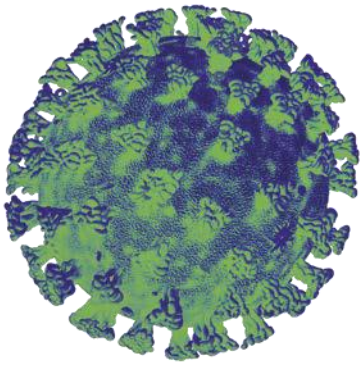
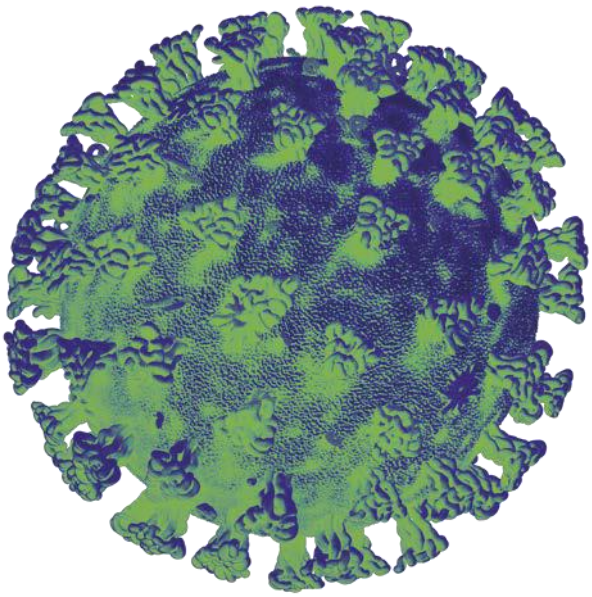
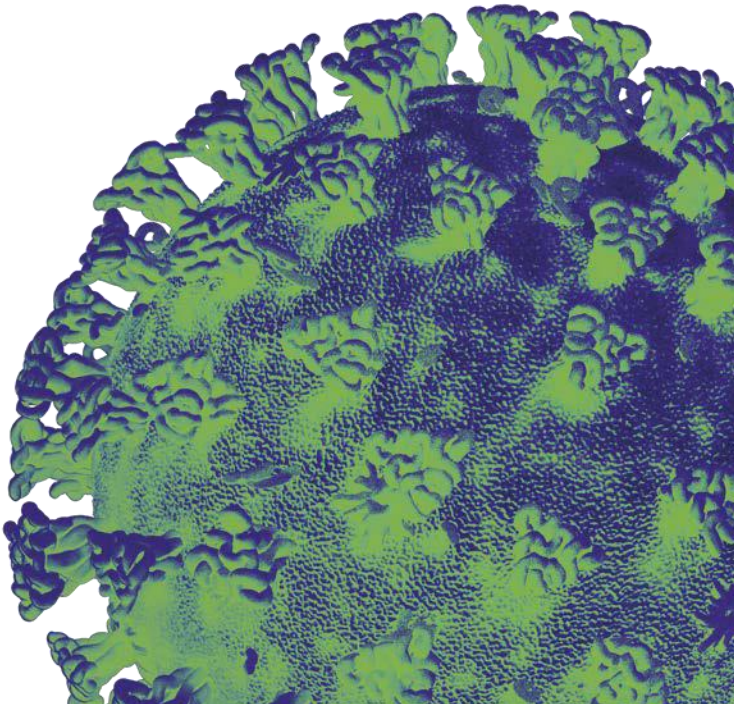
Llywodraeth Cymru
Welsh Government

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

27 April 2022







This advice has been drafted based on the available evidence at the time of writing and has been assembled to support policy colleagues and Welsh ministers. The purpose of scientific advice is to provide an overview of what we know from scientific and technical investigations, what we can infer indirectly from the evidence base or by a consensus of expert opinion. This is advice, not Welsh Government policy.

Top Line Summary

- The ONS community infection survey estimates that, following an earlier increase to record levels, in week ending 23 April the proportion of people testing positive for COVID-19 decreased in Wales to around 1 in 18 people have COVID. Positivity rates have decreased in all age groups except for those aged around 70 or older, for whom the trend is uncertain.
- As at 25 April 2022, the number of COVID-19 related patients in hospital beds (confirmed, suspected and recovering) has decreased since the previous week to 1,357. Of these, 667 are confirmed COVID-19 patients; 181 (21%) lower than the same day last week. The number of occupied critical care beds is 167, of which 22 are COVID-19 related patients in critical care, 8 lower than the same day last week.
- As at 26 April, 483 general and acute beds in hospitals were occupied with patients with confirmed COVID-19 and 70 (14.5%) of these patients were actively treated for COVID-19. 23 critical care beds in acute hospitals were occupied with patients with confirmed COVID-19 and 14 (60.9%) of these patients were actively treated for COVID-19. *(Note patients from community hospitals, field hospitals and mental health units, and patients in in Velindre NHS Trust are not included.)*
- Infection to hospital admission ratios suggest that the number of infections translating into admissions continues to decrease, although the most recent data suggests this has may have begun to stabilise. Infection to fatality ratios also decreased following the rise of Omicron and appear to currently be decreasing. This is likely attributable to a combination of natural immunity from infection, boosters and reduced intrinsic severity of the Omicron variant.
- As at 22 April 2022, the number of weekly COVID-19 deaths reported by PHW has reduced by 12.7% to 41 compared to 47 the previous week and remains well below levels observed in previous waves. Lagged ONS death reporting for the week ending 15 April suggests the weekly number of deaths in Wales is 13.5% below the five-year average (90 less deaths).
- As at 20 April out of a total 1,033 adult care homes in Wales 125 have notified Care Inspectorate Wales (CIW) of one or more confirmed cases of COVID-19, in staff or residents, in the last 7 days, with 291 notified in the last 20 days. This is a decrease since the previous week (150 and 319 respectively).
- PHW's influenza and acute respiratory infection surveillance reports that confirmed influenza case numbers have increased and indicate the start of late seasonal activity, at low levels.
- The World Health Organisation epidemiological summary dated 27 April reports that globally, the number of new COVID-19 cases and deaths has continued to

decline since the end of March 2022. However, a nine-week high in the positivity rates of Covid-19 tests in South Africa and the increasing incidence of virus fragments in wastewater indicate that there may be a fifth wave beginning in the country. This appears driven by two new omicron sub-variants, BA.4 and BA.5 which are outcompeting BA.2. Understanding the relative growth rates and clinical significance of BA.4 and BA.5 will require more time. To date only a small number of cases of these variants have been detected in the UK.

- The most recent MTPs from Swansea University, dated 26 April, project a decline in NHS pressure and deaths over the next several weeks. Occupancy is projected to plateau at current levels and start declining in May 2022. COVID-19 ICU admissions and occupancy ranges have narrowed compared to last week but are projected to increase slightly for the next few days before declining in May 2022.
- Overall, these projections suggest that we are at the peak and anticipate a decline in NHS pressures; in reality we may see a longer tail of continued high prevalence than these scenarios predict, as we saw with the Delta wave. Combined modelling by the UKHSA Epidemiological Modelling Review Group (EMRG) suggests that Wales have passed the peak hospitalisations and should expect continued decrease in the coming days/weeks into May 2022.
- As set out in previous advice, maintaining adherence to key personal protective behaviours will require a continued focus on communicating their effectiveness in reducing infection. When encouraging continued adherence to personal protective measures, the potential for unintended consequences and increasing inequality should remain an important consideration.

