

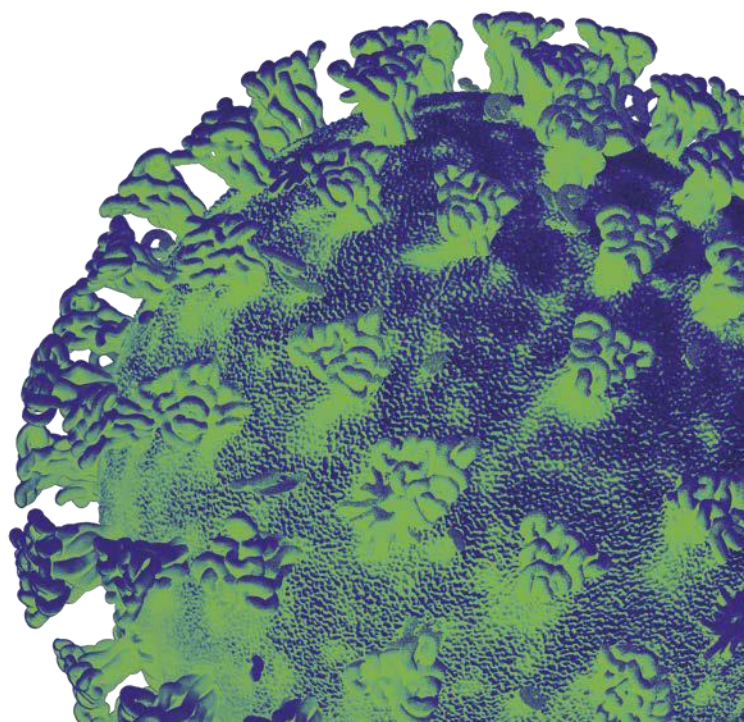
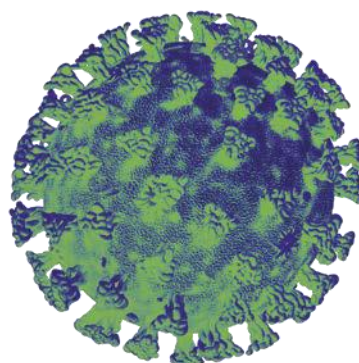
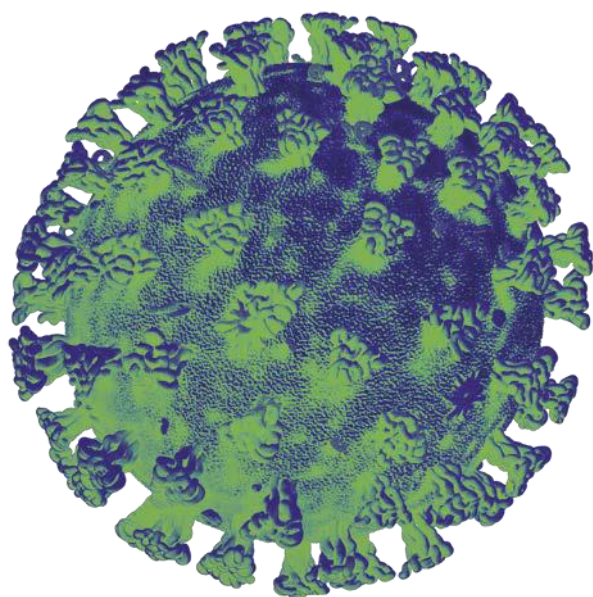


