Coronavirus (COVID-19): Analysis

State of the Epidemic in Scotland – 18 February 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 January 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 February 2022.

Notices around Covid-19 policy and reporting changes

On 5 January 2022, the Scottish Government announced that people who do not have symptoms of Covid-19 will no longer be asked to take a Polymerase Chain Reaction (PCR) test to confirm a positive Lateral Flow Device (LFD) result. Changes have been made to the national Covid-19 case definition to reflect the revised testing strategy.

From Thursday 13 January, the Scottish Government and PHS began reporting on the number of people with a Covid-19 infection confirmed by either a PCR or first LFD positive test, which was presented as 'experimental statistics'. Starting from 10 February 2022, Covid-19 case numbers are no longer published under experimental statistics and are using the established methodology that utilises the new case definition. Previously published cases figures have now been retrospectively updated since 5 January 2022 to match the new established methodology.

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

Following changes in the Covid-19 Case definition and changing testing policies since 5 January 2022, hospital and ICU occupancy figures now include patients with Covid-19 cases confirmed by either PCR or LFD. Historical figures have been updated retrospectively from 9 January 2022.

Similarly, Covid-19 admissions to hospital (including for children and young people) now include patients with Covid-19 cases confirmed either by PCR or LFD. Historical figures have been updated retrospectively from 5 January 2022. Please note that admissions to ICU only include PCR confirmed Covid-19 cases.

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Summary

The daily positivity estimate from the Covid-19 Infection Survey for Scotland has fluctuated in recent weeks, and may be showing early signs of levelling off in the most recent week to 13 February, although the trend is (statistically) uncertain. By comparison, there remains a high weekly case rate compared to previous phases of the pandemic in Scotland, with a slight decrease in the latest two weeks. Nationwide, wastewater (WW) Covid-19 levels have shown an upturn in the week ending on 14 February, compared to the previous week, and this moderate increase in wastewater viral levels is observed across many of the local authorities in Scotland.

Weekly PCR or LFD case rates by specimen date across Scotland continue to slightly decrease with some difference between age groups. In the most recent week, younger age groups have seen decreasing case rates while there has been a slight increase in case rates for those aged 50 or over compared to the previous week. The majority of local authorities saw a decrease in the weekly PCR or LFD case rate by specimen date in the most recent week, but 14 local authorities saw an increase.

Admissions to hospital have continued to decrease in the most recent week since peaking in early January 2022, and admissions to ICU have also decreased in the most recent week. Covid-19 deaths have decreased overall in the week leading up to 13 February. This decrease was seen in older age groups, and deaths remained at low levels for the younger age groups.

Key Points

- The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 1 February is between 0.8 and 1.0. The lower limit and upper limit of the R value have remained unchanged since the last published figure.

- As at 1 February 2022, the UKHSA's consensus view was that the incidence of new daily infections in Scotland was between 204 and 377 per 100,000 people.

- The latest growth rate for Scotland as at 1 February was between -3% and 1%. The upper and lower limits have increased since the last published figure.

- As determined through the latest weekly ONS infection survey, the percentage of people testing positive for Covid-19 increased in the two weeks up to 13 February 2022, but the trend was (statistically) uncertain in the most recent week. It is estimated that around 1 in 25 people (95% credible interval: 1 in 25 to 1 in 20) in Scotland had Covid-19 at any given time in the week ending 13 February 2022

- Nationwide, wastewater Covid-19 levels have shown an upturn, with the week ending on 14 February recording levels of 88 million gene copies per person per day (Mgc/p/d), up from 51 Mgc/p/d the previous week (ending 7

February). This moderate increase in wastewater viral levels is observed across many of the local authorities in Scotland.

- By specimen date, the seven-day combined PCR and LFD case rate continued to decrease in Scotland in the week leading up to 12 February. There were 794 weekly combined PCR and LFD cases per 100,000 population in the week to 12 February, which is a slight 4% decrease the previous week. This remains a high case rate compared to previous phases of the pandemic in Scotland.

- Data from the PHS Daily Dashboard shows that as of 12 February, the highest combined PCR and LFD weekly case rates by specimen date per 100,000 were observed amongst those aged 20 to 39, followed by those aged 40 to 49, 19 and younger, and 50 to 59. The lowest case rates were seen among those aged 60 to 69, 70 to 79, and 80 or older.

- The total combined PCR and LFD weekly case rates per 100,000 by specimen date among children and young adults (aged 19 or younger) in the week leading up to 12 February have decreased for all age groups compared to the previous week (ending 5 February). The exception is those aged 16 to 17, where case rates remain similar to the previous week.

- In the week to and including 16 February, Covid-19 hospital occupancy showed a decrease of 2% compared to the previous week ending 9 February, while combined ICU occupancy has decreased by 8 patients in the week to 16 February compared to the previous week ending 9 February.

- Admissions to hospital in the week to 12 February decreased by 18% compared to the previous week ending 5 February, while ICU admissions have decreased by 32% in the week to 15 February compared to the previous week ending 8 February.

- While remaining at a high level, average hospital admissions related to Covid-19 in children and young adults have decreased among those aged younger than 12 in the three weeks leading up to 9 February compared to the previous three-week period leading up to 2 February, and remained at similar levels for those aged between 12 and 21 in the same period. These figures refer both to young patients in hospital because of Covid-19 and with Covid-19, and are linked to PCR cases only.

- The overall number of Covid-19 deaths has continued to decrease in the week leading up to 13 February. Compared to the previous week ending 6 February, the number of deaths decreased by 33%, or 39 deaths, to a total of 79 deaths in the week leading up to 13 February.

- In the week leading up to 12 February 2022, Shetland Islands had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,147 cases per 100,000 population. Na h-Eileanan Siar had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 460 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.

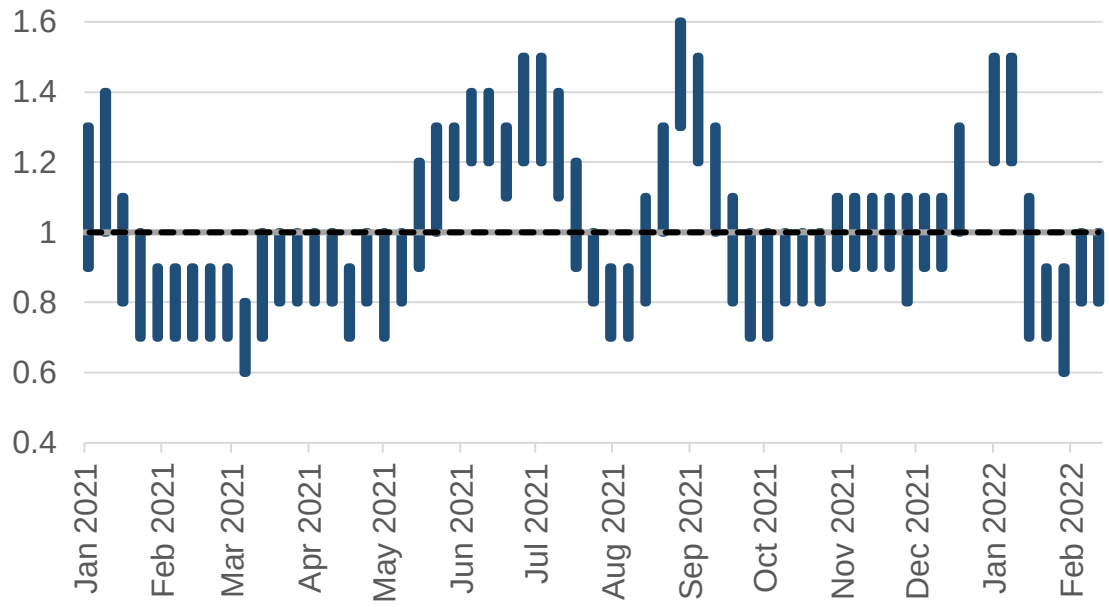
Estimated Infection Levels and Case Numbers

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 01 February is between 0.8 and 1.0. The lower limit and upper limit of the R value have remained unchanged since the last published figure (**Figure 1**) [2] [3].