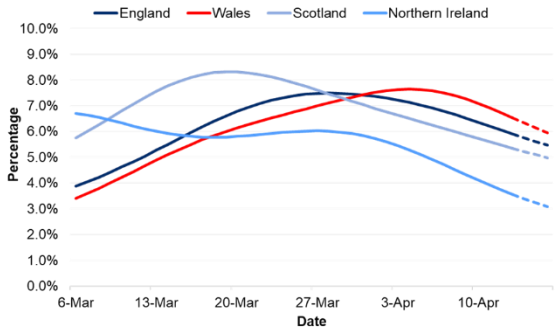
1. Wales situation

- The latest COVID-19 Situational Report dated 07 April 2022, containing the most recent data on epidemiological surveillance, NHS status, , education and children, international travel, mobility, vaccination and population immunity and forward projections for Wales is attached with this advice.

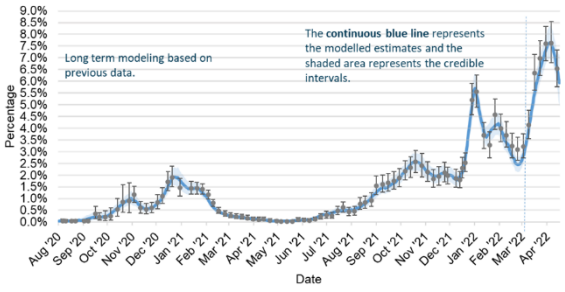
Case and infection surveillance

- **Due to the impact of changes to testing policy and behaviours PHW case data[1] is not included in this summary, as it is no longer considered sufficiently reliable to provide useful insight into pandemic trends for policy and decision makers.**
- PHW are also not currently providing calculations of the reproduction number and doubling time for COVID-19 cases, as estimation of these values is not currently valid due to the quickly decreasing level of community testing following changes in testing policy. UKHSA estimates the reproduction number in Wales to be between 0.7 and 1.0, with a halving time of 11 days to flat (more than 40 days).
- Recent estimates from the ONS COVID-19 Infection Survey, which provides a relatively unbiased but lagged estimate of levels of infection, suggests in the week ending 23 April 2022, the percentage of people testing positive for COVID-19 in the community decreased in Wales, following an earlier increase to the highest levels seen from the COVID-19 Infection Survey to date.
- It is estimated that an average of 172,300 people in Wales had COVID-19 (95% credible interval: 151,300 to 194,700) during this time, equating to around 1 in 18 people.
- At a UK level, this compares to around 1 in 25 people in England, around 1 in 25 in Northern Ireland and around 1 in 25 people in Scotland. The percentage of people testing positive for COVID-19 has decreased in the latest week in England, Wales and Scotland. In Northern Ireland, the percentage of people testing positive for COVID-19 decreased over the most recent two weeks, but the trend was uncertain in the most recent week.

CIS: Positivity rates (%) across UK nations

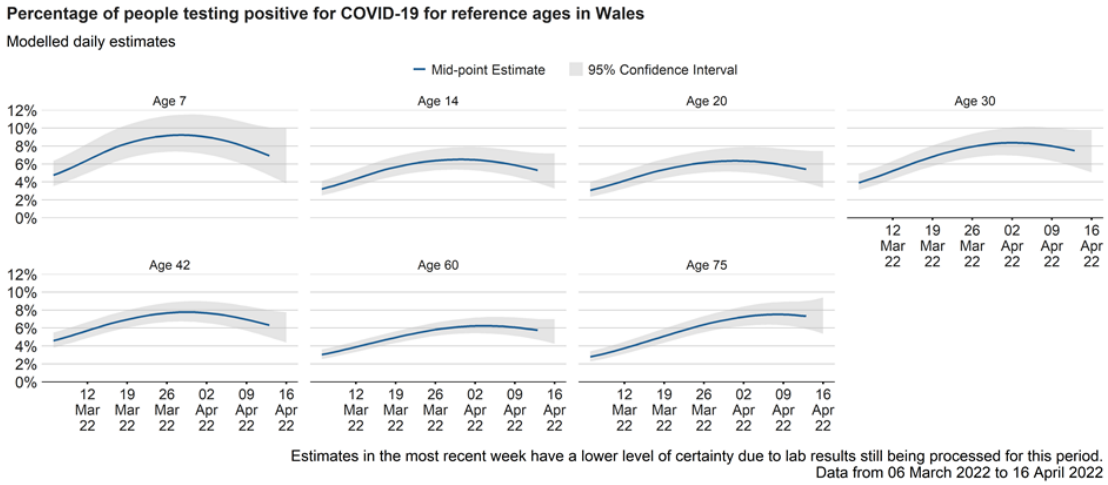


CIS: Wales long term trends, estimated % testing positive



[1] (Defined as samples received from community setting for PCR testing)

- ONS estimates of positivity over time split by age group (see chart below) suggests in the week ending 23 April positivity rates have decreased in all age groups except for those aged around 70 or older, for whom the trend is uncertain. Note that credible intervals are wide due to high uncertainty caused by the smaller number of people included in this analysis, so caution should be taken in over-interpreting any small movements in the latest trend.



- **Due to a technical issue, a national comparison of wastewater surveillance data is not currently available for this review.** At a site and regional level, the levels of SARS-CoV-2 in wastewater appear to have declined in the last four weeks compared to a peak that was observed during March 2022. While a solution has been identified, officials have paused analysis of wastewater samples in the interim to ensure statistical analysis is reliable and representative.

Vaccination and immunity

- Following a JCVI statement[2] advising a Spring Booster programme for the most vulnerable populations this has begun in Wales. As at 26 April 35% of those aged 75 or old (n= ≈299k), 60% of care home residents (n= ≈14k) and % of immunosuppressed individuals (n= ≈52k) have received their spring booster and been recorded in the Welsh Immunisation System.
- A summary of first, second and booster coverage is below, source: Rapid COVID-19 virology - Public | Tableau Public

[2] JCVI advises a spring COVID-19 vaccine dose for the most vulnerable - GOV.UK (www.gov.uk)

Group	Group size (n)	Received 1st dose (n)	Completed primary course* (n)	Received booster dose** (n)	First dose uptake (%)	Primary course uptake* (%)	Booster dose uptake** (%)
Severely Immunosuppressed	52,054	51,554	48,505	39,134	99.0%	93.2%	75.2%
Care home residents	13,902	13,697	13,584	13,060	98.5%	97.7%	93.9%
Care home worker	38,429	36,490	35,848	29,709	95.0%	93.3%	77.3%
80 years and older	178,393	171,928	170,926	165,020	96.4%	95.8%	92.5%
Health care worker	143,139	139,615	138,141	123,538	97.5%	96.5%	86.3%
Social care worker		45,686	45,319	40,052			
Aged 75-79 years	144,267	140,025	139,358	135,155	97.1%	96.6%	93.7%
Clinically extremely vulnerable aged 16-	76,111	72,721	71,808	61,047	95.5%	94.3%	80.2%
Aged 70-74 years	178,005	171,488	170,494	164,217	96.3%	95.8%	92.3%
Aged 65-69 years	183,078	174,049	172,642	164,898	95.1%	94.3%	90.1%
Clinical risk groups aged 5-64 years	365,479	326,409	315,706	271,059	89.3%	86.4%	74.2%
Aged 60-64 years	211,955	198,243	196,009	184,252	93.5%	92.5%	86.9%
Aged 55-59 years	235,674	216,455	213,586	196,406	91.8%	90.6%	83.3%
Aged 50-54 years	227,314	204,552	201,074	179,692	90.0%	88.5%	79.1%
Aged 40-49 years	393,405	335,233	325,888	270,145	85.2%	82.8%	68.7%
Aged 30-39 years	435,508	347,941	330,947	238,608	79.9%	76.0%	54.8%
Aged 18-29 years	488,937	394,425	363,799	232,624	80.7%	74.4%	47.6%
Aged 16-17 years	70,768	54,183	44,024	17,200	76.6%	62.2%	24.3%
Aged 12-15 years	148,568	89,858	63,404		60.5%	42.7%	
Aged 5-11 years	252,021	17,573			7.0%		

