

Public Health Scotland COVID-19 Statistical Report

As at 01 November 2021

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This is a Management Information publication

Published management information are non-official statistics. They may not comply with the UK Statistics Authority’s Code of Practice with regard to high data quality or high public value but there is a public interest or a specific interest by a specialist user group in accessing these statistics as there are no associated official statistics available.

Users should therefore be aware of the aspects of data quality and caveats surrounding these data, all of which are listed in this document. Therefore, the data presented are subject to change.

Introduction

Since the start of the Coronavirus-19 (COVID-19) outbreak Public Health Scotland (PHS) has been working closely with Scottish Government and health and care colleagues in supporting the surveillance and monitoring of COVID-19 amongst the population.

The Public Health Scotland [COVID-19 Daily Dashboard](#) publishes daily updates on the number of positive cases of COVID-19 in Scotland, with charts showing the trend since the start of the outbreak. From 26 February 2021 the Daily Dashboard also includes daily updates on vaccinations for COVID-19 in Scotland.

This report provides additional information not found in the Daily Dashboard on topics such as Test and Protect and Quarantining Statistics.

The accompanying [interactive dashboard](#) contains charts and data on the following topics:

- Hospital and unscheduled care
- Healthcare for cardiovascular disease
- Healthcare for mental health
- New cancer diagnoses
- Uptake of pre-school immunisations
- Coverage of health visitor child health reviews
- Infant feeding
- Child development
- Women booking for antenatal care
- Terminations of pregnancy
- Births and babies
- Excess deaths

There is a large amount of data being regularly published regarding COVID-19 (for example, [Coronavirus in Scotland – Scottish Government](#) and [Deaths involving coronavirus in Scotland – National Records of Scotland](#)). This report complements the range of existing data currently available.

The coronavirus pandemic is a rapidly evolving situation. Future reports will provide further data and analysis to contribute to the evidence base around the outbreak.

Main Points

- As at 31 October 2021, there have been 645,697 confirmed COVID-19 cases; 15,688 of these were recorded in the most recent week, a decrease of 11.8% from the previous week.
- In the week ending 24 October 2021, 17,805 individuals were recorded in the contact tracing software, from which 25,188 unique contacts have been traced.
- In the week ending 31 October 2021, under the Community Testing Programme 21.6% of symptomatic and 9.3% of asymptomatic tests for COVID-19 were positive.
- In the week ending 26 October 2021, there were 655 admissions to hospital with a laboratory confirmed test of COVID-19. The highest number of new admissions are now in those aged 80+.
- The proportion of all people who were admitted to hospital within 14 days of a laboratory confirmed COVID-19 positive test has declined, from 12% in the week ending 31 January 2021, to 4% in the most recent week ending 17 October 2021.
- The number of new admissions to Intensive Care Units (ICUs) for confirmed COVID-19 patients has decreased from 54 in the week ending 23 October 2021, to 51 in the week ending 30 October 2021.
- In the week ending 31 October 2021 there were 71,911 people who arrived in Scotland from outside the UK, of which 2,281 were required to quarantine.
- PHS have identified a total of 4,979 confirmed cases of COVID-19 in pregnancy with date of onset from 1 March 2020 up to 30 September 2021. Overall, 733 (15%) of the 4,979 total cases were associated with a hospital admission, and 99 (2%) were associated with a critical care admission.

Results and Commentary

Incidence of Variants of Concern and Variants Under Investigation

Since early May 2021, there has been a rapid increase in the Delta variant detected through whole genome sequencing (WGS) in Scotland. The Delta variant has been the dominant COVID-19 variant in Scotland since 31 May 2021.

Public Health Scotland (PHS) continues to monitor COVID-19 Variants of Concern, in collaboration with other Public Health Agencies in the UK.

The latest [information on the number of such variants detected by genomic analyses across the UK](#) is published by Public Health England.

COVID-19 Daily Data

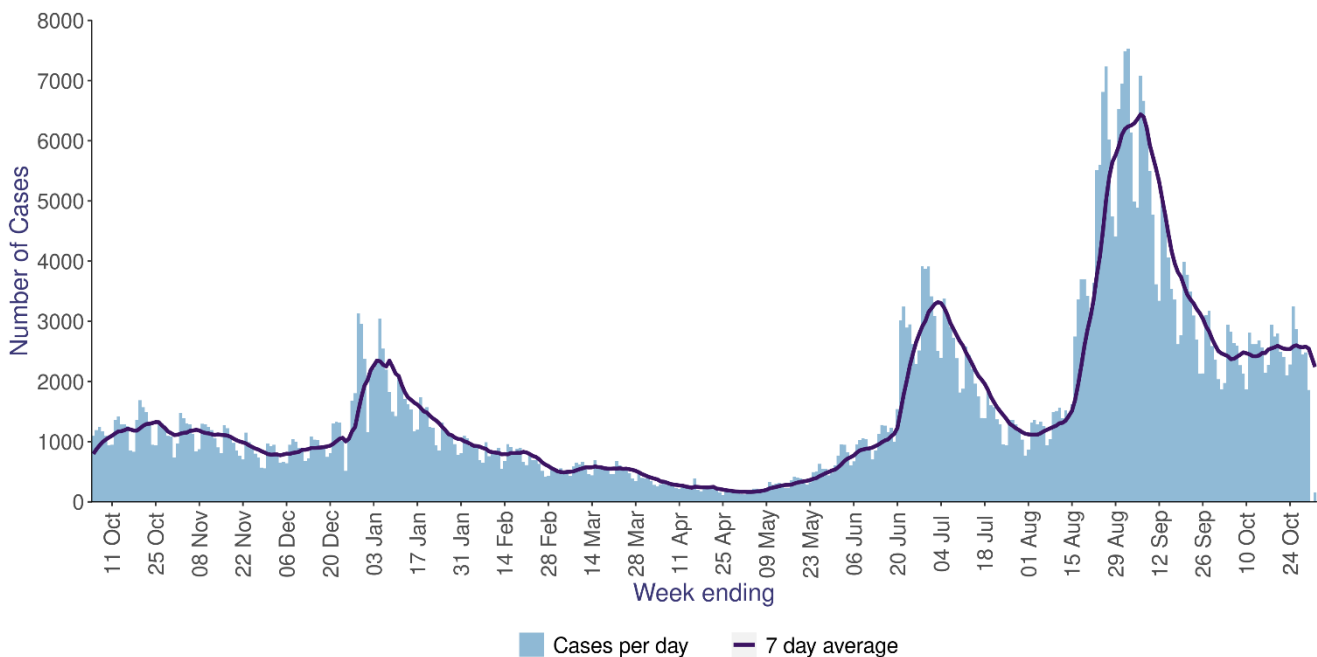
The Public Health Scotland [COVID-19 Daily Dashboard](#) publishes daily updates on the number of positive cases of COVID-19 in Scotland, with charts showing the trend since the start of the outbreak.

The total number of people within Scotland who have, or have had COVID-19, since the coronavirus outbreak began is unknown. The number of confirmed cases is likely to be an underestimate of the total number who have, or have had, COVID-19. A person can have multiple tests but will only ever be counted once. The drop in the number of confirmed cases at weekends likely reflects that laboratories are doing fewer tests at the weekend.

- There have been 645,697 people in Scotland who have tested positive, at any site in Scotland (NHS and UK Government Regional Testing centres), for COVID-19 up to 31 October 2021.
- In the week ending 31 October 2021 there were 15,688 confirmed COVID-19 cases.¹

1. Correct as at 31 October, may differ from more recently published data in the previous week's report and on the [COVID-19 Daily Dashboard](#).

Figure 1: Number of Positive Cases per day with 7 Day Average



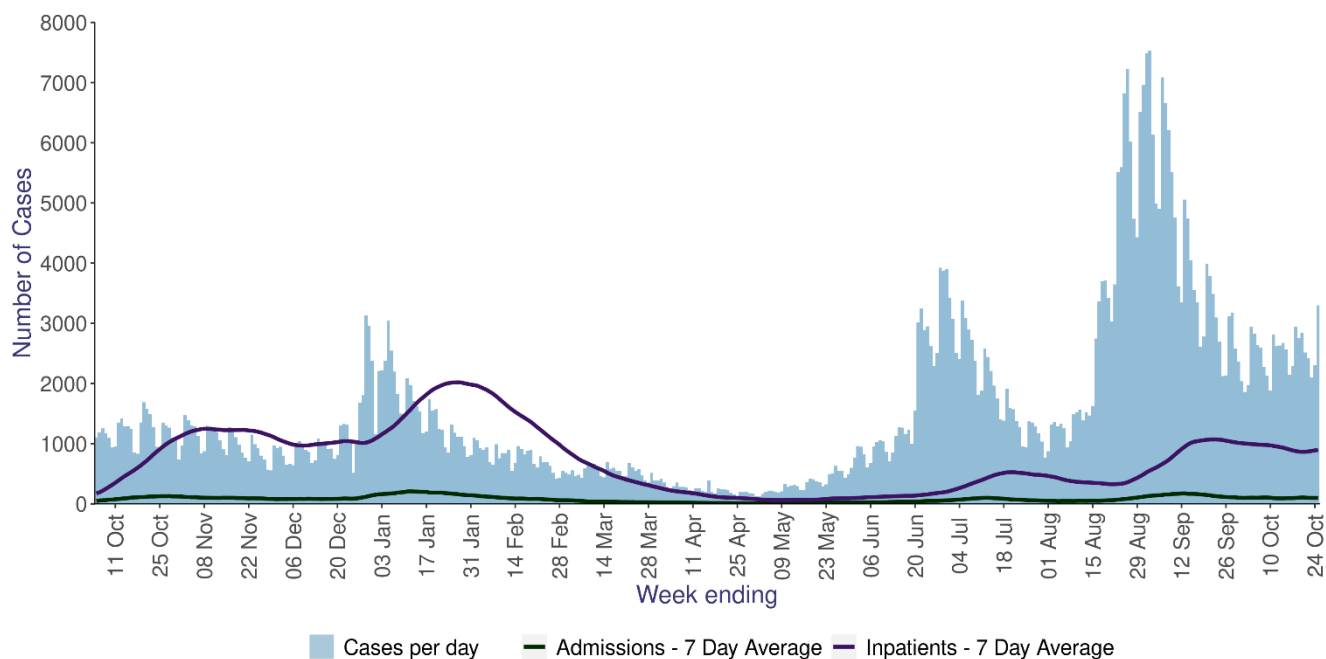
The daily dashboard also now includes data on Hospital Admissions and ICU admissions for patients with COVID-19:

- In the week ending 26 October 2021, there were 655 admissions to hospital with a laboratory confirmed test of COVID-19.
- In the week ending 30 October 2021 there were 51 new admissions to Intensive Care Units (ICUs) for confirmed COVID-19 patients.

The number of confirmed daily COVID-19 cases increased from 2,756 to 3,296 between 19 October 2021 and 25 October 2021. During this same time period, the daily COVID-19

confirmed hospital admissions has decreased from 102 to 97 (seven-day rolling average). The seven-day average of inpatients in hospital has increased by 3% (from 868 to 895).

Figure 2: Number of Positive Cases, Admissions and Inpatients, as at 25 October 2021²



2. Please refer to [Appendix 3 - Hospital Admissions Notes](#) for definitions of hospital admissions and inpatients.

Additional charts and data are available to view in the [interactive dashboard](#) accompanying this report.

Data is also monitored and published daily on the [Scottish Government Coronavirus website](#).

COVID-19 Hospital Admissions

Hospital Admissions 'with' COVID-19

Since the start of the pandemic Public Health Scotland have been reporting on the number of people in acute hospitals with recently confirmed COVID-19. These admissions are identified from Rapid and Preliminary Inpatient Data (RAPID) and defined as the following: A patient's first positive PCR test for COVID 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 PCR test is after their date of discharge from hospital, they are not included in the analysis.

It is important to note, that the figures presented below may include patients being admitted and treated in hospital for reasons other than COVID-19. Supplementary analysis on COVID-19 related acute hospital admissions by vaccine status is also available within the [COVID-19 cases, acute hospitalisations, and deaths by vaccine status](#) section of this report.

Figure 3 below shows the weekly trend of hospital admissions with COVID-19 from week ending 05 January 2021 to 26 October 2021. The number of admissions have been decreasing since week ending 21 September 2021, with a 2% decrease in new admissions in the latest week.

Figure 3: Trend of hospital admissions 'with' COVID-19 in Scotland

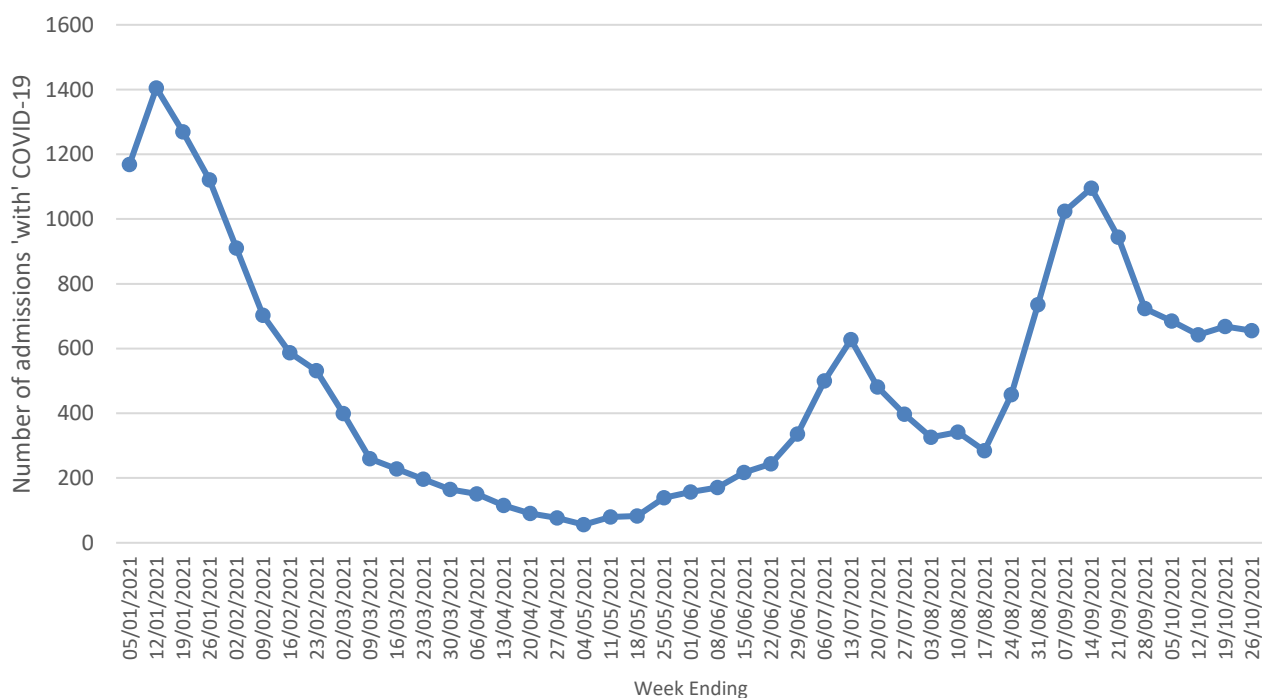


Table 1 below shows a breakdown of people admitted to hospital across all ages and by age group for the most recent four weeks. Data from 03 March 2021 is available on the [Covid Statistical Report website](#).