Llywodraeth Cymru  
Welsh Government

# Technical Advisory Cell

## Summary of Advice

4 March 2022



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### Wales Sitrep

- As at 25 February case numbers in Wales have decreased by 45% since the end of the previous two week period to 169 per 100,000, although the most recent data suggests cases may be stabilising or increasing slightly. Test positivity as reported by PHW has also decreased from 28.2% two weeks ago to 21.9%. Cases have decreased in all age groups in the most recent two weeks but remain highest in the 20-29 and 30-39 group at 261 and 251 cases per 100,000 respectively. Note that this data will be impacted by changes to testing behaviours.
- This is supported by the most recent estimates from the [ONS COVID Infection Survey](#), which provides a relatively unbiased estimate of levels of infection. The survey suggests the percentage of people testing positive has decreased in Wales over the two weeks ending 26 February, although the trend is uncertain over the most recent week. For the 7 day period ending 26 February the ONS estimates an average of 94,200 people in Wales had COVID-19 (95% credible interval: 80,000 to 109,700). This equates to 3.10% of the population who had COVID-19 (95% credible interval: 2.63% to 3.61%) or around 1 in 30 people.
- The most recent PHW [weekly Lateral Flow Testing Surveillance Report](#) suggests that for the week ending 27 February the number of LFTs reported decreased from 235,684 in the previous week to 180,241. The number of positive testing episodes decreased from 11,350 in the previous week to 9,255. The 20-39 age group recorded the highest incidence rate of 410.1 positive testing episodes per 100,000 population.

The incidence rate in the Under 20 age group has continued to decrease from 311.1 positive testing episodes per 100,000 population to 207.6 in the latest reporting week, although this age group also recorded the highest episode positivity rate of 12.86%.
- As at 1 March the total number of COVID patients occupying a hospital bed (confirmed, suspected and recovering) have decreased by 22% since 2 weeks ago, with the majority of the reduction in the number of people recovering in hospital (632 reduced to 416). The number of COVID-confirmed patients in hospital has decreased slightly from 426 to 420. COVID-confirmed related patients occupying an invasive ventilated bed have reduced from 12 two weeks ago to 10 (Source: [StatsWales](#)).
- As at 25 February the number of weekly COVID-19 deaths reported by PHW has decreased by 36% to 28 deaths compared to the previous 2 week period. Lagged [ONS death reporting](#) up to 18 February shows an increase in COVID deaths to 47 in the most recent week compared to 40 in the previous week. The total number of deaths registered in Wales was 648; 24 fewer than the previous week and 12.2% below the five-year average (90 fewer deaths). Compared with the 2015 to 2019 (pre-pandemic) five-year average, deaths in Wales were 10.2% below average (74 fewer deaths).
- As at 3 March UKHSA estimate the Reproduction number (R) for Wales to be between 0.7 and 0.9 with a halving rate of every 10 to 39 days, while PHW's estimate of R for Wales, which is less lagged, is 0.86 with a halving time of 22 days.
- As at 1 March 2022, in the **most recent two weeks** an additional **33,621** doses of COVID-19 vaccine have been given in Wales and recorded in the COVID-19 Welsh

Immunisation System. **3,864** were first doses, **7,941** were second doses, **21,158** were booster doses and **658** were third dose primary courses for immunosuppressed individuals.

- As at 3 March 2022 in the most recent 7 day period Wales has genomically confirmed **+4,765** cases of the **Omicron** variant (86,541 total to date), of which **+4,308** (49,177 total) were **BA.1**, **+1,442** (2,779 total) were **BA.2** and **-985** (34,585 total) were 'Omicron not elsewhere classified'. **+6** cases of **Delta** (106,123 total) were detected, of which **+5** (91,105 total) were B.1.617.2 and **+1** (15,019 total) were AY.4.2. No other variants of concern were confirmed by genomic sequencing in Wales during this period.
- Note on above: Due to the addition of the new VUI-22JAN-01 (BA.2), the genotype definition (as opposed to full sequencing) is no longer specific enough to whether an omicron case is BA.1 or BA.2. As a result Omicron cases identified by genotyping have been separated into their own category called "Omicron not elsewhere classified". This new category also includes sequenced cases defined as another lineage (e.g. BA.3), or private lab cases where we do not have enough information to further classify the case. **This category is likely to have negative changes as genotyped cases are confirmed as a specific lineage and moved into their respective categories.***
- PHW report that **while influenza is not yet circulating widely, confirmed case numbers have increased in recent weeks**. During Week 08 (ending 27/02/2022) there were 12 cases of influenza confirmed. Confirmed cases of Respiratory Syncytial Virus (RSV) in children aged under 5 years are at baseline levels.
- Welsh Government's [survey of public views](#) on COVID-19 dated 18 to 21 February 2022 found that perceptions of the threats posed by coronavirus have fallen further this wave, with the proportion who believe coronavirus poses a high level of threat to the country at the lowest level recorded by this survey. The proportion of people only leaving home for essential journeys and people trying to keep two metres away from others when out have decreased further this wave to levels seen in October.