NHS capacity and mortality

- *Following updated NHS Wales COVID-19 testing guidance all patients will continue to be tested for COVID-19 on admission, however, there is a change for patients who remain asymptomatic during their hospital stay, whereby there is no longer a requirement to continue testing these individuals. This will mean that a number of incidental / nosocomial cases will no longer be captured and this will have an impact on the figures reported below.*

- Overall NHS delivery officials report non-COVID-19 urgent & emergency pressures continue to result in high levels of hospital bed occupancy and escalation across hospital sites, although the number of COVID-19 confirmed patients has decreased in the most recent week. There remains the potential for significant harm in the community (and hospitals) for people with non-COVID-19 illnesses or injuries, which exceed the direct harm from COVID-19.

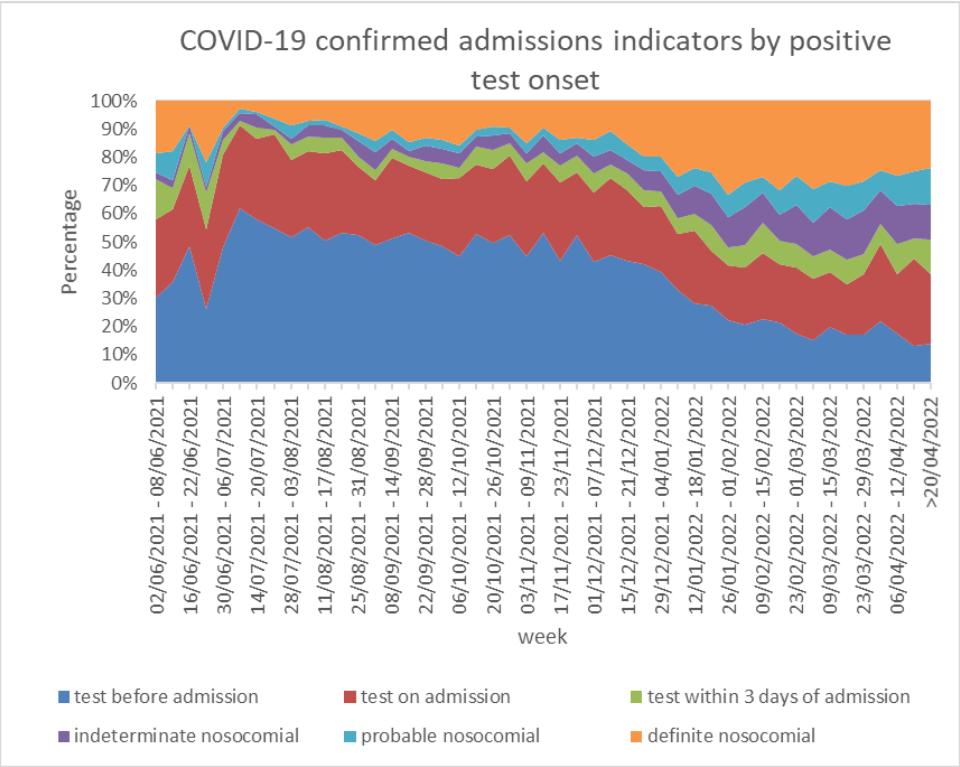
- As at 25 April 2022, the number of COVID-19 related patients in hospital beds (confirmed, suspected and recovering) is 1,357; (9%) lower than the same day last week. Of these, 667 are confirmed COVID-19 patients; 181 (21%) lower than the same day last week.

- The total number of occupied beds in a critical care environment is 167; 1 higher than the same day last week and 15 higher than the pre-COVID-19 baseline of 152 critical care beds. Of these, 22 are COVID-19 related patients in critical care, 8 lower than the same day last week.

- Critical care data for Wales from ICNARC's most recent report[3], covering the period 1 May 2021 to 8 April 2022, suggests the mortality rate of a critical care COVID patient is around 32.3% (n=238), excluding those who died later in a general and acute ward (4.1%, n=20). Length of stay for those admitted to critical care has approximately halved to a mean of 2.1 for the period 1 May 2021 and 8 April 2022 (n=246), compared to September 2020 to 30 April 2021 (n=453). Just under a third are aged under 50 with largest groups being 50-59 and 60-69 year old males (16.6 and 16.3%). 83% were in critical care to be primarily treated for COVID, a slight reduction from 92% during the period September 2020 to April 2021.

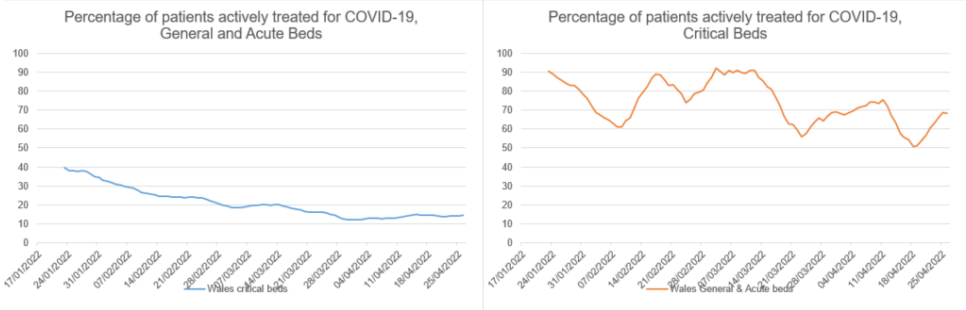
[3] I ICNARC COVID-19 Report Wales 8 April

- The number of hospital-acquired infections appears stable at a high level after increasing in 2022, reflecting the difficulty of managing the BA.2 variant's increased transmissibility in a hospital setting. PHW report 44% of COVID-19 positive hospital admissions (234 out of 529) as probable or definite hospital onset (positive test 8-14 days and >14 days after admission) for the 7 day period ending 17 April 2022 (see below chart). This may result in increased length of stay times for some patients.