Table 1: COVID-19 hospital admissions by age as at 26 October 2021³

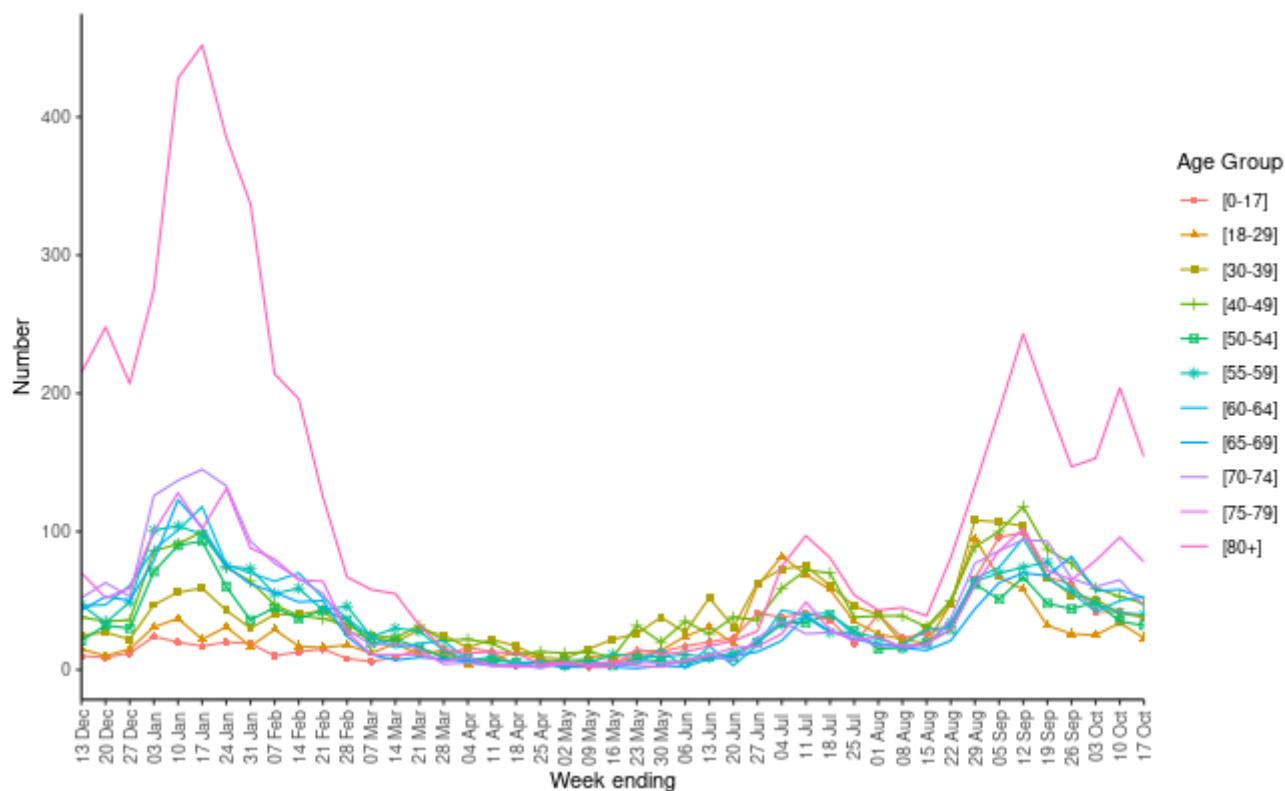
Age Band	28 September – 05 October	06 October – 12 October	12 October – 19 October	19 October – 26 October
Under 18	43	35	27	33
18-29	28	15	34	22
30-39	46	49	40	41
40-49	57	49	58	51
50-54	45	36	41	39
55-59	52	45	40	42
60-64	54	43	54	56
65-69	56	56	50	60
70-74	66	60	76	83
75-79	66	84	89	73
80+	172	170	159	155
Total	685	642	668	655

Source: RAPID (Rapid and Preliminary Inpatient Data)

3. Please refer to [Appendix 4 – RAPID Hospital Admissions](#) for explanatory notes regarding RAPID Hospital Admissions.

In the latest week there has been a 2% decrease in the number of new admissions, those aged 80+ years having the highest number of admissions. Also, in the latest week 80% of the hospital admissions related to patients aged 65+.

Figure 4: Trend in Hospital Admissions, who have tested positive for COVID-19 within 14 days, by age



In recent months, the proportion of all people who were admitted to hospital within 14 days of a laboratory confirmed COVID-19 positive test has also declined, from 12% in the week ending 31 January 2021 to 4% in the most recent week ending 17 October 2021 (Figure 5).

This reduction can be explained by a change in the age profile of people acquiring COVID-19. Although those over 60 with COVID-19 are more likely to be admitted to hospital than younger age groups (Figure 6), the proportion of newly reported cases in the over 60s has reduced in recent months (Figure 7).

Figure 5: Proportion of weekly cases admitted to hospital within 14 days of a first positive test

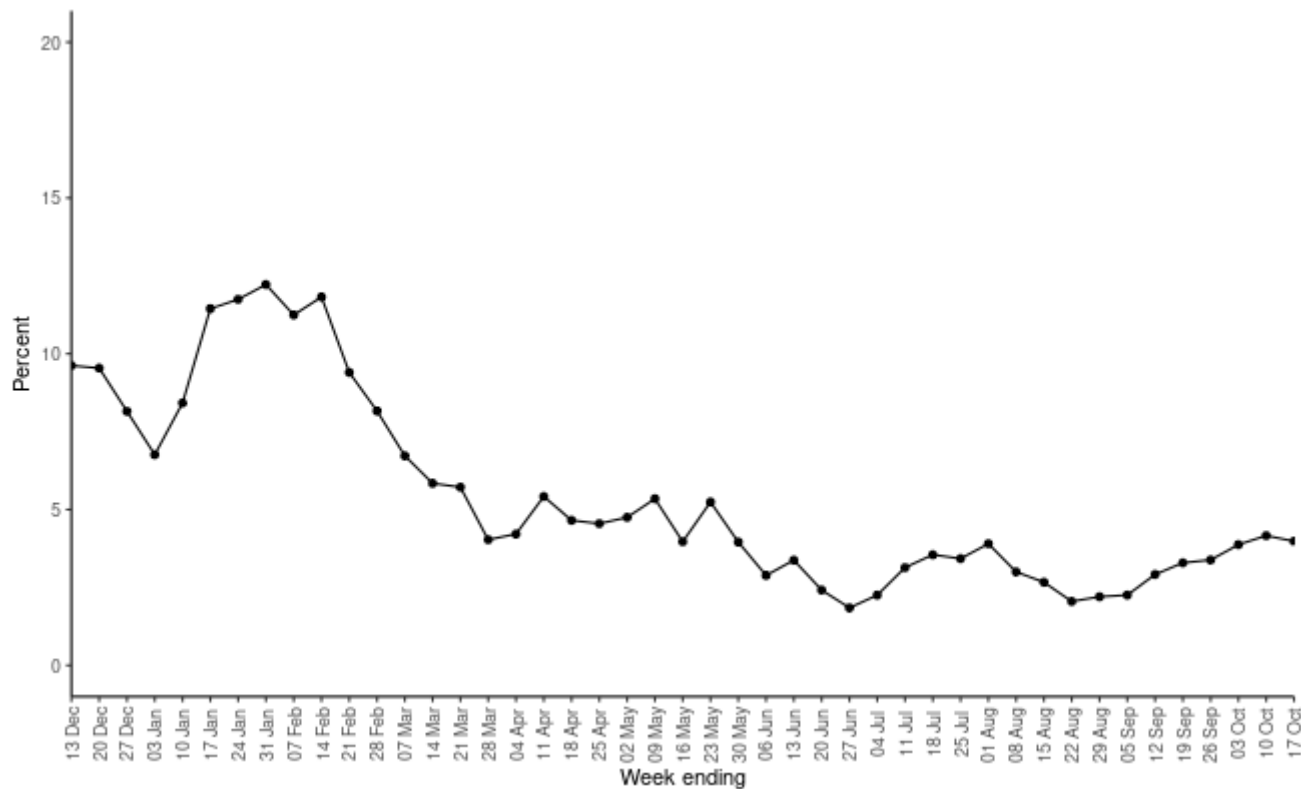


Figure 6: Proportion of weekly cases admitted to hospital within 14 days of a first positive test by age group

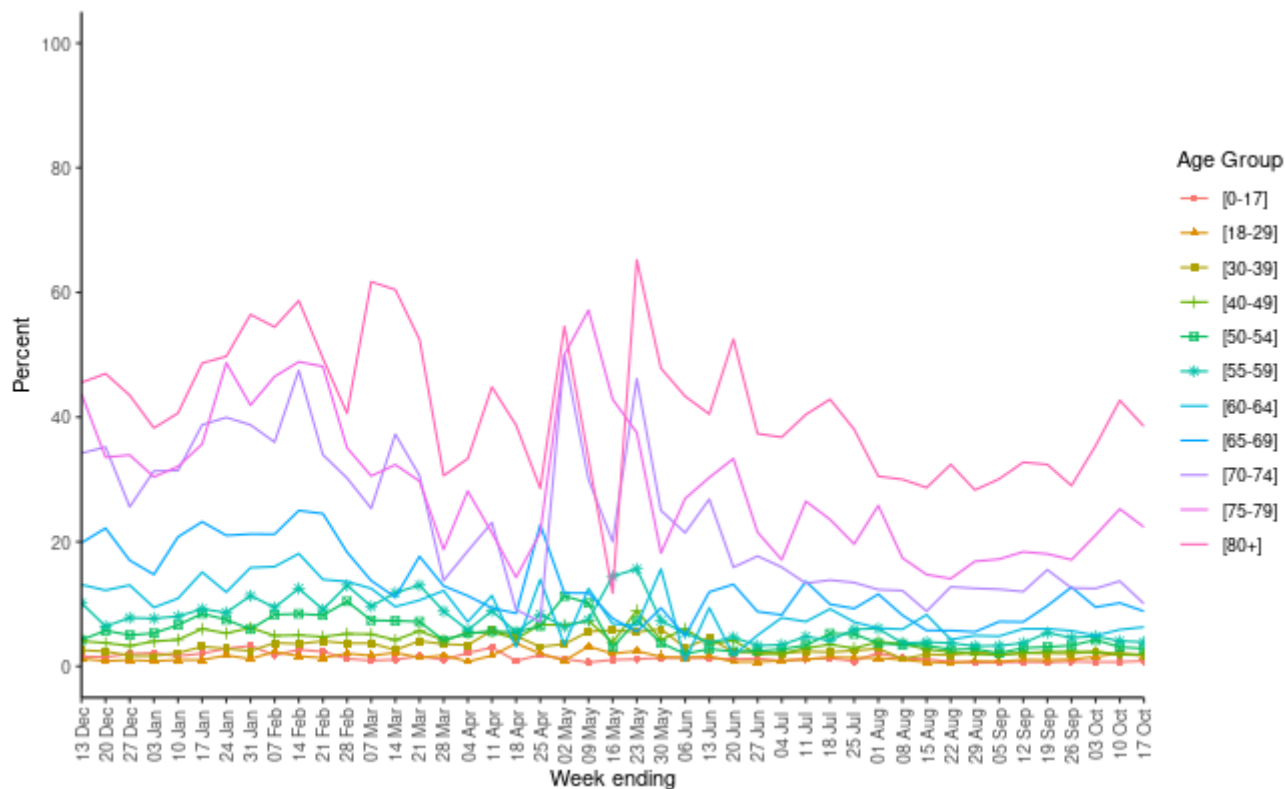
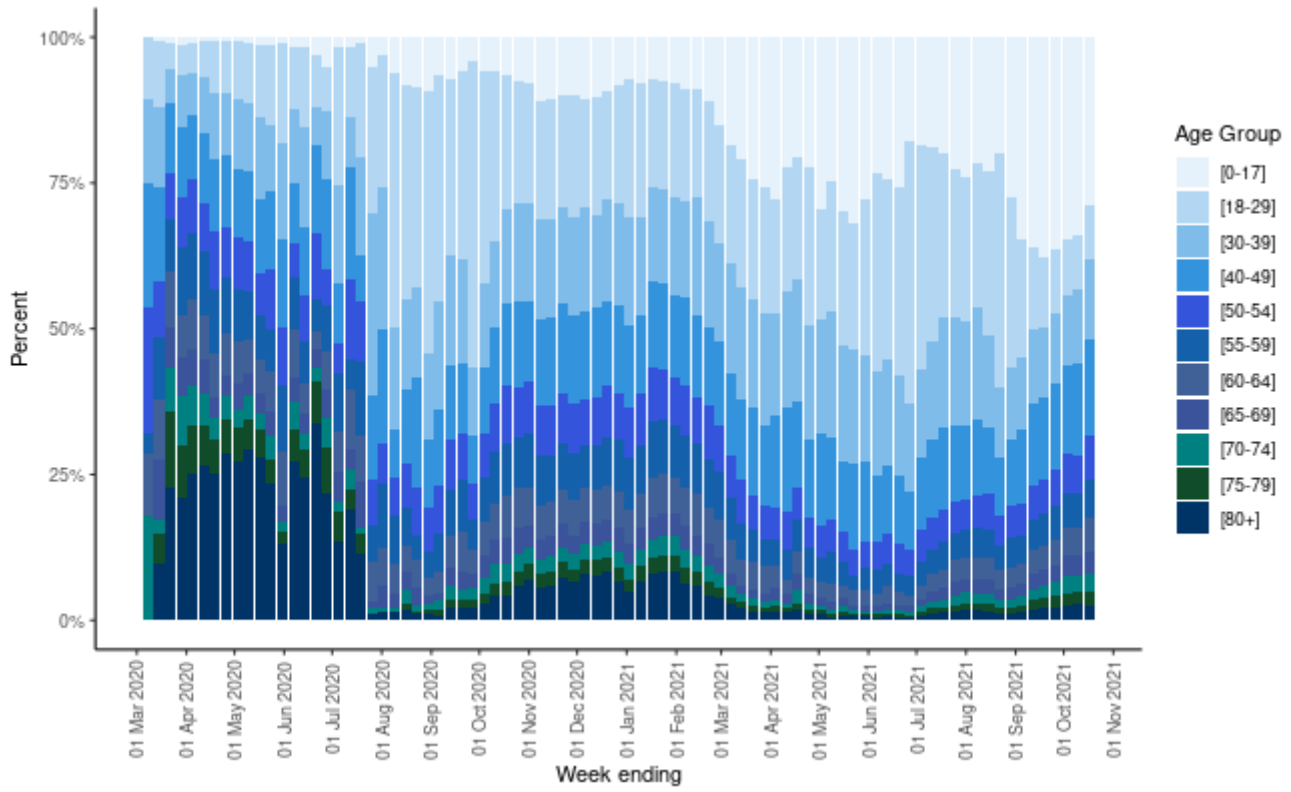


Figure 7: Distribution of confirmed COVID-19 cases by age group



COVID-19 Testing in Adult Care Home in Scotland

As of 20 January 2021, Public Health Scotland took over reporting of weekly testing data on COVID-19 in adult Care Homes in Scotland – data prior to 11 January 2021 can be found on the [Scottish Government website](#).