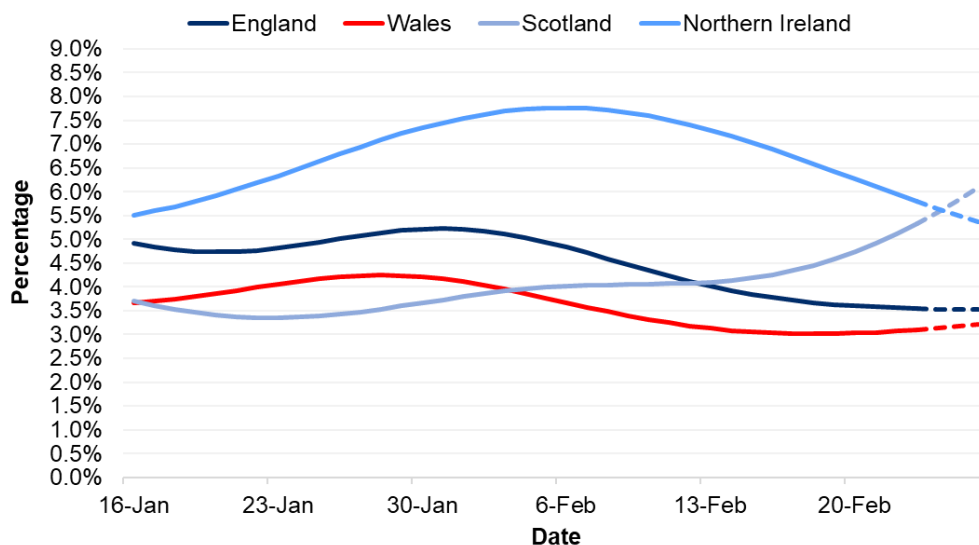
Three quarters of people wear a face covering to protect themselves from COVID, and a third of people in work currently work from home. The Welsh Government and the NHS are generally seen to be doing a good job, with about two thirds of the Welsh public now saying the Welsh Government is doing a good job at containing the spread of the virus. Around a quarter of people are concerned they will not be able to pay their bills one month from now.

- [Waste water surveillance](#) dated 3 March suggests the trends in the national mean wastewater signal are unclear, with both increases and decreases observed in the last four weeks. The overall change is a slight increase in the last 3 weeks, but there is a slight decrease in the wastewater signal in the most recent week. Detection of key mutations predominately associated with variants of concern indicate that Omicron is dominant across Wales, while Delta is still being detected at several sites (Note this indicator is still experimental/ under evaluation).
- Google mobility data dated 2 March suggests in the most recent week, using January to February 2020 as a baseline, public transport mobility increased by 5.2 percentage points compared to previous week to -35.6 %. Residential (i.e. people spending time at home) decreased by 1.5 percentage point to -5.85%. Retail & recreation mobility increased by 11.1 percentage points to -4.60%, the highest level this year.



Supermarkets & pharmacy increased by 4.0 percentage points to -5.38%. Workplaces decreased by 2.8 percentage points to -27.47%.

