

Coronavirus (COVID-19): Analysis

State of the Epidemic in Scotland – 17 December 2021

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 summarises the data up to and including 16 December 2021 on Covid-19 in Scotland. This updates the previous publication published on 10 December¹. 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.

Please note that due to Christmas period the next publication will be on 23 December 2021 followed by a publication on 7 January 2022.

Key Points

- The latest R value for Scotland, as of 30 November (using data to 13 December), was between 0.9 and 1.1, with a growth rate of between -2% and 2%. The lower and upper limit of R value has remained the same since the previous week, but the upper and lower limits of the

¹ Scottish Government: [Coronavirus \(COVID-19\): state of the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/coronavirus-state-of-the-epidemic)

growth rate have increased since last week. These figures are based on data to 13 December 2021 and based on a point in time when the Delta variant made up the majority of cases.

- Latest modelled estimates suggest that, as at 23 November, the incidence of new daily infections in Scotland was between 96 and 128 new infections per 100,000. These figures are based on data to 13 December 2021 and based on a point in time when the Delta variant made up the majority of cases.
- An average of 4,441 cases were reported per day in the 7 days to 16 December. This is a 59% increase from the daily average of 2,789 recorded on 9 December.
- In the last week, 7 day case rates in Scotland have consistently increased. There were 499 weekly cases per 100,000 population in the week to 13 December, which is a 34% increase from 372 weekly cases per 100,000 on 6 December. This is lower than the most recent peak (825 weekly cases per 100,000 on 6 September) but higher than the peak in July (425 weekly cases per 100,000 recorded on 3 July).
- As of 13 December, the highest case rates (by specimen date) were observed amongst those aged under 20, followed by 20-39, 40-59, 60-79 and 80+. In the week to 13 December, case rates have increased in all age groups.
- 45.4% of all PCR tests from Pillar 2 Lighthouse Labs had the S-gene target failure, as reported on 16 December. S-gene target failure is used as a proxy for Omicron cases.
- As of 5 PM on 16 December, there have been a total of 663 confirmed cases of Omicron variant (B.1.1.529), as determined through whole genome sequencing.
- In the week to 16 December Covid-19 hospital occupancy and Covid-19 ICU occupancy (short and long stay) decreased by 8% and 11% overall from this time last week.
- There were 84 deaths registered where Covid-19 was mentioned on the death certificate in the week to 12 December 2021. This is a decrease of 7 (-8%) in the number of deaths from the previous week.
- Nationwide, wastewater Covid-19 RNA levels have shown a decrease from the elevated levels seen in the last two weeks. The week ending 14 December saw levels of around 58 million gene copies per person per day (Mgc/p/d), down from around 74 Mgc/p/d in the previous week.
- Over 4.3 million people in Scotland have been given a first vaccine against Covid-19, almost 4 million have received a second dose, and

over 2.3 million people have received a booster or dose 3 by 16 December.

- West Lothian currently has the highest weekly case rate in Scotland reporting 747 weekly cases per 100,000 in the week to 13 December. Orkney Islands has the lowest case rate in Scotland, reporting 196 weekly cases per 100,000 population.
- As determined through the latest weekly ONS survey, the percentage of people testing positive for Covid-19 in the private residential population in Scotland has decreased over the most recent two weeks, however the trend is uncertain in the most recent week (5 to 11 December 2021).
- Due to uncertainty surrounding the Omicron variant and its increasing prevalence across the UK, SPI-M has been unable to produce consensus medium-term projections for hospital admissions and ICU occupancy this week.

Method

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

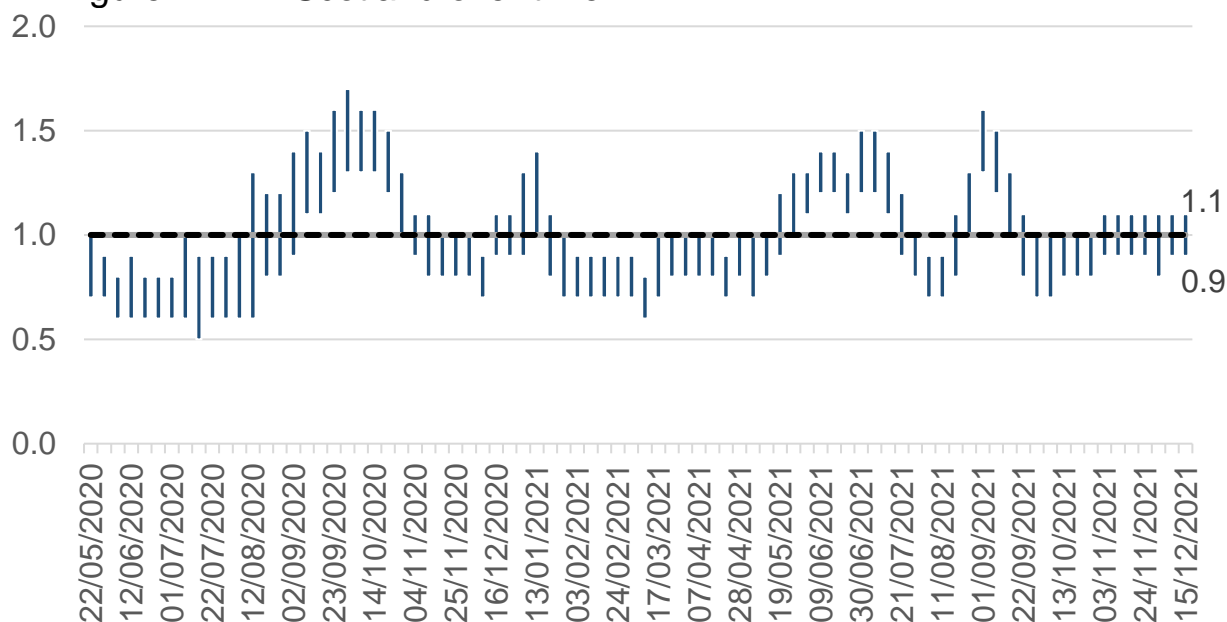
The National Picture

Estimated Infection Levels

The latest R value for Scotland as of 30 November was between 0.9 and 1.1 (Figure 1), with a growth rate of between -2% and 2%. R is an indicator that lags by two to three weeks and therefore should not be expected to reflect recent fluctuations. These figures are also based on data to 13 December 2021 and based on a point in time when the Delta variant made up the majority of cases². The lower and upper limit of R value has remained the same since the previous week, but the upper and lower limits of growth rate have increased since last week.

² Scottish Government: [Coronavirus \(COVID-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/resources/consultation-papers/covid-19-modelling-the-epidemic/)

Figure 1: R in Scotland over time



Not everyone who has the virus will be tested, as many people do not realise they have Covid-19, or they have mild symptoms and do not come forward. Latest modelled estimates suggest that, as at 30 November, based on data to 13 December, the incidence of new daily infections in Scotland was between 96 and 128 new infections per 100,000³. This equates to between 5,200 and 7,000 people becoming infected each day in Scotland. This is based on Delta variant making up the majority of cases.

Covid-19 Cases in Scotland

An average of 4,441 cases were reported per day in the 7 days to 16 December. This is a 59% increase from the daily average of 2,789 recorded on 9 December⁴. This includes 663 cases of confirmed Omicron variant (B.1.1.529) which had been reported up to 16 December⁵.

In the last week, 7 day case rates (by specimen date) have increased consistently in Scotland. There were 499 weekly cases per 100,000 population in the week to 13 December, which is a 34% increase from 372 weekly cases per 100,000 on 6 December⁶. This is lower than the

³ Scottish Government: [Coronavirus \(COVID-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/week-on-week-comparison)

⁴ Scottish Government: [https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/](https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/week-on-week-comparison) (week on week comparison may be affected by data flow issue.)