This data is provisional management information submitted to the Turas Care Home Management system by Care Homes, and details numbers of people (i.e. staff and residents) tested in the last week. The numbers capture both those tests undertaken via NHS routes and those done via the Scottish Social Care portal.

Figures are an undercount in some cases as complete data was not collected for all Care Homes.

It is the responsibility of Boards to work with care homes as part of their oversight arrangements to quality assure this data. The role of PHS is to collate and publish only. Please use this information with caution.

Table 2: Adult care home testing for week ending 1 November 2021

Further information on COVID-19 testing in Adult Care Homes can be found at [Coronavirus \(COVID-19\): trends in daily data - gov.scot \(www.gov.scot\)](#).

NHS Board	Care Home with confirmed COVID-19		Care Homes with no confirmed COVID-19
	Staff tested	Residents tested	Staff tested
Ayrshire and Arran	423	62	2,742
Borders	0	0	594
Dumfries & Galloway	85	0	1,058
Fife	165	7	2,602
Forth Valley	424	332	2,187
Grampian	781	292	3,455
Greater Glasgow & Clyde	616	132	6,893
Highland	229	75	2,162
Lanarkshire	328	301	3,138
Lothian	538	166	4,966
Orkney	0	0	119
Shetland	0	0	242
Tayside	336	115	3,010
Western Isles	107	37	295
Scotland	4,032	1,519	33,463

Please note some of the data is suppressed due to disclosure methodology being applied to protect patient confidentiality

Healthcare workers – COVID-19 Testing

In July 2020, the Scottish Government expanded COVID-19 testing (PCR) to include key healthcare workers in oncology and haemato-oncology in wards and day patient areas including radiotherapy; staffing wards caring for people over 65 years of age where the length of stay for the area is over three months, and wards within mental health services where the anticipated length of stay is also over three months. A data collection was initially set up to monitor the expansion of testing starting in July 2020. Weekly trend data, broken down by health board, is available on the [interactive dashboard](#).

Work was undertaken with Boards to improve the quality of the data and this collection has moved over to Public Health Scotland. This management information must be treated with caution as it may be subject to change as the quality of the data improves. Public Health Scotland is working closely with SG and Boards to improve data definitions and quality to ensure consistency across Scotland. As a result, data may be revised in subsequent weeks and any changes will be clearly signposted.

Table 3: Number of COVID-19 tests and positive results for healthcare workers for week ending 28 October 2021

Area	Total Eligible Staff	Total Staff tested	Number of positive tests ⁴	Number of Staff not tested - declined to test	Number of Staff not tested for operational reasons	Number of Staff not tested for other reasons
Specialist Cancer Wards and Treatment Areas	2,716	2,613	5	29	*	65
Long Stay Care of the Elderly	701	647	*	27	*	23
Long Stay Old Age Psychiatry and Learning Disability Wards	2,564	2401	*	69	34	60
Scotland	5,981	5,661	8	125	47	148

4. Please note some of the data is suppressed due to disclosure methodology being applied to protect staff confidentiality. See [Appendix 5 – Healthcare Worker Testing](#) for notes on staff not tested.

Test and Protect

Scotland's approach to contact tracing has continued to adapt throughout the pandemic to reflect changing circumstances, variability in cases, and increasing proportion of the population fully vaccinated since the roll out of the vaccination programme. The most recent [Strategic Framework](#) issued by the Scottish Government in June 2021 sets out how Scotland will continue to adapt now that we are in the phase described as "beyond level zero". That will require a constant review of the associated management information compiled in the weekly report. The information we produce will change over time to reflect the most critical information to help understand, plan and deliver contact tracing at any given point in time.

World Health Organisation (WHO) current guidance on "[Contact tracing in the context of COVID-19](#)" focuses on targeted approaches to contact tracing based on transmission patterns, engaging communities, and prioritising follow-up of high risk cases when it is not possible to identify, monitor and quarantine all contacts. For further information please refer to [Appendix 2](#).

Please note, PHS has moved to weekly reporting of this data and cumulative data is available in the [interactive dashboard](#). Data for the most recent week, previously included as provisional, is no longer included as this is variable due to cases which are still open (either because contact tracing is still underway or the NHS Board is still managing the case for a particular reason). Only finalised data will be included within the report going forward.

Further background information and definitions are available in [Appendix 6](#).

Index cases

An **index case** is generated for each positive result with a test date on or after 28 May 2020. This includes tests derived from Scottish laboratories and from UK Government laboratories.

An **individual** is a unique person who has had a positive test. An individual can have multiple positive tests which results in multiple cases within the test and protect system. In these figures, each person is only counted once.

Contact Tracing figures for the week ending 24 October 2021 (based on test date), are detailed in Table 5 below, which provides a recent time trend. A longer time trend is available on the [interactive dashboard](#).

Table 5 provides details of the status of the index cases for each week.

In the week ending 24 October 2021, there were 18,447 Index Cases, of which 15,106 (81.9%) had completed contact tracing by telephone or other digital methods, and a further 1,095 are in progress (5.9%).

Table 4: Contact Tracing trend information, by week ending

	12 Sep	19 Sep	26 Sep	03 Oct	10 Oct	17 Oct	24 Oct
Total Index Cases ¹	38,210	26,902	21,895	17,718	17,836	18,388	18,447
Individuals ²	37,008	26,260	21,466	17,252	17,262	17,686	17,805

1. Does not include "Excluded" cases which are those where a decision has been made that the case should not have been created within the contact tracing system.
2. A count of unique individuals with a positive test. An individual can have multiple positive tests which results in multiple cases within the contact tracing system.

Table 5: Contact Tracing trend information by status, by week ending

Status of cases	12 Sep	19 Sep	26 Sep	03 Oct	10 Oct	17 Oct	24 Oct
New/ Not yet started ¹	7	3	6	253	301	441	449
% New/ Not yet started	0	0	0	1.4	1.7	2.4	2.4
In progress ²	22	4	26	888	923	1,177	1,095
% In progress	0.1	0.0	0.1	5.0	5.2	6.4	5.9
Complete ³	31,611	22,873	19,237	14,819	14,856	14,983	15,106
% Complete	82.7	85	87.9	83.6	83.3	81.5	81.9
Incomplete ⁴	6,570	4,022	2,626	1,758	1,756	1,787	1,797
% Incomplete	17.2	15.0	12.0	9.9	9.8	9.7	9.7

1. New – New/not yet started cases within the contact tracing system. During the first 2 weeks in September, high case numbers meant that some cases were dealt with outside the CMS system (to ensure advice was given promptly). It is possible not all of that admin backlog has been cleared yet and cases described as "not started" have now been dealt with / closed. An exercise is underway to improve that data quality.
2. In progress – The case is still in progress with either the case interview to be completed, or contacts related to the case to be followed up.
3. Complete - The case is complete and all achievable contact tracing has been carried out.
4. Incomplete - Unsuccessful attempts to reach or carry out a case interview via the telephone, or for the index case to provide contacts via digital contact tracing (SMS)

Investigations into New/Not yet started are being explored as it is suspected these cases are self-traced only and therefore auto-closed. Technical solutions will be identified to ensure this information is accurate at source (CMS)

Method of Contacting Index Cases

Public Health Scotland works closely with National Services Scotland (NSS) and the Scottish Government to enable local NHS Boards and the National Contact Centre (NCC) to carry out COVID-19 contact tracing effectively. The approach to contact tracing has adapted as restrictions and policy have changed throughout the pandemic in order to best meet the needs of the Scottish population. As numbers of new cases have increased, the method has changed from attempting to phone all new cases and contacts - to prioritising the highest risk situations for telephone calls and sending public health advice by SMS text to all others, who have tested positive for COVID-19 and their close contacts.

The introduction of SMS messaging was designed to get the best public health advice about isolation to cases and contacts as quickly as possible, this is especially pertinent when daily case numbers are very high. The approach was part of a deliberate decision to manage resources through an agreed framework and is in keeping with the evidence-informed advice of the European Centre for Disease Control.

All index cases will receive an initial SMS containing Public Health information and advice, which will then be followed by contact either by telephone or additional SMS messages containing further Public Health information and advice.

Table 6 below shows a breakdown of the methods used to contact the index cases over time.

Table 6: Contact method used for contact tracing of index cases trend information

	12 Sep	19 Sep	26 Sep	03 Oct	10 Oct	17 Oct	24 Oct
Telephone	22,094	18,928	15,581	13,194	13,051	12,651	12,867
% Telephone	57.8	70.4	71.2	74.5	73.2	68.8	69.8
SMS	16,116	7,974	6,314	4,524	4,785	5,737	5,580
% SMS	42.2	29.6	28.8	25.5	26.8	31.2	30.2

In the week ending 24 October 2021, 69.8% of index cases received a telephone call.

Time for a Positive Index Case to be Contact Traced

The data within this section are based on the number of **completed cases** which are recorded in the contact tracing software, these figures are preliminary and may be updated in subsequent publications.

The three measures shown are;

- the time between a sample being taken and the positive individual being contacted (i.e. interviewed by a contact tracer or completing the online tracing form)
- the time between the record appearing in the CMS and the positive individual being contacted (i.e. interviewed by a contact tracer or completing the online tracing form)

- the time between the record appearing in the CMS and contact tracing being closed (i.e. contacts have been interviewed, attempted to be interviewed or contacted digitally).

These figures are now weekly measures, data are available for previous weeks within the [interactive dashboard](#).

Table 7 and Figure 8 below describes the timeliness of contact tracing by calculating the hours between a test sample being taken and the index case being contacted by Test and Protect either by phone or SMS.

Table 7: Time (hours) between date test sample taken (specimen date) and the positive index case being contacted, for cases completed⁵

Hours taken	Week Ending 24 October 2021		
	Number of Complete Index Cases	% of Total Complete Cases	% of Total Complete & Incomplete Cases
0-24	4,162	27.6	24.6
24-48	5,868	38.9	34.7
48-72	1,234	8.2	7.3
Over 72	785	5.2	4.6
Not recorded* - SMS	2,674	17.7	15.8
Not recorded* – Phone	383	2.5	2.3
Total Complete Cases	15,106	100	
Incomplete Cases	1,797		10.6
Total Complete & Incomplete Cases	16,903		100

⁵ For further information and additional notes on Contact Tracing, please see [Appendix 6 – Contact Tracing](#)

*Improvements into recording of times and dates are being investigated and technical solutions will be identified to reduce the proportion of ‘Not recorded’ cases.

Figure 8: Trend in time (hours) between date test sample taken (specimen date) and the positive individual being called for cases completed; by week

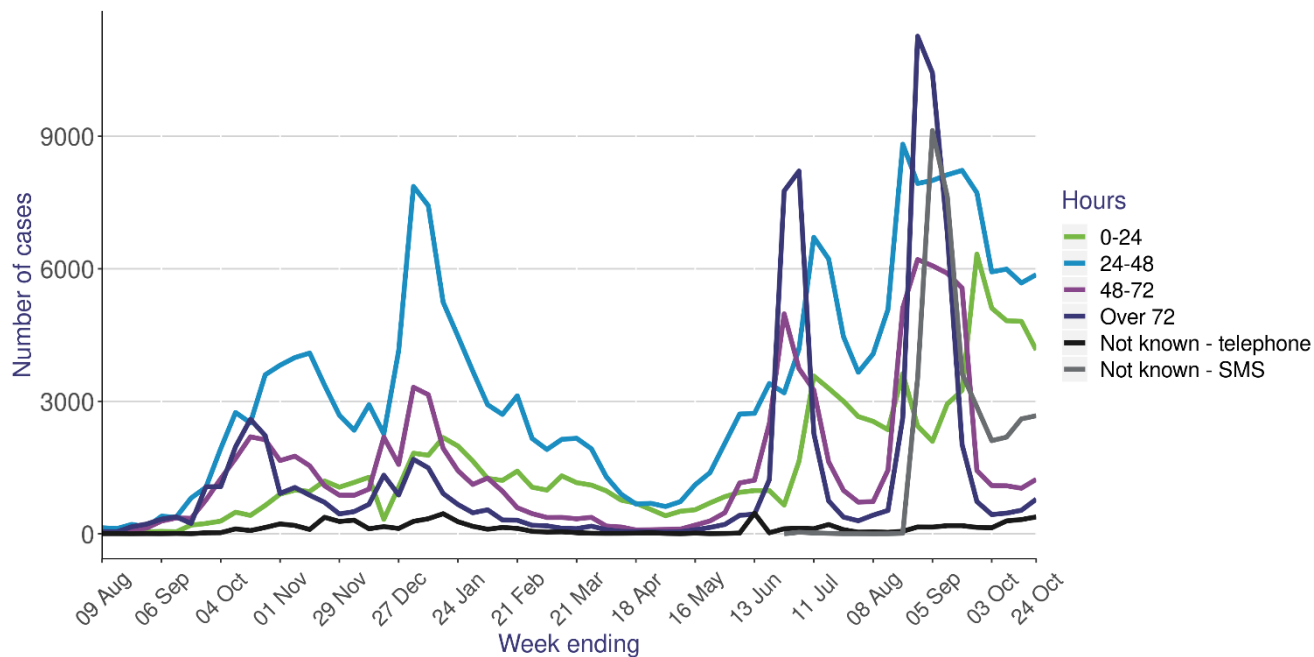


Figure 8 shows that more positive cases were contacted over 72 hours after their test sample was taken in June 2021 and August 2021, which corresponds with a rise in cases over the same period.

On 21 September 2021, there was a technical issue which affected the availability of Test & Protect data. This caused operational delays for the contact tracing service initiating communication with some index cases by up to 24 hours. This issue was rapidly addressed and has subsequently been resolved.

