Scottish Government Central Analysis Division

State of the Epidemic in Scotland – 1 April 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 25 March 2022[1]. The information in this document helps the Scottish Government, the health service and the wider public sector respond to the epidemic and put in place what is needed to keep us safe and treat people who have the virus.

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

The State of the Epidemic report this week will summarise data up to and including 30 March 2022.

Notice on Change to Publication Schedule

Following a consultation, the United Kingdom Health Security Agency (UKHSA) is reducing the frequency of the Covid-19 consensus (e.g. the estimates of R, growth and incidence where available), to fortnightly from weekly starting from 1 April. This will also affect the frequency of medium term projections. The Modelling the Epidemic report will therefore move to this two-week frequency. To align with this, the State of the Epidemic report will also move to publishing every two weeks. The State of the Epidemic report will be published on 14 April 2022 (brought forward due to public holiday), 29 April 2022, 13 May 2022 and fortnightly thereafter.

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

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Summary

The positivity estimate from the Covid-19 Infection Survey for Scotland continued to increase over the most recent two weeks, but the trend was uncertain in the most recent week. In recent weeks, wastewater Covid-19 RNA levels have sharply increased and this trend continued in the latest week. Meanwhile, the weekly case rate (including reinfections) in Scotland has decreased slightly in the most recent week. Omicron BA.2 continues to be the dominant variant in Scotland; its incidence had been increasing in recent weeks, however the trend is uncertain in the most recent week, according to the Covid-19 Infection Survey.

In the latest week, case rates have decreased in all age groups compared to the previous week; the greatest decrease in case rates was 28% for those aged 0 to 19 years. The trend in estimates of positivity levels by age group from the Covid-19 Infection Survey are uncertain in the most recent week.

Covid-19 related daily hospital occupancy has continued to increase in the most recent week, reaching the highest levels seen throughout the pandemic. Combined ICU occupancy has decreased in the most recent week. Weekly hospital admissions have increased in the week to 12 March. Those aged 60 or older continue to represent the majority of hospital admissions, but the average number of hospital admissions for children and young people has reached its highest levels so far in the pandemic. The weekly number of Covid-19 deaths continued to increase in the last week, with the majority of deaths occurring in those aged 65 and over.

Key Points

- The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 15 March is between 0.9 and 1.1. The lower and upper limit of the R value have both decreased since the last published figure.

- UKHSA was unable to reach a consensus on the incidence of new daily infections in Scotland as at 15 March.

- The latest estimated growth rate for Scotland as at 15 March was between -1% and 2%. The upper and lower growth limits have both decreased since the previous week.

- 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 increased over the most recent two weeks, but the trend was uncertain in the week 20 to 26 March 2022. In the latest week, the estimated percentage of people testing positive was 8.57% (95% credible interval: 7.89% to 9.27%)[2], equating to around 1 in 12 people (95% credible interval: 1 in 13 to 1 in 11). In the latest four weeks, the estimates of positivity have surpassed the previous peak from early January 2022.

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

- Nationwide, wastewater Covid-19 levels have continued to increase. The week ending on the 29 March saw levels of around 297 million gene copies per person per day (Mgc/p/d), an increase of around a half from 200 Mgc/p/d the previous week (week ending 22 March).

- The sublineage Omicron BA.2 is the dominant variant in Scotland. Of the new cases in Scotland that were notified on 28 March from UKGov laboratories, 95.1% were S gene positive, which is used as a reasonable proxy for tracking Omicron BA.2. By comparison, according to the Covid-19 Infection Survey, its incidence had been increasing in recent weeks, however the trend is uncertain in the most recent week to 26 March. The Survey estimated that 7.17% (95% credible interval: 6.54% to 7.84%) of the private residential population would have tested positive with a Covid-19 infection compatible with BA.2 on 23 March.

- By specimen date, the seven-day combined PCR and LFD case rate (including reinfections) decreased in Scotland in the week leading up to 27 March. There were 1,311 weekly combined PCR and LFD cases per 100,000 population in the week to 27 March, which is a 15% decrease from 1,536 weekly cases per 100,000 on 20 March.

- The week leading up to 27 March saw decreasing case rates in all age groups compared to the week ending 20 March. In the most recent week, the greatest decrease in case rates was 28% for those aged 0 to 19 years. There was a slight decrease for those aged 50 and older which ranged from 5% decrease among those aged 60 to 69, to 12% decrease among those aged 80 or older.

- In the week to 27 March, there were 593 reported cases among care home residents, which is a decrease of 25% from the previous week ending 20 March (793 cases). The number of cases in the most recent week is lower than previous peak of 833 weekly cases in the week to 9 January 2022 and has decreased to below the previous peak of 641 weekly cases in the week to 10 January 2021.

- The proportion of reinfections among total weekly cases has increased in the most recent week to 27 March to 10.5% of cases, which is the highest level of reinfections seen in the pandemic.

- In the week to 30 March, daily Covid-19 hospital occupancy continued to increase to the highest level reported throughout the pandemic. NHS boards reported 2,344 patients in hospital or in short stay ICU on 30 March, a 4% increase compared to the previous week. Combined ICU occupancy has decreased by 6 patients on 30 March compared to a week previously, to a total of 26 patients.

- According to data from Public Health Scotland, there were 1,377 admissions to hospital for people with confirmed Covid-19 in the week to 12 March which is a 17% increase on the previous week (to 5 March). There were 38 admissions to ICU for people with confirmed Covid-19 in the week to 15 March which

compares to 25 in the week to 8 March. There are a large number of daily revisions to admissions data for the latest two weeks, so the week-on-week comparisons are lagged by two weeks.

- According to data from the PHS Education Dashboard, average hospital admissions related to Covid-19 in children and young adults have continued to increase in the three-week period to 23 March, and have reached the highest levels seen in the pandemic, at 185 average weekly admissions.

- The overall number of Covid-19 deaths has increased by 59%, or 71 deaths, to a total of 192 deaths in the week leading up to 27 March, compared to 121 in the week leading up to 20 March.

- In the week leading up to 27 March 2022, Na h-Eileanan Siar had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,898 cases per 100,000 population. Orkney Islands had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 781 cases per 100,000.

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 Heath Scotland, National Records of Scotland and Office for National Statistics along with scientific publications and SAGE and UKHSA summaries where appropriate to summarise the state of the epidemic in Scotland in a given week. We also provide information on public attitudes to the virus from weekly YouGov polling surveys.

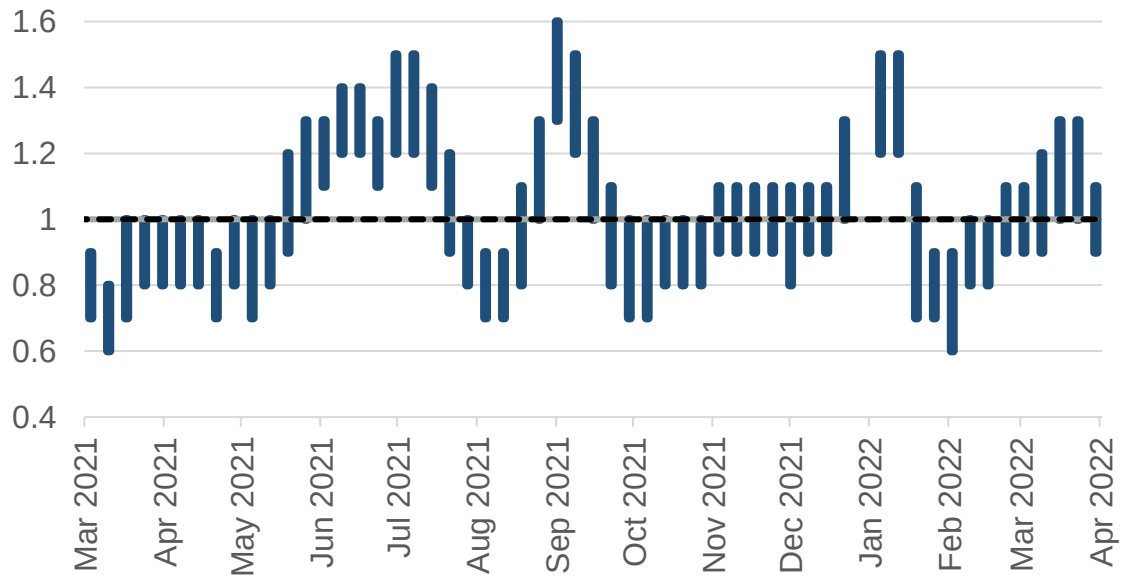
Estimated Infection Levels and Case Numbers

Estimated Infection Levels

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

The UK Health Security Agency's (UKHSA) consensus estimate for R in Scotland as at 15 March is between 0.9 and 1.1. The lower and upper limits of the R value have both decreased since the last published figure (**Figure 1**)[3] [4].