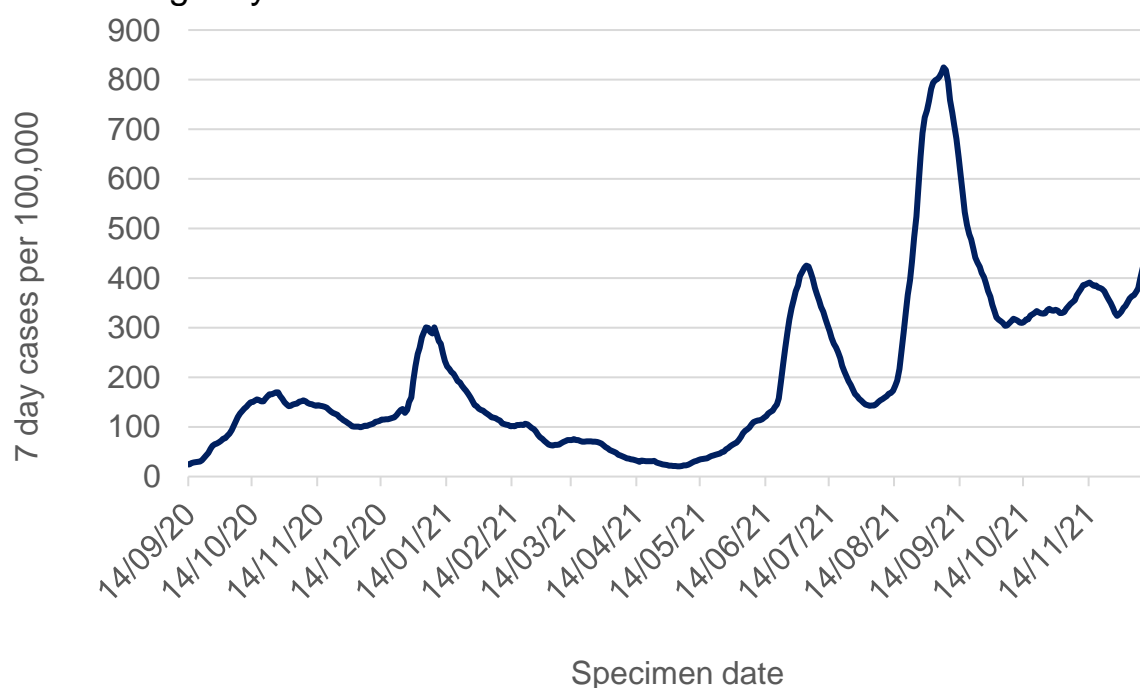
⁵ [Coronavirus \(COVID-19\): additional data and information - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/)

⁶ Public Health Scotland Covid-19 dashboard: https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview

most recent peak of 825 weekly cases per 100,000 on 6 September but higher than the previous peak of 425 weekly cases recorded on 3 July (Figure 2).

In the week to 10 December 2021, there were 524 cases (PCR testing only) per 100,000 among unvaccinated individuals, compared to 350 cases per 100,000 for those that had been vaccinated with two or more doses⁷.

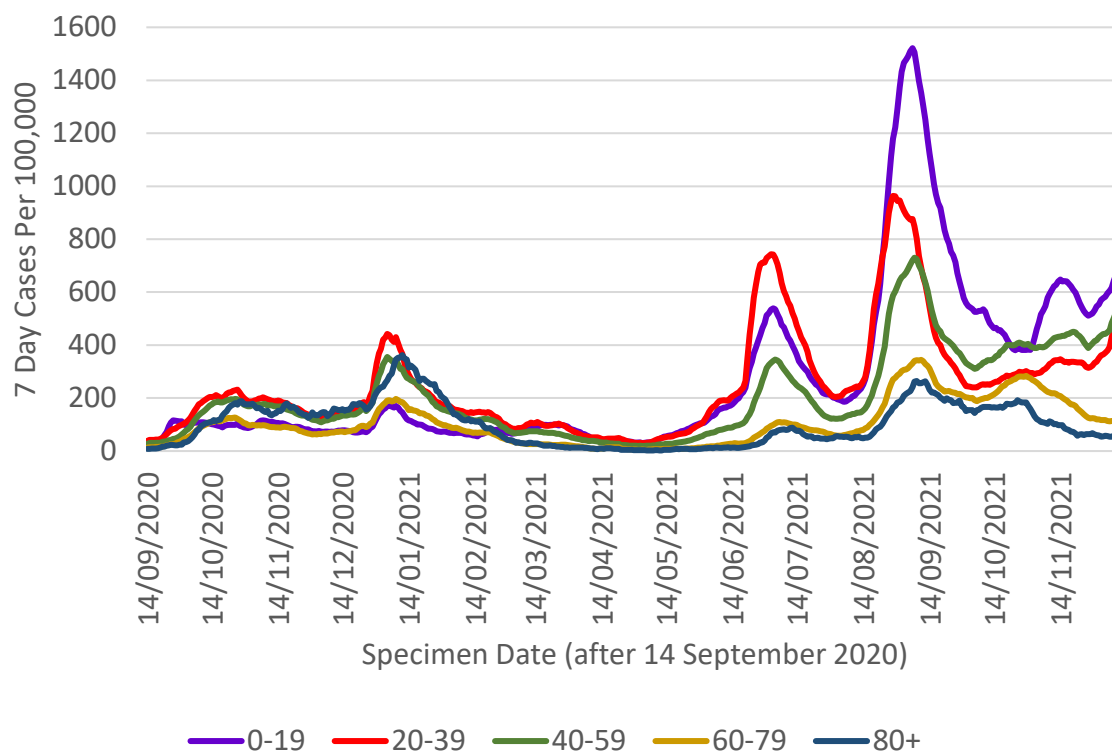
Figure 2: Seven day case rate for Scotland by specimen date. Refers to PCR testing only.



As of 13 December, the highest case rates (by specimen date) were observed amongst those aged under 20, followed by 20-39, 40-59, 60-79 and 80+. In the week to 13 December, case rates increased in all age groups (Figure 3). Those aged 20-39 saw largest increase in case rates.

⁷ [Public Health Scotland COVID-19 statistical report](#)

Figure 3: Seven day case rate in Scotland by age group by specimen date⁸. Refers to PCR testing only



The largest increase in case rates in age groups under 22 occurred among those aged 5-11, but case rates increased for all younger age groups in the week to 12 December. Those aged 5-11, 12-15 and 16-17 had a higher 7 day case rate than the Scotland average in the week ending 12 December⁹.

Omicron variant

On 23 November 2021, a small number of cases of a new variant were reported by South Africa to the international genomic database, GISAID. This variant was designated B.1.1.529 on 24 November 2021 and has over 30 mutations within the Spike protein. On 26 November, WHO designated B.1.1.529 as a SARS-CoV-2 Variant of Concern known as Omicron.