Figure 1: R in Scotland over time by publishing week[4]



As at 1 February 2022, the UKHSA's consensus view was that the incidence of new daily infections in Scotland was between 204 and 377 per 100,000 people. This equates to between 11,200 and 20,600 people becoming infected each day in Scotland[5] [6].

[2] Scottish Government: Coronavirus (Covid-19): modelling the epidemic - gov.scot (www.gov.scot)
[3] Using data to 14 February 2022.
[4] 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 February 2022, reflecting the R value as of 1 February 2022.
[5] Using data to 14 February 2022.
[6] Scottish Government: Coronavirus (Covid-19): modelling the epidemic - gov.scot (www.gov.scot)

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 February was between -3% and 1%. The upper and lower limits have increased since the previous week[7] [8].

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 changes mentioned at the start of this report.

In Scotland, the percentage of people testing positive for Covid-19 increased in the two weeks up to 13 February 2022, but the trend was (statistically) uncertain in the most recent week. The estimated percentage of people testing positive for Covid-19 in the private residential population is 4.17% (95% credible interval: 3.69% to 4.64%)[9], equating to around 1 in 25 people (95% credible interval: 1 in 25 to 1 in 20). This is higher than the latest peak of 2.29% recorded in the week to 11 September 2021, and higher than the previous peak of 1.24% recorded in the week to 17 July 2021.

Figure 2 shows the Covid-19 Infection Survey daily positivity estimates for Scotland fluctuating in recent weeks, and showing early signs of levelling off in the most recent week. By comparison, the Scotland weekly case rate by specimen date has levelled off since around 18 January, with a slight decrease in the latest two weeks.

In the week 6 to 12 February 2022, estimates for the other nations of the UK are as follows and can be seen in **Figure 2**.

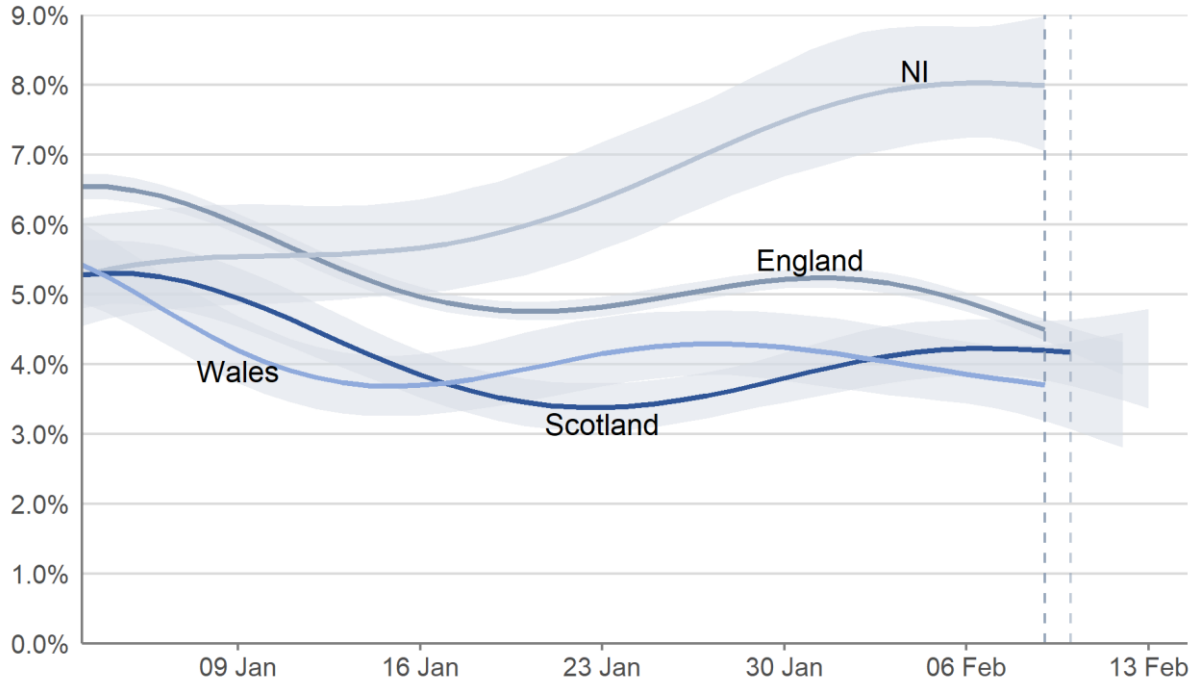
- In England, the percentage of people testing positive for Covid-19 decreased in the most recent week: 4.49% (95% credible interval: 4.34% to 4.64%), equating to around 1 in 20 people (95% credible interval: 1 in 25 to 1 in 20).
- In Wales, the percentage of people testing positive for Covid-19 continued to decrease in the most recent week: 3.71% (95% credible interval: 3.19% to 4.27%), equating to around 1 in 25 people (95% credible interval: 1 in 30 to 1 in 25).
- In Northern Ireland, the percentage of people testing positive for Covid-19 increased in the two weeks up to 12 February 2022, but the trend was uncertain in the most recent week; the estimated percentage of people testing

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

positive is 7.99% (95% credible interval: 7.05% to 8.98%), equating to around 1 in 13 people (95% credible interval: 1 in 14 to 1 in 11)[10] [11].

In Scotland, the trend over time for the estimated percentage of people testing positive for Covid-19 in private residential households were uncertain for all age groups in the most recent week due to wide confidence intervals. Meanwhile, weekly PCR or LFD case rates by specimen date across Scotland continue to see a slight decrease with some difference between age groups[12].

Figure 2: Modelled daily estimates of the percentage of the private residential population testing positive for Covid-19 in each of the four nations of the UK, between 3 January and 13 February 2022, including 95% credible intervals.



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 141 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.

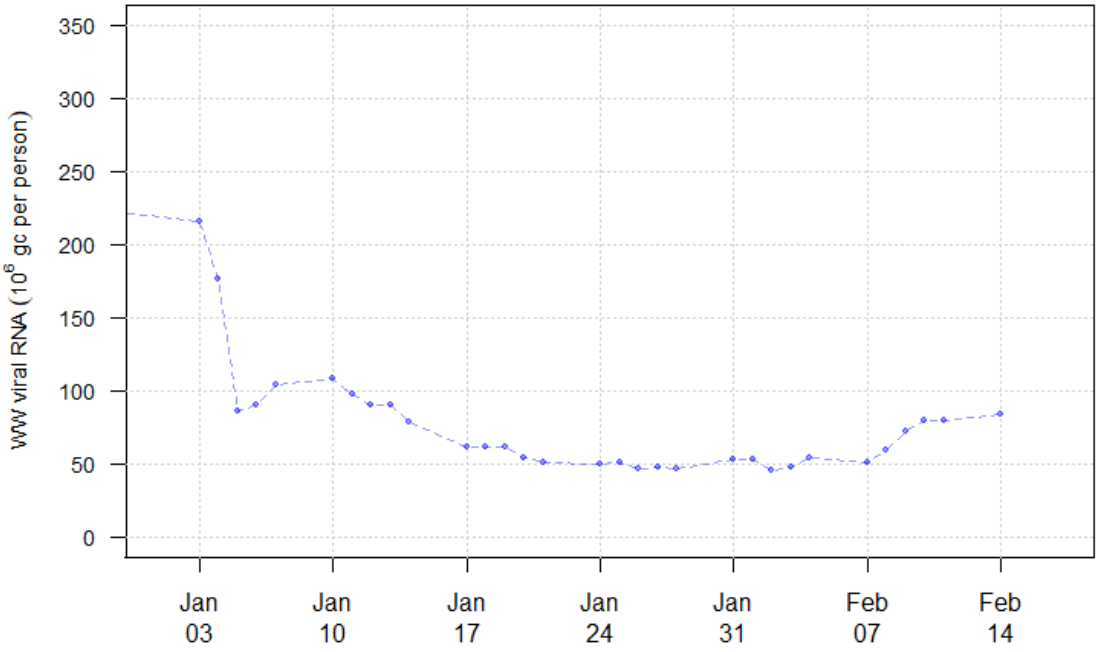
Nationwide, wastewater Covid-19 levels have shown an upturn, with the week ending on 14 February recording levels of 88 million gene copies per person per day (Mgc/p/d), up from 51 Mgc/p/d the previous week (ending 7 February). This

[10] Scottish Government: Coronavirus (Covid-19): infection survey - gov.scot (www.gov.scot)
[11] The ratios presented are rounded to the nearest 100 if over 1,000, to the nearest 10 if under 1,000, to the nearest 5 if under 100 and to 1 if under 20. This may result in credible intervals that appear to be similar to the estimated average ratio.
[12] Scottish Government: Coronavirus (Covid-19): infection survey - gov.scot (www.gov.scot)

moderate increase in wastewater viral levels is observed across many of the local authorities in Scotland[13].