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



UKHSA was unable to form a consensus view on the incidence of new daily infections in Scotland as at 15 March[6].

[3] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[4] Using data to 28 March 2022.
[5] No R value was published for the week beginning 27 December 2021 as publications were paused over the festive period. The most recent data point for R is dated 30 March 2022, reflecting the R value as at 15 March.
[6] Scottish Government: Coronavirus (Covid-19): modelling the epidemic

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

The latest growth rate for Scotland as at 15 March was between -1% and 2%. The upper and lower growth limits have both decreased since the previous week[7] [8].

Wastewater Estimates

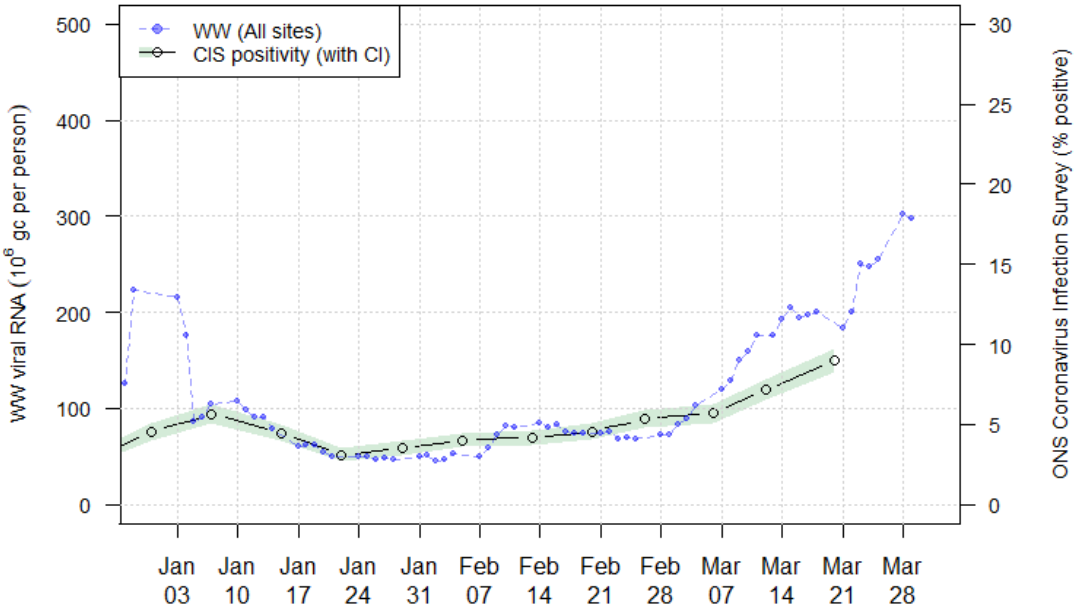
The Scottish Government has been working with the Scottish Environment Protection Agency (SEPA) to detect and analyse fragments of Covid-19 virus RNA in wastewater. The number of locations where the levels of SARS-CoV-2 in wastewater are monitored has increased to 141 sites around Scotland. In contrast to Covid-19 case records, virus shedding into wastewater is a biological process. This means that wastewater data is unaffected by factors that impact whether testing is done.

Nationwide, wastewater Covid-19 levels have continued to increase. The week ending on the 29 March saw levels of around 297 million gene copies per person per day (Mgc/p/d), an increase of around a half from 200 Mgc/p/d the week ending 22 March (**Figure 2**)[9].

While there are increases in wastewater Covid-19 levels across most of Scotland, three local authorities have decreased their levels over the past week. Decreases were reported in Dumfries and Galloway, Inverclyde and Perth and Kinross. Please note that comparisons for Moray, Na h-Eileanan Siar and Shetland Islands are not possible due to sampling coverage.

[7] Using data to 28 March 2022.
[8] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[9] Scottish Government: Coronavirus (Covid-19): modelling the epidemic

Figure 2: National running average trends in wastewater Covid-19 from 31 December 2021 to 29 March 2022, and CIS positivity estimates from 31 December to 20 March 2022[10] [11] [12].



Covid Infection Survey

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

In Scotland, the percentage of people testing positive for Covid-19 as estimated by the Covid-19 Infection Survey increased over the most recent two weeks, but the trend is uncertain in the most recent week (20 to 26 March), as seen in **Figure 3**[13]. Recent increases in estimated infection levels in Scotland have correlated with the increasing prevalence of the Omicron BA.2 variant in Scotland since early February.

The estimated percentage of people testing positive for Covid-19 in the private residential population in the week 20 to 26 March in Scotland is 8.57% (95% credible interval: 7.89% to 9.27%)[14], equating to around 1 in 12 people (95% credible interval:

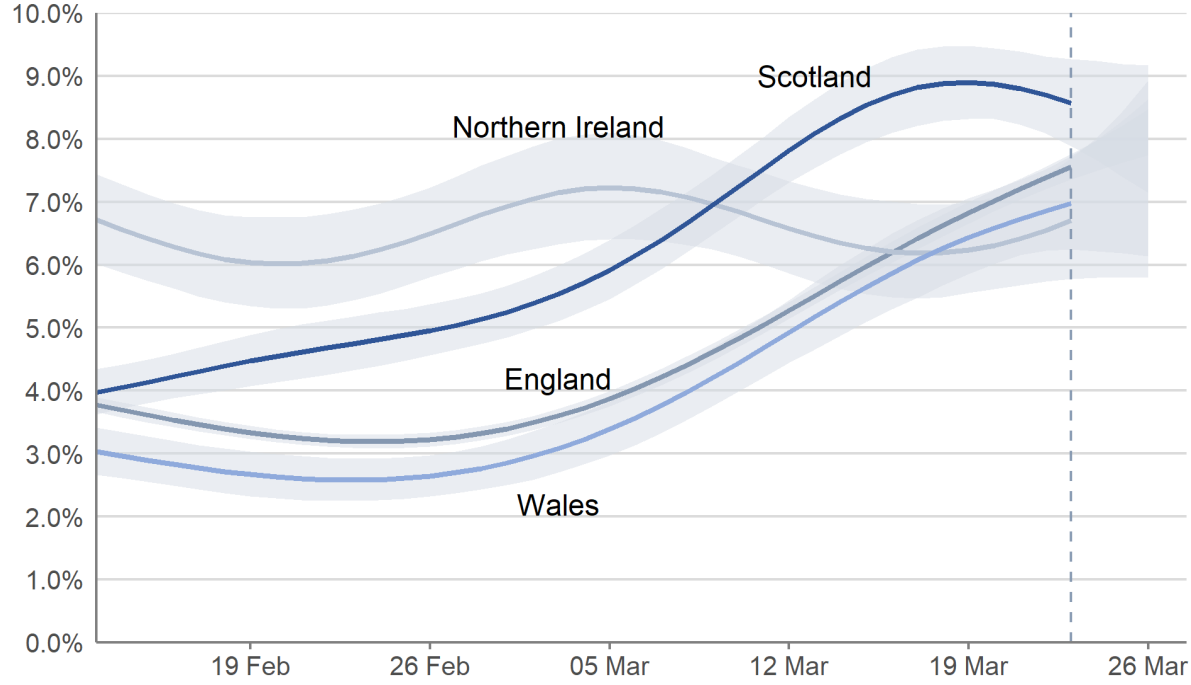
[10] Scottish Government: Coronavirus (Covid-19): modelling the epidemic
[11] This chart shows data from early 2022, at which point the Omicron variant represents almost all cases in Scotland.
[12] The latest CIS estimates up to the week to 26 March were not available at the time that Figure 2 was produced. As a result, Figure 2 uses last week's CIS estimates (up to the week to 20 March 2022). See the following section for the latest CIS estimates.
[13] Scottish Government: Coronavirus (COVID-19): infection survey
[14] A **credible interval** gives an indication of the uncertainty of an estimate from data analysis based on a sample population. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.

1 in 13 to 1 in 11). In the latest four weeks, the estimates of positivity have surpassed the previous peak from early January 2022.