The latest Omicron Risk assessment carried out by the UK Health Security Agency (UKHSA) established with high confidence that Omicron is displaying a growth advantage with increased household

⁸ Source: Public Health Scotland

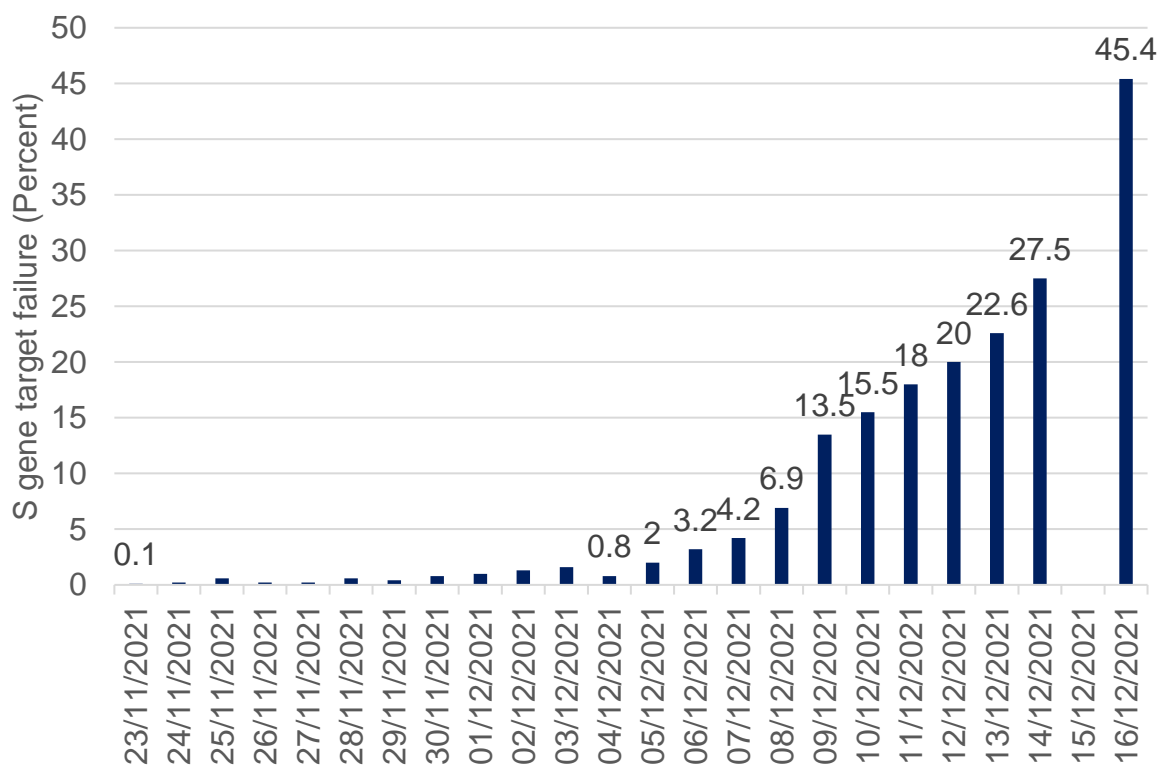
⁹ Public Health Scotland: [PHS COVID-19 Education report \(shinyapps.io\)](https://shinyapps.io)

transmission risk, increased secondary attack rates and increased growth rates compared to the Delta variant¹⁰.

Like the Alpha variant, which once was dominant in the UK, Omicron has a mutation that leads to S gene target failure in a widely-used PCR testing platform available at UK Pillar 2 Lighthouse Laboratories. S-gene target failure (combined with positive detection of the other two target genes (ORF1AB and N)) has therefore been identified as a reasonable proxy for Omicron variant (B.1.1.529) in the UK.

As of 16 December, S-gene target failure (SGTF) cases were at 45.4% of all PCR tests from Pillar 2 Lighthouse Labs, and have risen exponentially (Figure 4)¹¹.

Figure 4: Proportion of new daily cases tested in Pillar 2 Lighthouse Labs for S gene status by result (reported date), 23 November to 16 December 2021, Scotland¹²



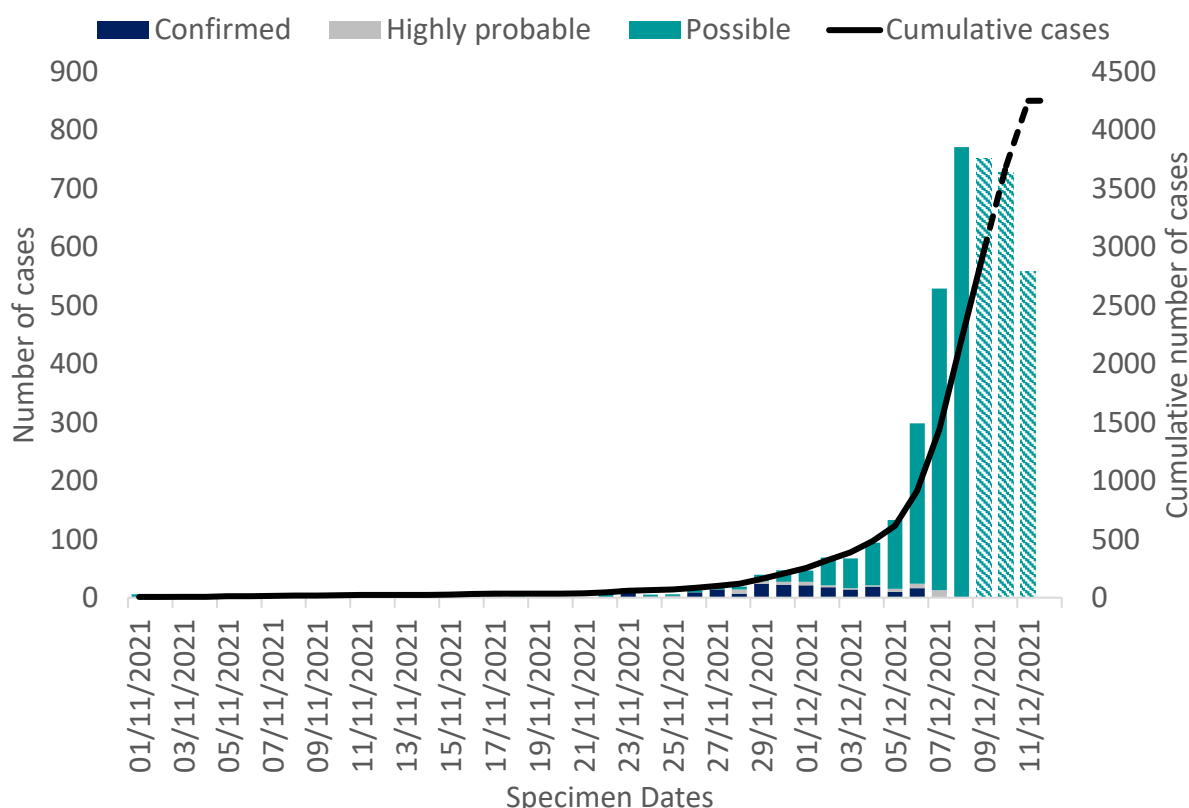
¹⁰ [9 December 2021 Risk assessment for SARS-CoV-2 variant: Omicron VOC-21NOV-01 \(B.1.1.529\) \(publishing.service.gov.uk\)](#)

¹¹ [Coronavirus \(COVID-19\): additional data and information - gov.scot \(www.gov.scot\)](#)

¹² Please note this chart combines data published by PHS up to 13 December (Public Health Scotland COVID-19 statistical report) and additional ad hoc data releases from Scottish Government (Coronavirus (COVID-19): additional data and information - gov.scot ([www.gov.scot](#))). There has been no published for data on 15 December. The next release of the PHS COVID-19 statistical report on 22 December 2021 will provide a full update to the time series.

An analysis published by Public Health Scotland (PHS) on 15 December 2021¹³ shows a number of confirmed Omicron cases, as well as those which are highly probable and possible. A total of 4,252 Omicron cases have been reported, of which 186 (4.4%) were confirmed, 56 (1.3%) were highly probable and 4,010 (94.3%) were possible. Total cases are more than ten-fold higher than on 5 December, when there were 389 (Figure 5)^{14 15}.

