

## Coronavirus (COVID-19): Analysis

### State of the Epidemic in Scotland – 25 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 18 February 2022<sup>1</sup>. 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 23 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.

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<sup>1</sup> Scottish Government: [Coronavirus \(Covid-19\): state of the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/Coronavirus-Covid-19-state-of-the-epidemic)

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 been increasing in recent weeks. By comparison, the weekly case rate in Scotland has continued to decrease slightly in the most recent week, but remains high compared to previous phases of the pandemic. Nationwide, wastewater Covid-19 RNA levels did not continue the upturn seen last week, but have remained at similar levels.

While overall weekly PCR or LFD case rates by specimen date across Scotland slightly decreased, the case rates for those aged 50 or older continued to increase in the most recent week. The biggest rise in case rates was seen among those aged 70 to 79, and aged 80 or older. Similarly, the estimated percentage of the population testing positive for Covid-19 according to the Office for National Statistics (ONS), Covid-19 Infection Survey has increased for those aged above 40 years in the week to 19 February 2022. The majority of local authorities saw an increase in the weekly PCR or LFD case rate by specimen date in the most recent week, with only 11 local authorities seeing decreasing weekly case rates.

Daily hospital occupancy and the weekly number of Covid-19 related admissions to hospital have both increased in the most recent week. However, combined ICU occupancy and admissions to ICU remained at similar levels to the previous week. Covid-19 deaths have decreased overall in the week leading up to 20 February, however, the number of Covid-19 deaths increased among those aged 85 or older.

## Key Points

- The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 8 February is between 0.9 and 1.1. The lower and upper limits of the R value have increased since the last published figure.
- As at 8 February, the UKHSA's consensus view was that the incidence of new daily infections in Scotland was between 252 and 498 per 100,000 people.
- The latest growth rate for Scotland as at 8 February was between -2% and 1%. The upper limit has remained unchanged since the previous week, but the lower growth limit has increased.
- As determined through the latest weekly ONS Covid-19 Infection Survey, in Scotland, the percentage of people testing positive for Covid-19 increased in the week 14 to 20 February 2022. In the same week, it is estimated that around 1 in 20 people (95% credible interval: 1 in 25 to 1 in 20) had Covid-19 at any given time.
- Nationwide, wastewater Covid-19 RNA levels did not continue the upturn seen last week. The week ending on 21 February saw levels of around 76 million gene copies per person per day (Mgc/p/d), slightly lower than 90 Mgc/p/d the previous week.

- By specimen date, the seven-day combined PCR and LFD case rate continued to decrease slightly in Scotland in the week leading up to 19 February. There were 786 weekly combined PCR and LFD cases per 100,000 population in the week to 19 February, which is a 1% decrease from 794 weekly cases per 100,000 on 12 February and a 9% decrease from three weeks previous (866 on 29 January). This remains a high case rate compared to previous phases of the epidemic in Scotland.
- Data from the PHS Daily Dashboard shows that as of 19 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 weekly 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 19 February have decreased for all age groups compared to the previous week (ending 12 February). The exceptions are those aged under 1 and 16 to 17, where there has been a slight increase compared to the previous week.
- In the week to and including 23 February, Covid-19 hospital occupancy showed an increase by 20% compared to the previous week ending 16 February, while combined ICU occupancy (short and long stay) has remained unchanged in the week to 23 February compared to the previous week ending 16 February.
- Admissions to hospital in the week to 19 February increased by 11% compared to the previous week ending 12 February, while ICU admissions have remained at similar levels in the week to 22 February compared to the previous week ending 15 February.
- While remaining at a high level, average hospital admissions related to Covid-19 in children and young adults have decreased among all ages except for 12-17 and 20 -21 in the three weeks leading up to 16 February compared to the previous three-week period leading up to 9 February. These figures refer to both 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 20 February. Compared to the previous week ending 13 February, the number of deaths decreased by 6%, or 5 deaths, to a total of 75 deaths in the week leading up to 20 February.
- In the week leading up to 19 February 2022, Shetland Islands had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,121 cases per 100,000 population. Dumfries and Galloway had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 514 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 Health 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.

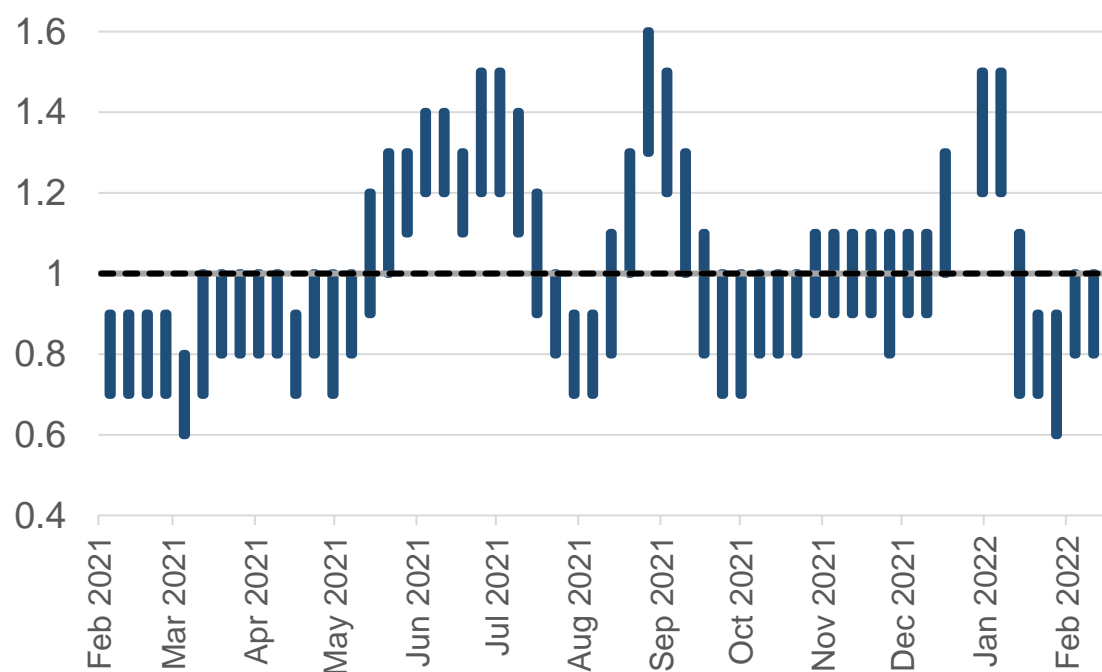
## Estimated Infection Levels and Case Numbers

### 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](https://www.gov.scot/covid-19-modelling).

The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 8 February is between 0.9 and 1.1. The lower and upper limits of the R value have increased since the last published figure (Figure 1)<sup>2 3</sup>.

Figure 1: R in Scotland over time by publishing week<sup>4</sup>



As at 8 February, the UKHSA's consensus view was that the incidence of new daily infections in Scotland was between 252 and 498 per 100,000 people. This equates to between 13,800 and 27,200 people becoming infected each day in Scotland<sup>5 6</sup>.

