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Scottish Government Central Analysis Division

State of the Epidemic in Scotland – 18 March 2022

Background

This report summarises the current situation of the Covid-19 epidemic in Scotland. It brings together the different sources of evidence and data about the epidemic in Scotland at this point in time, why we are at that place, and what is likely to happen next. This updates the previous publication published on 11 March 2022[1]. The information in this document helps the Scottish Government, the health service and the wider public sector respond to the epidemic and put in place what is needed to keep us safe and treat people who have the virus.

This edition of the State of the Epidemic summarises current data on Covid-19 at a national and local level, and how Scotland currently compares to the rest of the UK. It looks at the vaccination program in Scotland and its impact. Information is provided about variants of concern and what impact these may have. Bringing this information together in one place gives the opportunity to better understand the current state of the epidemic in Scotland.

The State of the Epidemic report this week will summarise data up to and including 16 March 2022.

Notice on Potential Change to Publication Schedule

UKHSA is considering a change in the frequency that Covid-19 modelling estimates are published to every two weeks, from 1 April 2022. As a consequence, the Modelling the Epidemic publication would move to publishing every two weeks from 1 April 2022. To align with the Modelling the Epidemic report, the State of the Epidemic report would also move to publishing every two weeks.

Users are encouraged to provide comments and feedback on the reduction in frequency of the State of the Epidemic report. Please contact us at sgcentralanalysisdivision@gov.scot.

Notice on Technical Issues with Data

Please note that Public Health Scotland experienced technical issues from 12 to 14 March, meaning that no cases could be reported on these dates and were instead

[1] Scottish Government: Coronavirus (Covid-19): state of the epidemic - gov.scot (www.gov.scot)

added to case numbers by reporting date on 15 March. Cases by specimen date were updated retrospectively. A reoccurrence of the technical issue from earlier in the week means data reported on 16 March was incomplete as it had not been received since 6 PM on 15 March 2022. This affects cases by both specimen and reporting date, testing, and admissions to hospital and ICU.

Contents

Summary

The daily positivity estimate from the Covid-19 Infection Survey for Scotland continued to increase in the most recent week, reaching the highest level seen in Scotland since joining the survey in October 2020. By comparison, the weekly case rate (including reinfections) in Scotland has continued to increase sharply in the most recent week, and wastewater Covid-19 RNA levels have almost tripled in the last two weeks. According to both wastewater estimates and case rates, this trend is seen across most local authorities in Scotland, and over 9% of total new cases in Scotland were reinfections in the most recent week. Omicron BA.2 is the dominant variant in Scotland and its prevalence has been increasing.

The increase in case rates can be seen across all age groups in Scotland in the most recent week. Age groups 19 and younger, 40 to 49 and 60 to 69 saw an increase of 46% compared to case rates in the previous week. By comparison, Covid-19 Infection Survey estimates that Covid-19 positivity levels are rising in all age groups apart from children of a nursery or primary school age, where the trend is uncertain. Cases among care home residents continued to rise in the most recent week.

Covid-19 related daily hospital occupancy has continued to increase in the most recent week, and we are now also seeing an increase in ICU occupancy, driven by larger numbers of short stay ICU patients. Weekly hospital admissions continue to fluctuate but have increased in numbers over the last month, while weekly ICU admissions have increased in the last week. Those aged 60 or older continue to represent the majority of hospital admissions. The weekly number of Covid-19 deaths registered by NRS increased in the week to 13 March, mostly due to a high number of deaths among those older than 64.

Key Points

- The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 1 March is between 1.0 and 1.3. Both the lower and upper limit of the R value have increased since the last published figure.

- As at 1 March, the UKHSA's consensus view was that the incidence of new daily infections in Scotland was between 278 and 692 per 100,000 people.

- The latest growth rate for Scotland as at 1 March was between -1% and 3%. The upper growth limit has increased since the previous week, and the lower growth limit has remained unchanged.

- As determined through the latest weekly ONS Covid-19 Infection Survey, in Scotland, the percentage of people testing positive for Covid-19 continued to increase in the week 6 to 12 March 2022 to 7.15% (95% credible interval:

6.56% to 7.79%)[2], equating to around 1 in 14 people (95% credible interval: 1 in 15 to 1 in 13).

- Nationwide, wastewater Covid-19 levels have shown a rapid increase in the most recent week. The week ending 15 March saw levels of 206 million gene copies per person per day (Mgc/p/d), which is almost three times higher than two weeks prior (71 Mgc/p/d).

- The sublineage Omicron BA.2 is now the dominant variant in Scotland, and its incidence is increasing. The Covid Infection Survey estimated that 5.20% (95% credible interval: 4.67 % to 5.76%) of the private residential population would test positive with a Covid-19 infection compatible with BA.2 on 9 March. Of the new cases in Scotland that were notified on 11 March from UKGov laboratories, 84.2% were S gene positive, which is used as a reasonable proxy for tracking BA.2.

- By specimen date, the seven-day combined PCR and LFD case rate (including reinfections) continued to increase sharply in Scotland in the most recent week. There were 1,587 weekly combined PCR and LFD cases per 100,000 population in the week to 12 March, which is a 38% increase from 1,151 weekly cases per 100,000 on 5 March.

- The week leading up to 12 March continued to see sharply increasing case rates (including reinfections) in all age groups compared to the week to 5 March, ranging from a 38% increase among those aged 20 to 39 to a 46% increase among those aged 19 or younger, those aged 40 to 49, and those aged 60 to 69. Cases among those aged 60 or older have increased by 44% compared to the previous week.

- In the week to 13 March, there were 744 reported cases among care home residents, which is an increase of 24% from the previous week ending 6 March (598 cases). This is lower than previous peak of 833 weekly cases in the week to 9 January 2022, but higher than the peak of 641 weekly cases in the week to 10 January 2021.

- The proportion of reinfections among total weekly cases has increased in the most recent week to 12 March to 9.6% of cases, which is the highest level of reinfections seen in the pandemic.

- In the week to and including 16 March, Covid-19 hospital occupancy increased by 32% compared to the previous week ending 9 March, and is reaching levels close to the previous peak in January 2021. Combined ICU occupancy had increased by 41% on 16 March, to a total of 41 patients, compared to a week previously. This increase is driven by a rise in short stay ICU occupancy.

[2] A **credible interval** gives an indication of the uncertainty of an estimate from data analysis based on a sample population. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.

- Admissions to hospital have increased over the past month but continue to fluctuate on a weekly basis, with 977 admissions to hospital in the week to 12 March. After a period of fluctuating admission numbers, the weekly number of admissions to ICU has increased in the week to 15 March to 32 patients, compared to 23 patients in the week to 8 March.

- According to data from the PHS Education Dashboard, average hospital admissions related to Covid-19 in children and young adults have continued to increase by 19% in the three-week period to 9 March (138 average weekly admissions), compared to the previous three-week period to 2 March (116 average weekly admissions).

- The overall number of Covid-19 deaths has increased by 5%, or 6 deaths, to a total of 117 deaths in the week leading up to 13 March, compared to 111 in the week leading up to 6 March. This is due to a high number of deaths among those older than 64 in the most recent week.

- In the week leading up to 12 March 2022, Na h-Eileanan Siar had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,664 cases per 100,000 population. Dundee City had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 1,110 cases per 100,000.

Method

This report brings together a wide range of publically available figures from a range of data sources. These include publications by Scottish Government, Public Heath Scotland, National Records of Scotland and Office for National Statistics along with scientific publications and SAGE and UKHSA summaries where appropriate to summarise the state of the epidemic in Scotland in a given week. We also provide information on public attitudes to the virus from weekly YouGov polling surveys.

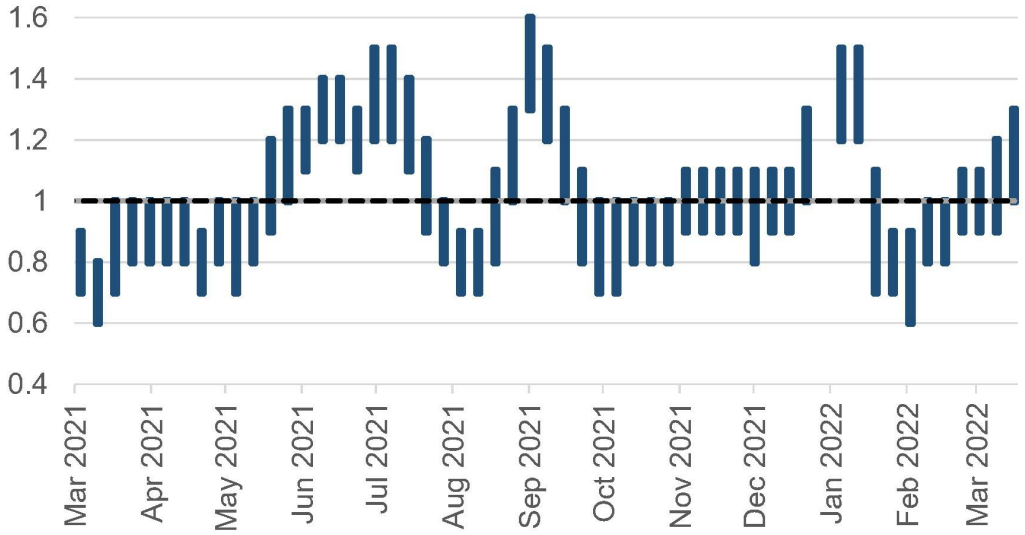
Estimated Infection Levels and Case Numbers

Estimated Infection Levels

The reproduction number (R) is the average number of secondary infections produced by a single infected person. If R is greater than one the epidemic is growing, if R is less than one the epidemic is shrinking. The higher R is above one, the more people one infectious person might further infect other people and so the faster the epidemic grows. **Please note that R is an indicator that lags by two or three weeks.** For more information please visit the UK government website.