Figure 5: Confirmed, highly probable and possible Omicron cases in Scotland, data to 12 December by specimen date^{16 17}



Public Health Scotland reports sustained community transmission of the Omicron variant (based on data through 12 December 2021)¹⁸ and cases are widely spread across Scotland’s Health Boards; the highest numbers of confirmed, highly probable and possible cases under

¹³ [Public Health Scotland COVID-19 & Winter Statistical Report](#)

¹⁴ [Public Health Scotland COVID-19 statistical report](#)

¹⁵ UK case definitions. Confirmed case: COVID-19 variant of concern Omicron by sequencing or genotyping. Highly Probable: COVID 19 PCR positive, S Gene Target Failure (dropout) plus travel history from RSA, Botswana, Namibia, Nigeria, Eswatini, Lesotho, Zimbabwe, Angola, Zambia, Malawi, and Mozambique with specimen dates from 01 Nov 21 as confirmed by case interview (cases that are confirmed as another strain are excluded) Or COVID PCR/LFD positive contact of a confirmed case. Possible case under investigation: COVID 19 PCR positive plus S Gene Target Failure (dropout) and specimen dates from 01 Nov 21

¹⁶ The modelling in this report uses S-gene test data to 12 December only.

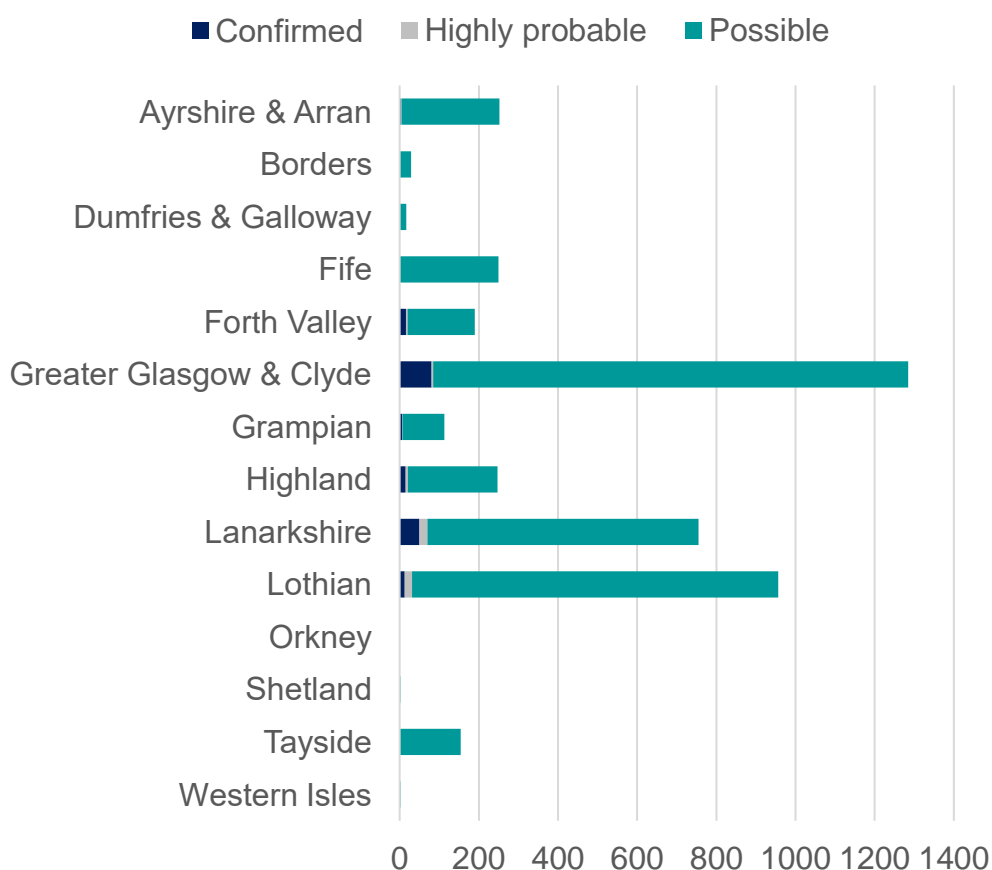
¹⁷ Data for 9-12 December are lagged due to specimen processing times and data will represent an undercount

¹⁸ [Public Health Scotland COVID-19 statistical report](#)

investigation have been detected in the Greater Glasgow and Clyde, Lothian and the Lanarkshire NHS health boards (Figure 6)¹⁹. As of 14 December 2021, there have been two confirmed Omicron cases admitted to hospital²⁰.

Based on data to 14 December, Omicron was estimated to have a doubling time for Scotland of between 2.36 - 2.48 days using S-gene target failure as a proxy for Omicron cases²¹. Please note that the doubling times may fluctuate or change over future days. Given this doubling time, it is likely that only a small percentage of infections will be of the Delta variant by January 2022.

Figure 6: Confirmed, highly probable and possible Omicron cases in Scotland by health board, data to 12 December by specimen date²²



¹⁹ <https://www.gov.scot/publications/coronavirus-covid-19-additional-data-and-information/>

²⁰ Ibid.

²¹ Scottish Government: [Coronavirus \(COVID-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/coronavirus-covid-19-additional-data-and-information/)

²² [Public Health Scotland COVID-19 & Winter Statistical Report](#)

Testing Rates and Positivity

Tests per 1,000 population (seven day total) remained relatively stable throughout November with a slight decrease towards the end of the month. By 16 December tests per 1,000 people increased to 60, the highest levels seen since end of September 2021. Test positivity rate in the last seven days (proportion of positive tests) has increased, and as of 16 December it was at 10.2% (Figure 7)²³.

There was an 18.6% increase in Lateral Flow Device tests that were carried out in Scotland from 5 December to 12 December 2021²⁴.

Scottish Contact Survey now asks whether people use Lateral Flow Device tests and if so how often. Approximately 63% of individuals have taken at least one lateral flow test within the last 7 days for the survey pertaining to the 2 – 8 December²⁵.

The youngest and oldest age groups (18-29 and 70+) have reported the lowest proportions of individuals who have taken one or more lateral flows, with at most 54% taken at least one. In contrast, those aged between 30-59 report the highest proportion of individuals taking at least one lateral flow test within the last 7 days, with at least 70% taken at least one²⁶.

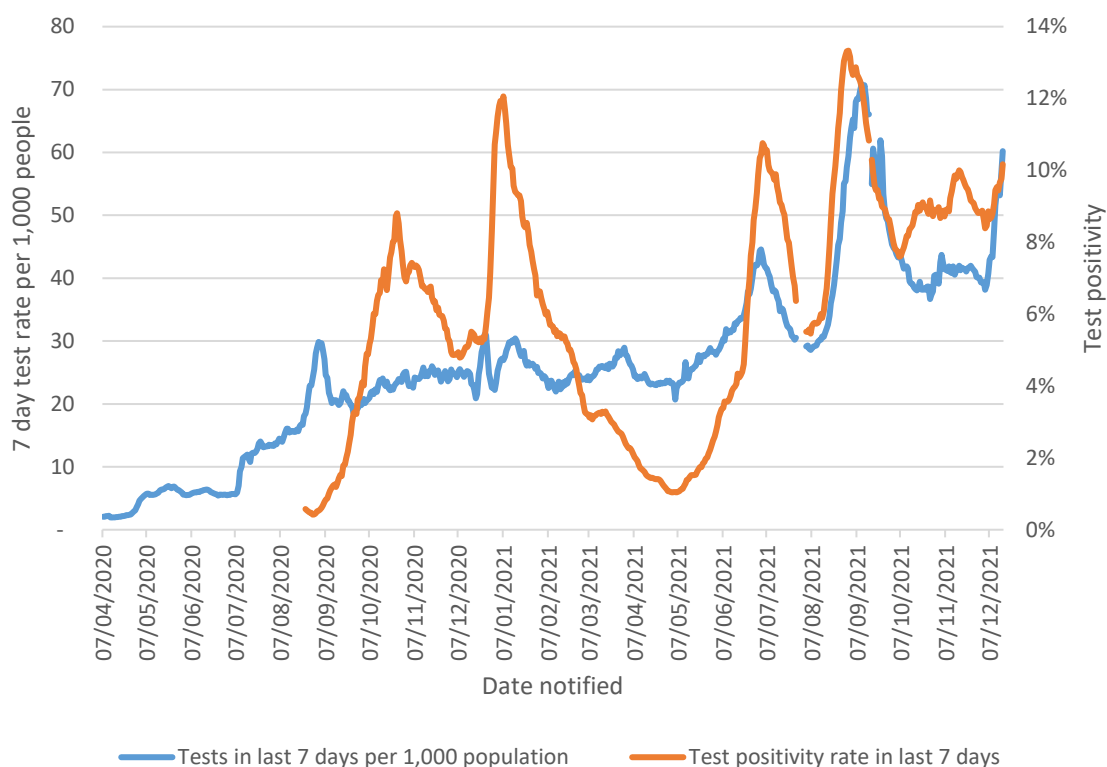
²³ <https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/>