Compared to before December 2021, wastewater Covid-19 levels appear lower than anticipated given the known levels of Covid-19 activity. This effect may be due to the switchover from Delta variants to the new Omicron variant, and their shedding properties. Thus, **Figure 3** shows only data from after the end of 2021, at which point the Omicron variant already represents almost all cases in Scotland. From this, we see a rapid decline from peak levels in early January with stable wastewater viral levels since late January[14].

Figure 3: National running average trends in wastewater Covid-19 from 31 December 2021 to 14 February 2022[15]



Covid-19 Cases

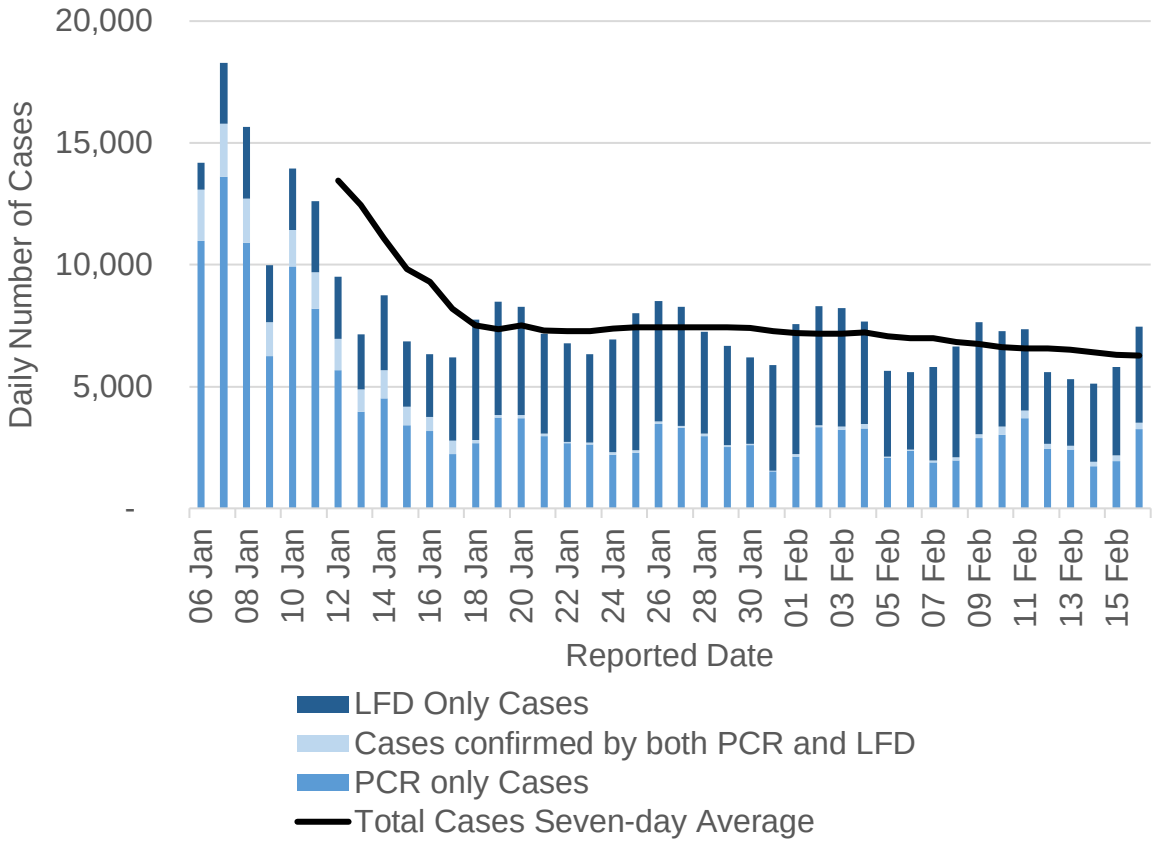
Please note that on 5 January 2022 people were advised that they no longer need to seek a confirmatory PCR test following a positive lateral flow test. This will impact the number of cases reported from 5 January 2022, and means that comparisons over time need to be made with caution. The Omicron variant represents the dominant variant in Scotland. For more information on the difference between reporting and specimen date, please see this earlier publication.

By reporting date[16], an average number of 6,270 cases confirmed by either PCR only, LFD only or both PCR and LFD tests were reported per day in the week leading

[13] Scottish Government: Coronavirus (Covid-19): modelling the epidemic - gov.scot (www.gov.scot)
[14] Ibid.
[15] Ibid.
[16] The reporting date is when the result of the test is authorised and released to Public Health Scotland by NHS Scotland and UK Government Regional Testing Laboratories.

up to 16 February. The seven-day average number of daily reported cases levelled off between mid to late January, and has been slightly decreasing since. In the most recent week there continued to be a slight decrease of 7% from the daily average of 6,744 cases reported in the week leading up to 9 February (**Figure 4**)[17].

Figure 4: Positive daily reported case numbers by the type of test used. Using data to 16 February 2022[18].



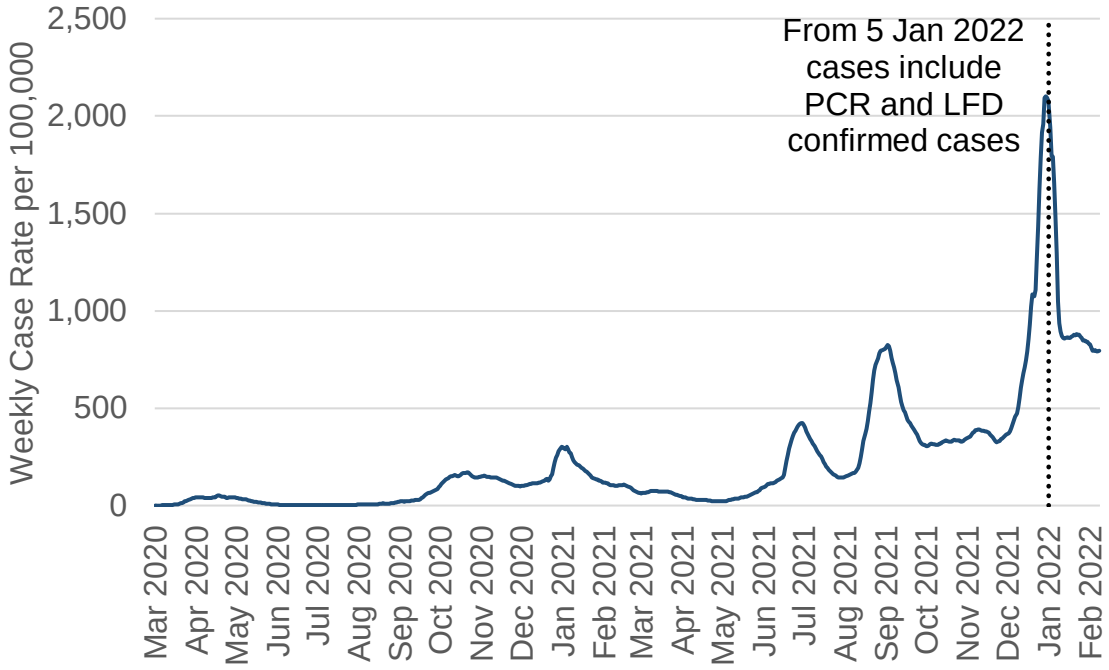
For comparisons over time it is more reliable to look at case rates by specimen date[19]. Up until 5 January, case rates by specimen date were only identifiable for cases confirmed by a PCR test, but following the change in testing policy, case rates by specimen date are now available for cases confirmed either by PCR or LFD test. Comparisons over this time period must be made with caution, as changes might reflect changes in testing behaviour rather than changing infection levels.