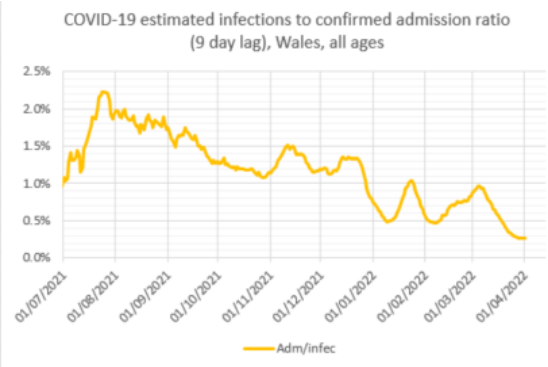


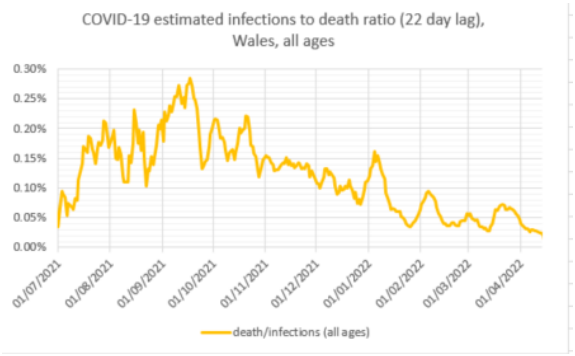
Data source: PHW ICNet data

- As at 26 April, 483 general and acute beds in hospitals were occupied with patients with confirmed COVID-19 and 70 (14.5%) of these patients were actively treated for COVID-19. 23 critical care beds in acute hospitals were occupied with patients with confirmed COVID-19 and 14 (60.9%) of these patients were actively treated for COVID-19. *Note there is no standard definition for 'actively being treated for COVID-19' and there are some differences across Health Boards and settings in the methods used to make the decision, although these figures are considered suitable for providing a high level estimate. Patients from community hospitals, field hospitals and mental health units, and patients in in Velindre NHS Trust are not included.*



- Infection to hospital admission ratios (left chart below) suggest that the number of infections translating into admissions continues to decrease, although the most recent data suggests this has may have begun to stabilise. Infection to fatality ratios (right chart below) also decreased following the rise of Omicron and appear to currently be decreasing. This is likely attributable to a combination of natural immunity from infection, boosters and reduced intrinsic severity of the Omicron variant.





- As at 22 April 2022, the number of weekly COVID-19 deaths reported by PHW has reduced by 12.7% to 41 compared to 47 the previous week. *Note that PHW death reporting only includes deaths of a hospitalised patient in Welsh hospitals or care home residents where COVID-19 has been confirmed with a laboratory test and a clinician suspects this was a causative factor in death. As a result the true figure may be higher.*

- Lagged ONS death reporting for the week ending 15 April suggests there were 51 deaths involving COVID-19 (8.8% of all deaths). The total number of deaths in Wales is 13.5% below the five-year average (90 less deaths).

- Latest figures show NHS staff sickness related to COVID-19 in Wales has decreased slightly in the last week. As at 19 April 2022 NHS staff absence due to COVID-19 has decreased since the beginning of April to 1.7%, comparable to levels in December 2020 and January 2021. The number of staff self-isolating has also decreased and is at 0.6%. Overall NHS staff absence from isolation or any sickness has decreased throughout April 2022 to 6.6%, comparable to levels reported in September and October 2020 (which ranged between 6.4% and 6.8%).

- As at 20 April out of a total 1,033 adult care homes in Wales 125 have notified Care Inspectorate Wales (CIW) of one or more confirmed cases of COVID-19, in staff or residents, in the last 7 days, with 291 notified in the last 20 days. This is a decrease since the previous week (150 and 319 respectively). CIW have been notified of 15,959 deaths of residents in adult care homes since 1 March 2020, of which 2,178 were COVID-19 related. This makes up 13.7% of all adult care home resident reported deaths during this period. In the last two weeks, there have been 18 reported deaths of care home residents relating to COVID-19, a slight increase from 16 in the preceding two weeks

- The Omicron variant continues to be the predominant variant in Wales, accounting for the majority of newly confirmed and sequenced cases, locally and imported. 56,196 cases of the Omicron VOC-21NOV-01 have been

confirmed in Wales as at 5pm 19th April. The BA.2 Omicron variant now accounts for over 75% of recent cases and is dominant.

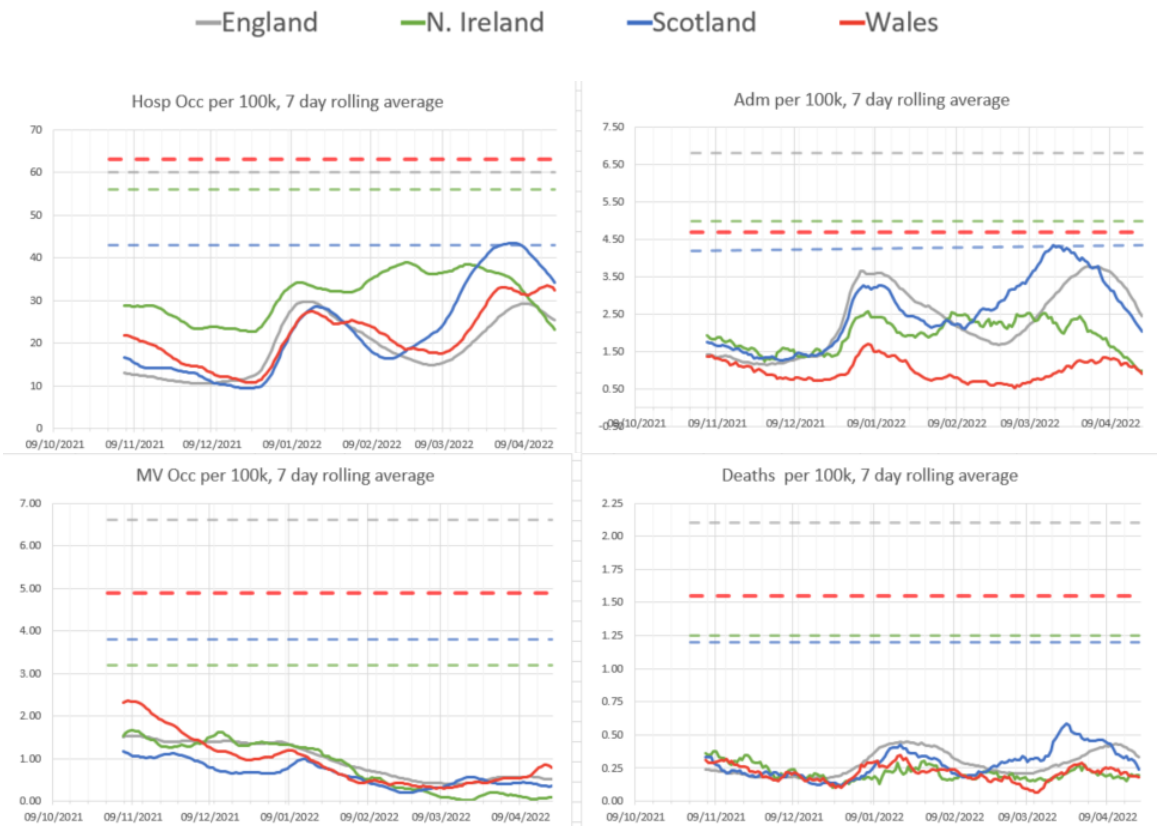
- PHW's influenza and acute respiratory infection surveillance reports that confirmed influenza case numbers have continued to increase in recent weeks and now include a small number of community cases confirmed in sentinel GPs. These increases indicate the start of late seasonal activity, at low levels. Data reported for the most recent period may be affected by the Easter bank holidays, and trends should be interpreted with caution. Rhinovirus and parainfluenza are the most commonly detected cause of non-COVID-19 Acute Respiratory Infection (ARI), with increasing confirmed cases in recent weeks.