The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 1 March is between 1.0 and 1.3. Both the lower and upper limit of the R value have increased since the last published figure (**Figure 1**)[3] [4].

Figure 1: R in Scotland over time by publishing week[5]



As at 1 March, the UKHSA's consensus view was that the incidence of new daily infections in Scotland was between 278 and 692 per 100,000 people. This equates to between 15,200 and 37,800 people becoming infected each day in Scotland[6].

[3] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[4] Using data to 14 March 2022.
[5] No R value was published for the week beginning 27 December 2021 as publications were paused over the festive period. The most recent data point for R is dated 16 March 2022, reflecting the R value as at 1 March.
[6] Scottish Government: Coronavirus (Covid-19): modelling the epidemic

The growth rate reflects how quickly the numbers of infections are changing day by day. It is an approximation of the percentage change in the number of new infections each day. More information can be found on the UK government website.

The latest growth rate for Scotland as at 1 March was between -1% and 3%. The upper growth limit has increased since the previous week, and the lower growth limit has remained unchanged[7] [8].

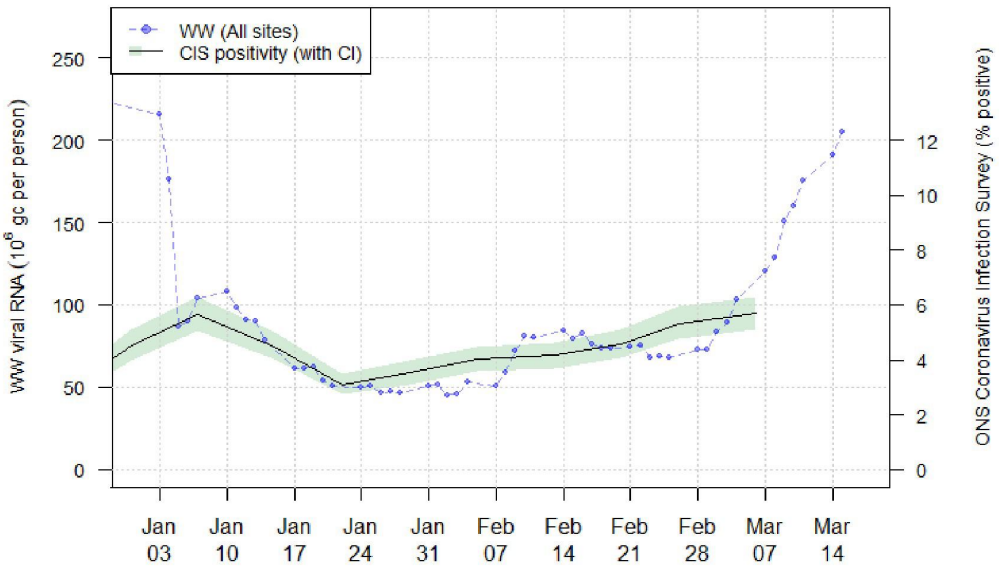
Wastewater Estimates

The Scottish Government has been working with the Scottish Environment Protection Agency (SEPA) to detect and analyse fragments of Covid-19 virus RNA in wastewater. The number of locations where the levels of SARS-CoV-2 in wastewater are monitored has increased to 207 sites around Scotland. In contrast to Covid-19 case records, virus shedding into wastewater is a biological process. This means that wastewater data is unaffected by factors that impact whether testing is done.

Nationwide, wastewater Covid-19 levels have shown a rapid increase in the most recent week. The week ending on 15 March saw levels of 206 million gene copies per person per day (Mgc/p/d), which is almost three times higher than two weeks prior (71 Mgc/p/d) (**Figure 2**)[9]. The increase in wastewater Covid-19 levels was seen in the majority of local authorities in Scotland, with only one local authority (Inverclyde) seeing a decrease in the week to 15 March compared to the week ending 8 March. Please note that comparisons for Na h-Eileanan Siar, Shetland Islands and Orkney Islands are not possible due to missing data in the week to 15 March.

[7] Using data to 14 March 2022.
[8] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[9] Scottish Government: Coronavirus (Covid-19): modelling the epidemic

Figure 2: National running average trends in wastewater Covid-19 from 31 December 2021 to 15 March 2022, and CIS positivity estimates from 31 December to 6 March 2022[10] [11] [12].



Covid Infection Survey

The Covid-19 Infection Survey is a UK wide study carried out by the Office for National Statistics (ONS) and the University of Oxford. The survey invites private residential households to test whether they have the infection, regardless of whether they have symptoms, using a PCR test. Participants are also asked to provide a blood sample to test for antibodies. This means the study is unaffected by testing policy in early 2022.

In Scotland, the percentage of people testing positive for Covid-19 as estimated by the Covid Infection Survey continued to increase in the week ending 12 March 2022, as seen in **Figure 3**[13]. Meanwhile, the case rate (including reinfections) by specimen date has also continued to sharply increase in Scotland in the week to 12 March. This increase in estimated infection levels in Scotland has correlated with the increasing prevalence of the Omicron BA.2 variant in Scotland since early February.

The estimated percentage of people testing positive for Covid-19 in the private residential population in the week 6 to 12 March in Scotland is 7.15% (95% credible interval: 6.56% to 7.79%)[14], equating to around 1 in 14 people (95% credible interval: 1 in 15 to 1 in 13). This is the highest estimated percentage of people testing positive

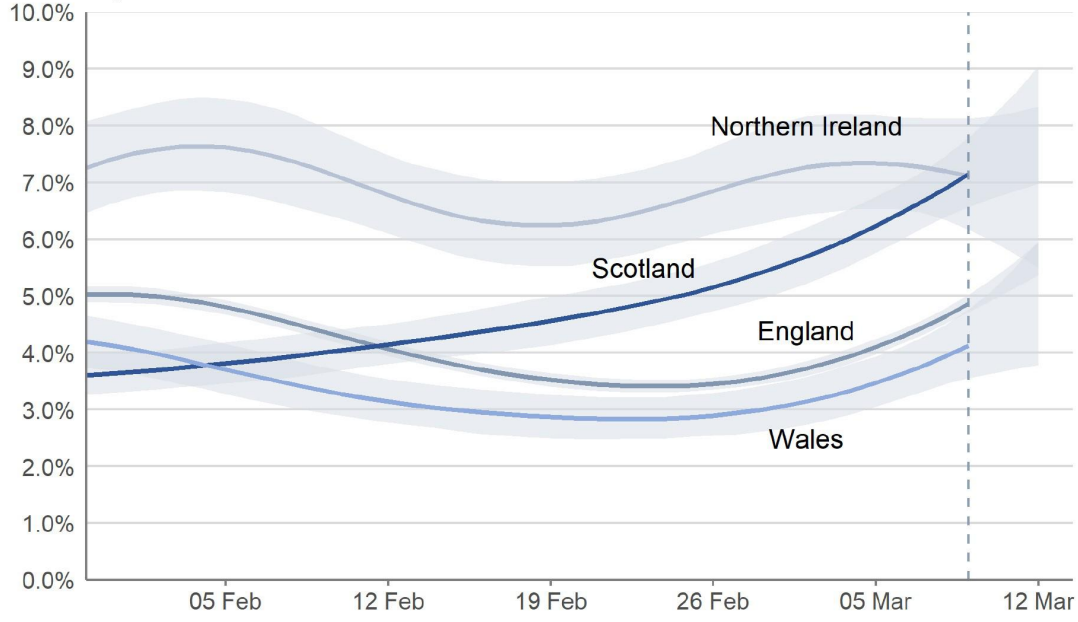
[10] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[11] This chart shows data from early 2022, at which point the Omicron variant represents almost all cases in Scotland.
[12] Figure three was originally published on 17 March 2022, before updated CIS estimates were available for publication. See the following section for updated figures.
[13] Scottish Government: Coronavirus (COVID-19): infection survey
[14] A **credible interval** gives an indication of the uncertainty of an estimate from data analysis based on a sample population. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.

since the survey began in October 2020. The previous peaks in Scotland recorded 2.29% in the week to 11 September 2021, 1.24% in the week to 17 July 2021, and 5.65% in the week to 7 January 2022[15].

In the week 6 to 12 March 2022, estimates for the other nations of the UK are as follows and can be seen in **Figure 3**:

- In England, the percentage of people testing positive has continued to increase in the most recent week. The estimated percentage of people testing positive is 4.87% (95% credible interval: 4.72% to 5.02%), equating to around 1 in 20 people (95% credible interval: 1 in 20 to 1 in 20).
- In Wales, the percentage of people testing positive continued to increase in the most recent week. The estimated percentage of people testing positive is 4.13% (95% credible interval: 3.56% to 4.77%), equating to around 1 in 25 people (95% credible interval: 1 in 30 to 1 in 20).
- In Northern Ireland, the percentage of people testing positive has increased in in the most recent two weeks, but the trend is uncertain in the most recent week. The estimated percentage of people testing positive is 7.12% (95% credible interval: 6.17% to 8.13%), equating to around 1 in 14 people (95% credible interval: 1 in 16 to 1 in 12).

Figure 3: Modelled daily estimates of the percentage of the private residential population testing positive for COVID-19 in the four UK nations, between 30 January and 12 March 2022 for England, Scotland, Wales and Northern Ireland, including 95% credible intervals.