Following a sharp drop in the weekly rate of PCR or LFD confirmed Covid-19 cases after the testing policy change on 5 January, the rate of decrease has slowed since mid-January. By specimen date, the seven-day combined PCR and LFD case rate continued to decrease in Scotland in the week leading up to 12 February. There were 794 weekly combined PCR and LFD cases per 100,000 population in the week to 12 February, which is a slight 4% decrease from 828 weekly cases per 100,000 on 5 February and a 9% decrease from 871 weekly cases on 15 January (**Figure**

[17] Scottish Government: Coronavirus (COVID-19): trends in daily data
[18] Ibid.
[19] The specimen date is the date the sample was collected from the patient.

5)[20]. This remains a high case rate compared to previous phases of the pandemic in Scotland.

Figure 5: Seven-day combined PCR and LFD case rate for Scotland by specimen date. Data to 12 February 2022[21].



As at 12 February, the highest combined PCR and LFD weekly case rates by specimen date per 100,000 were seen among those aged 20 to 39, at 1,118 weekly cases per 100,000, followed by those aged 40 to 49, 19 and younger, and 50 to 59. The lowest case rates were seen among those aged 60 to 69, 70 to 79, and 80 or older. All age groups for people younger than 50 years old had a higher weekly case rate per 100,000 than the Scottish average in this week.

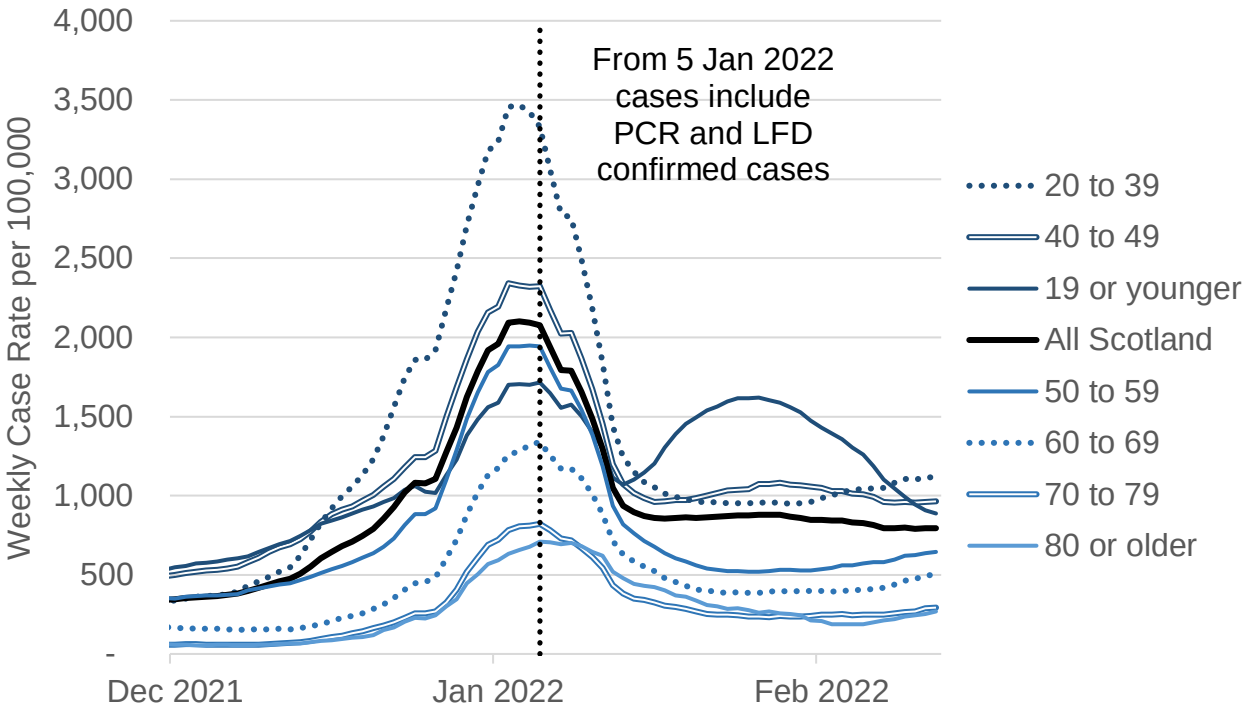
There are some differences in the trend of weekly case rates over time between age groups. With the exception of those aged 19 or younger, weekly case rates were decreasing across all age groups in early January. In mid-January weekly case rates levelled off among those aged 20 or older, but in the most recent week leading up to 12 February there has been a slight increase in case rates for all age groups aged 50 or over compared to the week leading up to 5 February.

Among those aged 19 or younger, weekly PCR or LFD case rates by specimen date increased from mid-January, peaking on 26 January with 1,620 weekly cases per 100,000 (**Figure 6**)[22]. The overall weekly case rate for those aged 19 or younger has since decreased to 886 per 100,000 in the week to 12 February. The weekly case rates decreased for all age bands younger than 20, apart from 16 to 17 where it remained similar to the previous week [23].

[20] Public Health Scotland: Covid-19 Daily Dashboard
[21] Before 5 January 2022, the case rate includes only positive laboratory confirmed PCR tests.
[22] Public Health Scotland: Covid-19 Daily Dashboard
[23] Ibid.

For those aged 19 or younger, the highest combined PCR and LFD weekly case rates by specimen date per 100,000, as of 12 February, were observed amongst those aged 18 to 19, followed by those aged 5 to 11, 12 to 13, and 16 to 17. The lowest weekly case rates were seen among those aged 14 to 15, 2 to 4, and 1 or younger.

Figure 6: Weekly total combined PCR and LFD cases per 100,000 population in Scotland by age group, by specimen date. Data to 12 February 2022[24].



Due to different case definitions across the UK, comparisons between countries cannot be made at this time. Cases data from Scotland and Northern Ireland includes both PCR and LFD test results. Cases data from Wales includes both PCR only results, and cases data from England includes PCR, LFD and LAMP (loop-mediated isothermal amplification) test results.

Additionally, from 31 January 2022, case reporting in England and Northern Ireland has changed to an episode-based definition which includes possible reinfections. Historical data on cases by specimen date from these two countries has been revised back to the beginning of the pandemic, but cases by reporting dates have not. This changing case definition has not yet been implemented for data from Scotland or Wales. Reported case numbers can be found on the UK Government Dashboard.

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

[24] Before 5 January 2022, the case rate includes only a positive laboratory confirmed PCR tests.

will resume reporting on these comparisons. To compare estimated infection levels in private residential households across the UK, please see the previous section on the Covid-19 Infection Survey.