²⁴ [Public Health Scotland COVID-19 statistical report](#)

²⁵ Scottish Government: [Coronavirus \(COVID-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](#)

²⁶ *ibid*

Figure 7: Seven day testing rate per 1,000 population and seven day test positivity rate in Scotland (week ending 16 December)²⁷. Refers to PCR testing only.



Wastewater Estimates

Measuring Covid-19 levels in wastewater is another way in which current infection levels can be estimated. 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. Levels of SARS-CoV-2 in wastewater is monitored at 116 sites around Scotland. Nationwide, wastewater Covid-19 RNA levels have shown a decrease from the elevated levels seen in the last two weeks. The week ending 14 December saw levels of around 58 million gene copies per person per day (Mgc/p/d), down from around 74 Mgc/p/d in the previous week, this is a decrease of 21%. It should be noted that this decrease is in the context of decreasing Delta variant and increasing Omicron variant.

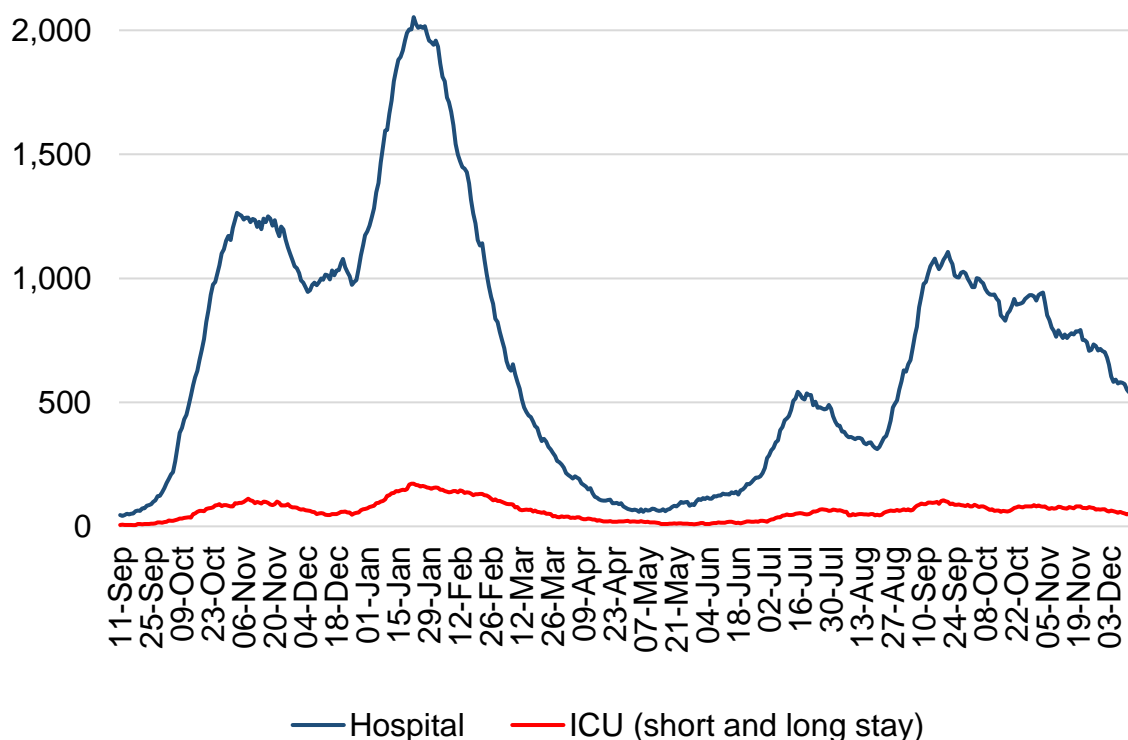
²⁷ Figures for test positivity rate in the last 7 days are available from 24 August 2020. Gaps in the line chart represent missing data for the periods 28 July 2021 to 2 August 2021 and 16 September 2021

Hospital and ICU Occupancy and Admissions

The latest data from PHS shows that admissions to hospitals have increased in the last week, with 414 admissions to hospital for people with confirmed Covid-19 in the week to 12 December compared to 388 in the week to 5 December²⁸.

In the week to 16 December the number of people in hospital with confirmed Covid-19 has decreased by 8% overall since 9 December²⁹. As of 16 December there were 531 patients in hospital with Covid-19 and 49 in ICU (short and long stay) (Figure 8)³⁰. The number of Covid-19 patients in ICU (short and long stay) has fluctuated but has decreased by 11% overall since 9 December.

Figure 8: Patients in hospital (including those in ICU) (short and long stay) and ICU³¹ with recently confirmed Covid-19



²⁸ Public Health Scotland dashboard: [COVID-19 Daily Dashboard - PHS COVID-19 | Tableau Public](#).

²⁹ Scottish Government: <https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/>

³⁰ *ibid*

³¹ ICU or combined ICU/HDU (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.

As the population is increasingly vaccinated, more of the patients in hospital will be fully or partially vaccinated. Therefore, it is important that we can differentiate between patients in hospital because of Covid-19 rather than with Covid-19. Public Health Scotland estimates that as at August 2021, 68% of Covid-19 related acute hospital admissions had a primary diagnosis of Covid-19. In March 2021 this figure stood at 75%, and then decreased to a low of 66% in April 2021. This increased to 75% in July, but saw a decrease in August³².

Deaths

There were 84 deaths registered where Covid-19 was mentioned on the death certificate in the week to 12 December 2021. This is a decrease of 7 (-8%) in the number of deaths from the previous week, and 87% lower than the peak in April 2020 (663 deaths)³³.