<sup>2</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/covid-19-modelling)

<sup>3</sup> Using data to 21 February 2022.

<sup>4</sup> 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 23 February 2022, reflecting the R value as at 8 February.

<sup>5</sup> Using data to 21 February 2022.

<sup>6</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/covid-19-modelling)

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 8 February was between -2% and 1%. The upper limit has remained unchanged since the previous week, but the lower growth limit has increased<sup>7 8</sup>.

## 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 week ending 20 February 2022. The estimated percentage of people testing positive for Covid-19 in the private residential population was 4.57% (95% credible interval: 4.09% to 5.12%)<sup>9</sup>, equating to around 1 in 20 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 increased in the most recent week. By comparison, the Scotland weekly case rate by specimen date per 100,000 people has levelled off since around 18 January, with a slight decrease in the latest three weeks.

In the week 13 to 19 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 continued to decrease in the most recent week. The estimated percentage of people testing positive is 3.84% (95% credible interval: 3.70% to 3.99%), equating to around 1 in 25 people (95% credible interval: 1 in 25 to 1 in 25).
- In Wales, the percentage of people testing positive in private residential households decreased in the latest two weeks, but the trend is uncertain in the most recent week. The estimated percentage of people testing positive is 3.23% (95% credible interval: 2.73% to 3.78%), equating to around 1 in 30 people (95% credible interval: 1 in 35 to 1 in 25).

<sup>7</sup> Using data to 21 February 2022.

<sup>8</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](#)

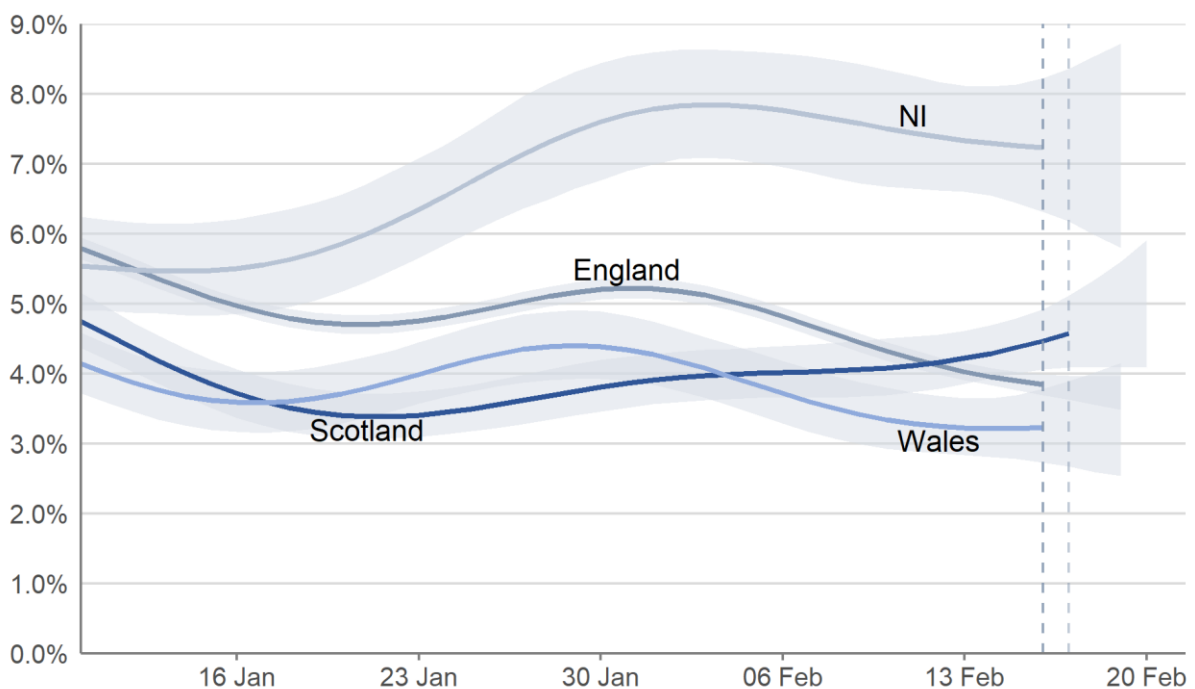
<sup>9</sup> A **credible interval** gives an indication of the uncertainty of an estimate from data analysis based on a sample population. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.



- In Northern Ireland, the trend in the percentage of people testing positive decreased in the latest two weeks, but the trend is uncertain in the most recent week. The estimated percentage of people testing positive is 7.23% (95% credible interval: 6.32% to 8.22%), equating to around 1 in 14 people (95% credible interval: 1 in 16 to 1 in 12)<sup>10 11</sup>.

In Scotland, the estimated percentage of the population testing positive for Covid-19 has increased for those aged above 40 years in the week ending 20 February 2022. The trend was uncertain for those aged under 40 years due to wide confidence intervals. Meanwhile, weekly PCR or LFD case rates by specimen date per 100,000 people across Scotland continue to see similar or decreasing case rates among most age groups under 40, while case rates among those aged 50 or older have increased over the most recent week<sup>12</sup>.

**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 9 January and 19 February 2022 for England, Wales and Northern Ireland, and 10 January and 20 February 2022 for Scotland, including 95% credible intervals.**



<sup>10</sup> Scottish Government: [Coronavirus \(Covid-19\): infection survey - gov.scot \(www.gov.scot\)](https://www.gov.scot)

<sup>11</sup> 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.

<sup>12</sup> Scottish Government: [Coronavirus \(Covid-19\): infection survey - gov.scot \(www.gov.scot\)](https://www.gov.scot)