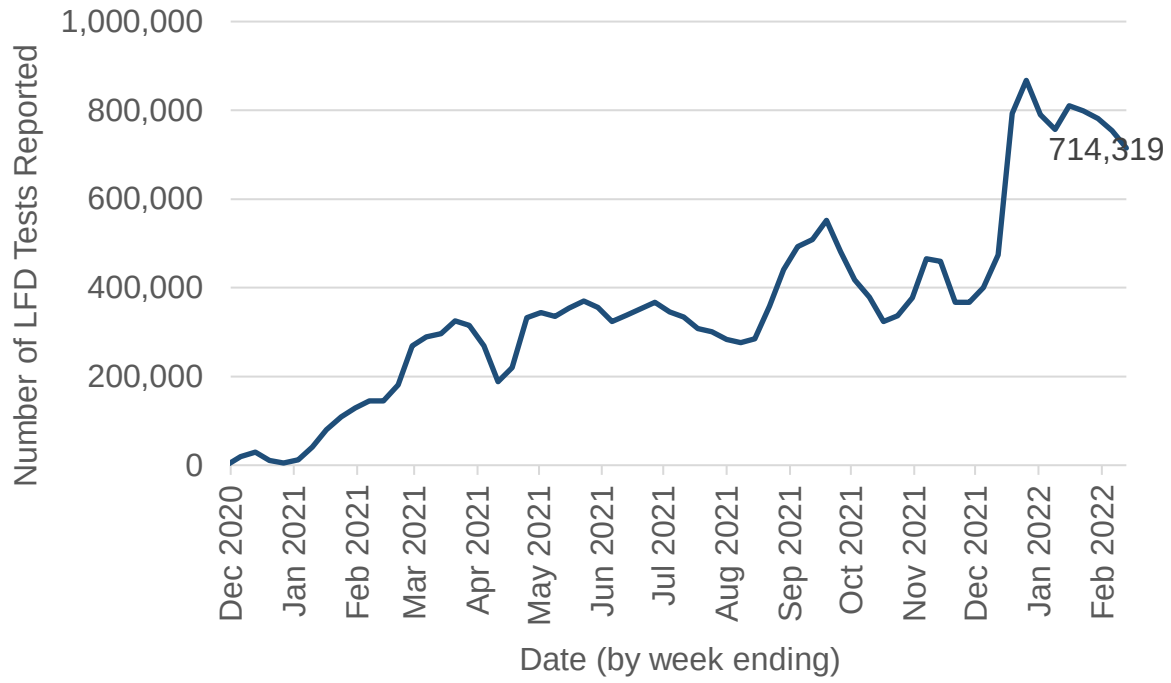
Testing Rates and Positivity

After a period of increase, the seven-day total of conducted PCR tests per 1,000 population peaked at 83 on 7 January 2022, and then decreased to 33 on 23 January. The seven-day total of conducted PCR tests per 1,000 has since plateaued, with 28 tests per 1,000 people in the week leading up to 16 February.

Showing a similar trend, the proportion of positive PCR tests in the last seven days (test positivity rate) reached 29.4% on 4 January and then sharply decreased to 17.9% on 18 January. The PCR test positivity rate fluctuated between 17.2% and 18% in the two weeks to 9 February, and has increased to a 18.8% PCR positivity rate in the week to 16 February[25]. Please note that caution must be exercised when interpreting these figures following changes to the testing policy on 5 January 2022.

After a decrease in the number of LFD tests that were reported between 27 December 2021 and 9 January 2022, there was a peak in reported LFD tests on 16 January 2022, with 810,225 reported tests[26]. The weekly total of tests reported in the week to 13 February decreased by 5% from the previous week leading up to 6 February. There were 714,319 reported tests in the week to 13 February (**Figure 7**)[27].

Figure 7: Number of LFD Tests Reported by Week Ending. Data up to the 13 February 2022.



[25] Scottish Government: Coronavirus (COVID-19): daily data for Scotland
[26] Public Health Scotland: Covid-19 Statistical Report
[27] Ibid.

YouGov survey results have shown that on 15 to 16 February, 52% of respondents had taken a LFD/antigen test and 9% a PCR test in the past week[28]. Of those who had taken a LFD/antigen test, 45% recorded the result of their last LFD/antigen test online and 50% did not record the results online[29].

Scottish Contact Survey asks whether people use Lateral Flow Device 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 3 February - 9 February, decreasing from 78% two weeks prior [30].

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[31]. The SCS[32] is based on a longitudinal survey with a larger sample of around 3,000, with the responses being modelled to represent the Scottish population.

Covid-19 Reinfections

In Scotland, possible reinfections are 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. The current Covid-19 Case definition only includes the first time a person is infected, but Public Health Scotland is currently reviewing its methodologies and infrastructure to incorporate reinfection reporting routinely in late February 2022, as well as provide revised historical data on hospitalisations and deaths. See more in the PHS Weekly Report.

See previous publications on the most recent updates on reinfections in Scotland.

[28] 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 18 January)?'

[29] *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: 550 - All who have taken a Lateral Flow/antigen test in the last week)

[30] Scottish Government: Coronavirus (COVID-19): modelling the epidemic - gov.scot (www.gov.scot)

[31] 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.

[32] 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.

Severe Illness: Hospitalisation, ICU and Deaths

Hospital and ICU Occupancy and Admissions

Following changes in the Covid-19 Case definition and changing testing policies since 5 January 2022, hospital and ICU occupancy figures now include patients with Covid-19 cases confirmed by either PCR or LFD. Historical figures have been updated retrospectively from 9 January 2022.

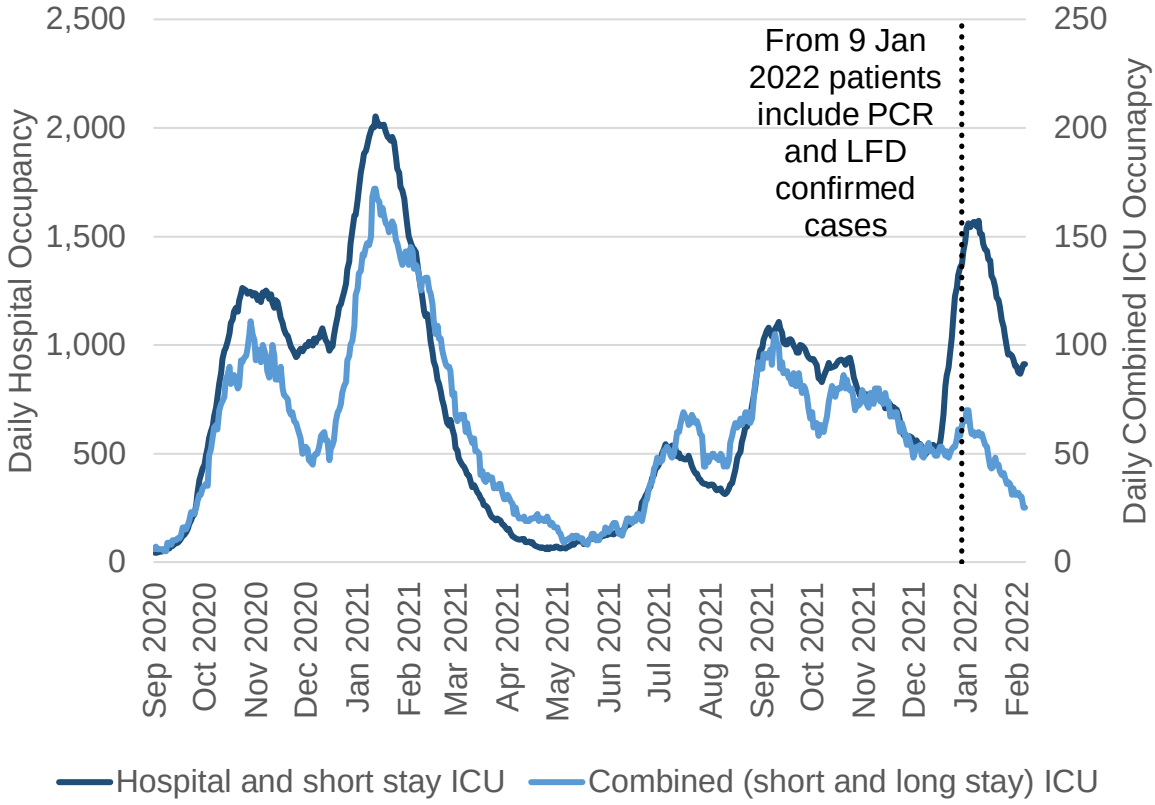
Similarly, Covid-19 admissions to hospital (including for children and young people) now include patients with Covid-19 cases confirmed either by PCR or LFD. Historical figures have been updated retrospectively from 5 January 2022. Please note that admissions to ICU only include PCR confirmed Covid-19 cases.