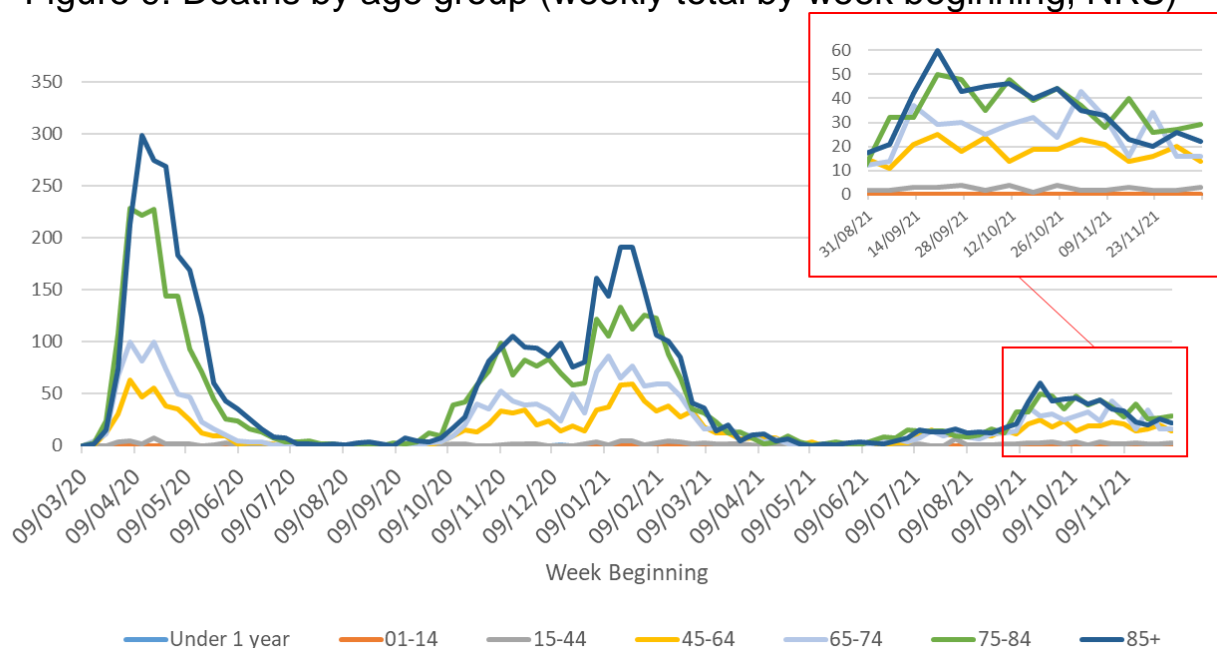
In the same week, deaths involving coronavirus increased slightly among those aged 15-44 and 75-84, and decreased or remained stable in all other age groups compared to the week ending 5 December (Figure 9). National Records of Scotland publish a weekly detailed analysis on deaths involving Covid-19 in Scotland in their [weekly report](#)³⁴.

³² [Public Health Scotland COVID-19 statistical report](#)

³³ NRS Scotland: <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/general-publications/weekly-and-monthly-data-on-births-and-deaths/deaths-involving-coronavirus-covid-19-in-scotland>

³⁴ *ibid*

Figure 9: Deaths by age group (weekly total by week beginning, NRS)



Vaccinations

The first vaccines were administered on Tuesday 8 December 2020 and over 4.3 million people had received their first dose by 16 December 2021³⁵. This represents an estimated 91.1% of the Scottish population over age 12³⁶. Almost 4 million people (83.3% of those aged 12 and over) had received their second dose and over 2.3 million people (48.4% of those over 12 years of age) have received their dose 3 or booster vaccine by 16 December³⁷. There remains a low level of deaths amongst vaccinated individuals.

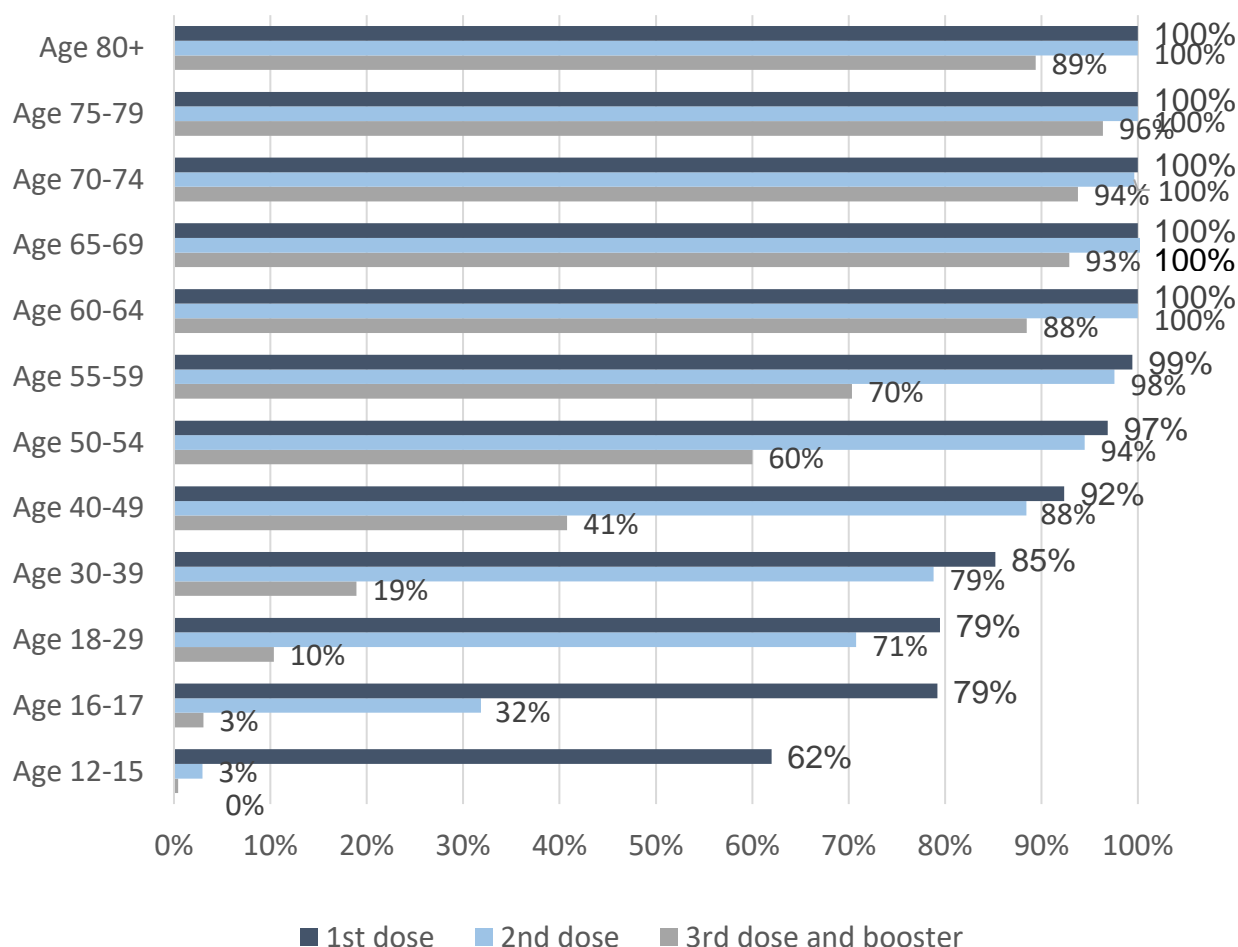
A booster dose or a third dose of the vaccine is now available in Scotland, in line with JCVI advice including all adults aged over 18 for whom it has been at least 12 weeks since their second dose. Booster vaccine uptake is at least 88% for those aged 60 or over. 70% of those aged 55-59 and 60% of those aged 50-54 have received a booster or third dose, with age groups under 50 have an estimated coverage of less than 41% (Figure 10).