In Scotland, the estimated proportion of people testing positive increased for children of secondary school age, for young adults and for older age groups in the week to 12 March 2022. The trend is uncertain for children of nursery and primary school age in

[15] Scottish Government: Coronavirus (COVID-19): infection survey

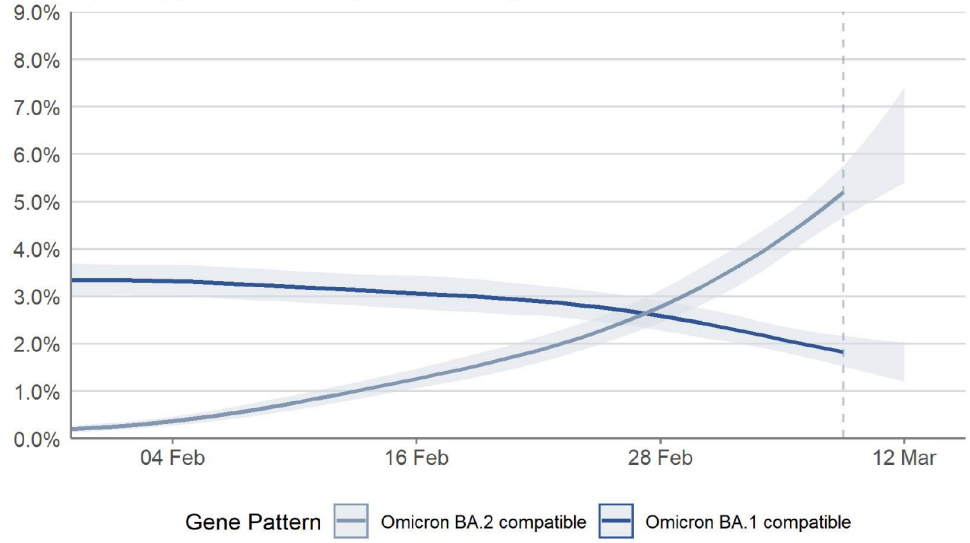
the same week[16]. Meanwhile, the case rates (including reinfections) by specimen date increased sharply in all age groups in the week to 12 March compared to the previous week[17].

Omicron BA.2

The Omicron variant was first detected in Scotland on 29 November 2021[18]. It had a growth advantage over the previously dominant Delta variant, but a lower clinical severity. The parent variant (Pango lineage B.1.1.529) can now be separated into three main groups: BA.1, BA.2 and BA.3. While the BA.1 lineage of Omicron was originally dominant within Scotland, the BA.2 is now the dominant variant and its incidence is increasing. The latest BA.2 risk assessment update issued on 25 February indicates that BA.2 has a growth advantage compared to BA.1; however, it is likely that the clinical severity of BA.2 is similar to that of BA.1[19]. The increasing prevalence of BA.2 has correlated to increasing Covid-19 prevalence in Scotland since mid-February.

According to estimates from the Covid-19 Infection Survey, the proportion of people with Covid-19 infections compatible with Omicron BA.2 in Scotland continued to increase in the most recent week to 12 March, while the percentage of people with infections compatible with Omicron BA.1 decreased in the most recent week (**Figure 4**). The Covid Infection Survey estimated that 5.20% (95% credible interval: 4.67 % to 5.76%) of the private residential population would test positive with a Covid-19 infection compatible with BA.2 on 9 March[20].

Figure 4: Modelled percentage of positive infections compatible with the Omicron BA.1 variant and Omicron BA.2 variant, based on nose and throat swabs, daily, in Scotland, 30 January 2022 to 12 March 2022[21].



[16] Scottish Government: Coronavirus (Covid-19): infection survey
[17] Scottish Government: Coronavirus (COVID-19): trends in daily data
[18] Scottish Government: Omicron variant
[19] Risk assessment for SARS-CoV-2 variant: VUI-22JAN-01 (BA.2) 23 January 2022 (publishing.service.gov.uk)
[20] Scottish Government: Coronavirus (COVID-19): infection survey
[21] Scottish Government: Coronavirus (COVID-19): infection survey

Unlike Omicron BA.1, BA.2 does not contain the deletion that leads to S Gene Target Failure in a widely used PCR testing platform available at UKGov Pillar 2 Lighthouse Laboratories. This is used as a reasonable proxy to track BA.2 as opposed to BA.1. UKGov laboratories process around 85% of PCR tests in Scotland, and of the new cases in Scotland that were notified on 11 March from UK Government laboratories, 84.2% were S gene positive[22].

Details of risk assessments for both BA.1 and BA.2 carried out by UKHSA can be found on the UK government's website[23] and in the State of the Epidemic reports published on 4 February and 28 January 2022. For more information on vaccine effectiveness and Omicron BA.2, please see the **Vaccine Effectiveness Against Omicron** section.

Covid-19 Cases

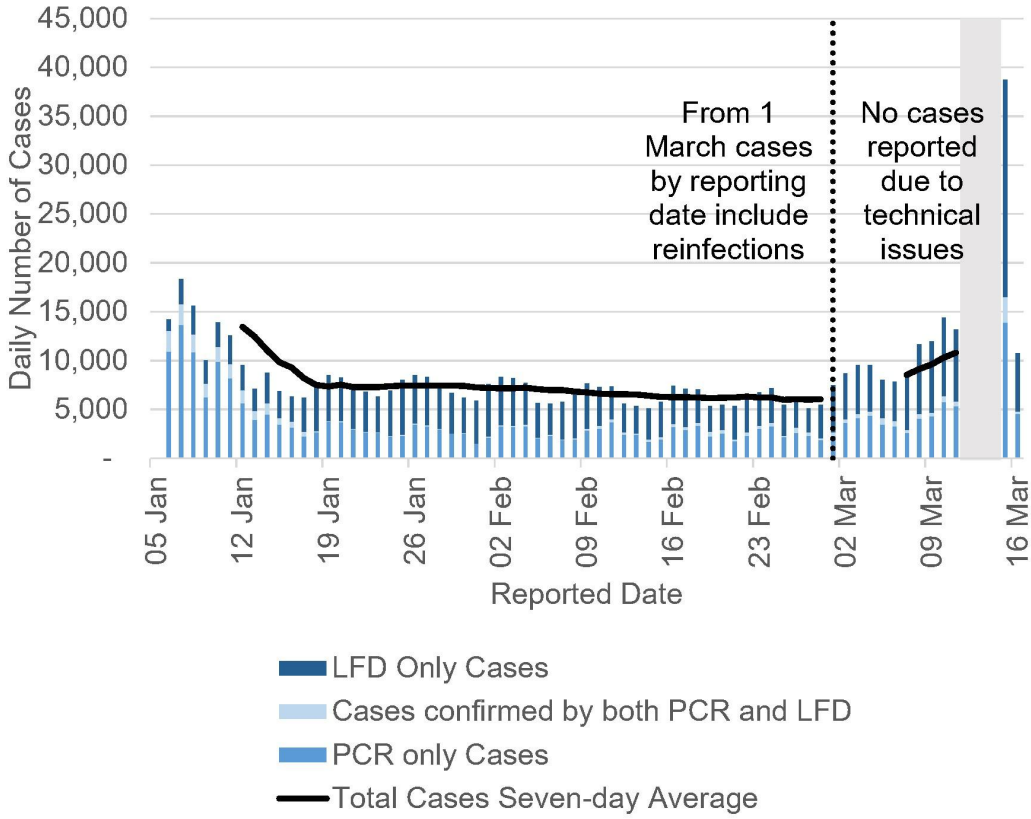
Please note that from 5 January, the Covid-19 case definition includes cases confirmed by either a PCR or LFD test, or both. Comparisons over time need to be made with caution. For more information on the difference between reporting and specimen date, please see this earlier publication. Cases data by specimen date includes reinfections (where a person has a positive test 90 days or more since their last positive test) since the beginning of the pandemic, while cases data by reporting date includes reinfections starting from 1 March.

Please note that Public Health Scotland experienced technical issues from 12 to 14 March, meaning that no cases could be reported on these dates and were instead added to case numbers by reporting date on 15 March. Cases by specimen date were updated retrospectively. Additionally, the 16 March figure covers less than a 24-hour period and is likely to be an undercount. This affects both cases by reporting and specimen date.

Due to the recent inclusion of reinfection cases as well as technical issues affecting case reporting by Public Health Scotland, caution must be advised when looking at cases by reporting date this week. The seven-day average cases by reporting date was on a slowly decreasing trend from Mid-January until late February. Following the inclusion of reinfections when reporting daily cases from 1 March, cases by reporting date showed an increasing trend; the seven-day average increased from 8,536 cases on 7 March to 10,820 cases on 11 March (**Figure 5**)[24]. Due to the inclusion of reinfections this average cannot be compared to the previous weeks.

[22] Public Health Scotland: COVID-19 statistical report - 16 March 2022 - COVID-19 statistical report
[23] https://www.gov.uk/government/publications/investigation-of-sars-cov-2-variants-of-concern-variant-risk-assessments
[24] Scottish Government: Coronavirus (COVID-19): trends in daily data

Figure 5: PCR and LFD positive daily case numbers by reporting date. Reinfections included from 1 March 2022, data to 16 March 2022[25] [26].