In the week 20 to 26 March 2022[15], estimates for the other nations of the UK are as follows and can be seen in **Figure 3**:

- In England, the percentage of people testing positive continued to increase: 7.56% (95% credible interval: 7.36% to 7.75%), equating to around 1 in 13 people (95% credible interval: 1 in 14 to 1 in 13).
- In Wales, the percentage of people testing positive continued to increase: 6.97% (95% credible interval: 6.24% to 7.73%), equating to around 1 in 14 people (95% credible interval: 1 in 16 to 1 in 13).
- In Northern Ireland, the trend in the percentage of people testing positive is uncertain: 6.70% (95% credible interval: 5.77% to 7.68%), equating to around 1 in 15 people (95% credible interval: 1 in 17 to 1 in 13).

Figure 3: Modelled daily estimates of the percentage of the private residential population testing positive for COVID-19 in the four UK nations, between 13 February and 26 March 2022, including 95% credible intervals.



In Scotland, the trend in the percentage of people testing positive was uncertain in all age groups in the most recent week[16]. Meanwhile, the case rates (including

[15] Please note different reference dates for Scotland and other three nations. The ONS aims to provide the estimates of positivity rate that are most timely and representative of each week, and decides the most recent week to report on based on the availability of test results. On most occasions, the reference dates align perfectly, but sometimes this is not feasible. For more information, see section "11. Measuring the data" in Coronavirus (COVID-19) Infection Survey, UK: 18 March 2022

[16] Scottish Government: Coronavirus (Covid-19): infection survey

reinfections) by specimen date show a decrease in all age groups in the week to 27 March compared to the previous week, in line with the overall decreasing trend[17].

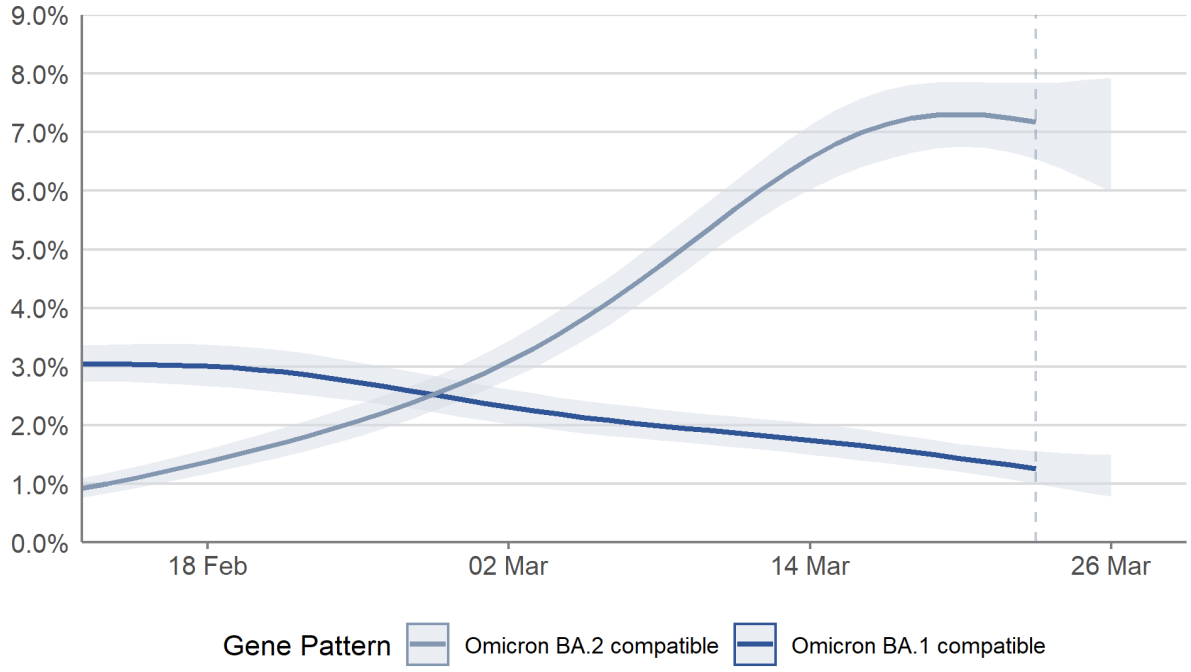
Omicron BA.2

The Omicron variant was first detected in Scotland on 29 November 2021[18]. It had a growth advantage over the previously dominant Delta variant, but a lower clinical severity. The parent variant (Pango lineage B.1.1.529) can now be separated into three main groups: BA.1, BA.2 and BA.3. The BA.1 lineage of Omicron was originally dominant within Scotland, however, the first specimen date reported for BA.2 was 23 December 2021; BA.2 is now the dominant variant in Scotland and its incidence is increasing[19]. The latest BA.2 risk assessment update issued on 23 March indicates that BA.2 has a growth advantage compared to BA.1; however, the clinical severity of BA.2 is similar to that of BA.1[20]. The increasing prevalence of BA.2 has correlated to increasing Covid-19 prevalence in Scotland since mid-February.

According to estimates from the Covid-19 Infection Survey, the trend in the percentage of people with Covid-19 infections compatible with Omicron BA.2 in Scotland was uncertain in the most recent week to 26 March, while the percentage of people with infections compatible with the Omicron BA.1 decreased in the most recent week (**Figure 4**). The Covid Infection Survey estimated that 7.17% (95% credible interval: 6.54% to 7.84%) of the private residential population would test positive with a Covid-19 infection compatible with BA.2 on 23 March[21].

[17] Scottish Government: Coronavirus (COVID-19): trends in daily data (accessed 30 March 2022)
[18] Scottish Government: Omicron variant
[19] Public Health Scotland: COVID-19 statistical report
[20] Risk assessment for SARS-CoV-2 variant: VUI-22JAN-01 (BA.2) 23 March 2022 (publishing.service.gov.uk)
[21] Scottish Government: Coronavirus (COVID-19): infection survey

Figure 4: Modelled percentage of infections compatible with the Omicron BA.1 variant and Omicron BA.2 variant, based on nose and throat swabs, daily, in Scotland, 13 February to 26 March 2022[22].



Unlike Omicron BA.1, BA.2 does not contain the deletion that leads to S Gene Target Failure in a widely used PCR testing platform available at UKGov Pillar 2 Lighthouse Laboratories. This is used as a reasonable proxy to track BA.2 as opposed to BA.1. UKGov laboratories process the majority of PCR tests in Scotland. Of the new cases in Scotland that were notified on 28 March from UK Government laboratories, 95.1% were S gene positive. This is an increase from 90.1% of cases 10 days previously[23].

Details of risk assessments for both BA.1 and BA.2 carried out by UKHSA can be found on the UK government's website[24] and in the State of the Epidemic reports published on 4 February and 28 January 2022. For more information on vaccine effectiveness and Omicron BA.2, please see the **Vaccine Effectiveness Against Omicron** section.

Recently UKHSA has announced changes to their variant classification system which will take effect from 1 April 2022[25]. In the new system, a Variant of Concern (VOC) category will be assigned to emerging or circulating variants which show a detrimental change in biological properties such as transmissibility, severity or immune evasion and growth rate potentially compatible with maintaining transmission and/or displacing the current dominant variant. New variants will receive a variant number (V-date-number) and will undergo routine assessment when sufficient number of cases will accrue. There will be no other variant

[22] Scottish Government: Coronavirus (COVID-19): infection survey
[23] Public Health Scotland: COVID-19 statistical report - 30 March 2022 - COVID-19 statistical report
[24] https://www.gov.uk/government/publications/investigation-of-sars-cov-2-variants-of-concern-variant-risk-assessments
[25] SARS-CoV-2 variants of concern and variants under investigation (publishing.service.gov.uk)

categories, including no Variant Under Investigation (VUI) category. Previous variants of concern which no longer meet the criteria above will be redesignated.