2. Situation in the UK and comparator regions

UK Overview – data as at 21 April

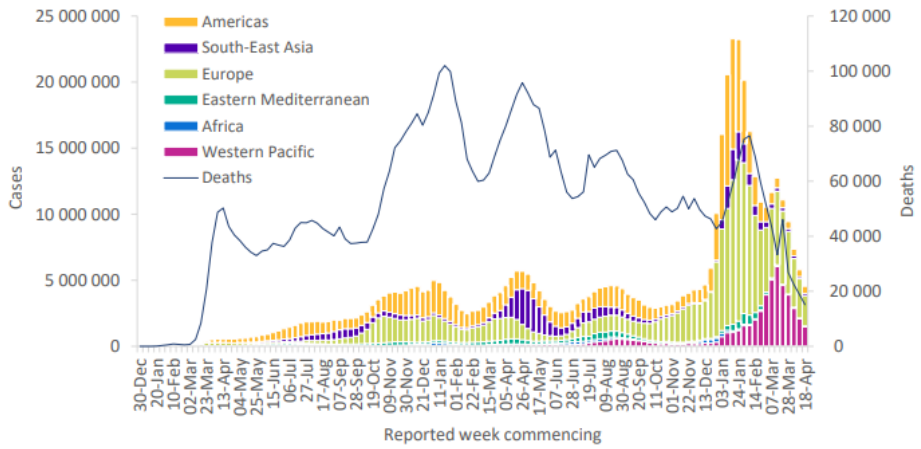
- Surveillance data for the four nations is summarised below. Peak levels (7 day rolling average) for each nation are indicated by the dotted lines. (Data source: UK Summary | Coronavirus (data.gov.uk). Case data is no longer included in this analysis due to the rapidly decreasing level of community testing reducing this data's reliability.
- **Note that this data is classified as management information rather than official statistics and there may be differences in methodology between the nations**. As a result caution should be taken when interpreting this data. Full documentation is available at Metrics documentation | Coronavirus in the UK (data.gov.uk).
- COVID-19 admissions data suggests the peak of this wave has been passed. COVID-19 admissions have been decreasing for a number of weeks in all four UK nations, although currently at a slower rate in Wales. Note that Wales COVID-19 admissions include suspected cases and do not include patients who tested positive while in hospital, so comparisons of admissions with the other UK nations should be interpreted with caution. COVID-19 admissions remain lower than previous waves for all nations apart from Scotland, although this also may be attributable to differences in definition compared to the other nations.
- COVID-19 Hospital occupancy is decreasing across Northern Ireland, Scotland and England while Wales appears to be fluctuating at a high level, although there are early signs of decreases in Wales. This may be related to delayed transfers of care for recovered or recoving COVID-19 patients. Hospital occupancy remains at a lower level compared to previous peaks for all nations apart from Scotland, possibly due to definition differences.
- COVID-19 ICU/ Mechanically ventilated bed occupancy remains much lower in all 4 nations relative to previous waves, although this increased in Wales over the last two weeks before falling in the most recent data points.
- Following an increase February/March the number of COVID-19 deaths has decreased in Scotland, England and Wales, while Northern Ireland appears to

have stabilised at a relatively low level. Deaths across the four nations remain much lower than previous waves.



International overview

The World Health Organisation epidemiological summary dated 27 April reports that globally, the number of new COVID-19 cases and deaths has continued to decline since the end of March 2022 (see below chart). During the week of 18 through 24 April 2022, over 4.5 million cases and over 15 000 deaths were reported, decreases of 21% and 20% respectively, as compared to the previous week. However, an increase in the number of new weekly cases was reported from the Regions of the Americas (+9%) and the African Region (+32%), and the number of new weekly deaths increased in the South-East Asia Region (+41%), due to a delay in reporting of deaths from India, and in the Africa Region (+110%).



International Insights for specific countries:

China

- China has started mass testing in the capital Beijing after initiating some restrictions last week. In the biggest district of Chaoyang authorities in Beijing have ordered more than a dozen residential buildings to lockdown and 3.5 million residents and workers to report for three coronavirus tests this week, after the area recorded 26 of Beijing's 47 symptomatic cases since Friday.
- Shanghai remains the epicentre of the current Omicron wave in China which is maintaining its zero covid policy. It is in the 4th week of a city-wide lockdown. Some areas that have had no new cases in 2 weeks are having some restrictions lifted but residents must remain in those zones.
- China has changed the way it reports covid deaths now as their CFR differed so much from Hong Kong, but there are widespread reports of uncounted fatalities in hospitals and nursing homes. The latest outbreak in Shanghai, first detected in late March, has seen more than 400,000 cases recorded so far and 138 deaths.

South Africa

- A nine-week high in the positivity rates of Covid-19 tests in South Africa and the increasing incidence of virus fragments in wastewater indicate that there may be a fifth wave beginning in the country. Wastewater testing continues and this indicator suggests an increase in cases being missed by conventional case rates due to testing changes.
- Two new omicron sub-variants have now been detected in South Africa- BA.4 and BA.5. These variants are discussed further below. Understanding the relative growth rates and clinical significance of BA.4 and BA.5 will require more time but currently both are out competing BA.2.