Table 8: Time (hours) between case created in CMS and the positive individual being contacted^{5,6}

Hours taken	Week Ending 24 October 2021		
	Number of Complete Index Cases	% of Total Complete Cases	% of Total Complete & Incomplete Cases
0-24	10,523	69.7	62.3
24-48	920	6.1	5.4
48-72	254	1.7	1.5
Over 72	352	2.3	2.1
Not recorded* – SMS	2,674	17.7	15.8
Not recorded* - Phone	383	2.5	2.3
Total Complete Cases	15,106	100	
Incomplete Cases	1,797		10.6
Total Complete & Incomplete Cases	16,903		100

5 For further information and additional notes on Contact Tracing, please see [Appendix 6 – Contact Tracing](#)

6 Includes being interviewed by a contact tracer or submitting preliminary information via a CO3 form

*Improvements into recording of times and dates are being investigated and technical solutions will be identified to reduce the proportion of ‘Not recorded’ cases.

Table 9: Time (hours) between case created in CMS to its closure^{5,7}

Hours taken	Week Ending 24 October 2021		
	Number of Complete Index Cases	% of Total Complete Cases	% of Total Complete & Incomplete Cases
0-24	11,812	78.2	69.9
24-48	1,889	12.5	11.2
48-72	494	3.3	2.9
Over 72	588	3.9	3.5
Not recorded* – SMS	102	0.7	0.6
Not recorded* - Phone	221	1.5	1.3
Total Complete Cases	15,106	100	
Incomplete Cases	1,797		10.6
Total Complete & Incomplete Cases	16,903		100

5 For further information and additional notes on Contact Tracing, please see [Appendix 6 – Contact Tracing](#)

7 Measured by the time taken to complete the final contact interview for high risk settings/contacts and those completed via SMS

*Improvements into recording of times and dates are being investigated and technical solutions will be identified to reduce the proportion of ‘Not recorded’ cases.

Incomplete index cases

Table 10 and Figure 9 below show the different reasons why an index case is categorised as incomplete (previously referred to as failed) within the contact tracing system.

Incomplete cases are defined as: unsuccessful attempts to carry out a case interview via the telephone, or for the index case to provide contacts via digital contact tracing. This would include scenarios where the mobile/home phone/email address provided by the case was incorrect and no other method of contact could be established; where multiple SMS/telephone call attempts to the case had been made but not been successful in eliciting a response from the index case; where the index case has failed to pass relevant data protection identity checks and where the index case has refused to participate in the contact tracing process.

For operational purposes some index cases are categorised as incomplete because the telephone process has started, but does not complete for the reasons outlined in Table 10 below. Public Health information is typically sent by SMS to 99% of the incomplete index cases.

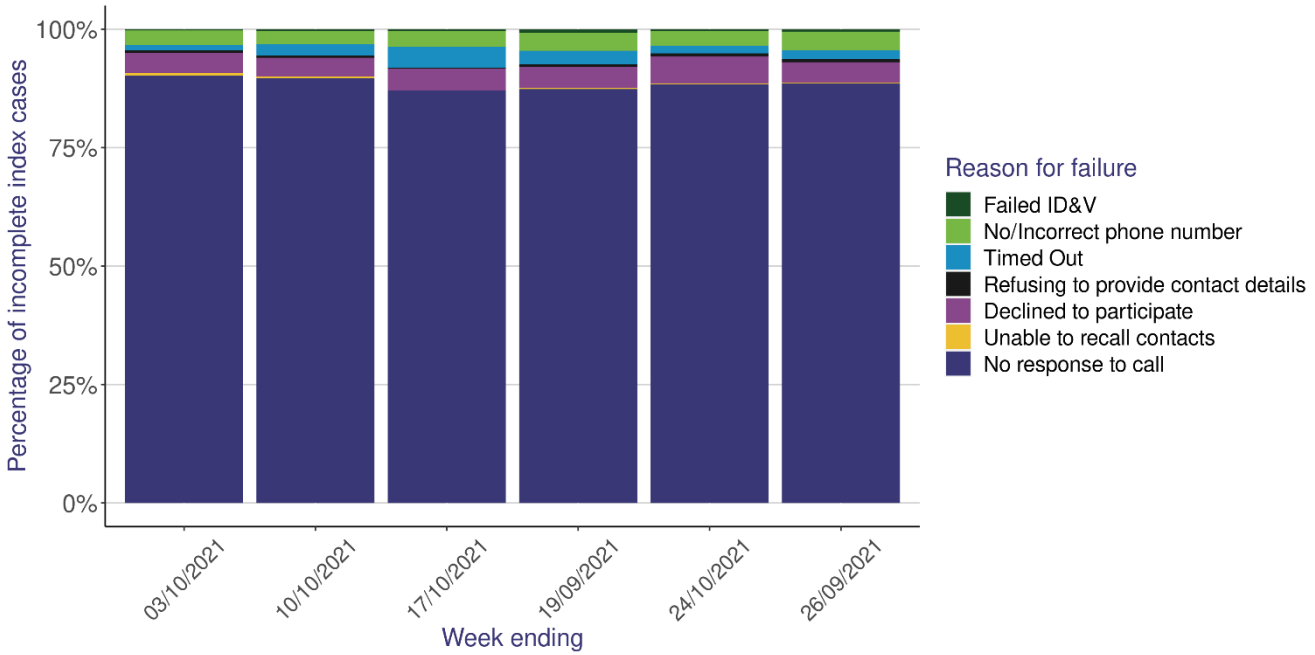
Table 10: Number of incomplete index cases by reason

Reason for Incompletion	Week Ending 24 October 2021	
	Number of Index Cases	% of Incomplete Index Cases
Failed ID & verification	8	0.5
No response to call	1,588	88.4
No/incorrect phone number	54	3.0
Refused to provide contact details	12	0.7
Declined to participate / unable to recall contacts	105	5.9
Timed out ¹	30	1.7
Total incomplete cases	1,797	100.0
% incomplete as proportion of all index cases		10.0

1. Timed out includes individuals contacted by SMS and asked to complete an online contact tracing form, but haven't completed the form within 5 days.

In week ending 24 October 2021, 88.4% of incomplete index cases were due to the index case not responding to the multiple calls from Test and Protect.

Figure 9: Proportion of reasons for incomplete index cases



Contacts

The Test and Protect system ensures all positive index cases are asked to identify their close contacts, whether they were contacted by telephone and/or SMS. Table 11 below shows the recent trend information of contacts reported to Test and Protect.

Table 11: Contact Tracing contacts trend information, by week ending

	12 Sep	19 Sep	26 Sep	03 Oct	10 Oct	17 Oct	24 Oct
Total Primary Contacts ¹	56,856	47,326	42,080	35,714	34,351	34,494	34,801
Unique Primary Contacts ²	42,123	33,736	30,662	25,277	24,506	24,251	25,188
Average number of primary contacts per case	1.5	1.8	1.9	2.0	1.9	1.9	1.9

1. Total number of primary contacts recorded in the contact tracing system.

2. Unique number of primary contacts each week. A contact may have been in close contact with multiple index cases.

The average number of primary contacts per case has remained stable over recent weeks.

Contacts not required to self-isolate

It is worth noting that from 9 August 2021 under 18's do not need to be reported as close contacts. Revised isolation and contact tracing guidance for children and young people under 18 split contacts into 'high' and 'low' risk. High risk contacts are reported through Test and protect with low risk contacts identified by schools and issued with public health guidance locally. Test and Protect does not gather the details of low risk contacts and this is not contained in these figures.

Since the beginning of contact tracing, a small proportion of primary contacts who were successfully contacted were advised they did not need to isolate. Up to 24 October 2021, a total of **3,387** cumulative primary contacts, pertaining to completed index cases, were not advised to self-isolate. This represents **1.2%** of the total **291,674** cumulative primary contacts for which this information is known. Some reasons why contacts do not need to isolate include; children under the age of 16, contact was wearing PPE or did not come into close contact with a positive case.

In the week ending 24 October 2021, of the **25,188** unique contacts recorded, **4,862** (19.3%) went on to test positive within ten days of their contact with an index case.

Travel outside of Scotland cases

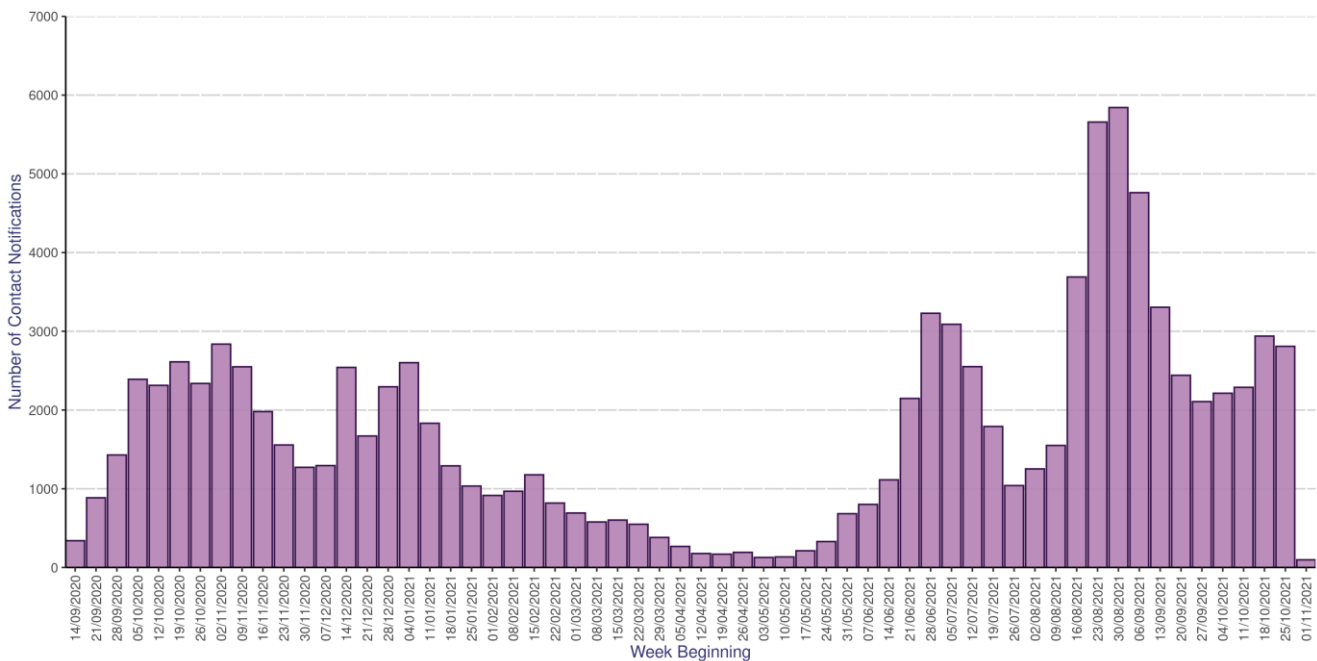
Since 28 September 2020 fields have been available to record information about whether a case has travelled outside of Scotland. In the week ending 31 October 2021, 16,484 index cases were newly created on CMS, of which 8,844 had a fully completed index case interview. Of those interviewed, **567** travelled to the UK (excluding Scotland), **558** travelled to Europe and **22** to the rest of the world.

This information is collected on the contact tracing interview and is where outside of Scotland travel information is recorded. Please note we are aware of an undercount for those travelled outside Scotland. This is a data quality issue due to recording of the travel information, Public Health Scotland is working closely with contact tracing leads to improve this recording.

Protect Scotland App

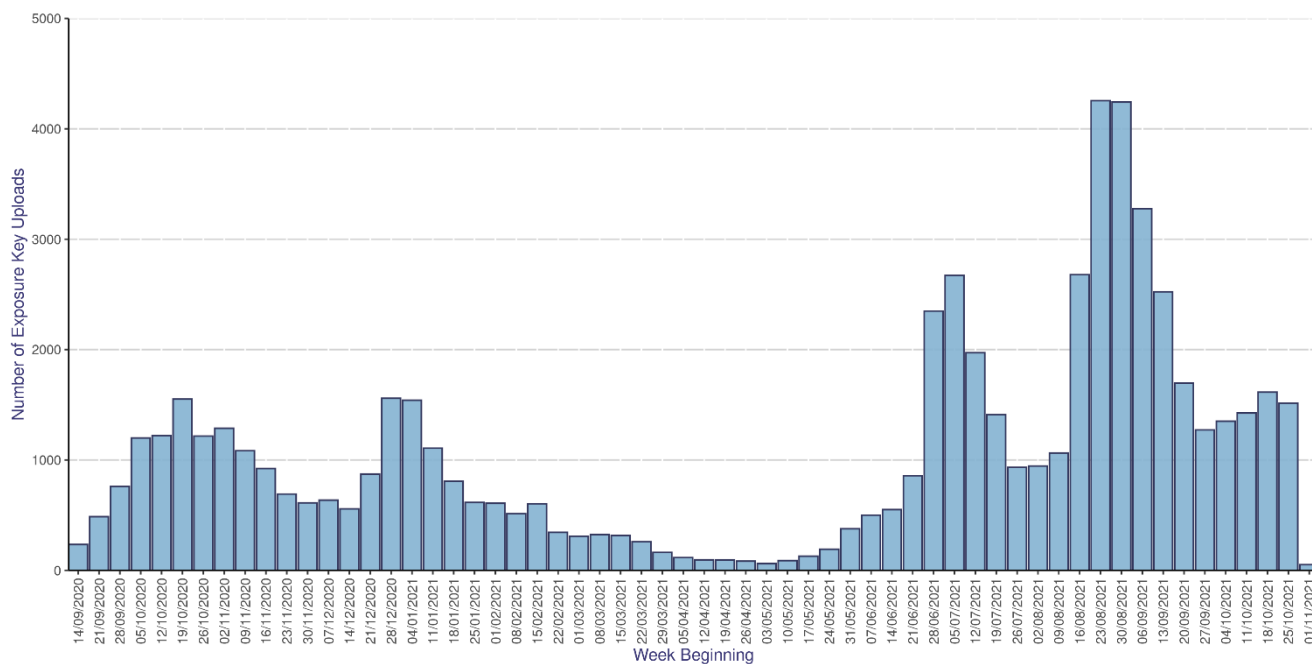
The Protect Scotland App was launched on 10 September 2020. It is free and designed to protect individuals and reduce the spread of coronavirus. The app alerts individuals if they have been in close contact with another app user who tests positive for coronavirus. If they test positive, it can help in determining contacts that may have otherwise been missed while keeping individual’s information private and anonymous. As of 01 November 2021 the total number of people who have downloaded the app is **2,320,947** with the number of contact notifications at **102,764** (see Figure 10).