Covid-19 Cases

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

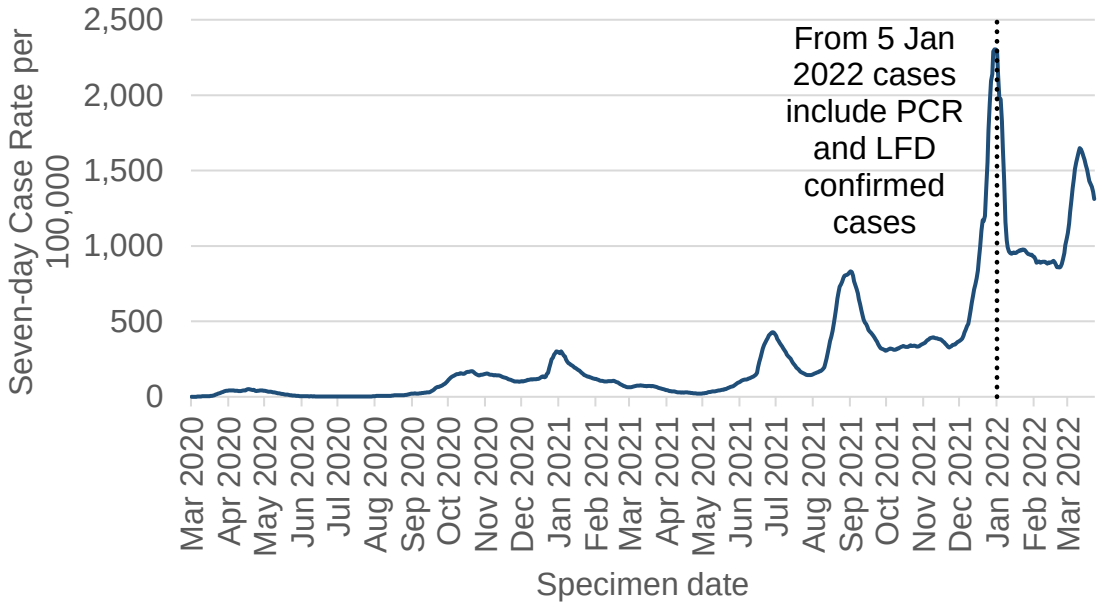
In previous reports there was an update on Covid-19 cases by reporting date to give readers an indication of the most recent data. However, due to the inclusion of reinfections on 1 March and technical issues experienced by PHS in the days to 15 March, cases by reporting date do not yet show a reliable trend and this analysis has therefore been excluded from the state of the epidemic report.

By specimen date, the seven-day combined PCR and LFD case rate (including reinfections) decreased in Scotland in the week leading up to 27 March. This follows a period of sharply increasing case rates from late February to mid-March. There were 1,311 weekly combined PCR and LFD cases per 100,000 population in the week to 27 March, which is a 15% decrease from 1,536 weekly cases per 100,000 on 20 March. This remains a very high case rate compared to previous phases of the pandemic in Scotland (**Figure 5**)[26].

Comparisons with data from before 5 January 2022 must be made with caution as differences are likely to reflect changes in testing behaviour and policy rather than changing infection levels alone.

[26] Public Health Scotland: Covid-19 Daily Dashboard (accessed 30 March 2022)

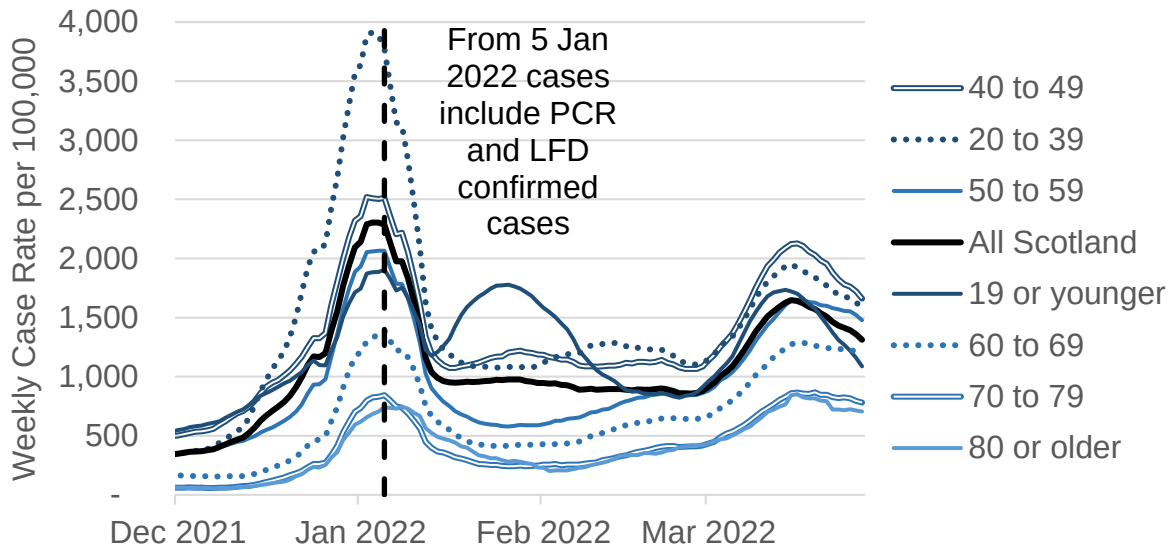
Figure 5: Seven-day combined PCR and LFD case rate (including reinfections) per 100,000 for Scotland by specimen date. Data to 27 March 2022[27].



The week leading up to 27 March saw decreasing case rates in all age groups compared to the week ending 20 March. In the most recent week, the greatest decrease in case rates was 28% for those aged 0 to 19 year. There was a slight decrease for those aged 50 and older which ranged from 5% decrease among those aged 60 to 69, to 12% decrease among those aged 80 or older (**Figure 6**)[28].

[27] Before 5 January 2022, the case rate includes only positive laboratory confirmed PCR tests.
[28] Public Health Scotland: Covid-19 Daily Dashboard (accessed 30 March 2022)

Figure 6: Weekly total combined PCR and LFD cases (including reinfections) per 100,000 population in Scotland by age group, by specimen date. Data to 27 March 2022[29] [30].



Rising numbers of weekly Covid-19 cases among care home residents throughout February and March were in line with the increasing case numbers among older age groups in the same period. In the week to 27 March, there were 593 reported cases among care home residents, which is a decrease of 25% from the previous week ending 20 March (793 cases). The number of care home cases in the most recent week is lower than previous peak of 833 weekly cases in the week to 9 January 2022 and has decreased to below the previous peak of 641 weekly cases in the week to 10 January 2021[31].

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

Due to the different case definitions outlined above, we have not included case comparisons across the four UK nations using data from the UK Government dashboard in this edition of the report. When these definitions are more aligned we

[29] Before 5 January 2022, the case rate includes only a positive laboratory confirmed PCR tests.
[30] Scottish Government: Coronavirus (COVID-19): trends in daily data (accessed 30 March 2022)
[31] Scottish Government: Coronavirus (COVID-19): trends in daily data (accessed 30 March 2022)

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

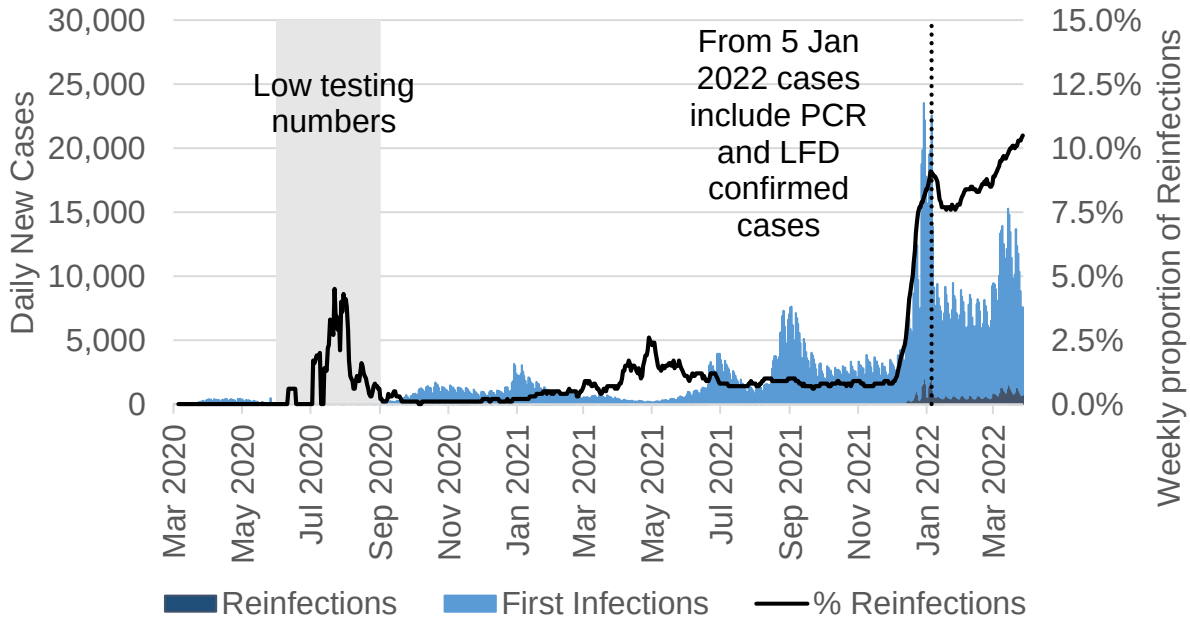
Reinfections

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

The increase in the proportion of reinfections seen in late 2021 corresponds to the emergence of the Omicron BA.1 variant in the UK. The proportion of reinfections in Scotland when Omicron BA.1 was first detected on 29 November[32] was 0.8% percent of total cases. These are cases in individuals for whom it has been 90 or more days since their last positive Covid-19 test.