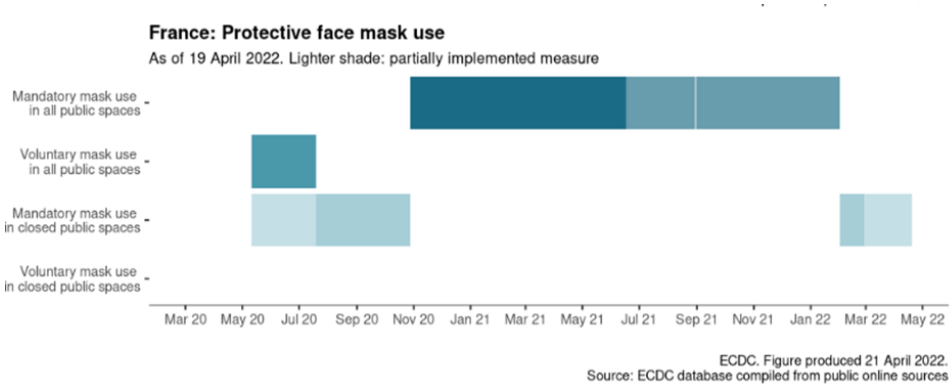
United States

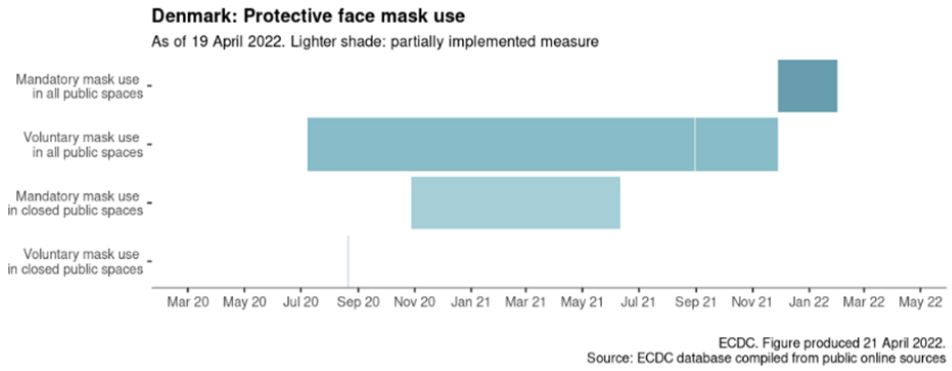
- The large majority of cases in the U.S. are still caused by BA.2, which has been the country's dominant variant since March. However, two new BA.2 sub variants have recently been noted by the CDC; BA.2.12 is said to be made up of North American and European lineages, while BA.2.12.2 is said to derive its lineage from the USA and Canada.
- These two variants are relatively new but appear to have a growth advantage over earlier the BA.2. Within the US it is NE (New York, New Jersey and Connecticut) showing the largest numbers indicating links to Canada. Within the NE area BA.2.12.2 already accounts for the majority of new cases (52%). Data for April indicate that levels in Central New York are now above 90%.
- Growth advantage over BA.2 is estimated to be 23%–27% so can be expected to outcompete earlier variants in the US. To date there is no evidence to suggest that BA.2.12.1 causes more severe disease.

International summary - Mask wearing policies

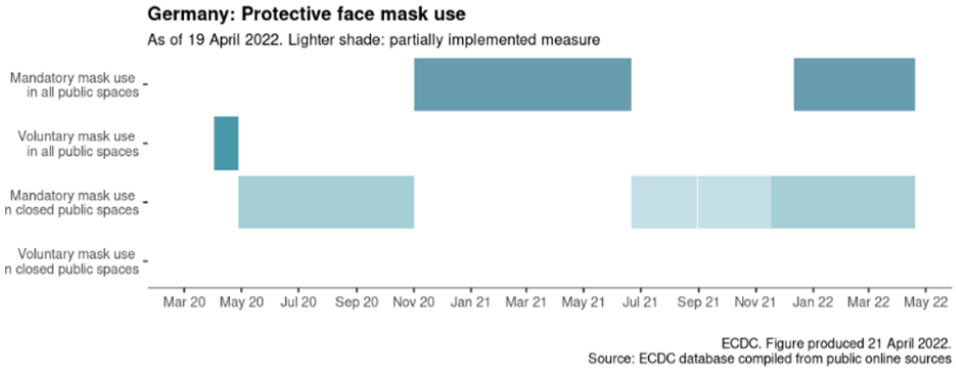
Note: The below is not a complete summary- for many countries exact policy mask wearing rules in different settings such as healthcare were challenging to locate in a timely manner. In addition, the international picture of non-pharmaceutical interventions is a rapidly moving situation as countries move to 'the new normal'.

Few domestic restrictions remain in place across European comparators; mask mandates are the most common. The European Centre for Disease Control (ECDC) collects data from across the EU on NPIs and details mask wearing policies (in the figures below a lighter shade indicates a partially implemented rule.





Germany



- Since 2 April, few restrictions remain in place at the federal level in Germany; masks are only required in healthcare settings and on public transport.

Italy

- In Italy, although mask wearing is still mandatory in public spaces it is now only partially implemented. Policies are relaxing for the general public but health care settings still require their usage. Italy's state of emergency expired on 31 March. From 1 April the Green Pass is no longer required on public transport or in outdoor hospitality; indoor face mask requirements and other Green Pass rules will remain in place until 30 April.

Netherlands

- From 23 March, both certification and face mask requirements have been relaxed. After being lifted for nightclubs and events, the Covid pass is no longer in use in any setting. Face masks are only required in airports; they continue to be recommended on public transport, for symptomatic individuals and in crowded spaces. Working from home is no longer a requirement.

Austria

- On 24 March, Austria reintroduced a FFP2 mask requirement for all public indoor areas including public transport, shops and hospitality settings. Certification can replace this requirement in some settings. Unlimited free tests ended from 1 April; residents can now a limited number of tests per month. Austria dropped its vaccine mandate but currently has the highest rating of the Oxford COVID-19 Government response stringency index[1] at 58 (Wales is currently at 31).

Examples of other regions outside Europe are listed below:

China

- Outside of the lockdown cities e.g. Shanghai and Beijing the virus appears under control. Mask mandates and restrictions had started to relax in recent months but as Omicron spreads further this is likely to change. Mass restrictions have been loosened in these areas, especially with outdoor events, although masks are still required at public gatherings or where social distancing or ventilation is limited. Masks are still required in the regions that are experiencing outbreaks or in hospitals.

Japan

- Although there is no legal mask mandate, there are strong recommendations to wear a mask in public. Vaccinations have been slower than many other comparators, although, adherence to government's recommendations is high and many private businesses require masks for customers.

South Korea

- Throughout the entire pandemic, South Korea has mandated mask-wearing at all times. There are a few exceptions to wearing a mask, such as when eating

or drinking, and most of the time, masks are not required when outdoors as long as social distancing is possible.

US

- Mask wearing has been highly divisive, with the CDC mandate around face coverings recently overruled in court. The CDC currently recommends different mask-wearing guidelines for different communities across the country, based on the agency's calculations of transmission and risk levels. In medium-risk areas, it is recommended immunocompromised people wear masks indoors. In high-risk areas, the agency recommends everyone should "wear a well-fitting mask indoors in public, regardless of vaccination status or individual risk

Israel

- In Israel, where case numbers from omicron are still low and vaccination is high, mask wearing indoors has recently been halted (20th April). Masks will still be required of people in high infection-risk venues like flights, hospitals and care homes. Israelis have not been required to wear masks outdoors since April 2021. Last June, the indoor mask mandate was dropped for two weeks, and restored due to a surge in the Delta variant.

[1] COVID-19 Government Response Tracker | Blavatnik School of Government (ox.ac.uk)

2. Omicron variant update

- As discussed previously[4] when two related viruses infect the same cell (i.e. during a coinfection) the viral replication machinery can accidentally result in a mixed genome - this is viral recombination. This has occurred throughout the pandemic and is a key mechanism in seasonal/other coronaviruses. However, it is only easy to detect when the two parental viruses are distantly related and to date recombinant SARS-CoV-2 lineages have not resulted in a dominant virus. Recombination is, by definition, dependent upon co-infection of the host with different lineages, and this in turn requires that multiple variants are circulating in the population at the same time.