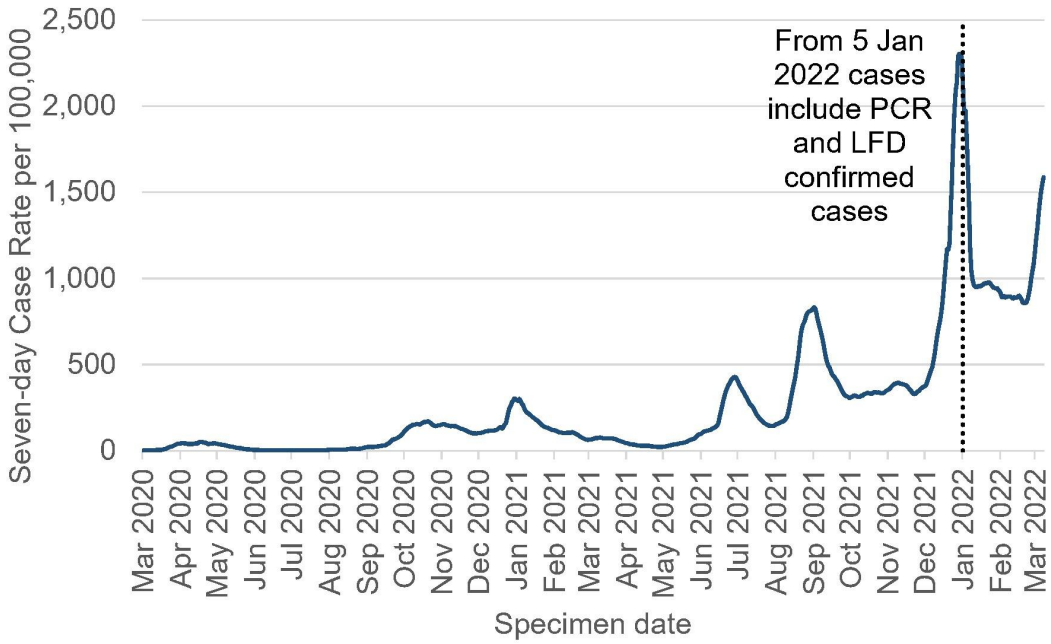


For comparisons over time it is more reliable to look at case rates by specimen date[27]. However, comparisons with data from before 5 January 2022 must be made with caution as differences are likely to reflect changes in testing behaviour and policy rather than changing infection levels alone.

Please also note that Public Health Scotland experienced technical issues with reporting on 16 March, which means that cases by specimen date from the most recent days are likely to be under reported. By specimen date, the seven-day combined PCR and LFD case rate (including reinfections) continued to increase sharply in Scotland in the most recent week. There were 1,587 weekly combined PCR and LFD cases per 100,000 population in the week to 12 March, which is a 38% increase from 1,151 weekly cases per 100,000 on 5 March, and an 84% increase from 861 weekly cases per 100,000 on 26 February. This remains a very high case rate compared to previous phases of the pandemic in Scotland (**Figure 6Error! Reference source not found.**)[28].

[25] Scottish Government: Coronavirus (COVID-19): trends in daily data
[26] Please note that due to technical issues, no cases were reported on 12 and 13 March. This has led to an inflated number on 14 March. Additionally, cases reported on 16 March covers less than a 24-hour period due to the same technical error and is likely to be an undercount.
[27] The specimen date is the date the sample was collected from the patient.
[28] Public Health Scotland: Covid-19 Daily Dashboard

Figure 6: Seven-day combined PCR and LFD case rate (including reinfections) per 100,000 for Scotland by specimen date. Data to 12 March 2022[29].

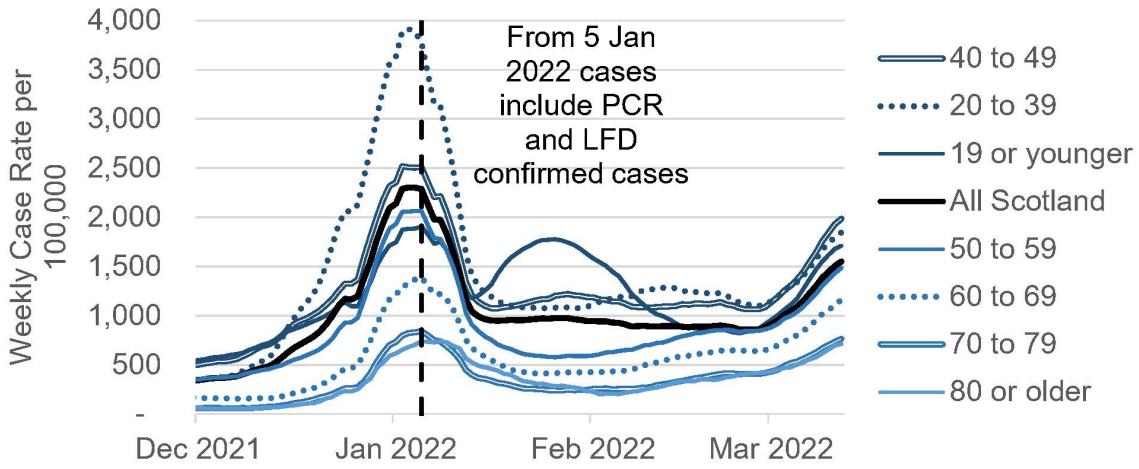


The week leading up to 12 March continued to see sharply increasing case rates (including reinfections) in all age groups compared to the week to 5 March, ranging from a 38% increase among those aged 20 to 39, to a 46% increase among those aged 19 or younger, those aged 40 to 49, and those aged 60 to 69 (**Figure 7**). Cases among those aged 60 or older have been increasing since early February, and in the week to 12 March this age group had a combined case rate of 939 cases per 100,000, which is a 44% increase from the week to 5 March (650 cases per 100,000), and a 128% increase from 12 February (411 cases per 100,000)[30].

Among those aged 19 or younger, the increase ranged from 39% among those aged 5 to 11, to 67% among those aged 16 to 17. This follows a period of slightly decreasing or similar levels of Covid-19 among age groups younger than 60 since mid-February (**Figure 7**)[31].

[29] Before 5 January 2022, the case rate includes only positive laboratory confirmed PCR tests.
[30] Public Health Scotland: Covid-19 Daily Dashboard
[31] Public Health Scotland: Covid-19 Daily Dashboard

Figure 7: Weekly total combined PCR and LFD cases (including reinfections) per 100,000 population in Scotland by age group, by specimen date. Data to 12 March 2022[32] [33].



This is in line with the increasing numbers of weekly Covid-19 cases among care home residents throughout February and early March 2022. In the week to 13 March, there were 744 reported cases among care home residents, which is an increase of 24% from the previous week ending 6 March (598 cases). The number of cases in the most recent week is lower than previous peak of 833 weekly cases in the week to 9 January 2022, but higher than the peak of 641 weekly cases in the week to 10 January 2021[34].

Due to different case definitions across the UK, comparisons between countries cannot be made at this time. The four nations rely on different sets of Covid-19 tests for reporting cases. Cases data from Scotland includes PCR and LFD test results. Cases data from England includes PCR, LFD and LAMP (loop-mediated isothermal amplification) test results. For both Scotland and England, positive rapid lateral flow test results can be confirmed with PCR tests taken within 48 hours and if this PCR test result is negative, these are removed as cases. Cases data from Northern Ireland includes both PCR and LFD tests results, while cases data from Wales relies only on PCR test results. Cases from Scotland, Northern Ireland and England include reinfections based on a 90-day threshold, while cases data from Wales includes reinfections based on a 42-day threshold.

Due to the different case definitions outlined above, we have not included case comparisons across the four UK nations using data from the UK Government dashboard in this edition of the report. When these definitions are more aligned we will resume reporting on these comparisons. To compare trends in estimated infection levels in private residential households across the UK, please see the previous section on the **Covid Infection Survey**.

[32] Before 5 January 2022, the case rate includes only a positive laboratory confirmed PCR tests.
[33] Scottish Government: Coronavirus (COVID-19): trends in daily data
[34] Scottish Government: Coronavirus (COVID-19): trends in daily data

Reinfections

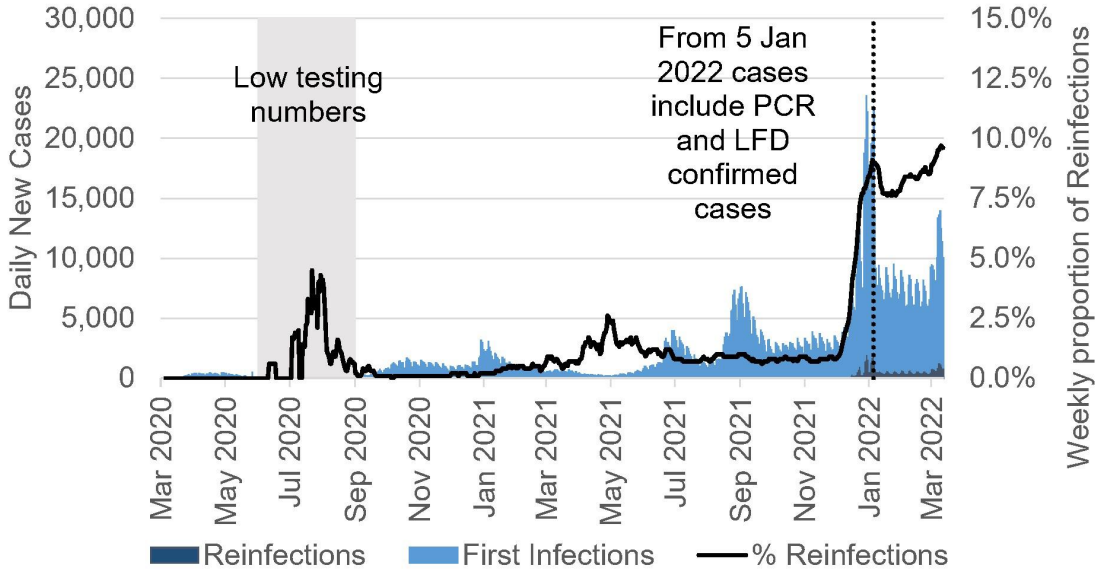
A reinfection is defined as a positive test 90 days or more after a previous positive test. This amount of time is set in order to be able to distinguish between viral persistence of the primary Covid-19 episode and a true reinfection.