In the week to and including 16 February, daily Covid-19 hospital occupancy fluctuated. NHS boards reported 912 patients in hospital or in short stay ICU on 16 February with recently confirmed Covid-19, compared to 934 on 9 February. This is an overall 2% decrease. However, the last four days leading up to 16 February saw an increase from 868 to 912 Covid-19 patients in hospital. This compares with 2,053 patients in hospital at the peak in January 2021 (**Figure 8**).

Combined ICU occupancy (including short and long stay) has decreased to 25 patients on 16 February, a decrease of 9 patients or 26% compared to 9 February. The number of combined ICU occupancy remains lower than the peak of 172 ICU patients recorded in January 2021. There were 13 patients in short stay ICU on 16 February, compared to 21 a week previously. This is a decrease of 8 patients. The number of long stay ICU patients (more than 28 days) has continued to plateau in the week leading up to 16 February (**Figure 8**)[33].

[33] Public Health Scotland: Coronavirus (Covid-19): Trends in Daily Data

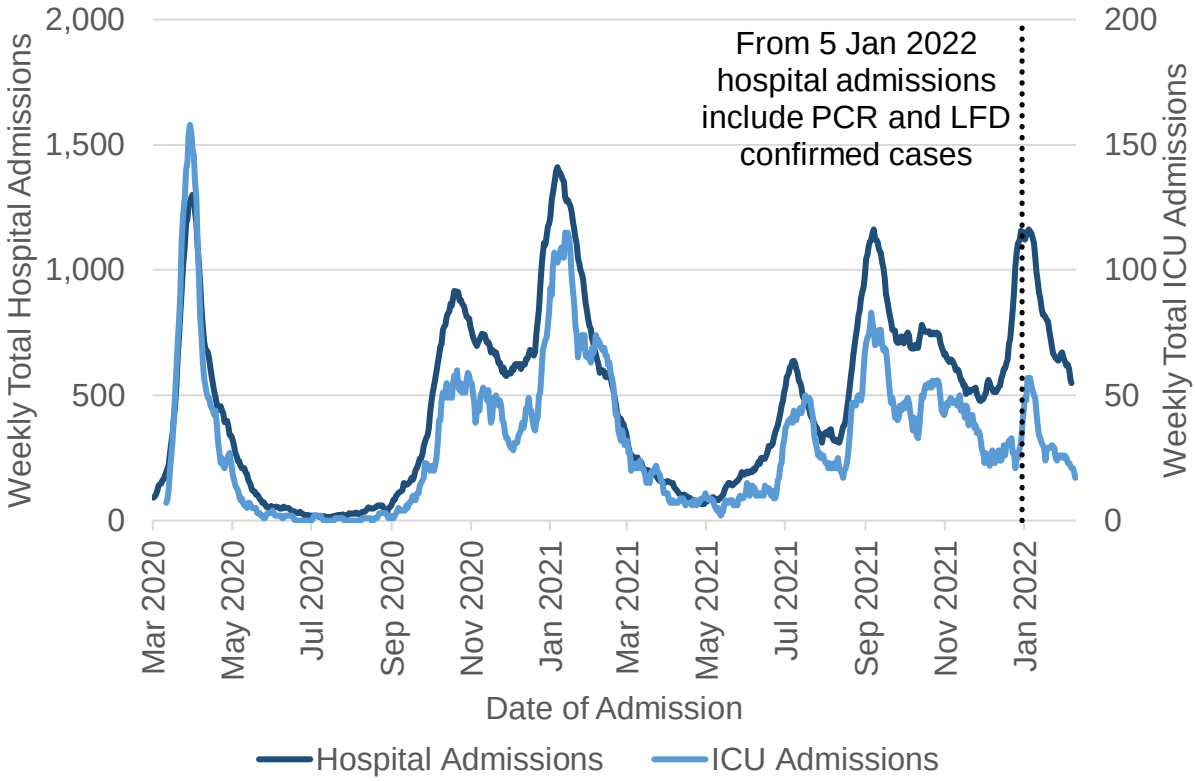
Figure 8: Patients in hospital (including short stay ICU), and patients in combined ICU with recently confirmed Covid-19, data up to 16 February 2022[34].



Admissions to hospital have continued to decrease over the last week, with 550 admissions to hospital for people with confirmed Covid-19 in the week to 12 February compared to 671 in the week to 5 February. This is a 18% decrease over the last week, and compares to 1,163 weekly hospital admissions during the most recent peak in the week leading up to 10 January (**Figure 9**)[35]. The latest data from PHS shows 17 new Covid-19 patients admitted to ICU in the week to 15 February, compared to 25 in the week to 8 February. This is a 32% decrease, and compares to 57 weekly ICU admissions during the most recent peak in early January 2022 (**Figure 9**)[36].

[34] 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.
[35] Public Health Scotland: Covid-19 Daily Dashboard
[36] Ibid.

Figure 9: Weekly total of Covid-19 admissions to hospital and ICU with a positive Covid test in Scotland[37] [38] [39].



According to data from the PHS Education Dashboard, the three-week rolling average number of Covid-19 related hospital admissions for those aged under 22 peaked in the three-week period leading up to 19 January 2022 at an average of 144 admissions, which was higher than previously seen in the pandemic. While remaining at a high level, average hospital admissions related to Covid-19 in children and young adults have decreased among those aged younger than 12 in the three weeks leading up to 9 February compared to the previous three-week period leading up to 2 February. Among those aged between 12 and 21, average hospital admissions remained at similar levels compared to the previous three-week period.

The highest rolling three-week average of Covid-19 related hospital admissions among children and young people as of 9 February, were observed amongst those aged 1 or younger, followed by those aged 5 to 11, 2 to 4, and 12 to 17. The lowest weekly case rates were seen among those aged 18 to 19 and 20 to 21[40]. These

[37] Data on hospital admissions goes up to 12 February 2022 and data for admissions to ICU up to 15 February 2022.
[38] 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.
[39] Before 9 January 2022, hospital admissions were only included if the patient had a recent positive laboratory confirmed PCR test. This still applies to ICU admissions.
[40] Public Health Scotland: PHS COVID-19 Education Report

figures refer both to young patients in hospital because of Covid-19 and with Covid-19.

In the three-week period from 12 January to 1 February 2022, almost 16% of patients have a length of stay in hospital of between 24 and 48 hours each week. There has been a steady decrease of patients having a length of stay of 48 hours or longer each week over this three-week period. It is important to note that the length of stay in hospital can be influenced by a variety of factors including age, reason for admission, co-morbidities and hospital pressures[41].

While it may be helpful to compare hospital occupancy 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 death figures are not directly comparable across the four nations. For more information see UK Government website.

The seven-day average hospital occupancy in Scotland per 100,000 population was 16 patients in the week to and including 15 February 2022. The seven-day average hospital occupancy per 100,000 in the same period for other UK nations was as follows[42]:

- England: 18 per 100,000
- Northern Ireland: 27 per 100,000
- Wales: 21 per 100,000.

In Scotland, there was a daily average of 1 hospital admissions per 100,000 population in the week to and including 12 February 2022. Seven-day average hospital admissions per 100,000 in the same period for other UK nations were as follows[43]:

- England: 2 per 100,000
- Northern Ireland: 2 per 100,000
- Wales: 1 per 100,000.

