

# State of the Epidemic in Scotland – 10 June 2022

## Scottish Government Central Analysis Division

### 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 26 May 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 the situation up to and including 8 June 2022. Due to changes in reporting and testing, certain data sources will have earlier cut-off dates than 8 June. This is highlighted throughout the report in the footnotes of the relevant sections. Additionally, changes in testing policy across Scotland since early April have reduced the availability and reliability of Covid-19 data and indicators that rely on testing, including cases data, hospital admissions and occupancy data. Affected indicators have been marked out and highlighted throughout the report.

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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/publications/state-of-the-epidemic-2022-05-26/pages/1-1-introduction.aspx)

## **Publication Notice**

The fortnightly State of the Epidemic report will be discontinued after this publication on 10 June 2022. Analysis of the latest Covid-19 data for Scotland can now be found in the weekly Covid-19 Statistical Report by Public Health Scotland. The Modelling the Epidemic publication, which summarises the main modelling outputs for Scotland, will continue to be published on a fortnightly basis. In the future, State of the Epidemic reports may be published on an ad hoc basis.

We would like to thank those who have read and used the report in their personal and professional lives, and provided feedback on its format and content.

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Please note that State of the Epidemic report no longer includes a section on LFD testing or reinfection cases (commentary on this can still be found in the section), and no commentary on Covid-19 cases in different age groups, cases among care home residents, or case rates in Scottish local authorities. This is due to data availability following the implementation of testing policy changes in Scotland.

This edition of the State of the Epidemic Report does not include the estimates of R, growth rate or incidence. Updated figures will be published in the [Modelling the Epidemic](#) publication scheduled for 23 June.

## Summary

The trend in the positivity estimates from the Covid-19 Infection Survey (CIS) for Scotland was uncertain in the most recent week to 2 June. There has been variability in Covid-19 wastewater levels since early May and the trend is uncertain in the week to 1 June. According to the CIS, the estimated percentage of people testing positive was uncertain among most ages in recent week, but there are possible signs of an increase among those aged around 30 to 40. The CIS estimates that the percentage of people testing positive for Covid-19 compatible with Omicron sub-variants BA.1, BA.4 and BA.5 increased in the most recent week to 2 June.

Covid-19 related daily hospital occupancy appears to have increased slightly in the week to 5 June, after showing a decreasing trend since the start of April 2022. The number of Covid-19 related hospital admissions have also increased slightly in the week to 3 June. However, trends in hospital admissions and occupancy data are to be interpreted with caution due to recent changes in testing policy. There were 20 deaths where Covid-19 was mentioned on the death certificate in the week to 5 June, a further decrease from the week before.

## Key Points

- As determined through the latest weekly ONS Covid-19 Infection Survey (CIS), in Scotland, the percentage of people living in private residential households testing positive for Covid-19 was uncertain in the week ending 2 June 2022. In the latest week, the estimated percentage of people testing positive was 2.36% (95% credible interval: 1.99% to 2.75%)<sup>2</sup>, equating to around 1 in 40 people (95% credible interval: 1 in 50 to 1 in 35).
- In the most recent week (27 May to 2 June 2022), estimates for the percentage of people testing positive were similar for all CIS Regions in Scotland and ranged from 2.32% in CIS Region 126 (NHS Lothian) (95% credible interval: 1.90% to 2.81%) to 2.55% in CIS Region 128 (NHS Ayrshire & Arran, NHS Borders and NHS Dumfries & Galloway) (95% credible interval: 2.11% to 3.12%).
- Omicron sub-lineage BA.2 remains dominant in the United Kingdom (UK) based on sequencing data. Some diversity is developing within this variant, and two Omicron sub-lineages BA.4 and BA.5 have been elevated to variants of concern (VOCs) due to their apparent growth advantage over Omicron BA.2.
- The Covid-19 infection survey estimates that the percentage of people in Scotland testing positive for Covid-19 compatible with Omicron variants BA.1, BA.4 and BA.5 increased in the week 27 May to 2 June.

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<sup>2</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.

- Nationwide, Covid-19 wastewater levels have remained between 50 and 100 million gene copies per person per day (Mgc/p/d) since the start of May 2022, but there is variability in the data and the trend is uncertain.
- Please note that due to testing policy changes, reported cases will no longer be representative of all COVID-19 cases in Scotland, and caution is advised when comparing trends in cases over time. By specimen date, there were 138 weekly combined PCR and LFD cases (including reinfections) per 100,000 population in the week to 3 June. Following a period of sharply decreasing case rates since mid-March, this represents a slight increase from the previous week.
- Over the week to 5 June, daily Covid-19 hospital occupancy slightly increased; however, this is to be interpreted with caution due to recent testing changes. NHS boards reported 637 patients in hospital or in short stay ICU on 5 June with recently confirmed Covid-19, compared to 590 on 29 May.
- In the week to 3 June, Covid-19 admissions to hospital in Scotland appear to have increased slightly, with NHS boards reporting 425 admissions to hospital compared to 411 admissions the previous week ending 27 May. Admissions to ICU continue to fluctuate, with 12 patients admitted to ICU in the week to 5 June. These figures are to be interpreted with caution due to recent testing changes, and may be subject to revisions.
- There was a total of 20 deaths where Covid-19 was mentioned on the death certificate in the week to 5 June, compared to 46 in the week leading up to 29 May.
- In the week ending 5 June, the total number of deaths registered in Scotland was 836. This was 18% below the five-year average for this week.

## Method

This report brings together a wide range of publicly 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 from the Scottish Contact Survey.

## Covid-19 Prevalence

### R value, Growth Rate and Estimated New Daily Infections

This edition of the State of the Epidemic Report does not include the estimates of R, growth rate or incidence. UKHSA is publishing R and growth rates next on 24 June 2022 as indicated [here](#). These results will also be summarised in the [Modelling the Epidemic Report](#) publication scheduled for 23 June.

### Covid-19 Infection Survey – Headline Estimates

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 people living in private households to test whether they have the infection, regardless of whether they have symptoms, using a PCR test. This means the study is unaffected by testing policy changes. Participants are also asked to provide a blood sample to test for antibodies.

In Scotland, the trend in the percentage of people living in private households testing positive for Covid-19, as estimated by the Covid-19 Infection Survey, is uncertain in the most recent week (27 May to 2 June), as seen in Figure 1<sup>3</sup>. The estimated percentage of people testing positive in Scotland had been decreasing since late March. This follows a peak in the week 14 to 20 March 2022 which saw the highest estimate for Scotland since the survey began. The estimated percentage of people testing positive for Covid-19 in the week 27 May to 2 June in Scotland is 2.36% (95% credible interval: 1.99% to 2.75%)<sup>4</sup>, equating to around 1 in 40 people (95% credible interval: 1 in 50 to 1 in 35).

In the week 27 May to 2 June 2022, there were early signs of a possible increase in the estimated percentage of people testing positive for COVID-19 in England and Northern Ireland due to increases in infections compatible with Omicron variants BA.1, BA.4 and BA.5; the trend was uncertain in Wales, as in Scotland.

In the same week, estimates for the other nations of the UK are as follows and can be seen in Figure 1:

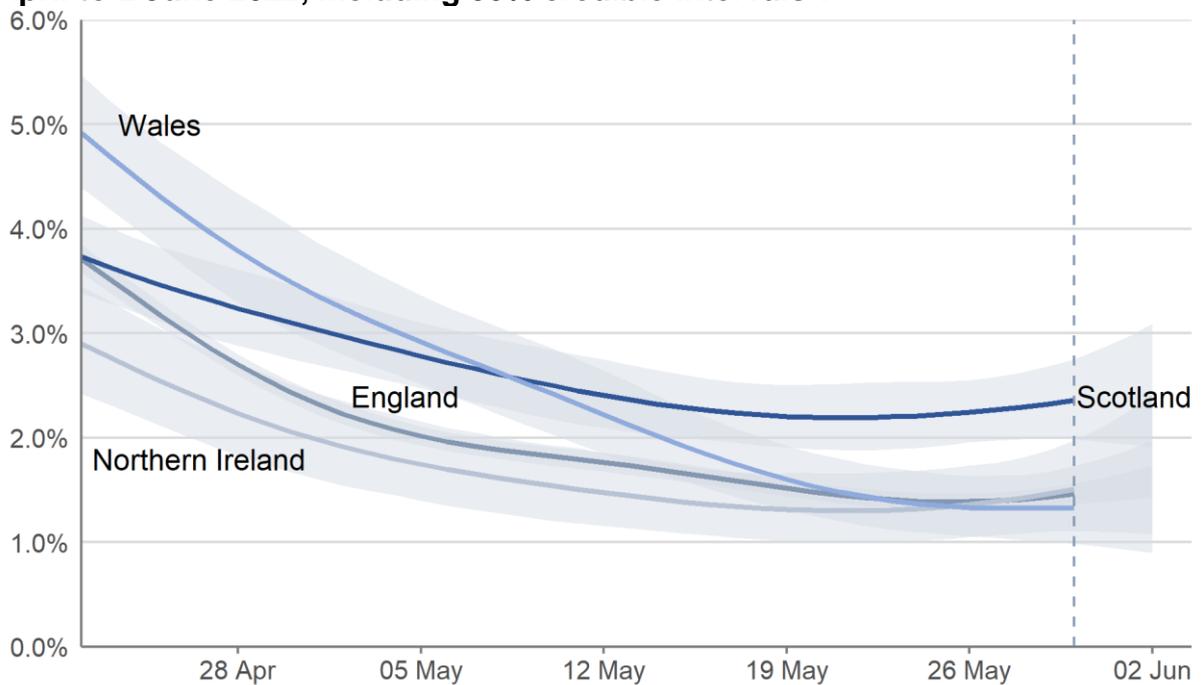
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<sup>3</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS infection survey - Headline Results](#) (published 10 June 2022)

<sup>4</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 England, the estimated percentage of people testing positive for COVID-19 was 1.46% (95% credible interval: 1.37% to 1.56%), equating to around 1 in 70 people (95% credible interval: 1 in 75 to 1 in 65).
- In Wales, the estimated percentage of people testing positive for COVID-19 was 1.33% (95% credible interval: 0.99% to 1.73%), equating to around 1 in 75 people (95% credible interval: 1 in 100 to 1 in 60).
- In Northern Ireland, the estimated percentage of people testing positive for COVID-19 was 1.51% (95% credible interval: 1.11% to 1.97%), equating to around 1 in 65 people (95% credible interval: 1 in 90 to 1 in 50).

**Figure 1: Modelled daily estimates of the percentage of people living in private households testing positive for COVID-19 in the four UK nations, between 22 April to 2 June 2022, including 95% credible intervals<sup>5</sup>.**



The estimated percentage of people living in private households in Scotland testing positive for Covid-19 is uncertain for most age groups in the most recent week, but there are possible signs of an increase among those aged around 30 to 40 years<sup>6</sup>.

<sup>5</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS infection survey - Headline Results](#) (published 10 June 2022)

<sup>6</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS infection survey - Headline Results](#) (published 10 June 2022)

## Covid-19 Infection Survey and New Variants

VOC-22JAN-01 (Omicron sub-lineage BA.2) remains dominant in the United Kingdom (UK) based on sequencing data<sup>7</sup>. There is some diversity developing within this variant. The UKHSA has elevated classification of two Omicron sub-lineages BA.4 and BA.5 to variants of concern (VOCs) naming them VOC-22APR-03 and VOC-22APR-04 respectively<sup>8</sup>. This change was introduced on the basis of the growth advantage of BA.4 and BA.5 over currently dominant Omicron BA.2. There can be several reasons for growth advantage, but in the case of BA.4 and BA.5, laboratory data suggests a degree of immune escape is likely to contribute<sup>9</sup>. Small numbers of BA.4 and BA.5 sequences continue to be detected in the UK<sup>10</sup>. There is currently insufficient data to draw conclusions on the disease severity of BA.4 and BA.5<sup>11</sup>.

In response to an increase in the COVID-19 Omicron variants BA.4 and BA.5, the ONS has reintroduced its main variant analysis. The following main variant analysis is not based on genome sequencing but is based on whether the S gene is detected in the swab tests. It measures the estimated percentage of the population with a positive test compatible with the Omicron BA.1, BA.4 and BA.5 variants or BA.2 variants. For more information, see the [Covid Infection Survey Headline Estimates publication](#).

In Scotland, the percentage of people testing positive for COVID-19 compatible with Omicron variants BA.1, BA.4 and BA.5 increased in the week 27 May to 2 June 2022. In the same week, the trend in the percentage of people testing positive for COVID-19 compatible with the Omicron variant BA.2 was uncertain in Scotland (Figure 2)<sup>12</sup>.

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<sup>7</sup> UK Health Security Agency: Variants: distribution of case data, 7 June 2022 - GOV.UK ([www.gov.uk](http://www.gov.uk))

<sup>8</sup> SARS-CoV-2 variants of concern and variants under investigation ([publishing.service.gov.uk](http://publishing.service.gov.uk))

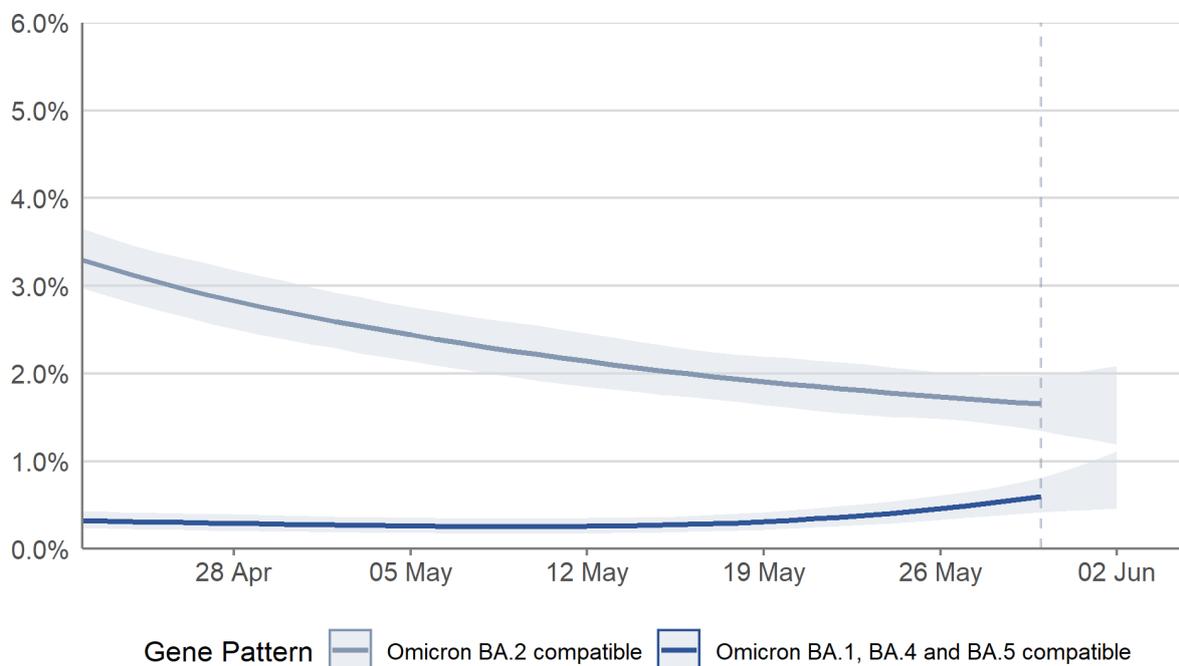
<sup>9</sup> SARS-CoV-2 variants of concern and variants under investigation ([publishing.service.gov.uk](http://publishing.service.gov.uk))

<sup>10</sup> UK Health Security Agency: Variants: distribution of case data, 20 May 2022 (published 10 June 2022)

<sup>11</sup> Risk assessment for SARS-CoV-2 variants V-22APR-03 and V-22APR-04 ([publishing.service.gov.uk](http://publishing.service.gov.uk))

<sup>12</sup> Scottish Government: Coronavirus (COVID-19): ONS infection survey - Headline Results (published 10 June 2022)

**Figure 2: Modelled daily estimates of the percentage of the population in Scotland testing positive with infections compatible with Omicron BA.1, BA.4 and BA.5 and compatible with Omicron BA.2 between 22 April and 2 June 2022, including 95% credible intervals<sup>13</sup>.**