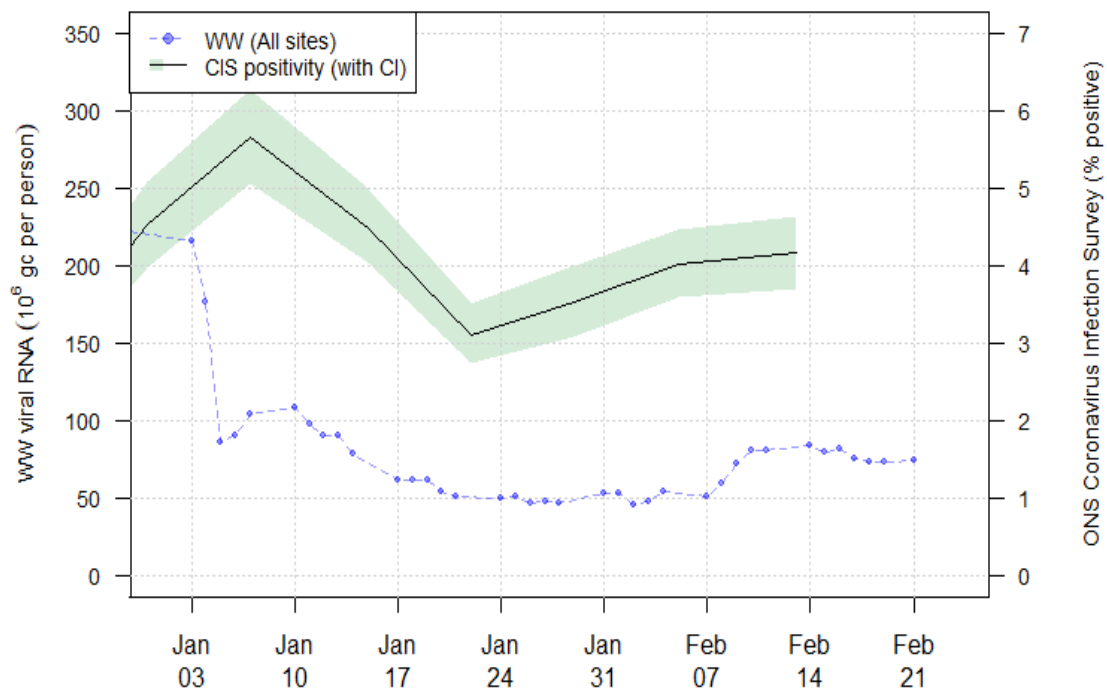
## Wastewater Estimates

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 RNA levels did not continue the upturn seen last week. The week ending on 21 February saw levels of around 76 million gene copies per person per day (Mgc/p/d), slightly lower than 90 Mgc/p/d the previous week<sup>13</sup>.

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 and a slight increase over February<sup>14</sup>.

**Figure 3: National running average trends in wastewater Covid-19 from 31 December 2021 to 21 February 2022, and CIS positivity estimates from 31 December to 12 February 2022<sup>15</sup>**



<sup>13</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot)

<sup>14</sup> Ibid.

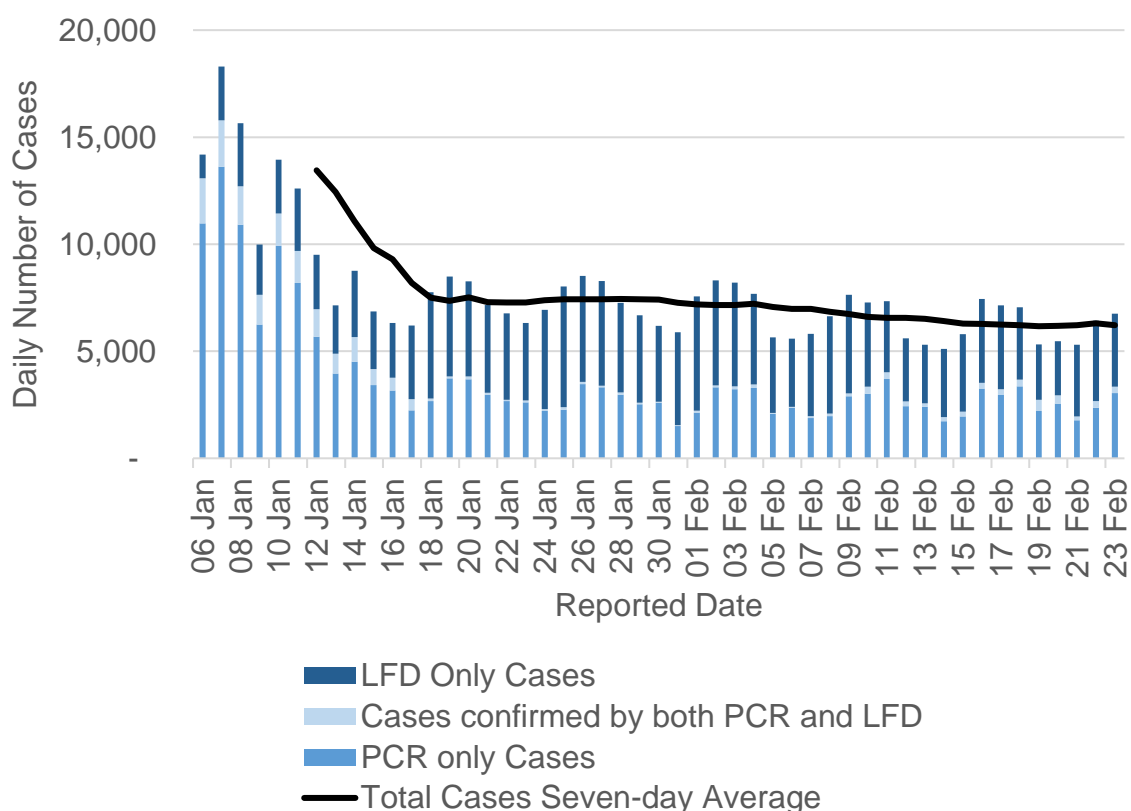
<sup>15</sup> Ibid.

## 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. For more information on the difference between reporting and specimen date, please see this [earlier publication](#).

By reporting date<sup>16</sup>, an average number of 6,211 cases confirmed by either a PCR or LFD test were reported per day in the week leading up to 23 February. The seven-day average number of daily reported cases levelled off between mid to late January, and has been decreasing at a slow rate since. In the most recent week there continued to be a slight decrease of 1% from the daily average of 6,270 cases reported in the week leading up to 16 February (**Figure 4**)<sup>17</sup>.

**Figure 4: Positive daily reported case numbers by the type of test used. Using data to 23 February 2022<sup>18</sup>.**



<sup>16</sup> 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.

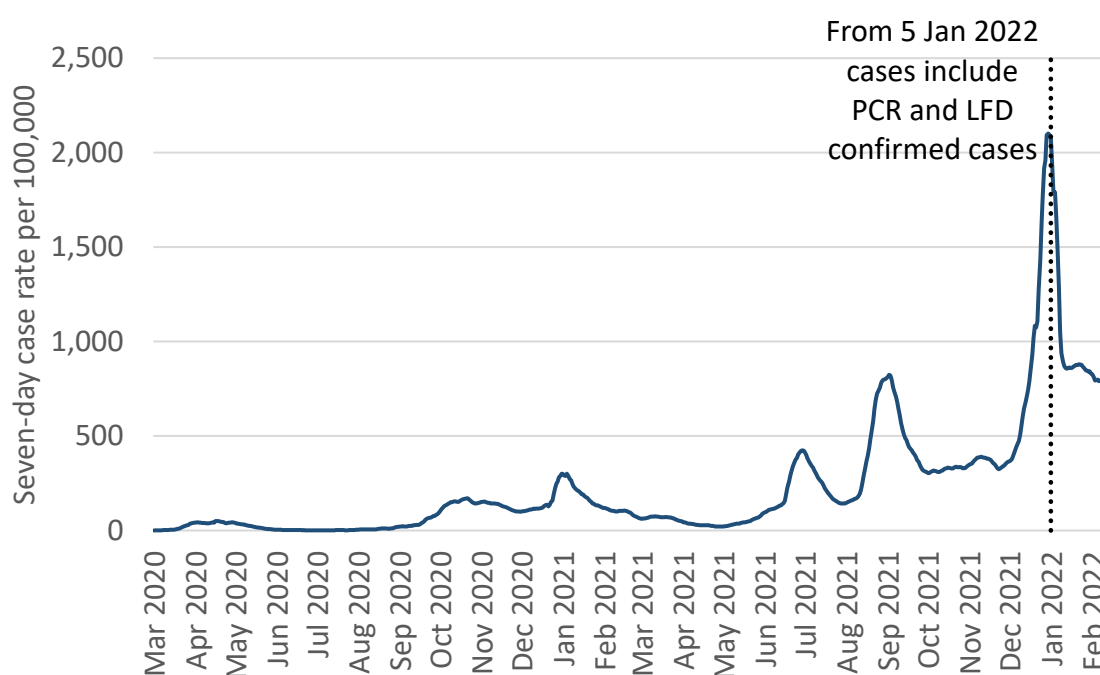
<sup>17</sup> Scottish Government: [Coronavirus \(COVID-19\): trends in daily data](#)

<sup>18</sup> Ibid.