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 Covid deaths. This came after three weeks of increasing numbers of deaths, largely consisting of

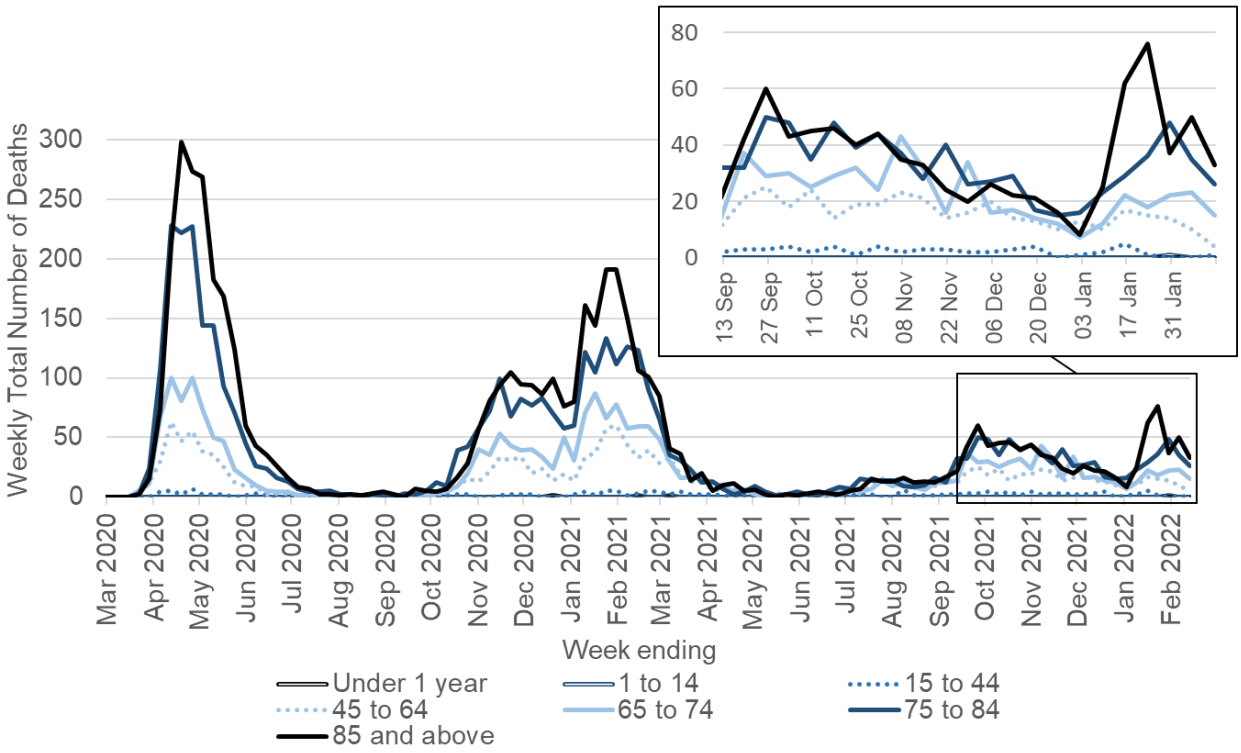
[41] Public Health Scotland: Covid-19 statistical report - 16 February 2022
[42] UK Government: Coronavirus (Covid-19) in the UK (accessed 16 February 2022)
[43] Ibid.

fatalities among those aged 45 or 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 decreased by 33%, or 39 deaths, to a total of 79 deaths in the week leading up to 13 February, compared to 118 in the week leading up to 6 February. This figure is 88% 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[44].

When it comes to Covid-19 related deaths across age groups in the week to 13 February, the number of deaths decreased among all age groups with people aged over 45 compared to the previous week (the week to 6 February) (**Figure 10**). There was one death among those under age 44 in the week to 13 February in the age group 15 to 44, but the number of Covid-19 related deaths among the younger age groups remain low. National Records of Scotland publish a weekly detailed analysis on deaths involving Covid-19 in Scotland in their weekly report[45].

Figure 10: Weekly total number of deaths where Covid-19 was mentioned on the death certificate, by age group. Data to the week ending 13 February 2022.



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.

[44] NRS Scotland: Deaths involving coronavirus (Covid-19) in Scotland
[45] Ibid.

In the week leading up to 13 February 2022, deaths from all causes were 3% below average levels for this time of year. This constitutes the sixth week in a row where deaths were below average[46].

Deaths data from England, Northern Ireland, Scotland and Wales use different methodologies, so they cannot be directly compared. Additionally, deaths within 28 days of positive has been updated on 1 February 2022 to include deaths following the most recent episode of infection, using the new episode-based case definition in England. For more information see UK Government website.

There were 2 average daily deaths per one million population in the week leading up to 16 February 2022 in Scotland. In the same time period, average daily deaths for the other UK nations were as follows[47] [48]:

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

Resilience: Vaccinations and Antibody Estimates

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 16 February, around 4.4 million people had received their first dose, which is an estimated 92.2% of the population aged 12 and older. Around 4.1 people had received their second dose, which is an estimated 86.6% of the population aged 12 and older. Additionally, nearly 3.4 million people in Scotland had received a third vaccine dose or booster, which is an estimated 70.4% of the population aged 12 and older.

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.

[46] NRS Scotland: Deaths involving coronavirus (Covid-19) in Scotland
[47] Deaths within 28 days of positive test.
[48] UK Government: Coronavirus (Covid-19) in the UK (accessed 16 February 2022)

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 Omicron variant (parent Pango lineage B.1.1.529) can be separated into three main groups: BA.1, BA.2 and BA.3. The original Omicron lineage, BA.1, is dominant in the UK, however, there are increasing numbers of BA.2 sequences identified both in the UK and internationally[49]. Details of risk assessments for both BA.1 and BA.2 carried out by UKHSA can be found on the UK government's website[50] and in the State of the Epidemic reports published on 4 February and 28 January 2022. The latest BA.2 risk assessment update issued on 9 February indicates that increased transmissibility and/or shorter serial interval for BA.2 compared to BA.1 contribute to BA.2 growth advantage[51].

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 over 90% 2 or more weeks following vaccination for those aged 50 and older[52].

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[53].

More data on vaccine effectiveness against the Omicron variant can be found in the UKHSA vaccine surveillance reports.

[49] UK Government: Covid-19 variants identified in the UK
[50] Investigation of SARS-CoV-2 variants of concern: variant risk assessments - GOV.UK (www.gov.uk)
[51] Risk assessment for SARS-CoV-2 variant: VUI-22JAN-01 (BA.2) 9 February 2022 (publishing.service.gov.uk)
[52] Covid-19 vaccine weekly surveillance reports (weeks 39 to 6, 2021 to 2022) - GOV.UK (www.gov.uk) – week 6
[53] Covid-19 vaccine surveillance report - week 6 (publishing.service.gov.uk)

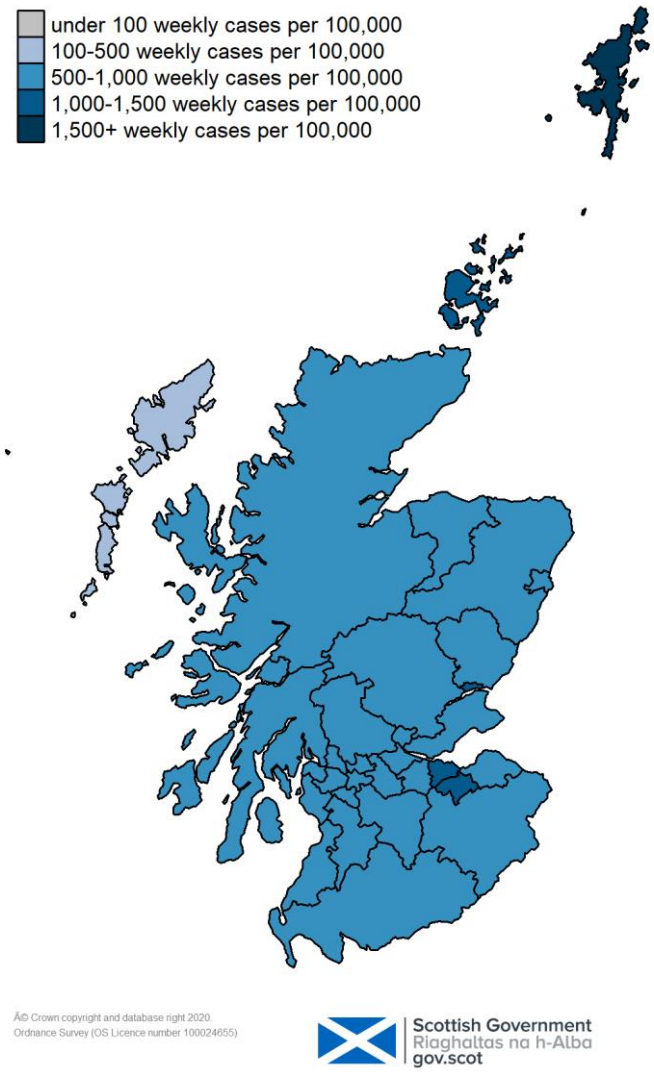
There is evidence that there is reduced overall risk of hospitalisation for Omicron compared to Delta[54] [55], with the most recent estimate of the risk of presentation to emergency care or hospital admission with Omicron was approximately half of that for Delta[56].