XD variant (V-22APR-01):

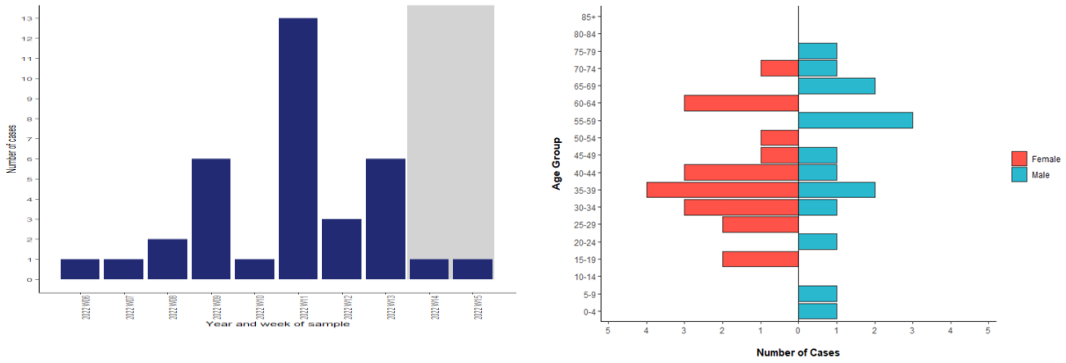
- XD, which has Omicron elements incorporated into a Delta genome, is present primarily in France but **has not been detected in either Wales or the other UK nations**. Studies with mice[5] suggest infection with XD follows a more severe disease progression than Omicron, similar to BA.2. However, the

[4] advice-technical-advisory-cell-and-chief-scientific-advisor-health-21-day-review-21-march-2022.pdf (gov.wales)
[5] Rapid characterization of a Delta-Omicron SARS-CoV-2 recombinant detected in Europe | Research Square

total number of samples relative to BA.2 remains small and this variant appears unable to compete with BA.2's greater transmissibility.

XE variant (V-22APR-02):

- **To date there have been 35 cases of V-22APR-02 (XE) identified in Wales.** The highest number of XE cases is in Aneurin Bevan (10), Hywel Dda (8) and Swansea Bay (7) and the median age is 41 years (range 1 -76 years). **Sample dates range from 09/02/2022 to 11/04/2022.** The earliest case of XE was a 51 year old female from Vale of Glamorgan.



- UKHSA's most recent variant technical briefing dated 8 April[6] suggests the sub-variant XE, a hybrid of BA1 and BA.2, has shown evidence of community transmission in England. It is currently outgrowing BA.2 by +12.6% per week between 15 January and 30 March, although a smaller timeframe suggests a growth rate of +20.9% in the recent 3 weeks ending 8 April.
- It is unclear what functional difference this may make to the variant's clinical significance, although it is currently less than 1% of total sequenced cases in England. As at 5 April at least 1,125 cases have been identified in England, with the majority of cases in n East of England, London and the South East.
- This is resulting in a slow increase in growth of XE relative to BA.2, with a doubling time of 49.5 days (95% confidence interval 39.4 to 66.4 days) according to sequence data from COG-UK[7]. Note that these growth estimates assume that sequenced cases are representative of total infections, which may not necessarily be the case.

Other recombinant variants- BA.4 and BA.5:

- Although it is too early to fully understand the impact of BA.4 and BA.5 variants on Omicron's epidemiology and work is ongoing South African Public Health leads reported on April 11[8] that neither BA.4 or BA.5 have resulted in a spike in cases, admissions or deaths in South Africa to date. A summary of our current understanding of both variants and their geographic distribution is below.

[6] SARS-CoV-2 variants of concern and variants under investigation (publishing.service.gov.uk)
[7] UK variant comparison - Covid-19 (sonorouschocolate.com)
[8] Tulio de Oliveira on Twitter

- In South Africa BA.4 and BA.5 are now making up 50% of the cases. The growth advantage these two variants has yet to be calculated but and provisional R number of 12 has been listed for BA.2 so we can expect a slightly higher relative growth advantage for BA.4 and BA.5. TAC will continue to to monitor South African reports to observe any potential change in the characteristics of these variants compared to BA.2.

V-22APR-03 (Omicron BA.4), 8 April

- Omicron sub-lineage BA.4 was classified V-22APR-03 by the VTG on 6 April 2022 on the basis of potentially biologically significant mutations in spike. It shares many of the mutations/deletions with the BA.2 lineage with some exceptions, one of which is associated with S gene target failure (SGTF) which distinguishes it from BA.2 for surveillance purposes.
- Sequence samples have been identified between 10 January 2022 and 30 March 2022 from South Africa (45), Denmark (3), Botswana (2), Scotland (1), and England (1).

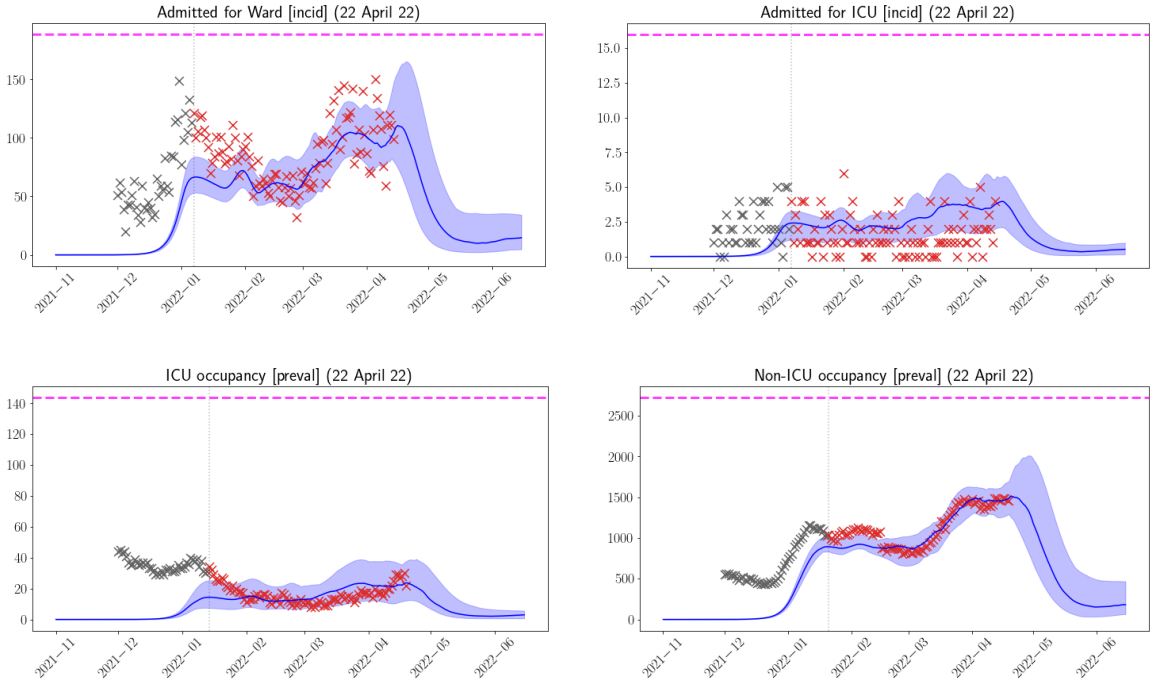
V-22APR-04 (Omicron BA.5), 8 April

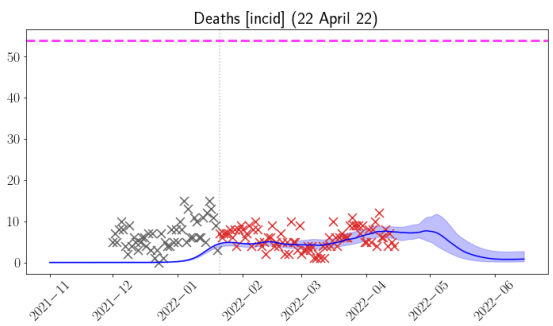
- Omicron sub-lineage BA.5 was classified by the VTG on 6 April 2022. BA.5 shares many of the same changes from BA.2 as BA.4, with some exceptions. All sequence samples currently available are from South Africa (27) between 25 February 2022 and 25 March 2022.