The proportion of reinfections among the total weekly cases has increased in the most recent week. By specimen date, there was a total number of 7,514 reinfection cases confirmed by either a PCR or LFD test in the week leading up to 27 March. This represents 10.5% of reported cases and compares to 10.0% in the week leading up to 20 March. This is the highest level of reinfections seen in the pandemic (**Figure 7**).

Figure 7: Number of PCR and LFD positive cases by episode of infection and specimen date. Data to 27 March 2022[33].

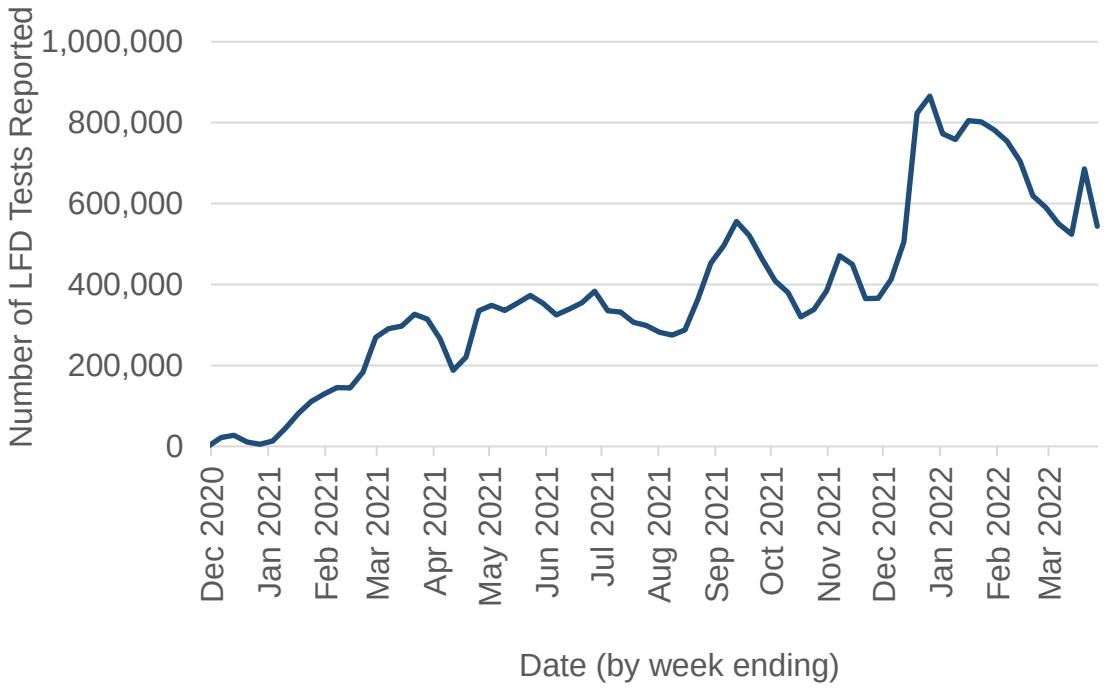


[32] Scottish Government: Omicron variant
[33] Public Health Scotland: Covid-19 Daily Dashboard (accessed 30 March 2022)

LFD Testing

The weekly total of tests reported in the week to 27 March decreased by 21% from the previous week leading up to 20 March. There were 543,688 reported tests in the week to 27 March (**Figure 8**)[34].

Figure 8: Number of LFD Tests Reported. Data up to the 27 March 2022.



YouGov survey results have shown that on 15 to 16 March, 53% of respondents had taken a LFD/antigen test and 9% a PCR test in the past week[35]. Of those who had taken a LFD/antigen test, 44% recorded the result of their last LFD/antigen test online and 54% did not record the results online[36].

The Scottish Contact Survey asks whether people use LFD tests and if so how often. Approximately 80% of individuals had taken at least one lateral flow test within the last 7 days for the survey pertaining to the 17 March to 23 March[37].

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

[34] Public Health Scotland: Covid-19 Statistical Report (accessed 30 March 2022)
[35] Results are taken from questions run on behalf of Scottish Government on the YouGov online omnibus survey. Question 'Coronavirus tests typically take two forms – Rapid 'Lateral Flow or LFD' tests (sometimes called Antigen Tests), which give a test result in 30 minutes and are usually self-administered, or PCR Tests mostly conducted at official Test Sites (but also available as a 'Home Kit) – processed by a laboratory, with results available within 48 hours. In both tests, a swab of nose and/or throat is needed. Which of the following applies to you in relation to testing for Covid-19 in the past week (i.e. since 8 March)?'
[36] Question -Thinking about the last lateral flow/antigen test you did in the past week…Which of the following best describes you in relation to that test? (Base: 533 - All who have taken a Lateral Flow/antigen test in the last week)
[37] Scottish Government: Coronavirus (COVID-19): modelling the epidemic

methodology. YouGov is an online survey based on an active sample which is representative of the Scottish population with around 1,000 respondents[38]. The SCS[39] is based on a longitudinal survey with a larger sample of around 3,000, with the responses being modelled to represent the Scottish population.

Severe Illness: Hospitalisation, ICU and Deaths

Hospital and ICU Occupancy and Admissions

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

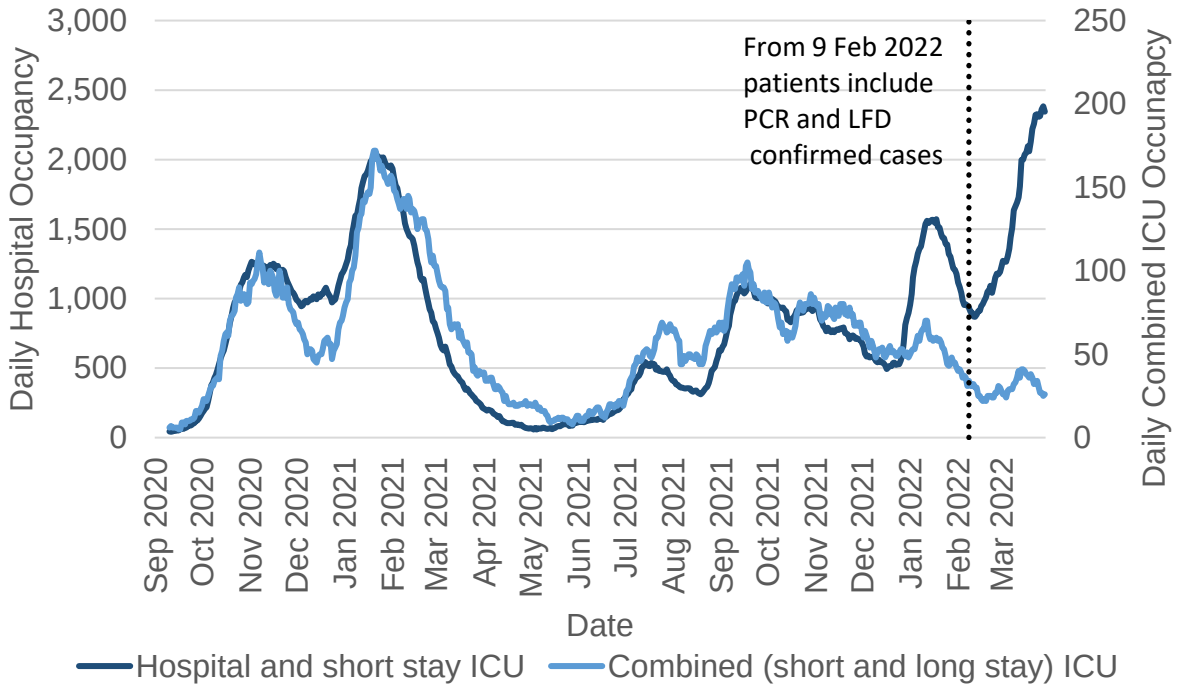
In the week to 30 March, daily Covid-19 hospital occupancy continued to increase to the highest level of Covid-19 related hospital occupancy reported throughout the pandemic. NHS boards reported 2,344 patients in hospital or in short stay ICU on 30 March with recently confirmed Covid-19, compared to 2,257 on 23 March. This is an increase of 87 patients, or 4%, from a week previously, and an increase of 345 patients, or 17%, compared to two weeks previously (16 March). This compares with 2,053 patients in hospital at the peak in January 2021(**Figure 9**).