For comparisons over time it is more reliable to look at case rates by specimen date<sup>19</sup>. 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 slightly in Scotland in the week leading up to 19 February. There were 786 weekly combined PCR and LFD cases per 100,000 population in the week to 19 February, which is a 1% decrease from 794 weekly cases per 100,000 on 12 February and a 9% decrease from three weeks previously (866 on 29 January) (**Figure 5**)<sup>20</sup>. 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 per 100,000 population for Scotland by specimen date. Data to 19 February 2022<sup>21</sup>.**



As of 19 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 weekly case rates were seen among those aged 60 to 69, 70 to 79, and 80 or older. Only the age groups 20 to 39 and 40 to 49 had a higher weekly case rate per 100,000 than Scotland's average in the latest week.

<sup>19</sup> The specimen date is the date the sample was collected from the patient.

<sup>20</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#)

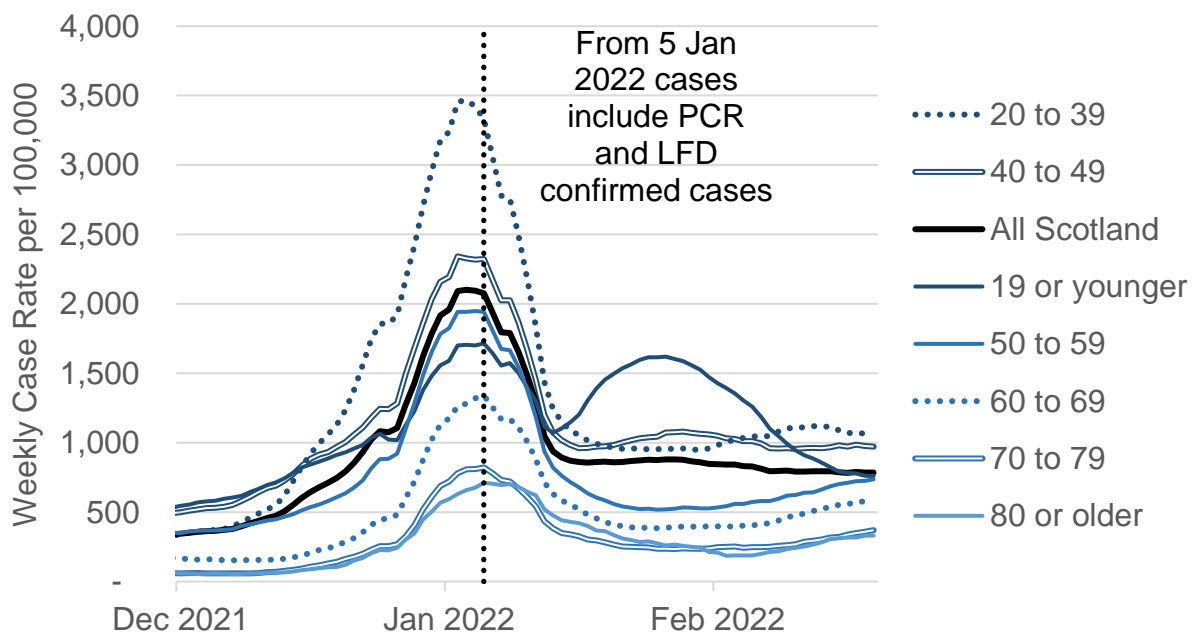
<sup>21</sup> Before 5 January 2022, the case rate includes only positive laboratory confirmed PCR tests.

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, while case rates among those aged 19 or younger peaked on 26 January with 1,620 weekly cases per 100,000 (**Figure 6**)<sup>22</sup>.

In the week to 19 February, the weekly case rates decreased or remained similar for most age bands younger than 40 compared to the week to 12 February, but there was an increase seen among those aged younger than 1 and those aged 16 to 17. All age bands from 50 and older saw an increase in case rates in this time period, with the case rate among those aged 70 to 79 increasing by 26%, and the case rate among those aged 80 or older increasing by 24% compared to the week to 12 February<sup>23</sup>.

For those aged 19 or younger, the highest combined PCR and LFD weekly case rates by specimen date per 100,000, as of 19 February, were observed amongst those aged 18 to 19, followed by those aged 16 to 17, 5 to 11, 12 to 13, and 14 to 15. The lowest weekly case rates were seen among those aged 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 19 February 2022<sup>24</sup>.**



<sup>22</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#)

<sup>23</sup> Ibid.

<sup>24</sup> Before 5 January 2022, the case rate includes only a positive laboratory confirmed PCR tests.

**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 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 sharply to 33 on 23 January. The seven-day total of conducted PCR tests per 1,000 has since decreased slightly, with 26 tests per 1,000 people in the week leading up to 23 February. 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 19.6% PCR positivity rate in the week to 23 February<sup>25</sup>. 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<sup>26</sup>. The weekly total of tests reported in the week to 20 February decreased by 12.2% from the previous week leading up to 13 February. There were 627,451 reported tests in the week to 20 February (**Figure 7**)<sup>27</sup>.

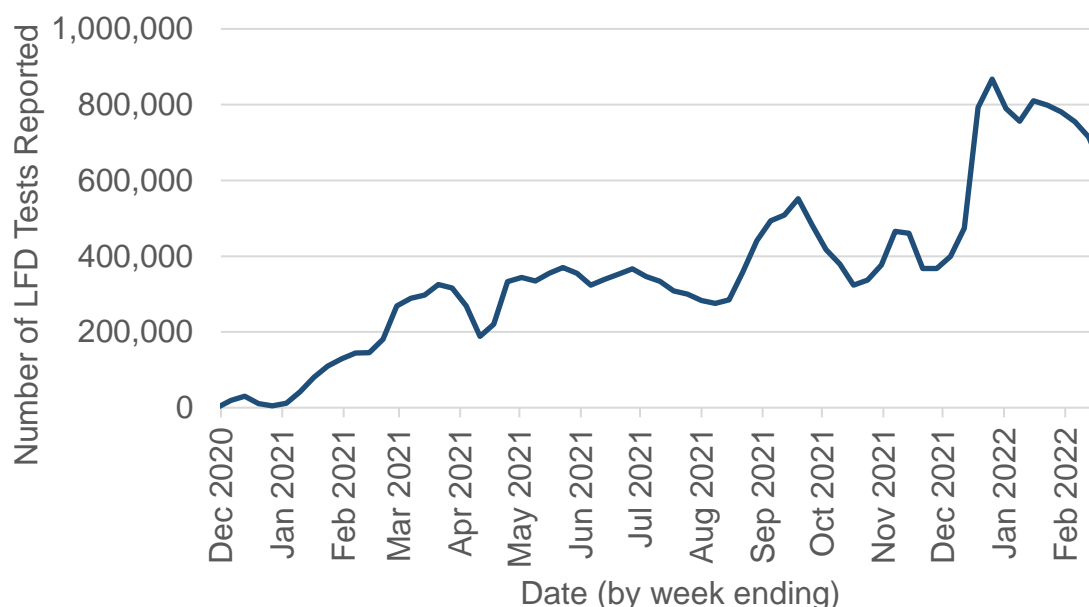
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<sup>25</sup> Scottish Government: [Coronavirus \(COVID-19\): daily data for Scotland](#)