Please note, figures from 16 March cover less than a 24-hour period. This is due to a reoccurrence of the technical issue from earlier in the week, meaning data has not been received since 6 P.M. on 15 March. This means that the last couple of days for this data by specimen date is likely to be an under count.

The increase in the proportion of reinfections seen in late 2021 corresponds to the emergence of the now dominant Omicron BA.1 variant in the UK. The proportion of reinfections in Scotland when Omicron BA.1 was first detected on 29 November[35] was 0.8% percent of total cases. These are cases in individuals for whom it has been 90 or more days since their last positive Covid-19 test. The proportion of reinfections peaked on 4 January, at 9.1%, before decreasing slightly (**Figure 8**).

The proportion of reinfections among the total weekly cases continued to increase in the most recent week. By specimen date, there was a total number of 8,151 reinfection cases confirmed by either a PCR or LFD test in the week leading up to 12 March. These are cases in individuals for whom it has been 90 or more days since their last positive Covid-19 test. This represents 9.6% of reported cases, an increase from 9.2% in the week leading up to 5 March, and is the highest level of reinfections seen in the pandemic.

Figure 8: Number of PCR and LFD positive cases by episode of infection and specimen date. Data to 12 March 2022[36].

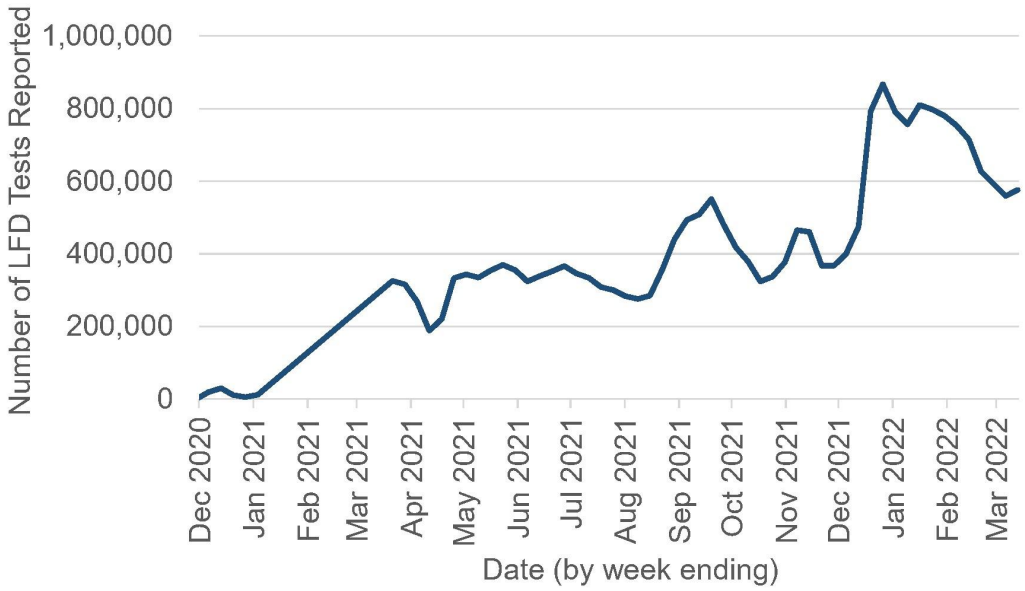


[35] Scottish Government: Omicron variant
[36] Public Health Scotland: Covid-19 Daily Dashboard

LFD Testing

The weekly number of reported LFD tests peaked on 26 December 2021 with 867,417 reported tests, and has shown a decreasing trend since[37]. However, the weekly total of tests reported in the week to 13 March increased by 3% from the previous week leading up to 6 March. There were 576,382 reported tests in the week to 13 March (**Figure 9**)[38].

Figure 9: Number of LFD Tests Reported by Week Ending. Data up to the 13 March 2022.



YouGov survey results have shown that on 15 to 16 March, 53% of respondents had taken a LFD/antigen test and 9% a PCR test in the past week[39]. Of those who had taken a LFD/antigen test, 44% recorded the result of their last LFD/antigen test online and 54% did not record the results online[40].

The Scottish Contact Survey asks whether people use LFD tests and if so how often. Approximately 76% of individuals had taken at least one lateral flow test within the last 7 days for the survey pertaining to the 24 February - 2 March[41].

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[37] Public Health Scotland: Covid-19 Statistical Report
[38] Public Health Scotland: Covid-19 Statistical Report
[39] Results are taken from questions run on behalf of Scottish Government on the YouGov online omnibus survey. Question 'Coronavirus tests typically take two forms – Rapid 'Lateral Flow or LFD' tests (sometimes called Antigen Tests), which give a test result in 30 minutes and are usually self-administered, or PCR Tests mostly conducted at official Test Sites (but also available as a 'Home Kit) – processed by a laboratory, with results available within 48 hours. In both tests, a swab of nose and/or throat is needed. Which of the following applies to you in relation to testing for Covid-19 in the past week (i.e. since 8 March)?'
[40] Question -Thinking about the last lateral flow/antigen test you did in the past week…Which of the following best describes you in relation to that test? (Base: 533 - All who have taken a Lateral Flow/antigen test in the last week)
[41] Scottish Government: Coronavirus (COVID-19): modelling the epidemic

There are differences in the results from the YouGov and the Scottish Contact Survey (SCS) which may be likely to be due to differences in sampling and methodology. YouGov is an online survey based on an active sample which is representative of the Scottish population with around 1,000 respondents[42]. The SCS[43] is based on a longitudinal survey with a larger sample of around 3,000, with the responses being modelled to represent the Scottish population.

Severe Illness: Hospitalisation, ICU and Deaths

Hospital and ICU Occupancy and Admissions

Following changes in the Covid-19 Case definition and changing testing policies on 5 January 2022, hospital and ICU occupancy figures include patients with Covid-19 cases confirmed by either PCR or LFD from 9 February and onwards. Prior to this date, it only included cases confirmed by a PCR test. Hospital and ICU occupancy both include reinfection cases.

Similarly, Covid-19 admissions to hospital (including for children and young people) include patients with Covid-19 cases confirmed either by PCR or LFD from 5 January and onwards. Prior to this date, it only included cases confirmed by a PCR test. Hospital admissions include reinfection cases. Please note that admissions to ICU only include PCR confirmed Covid-19 cases.

Please note that the Covid-19 admissions and occupancy figures presented in this section may include patients being admitted and treated in hospital for reasons other than COVID-19.

In the week to 16 March, daily Covid-19 hospital occupancy continued to increase. NHS boards reported 1,999 patients in hospital or in short stay ICU on 16 March with recently confirmed Covid-19, compared to 1,509 on 9 March. This is an increase of 490 patients, or 32%, from a week previously, and an increase of 773 patients, or 63%, compared to two weeks previously (2 March). This compares with 2,053 patients in hospital at the peak in January 2021 (**Figure 10**).

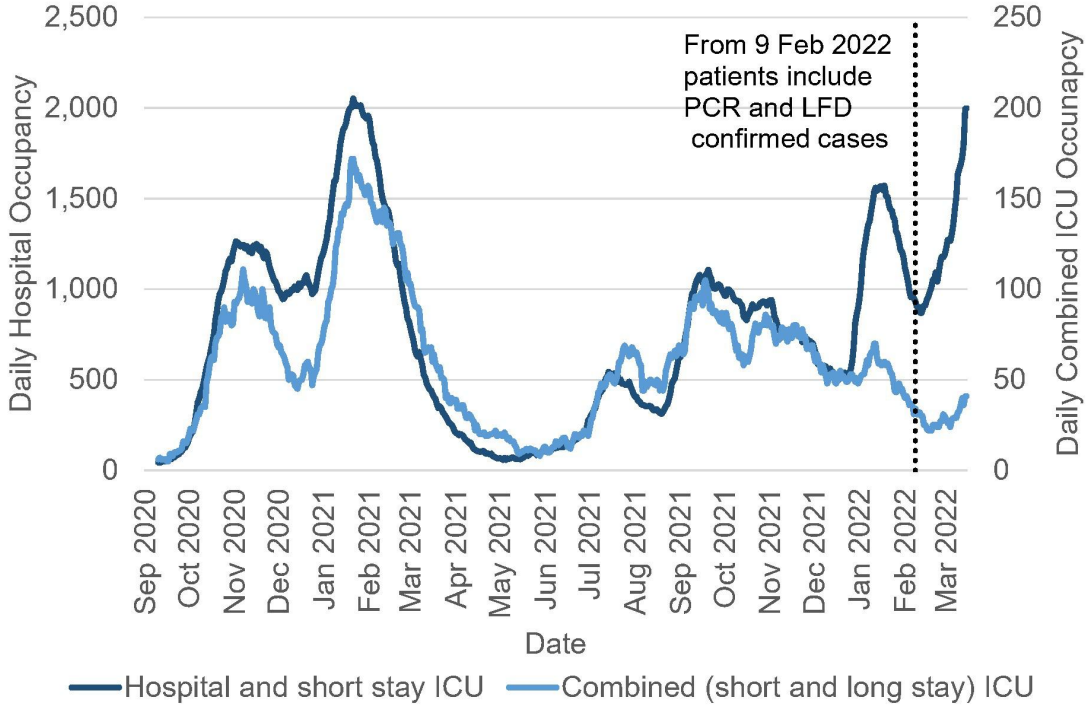
Combined ICU occupancy (including short and long stay) has increased to 41 patients on 16 March, an increase of 12 patients or 41% compared to a week previously on 9 March. The number of combined ICU occupancy remains lower than the peak of 172 ICU patients recorded in January 2021.