- The most recent (and penultimate before the study ends) UK-level [CoMix social contact survey](#) reports a fall in mean adult recorded contacts across the UK, coincident with the half-term break. There are still high levels of individuals reporting being in isolation or quarantine, with 7-8% of 12-60 year olds isolating and 2% of >60 year olds, though the number of isolating primary-school aged children has fallen rapidly to around 5%. The large drop in the use of face-masks in England, that occurred when Plan B restrictions were lifted, may be stabilising at levels seen before Plan B measures were put in place. There is no evidence of such a fall in use in Scotland, though there may be some fall in use of masks in Wales. Adults who attended their workplace continue to report approximately twice the mean number of contacts than employed adults who did not attend their workplace
- At a UK level, the ONS Coronavirus infection Survey estimates the percentage of people testing positive has decreased in the latest week in England and Northern Ireland. In Wales the trend decreased over the most recent two weeks, but was uncertain in the most recent week. In Scotland, the percentage of people testing positive for COVID-19 increased in the most recent week. ONS estimates that 94,200 people in Wales had COVID-19 during this period equating to around 1 in 30 people. This compares to around 1 in 30 people in England, around 1 in 17 Northern Ireland and around 1 in 19 people in Scotland.



### International – WHO update

- The WHO Weekly Epidemiological Update [dated 1 March](#) reports that globally, during the week of 21 through 27 February 2022, the number of new COVID-19 cases and deaths continued to decline by 16% and 10% respectively, as compared to the previous week. Across the six WHO regions, over 10 million new cases and over 60,000 new deaths were reported. As of 27 February 2022, over 433 million confirmed cases and over 5.9 million deaths have been reported globally.
- At the regional level, the Western Pacific Region reported a 32% increase in the number of new weekly cases while all other regions reported decreases. The number of new weekly deaths increased in the Western Pacific (+22%) and the Eastern

Mediterranean (+4%) Regions, whilst a decreasing trend have been reported by the Regions of Africa (-59%), South-East Asia (-18%), Europe (-13%) and Americas (-8%).

- The current global epidemiology of SARS-CoV-2 is characterized by the global dominance of the Omicron variant. Delta remains the only other named variant with significant reported circulation. Among the 488,463 sequences uploaded to GISAID with specimens collected in the last 30 days, 486,182 (99.5%) were Omicron, 1,601 (0.3%) were Delta, and 6 (<0.1%) were Alpha. To note, global VOCs distribution should be interpreted with due consideration of surveillance limitations, including differences in sequencing capacities and sampling strategies between countries, as well as delays in reporting.

### **COVID-19 evidence roundup- summary:**

*This section aims to summarise 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.*

### **Variants and vaccine effectiveness**

SARS-CoV-2 variants of concern and variants under investigation in England Technical briefing 37([Study link](#))

- UKHSA's variant technical briefing 37 includes updated secondary attack rates for close contacts of cases with confirmed Omicron infection, split by household/ non-household setting. **Adjusted secondary attack rates in both settings were higher amongst contacts of cases with BA.2 than BA.1.** A summary is below.

Variant	Setting	Number of exposing cases	Number of contacts	Adjusted* secondary attack rate (95% Confidence Interval)
Omicron VOC-21NOV-01	Household	128,207	268,952	11.4% (11.2%-11.5%)
VUI-22JAN-01 (BA.2)	Household	5,520	12,121	14.3% (13.6%-14.9%)
Omicron VOC-21NOV-01	Non-household	21,031	50,658	4.6% (4.5%-4.8%)
VUI-22JAN-01 (BA.2)	Non-household	852	2,081	6.1% (5.0%-7.2%)

- Preliminary analysis of sequenced cases to compare the risk of hospitalisation following BA.2 compared to BA.1 suggests **that the risk of hospitalisation does not appear higher following a BA.2 infection than following a BA.1 infection** (hazard ratio 0.87, 95% CI: 0.75-1.00). These results are preliminary, and it is possible that the estimates of the risk of hospitalisation may change as cases accrue.
- The report also highlights discovery of 34 cases of a putative recombinant of the variants AY4.2.2 and BA1.1. Specimen dates for 32 cases are available and are suggestive of successful transmission, although with small overall case numbers. Similar recombinants have also been detected internationally. There is no data to suggest a detectable growth advantage or increased severity.