Figure 10: Weekly number of contact notifications sent from the Protect Scotland App from 14 September 2020 to 01 November 2021



As of 01 November 2021, **62,814** exposure keys had been uploaded to the central server by index cases to enable contact notifications to be sent to those with whom they had close contact around the time they were likely to have been infectious (see Figure 11).

Figure 11: Weekly number of exposure key uploads to the Protect Scotland App from 14 September 2020 to 01 November 2021



Event and Settings Cases

Public Health Scotland has been able to present a table of settings and events that index cases have attended over the previous 7 days. This is based on interviews conducted with cases identified in the CMS and involves cases recalling where they have been in the 7 days prior to symptom onset (or date of test if asymptomatic).

These figures are now updated in Settings tab of the [interactive dashboard](#) accompanying this report. Please note that Public Health Scotland cannot infer from the figures whether a specific setting or an event indicates where the COVID-19 transmission took place. This is because cases may have attended multiple settings or events within a short space of time. In addition, it is possible that even though a case visited a few settings and events, transmission may have taken place elsewhere.

More information on event groupings can be found in the accompanying metadata document available on the [COVID-19 Statistical Report website](#).

Please note that this section has not been updated since 28th August 2021 due to changes in contact tracing.

Quarantining Statistics

These statistics provide a summary of the number of people entering Scotland from outside the UK, those required to quarantine, and the numbers contacted by the National Contact Centre (NCC). Passenger arrivals into Scotland are provided by the Home Office to PHS. PHS take a sample of those who are required to quarantine and pass the data to NHS National Services Scotland, which runs the NCC on PHS's behalf.

Those arriving into Scotland who have been in a country on the red list (high risk) at any point in the 10 days before arriving in Scotland are required to quarantine in a hotel for a minimum of 10 days (further information available on the Scottish Government website). Those arriving in Scotland who have been in a country on the amber list (non-high risk) are required to quarantine at home.

Up to 23 June 2021, a sample of those individuals quarantining at home were contacted by the NCC. These calls were paused in order to prioritise contact tracing. Since 13 July 2021, these call have resumed. All travellers (except those exempt and those under 18 years of age) will receive an email, providing them with appropriate public health information on self-isolation and testing. Unvaccinated travellers arriving from an Amber country are also called by the NCC. Fully vaccinated travellers arriving from an Amber country, or travellers arriving from a Green country, receive a SMS and email. Arrivals from a Red country receive an email and continue to be managed via quarantine. Travellers under the age of 18 are not contacted.

Table 12: Quarantine Statistics by date (22 June 2020 to 31 October 2021) ⁹

	Week Ending 31 October 2021	Cumulative
Number of people arriving in Scotland	71,911	1,478,566
Number of people requiring to quarantine in a hotel (anywhere in the UK)	*	22,266
Number of people requiring to quarantine at home	2,278	480,110
Number of people contacted by National Centre	2,276	139,265

⁹Please note some of the data is suppressed due to disclosure methodology being applied to protect staff confidentiality.

Of the total number of people contacted by the National Centre, the below table shows the breakdown of these contacts.

Table 13: Number of people contacted by National Centre by status (22 June 2020 to 31 October 2021) ⁹

	Week Ending 31 October 2021	Cumulative
Successful contacts made	1,983	128,573
Unable to contact individual	243	10,642
In progress	50	50

⁹ For further information and additional notes on Contact Tracing, please see [Appendix 7 – Quarantine Statistics](#).

Lateral Flow Device Testing

Across Scotland, there are numerous testing pathways being rolled out using Lateral Flow Devices (LFD) - a clinically validated swab antigen test taken that does not require a laboratory for processing. This test can produce rapid results within 45 minutes at the location of the test.

Some of the areas using LFD tests are: schools, health and social care workers, care homes and more. Public Health Scotland has collected the information on the number of LFD tests carried out across Scotland and will now publish this information weekly. This section is the totality of LFD across Scotland and across strategies. Sections focussing in on specific topics such as Schools, Higher Education and Community testing can be found later in the report.

Since 19 November 2020, there have been 13,461,125 LFD tests carried out in Scotland, of which 89,113 were positive (0.7%). Table 14 shows the number of LFD tests carried out in Scotland by testing group, and Table 15 shows the number of LFD tests by Health Board of residence of the individual taking the test.

Any individual who receives a positive test result using a Lateral Flow Device is advised to self-isolate and arrange for a confirmatory PCR test. The PCR result will determine the number of cases of COVID-19 in Scotland.

For additional details on Lateral Flow Device Tests, please see - [Appendix 8 – Lateral Flow Device Testing](#)

Table 14: Number of LFD¹⁰ tests by Test group 19 November 2020 – 31 October 2021

Test Group	Test Reason	Number of tests	Number of positive tests	% LFT positive
Care Home Testing	Care Home - Visiting Professional	49,698	59	0.1%
	Care Home - Visitor	555,379	393	0.1%
	Care Home Staff	1,460,165	1,173	0.1%
Community Testing	Community Testing	92,351	844	0.9%
Education Testing	Combined School Staff	45,878	98	0.2%
	ELC Staff	270,327	965	0.4%
	Primary School Staff	1,294,078	3,201	0.2%
	Secondary School Pupils	801,600	6,958	0.9%
	Secondary School Staff	708,726	1,705	0.2%
	University Staff	8,955	55	0.6%
	University Students	30,152	241	0.8%
Healthcare Testing	University Testing Site	96,569	380	0.4%
	Healthcare Worker	2,534,772	4,466	0.2%
Social Care Testing	Primary Care And Independent Contractors	172,014	226	0.1%
	Children, Young People and Mental Health	940	-	0%
	NSS Portal Social Care	593,118	766	0.1%
	Residential Homes	13,348	16	0.1%
Universal Offer	Support Services	13,670	90	0.7%
	Attend An Event	455,724	1,244	0.3%
	High Cases In Local Area	197,695	3,996	2%
	Lives With Someone Who Is Shielding	30,394	596	2%
	Travel Within UK	109,229	540	0.5%
Workplace Testing	Universal Offer	1,375,809	33,148	2.4%
	Private Sector	17,009	50	0.3%
	Public Sector	61,035	158	0.3%
	Quarantine Hotel Staff/Security Personnel	3,818	45	1.2%
	Third Sector	711	2	0.3%
Other	UK Gov Other	1,965,102	23,498	1.2%
	Other	502,859	4,200	0.8%
Total	Total	13,461,125	89,113	0.7%

Data extracted: 01 November 2021

Please note some of the data is suppressed due to disclosure methodology being applied to protect staff confidentiality.

Table 15: Number of LFD¹⁰ tests, up until 31 October 2021, by NHS Board of Residence (based on the postcode provided by the individual taking the test)

Board of Residence	Number of tests	Number of positive tests	% LFD positive
NHS Ayrshire & Arran	991,066	6,345	0.6%
NHS Borders	281,053	1,494	0.5%
NHS Dumfries & Galloway	384,684	2,048	0.5%
NHS Fife	828,107	6,636	0.8%
NHS Forth Valley	743,995	4,928	0.7%
NHS Grampian	1,676,189	8,037	0.5%
NHS Greater Glasgow & Clyde	2,464,821	20,295	0.8%
NHS Highland	879,954	4,044	0.5%
NHS Lanarkshire	1,407,391	11,418	0.8%
NHS Lothian	2,139,527	15,413	0.7%
NHS Orkney	63,019	224	0.4%
NHS Shetland	83,646	262	0.3%
NHS Tayside	1,097,380	6,317	0.6%
NHS Western Isles	97,058	162	0.2%
Unknown	323,235	1,490	0.5%
Total	13,461,125	89,113	0.7%

Data extracted: 01 November 2021

10 For additional details on Lateral Flow Device Tests, please see - [Appendix 8 – Lateral Flow Device Testing](#).

Targeted Community Testing

The Community Testing Programme is ongoing across Scotland. This programme is a mixture of LFD and PCR tests. This is targeted at areas where there are concerns around community transmission levels, and offer testing to any member of that community. Further information is available within the [interactive dashboard](#).

Table 16: Targeted Community Testing (18 January 2021 to 31 October 2021)

Symptoms	Week Ending 31 October 2021			Cumulative		
	Number of Tests	Number Positive	% positive	Number of Tests	Number Positive	% positive
Asymptomatic	11,887	1,109	9.3	481,322	37,650	7.8
Symptomatic ¹¹	11,016	2,384	21.6	371,660	77,800	20.9
All¹²	24,109	3,809	15.8	879,078	121,402	13.8

¹¹ Symptomatic - the individual has selected on the booking website they have symptoms.

¹² In week ending 31 October 2021, 1206 tests were of unknown symptomatic status of which 316 were positive.

Table 17: Targeted Community Testing by Health Board (Week to 31 October 2021)

Health Board (of site)	Number of Tests	Number of Positive Test Results	% positive
NHS Ayrshire and Arran	1,115	169	15.2
NHS Borders	636	118	18.6
NHS Dumfries and Galloway	978	182	18.6
NHS Fife	943	188	19.9
NHS Forth Valley	2,281	362	15.9
NHS Grampian	764	127	16.6
NHS Greater Glasgow and Clyde	4,008	470	11.7
NHS Highland	52	0	0
NHS Lanarkshire	7,345	1,298	17.6
NHS Lothian	4,628	674	14.6
NHS Tayside	1,349	221	16.4
Unknown Health Board	10	0	0
Total	24,109	3,809	15.8

Please note some of the data is suppressed due to disclosure methodology being applied to protect staff confidentiality

COVID-19 Vaccine

On 08 December 2020, a COVID-19 vaccine developed by Pfizer BioNTech was first used in the UK as part of national immunisation programmes. The AstraZeneca (Vaxzevria) vaccine was also [approved for use](#) in the national programme, and rollout of this vaccine began on 04 January 2021. Moderna (Spikevax) vaccine was approved for use on 08 January 2021 and rollout of this vaccine began on 07 April 2021. These vaccines have met strict standards of safety, quality and effectiveness set out by the independent Medicines and Healthcare Products Regulatory Agency (MHRA).

For most people, a 2-dose schedule is advised for the vaccines. For the Pfizer BioNTech (Comirnaty) vaccine, the second vaccine dose can be offered between 3 to 12 weeks after the first dose. For the AstraZeneca (Vaxzevria) and Moderna (Spikevax) vaccine, the second dose can be offered 4 to 12 weeks after the first dose.

Information on uptake across the vaccine programme is available on a daily basis via the PHS [COVID-19 Daily Dashboard](#), 7 days a week at 2pm. This provides a cumulative picture of the position nationally and locally.

The dashboard provides total uptake nationally with breakdowns by [Joint Committee on Vaccination and Immunisation \(JCVI\)](#) age based cohorts and non age based cohorts for priority groups 1-9.

The vaccination content of this weekly publication is kept under continual review and specific editions have contained more in-depth analyses of uptake by particular groups or characteristics, including uptake by ethnicity and deprivation category, for teachers, for prisoners and for pregnant women. We also include weekly information on vaccine effectiveness and COVID-19 cases, acute hospitalisations, and deaths by vaccine status.

COVID-19 Vaccine Certification

To show COVID-19 vaccine status, there are a number of options and individuals can choose to use one or more of these:

- Use the NHS Covid Status App
- Request a paper copy of your COVID-19 Status
- Download a PDF copy of your COVID-19 Status

The NHS Covid Status App was launched on 30 September 2021. It is free and offers digital proof of vaccination via a QR code for each vaccination received. You can request a vaccine certificate if you're aged 12 and over and have been vaccinated in Scotland. The record will not show any vaccinations given outside of Scotland.

- As of midnight 30 October 2021 the NHS Covid Status App has been downloaded 1,306,841 times. It is important to note a single user may choose to download the App on multiple devices, so this figure does not represent unique individuals.
- Between 3 September 2021 (introduction of QR codes) and midnight 30 October 2021
 - 417,740 paper copies of COVID-19 Status have been requested. This may not represent unique users if an individual requests a second copy (for example if they have lost their paper copy).
 - 1,085,658* PDF versions of COVID-19 Status have been downloaded. This provides a measure of the total number of times a new QR code has been generated via PDF. An individual can generate more than one successful QR code so the figure does not represent unique users.

*1st, 2nd, 3rd October data for PDFs is missing due to a technical error, we can reasonably estimate that there were 35,000 – 45,000 PDFs successfully generated PDFs in total for those three days.

COVID-19 cases, hospitalisations, and deaths by vaccine status

Vaccine Surveillance

Public Health Scotland has a [COVID-19 vaccine surveillance strategy](#) to monitor the effectiveness, safety and impact of all approved COVID-19 vaccines in Scotland. The key measure of the success of the vaccination programme in preventing infection, hospitalisations and deaths is vaccine effectiveness.

The summary data presented in this chapter record the total number of COVID-19 cases, COVID-19 related acute hospital admissions and confirmed COVID-19 deaths by their vaccination status and does not assess the effectiveness of the vaccine or whether the vaccine has worked in these individuals. The latter requires a careful examination of each case to explore possible reasons, which could be related to the test, virus or the person (e.g. pre-existing conditions).

Summary of key results

- Following a peak in August 2021, COVID-19 cases have decreased, however have remained fairly stable over the last five weeks, from 25 September to 29 October 2021.
- In the last week from 23 October 2021 to 29 October 2021, the seven-day rolling average of COVID-19 related acute hospital admissions decreased slightly from 87.00 to 86.00 admissions per day.
- In the last four weeks from 02 October 2021 to 29 October 2021, the age-standardised acute COVID-19 related hospital admission rates are lower for vaccinated individuals than unvaccinated individuals
- From 29 December 2020 to 27 October 2021, 1,072 individuals tested positive for SARS-CoV-2 by PCR more than 14 days after receiving their second dose of COVID-19 vaccine and subsequently died with COVID-19 recorded as an underlying or contributory cause of death. This equates to 0.028% of those who have received two doses of COVID-19 vaccines.
- In three of the last four weeks', age-standardised mortality rates for COVID-19 deaths are lower for people who have received two doses of a COVID-19 vaccine compared to individuals that are unvaccinated or have received one dose of a COVID-19 vaccine.

Overall results of COVID-19 cases and hospitalisations, and deaths by vaccination status

COVID-19 cases by vaccination status

[Recent studies](#) have been released by the UK Health Security Agency, formerly Public Health England (PHE), looking into the effect of vaccination against mild and severe COVID-19. [UKHSA analyses](#) show vaccine effectiveness against symptomatic disease with the Delta variant to be approximately 65 to 70% with AstraZeneca (Vaxzevria) and 80 to 95% with the Pfizer-BioNTech (Comirnaty) and Moderna (Spikevax) vaccines.