<sup>26</sup> Public Health Scotland: [Covid-19 Statistical Report](#)

<sup>27</sup> Ibid.

**Figure 7: Number of LFD Tests Reported by Week Ending. Data up to the 20 February 2022.**



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<sup>28</sup>. 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<sup>29</sup>.

The Scottish Contact Survey asks whether people use LFD tests and if so how often. Approximately 79% of individuals had taken at least one LFD test within the last 7 days of the survey pertaining to 10 February - 16 February<sup>30</sup>.

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

<sup>28</sup> 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 February)?'

<sup>29</sup> 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: 518 - All who have taken a Lateral Flow/antigen test in the last week)

<sup>30</sup> Scottish Government: [Coronavirus \(COVID-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/coronavirus-modelling-epidemic)

<sup>31</sup> 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.

<sup>32</sup> 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.

## 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 early March 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.

## 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 23 February, daily Covid-19 hospital occupancy increased. NHS boards reported 1,093 patients in hospital or in short stay ICU on 23 February with recently confirmed Covid-19, compared to 912 on 16 February. This is an increase of 181 patients, or 20%, from the previous week, and compares with 2,053 patients in hospital at the peak in January 2021 (**Figure 8**). This corresponds with an increase in the percentage of people estimated to test positive for Covid-19 in Scotland in the week ending 20 February 2022, as seen in the ONS Covid-19 Infection Survey.

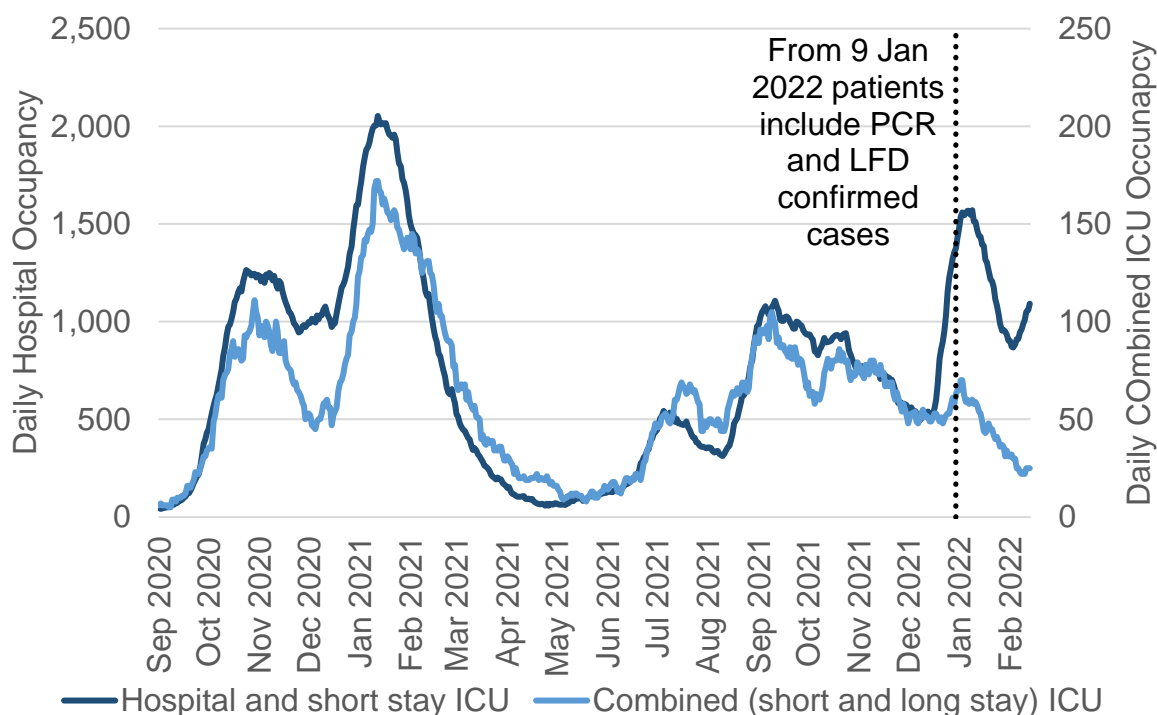
Combined ICU occupancy (including short and long stay) has remained unchanged at 25 patients on 23 February compared to 16 February. The number of combined ICU occupancy remains lower than the peak of 172 ICU patients recorded in January 2021. There were 11 patients in short stay ICU on 23 February, compared to 13 a week previously. This is a decrease of 2 patients. There were 14 patients in long stay ICU on 23 February, compared to 12 on 16 February. This is an increase of 2 patients (**Figure 8**)<sup>33</sup>.

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<sup>33</sup> 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 23 February 2022<sup>34</sup>**



Admissions to hospital have increased over the last week, with 686 admissions to hospital for people with confirmed Covid-19 in the week to 19 February compared to 619 in the week to 12 February. This is an 11% increase over the last week, and compares to 1,171 weekly hospital admissions during the most recent peak in the week leading up to 10 January (**Figure 9**)<sup>36</sup>. Similarly to daily hospital occupancy, this corresponds with an increase in the percentage of people estimated to test positive for Covid-19 in Scotland in the week ending 20 February 2022, as seen in the ONS Covid-19 Infection Survey.

The latest data from PHS shows 19 new Covid-19 patients admitted to ICU in the week to 22 February, compared to 20 in the week to 15 February. This compares to 57 weekly ICU admissions during the most recent peak in early January 2022 (**Figure 9**)<sup>37</sup>.