Response to additional COVID-19 vaccine doses in people who are immune-compromised: a rapid review ([Study link](#))

- A rapid review of responses to additional COVID-19 vaccine doses in people who are immunocompromised highlights the need for continued caution among people who are immunocompromised while SARS-CoV-2 transmission remains high globally. Many people who are immunocompromised with severe immunosuppression are likely to remain susceptible to COVID-19, even after an additional dose.
- In a systematic review, seroconversion rates after two COVID-19 vaccine doses (pooling across all studies and platforms) were 99% (95% CI 98–100) for people who are not immunocompromised, 92% (88–94%) for patients with solid cancer, 78% (69–95) for patients with immune-mediated inflammatory disorders, 64% (50–76) for patients with haematological cancer, and 27% (16–42) for recipients of transplants. Among individuals with low or undetectable antibody response after a primary series, an additional dose was associated with median antibody response rate of 44%. Data suggests an additional dose in an extended primary series can induce a *de novo* response in at least a portion of immunocompromised people who did not mount a detectable antibody response following the original primary series. These findings must be interpreted with caution given the absence of an established correlate of initial protection or duration of protection and significant methodological variation among studies.

UKHSA: The effectiveness of vaccination against long COVID - A rapid evidence briefing ([Study link](#))

- A UKHSA evidence briefing suggests there is evidence that vaccinated people who are subsequently infected with COVID-19 are less likely to report symptoms of long COVID than unvaccinated people, in the short term (4 weeks after infection), medium term (12 to 20 weeks after infection) and long term (6 months after infection). This is in addition to any benefit of vaccination in preventing COVID-19 infection.
- There is also evidence that unvaccinated people with long COVID who were subsequently vaccinated had, on average, reduced long COVID symptoms (though some people reported worsened symptoms after vaccination). Additionally, there was evidence that unvaccinated people with long COVID who were subsequently vaccinated reported fewer long COVID symptoms than those who remained unvaccinated.
- Fifteen studies were identified that reported on the effectiveness of vaccination against long COVID (search up to 12 January 2022): 7 studies examined whether vaccination before infection reduced the symptoms or incidence of long COVID, 7 studies examined whether vaccination in people with long COVID reduced or cleared the symptoms of long COVID, and 1 study examined both. However, there is a risk of bias across all studies due to differences in people who were vaccinated and unvaccinated, the observational measurement of outcomes, the definition of long COVID and in the selection of participants.

## Clinical

### ISARIC4C and CO-CIN: Co-infection with influenza viruses associated with worse outcomes in severe COVID-19, 7 February 2022 ([Study link](#))

- A report from CO-CIN on the impact of co-infection with influenza viruses, Respiratory Syncytial Virus (RSV) and adenoviruses on clinical outcomes among the UK ISARIC cohort suggests **co-infection with influenza viruses is associated with higher odds of receiving invasive mechanical ventilation and/or mortality**. Extrapolating these results to a representative hospitalised population, influenza co-infection significantly increased the odds of receiving invasive mechanical ventilation by **4.1 times** and in-hospital mortality by **2.4 times**. The authors suggest as public health restrictions are lifted, respiratory virus co-infections are more likely to occur during this and future winters. The marked increase in risk among patients with coinfection provides further support for vaccination against both SARS-CoV-2 and influenza viruses. Secondly, it suggests that testing for influenza is important in hospital in-patients with Covid-19 in order to identify patients at risk and to identify a cohort of patients who may have differential responses to immunomodulatory and antiviral therapy. As mentioned above PHW reports influenza is not currently circulating widely in Wales but the number of confirmed cases has increased in recent weeks.