## Covid-19 Infection Survey – Regional Analysis

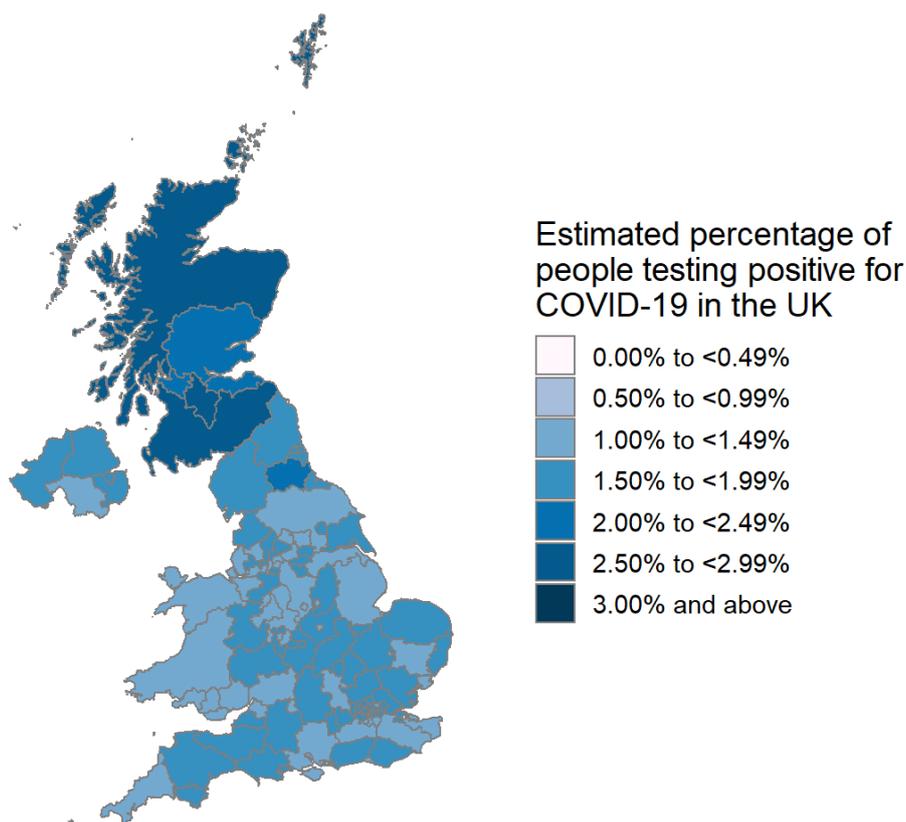
The ONS have created sub-regions across the UK for the purposes of providing Covid-19 positivity estimates for the residential populations on a lower level than the four nations. In Scotland, these sub-regions are comprised of Health Boards (for an overview on how these align with local authorities, please see Table 1 in the Technical Annex).

In the most recent week (27 May to 2 June 2022), estimates for the percentage of people testing positive were similar for all CIS Regions in Scotland and ranged from 2.32% in CIS Region 126 (NHS Lothian) (95% credible interval: 1.90% to 2.81%) to 2.55% in CIS Region 128 (NHS Ayrshire & Arran, NHS Borders and NHS Dumfries & Galloway).

<sup>13</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS infection survey - Headline Results](#) (published 10 June 2022)

Galloway) (95% credible interval: 2.11% to 3.12%) (Figure 3)<sup>14 15</sup>. Figure 3 is also available as a [dynamic map](#).

**Figure 3: Modelled estimates of the percentage of people living in private households within each CIS sub-region who would have tested positive for COVID-19 in the week 27 May to 2 June 2022<sup>16</sup>.**



Source: ONS COVID-19 Infection Survey, 2022.  
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(OS Licence number 100024655)

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<sup>14</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS infection survey - Headline Results](#) (published 10 June 2022)

<sup>15</sup> Sub-regional estimates are based on a different model to the national headline estimates, and should not be compared to headline positivity estimates. The sub-regional figures may differ from the headline estimates because they are averaged over a longer time period. The number of people sampled in each sub-regional area who tested positive for COVID-19 is lower relative to the respective overall national samples. This means there is a higher degree of uncertainty in these estimates; caution should be taken, and the uncertainty of the estimates and wide credible intervals taken into account, when interpreting or ranking them.

<sup>16</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS infection survey - Headline Results](#) (published 10 June 2022)

## Covid-19 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 levels of SARS-CoV-2 in wastewater are monitored at 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.

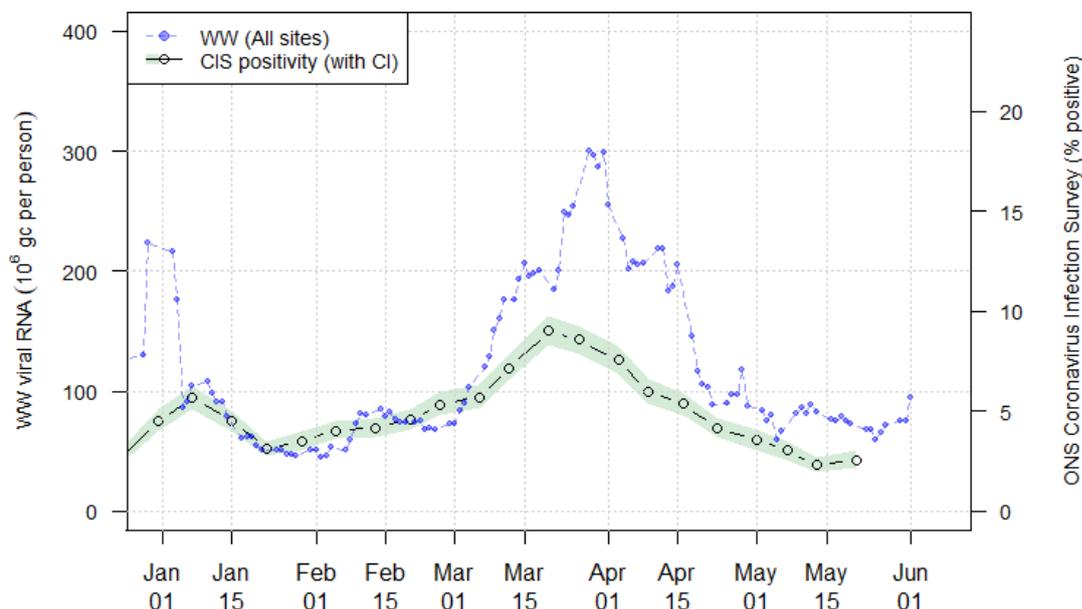
Nationwide, Covid-19 wastewater levels have remained between 50 and 100 million gene copies per person per day (Mgc/p/d) since the start of May 2022, but there is variability in the data and the trend is uncertain. Figure 4 shows an apparent increase in viral levels in the most recent set of samples that were collected on 1 June and analysed on 2 June. However, this may be attributable to the variability in the data<sup>17</sup>.

Although overall wastewater Covid-19 levels have remained at a similar level in Scotland over the last two weeks, 7 local authorities have decreased their levels over the past week. Decreases were reported in Aberdeenshire, Argyll and Bute, Clackmannanshire, Dumfries and Galloway, Orkney Islands, Shetland Islands and Stirling. Please note that comparisons for Na h-Eileanan Siar and Perth and Kinross are not possible due to sampling coverage.