[A recent English study](#) has observed in the weeks following vaccination, that effectiveness is waning against infection for all vaccine types, between 45 to 50% effectiveness with AstraZeneca (Vaxzevria) and 68 to 71% effectiveness with Pfizer-BioNTech (Comirnaty). However, vaccine effectiveness remains high against hospitalisation and death. This study is not yet peer-reviewed.

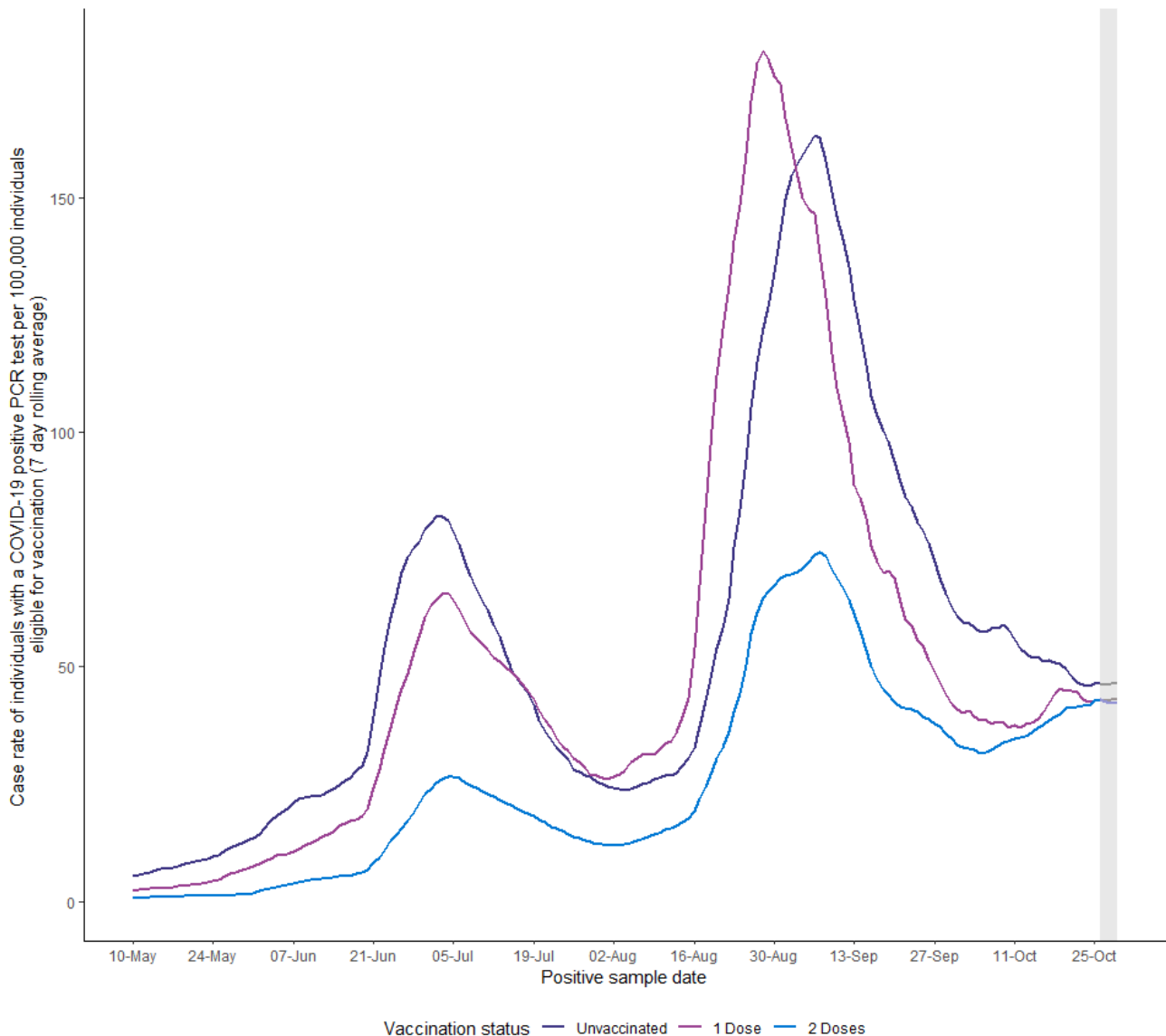
Table 18: Number of COVID-19 positive cases individuals by week and vaccination status, 02 October 2021 to 29 October 2021

Vaccination Status	Unvaccinated			1 Dose			2 Doses		
Week	No. of Cases	Total pop. unvaccinated	% Cases	No. of Cases	Total pop. with 1 dose	% Cases	No. of Cases	Total pop. with 2 doses	% Cases
02 October - 08 October 2021	7,400	1,809,153	0.41%	847	312,955	0.27%	8,821	3,803,925	0.23%
09 October - 15 October 2021	6,573	1,788,446	0.37%	854	315,328	0.27%	9,872	3,822,259	0.26%
16 October - 22 October 2021	5,802	1,760,503	0.33%	1,004	327,625	0.31%	11,099	3,837,905	0.29%
23 October - 29 October 2021	5,655	1,714,718	0.33%	1,052	358,814	0.29%	11,416	3,852,501	0.30%

Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 9. The data displayed within the greyed-out section (3 days) are considered preliminary and are subject to change as more data is updated.

In the last week, 23 October to 29 October 2021, the case rate in unvaccinated populations was 330 COVID-19 cases per 100,000 individuals, compared to 296 COVID-19 cases per 100,000 individuals vaccinated with two doses.

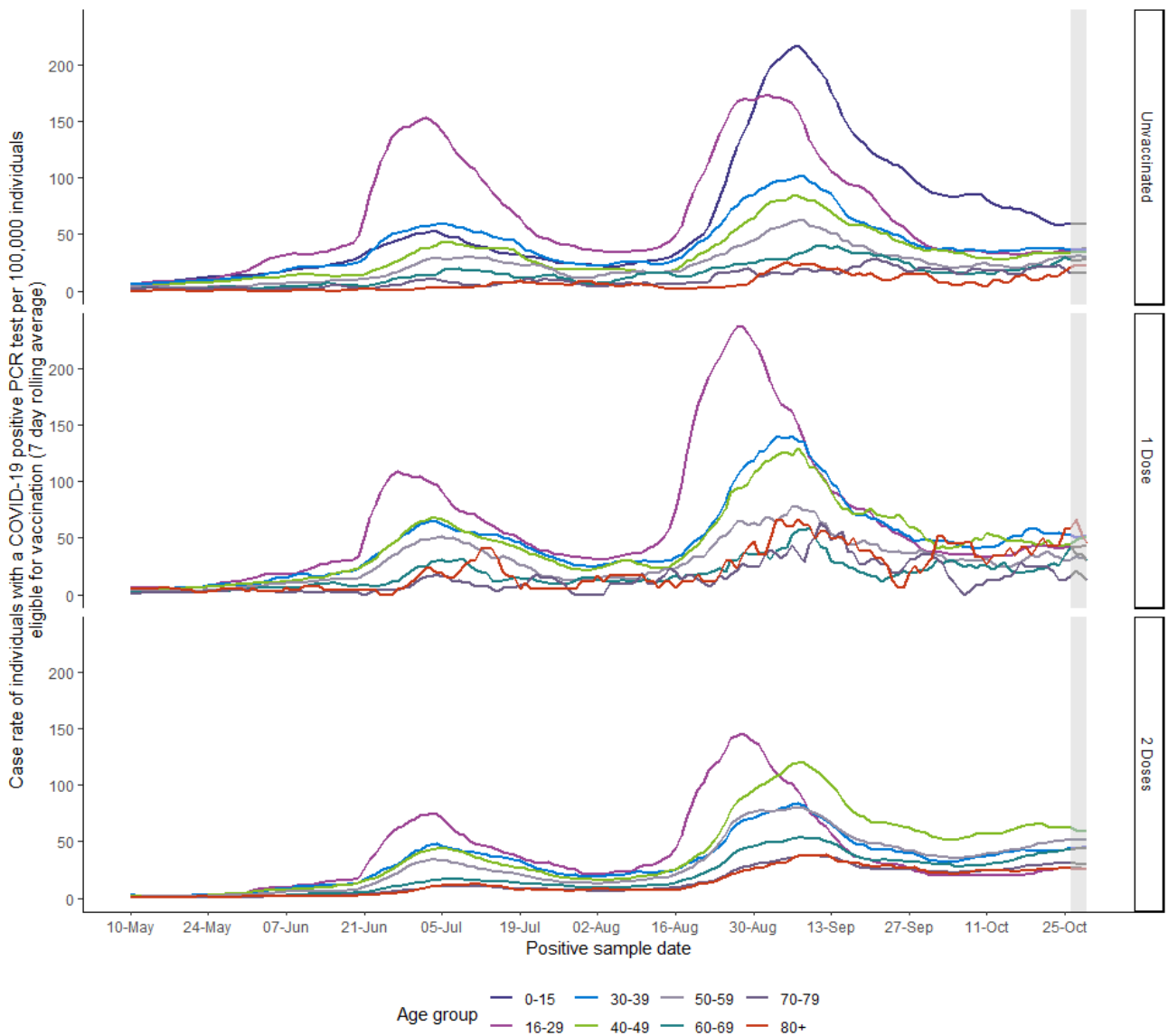
Figure 12: COVID-19 case rate per 100,000 individuals eligible for vaccination by vaccination status, seven-day rolling average from 10 May 2021 to 29 October 2021



Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 9. The data displayed within the greyed-out section (3 days) are considered preliminary and are subject to change as more data is updated.

In the last five weeks, from 25 September to 29 October 2021, COVID-19 cases have remained fairly stable following a decrease from a peak in in August 2021. There are lower rates of cases in vaccinated individuals compared to unvaccinated individuals.

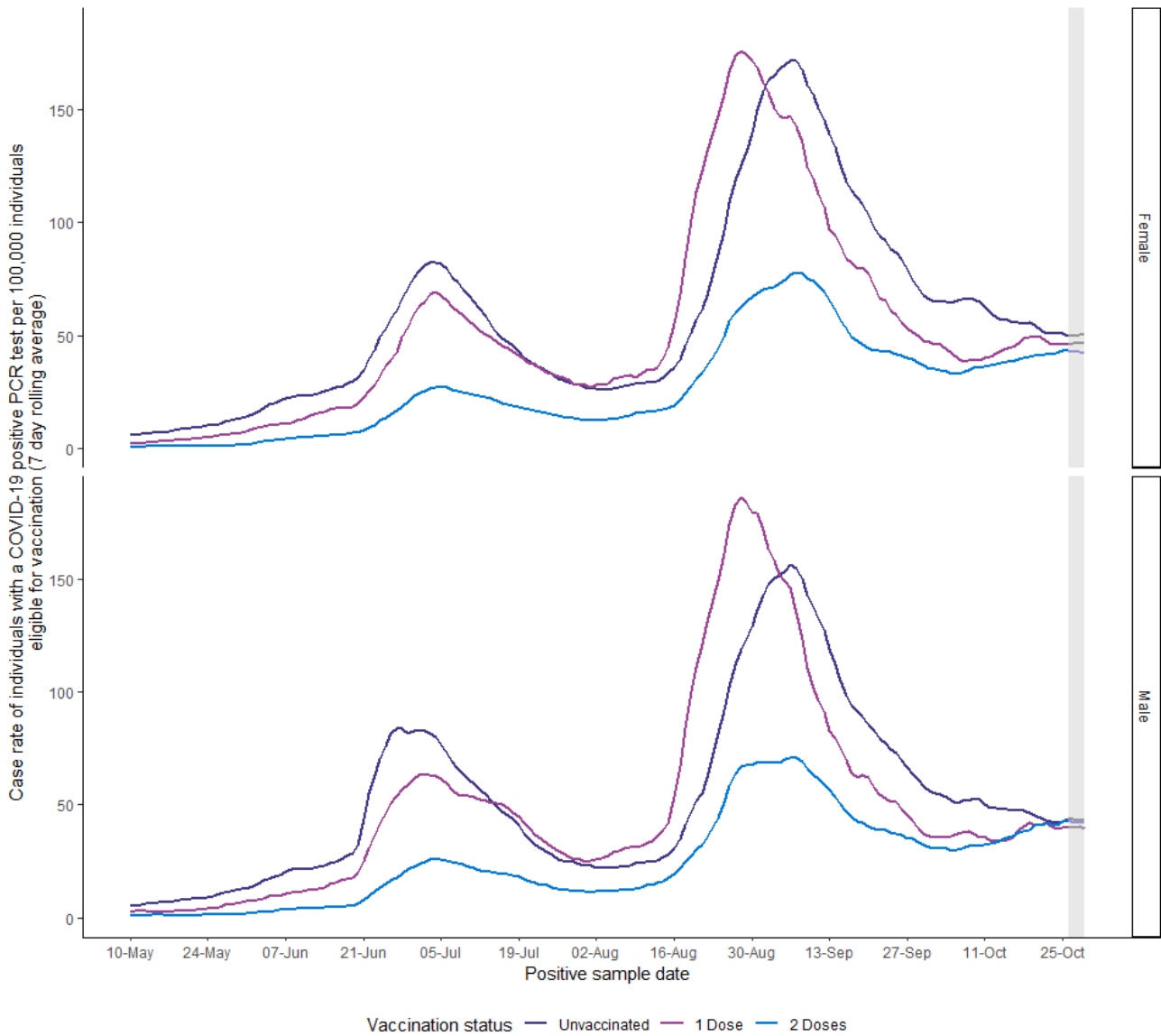
Figure 13: COVID-19 case rate per 100,000 individuals eligible for vaccination by vaccination status and age group, seven-day rolling average from 10 May 2021 to 29 October 2021



Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 9. Patient age is determined as their age the date of admission. The data displayed within the greyed-out section (3 days) are considered preliminary and are subject to change as more data is updated.

Since 10 May 2021, a higher proportion of COVID-19 positive PCR cases have been in unvaccinated individuals under the age of 30 years.

Figure 14: COVID-19 case rate per 100,000 individuals eligible for vaccination by sex and vaccine status, seven-day rolling average from 10 May 2021 to 29 October 2021



Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 9. The data displayed within the greyed-out section (3 days) are considered preliminary and are subject to change as more data is updated.