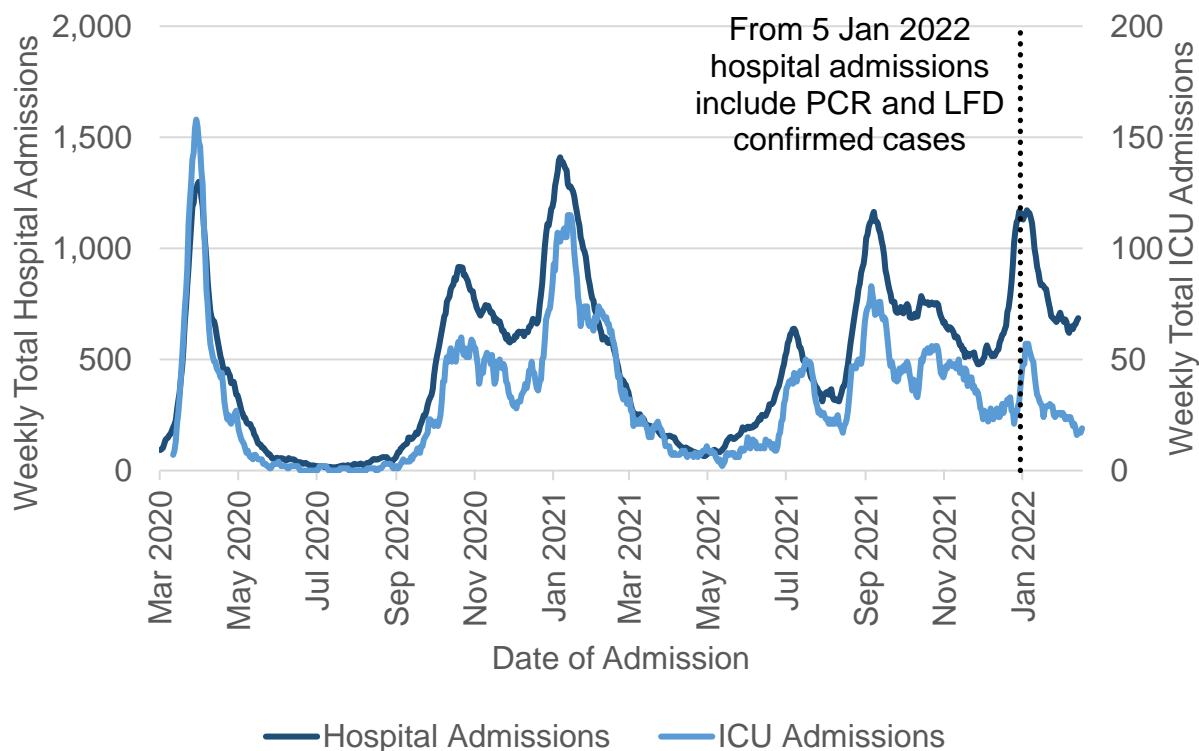
<sup>34</sup> ICU includes combined ICU/HDU figures and both patients with length of stay 28 days or less and with length of stay more than 28 days. Please note that only patients with length of stay 28 days or less in ICU were recorded until 20 January 2021. From 20 January 2021 ICU short and long stay includes both ICU or combined ICU/HDU with length of stay 28 days or less and with length of stay more than 28 days.

<sup>35</sup> Before 9 January 2022, patients were only included if they had a recent positive laboratory confirmed PCR test.

<sup>36</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#)

<sup>37</sup> Ibid.

**Figure 9: Weekly total of Covid-19 admissions to hospital and ICU with a positive Covid test in Scotland<sup>38 39 40</sup>.**



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 143 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 continued to decrease by 13% in the three-week period to 16 February (110 average weekly admissions), compared to the previous three-week period to 9 February (126 average weekly admissions)<sup>41</sup>. These figures refer both to young patients in hospital because of Covid-19 and with Covid-19.

In the three-week period leading up to 16 February, the rolling average of hospital admissions decreased among those aged younger than 12, and 18 to 19-year-olds. The highest rolling three-week average of Covid-19 related hospital admissions among children and young people as of 16 February, were observed amongst those aged 1 or younger, followed by those aged 5 to 11, 12 to 17, and 2 to 4. The lowest weekly case rates were seen among those aged 20 to 21 and 18 to 19<sup>42</sup>.

<sup>38</sup> Data on hospital admissions goes up to 19 February 2022 and data for admissions to ICU up to 22 February 2022.

<sup>39</sup> 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.

<sup>40</sup> 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.

<sup>41</sup> Public Health Scotland: [PHS COVID-19 Education Report](#)

<sup>42</sup> Ibid.

**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 one million people was 181 patients in the week leading up to 22 February 2022. The seven-day average hospital occupancy per one million population in the same period for other UK nations were as follows<sup>43</sup>:

- England: 165 per one million
- Northern Ireland: 282 per one million
- Wales: 183 per one million

In Scotland, there was a daily average of 18 hospital admissions per one million people in the week leading up to and including 19 February 2022. Seven-day average hospital admissions per one million population in the same period for other UK nations were as follows<sup>44</sup>:

- England: 18 per one million
- Northern Ireland: 18 per one million
- Wales: 7 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 Covid deaths. This came after three weeks of increasing numbers of deaths, largely consisting of 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 6%, or 5 deaths, to a total of 75 deaths in the most recent week leading up to 20 February, compared to 80 in the week prior leading up to 13 February. This figure is 89% 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<sup>45</sup>.

When it comes to Covid-19 related deaths by age groups in the week to 20 February, the number of deaths decreased in the age bands 65 to 74 and 75 to 84 compared to the previous week (the week to 13 February) (**Figure 10**). However,

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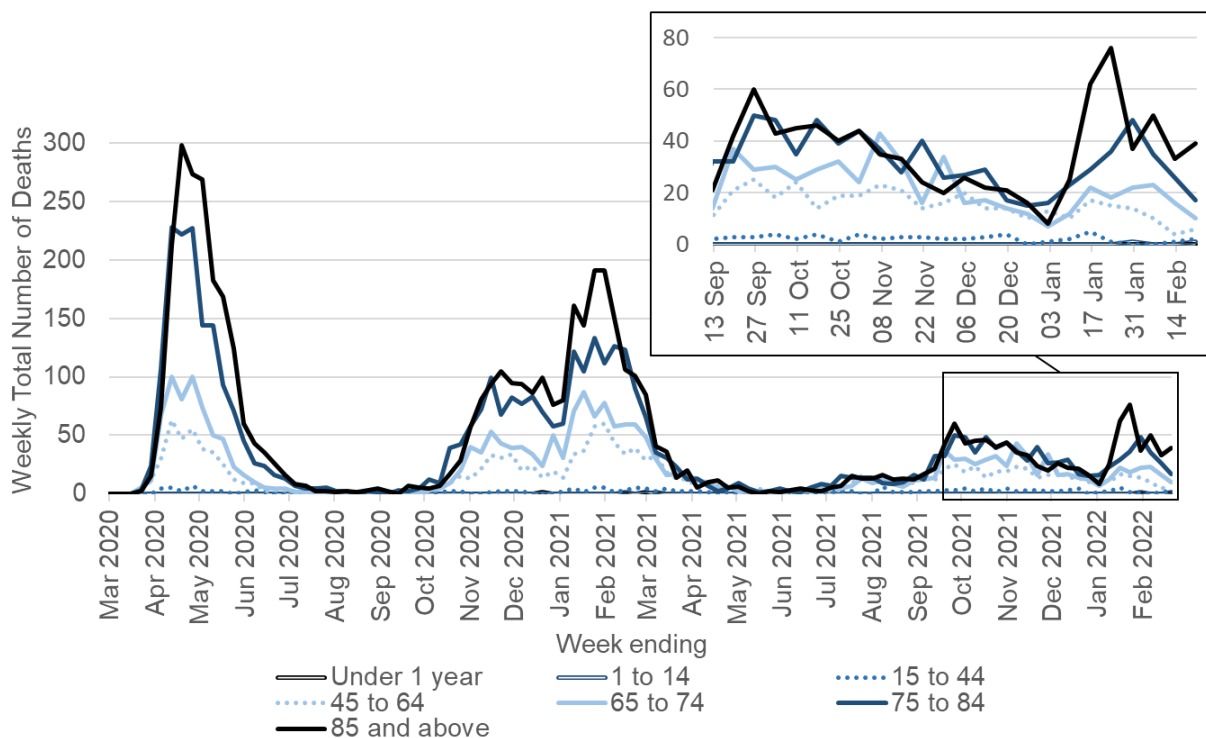
<sup>43</sup> UK Government: [Coronavirus \(Covid-19\) in the UK](#) (accessed 16 February 2022)