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<sup>17</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic](#) (Issue 101, published 9 June 2022)

**Figure 4: National running average trends in wastewater Covid-19 from 31 December 2021 to 1 June 2022, and CIS positivity estimates from 31 December to 21 May 2022<sup>18 19 20</sup>.**



## Reported Covid-19 Cases

The LFD Universal Offer for asymptomatic testing came to an end on 18 April 2022. In addition, on 1 May 2022 the purpose of COVID-19 testing shifted from population-wide testing to reduce transmission, to targeted testing and surveillance. **Reported cases will no longer be representative of all COVID-19 cases in Scotland, and caution is advised when comparing trends in cases over time. For more information, see the [Scottish Government Covid-19 Test and Protect Transition Plan](#).**

Please note that due to testing policy changes, reported cases will no longer be representative of all COVID-19 cases in Scotland, and caution is advised when

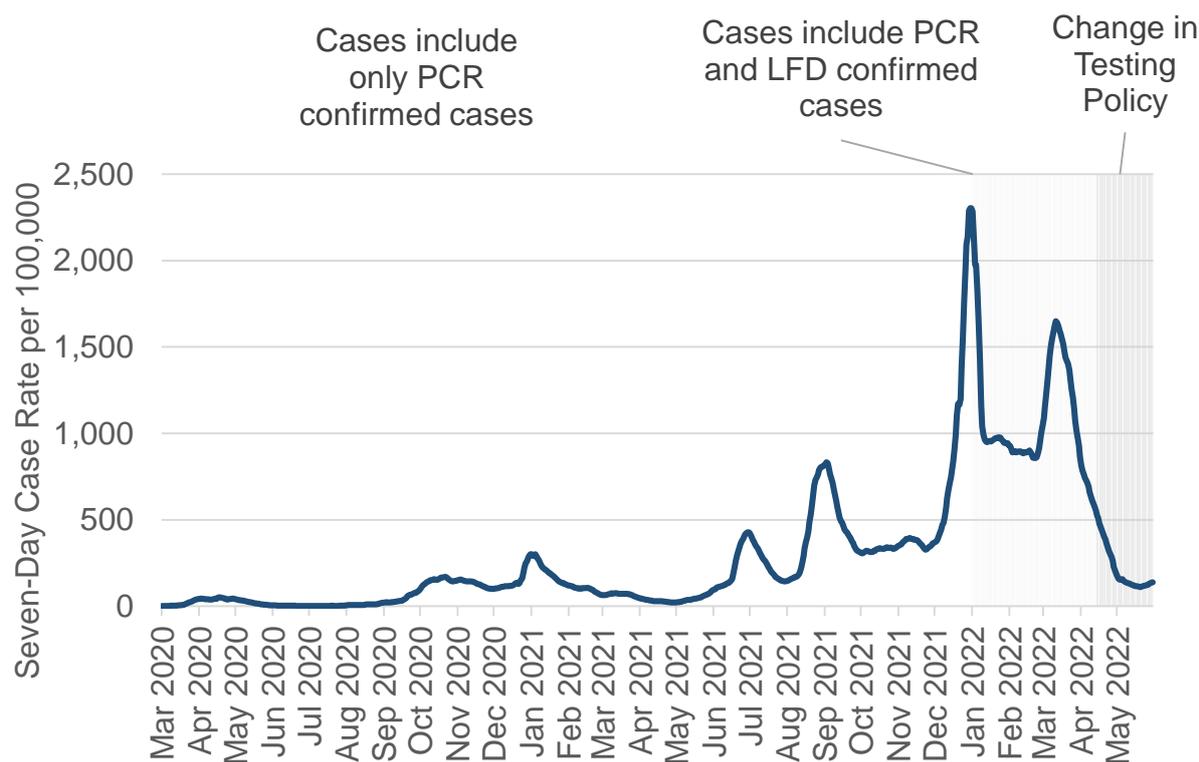
<sup>18</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic](#) (Issue 101, published 9 June 2022)

<sup>19</sup> The Omicron variant emerged in Scotland around mid-December 2021. After the end of 2021, S-gene dropout testing data suggest that nearly all cases are from the Omicron variant. During the period of change in the dominant variant, a change in the relationship between the wastewater SARS-CoV-2 RNA levels and case numbers was observed and postulated to be due to different levels of virus shed by the two variants. If this assumption is true, and there is no further change in shedding following the emergence of the Omicron variant BA.2, then from early January 2022, wastewater SARS-CoV-2 RNA levels should have a consistent relationship with the underlying Covid-19 prevalence.

<sup>20</sup> There was a reduction in the number of samples collected and a delay in analysing samples due to the recent public holiday. For the same reason, the most recent update to the ONS Coronavirus Infection Survey (CIS) is the one published on 27 May covering the period up to 21 May.

comparing trends in cases over time. The regular analyses on case rates in different age groups and among care home residents are no longer included in this report. By specimen date, there were 138 weekly combined PCR and LFD cases (including reinfections) per 100,000 population in the week to 3 June (Figure 5)<sup>21</sup>. Following a period of sharply decreasing case rates since mid-March, this represents a slight increase from the previous week.

**Figure 5: Seven-day combined PCR and LFD case rate (including reinfections) per 100,000 for Scotland by specimen date. Data to 3 June 2022<sup>22 23</sup>.**



The proportion of reinfections among the total weekly cases has decreased in the most recent week. By specimen date, there was a total number of 902 reinfection cases confirmed by either a PCR or LFD test in the week leading up to 3 June. This represents 12.0% of reported cases<sup>24</sup>. However, this number is likely affected by testing changes and this figure may no longer be comparable over time. The

<sup>21</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

<sup>22</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

<sup>23</sup> Before 5 January 2022, the case rate includes only positive laboratory confirmed PCR tests. After 5 January 2022, the case rate includes PCR and LFD confirmed cases. From 18 April 2022, the Universal LFD Offer for asymptomatic testing is no longer available. In addition, on 1 May 2022 the purpose of COVID-19 testing shifted from population-wide testing to reduce transmission, to targeted testing and surveillance. Reported cases will no longer be representative of all COVID-19 cases in Scotland, and caution is advised when comparing trends in cases over time.

<sup>24</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

proportion of reinfections have increased rapidly since December 2021 and the emergence of the Omicron variant.

While the LFD Universal Offer for asymptomatic testing came to an end on 18 April 2022 in Scotland, 90,574 LFD tests were reported in the week to 5 June. This is a 3% decrease from the week previously (week to 29 May), when 92,923 LFD tests were reported. This compared to a peak of 865,561 tests being reported in the week to 26 December 2021, while the LFD Universal Offer was still in place<sup>25</sup>.

The Scottish Contact Survey<sup>26</sup> continues to ask whether people use LFD tests and if so how often. Approximately 37% of individuals had taken at least one lateral flow test within the last 7 days for the survey pertaining to the period 26 May to 1 June, decreasing from 40% two weeks prior<sup>27</sup>.

Antimicrobial Resistance and Healthcare Associated Infection Scotland (ARHAI Scotland) provide analyses on hospital onset acquired Covid-19 infections, where patients are likely to have been infected after being admitted to hospital, based on the date when the sample was collected for a first positive Covid-19 test. Cases where the sample was collected before a hospital admission are considered community onset cases, while samples collected on day eight or later are considered nosocomial cases, or cases likely to have been acquired in a hospital setting. For more information, see this ARHAI [weekly publication](#).

According to data from ARHAI Scotland, 105 nosocomial Covid-19 cases were reported in the week ending 15 May<sup>28</sup>. The total number of COVID-19 cases reported to ARHAI Scotland this week (week ending 15 May 2022) was 341. The number of nosocomial cases peaked in early January and again in late March, and has since been decreasing<sup>29</sup>.

**In line with recent changes to testing policy and transitions to long term strategies in the four UK nations, cases comparison between countries will no longer be included in the report.** For more information see following links for [England](#), [Scotland](#), [Wales](#), and [Northern Ireland](#).

To compare trends in estimated infection levels in private residential households across the UK, please see the previous section on the **Covid-19 Infection Survey**.

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<sup>25</sup> Public Health Scotland: [Covid-19 Statistical Report Dashboard](#) (published 8 June 2022)

<sup>26</sup> The sample is demographically representative of adults aged 18 and older across Scotland, with circa 1500 responses. This is modelled to represent the Scottish population.

<sup>27</sup> Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic](#) (Issue 101, published 9 June 2022)

<sup>28</sup> Nosocomial cases include cases where the onset is either probable or definite hospital onset (where the sample was collected on day eight of hospital cases or later).

<sup>29</sup> ARHAI: [Hospital onset COVID-19 cases in Scotland](#) (published 8 June 2022)

## Covid-19 Related Severe Illness and Death

Please note that patient testing requirements changed on 1 April 2022, which will mean a reduction in asymptomatic cases of Covid detected and a corresponding decrease in ascertained Covid-19 related occupancy and admissions. In addition, from 1 May 2022, testing changed from asymptomatic population-wide testing, to targeted testing for clinical care and surveillance. Therefore, data should be interpreted with caution and over time comparison should be avoided. For more information, please see this [resource from the NHS](#).