³⁵ *ibid*

³⁶ Public Health Scotland Covid-19 dashboard: https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview

³⁷ Public Health Scotland Covid-19 dashboard: https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview

Figure 10: Estimated percentage of adults vaccinated by 16 December 2021



Situation by local authority within Scotland

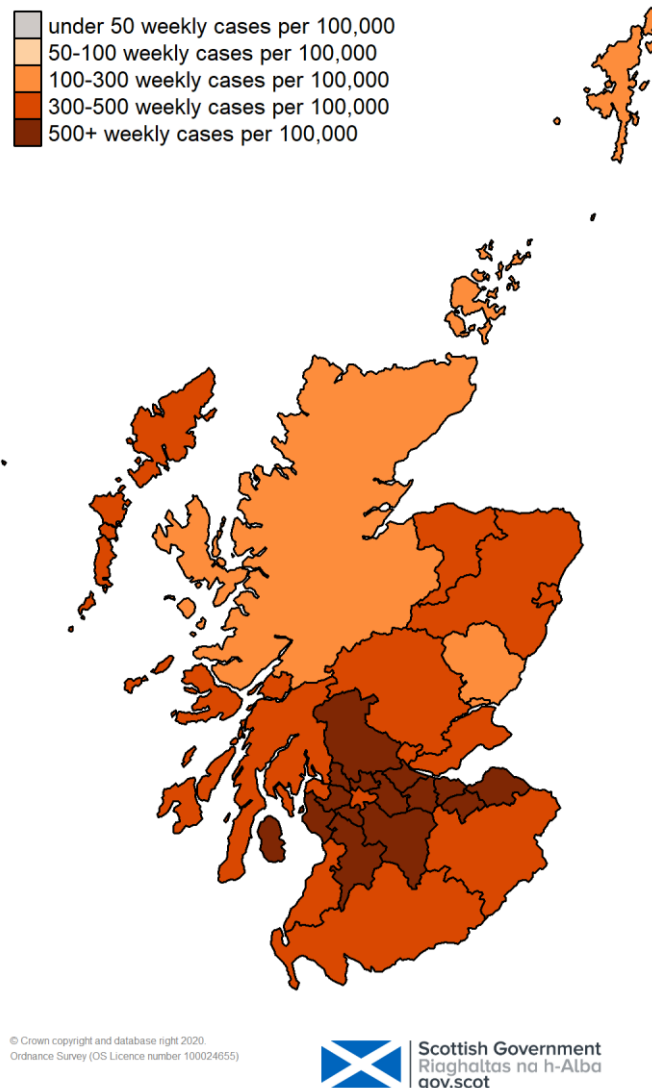
Case rates have increased in Scotland over the past week, with 28 out of 32 local authorities seeing an increasing case rate over the week. West Lothian currently has the highest weekly case rate in Scotland reporting 747 weekly cases per 100,000 in the week to 13 December. Orkney Islands has the lowest case rate in Scotland, reporting 196 weekly cases per 100,000 population in the week to 13 December³⁸ (Table 1 and Figure 11).

³⁸ Public Health Scotland Covid dashboard: https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview

Table 1: Total new weekly cases (by specimen date) per 100,000 population to 13 December 2021, in order of prevalence

Local authority	Total new cases in the week, per 100,000 population	Change since previous week
West Lothian	747	+336
Falkirk	710	+132
East Renfrewshire	706	+265
East Dunbartonshire	640	+113
East Ayrshire	640	-12
South Lanarkshire	626	+219
Renfrewshire	620	+230
North Ayrshire	588	+181
North Lanarkshire	586	+167
West Dunbartonshire	581	+117
Midlothian	573	+180
East Lothian	550	+120
City of Edinburgh	539	+199
Stirling	521	+141
South Ayrshire	498	+82
Fife	486	+57
Clackmannanshire	462	+45
Glasgow City	455	+147
Moray	449	+41
Na h-Eileanan Siar	449	+117
Perth and Kinross	419	+118
Argyll and Bute	398	+96
Inverclyde	393	-23
Aberdeen City	382	+73
Dumfries and Galloway	373	-14
Aberdeenshire	352	+71
Scottish Borders	310	+30
Dundee City	295	+82
Highland	285	+19
Angus	263	-22
Shetland Islands	254	+127
Orkney Islands	196	+49
Scotland	499	+127

Figure 11: Map of weekly new positive cases per 100,000 people in Scotland



There is uncertainty in regions with smaller populations, and hence lower test counts, in particular in regions such as Na h-Eileanan Siar, Orkney Islands and Shetland Islands. Models have varying degrees of responsiveness to sudden changes in case trends, therefore there is an increased level of uncertainty in local authorities in which there have been recent sharp increases in case numbers.

The most recent modelling predicts, based on data up to 13 December, that for the week commencing 26 December 2021, 29 out of the 32 local authorities are expected to exceed 50 cases per 100,000 population with at least 75% probability. The exceptions are Na h-Eileanan Siar, Orkney Islands and Shetland Islands. These 29 local authorities are also expected to exceed 100 cases per 100,000 with at least 75% probability.

Twelve local authorities (Edinburgh, East Ayrshire, East Dunbartonshire, Falkirk, Glasgow, North Ayrshire, North Lanarkshire, Renfrewshire, South Ayrshire, South Lanarkshire, West Dunbartonshire and West Lothian) are expected to exceed 300 cases per 100,000 with at least 75% probability.

Only one local authority, East Ayrshire, is expected to exceed 500 cases per 100,000 with at least 75% probability³⁹. These models are based on a projection where Delta variant makes up the majority of cases therefore it is likely that due to the Omicron variant these are an underestimate.

How Scotland compares with the rest of the UK

Average daily cases in Scotland (812 per 1 million population) in the week to 16 December were above Wales (754 per 1 million) and below both England (966 per 1 million) and Northern Ireland (920 per 1 million) and ⁴⁰. Average daily deaths in Scotland (2 per 1 million population) in the week to 16 December were similar to England, Wales and Northern Ireland (2 per 1 million each)⁴¹.

There were 7,579 confirmed COVID-19 patients in hospital in the UK on 15 December 2021, with 6,358 of them reported in England, 544 in Scotland, 368 in Wales and 309 in Northern Ireland⁴². This translates to 11 patients per 100,000 population for England, 10 patients per 100,000 in Scotland, 12 per 100,000 for Wales and 18 per 100,000 for Northern Ireland (based on 7 day averages for all 4 nations). Please note that data about COVID-19 patients in hospitals are collected differently by each nation and therefore might not be directly comparable.

The ONS Covid-19 Infection Survey estimates that in the week 5 to 11 December 2021, the estimated percentage of the population living in private residential households testing positive for Covid-19 in Scotland was 1.27% (95% credible interval: 1.03% to 1.55%). The percentage of people testing positive for Covid-19 in the private residential population has decreased over the most recent two weeks, however the trend is uncertain in the most recent week. In the week 5 to 11 December 2021, estimates for the other nations of the UK are as follows: 1.72% (95% credible interval: 1.62% to 1.81%) for England, 1.85% (95% credible

³⁹ Scottish Government: [Coronavirus \(COVID-19\): modelling the epidemic - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/coronavirus-modelling-epidemic/pages/1-introduction-to-the-modelling-epidemic.aspx)

⁴⁰ ibid

⁴¹ UK Government: <https://coronavirus.data.gov.uk/>

⁴² UK Government: <https://coronavirus.data.gov.uk/details/healthcare>

interval: 1.48% to 2.26%) for Wales and 2.02% (95% credible interval: 1.56% to 2.55%) for Northern Ireland. This equates to around 1 in 80 people in Scotland, 1 in 60 in England, 1 in 55 in Wales and 1 in 50 in Northern Ireland⁴³.

The ONS Covid-19 Infection Survey estimated that in the week beginning 15 November 2021, 95.0% (95% CI: 94.0% to 95.9%) of the adult population living in private residential households in Scotland would have tested positive for antibodies against SARS-CoV-2, as a result of having the infection in the past or being vaccinated. This compares to 95.3% in England (95% CI: 94.5% to 96.0%), 93.9% in Wales (95% CI: 92.7% to 95.0%) and 91.6% in Northern Ireland (95% CI: 87.9% to 93.5%)⁴⁴.