Combined ICU occupancy (including short and long stay) has decreased to 26 patients on 30 March, a decrease of 6 patients or 19% compared to a week previously on 23 March. Low numbers in ICU occupancy means that the data is sensitive to minimal changes, which had led to the trend fluctuating in recent weeks. The number of combined ICU occupancy remains lower than the peak of 172 ICU patients recorded in January 2021.

This decrease in ICU occupancy was seen among both short and long stay ICU patients. There were 20 patients in short stay ICU on 30 March, compared to 25 a week previously (23 March). This is a decrease of 5 patients. There were 6 patients in long stay ICU on 30 March, compared to 7 patients a week previously (23 March). This is a decrease of 1 patient (**Figure 9**)[40].

[38] 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.
[39] 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.
[40] Scottish Government: Coronavirus (Covid-19): Trends in Daily Data (accessed 30 March 2022)

Figure 9: Patients in hospital (including short stay ICU), and patients in combined ICU with recently confirmed Covid-19, data up to 30 March 2022[41] [42].



Covid-19 admissions to hospital (including for children and young people) include patients with Covid-19 cases confirmed either by PCR or LFD from 5 January and onwards. Prior to this date, it only included cases confirmed by a PCR test. Hospital admissions include reinfection cases. Please note that admissions to ICU only include PCR confirmed Covid-19 cases. **Covid-19 occupancy figures presented in this section may include patients being admitted and treated in hospital or ICU for reasons other than COVID-19.**

Please note that hospital admissions data in Scotland is dynamic and subject to daily revisions. We are currently seeing a large number of mostly upward revisions which is likely due to infections being identified after patients have been admitted to hospital. As the greatest revisions are likely to impact the latest two weeks of data, we have moved to reporting week-on-week comparisons with a two-week lag. You can still see the latest data in Figure 10 but we advise caution in interpreting the latest trends.

According to data from Public Health Scotland, there were 1,377 admissions to hospital for people with confirmed Covid-19 in the week to 12 March which is a 17% increase on the previous week (1,176 admissions in the week to 5 March)[43]. As

[41] 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.

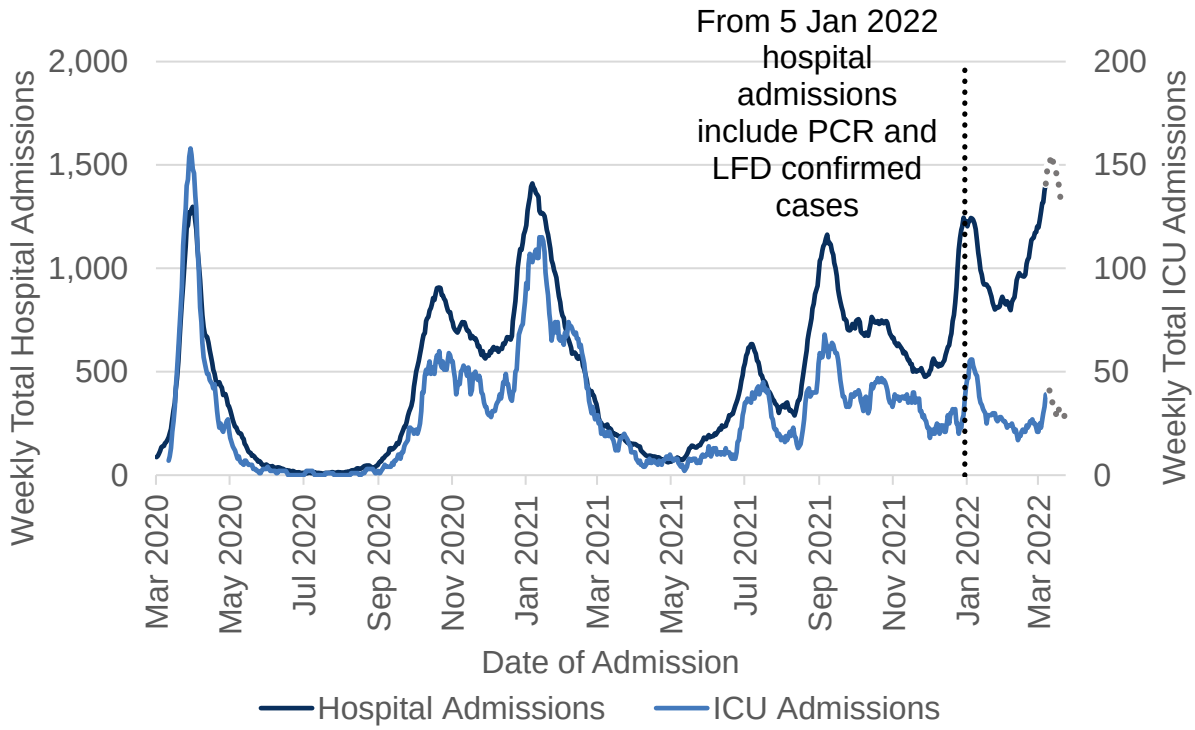
[42] Before 9 February 2022, patients were only included if they had a recent positive laboratory confirmed PCR test. Hospital and ICU occupancy includes reinfections from 7 March 2022 onwards.

[43] The State of the Epidemic report incorporates data up to and including 30 March 2022, so any revisions since then will not be included in this report.

noted above, we are currently seeing a large number of daily revisions, so comparisons for the latest two weeks of data have not been made[44].

There were 38 admissions to ICU for people with confirmed Covid-19 in the week to 15 March which compares to 25 in the week to 8 March[45]. 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 10**)[46].

Figure 10: Weekly total of Covid-19 admissions to hospital and ICU with a positive Covid test in Scotland. Hospital admission data to 26 March 2022 and ICU admission data to 29 March 2022[47] [48] [49].



According to data from the PHS Education Dashboard, average hospital admissions related to Covid-19 in children and young adults have continued to increase in the three-week period to 23 March, and have reached the highest levels seen in the

[44] Public Health Scotland: Covid-19 Daily Dashboard (accessed 30 March 2022)
[45] The State of the Epidemic report incorporates data up to and including 30 March 2022, so any revisions since then will not be included in this report.
[46] Public Health Scotland: Covid-19 Daily Dashboard (accessed 30 March 2022)
[47] 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.
[48] Before 9 January 2022, hospital admissions were only included if the patient had a recent positive laboratory confirmed PCR test. ICU admissions rely on PCR testing only. Hospital admissions data in the chart now includes reinfections and has been updated to include this methodology retrospectively to the start of the pandemic.
[49] To illustrate the impact of revisions, we include an example of the upward revision for the latest data point used in the week-on-week comparison: the number of admissions in the week to 12 March was first reported as 977 on 16 March but has now been revised to 1,377 as reported on 30 March, a 41% increase. Please note that this increase is not representative of other revisions around this time and should not be used to determine the most recent trend.

pandemic, at 185 average weekly admissions. This is a 13% increase compared to the previous three-week period to 16 March (164 average weekly admissions). These figures refer both to young patients in hospital because of Covid-19 and with Covid-19, and link to both PCR and LFD test results[50].

The highest number of hospital admissions in the week to 22 March were among those aged 80 and over. In the same week, approximately 56% of the hospital admissions related to patients aged 60 or older. This is a decrease from 61% in the week to 15 March[51].

The proportion of Covid-19 hospital admissions staying for 48 hours or longer was 62% between 2 March and 15 March; the proportion was higher for those aged 60 years and over (as reported on 30 March) [52].

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

The seven-day average hospital occupancy in Scotland per one million people was 425 patients in the week to 29 March 2022. This is an increase of 12% from one week prior (week to 22 March 2022). The seven-day average hospital occupancies per one million in the same period for other UK nations were as follows[53] [54]:

- England: 251 per one million (an increase of 19% from one week prior),
- Northern Ireland: 304 per one million (a decrease of 11% from one week prior),
- Wales: 320 per one million (an increase of 24% from one week prior).

Due to revisions to the hospital admissions data mentioned above (**page 16**), we have removed the four nations comparisons in this week's publication. We will continue to monitor the data to see when it is appropriate to reintroduce this analysis.