### Timing of elective surgery and risk assessment after SARS-CoV-2 infection: an update ([Study link](#))

- An updated consensus statement on the timing of elective surgery after SARS-CoV-2 infection on behalf of several royal colleges and professional medical associations **recommends patients should avoid elective surgery within 7 weeks of infection, unless the benefits of doing so exceed the risk of waiting**. The authors recommend patients with persistent symptoms and those with moderate-to-severe COVID-19 may require a longer delay than 7 weeks. Elective surgery should not take place within 10 days of diagnosis of SARS-CoV-2 infection, predominantly because the patient may be infectious, which is a risk to surgical pathways, staff and other patients. Timing of surgery should include the assessment of baseline and increased risk, optimising vaccination and functional status, and shared decision-making.

## Immunity

### The Protection Provided by Naturally Acquired Antibodies against Subsequent SARS-CoV-2 Infection: A Systematic Review and Meta-Analysis ([Study link](#))

- A systematic review and meta-analysis of the protection of SARS-CoV-2 antibodies against subsequent infection suggests the efficacy of naturally acquired antibodies against reinfection was estimated at 84%, with higher efficacy against symptomatic COVID-19 infection (91%) than asymptomatic infection (72% but with high heterogeneity 95%CI = 46-86%). In the subgroup analyses, the efficacy of naturally acquired antibodies against reinfection was 78% and 86% respectively, and those in older (over 60) and younger (under 60) populations were 74% and 94%, respectively. The authors conclude naturally acquired antibodies against SARS-CoV-2 can significantly reduce the likelihood of subsequent infection, although this appears to increase slowly over time. Notably, most studies included in this systematic review were conducted between January 2020 and June 2020, indicating that the majority of the subjects included in those studies had not experienced the outbreaks of Delta, Omicron and other new variants during the pandemic.

PREPRINT: Understanding the immunological landscape of England during SARS-CoV2 Omicron variant wave ([Study link](#))

- A UKHSA study of immunity levels in England during the Omicron wave estimates the number of people with 'good' immunity to the Omicron variant, defined as either recent infection with two doses of vaccine, or two doses of vaccine with a recent booster dose. Results find that, despite Omicron's increased immune evasion, a high proportion of the English population had good immunity, particularly in over 65s at over 90%. The authors suggest this will help to reduce the pressures on healthcare systems. However the authors suggest lower immunity rates in working age and younger populations may allow endemic infection to persist for some time, with the potential for community outbreaks.

PREPRINT: Occurrence and significance of Omicron BA.1 infection followed by BA.2 reinfection([Study link](#))

- A Danish study has analysed the increased number of reinfections following the rise of Omicron's subvariants, specifically investigating whether BA.2 specifically can escape the natural immunity acquired **shortly after a BA.1 infection**, concluding that BA.2 reinfections can occur shortly after BA.1 infections, but are rare. 187 reinfection cases less than 60 days apart were identified from a subset of 1.8 million infections between November 2021 and February 2022, of which 47 (18%) were Omicron BA.1-BA.2 reinfections. These were mostly in young unvaccinated individuals, emphasising the enhanced immunity obtained by vaccination and infection, although reinfections were characterised by mild disease similar to the initial infection. Significantly reduced viral loads were also observed in secondary BA.2 infection samples compared to initial infection, indicating a more superficial and transient secondary infection.

## Transmission and environmental science

High amounts of SARS-CoV-2 in aerosols exhaled by patients with Omicron variant infection ([Study link](#))

- A study has explored the relationship between high amounts of monitored viral aerosols exhaled by 36 fully vaccinated patients infected with Omicron variant at different stages of their illness after symptom onset (early (1-5 days), middle (6-10 days) and late (11-19 days)) and Omicron's increased transmissibility. The study suggests in the early stage of infection, patients could exhale up to ten million viral particles per hour, ten-fold higher than reported in a 2020 study using the same method on an earlier variant. SARS-CoV-2 positive rates in exhaled air of patients in early and middle stages were also higher than that reported in 2020 (41.7% and 38.5% vs 26.9%). The data indicates that the Omicron variant has higher transmissibility than other variants. Furthermore, this study suggests that, even after two weeks since onset of COVID-19 symptoms, the number of viral particles exhaled by 1 participant infected with Omicron did not decrease.