Please note that hospital admissions data in Scotland is dynamic and subject to daily revisions. We continue to see a large number of mostly upward revisions which is likely due to infections being identified after patients have been admitted to hospital. The greatest revisions are likely to impact the latest two weeks of data and we advise caution in interpreting the latest trends.

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

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

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

### Hospital and ICU Occupancy

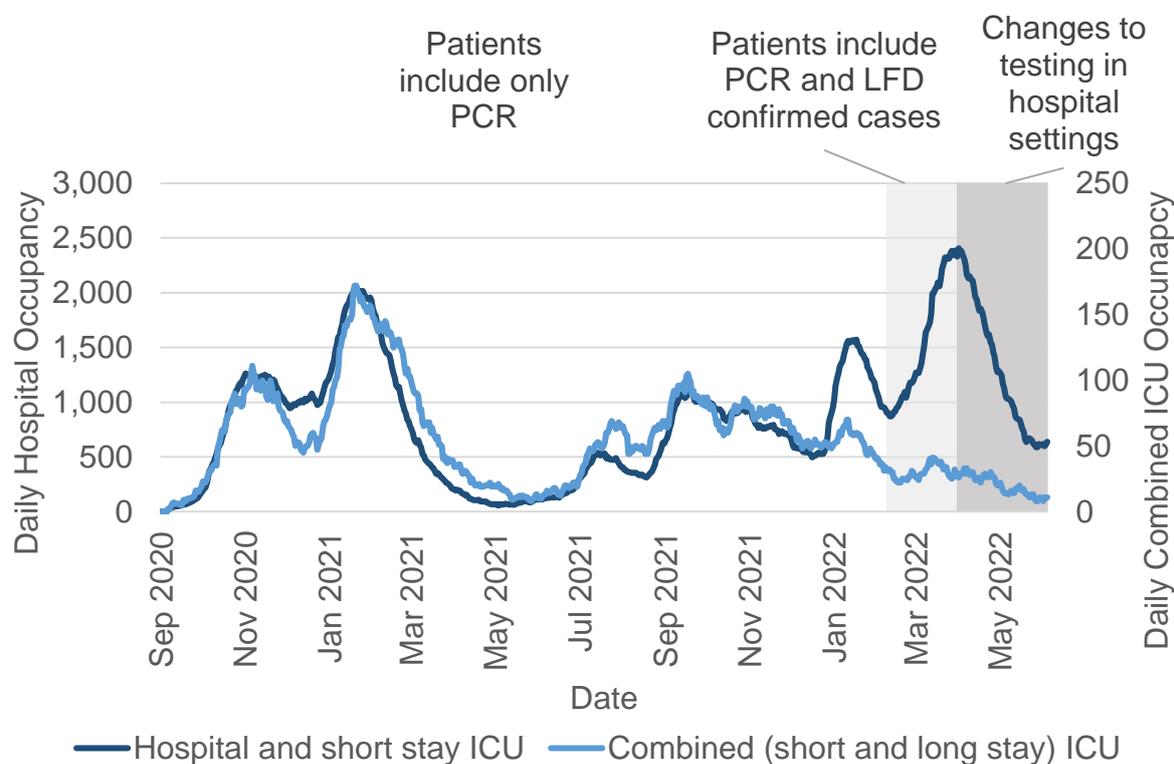
Over the week to 5 June, daily Covid-19 hospital occupancy slightly increased; however, this is to be interpreted with caution due to recent testing changes. NHS boards reported 637 patients in hospital or in short stay ICU on 5 June with recently confirmed Covid-19, compared to 590 on 29 May. This follows a period of decreasing hospital occupancy numbers after peaking on 2 April with the highest figure seen throughout the pandemic at 2,406 patients (Figure 6)<sup>30</sup>.

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<sup>30</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

NHS boards also reported 11 patients in short-stay or long-stay ICU on 5 June, compared to 8 on 29 May. Due to the changes in testing policy, any interpretations of trends need to be made with caution (Figure 6).

**Figure 6: Patients in hospital (including short stay ICU), and patients in combined ICU with recently confirmed Covid-19, data up to 5 June 2022<sup>31 32</sup>.**



## Hospital and ICU Admissions

In the week to 3 June, Covid-19 admissions to hospital<sup>33</sup> in Scotland appear to have increased slightly; however, this is to be interpreted with caution due to recent testing changes. NHS boards reported 425 weekly admissions to 3 June, compared to 411

<sup>31</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>32</sup> Before 9 February 2022, patients were only included if they had a recent positive laboratory confirmed PCR test. Hospital and ICU occupancy includes reinfections from 7 March 2022 onwards. Patient testing requirements changed on the 1 April 2022 and population wide testing policy changed on 1 May 2022, which may mean a reduction in asymptomatic cases of Covid-19 detected and a corresponding decrease in Covid-19 related occupancy.

<sup>33</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.

admissions the previous week ending 27 May. This follows a period of sharply decreasing numbers of Covid-19 related hospital admissions after reaching the highest levels seen throughout the pandemic in the week to 18 March 2022 (1,677 admissions)<sup>34</sup>. As noted above, we are continuing to see a large number of daily revisions, so figures may change as they are updated<sup>35</sup>.

In the week to 5 June, the number of new Covid-19 patients admitted to ICU appeared to fluctuate; however, this is to be interpreted with caution due to recent testing changes. There were 12 new Covid-19 patients admitted to ICU in the week to 5 June, compared to 13 in the week to 29 May. This compares to 57 weekly ICU admissions during the most recent peak in early January 2022. As noted above we are currently seeing a large number of daily revisions, so the number of admissions to ICU for the latest two weeks are likely to change (Figure 7)<sup>36</sup>.

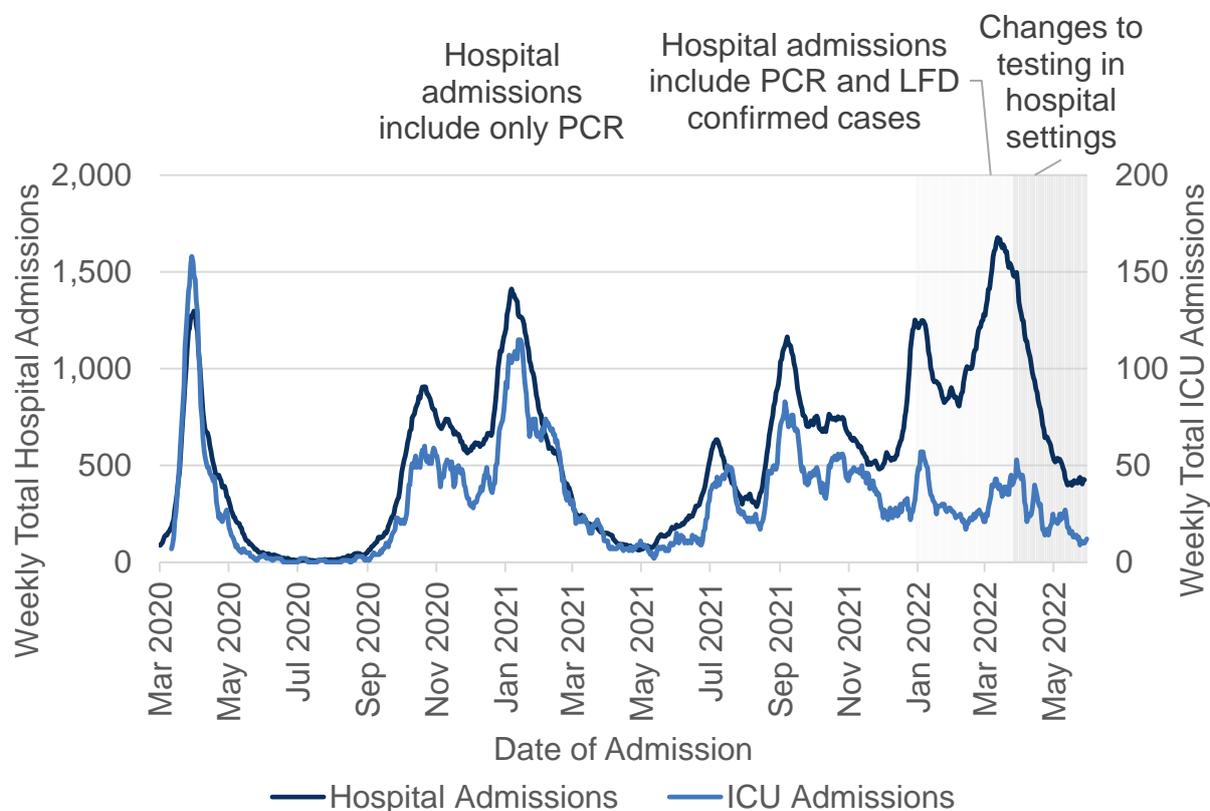
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<sup>34</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

<sup>35</sup> We have previously not presented data for the last two weeks available due to significant numbers of upwards revisions to the data. However, as the trend in admissions is changing, more recent data points have been included. The State of the Epidemic report incorporates hospital admissions data published on 8 June 2022, so any revisions since then will not be included in this report.