<sup>44</sup> Ibid.

<sup>45</sup> NRS Scotland: [Deaths involving coronavirus \(Covid-19\) in Scotland](#)

there was an increase from 33 to 39 deaths among those aged 85 and older. There were three deaths among those under age 45 in the week to 20 February, 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](#)<sup>46</sup>.

**Figure 10: Weekly total number of deaths where Covid-19 was mentioned on the death certificate, by age group. Data to the week ending 20 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.

In the week leading up to 20 February 2022, deaths from all causes were 9% below average levels for this time of year. This constitutes the seventh week in a row where deaths were below average<sup>47</sup>.

**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](#).

<sup>46</sup> NRS Scotland: [Deaths involving coronavirus \(Covid-19\) in Scotland](#)

<sup>47</sup> Ibid.

There were 2 average daily deaths per one million population in the week leading up to 23 February 2022 in Scotland. In the same time period, average daily deaths for the other UK nations were as follows<sup>48 49</sup>:

- England: 2 per one million
- Northern Ireland: 2 per one million
- Wales: 1 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 23 February, over 4.4 million people had received their first dose, an estimated 92.2% of the population aged 12 and older, and almost 4.2 million people had received their second dose, an estimated 86.8% of the population aged 12 and older. Over 3.4 million people in Scotland had received a third vaccine dose or booster, which is an estimated 71.3% of the population aged 12 and older.

By 23 February, booster vaccine uptake was 91% for those aged 55 or older, 85% for those aged 50 to 54, 75% for those aged 40 to 49, 59% for those aged 30 to 39, 49% for those aged 18 to 29, 12% for those aged 16 to 17, and 1% for those aged 12 to 15.

By local authority, the highest uptake of dose 3 or booster of the Covid-19 vaccine by 23 February was seen in East Dunbartonshire (81.2%), Argyll and Bute (79.3%), Shetland Islands (79.3%), Orkney Islands (78.7%), Scottish Borders (78.6%) and South Ayrshire (78.1%). The lowest uptake of dose 3 or booster of the Covid-19 vaccination by 23 February was seen in Glasgow City (61.0%), Dundee City (64.2%), and Aberdeen City (64.6%).

### Antibodies Estimates

The ONS Covid-19 Infection Survey estimated that in the week beginning 31 January 2022, 99.5% (95% credible interval: 99.3% to 99.7%) of the adult population (aged 16 or older) living in private residential households in Scotland would have

<sup>48</sup> Deaths within 28 days of positive test.

<sup>49</sup> UK Government: [Coronavirus \(Covid-19\) in the UK](#) (accessed 16 February 2022)

tested positive for antibodies against SARS-CoV-2 at the standard threshold, as a result of having the infection in the past or being vaccinated<sup>50</sup>. This compares to:

- 99.5% in England (95% credible interval: 99.3% to 99.6%),
- 99.4% in Wales (95% credible interval: 99.0% to 99.6%),
- 99.6% in Northern Ireland (95% credible interval: 99.2% to 99.8%).

In Scotland, estimates for the percentage of adults (aged 16 or older) testing positive for antibodies at the standard antibody threshold ranged from 98.5% in those aged 80 or older (95% credible interval: 97.0% to 99.3%) to 99.8% in those aged 50 to 59 (95% credible interval: 99.6% to 99.9%), in the week beginning 31 January 2022. In the same week, the percentage of children who would have tested positive for antibodies against SARS-CoV-2 at the standard antibody threshold is estimated to be 98.3% (95% credible interval: 96.0% to 99.3%) for those aged 12 to 15 years and 97.8% (95% credible interval: 94.7% to 99.1%) for those aged 8 to 11 years in Scotland<sup>51</sup>.

Academic research on antibody thresholds using data from when the Delta variant was the dominant strain indicate that a higher threshold of antibodies is needed to provide protection from new Covid-19 infections for those who are vaccinated<sup>52</sup>. In Scotland, 98.2% of the adult (aged 16 or older) population living in private residential households (95% credible interval: 97.8% to 98.5%) are estimated to have antibodies against SARS-CoV-2 at the higher antibody threshold of 179 ng/ml, from a blood sample in the week beginning 31 January 2022. In the same week, the percentage of children aged 8 to 15 years with levels of antibodies to SARS-CoV-2 at or above the higher antibody threshold of 179 ng/ml was also at a high level, and has been increasing across all UK countries in recent weeks.

This higher antibody threshold was identified as providing a 67% lower risk of getting a new Covid-19 infection with the Delta variant after two vaccinations with either Pfizer or AstraZeneca vaccines, compared with someone who was unvaccinated and had not had Covid-19 before<sup>53</sup>. It is unlikely that this threshold will provide equivalent protection against the Omicron variant and ONS will keep the threshold used in our analysis of antibodies under regular review.

For context, the increase in the percentage of individuals recording antibody levels above the higher threshold value also coincides with the uptake of the booster vaccine in Scotland which started in September 2021. The modelled percentage of adults aged 16 years and over testing positive for antibodies to SARS-CoV-2, higher antibody threshold, in Scotland surpassed 90% by 26 December 2021<sup>54</sup>. This is in line with 70% of Scotland's population aged 16 and over having received a third or booster dose by 26 December 2021<sup>55</sup>.

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<sup>50</sup> Scottish Government: [Coronavirus \(COVID-19\): infection survey](#)

<sup>51</sup> Ibid.

<sup>52</sup> <https://www.medrxiv.org/content/10.1101/2021.09.13.21263487v2>

<sup>53</sup> [SARS-CoV-2 anti-spike IgG antibody responses after second dose of ChAdOx1 or BNT162b2 and correlates of protection in the UK general population | medRxiv](#)

<sup>54</sup> [Coronavirus \(COVID-19\): ONS Infection Survey – antibody data for Scotland – 23 February 2022 - gov.scot \(www.gov.scot\)](#)

<sup>55</sup> [COVID-19 Daily Dashboard | Tableau Public](#)

## 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<sup>56</sup>. Details of risk assessments for both BA.1 and BA.2 carried out by UKHSA can be found on the UK government's website<sup>57</sup> 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<sup>58</sup>.