## Testing

SARS-CoV-2 antigen lateral flow tests for detecting infectious people: linked data analysis ([Study link](#)) ([opinion](#))

- A UK study has linked empirical data from multiple published studies to estimate the proportion of infectious people and associated secondary cases missed by the Innova lateral flow test (LFT). Their analysis estimated that of those with a positive viral culture



result, the Innova LFT would miss 20% attending an NHS Test-and-Trace centre, 29% without symptoms attending community mass testing, and 81% attending university screening testing without symptoms, along with 38%, 47%, and 90% of sources of secondary cases respectively. Note that the high estimates derived from the university population are associated with low numbers (n=8), meaning that small variations can result in a relatively large change in the headline proportion. Discrepancies between these results and the estimates from two previously published mathematical models are discussed and the authors argue that flaws in the assumptions underlying these models have potentially led to the underestimation of the number of missed infections.

- The proportion of infections missed varied between the different populations investigated, being highest in those tested without symptoms, and this was attributed to variation in the viral load distributions between these populations. Allowing for the uncertainties in the analysis results, the authors suggest that **although LFTs are an important tool in controlling the pandemic, their ability to fully identify the vast majority who are infectious is likely overstated by some sources**. This is especially important where the potential consequences of a false negative result are clinically significant. An LFT negative result is not definite proof of non-infectiousness. As a result additional well designed empirical studies are warranted to inform evidence based policy.

#### Impaired detection of omicron by SARS-CoV-2 rapid antigen tests ([Study link](#))

- Another study evaluating the performance of nine rapid antigen tests (RATs) for SARS-CoV-2 commercially available in Germany. RT-qPCR was used as the 'benchmark' against which the RAT result was compared. All of the nine RATs evaluated in the study were found to have an overall specificity relative to RT-qPCR of 100% but the overall relative sensitivity varied between tests for both delta and omicron samples.
- When the analysis was stratified by viral load (Ct value <25, Ct value 25-30 and Ct value >30) this pattern remained. For individual tests relative sensitivities were highest at higher viral loads (Ct value <25). The study presents evidence of within test variation in relative sensitivity between different viral variants, with the majority showing a reduction with omicron samples relative to delta (however, it is difficult to assess if these differences are statistically significant). It is important to recognise that the viral antigens targeted by the test varies with tests and may explain, at least in part, some of the variation reported.
- **N.B.** The UKHSA, working with other partners including the DHSC and University of Oxford, implement a programme spanning the pre-approval evaluation, ongoing evaluation and real-world performance monitoring of lateral flow devices. A guidance document summarising the outcome of the evaluation of rapid diagnostic assays for specific SARS-CoV-2 antigens (lateral flow devices) was recently published [here](#).

## **Non-pharmaceutical interventions**

#### Genomic assessment of quarantine measures to prevent SARS-CoV-2 importation and transmission ([Study link](#))

- A study evaluating the effectiveness of quarantine for travellers on return to England in Summer 2020 supports previous findings that a 14-day quarantine period reduces, but does not completely eliminate, the onward transmission of imported cases, mainly

by dissuading travel to countries with a quarantine requirement. From 27 May 2020 to 13 September 2020, 85.9% of importations of SARS-COV-2 into England were from European countries with three countries, Greece, Croatia, and Spain, accounting for 51.2% of all imported cases. Quarantine was associated with lower rate of contacts across all age groups, although impact of quarantine was greatest in the 16-20 age-group. Fewer genomically-linked cases were observed for index cases who returned from countries with quarantine requirement compared to countries with no quarantine requirement; possibly due to fewer importation events as opposed to fewer onward contacts.