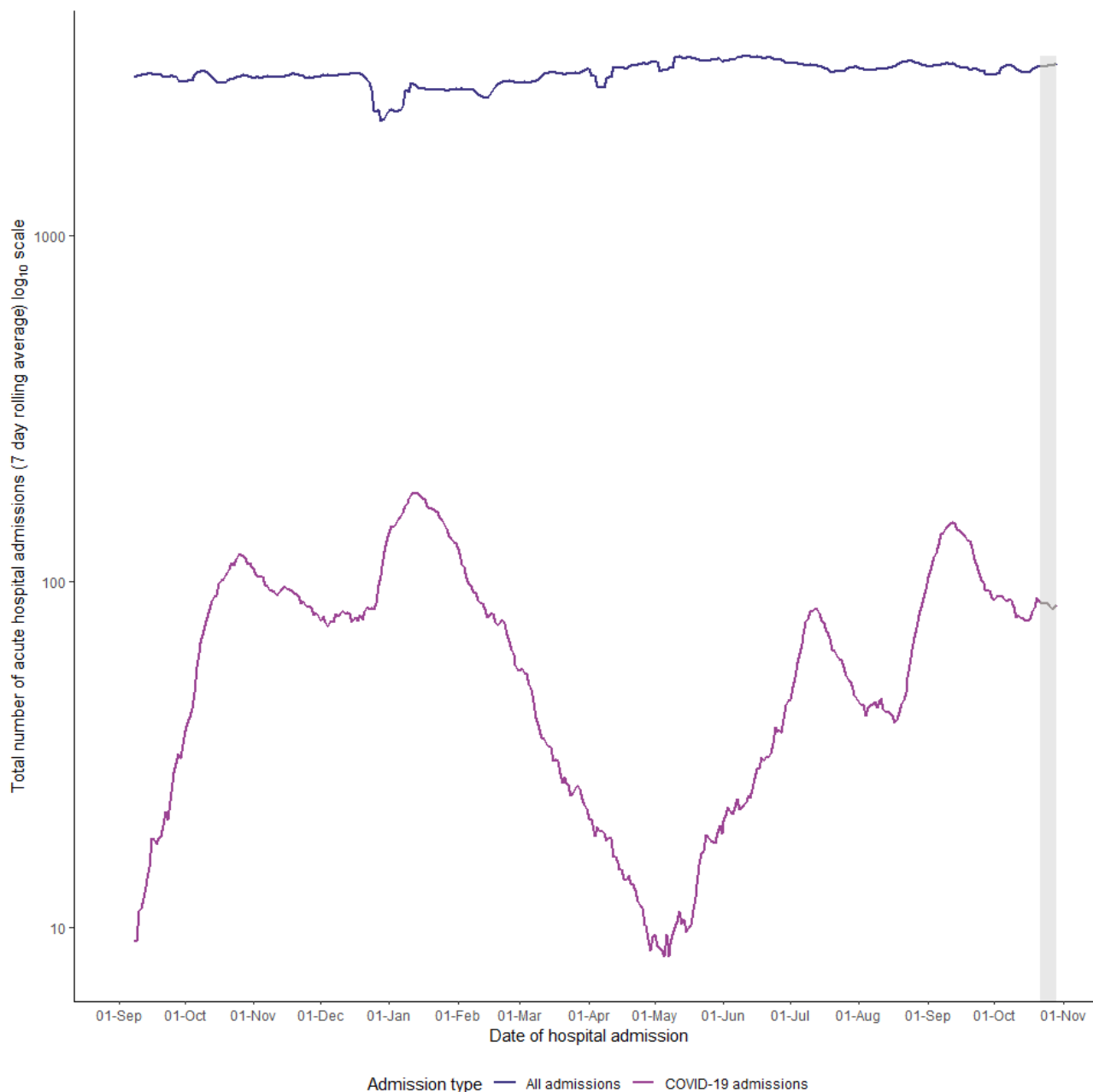
COVID-19 case rates are similar between females and males.

COVID-19 related acute hospital admissions by vaccine status

[A number of studies](#) have estimated vaccine effectiveness against hospitalisation and have found high levels of protection against hospitalisation with all vaccines against the Alpha variant. [A recent paper](#) observed effectiveness against hospitalisation of over 90% with the Delta variant with all three COVID-19 vaccines including AstraZeneca (Vaxzevria), Pfizer-BioNTech (Comirnaty), and Moderna (Spikevax). In most groups there is relatively limited waning of protection against hospitalisation over a period of at least five months after the second dose.

From 01 September 2020 to 29 October 2021, there were a total of 1,250,532 acute hospital admissions for any cause, of which 28,840 were associated with a COVID-19 PCR positive test 14 days prior, on admission, the day after admission or during their stay. Using the 90-day exclusion criteria between positive COVID-19 PCR tests associated with an acute hospital admission, 28,737 individuals were admitted to hospital, of which 94 were readmitted more than 90 days after their first admission.

Figure 15: Seven-day rolling average on a \log_{10} scale: acute hospital admissions where the individual had a COVID-19 positive PCR test 14 days prior, on admission or during their stay in hospital, compared to all acute hospital admissions, 01 September 2020 to 29 October 2021



Data displayed are on a \log_{10} scale. The data displayed within the greyed-out section (1 week) are considered preliminary and are subject to change as more data is updated.

In the last four weeks, from 02 October 2021 to 29 October 2021, the number of COVID-19 related hospital admissions have remained relatively stable. The number of COVID-19 related hospital admissions are small relative to all acute hospitalisations.

Table 19: Age-standardised rate of acute hospital admissions where an individual had a COVID-19 positive PCR test up to 14 days prior, on admission, or during their stay in hospital, by week and vaccination status, 02 October 2021 to 29 October 2021

Week/Vaccination Status	Unvaccinated		1 Dose		2 Doses	
	No. hospitalised	Age Standardised Hospitalisation Rate per 100,000 with 95% confidence intervals	No. hospitalised	Age Standardised Hospitalisation Rate per 100,000 with 95% confidence intervals	No. hospitalised	Age Standardised Hospitalisation Rate per 100,000 with 95% confidence intervals
02 October - 08 October 2021	161	19.07 (14.81 - 23.34)	21	19.22 (7.62 - 30.83)	441	8.71 (7.87 - 9.54)
09 October - 15 October 2021	118	15.49 (11.44 - 19.54)	16	11.01 (3.85 - 18.18)	402	7.89 (7.10 - 8.67)
16 October - 22 October 2021	131	19.69 (15.10 - 24.27)	22	13.90 (4.46 - 23.34)	449	8.76 (7.94 - 9.58)
23 October - 29 October 2021	142	20.12 (15.56 - 24.67)	16	10.46 (1.67 - 19.25)	439	8.44 (7.65 - 9.24)

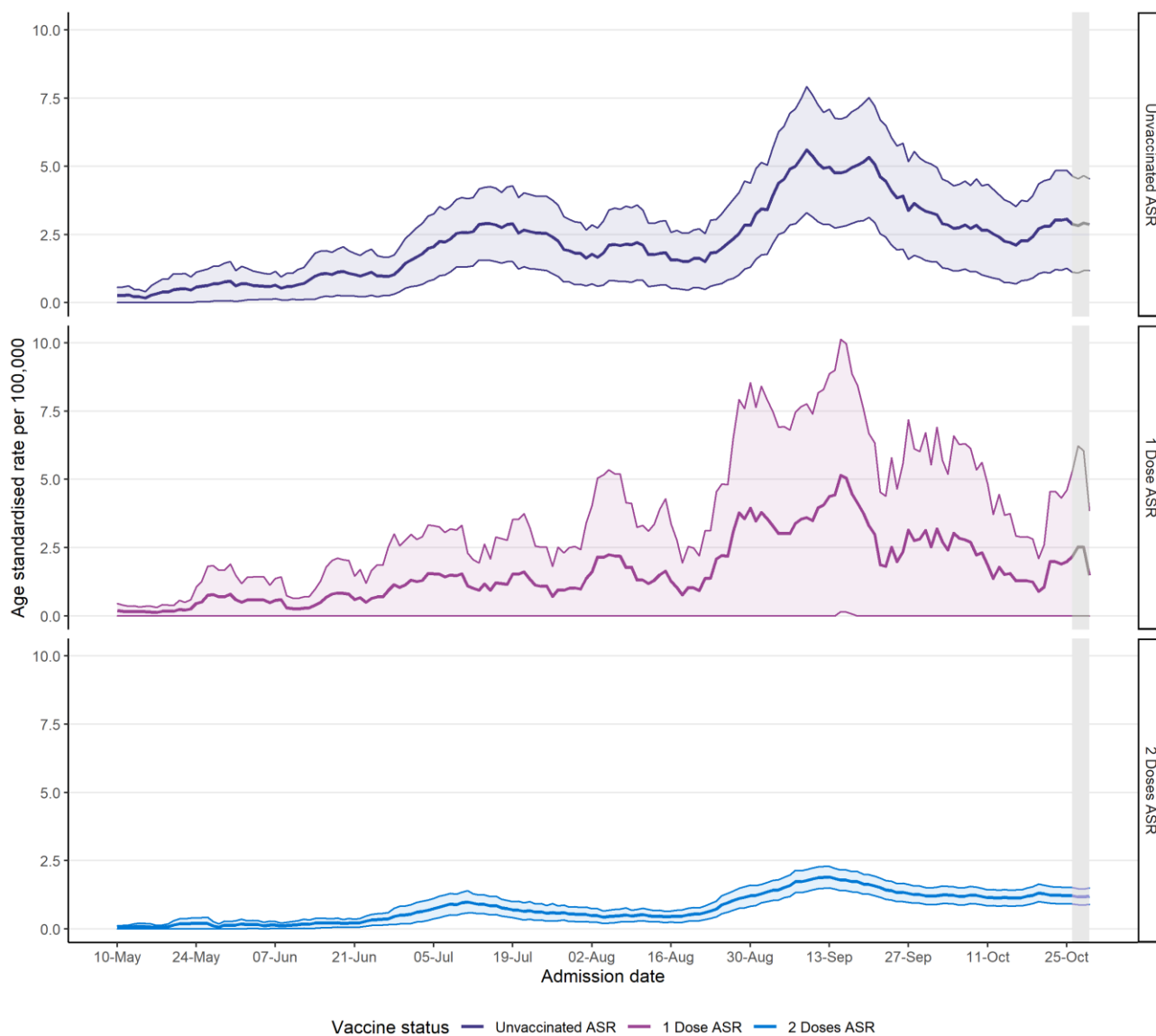
Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 9. The data displayed within the greyed-out section (1 week) are considered preliminary and are subject to change as more data is updated. Age-standardised hospitalisation rates are per 100,000 people per week, standardised to the 2013 European Standard Population (see Appendix 9).

On average, unvaccinated individuals are younger than individuals with two doses of COVID-19 vaccine. Older individuals are more likely to be hospitalised than younger individuals. To account for the different age distribution of individuals in each vaccine status, age-standardised hospitalisation rates are reported in Table 19 and Figure 16.

In the past four weeks, from 02 October to 29 October 2021, the age-standardised rate of hospital admissions per 100,000 were higher in unvaccinated individuals compared to vaccinated individuals. In the last week, individuals were 2.3 times more likely to be in hospital with COVID-19 if they were unvaccinated compared to individuals that had received two doses of vaccine.

Please note that these statistics do not differentiate between individuals in hospital with COVID-19 illness requiring hospitalisation compared to those in hospital for other reasons (e.g. routine operations) for whom COVID-19 was identified incidentally through testing but they are not requiring hospitalisation because of their COVID-19 symptoms.

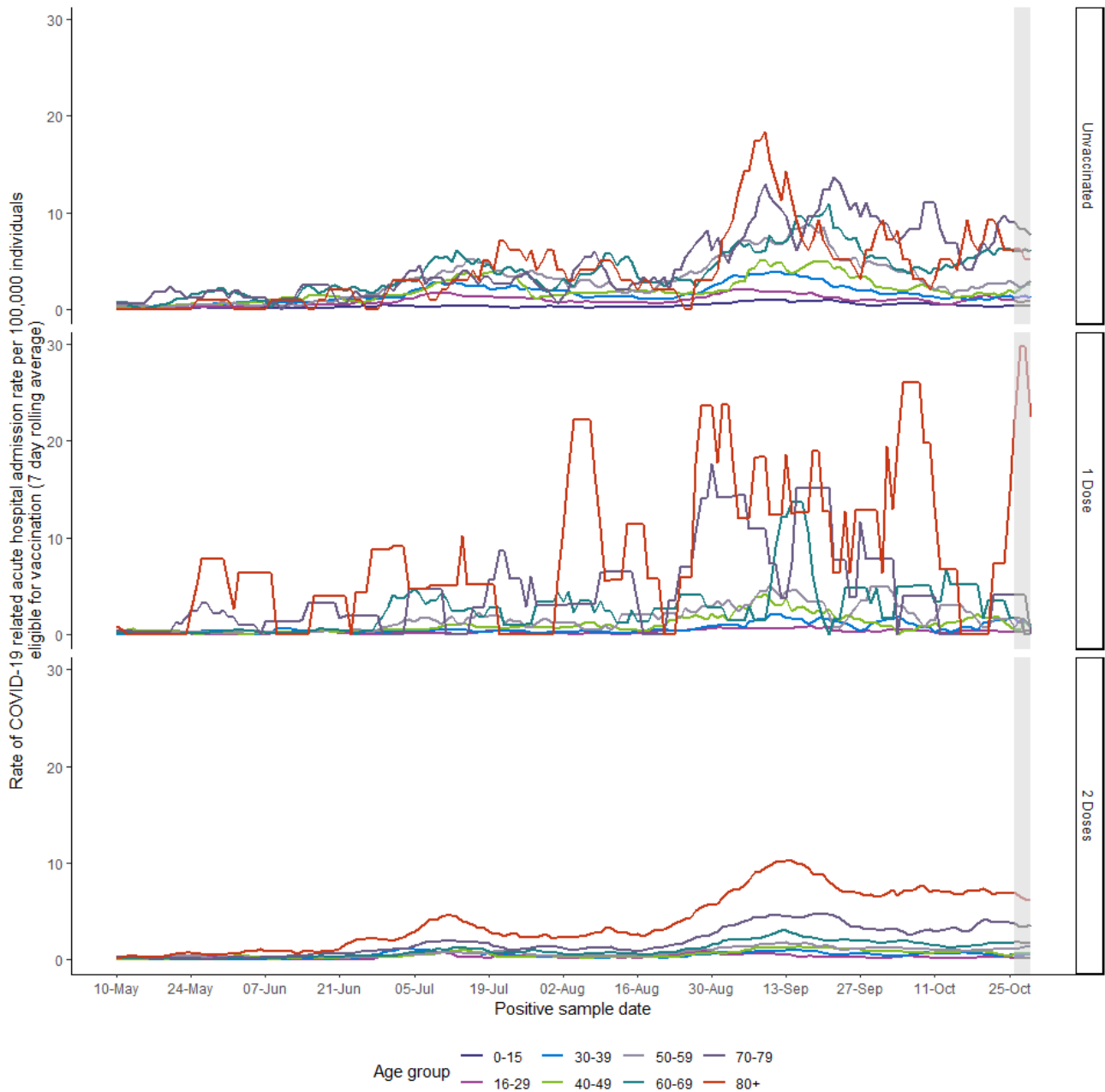
Figure 16: Age-standardised hospitalisation rate of acute hospital admissions where an individual had a COVID-19 positive PCR test up to 14 days prior, on admission, or during their stay in hospital, per 100,000 individuals eligible for COVID-19 vaccination by vaccination status, seven-day rolling average from 10 May 2021 to 29 October 2021



Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 9. The data displayed within the greyed-out section (1 week) are considered preliminary and are subject to change as more data is updated. 95% confidence intervals are shown as the shaded regions. Age-standardised hospitalisation rates are per 100,000 people per week, standardised to the 2013 European Standard Population (see Appendix 9).