<sup>36</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

**Figure 7: Weekly total of Covid-19 admissions to hospital and ICU with a positive Covid test in Scotland. Hospital admission data to 3 June 2022 and ICU admission data to 5 June 2022<sup>37 38</sup>.**



The highest number of hospital admissions in the week to 31 May were among those aged 80 and over. In the same week, approximately 63% of the hospital admissions related to patients aged 60 or older. This is slightly lower than 67% of admissions in the week to 24 May. However, the latest data does not have a lag applied to account for revisions and may be subject to change<sup>39</sup>.

Average hospital admissions related to Covid-19 in children and young adults data are no longer updated in the PHS Education Dashboard<sup>40</sup> due to a reduction in the quantity and quality of data available. The last update to the dashboard was on 6

<sup>37</sup> Before 5 January 2022, hospital admissions were only included if the patient had a recent positive laboratory confirmed PCR test. **ICU admissions rely on PCR testing only.** Hospital admissions data in the chart now includes reinfections and has been updated to include this methodology retrospectively to the start of the pandemic. Patient testing requirements changed on the 1 April 2022 and population wide testing policy changed on 1 May 2022, which may mean a reduction in asymptomatic cases of Covid-19 detected and a corresponding decrease in Covid-19 related admissions.

<sup>38</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

<sup>39</sup> Public Health Scotland: [COVID-19 Statistical Report](#) (published 8 June 2022)

<sup>40</sup> Public Health Scotland: [COVID-19 Education report](#) (published 6 May 2022)

May 2022 and the latest data was summarised in the [State of the Epidemic report published on 13 May 2022](#).

In the period 11 May to 24 May 2022, 64% of Covid-19 hospital admissions stayed longer than 48 hours after being admitted. Analysis from Public Health Scotland on the same time period shows that length of stay tends to increase with age, as 54% of hospital stays for those aged 17 or younger had a length of stay of less than 24 hours, while 79% of hospital stays for those aged 80 or older had a length of stay of over 48 hours<sup>41</sup>. Please note that length of stay can be influenced by a variety of factors, and that the figures above may be subject to future revisions due to the incompleteness of discharge summary information. For more information, please see the [PHS Weekly report](#).

Please note that patient testing requirements in Scotland and England started changing from 1 April 2022, with further changes implemented in Scotland on 1 May 2022. Changes covering policies for testing general population and patients in Wales were set out to start the transition from the end of March. In Northern Ireland, testing changes in the general population are being phased out from 22 April, with no immediate change to public health advice. For more information see the following links for [England](#), [Wales](#) and [Northern Ireland](#).

Due to the testing differences across the four nations mentioned above, we have removed the four nations comparisons on hospital admissions and occupancy. From 20 May 2022, Department of Health Northern Ireland stopped reporting data on cases, deaths and testing. **As a result, the four nation comparison will not be included in this report.**

## Covid-19 Related Deaths and Excess Mortality

There were 20 deaths where Covid-19 was mentioned on the death certificate in the week to 5 June. Out of these, there were 13 deaths where Covid-19 was the underlying cause. The number of deaths where Covid-19 was mentioned on the death certificate decreased by 57%, or 26 deaths, compared to the previous week (46 deaths in the week to 29 May).

The 20 deaths where Covid-19 was mentioned on the death certificate in the week to 5 June 2022 is 97% lower than the peak in 2020, when the week ending 26 April 2020 saw a total of 663 deaths where Covid-19 was mentioned on the death certificate<sup>42</sup>. This is the lowest number of weekly Covid-19 related deaths since June 2021. The number of deaths continues to be higher among those aged 45 and older, while Covid-19 deaths among younger age groups have remained at low levels throughout the pandemic (Figure 8). [National Records of Scotland](#) publish a detailed

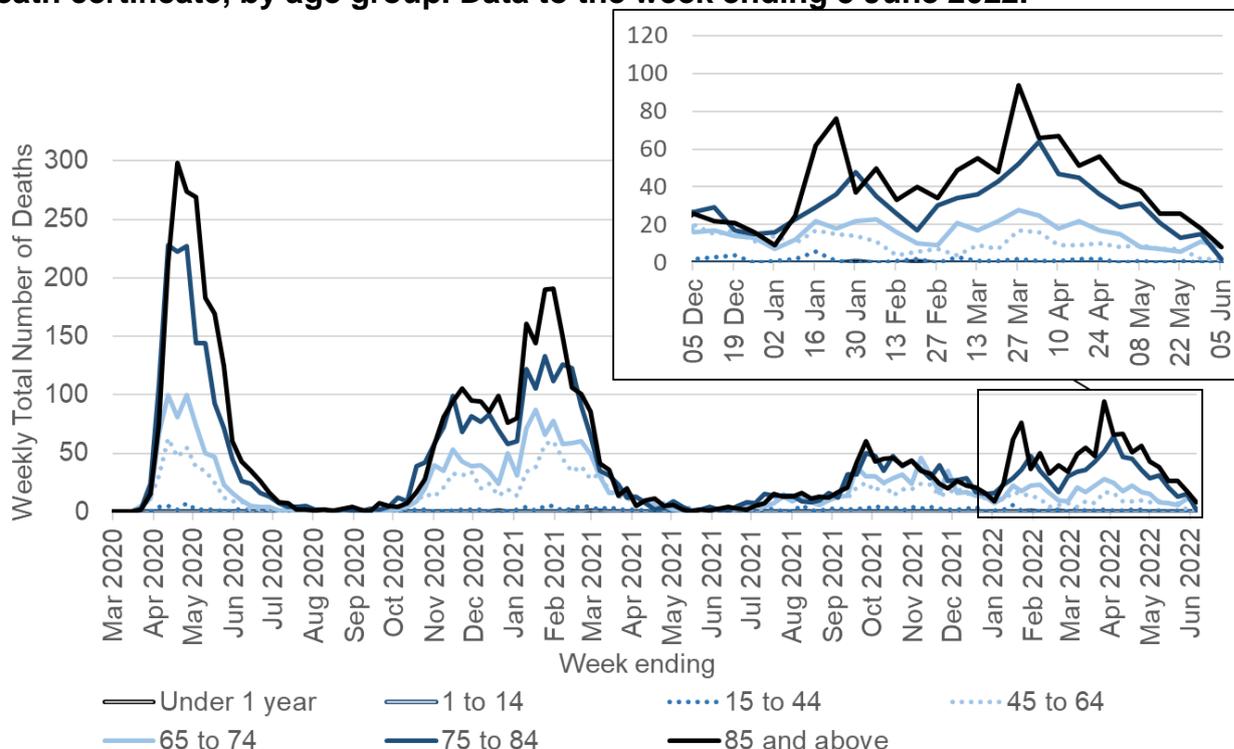
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<sup>41</sup> Public Health Scotland: [COVID-19 Statistical Report](#) (published 8 June 2022)

<sup>42</sup> NRS Scotland: [Deaths involving coronavirus \(Covid-19\) in Scotland](#) (published 9 June 2022)

analysis on deaths involving Covid-19 in Scotland in their weekly data releases and monthly report<sup>43</sup>.