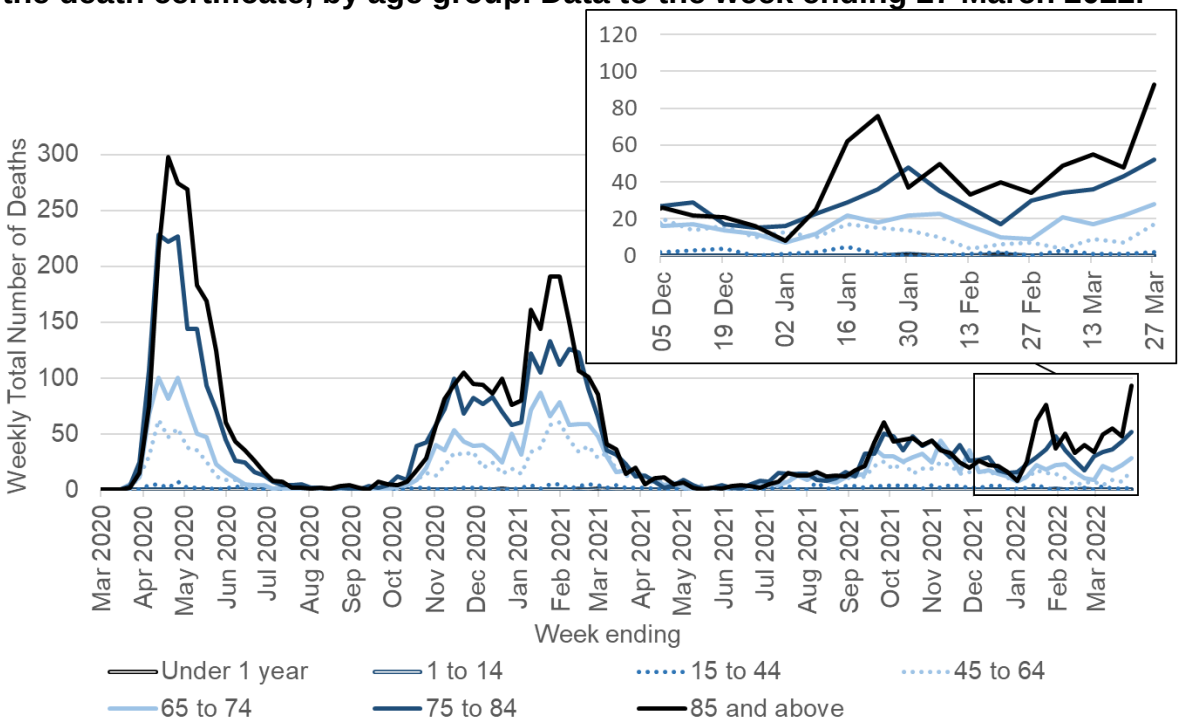
[50] Public Health Scotland: PHS Covid-19 Education Report
[51] Public Health Scotland: Covid-19 statistical report - 30 March 2022
[52] Public Health Scotland: Covid-19 statistical report - 30 March 2022
[53] UK Government: Coronavirus (Covid-19) in the UK (accessed 30 March 2022)
[54] Hospital occupancy data across the four nations refers to the week ending 29 March due to availability of data, whereas the main hospital occupancy section for Scotland only in this report refers to the week ending 30 March.

Deaths

In the last five weeks, there has been an increasing trend in the number of Covid-19 deaths in Scotland. The overall number of Covid-19 deaths increased by 59%, or 71 deaths, to a total of 192 deaths in the week leading up to 27 March, compared to 121 in the week leading up to 20 March. This figure is 71% lower than the peak in 2020, when the week ending 27 April saw a total of 663 deaths where Covid-19 was mentioned on the death certificate[55]. National Records of Scotland publish a weekly detailed analysis on deaths involving Covid-19 in Scotland in their weekly report[56].

The latest weekly total number of deaths has exceeded the peak of 146 deaths in the week to 23 January 2022. The number of deaths are at higher levels among those aged 45 and older but are fluctuating on a weekly basis. Covid-19 deaths among younger age groups have remained at low levels throughout the pandemic (**Figure 11**).

Figure 11: Weekly total number of deaths where Covid-19 was mentioned on the death certificate, by age group. Data to the week ending 27 March 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.

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

In the week ending 27 March, the total number of deaths registered in Scotland was 1,234. This was 11% higher than the five year average for this week[57].

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

There were 5 average daily deaths per one million population in the week leading up to 29 March 2022 in Scotland. This compared to 4 weekly deaths per one million in the week to 22 March. In the same time period, average daily deaths for the other UK nations were as follows[58] [59]:

- England: **2 per one million**. This compares to 2 weekly deaths per 1 million in the week to 22 March.
- Northern Ireland: **2 per one million**. This compares to 2 weekly deaths per 1 million in the week to 22 March.
- Wales: **2 per one million**. This compares to 1 weekly death per 1 million in the week to 22 March.

Resilience: Vaccinations, Antibody Estimates, and Variants

Vaccinations

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

From 24 March 2022, PHS began reporting the number of people who have received a fourth dose of Covid-19 vaccination and they will include further updates as the Spring/Summer vaccination programme rolls out. In addition, the methodology of counting the vaccine uptake statistics have been reviewed to be in line with other UK nations. This means that from 24 March 2022, the deceased and those who no longer live in Scotland will no longer be included in vaccine uptake statistics. As a result of this change, figures in the current report might appear lower than figures reported the previous week. More details on the methodology changes are available on PHS website.

[57] NRS Scotland: Deaths involving coronavirus (Covid-19) in Scotland
[58] Deaths within 28 days of positive test.
[59] UK Government: Coronavirus (Covid-19) in the UK (accessed 30 March 2022)

By 30 March, almost 4.4 million people had received their first dose, an estimated 90.4% of the population aged 12 and older, and almost 4.1 million people had received their second dose, an estimated 85.5% of the population aged 12 and older. Almost 3.5 million people in Scotland had received a third vaccine dose, an estimated 72.1% of the population aged 12 and older[60].

The JCVI now advise a spring booster dose of the COVID-19 vaccine for: adults aged 75 years and over, residents in care homes for older adults, and individuals aged 12 years and over who have a weakened immune system[61]. By 30 March, 79,884 fourth dose vaccinations had been administered, with 34.3% of all care home residents having received their fourth dose[62].

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

Antibodies Estimates

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

Vaccine Effectiveness Against Omicron

The UKHSA reported that vaccine effectiveness against symptomatic disease, hospitalisation, or mortality with the Omicron variant is lower compared to the Delta variant and that it wanes rapidly. Vaccine effectiveness against all outcomes is restored after the booster dose, with effectiveness against symptomatic disease ranging initially from around 60% to 75% and dropping to around 25% to 40% after 15 weeks. Vaccine effectiveness against hospitalisation 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. The high level of protection against mortality was also restored after the booster dose with vaccine effectiveness of 95% two or more weeks following vaccination for those aged 50 and older[63].

Vaccine effectiveness against symptomatic disease with Omicron BA.2 compared to Omicron BA.1, showed similar results, with BA.1 having an effectiveness of below 20% and BA.2 having an effectiveness of above 20% after 25 or more weeks following the second dose. The booster dose of vaccine increased effectiveness to around 70% for BA.1 and BA.2 at two to four weeks following a booster vaccine. Effectiveness dropped to around 50% for BA.1 and BA.2 15 weeks after vaccination. Vaccine effectiveness against hospitalisation ranged from 83% for BA.1 to 87% for

[60] Public Health Scotland: Covid-19 Daily Dashboard | Tableau Public (accessed 30 March 2022)
[61] Coronavirus (COVID-19) booster vaccination | The coronavirus (COVID-19) vaccine (nhsinform.scot)
[62] Public Health Scotland: Covid-19 Daily Dashboard | Tableau Public (accessed 30 March 2022)
[63] SARS-CoV-2 variants of concern and variants under investigation (publishing.service.gov.uk)

BA.2 at 14 to 34 days after the booster dose, and dropped to 73% for BA.1 and 70% for BA.2 after 70 days. These estimates have large overlapping confidence intervals[64].