An estimated 1.9% of the population living in private residential households in the UK were experiencing self-reported long Covid symptoms (symptoms persisting for more than four weeks after the first suspected coronavirus (Covid-19) infection that were not explained by something else) in the 4 weeks ending 31 October 2021. In Scotland, 99,000 people (1.87% of the respective population) living in private households self-reported long Covid symptoms for this period. This compares to 1.88% in England, 1.80% in Wales and 1.52% in Northern Ireland⁴⁵.

How the virus is changing

Omicron is spreading at a rate that threatens a rapid and large surge of COVID-19 cases. Even if the resulting illness is relatively mild the number of cases could potentially cause great disruption to other services, in the economy and businesses, and in wider society, as more people would be absent from work due to illness and asked to isolate if they test positive, or as contacts of someone who has tested positive. It also means that the rapid rise in Omicron infections could put significant additional pressure on hospitals and other health and care services, close to the point in the winter when they are already likely to be at peak pressure. The evidence that Omicron is here and is spreading fast, and

⁴³ Office for National Statistics: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurvey/pilot/previousReleases>

⁴⁴ Office for National Statistics: [Coronavirus \(COVID-19\) Infection Survey, antibody and vaccination data, UK - Office for National Statistics](#)

⁴⁵ Office for National Statistics: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/2december2021>

uncertainty over how it responds to vaccines and how much severe illness it causes, are grounds for concern about what might happen as it becomes the dominant strain of the virus.

The effectiveness of vaccines

On 29 October 2021, the vaccine effectiveness expert panel (VEEP) published their updated consensus view on the effectiveness of different vaccines on infections, symptomatic disease, and severe disease as well as some initial evidence on vaccine waning effects⁴⁶. The consensus view of vaccine effectiveness against symptomatic disease in fully vaccinated people is between 45-95%, depending on the vaccine and when it was administered. Data from the Office of National Statistics generated during the Delta period reports that two vaccine doses (14 days or more previously) reduced the risk of testing positive by 67% (95% confidence interval: 64% to 70%) compared to a reference group which included those not yet vaccinated, those 21 days or more before the first vaccination and those without evidence of prior infection⁴⁷.

Public Health England analysis shows that Oxford-AstraZeneca, Pfizer-BioNTech and Moderna vaccines are highly effective against hospitalisation and death from Delta variant with vaccine effectiveness of over 90% after two doses of vaccine. The latest data show an increase in vaccine effectiveness against symptomatic disease after the booster dose⁴⁸. A recent report from EAVEII finds that from 1 April to 27 September 2021, there were 201 Covid-19 deaths in the group studied. In the 16-39 age bracket, 17 unvaccinated people died and no fully vaccinated people died. The Pfizer-BioNTech vaccine was 95% effective in 40-59 year olds and 87% effective in people 60 and over. The Oxford-AstraZeneca vaccine was 88% effective in 40-59 year olds and 90% effective in people aged 60 or older. In people of all ages who had been double-vaccinated at least two weeks before a positive PCR test, the vaccines offer around 90% effectiveness against Covid-19 deaths caused by the Delta variant⁴⁹.

Vaccine effectiveness against symptomatic disease, hospitalisation and death wanes over time⁵⁰. The Joint Committee on Vaccination and

⁴⁶ [Research and analysis overview: VEEP: Vaccine effectiveness table, 24 September 2021 - GOV.UK \(www.gov.uk\)](#)

⁴⁷ [Coronavirus \(COVID-19\) Infection Survey Technical Article: Impact of vaccination on testing positive in the UK - Office for National Statistics](#)

⁴⁸ COVID-19 vaccine surveillance report - week 50 (publishing.service.gov.uk)

⁴⁹ BNT162b2 and ChAdOx1 nCoV-19 Vaccine Effectiveness against Death from the Delta Variant | NEJM

⁵⁰ COVID-19 vaccine surveillance report - week 46 (publishing.service.gov.uk)

Immunisation (JCVI) gave advice on a booster programme to re-vaccinate adults against Covid-19 in the UK⁵¹. The booster program has been recently expanded in response to emergence of the Omicron variant⁵². The UKHSA reported that Omicron is displaying a reduction in immune protection against infection, with vaccine effectiveness for two doses of Pfizer-BioNTech vaccine significantly reduced. The third, booster dose of Pfizer-BioNTech vaccine restores protection against symptomatic disease to 70-75% in the early period after a booster dose. The data are insufficient to quantify the effect of booster on protection against severe disease⁵³.

PHS estimated in an analysis published on 25 November that 27,656 deaths in people 60 years and older have been directly averted as a result of Scotland's Covid-19 vaccination programme. This equates to an estimated 86% of deaths averted by vaccination in this age group⁵⁴.

Looking ahead

Scottish Contact Survey

Changes in patterns of mixing and adherence to restrictions will impact on future case numbers. The Scottish Contact Survey measures times and settings that people mix where they could potentially spread Covid-19. Average contacts from the most recent Panel B cohort of the Scottish Contact Survey (week ending 8 December) indicate an average of 4.8 contacts.

Mean contacts within the other setting (contacts outside home, school and work) have increased by 14% whereas work contacts have decreased by 12% in the last two weeks. Contacts within the home have remained at a similar level over the same period.

Those aged 60 and over have increased their contacts within the last week with the majority of their contacts taking place within the other setting (contacts outside home, school and work). All remaining groups have reduced or have maintained a similar level of contacts over the same period.

⁵¹ JCVI statement, September 2021: COVID-19 booster vaccine programme for winter 2021 to 2022 - GOV.UK (www.gov.uk)

⁵² [JCVI advice on the UK vaccine response to the Omicron variant - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

⁵³ [COVID-19 vaccine surveillance report - week 50 \(publishing.service.gov.uk\)](http://publishing.service.gov.uk)

⁵⁴ <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2021.26.47.2101021>

Self-reported compliance with the current regulations and guidance has decreased since January but remains at a high level. On 14-15 December, 68% of people reported 'complete' or 'almost complete' compliance⁵⁵.

Modelling the Epidemic

The Scottish Government assesses the impact of Covid-19 on the NHS in the next few weeks, in this research findings we focus on estimating the number of infections. The latest [Modelling the Epidemic report](#) shows estimated number of infections, including projections over the three weeks to 2 January, broken down by possible Omicron infections, Delta infections, and combined infections. Due to uncertainty surrounding the Omicron variant and its increasing prevalence across the UK, it has not been possible to produce consensus medium-term projections for hospital admissions and deaths this week. We hope to be able to provide hospitalisation and ICU in future weeks which account for the Omicron variant as well as Delta.

Next steps

The Scottish Government continues to work closely with Public Health Scotland and modelling groups to monitor what is happening across Scotland.

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

Modelling can tell us where the epidemic is likely to be heading. Local data and data by age group can highlight where problems arise, which can help in addressing some of these issues. In the coming weeks the roll out of the vaccine will continue to be monitored along with the impact of this on case rates and deaths among different age cohorts. Investigations are ongoing by NERVTAG, SPI-M, SAGE, UKHSA, Public Health England and Public Health Scotland regarding the impact of new

⁵⁵ Results are taken from questions run on behalf of Scottish Government on the YouGov online omnibus survey. The sample is demographically and geographically representative of adults 18+ across Scotland, with c. 1000 responses each week. Fieldwork took place on 14-15 December with a total sample size of 1022 adults. 'Complete' or 'almost complete' compliance refers to respondents who rated themselves 6 or 7 on a scale of 1-7 for the question: *Thinking about ALL of the guidance on what to do and what not to do during the Coronavirus pandemic (including distancing, protection measures and all restrictions). On a scale of 1-7, where 1 is 'Not at all' and 7 is 'Completely', to what extent do you feel you are following the regulations and guidance?*

variants and of vaccination; this will be reflected here as work is undertaken.

This publication will be available in accessible HTML on the [gov.scot](http://www.gov.scot) website

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