Situation by Local Authority within Scotland

In the week leading up to 12 February 2022, Shetland Islands had the highest combined PCR and LFD weekly case rate per 100,000 by specimen date, reporting 2,147 cases per 100,000 population. Na h-Eileanan Siar had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 460 cases per 100,000. The total combined LFD and PCR weekly case rates by specimen date per 100,000 had increased in 14 local authorities in the week leading up to 12 February 2022 compared with the weekly case rate in the week to 5 February 2022, while 18 local authorities saw a decrease in the same period (**Figure 11**)[57].

[54] University of Edinburgh: Severity of Omicron variant of concern and vaccine effectiveness against symptomatic disease
[55] Imperial College Covid-19 response team: Report 50: Hospitalisation risk for Omicron cases in England
[56] UK Health Security Agency: SARS-CoV-2 variants of concern and variants under investigation
[57] Public Health Scotland: Covid-19 Daily Dashboard

Figure 11: Weekly total LFD or PCR case rates per 100,000 people in Local Authorities across Scotland on 12 February 2022 by specimen date.



Please note that the following local authority hotspot modelling uses data to 14 February 2022 from several academic groups to give an indication of whether a local authority is likely to experience high levels of Covid-19. This has been compiled via UKHSA into a consensus. **The modelled weekly case rate below is not directly comparable to the weekly case rate reported in the section and figure above.**

The local authority modelling has not been compiled via UKHSA into a consensus this week and is based on one modelling group due to issues with some of the models converging. Some of the models contributing to this analysis are informed by both PCR and LFD positive tests whilst others are currently informed by PCR only. Due to inconsistent results from modelling, UKHSA has not been able to provide estimates for the Orkney or Shetland Islands this week.

Modelled rates of positive tests per 100,000 using data to 14 February indicate that, for the week commencing 27 February 2022, all 30 local authorities for which

estimates were provided are expected to exceed 50 cases per 100,000 with at least 75% probability. 28 out of 30 local authorities are expected to exceed 100 cases per 100,000, with at least 75% probability. The exceptions are Moray and Na h-Eileanan Siar.

15 out of 30 local authorities are expected to exceed 300 cases per 100,000, with at least 75% probability. These are Angus, Argyll & Bute, Edinburgh, Dundee, East Dunbartonshire, Glasgow, Highlands, Midlothian, North Lanarkshire, Perth and Kinross, Renfrewshire, South Lanarkshire, Stirling, West Dunbartonshire and West Lothian.

Five local authorities are expected to exceed 500 cases per 100,000, with at least 75% probability. These are Glasgow, North Lanarkshire, Renfrewshire, Stirling and West Dunbartonshire[58].

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 February) indicate an average of 4.4 contacts.

Mean contacts have decreased within the work setting by 37%, while contacts within the settings (contacts outside home, school and work) have increased by 40%. Contacts within the home have remained at a similar level over the same period. Individuals under 50 years of age have reported a decrease in contacts in the last two weeks whereas those aged 50 years and over have reported an increase. Increases were largely driven by contacts within the work setting for those in the 50 to 59 age group, with individuals aged 60 and over reporting a rise in contacts within other settings.

Modelling the Epidemic

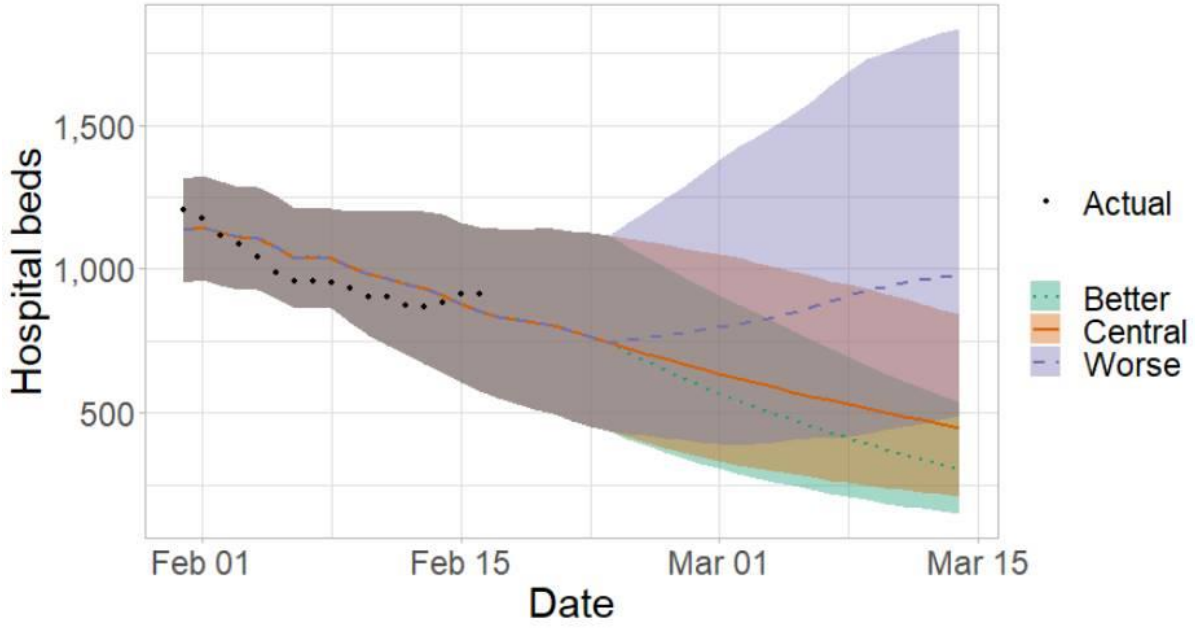
The latest Modelling the Epidemic report includes projections over the next few weeks for combined Delta and Omicron infections. These projections include the effect of the interventions announced on 14 and 21 December 2021; those announced as being lifted from 17, 24 and 31 January 2022; and booster 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. With this taken into account, it is estimated that daily infections

[58] Scottish Government: Coronavirus (Covid-19): modelling the epidemic - gov.scot (www.gov.scot)

may be between 400 and 35,000 in mid-March[59]. However, the future trajectory of infections is uncertain.

Figure 12 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 and intensive care in the next four weeks[60].

Figure 12: Medium term projections of modelled hospital bed demand, from Scottish Government modelling, based on positive test data reported up to 14 February 2022[61] [62].



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 on 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 4 March. For information on the most

[59] Scottish Government: Coronavirus (Covid-19): modelling the epidemic - gov.scot (www.gov.scot)
[60] Ibid.
[61] Scottish Government: Coronavirus (Covid-19): modelling the epidemic - gov.scot (www.gov.scot)
[62] Following the announcement removing the need for a confirmatory PCR test in some cases combined PCR and LFD reported date data has been used from 6th January.

recent estimates, see the State of the Epidemic report published on 4 February 2022. Weekly modelled estimated for Scotland are also published in the Modelling the Epidemic report, which can be found here.

Next steps

The Scottish Government continues to work closely with Public Health Scotland, modelling groups, Office of 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.

In the next publication we will include data as per the new case definition which combines Covid-19 cases confirmed by PCR or LFD tests, by specimen date, and we are also expecting to incorporate reinfections data by using episode based reporting. The report will continue to report on 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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