruitment has become problematic and the COVID-19 pandemic has further affected attracting, recruiting and retaining staff.

Key Findings

- Studies were published 2001-2021 and so findings may not be fully generalisable to the circumstances brought on by the pandemic and BREXIT.
- Most of the work informing this rapid review is rated as low quality (due to poor reporting of methods) and there has been very little robust evaluation of specific approaches.
- Only 3 out of 9 initiatives for social work had been evaluated. Findings included that pre-employment initiatives, graduation from a fast-track programme and apprenticeships potentially contribute to retention. High caseloads and excessive workload, combined with organisational stress were frequently cited factors causing social workers to leave.
- Only 4 out of 11 initiatives for social care had been evaluated. Findings included that care workers as ambassadors, pre-employment training initiatives, interview preparation and confidence, National recruitment campaigns and values-based recruitment can potentially have a positive effect. Negative factors affecting turnover were identified as: poor terms and conditions, low pay, unsociable

working hours, and inexperience of both employees and managers. Positive factors included: pay and retention bonuses, good working environment and celebrating achievements

Policy Implications

- Systemic and structural factors need addressing for both social workers and social care workers, including high case load and working conditions.
- Future policy initiatives should include evaluation planning from the outset and research funders should also be encouraged to design funding schemes to support research in this area.
- Based on the available evidence, several approaches show promise.
- For social work, a focus on practice learning which is well-embedded in local authorities, supportive induction and development activity, fast track graduate schemes, and diverse career pathways. Social Care Wales are currently devising a new social work framework for Wales that will consider these approaches.
- For social care, there is a general acceptance in the literature that campaigns to promote care work are necessary and important, to counter the negative perceptions and low status of care work.

Full report available [here](#).

What is the risk of SARS-CoV-2 transmission in vaccinated populations?

Key findings

- Most included studies were observational, where confounding factors were not always adjusted for, therefore the quality of the available evidence is assessed as 'low'.
- The best available evidence was [rapid literature review](#) reporting on the transmissibility of COVID-19 among vaccinated individuals with a review period up to 23rd August 2021. An additional nine primary studies were found with a review period up to 5th October 2021, with 35 studies included in total.
- Evidence shows a reduction in SARS-CoV-2 transmission from vaccinated people; however, the dominant variant at the time of these studies was B.1.1.7 (Alpha) rather than B.1.617.2 (Delta).
- Findings from more recent studies are uncertain on the effects of vaccination on transmission, which may be due to the replacement of the Alpha variant with Delta.
- Most direct evidence is limited to transmission within household settings therefore there is a gap in the evidence on risk of transmission in other settings such as schools, care homes, hospitals, workplaces and social venues, and in vulnerable populations.
- Overall, the effectiveness of vaccination in reducing transmission appears to be higher in fully vaccinated individuals, compared with partial vaccination.

- Protection against onward transmission waned within 3 months post second vaccination, for both Alpha and Delta.
- Although cycle threshold (Ct) values are used as a proxy for viral load, the relationship between viral load and infectiousness is not fully evidenced.

Policy Implications

- Given limited evidence on the effectiveness of vaccination on transmission of variants other than Alpha in households and other settings, other preventative measures to reduce transmission may still be required.
- The UK Health Security Agency, with whom we are collaborating in this ongoing work, is currently conducting a rapid review on the effect of COVID-19 vaccination on transmission of COVID-19.

Full report available [here](#).

Barriers and facilitators to the uptake of personal protective behaviours in public settings

- Understanding the barriers and facilitators for adopting PPBs will enable decision-makers to better maintain and enhance adherence in various settings through guidance and advice given, both generally, and in relation to specific settings.

Key Findings

- 21 secondary evidence reviews were included, and a further 5 ongoing systematic/rapid reviews were identified. Most of the included evidence related to earlier pandemics that occurred between 2004 and 2011.
- Evidence from specific settings is limited. However the most robust review that reported data on setting was [Hanratty et al., 2021](#).
- Factors associated with higher rates of adherence to PPBs include being older, female, more educated, non-white, higher socio-economic status, increased trust in government, increased risk perception of COVID-19, informed by traditional news media, perceived susceptibility, greater belief in effectiveness of PPB and heightened levels of general anxiety.
- Use of social media and belief in conspiracy theories were associated with lower rates of adherence.
- Barriers to social distancing and mask wearing include perceived adverse impact and potential to attract social stigma, lack of knowledge and comprehension of consequences, resource constraints, beliefs about infection transmission, personal vulnerability to respiratory infection, and experience or perception of personal discomfort and sense of embarrassment. Law enforcement (as a perceived deterrent) was not associated with adherence.
- It was acknowledged that adherence to some behaviours may wane over time.

Policy Implications

- The review identified specific groups that are more or less likely to adhere to PPBs, which can be used to inform and tailor guidance and advice.
- There is uncertainty around the transferability of this evidence to this pandemic and its subsequent waves, and further work is needed to evaluate how and what determines any changes in adherence over the duration of a pandemic.
- Five relevant ongoing systematic/rapid reviews were identified that may be able to provide further evidence to inform practice or policy in the near future.
- Further primary research is needed on adherence PPBs in potentially crowded settings, such as public transport.

Full report available [here](#).