**Figure 8: Weekly total number of deaths where Covid-19 was mentioned on the death certificate, by age group. Data to the week ending 5 June 2022.**



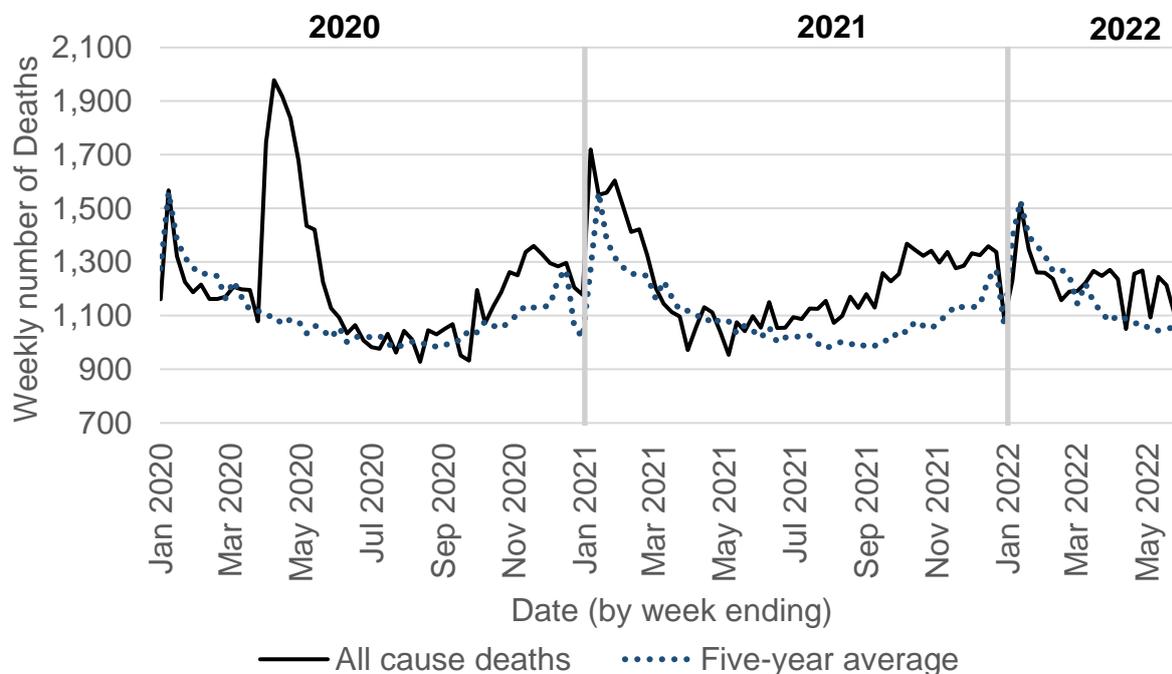
**Excess deaths** are the total number of deaths registered in a week minus the average number of deaths registered in the same week over the previous five years (excluding 2020). Measuring excess deaths allows us to track seasonal influenza, pandemics and other public health threats. Excess deaths include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

In the week ending 5 June, the total number of deaths registered in Scotland was 836. This was 18%, or 183 deaths, below the five-year average for this week (Figure 9)<sup>44 45</sup>. In the same week, the number of deaths from cancer was 82 below the previous five-year average for this week, the number of deaths from respiratory diseases (not including Covid-19) was 38 below the average, deaths from circulatory diseases were 23 below the average, and deaths from Dementia and Alzheimer’s

<sup>43</sup> NRS Scotland: [Deaths involving coronavirus \(Covid-19\) in Scotland](#) (published 9 June 2022)  
<sup>44</sup> NRS Scotland: [Deaths involving coronavirus \(Covid-19\) in Scotland](#) (published 9 June 2022)  
<sup>45</sup> Please note that due to unusual numbers of mortality in 2020, the excess deaths calculation for 2021 use the average from the years 2015 – 2019. Year 2022 uses data from 2016, 2017, 2018, 2019 and 2021 to calculate average 5-year period.

diseases were 15 below the average. Excess deaths from other causes were 36 deaths below the average<sup>46</sup>.

**Figure 9: Weekly deaths from all causes and five-year average weekly deaths in Scotland. Data to week ending 5 June 2022<sup>47</sup>.**



Recent changes to reporting mean that the number of deaths where Covid-19 was mentioned on the death certificate can no longer be compared across the four nations. In addition, from 20 May 2022, Department of Health Northern Ireland stopped reporting data on cases, deaths and testing. **Therefore, we have removed the four nations comparisons of death figures.** For more information see the [Coronavirus \(COVID-19\) in the UK dashboard](#).

<sup>46</sup> Please note that Covid-19 deaths are included in all cause deaths, and are counted towards all cause excess deaths. However, Covid-19 does not yet have a separate category for excess deaths calculation as excess deaths are compared against a 5-year average. The separate categories of causes of death do not sum to the total excess due to the omission of a Covid-19 category, and it would not make sense to use the number of COVID deaths in the previous 5 years as a baseline.

<sup>47</sup> NRS Scotland: [Deaths involving coronavirus \(Covid-19\) in Scotland](#) (published 9 June 2022)

# Resilience: Vaccine Uptake, Antibody Estimates, and Vaccine Effectiveness

## Vaccine Uptake

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. More information is available on the [PHS website](#).

By 6 June, over 4.4 million people had received their first dose, an estimated 90.3% of the population in Scotland aged 12 and older. Over 4.1 million people had received their second dose, an estimated 86.0% of the population aged 12 and older. Additionally, over 3.5 million people in Scotland had received a third vaccine dose, which is an estimated 73.3% of the population aged 12 and older<sup>48</sup>.

The JCVI now advise a spring booster dose of the Covid-19 vaccine for: adults aged 75 years and over (or who will turn 75 by 30 June 2022), residents in care homes for older adults, and individuals aged 12 years and over who have a weakened immune system<sup>49</sup>. By 6 June, 518,494 fourth dose vaccinations had been administered, with 80.8% of all care home residents having received their fourth dose. It is also estimated that 88.8% of those aged 75 or older have received their fourth dose<sup>50</sup>. In addition, 21,017 fifth doses have been administered.

## Covid-19 Antibody Estimates

The analysis of antibody prevalence can be used to identify individuals who have had Covid-19 in the past or who have developed antibodies as a result of vaccination. As [detailed by the ONS](#), there is a clear pattern between vaccination and testing positive for Covid-19 antibodies but the detection of antibodies alone is not a precise measure of the immunity protection given by vaccination.

According to the ONS Covid-19 Infection Survey, the estimated percentage of adults (aged 16 years and above) living in private households in Scotland who had

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<sup>48</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

<sup>49</sup> [Coronavirus \(COVID-19\) booster vaccination | The coronavirus \(COVID-19\) vaccine \(nhsinform.scot\)](#)

<sup>50</sup> Public Health Scotland: [Covid-19 Daily Dashboard](#) (accessed 8 June 2022)

antibodies against COVID-19 at the 179 ng/mL threshold remained high, at 99.4% (95% credible interval: 99.1% to 99.6%), in the week beginning 9 May 2022. This suggests that they had the infection in the past or have been vaccinated<sup>51</sup>. This compares to:

- 99.4% in England (95% credible interval: 99.1% to 99.5%),
- 99.3% in Wales (95% credible interval: 99.0% to 99.5%),
- 99.3% in Northern Ireland (95% credible interval: 98.5% to 99.6%)<sup>52</sup>.

The estimated percentage of adults (aged 16 years and above) living in private households in Scotland who had antibodies against COVID-19 at the 179 ng/mL threshold continued to remain high across all age groups, in the week beginning 9 May 2022.

This release of antibody data introduces the reporting of antibody estimates for children (aged 8 to 15 years) for Great Britain (England, Wales and Scotland) as a whole. In the week beginning 9 May 2022, the percentage of children in Great Britain estimated to have antibodies against SARS-CoV-2 at or above the level of 179 ng/mL was high, at 95.5% for children aged 12 to 15 years (95% credible interval: 91.4% to 97.8%), and 94.6% for children aged 8 to 11 years (95% credible interval: 89.7% to 97.2%).

## **Vaccine Effectiveness Against Omicron**

The UKHSA reported that vaccine effectiveness against symptomatic disease, hospitalisation, or mortality with the Omicron variant is lower compared to the Delta variant and that it wanes rapidly. High 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; however, from 20 or more weeks after the booster dose vaccine, effectiveness against symptomatic disease has almost no effect. Vaccine effectiveness against hospitalisation ranged from 85% to 95% up to six months after the booster dose with little variation between the type of vaccine used for priming or boost. High levels of protection against mortality were also restored after the booster dose, with a vaccine effectiveness of 94% two or more weeks following vaccination, and dropping to around 88% from 10 weeks after the vaccination for those aged 50 and older<sup>53</sup>.