#### Restaurant-Based Measures to Control Community Transmission of COVID-19, Hong Kong ([Study link](#))

- Modelling in Hong Kong suggests public health and social measures (PHSMs) aimed at restaurants such as bar closures, capacity and opening hour restrictions and bans on live music performances and dancing were important for suppressing the third and fourth pandemic waves. However, the effect of a ban on restaurant dine-in service after 6:00 pm may be limited when capacity was already reduced. The authors suggest encouraging restaurants to extend dine-in hours, but with capacity restrictions to reduce crowding, could be a reasonable approach to reduce transmission. Like many studies of non-pharmaceutical interventions, the analysis is limited by the fact it is not possible to distinguish between the effects of others PHSMs that began simultaneously on the reproduction number.

### **Behavioural Insights and mental health**

#### Effect of Offering Care Management or Online Dialectical Behavior Therapy Skills Training vs Usual Care on Self-harm Among Adult Outpatients With Suicidal Ideation ([Study link](#))

- A randomised clinical trial in the US assessing whether low-intensity clinical interventions, delivered primarily online, prevent self-harm or suicidal behaviour among outpatients reporting frequent suicidal ideation has been published. The results found this did not significantly reduce the risk of self-harm, and offering brief online dialectical behaviour therapy (DBT) skills training actually increased the risk of self-harm among at-risk adults. The percentage with nonfatal or fatal self-harm over 18 months was 3.3% among those offered care management, 3.9% among those offered online DBT skills training, and 3.1% among those receiving usual care, respectively. These findings contrast with previous research supporting the effectiveness of such interventions, which could reflect differences in study populations, intervention content and delivery.

### **Inequalities**

#### Wales COVID-19 Evidence Centre (WCEC) Rapid Review: What innovations can address inequalities experienced by women and girls due to the COVID-19 pandemic across the different areas of life/domains? ([Study link](#))

- The COVID-19 pandemic has led to differential economic, health and social impacts, illuminating prevailing gender inequalities. This rapid review investigated evidence for effectiveness of interventions to address gender inequalities across the domains of work, health, living standards, personal security, participation, and education.

- The below evidence can be used to map against existing policies to identify which are supported by the evidence, which are not in current policy and could be implemented, and where further research/evaluation is needed. It is important to note that overall confidence in strength of evidence is 'low' due to study designs.
- Some evidence supported interventions/innovations related to work:
  - Permanent contracts, full-time hours, and national childcare programmes to increase income for women and thereby decrease the existing gender wage gap.
  - More frequent use of online platforms in the presentation of professional work can reduce gender disparities due to time saved in travel away from home.
- Some evidence supported interventions/innovations related to health:
  - Leadership in digital health companies could benefit from women developing gender-friendly technology that meets the health needs of women.
  - Create authentic partnerships with black women and female-led organisations to reduce maternal morbidity and mortality (Bray & McLemore, 2021).
- Some evidence supported interventions/innovations related to living standards:
  - Multi-dimensional care provided to women and their children experiencing homelessness.
- Limited evidence supported interventions/innovations related to personal security:
  - Specific training of social workers, psychologists and therapists to empower women to use coping strategies and utilise services to gain protection from abusive partners.
  - Helplines, virtual safe spaces smart phone applications and online counselling to address issues of violence and abuse for women and girls.
- Very limited evidence supported interventions/innovations related to participation:
  - Use of online platforms to reduce gender disparities in the presentation of academic/professional work.
  - Ensuring equal representation, including women and marginalised persons, in pandemic response and recovery planning and decision-making.
- Limited evidence from the grey literature described interventions/innovations related to education:
  - Teacher training curricula development to empower teachers to understand and challenge gender stereotypes in learning environments.
  - Education for girls to enable participation in STEM.