This recent increase consists of more patients in short-stay ICU, while the number of long-stay ICU patients continues to fluctuate at low levels. There were 32 patients in short stay ICU on 16 March, compared to 19 a week previously (9 March). This is an

[42] The sample is demographically and geographically representative of adults 18+ across Scotland, with circa 1000 responses each week fieldwork is conducted. YouGov apply weighting to the data to match the population profile to adjust for any over/under representations and to maximise consistency from wave to wave. Parameters used include age, gender, social class, region and level of education.
[43] The sample is demographically representative of adults 18+ across Scotland, with circa 3000 responses over two alternating panels. This is modelled to represent the Scottish population.

increase of 13 patients. There were 9 patients in long stay ICU on 16 March, compared to 10 a week previously (9 March) (**Figure 10**)[44].

Figure 10: Patients in hospital (including short stay ICU), and patients in combined ICU with recently confirmed Covid-19, data up to 16 March 2022[45] [46].



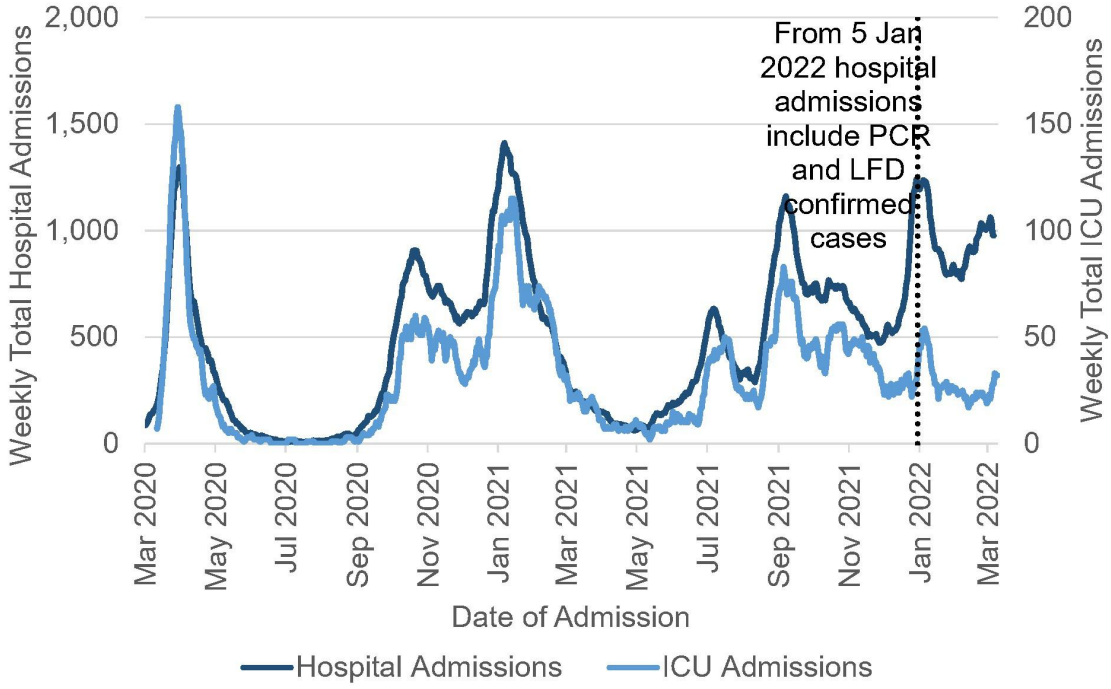
Please note, Public Health Scotland figures on Covid-19 related hospital and ICU admissions from 16 March cover less than a 24-hour period. This is due to a reoccurrence of the technical issue from earlier in the week, meaning data has not been received since 6 P.M. on 15 March.

According to data from Public Health Scotland, Covid-19 admissions to hospital have increased over the past month, but continue to fluctuate on a weekly basis. In the week to 12 March there were 977 admissions to hospital for people with confirmed Covid-19, which is a decrease of 3% compared to a week previously (1,004 hospital admissions in the week to 5 March) but an increase of 26% compared to four weeks previously (773 hospital admissions in the week to 12 February). This compares to 1,237 weekly hospital admissions during the most recent peak in the week leading up to 10 January 2022 (**Figure 11**)[47].

[44] Scottish Government: Coronavirus (Covid-19): Trends in Daily Data
[45] ICU includes combined ICU/HDU figures and both patients with length of stay 28 days or less and with length of stay more than 28 days. Please note that only patients with length of stay 28 days or less in ICU were recorded until 20 January 2021. From 20 January 2021 ICU short and long stay includes both ICU or combined ICU/HDU with length of stay 28 days or less and with length of stay more than 28 days.
[46] Before 9 February 2022, patients were only included if they had a recent positive laboratory confirmed PCR test. Hospital and ICU occupancy includes reinfections from 7 March 2022 onwards.
[47] Public Health Scotland: Covid-19 Daily Dashboard

After a period of fluctuating admission numbers, the weekly number of admissions to ICU has increased in the most recent week. The latest data from PHS shows 32 new Covid-19 patients admitted to ICU in the week to 15 March, compared to 23 in the week to 8 March. This is a 39% an increase, and compares to 54 weekly ICU admissions during the most recent peak in early January 2022. This compares to 57 weekly ICU admissions during the most recent peak in early January 2022 (**Figure 11**)[48].

Figure 11: Weekly total of Covid-19 admissions to hospital and ICU with a positive Covid test in Scotland. Hospital admission data to 12 March 2022 and ICU admission data to 15 March 2022[49] [50].



According to data from the PHS Education Dashboard, average hospital admissions related to Covid-19 in children and young adults have continued to increase by 19% in the three-week period to 9 March (138 average weekly admissions), compared to the previous three-week period to 2 March (116 average weekly admissions). While remaining at a high level, this is lower than the previous peak in hospital admissions among children and young people in the three-week period to 19 January (155 average weekly admissions). This increase was seen among all age bands apart from among those aged 20 to 21, and the biggest increases were seen among those

[48] Public Health Scotland: Covid-19 Daily Dashboard

[49] Covid-19 related admissions have been identified as the following: A patient's first positive test for Covid-19 up to 14 days prior to admission to hospital, on the day of their admission or during their stay in hospital. If a patient's first positive test is after their date of discharge from hospital, they are not included in the analysis. An admission is defined as a period of stay in a single hospital. If the patient has been transferred to another hospital during treatment, each transfer will create a new admission record.

[50] Before 9 January 2022, hospital admissions were only included if the patient had a recent positive laboratory confirmed PCR test. ICU admissions rely on PCR testing only. Hospital admissions data in the chart now includes reinfections and has been updated to include this methodology retrospectively to the start of the pandemic.

aged 2 to 4 and 5 to 11. These figures refer both to young patients in hospital because of Covid-19 and with Covid-19, and link to both PCR and LFD test results[51].

The highest number of hospital admissions in the week to 8 March were among those aged 80 and over. In the same week, approximately 57% of the hospital admissions related to patients aged 60 or older. This is a slight decrease from 61% in the week to 22 February[52]. The proportion of patients staying 48 hours or longer was 55% in the week to 1 March, which compares to 57% in the week to 15 February (as reported on 2 March).

While it may be helpful to compare hospital occupancy and admissions between the UK nations, any comparisons must be made with caution. Definitions are not consistent across the nations and data are not reported daily by each nation. Data from Scotland, Wales and Northern Ireland is updated retrospectively if errors come to light, while data from England is not revised retrospectively, but instead is corrected in the following day's data update. This means Covid-19 hospital occupancy and admissions figures are not directly comparable across the four nations. For more information see UK Government dashboard.

The seven-day average hospital occupancy of patients with confirmed Covid-19 in Scotland per one million people was 314 patients in the week to 15 March 2022. The seven-day average hospital occupancy per one million in the same period for other UK nations were as follows[53]:

- England: 174 per one million,
- Northern Ireland: 289 per one million,
- Wales: 201 per one million.

In Scotland, there was a daily average of 26 hospital admissions of patients with confirmed Covid-19 per one million people in the week leading up to and including 12 March 2022. Seven-day average hospital admissions per one million in the same period for other UK nations were as follows[54]:

- England: 24 per one million,
- Northern Ireland: 19 per one million,
- Wales: 8 per one million.