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<sup>59</sup>.

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<sup>60</sup>.

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<sup>61 62</sup>, 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<sup>63</sup>.

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<sup>56</sup> UK Government: Covid-19 variants identified in the UK

<sup>57</sup> Investigation of SARS-CoV-2 variants of concern: variant risk assessments - GOV.UK (www.gov.uk)

<sup>58</sup> Risk assessment for SARS-CoV-2 variant: VUI-22JAN-01 (BA.2) 9 February 2022 (publishing.service.gov.uk)

<sup>59</sup> COVID-19 vaccine surveillance report - week 8 (publishing.service.gov.uk)

<sup>60</sup> Ibid.

<sup>61</sup> University of Edinburgh: Severity of Omicron variant of concern and vaccine effectiveness against symptomatic disease

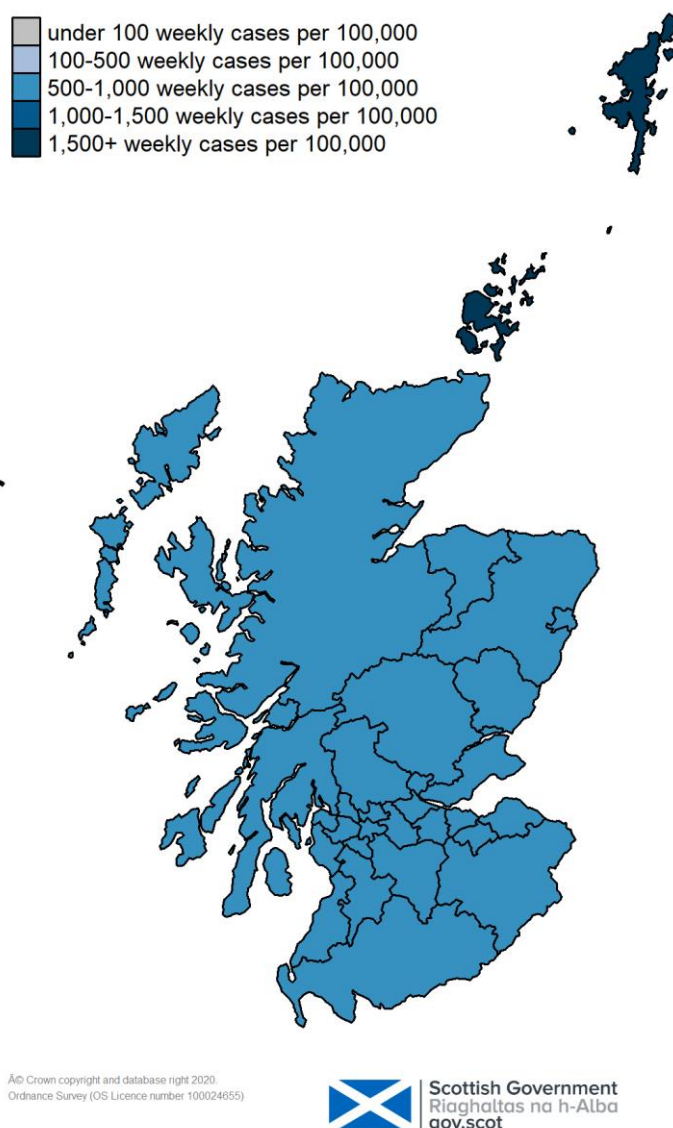
<sup>62</sup> Imperial College Covid-19 response team: Report 50: Hospitalisation risk for Omicron cases in England

<sup>63</sup> UK Health Security Agency: SARS-CoV-2 variants of concern and variants under investigation

## Situation by Local Authority within Scotland

In the week leading up to 19 February 2022, Shetland Islands had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,121 cases per 100,000 population, followed by Orkney at 1,513 weekly cases per 100,000. Dumfries and Galloway had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 514 cases per 100,000. The total combined LFD and PCR weekly case rates by specimen date per 100,000 had increased in 21 local authorities in the week leading up to 19 February 2022, compared with the weekly case rate leading up to 12 February, while 11 local authorities saw a decrease in the same period (**Figure 11**)<sup>64</sup>.

**Figure 11: Weekly total LFD or PCR case rates per 100,000 people in Local Authorities across Scotland on 19 February 2022 by specimen date.**



<sup>64</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#)



Please note that the following local authority hotspot modelling uses data to 21 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, while others are currently informed by PCR only.

Modelled rates of positive tests per 100,000 indicate that for the week commencing 6 March, all 32 local authorities are expected to exceed 50 cases per 100,000 with at least 75% probability. All 32 local authorities are also expected to exceed 100 cases per 100,000, with at least 75% probability.

Twenty-six out of 32 local authorities are expected to exceed 300 cases per 100,000, with at least 75% probability. The exceptions are Dumfries & Galloway, East Ayrshire, Na h-Eileanan Siar, North Ayrshire, Scottish Borders and South Ayrshire.

Five local authorities are expected to exceed 500 cases per 100,000, with at least 75% probability. These are Aberdeenshire, Angus, Highlands, Orkney Islands and Shetland Islands<sup>65</sup>.

## 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 B cohort of the Scottish Contact Survey (week ending 16 February) indicate an average of 5.0 contacts.

Mean contacts have decreased within the work and other setting (contacts outside home, school and work) by 41% and 7% respectively within the last two weeks. Contacts within the home have remained at a similar level over the same period, but contacts within the school setting have almost tripled in the last two weeks. Those within the 30-59 age group reported an increase in mean contacts within the last two weeks by at least 13%. All remaining age groups reported a reduction in contacts over the same period, with 18-29 year olds decreasing the most by 19%. This decrease was largely driven by a fall in mean contacts within the workplace.

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<sup>65</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/resources/consultation-papers/coronavirus-modelling-the-epidemic/)

## Modelling the Epidemic

Due to the different timings of the publication of Scottish data streams, SPI-M-O has been unable to produce a consensus for hospital admissions and deaths in Scotland over the next four weeks. A change in data trend between Friday 18 February and Monday 21 February affected the individual modelling outcomes, and so different projections were outputted depending on the time in which the data was downloaded. SPI-M-O will look to produce projections for Scotland again next week.

In the absence of the SPI-M-O consensus, it has not been possible to corroborate the Scottish Government's Medium Term Projections and we will therefore look to produce these projections again from next week.<sup>66</sup>

## Long Covid

According to the Office for National Statistics (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 recent estimates, see the State of the Epidemic report published on [4 February 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 has not been included this week. This will resume again once updated estimates of self-reported long COVID 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 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 are expecting to incorporate reinfections data by using episode based reporting. The report will continue to report on combined PCR and

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<sup>66</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/coronavirus-modelling-epidemic)

LFD Covid-19 cases, 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](http://www.gov.scot) website

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