More data on vaccine effectiveness against the Omicron variant can be found in the [UKHSA vaccine surveillance reports](#). There is a reduced overall risk of

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<sup>51</sup> Scottish Government: [Coronavirus \(COVID-19\): ONS Infection Survey - Antibody Data for Scotland](#) (Published 1 June 2022)

<sup>52</sup> Office For National Statistics: [Coronavirus \(COVID-19\) Infection Survey, antibody data, UK](#) (Published 1 June 2022)

<sup>53</sup> [COVID-19 vaccine surveillance report: week 19 \(publishing.service.gov.uk\)](#)

hospitalisation for Omicron compared to Delta<sup>54 55</sup>, with an estimate of the risk of presentation to emergency care or hospital admission with Omicron approximately half of that for Delta<sup>56</sup>. A non-peer reviewed UK study revealed that risk of Covid-19 related death was 67% lower for Omicron when compared with Delta<sup>57</sup>.

## Looking ahead

### Scottish Contact Survey

Changes in patterns of mixing will likely impact on future Covid-19 prevalence. The Scottish Contact Survey measures the times and settings in which people mix where they could potentially spread Covid-19<sup>58</sup>. Average contacts from the most recent wave of the Scottish Contact Survey (26 May to 1 June) indicate an average of 4.9 contacts. This has remained at a similar level compared to the previous wave of the survey (12 to 18 May).

Mean contacts within the work setting have increased in the last two weeks by 14% whereas contacts within the other setting (contacts outside home, school and work) have decreased by 13%. Contacts within the home have remained at a similar level over the same period.

All age groups with the exception of those within the 50-59 age group have reported a decrease in contacts.

### Modelling the Epidemic

Scottish Government medium-term projections on infections, and hospital and ICU occupancy are not included in this edition of the report, or the Modelling the Epidemic Report this week.

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<sup>54</sup> University of Edinburgh: [Severity of Omicron variant of concern and vaccine effectiveness against symptomatic disease](#)

<sup>55</sup> Imperial College Covid-19 response team: [Report 50: Hospitalisation risk for Omicron cases in England](#)

<sup>56</sup> UK Health Security Agency: [SARS-CoV-2 variants of concern and variants under investigation](#)

<sup>57</sup> [Risk of COVID-19 related deaths for SARS-CoV-2 Omicron \(B.1.1.529\) compared with Delta \(B.1.617.2\) | medRxiv](#)

<sup>58</sup> From the 31 March 2022, panels A and B have been merged into one survey and are now run fortnightly. These data points are reported as at the first day of the survey week. Further details of this are presented in the Scottish Government: [Coronavirus \(Covid-19\): modelling the epidemic](#) (Issue 101, published 9 June 2022)

## Long Covid-19

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.

The ONS Covid-19 Infection Survey estimated that around 1,988,000 people (95% confidence interval: 1,938,000 to 2,038,000) in the private residential population in the UK (3.07% of the respective population; 95% CI: 3.00% to 3.15%) reported experiencing long Covid of any duration over the four-week period ending 1 May 2022. In Scotland, over the same period, an estimated 155,000 people (95% CI: 142,000 to 169,000) in the private residential population (2.95% of the respective population; 95% CI: 2.69% to 3.21%) reported experiencing long Covid of any duration. This compares to:

- 3.09% in England (95% CI: 3.01% to 3.18%),
- 3.16% in Wales (95% CI: 2.81% to 3.51%), and
- 2.71% in Northern Ireland (95% CI: 2.30% to 3.11%)<sup>59</sup>.

Fortnightly modelled estimates for Scotland are also usually published in the Modelling the Epidemic report. However, a report on the rate of long Covid-19 has not been included this week.

## Additional data sources

State of the Epidemic report has predominantly focused on the direct impact that Covid-19 has had on Scotland including infection levels, cases, hospitalisations and hospital occupancy, deaths, vaccinations, situation across the four nations, as well as local authorities in Scotland. There are additional sources of data which monitor wider impacts of Covid-19 on health, societal issues and the economy, which can be found at the links below. **However, please note that these data do not solely reflect the impact of the Covid-19 epidemic.**

- PHS wider impacts dashboard. Information presented in the dashboard covers wider planned and emergency hospital admissions, Accident and Emergency attendances, NHS 24 contacts, out of hours and Scottish Ambulance Services, outpatient appointments, as well as various aspects of cardiovascular, cancer, injuries, mental health, substance use, pregnancy, births and children health.

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<sup>59</sup> Office for National Statistics: Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK (published 1 June 2022)

- NHS Education for Scotland publish weekly data on NHS staff reported as absent due to COVID-19.
- The Care Inspectorate produce weekly data on staff in adult care homes reported as absent due to COVID-19.
- The Scottish Government has published a collection of reports relating to public attitudes to Covid-19. In addition, school attendance and absence figures are published here every Thursday afternoon.
- The Scottish Government also publish statistics on Scottish Welfare Fund and Self-Isolation Support Grants, as well as quarterly Scottish Welfare Fund publication.
- Transport Scotland previously published a range of COVID-19 analysis on the impact on transport and are continuing to monitor transport demand. Additionally, an annual publication on transport and travel in Scotland is available here.
- For a summary of statistics relating to the economy, please refer to the Monthly Economic Brief and State of the Economy Reports.

## Next steps

As stated above, this report will be discontinued following the publication on 10 June 2022. The PHS weekly report now covers additional content from this report, including wastewater levels, reproduction (R) number and headline estimates from the Covid-19 infection survey. However, this report may still be published on an ad hoc basis when appropriate.

The Scottish Government continues to work closely with Public Health Scotland, independent academic modelling groups through the UK Health Security Agency (UKHSA), the Epidemiology Modelling Review Group (EMRG), the Scientific Pandemic Influenza Group on Modelling (SPI-M), the Office for National Statistics (ONS), the Scottish Environment Protection Agency (SEPA), Biomathematics and Statistics Scotland (BIOSS) and YouGov to monitor the Covid-19 situation in Scotland, as well as the impact of new variants and vaccinations.

The Modelling the Epidemic publication will continue to be published on a fortnightly basis. This will continue to summarise the main modelling outputs for Scotland, including the estimates of R, incidence, growth and medium-term projections when available. The next Modelling the Epidemic publication will be on 23 June 2022.

## Technical Annex

**Table 1: The composition of each CIS region in Scotland, by Health Board and Local Authority area. Local Authority areas map to the Health Board areas.**

<b>CIS Region Code</b>	<b>Health Boards</b>	<b>Local Authority Areas</b>
<b>123</b>	NHS Grampian, NHS Highland, NHS Orkney, NHS Shetland and NHS Western Isles	Aberdeen City, Aberdeenshire, Argyll & Bute, Highland, Moray, Na h-Eileanan Siar, Orkney Islands, Shetland Islands
<b>124</b>	NHS Fife, NHS Forth Valley and NHS Tayside	Angus, Clackmannanshire, Dundee City, Falkirk, Fife, Perth & Kinross, Stirling
<b>125</b>	NHS Greater Glasgow & Clyde	East Dunbartonshire, East Renfrewshire, Glasgow City, Inverclyde, Renfrewshire, West Dunbartonshire
<b>126</b>	NHS Lothian	City of Edinburgh, East Lothian, Midlothian, West Lothian
<b>127</b>	NHS Lanarkshire	North Lanarkshire, South Lanarkshire
<b>128</b>	NHS Ayrshire & Arran, NHS Borders and NHS Dumfries & Galloway	Dumfries & Galloway, East Ayrshire, North Ayrshire, Scottish Borders, South Ayrshire

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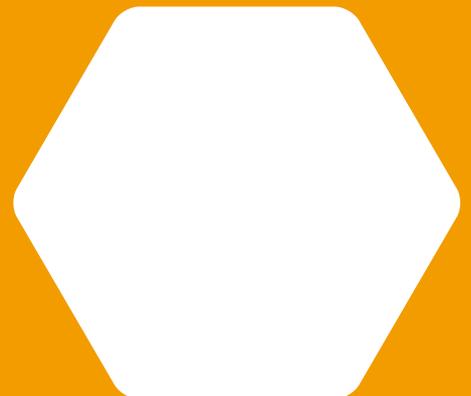
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