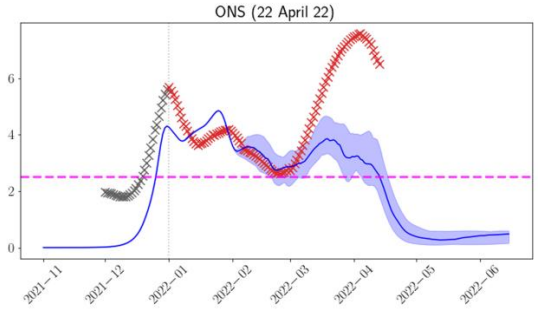
3. Swansea University COVID-19 Medium Term Projections

- Medium term projections (MTPs) are produced regularly for TAC by Swansea University. The Swansea University (SU) projections are combined with other models provided by different academic groups to go into a consensus MTP for admissions and deaths which is agreed every two weeks by the UKHSA Epidemiological Modelling Review Group (EMRG), which has recently taken over from SPI –M-O in agreeing these MTPs. The MTPs are based on projecting forward from current data and do not explicitly factor in policy changes, changes in testing, changes in behaviour, or rapid changes in vaccinations. The pink dotted line in the charts below represent previous peaks.
- The most recent MTPs from Swansea University, dated 26 April, show a similar projection to last week's MTPs. They project a decline in NHS pressure and deaths over the next several weeks.
- Infections estimated by the ONS Coronavirus Infection Survey are showing signs of decreasing, which aligns with MTPs although the MTP model continues to underestimate infections, possibly due to high rates of reinfection combined with a continued decline in infection-clinical-rates. The model is also jointly fitted to all the data and the decrease in hospitalisations leads to an overall decrease in the projected prevalence.

- Projected daily new COVID-19 hospital cases (admissions) shows a slight increase in the next few days to a peak, followed by a decline throughout May 2022.
- Modelled COVID-19 hospital occupancy (excluding ICU) is similar to last week's MTPs projection and reflects the recent increase in the underlying data. Occupancy is projected to plateau at current levels and start declining in May 2022.
- COVID-19 ICU admissions and COVID-19 ICU bed occupancy ranges have narrowed compared to last week, but are projected to increase slightly for the next few days before declining in May 2022.
- Hospital testing policy changed on 14 April 2022. This will affect the relationship between the models and the data in the next few weeks – the models are based on 'everything else being equal' – in reality fewer people are tested before, or after arriving at hospital than before.
- These projections suggest that we are at the peak and anticipate a decline in NHS pressures; in reality we may see a longer tail of continued high prevalence than these scenarios predict, as we saw with the Delta wave.
- Modelled COVID-19 hospital occupancy includes recent long length of stay estimates, and if challenging levels are reached the peak could be reduced by shorter length of stay, as seen at previous stages of the epidemic.

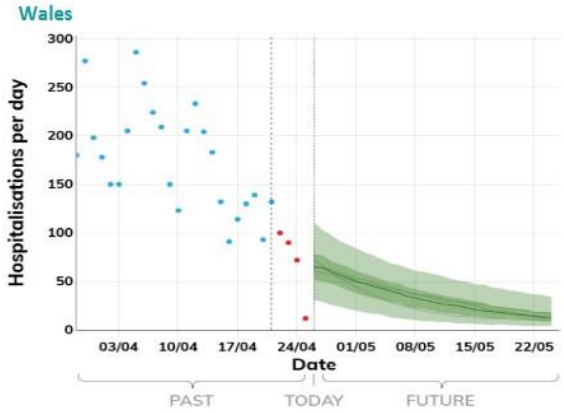




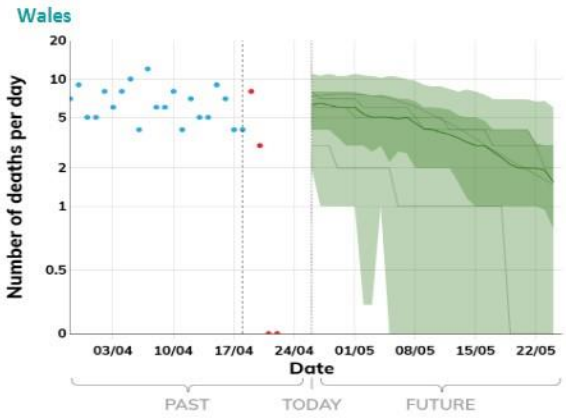


- Combined modelling by the by the UKHSA Epidemiological Modelling Review Group (EMRG) suggests that Wales have passed the peak hospitalisations and should expect continued decrease in the coming days/weeks into May 2022. The models for deaths are projected to decrease over the next four weeks. The confidence intervals are large due to the uncertainty as we look further into the future. However, the number of COVID-19 deaths are projected to remain low.

EMRG Combined projections - New hospital admissions



EMRG Combined projections - Total deaths by date of death



4. Adherence to protective measures/ Behavioural Response

- Despite most regulations having now been replaced by guidance, except for the requirement to wear a face mask in health and care settings, previous advice on the value of maintaining personal protective measures during a COVID Stable scenario remains relevant[1].

- Limited behavioural data have been published since the last 21 day review but sources available from, for example, Welsh Government, ONS and Public Health Wales up to the end of March 2022 continue to suggest a perceived threat from COVID-19 and (self-reported) adherence to a range of protective measures. As noted previously, the proportions reporting the continued use of face coverings has fallen in Wales[2] and elsewhere in the UK[3].

- In terms of the likelihood of such behaviours continuing now most legal requirements have been removed, a majority of people in Wales report being likely, for example, to report wearing a face mask on public transport (68%), wash their hands more frequently (76%), stay at home if unwell (70%), maintain a 2 metre distance when out and keep their home well ventilated

(69%)[4]. However, as noted elsewhere recently in relation to wearing face masks, caution should be observed given the difference between intentions and actions[5].

- As set out in previous advice, maintaining adherence to key personal protective behaviours will require a continued focus on communicating their effectiveness in reducing infection. This messaging should target individuals and organisations, recognising settings, and those working in them, can still influence behaviours. Health and care premises, for example, could provide face masks, retain signage on their role in preventing infection and encourage staff to promote their use, irrespective of whether this remains a legal requirement or takes the form of advice by Welsh Government and/or health boards. The same argument can be applied to other busy indoor settings, alongside interventions such as effective ventilation.
- When encouraging continued adherence to personal protective measures, the potential for unintended consequences and increasing inequality should remain an important consideration. Continuing the example of face mask use in health and care settings, recent research highlights, for example, the effects their use can have on communication and cognition for patients and clinicians, particularly impacting on those with hearing difficulties[4].
- The latest mobility date for Wales[5] indicates as of 23 April 2022, compared to the previous week public transport mobility decreased by 2.2 percentage points to -29.1% below the baseline. Residential (i.e. people spending time at home) increased marginally by 0.15 percentage points to +5.1%. Retail & recreation mobility decreased by 5.8 percentage points to +2.1%. Supermarkets & pharmacy decreased by 14.1 percentage points to +6.7%. Workplaces decreased by 2.3 percentage to -33.1%.
- Note the baseline for much of the mobility 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.