Deaths

After a period of decreasing numbers of Covid-19 deaths throughout the last two months of 2021, the week to 23 January 2022 saw a peak of 146 deaths where Covid-19 was mentioned on the death certificate. This came after three weeks of increasing numbers of deaths, largely consisting of fatalities among those aged 45 or

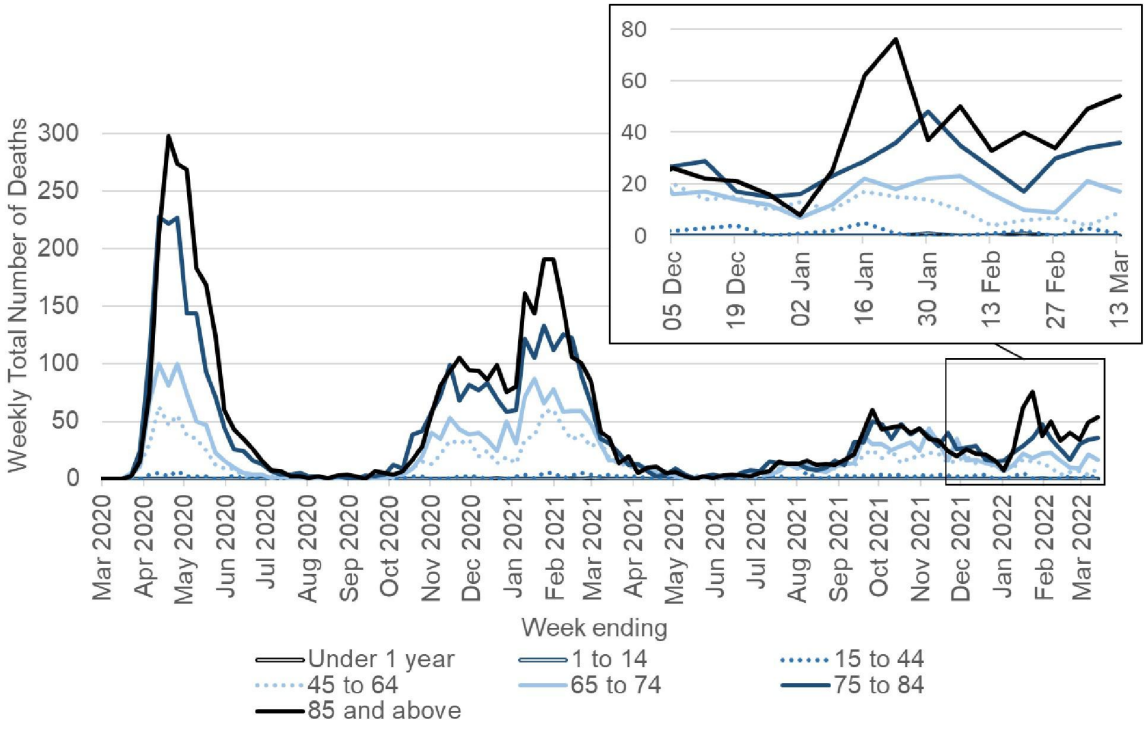
[51] Public Health Scotland: PHS Covid-19 Education Report
[52] Public Health Scotland: Covid-19 statistical report - 2 March 2022
[53] UK Government: Coronavirus (Covid-19) in the UK (accessed 16 March 2022)
[54] UK Government: Coronavirus (Covid-19) in the UK (accessed 16 March 2022)

above, as Covid-19 deaths among younger age groups have remained at similar low levels throughout the pandemic.

The overall number of Covid-19 deaths has increased by 5%, or 6 deaths, to a total of 117 deaths in the week leading up to 13 March, compared to 111 in the week leading up to 6 March. This figure is 82% lower than the peak in 2020, when the week ending 27 April saw a total of 663 deaths where Covid-19 was mentioned on the death certificate[55].

The increase seen in the most recent week is mostly due to a high number of deaths among those older than 64. Among those aged 65 to 74, the number of deaths decreased from 21 to 17, but it increased from 34 to 36 deaths among those aged 75 to 84, and from 49 to 54 deaths for those aged 85 and older. Age groups younger than 45 continue to experience low levels of Covid-19 related deaths while the number of deaths are fluctuating at higher levels among those aged 45 and older (**Figure 12**). National Records of Scotland publish a weekly detailed analysis on deaths involving Covid-19 in Scotland in their weekly report[56].

Figure 12: Weekly total number of deaths where Covid-19 was mentioned on the death certificate, by age group. Data to the week ending 13 March 2022.



[55] NRS Scotland: Deaths involving coronavirus (Covid-19) in Scotland
[56] NRS Scotland: Deaths involving coronavirus (Covid-19) in Scotland

Excess deaths are the total number of deaths registered in a week minus the average number of deaths registered in the same week over the previous five years (excluding 2020). Measuring excess deaths allows us to track seasonal influenza, pandemics and other public health threats. Excess deaths include deaths caused by Covid-19 and those resulting from other causes.

In the week ending 13 March, the total number of deaths registered in Scotland was 1,207. This was 12 deaths fewer than the five year average for this week, or 1% below average levels[57].

Deaths data from England, Northern Ireland, Scotland and Wales use different methodologies, so they cannot be directly compared. The death figures below are the daily numbers of people who died within 28 days of being identified as a COVID-19 case by a positive test. The definition of a Covid-19 case aligns with the case definition used in each nation. Deaths following a possible reinfection are included from 1 February for England and Northern Ireland, and from 1 March in Scotland. For more information see UK Government website.

There were 3 average daily deaths within 28 days of a positive Covid-19 test per one million population in the week leading up to 16 March 2022 in Scotland. In the same time period, average daily Covid-19 related deaths for the other UK nations were as follows[58] [59]:

- England: 1 per one million,
- Northern Ireland: 2 per one million,
- Wales: 1 per one million.

Resilience: Vaccinations, Antibody Estimates, and Variants

Vaccinations

Vaccinations started in Scotland on 8 December 2020 and there has been a very high uptake. Covid-19 vaccines protect most people against severe outcomes of a Covid-19 infection, but some people will still get sick because no vaccine is 100% effective. The current evidence suggests that you may test positive for Covid-19 or be reinfected even if you are vaccinated, especially since the emergence of the Omicron variant in the UK. The major benefit of vaccination against Omicron is to protect from severe disease. For more information, see the PHS weekly report.

By 15 March, over 4.4 million people had received their first dose, an estimated 92.4% of the population aged 12 and older, and almost 4.2 million people had

[57] NRS Scotland: Deaths involving coronavirus (Covid-19) in Scotland
[58] Deaths within 28 days of positive test.
[59] UK Government: Coronavirus (Covid-19) in the UK (accessed 16 March 2022)

received their second dose, an estimated 87.1% of the population aged 12 and older. Around 3.5 million people in Scotland had received a third vaccine dose or booster, an estimated 72.5% of the population aged 12 and older[60].

For more analysis on vaccination numbers, see previous publications. Further analysis on vaccinations will be provided in our next weekly release, to align with ONS publications of antibody estimates based on the Covid Infection Survey.

Antibodies Estimates

Estimates on the proportion of people in the private residential population in Scotland that would test positive for antibodies against SARS-CoV-2 are published by the ONS Covid-19 Infection Survey. The next scheduled release of antibody data from the Covid-19 Infection Survey will be incorporated into our next weekly publication. For information on the most recent estimates, see earlier publications or Covid Infection Survey publications.

Vaccine Effectiveness Against Omicron

The UKHSA reported that vaccine effectiveness against symptomatic disease, hospitalisation, or mortality with the Omicron variant is lower compared to the Delta variant and that it wanes rapidly. Vaccine effectiveness against all outcomes is restored after the booster dose, with effectiveness against symptomatic disease ranging initially from around 60 to 75% and dropping to around 25 to 40% after 15 weeks. Vaccine effectiveness against hospitalisation after a Pfizer booster started at around 90% dropping to around 75% after 10 to 14 weeks. Moderna booster restored vaccine effectiveness against hospitalisation to around 90 to 95% up to 9 weeks after vaccination. The high level of protection against mortality was also restored after the booster dose with vaccine effectiveness of 95% 2 or more weeks following vaccination for those aged 50 and older[61].

Vaccine effectiveness against symptomatic disease with BA.2 compared to BA.1, showed similar results with BA.1 having an effectiveness of around 10% and BA.2 having an effectiveness of around 18% after 25 or more weeks following the second dose. These estimates have large overlapping confidence intervals. The booster dose of vaccine increased effectiveness to around 69% for BA.1 and 74% for BA.2 at 2 to 4 weeks following a booster vaccine. Effectiveness dropped to around 49% for BA.1 and 46% for BA.2 10 weeks after vaccination[62].

More data on vaccine effectiveness against the Omicron variant can be found in the UKHSA vaccine surveillance reports. There is evidence that there is reduced overall risk of hospitalisation for Omicron compared to Delta[63] [64], with the most recent estimate of the risk of presentation to emergency care or hospital admission with

[60] Public Health Scotland: Covid-19 Daily Dashboard | Tableau Public
[61] COVID-19 vaccine surveillance report - week 11 (publishing.service.gov.uk)
[62] COVID-19 vaccine surveillance report - week 11 (publishing.service.gov.uk)
[63] University of Edinburgh: Severity of Omicron variant of concern and vaccine effectiveness against symptomatic disease
[64] Imperial College Covid-19 response team: Report 50: Hospitalisation risk for Omicron cases in England

Omicron was approximately half of that for Delta[65]. A recent, non-peer reviewed UK study revealed that risk of COVID-19 related death was 67% lower for Omicron when compared with Delta[66].