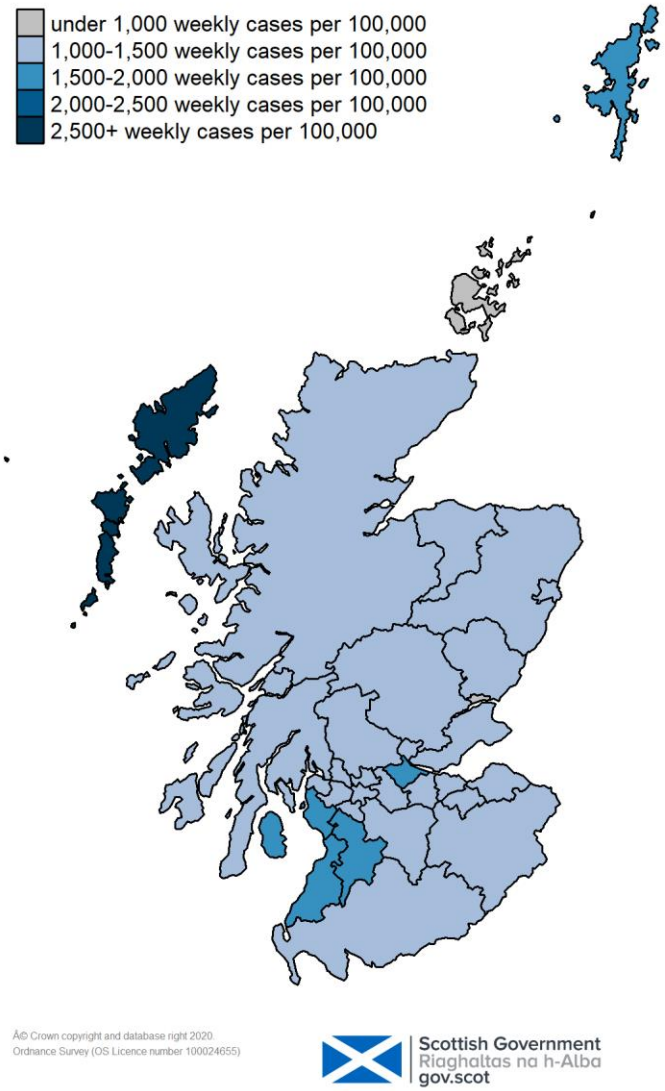
More data on vaccine effectiveness against the Omicron variant can be found in the UKHSA vaccine surveillance reports. There is evidence that there is reduced overall risk of hospitalisation for Omicron compared to Delta[65] [66], with the most recent estimate of the risk of presentation to emergency care or hospital admission with Omicron approximately half of that for Delta[67]. A recent, non-peer reviewed UK study revealed that risk of COVID-19 related death was 67% lower for Omicron when compared with Delta[68].

Situation by Local Authority within Scotland

In the week leading up to 27 March 2022, Na h-Eileanan Siar had the highest combined PCR and LFD weekly case rate by specimen date, reporting 2,898 cases per 100,000 population. Orkney Islands had the lowest weekly combined LFD and PCR case rate in the same time period, reporting 781 cases per 100,000. The total combined LFD and PCR weekly case rates by specimen date per 100,000 had increased in the Shetland Islands in the week leading up to 27 March 2022 compared with the weekly case rate leading up to 20 March 2022. The other 31 local authorities saw a decrease in case rates in the same period (**Figure 12**)[69].

[64] SARS-CoV-2 variants of concern and variants under investigation (publishing.service.gov.uk)
[65] University of Edinburgh: Severity of Omicron variant of concern and vaccine effectiveness against symptomatic disease
[66] Imperial College Covid-19 response team: Report 50: Hospitalisation risk for Omicron cases in England
[67] UK Health Security Agency: SARS-CoV-2 variants of concern and variants under investigation
[68] Risk of COVID-19 related deaths for SARS-CoV-2 Omicron (B.1.1.529) compared with Delta (B.1.617.2) | medRxiv
[69] Public Health Scotland: Covid-19 Daily Dashboard (accessed 30 March 2022)

Figure 12: Weekly total LFD or PCR case rates (including reinfections) per 100,000 people in Local Authorities across Scotland on 27 March 2022 by specimen date[70].



Please note that the following local authority hotspot modelling uses data to 28 March 2022 from several academic groups to give an indication of whether a local authority is likely to experience high levels of Covid-19. The local authority modelling has not been compiled via UKHSA into a consensus this week and is based on one modelling group.

In less populated regions in which case numbers are small, there is a greater variation in model estimates, and hence increased uncertainty. This has led to Na h-Eileanan Siar, Orkney Islands and Shetland Islands not being included this week. **The modelled weekly case rate below is not directly comparable to the weekly case rate reported in the section and figure above.**

[70] For the case rates behind the map, please refer to Annex **Table 1**.

Modelled rates of positive tests per 100,000 indicate that for the week commencing 10 April, all 29 of the local authorities included are expected to exceed 100 cases per 100,000 with at least 75% probability. The same 29 local authorities are also expected to exceed 300 cases per 100,000, with at least 75% probability.

21 out of the 29 local authorities are expected to exceed 500 cases per 100,000, with at least 75% probability. The exceptions are Angus, Clackmannanshire, East Ayrshire, East Dunbartonshire, East Lothian, Inverclyde, South Lanarkshire and West Dunbartonshire. None of the local authorities are expected to exceed 1,000 cases per 100,000 with at least 75% probability in the week ending 16 April[71].

Looking ahead

Scottish Contact Survey

Changes in patterns of mixing will impact on future case numbers. The Scottish Contact Survey measures the times and settings in which people mix where they could potentially spread Covid-19. Average contacts from the most recent Panel A cohort of the Scottish Contact Survey (week ending 23 March) indicate an average of 4.1 contacts.

Mean contacts have decreased in the majority of locations with the exception of contacts within the home setting which have remained at a similar level in the last two weeks. Contacts have reduced in the work setting by 11% and in the other setting (contacts outside home, school and work) by 8%. Individuals within the youngest age groups (18-59) have reported a decrease in contacts within the last two weeks, by at least 15%. Those within the older age groups (60+) have increased their contacts in the last two weeks with those over 70 increasing the most, by 12%.

Modelling the Epidemic

SPI-M-O has not produced medium-term projections this week and therefore the usual Scottish Government medium term projections have not been included in the Modelling the Epidemic Report, or in this report.

Long Covid

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

Estimates of the proportion of people in the private residential population in Scotland that experience long Covid symptoms are published by the ONS Covid-19 Infection Survey on a monthly basis. The next scheduled release of long Covid data from the Covid-19 Infection Survey is expected to be summarised in this report on 14 April.

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

For information on the most recent estimates, see the State of the Epidemic report published on 4 March 2022.

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

Next steps

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

To align with UKHSA reporting and the Modelling the Epidemic report, the State of the Epidemic report will move to publishing every two weeks from 1 April 2022. This report will continue to provide an overview of the current Covid-19 situation in Scotland incorporating a variety of data sources including estimates of the prevalence of Covid-19, hospitalisations and deaths and how Scotland's figures compare to those from the rest of the UK, where possible.

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.

Technical Annex

Table 1: Weekly total LFD or PCR case rates (including reinfections) per 100,000 people in Local Authorities across Scotland on 20 March and 27 March 2022 by specimen date[72].

Local Authority	27/03/2022	20/03/2022	Absolute Difference	% Change
Aberdeen City	1,062	1,150	-88	-8%
Aberdeenshire	1,231	1,382	-151	-11%
Angus	1,110	1,406	-296	-21%
Argyll and Bute	1,263	1,521	-258	-17%
City of Edinburgh	1,252	1,366	-114	-8%
Clackmannanshire	1,343	1,868	-524	-28%
Dumfries and Galloway	1,252	1,438	-187	-13%
Dundee City	999	1,037	-39	-4%
East Ayrshire	1,562	2,199	-637	-29%
East Dunbartonshire	1,365	1,686	-322	-19%
East Lothian	1,349	1,768	-419	-24%
East Renfrewshire	1,247	1,424	-177	-12%
Falkirk	1,556	1,816	-260	-14%
Fife	1,294	1,383	-89	-6%
Glasgow City	1,131	1,257	-126	-10%
Highland	1,437	1,881	-445	-24%
Inverclyde	1,464	1,809	-345	-19%
Midlothian	1,382	1,563	-181	-12%
Moray	1,321	1,610	-289	-18%
Na h-Eileanan Siar	2,898	3,079	-181	-6%
North Ayrshire	1,581	2,060	-480	-23%
North Lanarkshire	1,309	1,528	-219	-14%
Orkney Islands	781	902	-121	-13%
Perth and Kinross	1,222	1,459	-237	-16%
Renfrewshire	1,495	1,821	-326	-18%
Scottish Borders	1,343	1,434	-90	-6%
Shetland Islands	1,635	1,513	122	8%
South Ayrshire	1,613	1,940	-326	-17%
South Lanarkshire	1,361	1,737	-377	-22%
Stirling	1,206	1,538	-332	-22%
West Dunbartonshire	1,442	1,706	-264	-15%
West Lothian	1,379	1,561	-183	-12%
Scotland rate	1,311	1,536	-225	-15%

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

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

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

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