Situation by Local Authority within Scotland

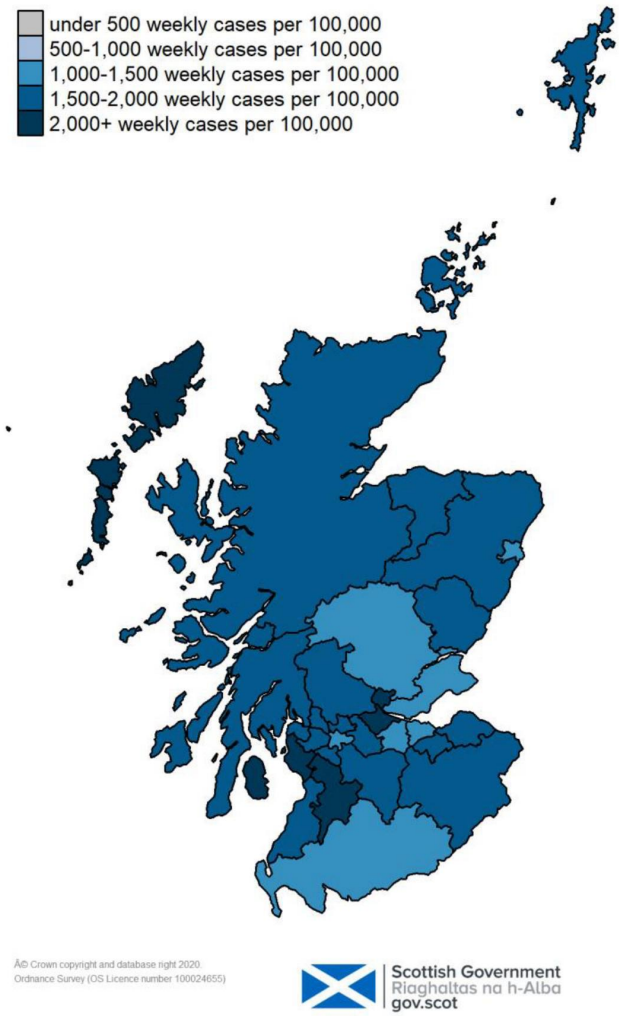
From March 1, cases data includes reinfections (where a person has a positive test 90 days or more since a last positive test). For cases by specimen date, historical cases have been retrospectively updated to include reinfections from the start of the pandemic.

Please note that Public Health Scotland experienced technical issues with reporting on 16 March, which means that cases by specimen date from the most recent days are likely to be under reported.

In the week leading up to 12 March 2022, Na h-Eileanan Siar had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,664 cases per 100,000 population. Dundee City had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 1,110 cases per 100,000. The total combined LFD and PCR weekly case rates by specimen date per 100,000 had increased in 31 local authorities in the week leading up to 12 March compared with the weekly case rate leading up to 5 March, while one local authority (Orkney Islands) saw a decrease in the same period (**Figure 13**)[67].

[65] UK Health Security Agency: SARS-CoV-2 variants of concern and variants under investigation
[66] Risk of COVID-19 related deaths for SARS-CoV-2 Omicron (B.1.1.529) compared with Delta (B.1.617.2) | medRxiv
[67] Public Health Scotland: Covid-19 Daily Dashboard

Figure 13: Weekly total LFD or PCR case rates (including reinfections) per 100,000 people in Local Authorities across Scotland on 12 March 2022 by specimen date.



Please note that the following local authority hotspot modelling uses data to 14 March 2022 from several academic groups to give an indication of whether a local authority is likely to experience high levels of Covid-19. The local authority modelling has not been compiled via UKHSA into a consensus this week and is based on one modelling group. In less populated regions in which case numbers are small, there is a greater variation in model estimates, and hence increased uncertainty. This has led to Na h-Eileanan Siar, Orkney Islands and Shetland Islands not being included this week. **The modelled weekly case rate below is not directly comparable to the weekly case rate reported in the section and figure above.**

Modelled rates of positive tests per 100,000 indicate that for the week commencing 27 March, all 29 of the local authorities included are expected to exceed 100 cases per 100,000 with at least 75% probability. The same 29 local authorities are also expected to exceed 1,000 cases per 100,000, with at least 75% probability.

21 out of the 29 local authorities are expected to exceed 2,000 cases per 100,000, with at least 75% probability. The exceptions are Aberdeenshire, Angus, Argyll and Bute, Dundee, East Dunbartonshire, East Renfrewshire, Inverclyde and Moray.

One local authority (North Ayrshire) is expected to exceed 3,500 cases per 100,000 with at least 75% probability[68].

Looking ahead

Scottish Contact Survey

Changes in patterns of mixing and adherence to restrictions will impact on future case numbers. The Scottish Contact Survey measures times and settings that people mix where they could potentially spread Covid-19. Average contacts from the most recent Panel A cohort of the Scottish Contact Survey (week ending 9 March) indicate an average of 4.8 contacts.

Mean contacts within the work and other setting (contacts outside home, school and work) have increased within the last two weeks by 18% and 36% respectively. Contacts within the home have decreased by 5% levels over the same period. Individuals within the youngest age groups (18-59) have all reported a rise in contacts within the last two weeks, with the 18-29 age group increasing by approximately 55%. Increases are largely driven by a rise in contacts in the work and other setting (contacts outside home, school and work). Those within the oldest age groups (60+) have decreased their contacts in the last two weeks.

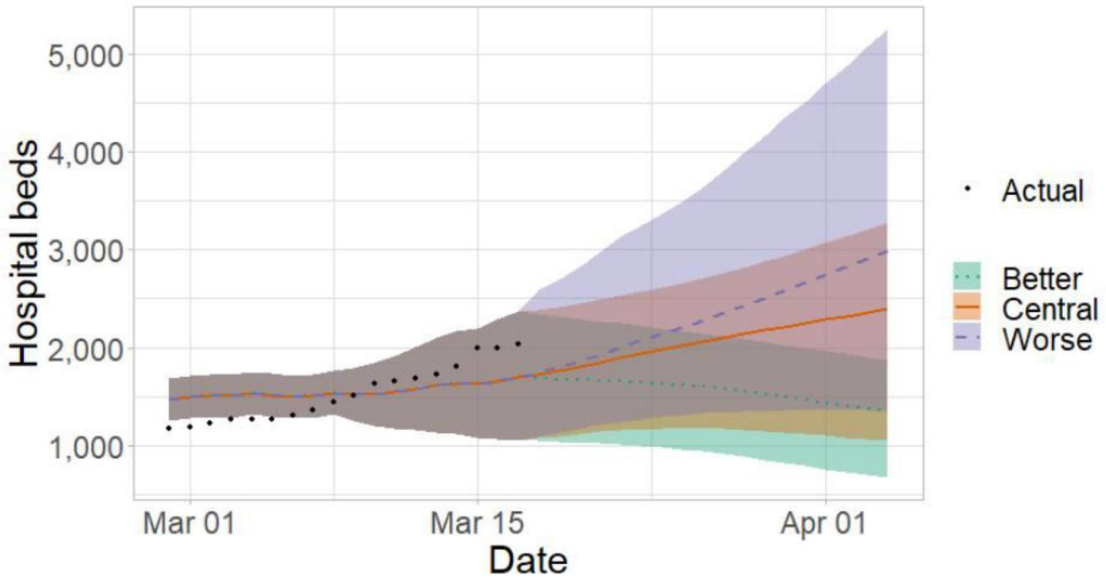
Modelling the Epidemic

The latest Modelling the Epidemic report includes projections over the next three weeks for new daily infections in Scotland. These projections include the effect of booster take up. The 'Central' scenario assumes that transmissibility remains at current levels. 'Worse' assumes a higher transmissibility for Covid-19, whereas 'Better' assumes a lower transmissibility. These projections do not include the changes to restrictions announced on 15 March 2022. It is estimated that daily infections may be up to 49,000 in early April. However, the future trajectory of infections is uncertain[69].

Figure 14 shows the impact of the daily infection projections on the number of people in hospital. The modelling includes all hospital stays, whereas the actuals only include stays up to 28 days' duration that are linked to Covid-19. There continues to be uncertainty over hospital occupancy in the next three weeks.

[68] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[69] Scottish Government: Coronavirus (Covid-19): modelling the epidemic

Figure 14: Medium term projections of modelled hospital bed demand, from Scottish Government modelling, based on positive test data reported up to 14 March.



Long Covid

According to the Office for National Statistic (ONS), long Covid is defined as symptoms persisting more than four weeks after the first suspected coronavirus (Covid-19) episode that are not explained by something else.

Estimates of the proportion of people in the private residential population in Scotland that experience long Covid symptoms are published by the ONS Covid-19 Infection Survey on a monthly basis. The next scheduled release of long Covid data from the Covid-19 Infection Survey is expected to be summarised in this report on 8 April. For information on the most recent estimates, see the State of the Epidemic report published on 4 March 2022.

Weekly modelled estimates for Scotland are also usually published in the Modelling the Epidemic report, which can be found here. However, a report on the rate of long Covid-19 has not been included this week. This will resume again once updated estimates of self-reported long Covid-19 prevalence amongst those infected with the less severe Omicron variant become available.

Next steps

The Scottish Government continues to work closely with Public Health Scotland, modelling groups, Office for National Statistics (ONS), Scottish Environment Protection Agency (SEPA) and YouGov to monitor what is happening across Scotland.

Each week this report will provide an overview of the current Covid-19 situation in Scotland. This will include real time data on case rates, hospitalisations and deaths and how Scotland's figures compare to those from the rest of the UK.

The report will continue to report on combined PCR and LFD Covid-19 cases (including reinfections data), data from the Covid-19 Infection Survey and Covid-19 wastewater estimates to bring an insight in to the pandemic.

Modelling can tell us where the epidemic is likely to be heading. Local data and data by age group can highlight where problems arise, which can help in addressing some of these issues. In the coming weeks the roll out of the vaccine will continue to be monitored along with the impact of this on case rates, hospital admissions and deaths among different age cohorts.

Investigations are ongoing by NERVTAG, SPI-M, SAGE, UK Health Security Agency (UKHSA), and Public Health Scotland regarding the impact of new variants and of vaccination; this will be reflected here as work is undertaken.

This publication will be available in accessible HTML on the gov.scot website

The views expressed in this report are those of the researchers and do not necessarily represent those of the Scottish Government or Scottish Ministers.

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