Age standardised rates are calculated values by combining rates from different age groups relative to the European standard age distribution population. These calculations have associated 95% confidence intervals shown in the shaded areas of the figure. Smaller populations have wider associated confidence intervals (see 1 dose Age-standardised rate (ASR)) whereas larger populations have narrower associated confidence intervals (see 2 doses ASR).

Figure 17: Seven-day rolling average COVID-19 related acute hospital admissions by vaccination status and by age group, 10 May 2021 to 29 October 2021



Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 9. Patient age is determined as their age the date of admission. The data displayed within the greyed-out section (1 week) are considered preliminary and are subject to change as more data is updated.

Overall, individuals in the oldest age groups were most likely to be hospitalised.

In groups where a very large proportion of individuals have been vaccinated (such as individuals over age 80), any small changes in COVID-19 related acute hospital admissions will result in a larger change shown in the graph, for example in the over 80 partially vaccinated group. These changes tend to be more ‘step like’ and less smooth.

Confirmed COVID-19 deaths by vaccination status

COVID-19 vaccines are estimated to significantly reduce the risk of mortality for COVID-19, however a small number of COVID-19 deaths are still expected in vaccinated people, especially in vulnerable individuals where the vaccine or the immune response may not have been effective. Evidence has shown that vaccination is highly effective in protecting against death from coronavirus (COVID-19).

[Data published by UKHSA](#) have shown high levels of protection (over 90%) against mortality with all three COVID-19 vaccines including AstraZeneca (Vaxzevria), Pfizer-BioNTech (Comirnaty), and Moderna (Spikevax), and against both the Alpha and Delta variants for at least five months post-second dose of vaccine. [Research from Public Health Scotland, University of Edinburgh and University of Strathclyde](#), have shown two vaccine doses, whether the AstraZeneca (Vaxzevria) or the Pfizer-BioNTech (Comirnaty) vaccine, are over 90 per cent effective at preventing deaths from the Delta variant of COVID-19.

Findings from a [Scottish study](#), show that people who have received two doses of COVID-19 vaccine are far better protected against death from the virus than those who are unvaccinated. However, there are certain characteristics which can make people more vulnerable, including being aged 80 or over, having multiple underlying health conditions, and being male. [Results](#) show that adults aged 18-64 who are double vaccinated have almost four times increased protection against dying from COVID-19 compared to those who are unvaccinated. The figures are even more stark for those who are older, with double vaccinated adults aged 65-79 experiencing 15.5 times greater protection against death than their unvaccinated peers, and for adults over 80, this increased to 30 times higher.

From 29 December 2020 (21 days after the start of the vaccination programme in Scotland to account for protection to develop after the first dose) to 22 October 2021, there have been 4,836 confirmed COVID-19 related deaths with a positive PCR result and where COVID-19 was recorded as an underlying or contributory cause on the death certificate.

Of these, 71.5% (n = 3,457) were in unvaccinated individuals, 6.3% (n = 307) had received one dose of COVID-19 vaccine and 22.2% (n = 1,072) had received two doses. The risk of death from COVID-19 is strongly linked to age, with the most vulnerable being in the over 70s age group.

In Scotland, from the beginning of the COVID-19 vaccination programme, over 3.8 million individuals had been vaccinated with two doses of COVID-19 vaccine. Of these, 1,072 individuals (0.028%) tested positive by PCR for SARS-CoV-2 more than fourteen days after receiving their second dose of COVID-19 vaccine and subsequently died with COVID-19 recorded as underlying or contributory cause of death. These individuals had several comorbidities which contributed to their deaths. Of the confirmed COVID-19 related deaths, in individuals that have received two doses of COVID-19 vaccine, 78.9% were in the 70 and over age group.

To account for differences in population size and age of the vaccination status groups over time, age-standardised mortality rates were calculated for deaths where COVID-19 was listed as an underlying or contributory cause of death on the death certificate (Table 20).

Table 20: Number of confirmed COVID-19 related deaths by vaccination status at time of test and age-standardised mortality rate per 100,000, 25 September 2021 to 22 October 2021

Week/Vaccination Status	Unvaccinated		1 Dose		2 Doses	
	No. of deaths	Age Standardised Mortality Rate per 100,000 with 95% confidence intervals	No. of deaths	Age Standardised Mortality Rate per 100,000 with 95% confidence intervals	No. of deaths	Age Standardised Mortality Rate per 100,000 with 95% confidence intervals
25 September - 01 October 2021	22	6.59 (3.54 - 9.63)	4	9.04 (0.05 - 18.03)	114	2.23 (1.82 - 2.64)
02 October - 08 October 2021	19	5.05 (2.48 - 7.61)	0	0.00 (0.00 - 0.00)	106	2.10 (1.70 - 2.51)
09 October - 15 October 2021	15	5.03 (2.27 - 7.79)	4	9.22 (-0.05 - 18.48)	120	2.35 (1.93 - 2.77)
16 October - 22 October 2021	8	1.90 (0.44 - 3.36)	4	10.58 (0.17 - 21.00)	114	2.20 (1.79 - 2.60)

Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 9. A confirmed COVID-19 related death is defined as an individual who has tested positive by PCR for SARS-CoV-2 at any time point and has COVID-19 listed as an underlying or contributory cause of death on the death certificate. Age-standardised mortality rates per 100,000 people per week, standardised to the 2013 European Standard Population (see Appendix 9). This definition is for the purposes of evaluating the impact of the COVID-19 vaccine on confirmed COVID-19 deaths. The numbers reported in this section may differ from other published COVID-19 death data. Data are based on date of registration. In Scotland deaths must be registered within 8 days although in practice, the average time between death and registration is around 3 days. More information on days between occurrence and registration can be found on the NRS website.

In three of the last four weeks', age-standardised mortality rates for COVID-19 deaths shown in Table 20 are lower for people who have received two doses of a COVID-19 vaccine compared to individuals that are unvaccinated or have received one dose of a COVID-19 vaccine.

In the last week, age-standardised mortality rates for COVID-19 deaths are similar for people who have received two doses of a COVID-19 vaccine compared to individuals that are unvaccinated or have received one dose of a COVID-19 vaccine, however the confidence intervals for the unvaccinated age-standardised mortality rates are wide. In the last week, the mean age of unvaccinated individuals with a confirmed COVID-19 related death was 71.5 years old, whereas the mean age of individuals that received 2 doses of vaccine and had a confirmed COVID-19 related death was 77.5 years old.

Confirmed cases of COVID-19 in pregnancy

Data and commentary on confirmed cases of COVID-19 in pregnancy was included in the Public Health Scotland COVID-19 Statistical Report published on [6 October 2021](#). This report provides updated data on this topic, covering cases of COVID-19 in pregnancy occurring up to the end of September 2021.

This report also includes a separate section on [COVID-19 vaccination in pregnancy](#).

How have we identified confirmed cases of COVID-19 in pregnancy for this report?

To identify women with confirmed COVID-19 in pregnancy, we have linked national SARS-CoV-2 viral PCR testing data to the COVID-19 in Pregnancy in Scotland (COPS) pregnancy database.

Information on the COPS study is available on the study [website](#), in the [COVID-19 vaccination in pregnancy](#) section of this report, and in previous versions of this report published on [14 July 2021](#), [1 September 2021](#), and [6 October 2021](#).

In brief, the COPS study database includes a record of all pregnancies in Scotland where the woman was pregnant (at any stage of pregnancy) on 1 March 2020 (the start of the COVID-19 pandemic), or has subsequently become pregnant. The study database is refreshed every month with new pregnancies added, and previous records of ongoing pregnancies updated as required, for example if a woman has recently delivered her baby.

Whilst this gives us the most up to date information possible on pregnancies in Scotland, there is some unavoidable lag in the data. We can be fairly confident that events (new pregnancies starting and ongoing pregnancies ending) that occurred three months or more before each month's data refresh will be included in the study database. Some more recent events will also be included, but this very recent data will be incomplete.

SARS-CoV-2 viral PCR testing data comes from the [national COVID-19 testing database](#) held by Public Health Scotland. This database includes information on all SARS-CoV-2 viral PCR tests processed through NHS Scotland laboratories and UK Government Regional Testing Centre laboratories since the beginning of the pandemic (including samples from drive through and mobile testing centres and home self-test kits). Testing data within the national database is updated on a daily basis.

The Community Health Index (CHI) number is the unique patient identifier used on all health records within Scotland. The CHI number has been used to link the viral PCR testing data to the pregnancy records within the COPS study database: linkage therefore depends on both the testing and the pregnancy records including complete and accurate information on individuals' CHI number. Overall, 99.0% of all the viral PCR samples taken from the start of the COVID-19 pandemic to late-September 2021 have an associated CHI number.

As at mid-October 2021, the COPS database included a total of 140,037 pregnancies among 127,650 women: 139,136 (99.4%) of these pregnancy records (and 126,749, 99.3% of the women) have an associated CHI number. Pregnancy records with no associated CHI number are likely to relate to pregnancies that are already included with an associated CHI number in

the study database. For that reason, only pregnancy records with an associated CHI number have been included in the analyses presented in this report.

For this report, a confirmed case of COVID-19 has been identified by a positive SARS-CoV-2 viral PCR test result. Lateral flow test results have not been considered. Anyone having a positive lateral flow test should have a follow up PCR test to confirm COVID-19.

For any individual, the date that their first positive viral PCR sample was collected has been taken as the date of onset of their first episode of COVID-19. As individuals with COVID-19 may have multiple positive viral PCR tests, to avoid double counting of cases, subsequent positive viral PCR samples taken <90 days after a first positive sample have been discounted. To allow for the possibility of re-infection, if an individual has a positive viral PCR sample taken ≥90 days after a first positive sample, this has been taken as the date of onset of their second episode of COVID-19, with the clock then reset as for the first episode, and so on.

Confirmed cases of COVID-19 have been identified as occurring in pregnancy if the date of onset of the episode of COVID-19 occurred at any point from the date of conception to the date the pregnancy ended, inclusive. The date of conception is at 2⁺⁰ weeks gestation, as gestation is traditionally counted as starting from the first day of the woman's last period before her pregnancy. To minimise the chance that we have identified a case of COVID-19 as occurring 'in pregnancy' when it actually occurred after a pregnancy has ended, we have discounted any cases with date of onset at 44⁺⁰ weeks gestation or over. It is very likely that these women have completed their pregnancy, but the end of pregnancy record has not yet been received by PHS.

How complete is ascertainment of COVID-19 infection in pregnancy?

As identification of confirmed cases of COVID-19 in pregnancy depends on SARS-CoV-2 viral PCR test results, the proportion of all COVID-19 infections that have been detected as a confirmed case will depend on the availability, take up, and accuracy of testing. In general, the more tests that are done, the higher the chance that any infected individual will be identified as a confirmed case.

The availability of testing has changed over the course of the pandemic in Scotland. Information was provided on this in the previous version of this report published on [6 October 2021](#). Of particular note, until mid-May 2020, testing was [restricted](#) to individuals ill enough to require admission to hospital for possible COVID-19, and health and social care workers and their household contacts. Routine testing for [all individuals admitted to hospital](#), including [women admitted to maternity units](#), was introduced from December 2020.

How have we identified the hospital and critical care admission status of women with confirmed COVID-19 in pregnancy?

We have linked national hospital discharge records to the pregnancy and viral PCR testing data to identify women who were admitted to hospital around the date of onset of their

COVID-19. Admissions to general acute units ([SMR01](#) records) and maternity units ([SMR02](#) records) have both been included. An episode of COVID-19 has been defined as associated with a hospital admission if the woman was admitted to hospital ≤ 14 days after the date of onset of COVID-19, or if the date of onset occurred at any point during a hospital admission.

We have also linked national critical care discharge ([SICSAG](#)) records to the pregnancy and viral PCR testing data to identify women who were admitted to critical care around the date of onset of their COVID-19. Completed admissions to all intensive care units (ICUs) and general (non-obstetric) high dependency units (HDUs) across Scotland have been included. Completed admissions to the 7 obstetric HDUs that contribute data to SICSAG (collectively covering around 60% of deliveries in Scotland) have also been included. An episode of COVID-19 has been defined as associated with a critical care admission if the woman was admitted to critical care ≤ 21 days after the date of onset of COVID-19, or if the date of onset occurred at any point during a critical care admission.

SICSAG released a report on admissions to critical care due to COVID-19 on [13 October 2021](#). This report includes a section on women admitted to critical care due to COVID-19 during pregnancy or in the 6 weeks following the end of a pregnancy. The data in the SICSAG report cannot be directly compared to the data in this report due to differences in the methods used. In particular, the SICSAG report:

- Identifies pregnant and recently pregnant women from information recorded in their critical care record, rather than linkage to pregnancy records
- Includes admissions up to 19 September 2021 (including admissions that were ongoing at that time)
- Includes admissions to all ICUs and general HDUs in Scotland, but admissions to obstetric HDUs are not included.

If a woman has an episode of COVID-19 with an associated (general or critical care) admission, it cannot be assumed that the admission was due to the COVID-19. The woman may have had COVID-19 then a subsequent unrelated admission, for example for delivery of her baby or for an injury. Alternatively, a woman may be incidentally found to have COVID-19 following routine testing on admission for an unrelated reason.

How have we identified the vaccination status of women with confirmed COVID-19 in pregnancy?

We have linked national vaccination records to the pregnancy and viral PCR testing data to identify the vaccination status of women at the date of onset of their COVID-19. Vaccination status has been defined as:

- Unvaccinated for women with no COVID-19 vaccination prior to the date of onset of COVID-19, or with one dose of vaccination ≤ 21 days prior to the date of onset
- Partially vaccinated for women with one dose of vaccination > 21 days prior to the date of onset of COVID-19, or two doses of vaccination with the second dose ≤ 14 days prior to the date of onset

- Fully vaccinated for women with two doses of vaccination with the second dose >14 days prior to the date of onset of COVID-19.

Only first and second primary doses of COVID-19 vaccination are included in this analysis: third primary doses and booster doses are not currently considered.

Number of confirmed cases of COVID-19 in pregnancy

For this publication, we have used the COPS database as updated in mid-October 2021 linked to records of SARS-CoV-2 viral PCR testing results for samples taken on up to and including 30 September 2021.

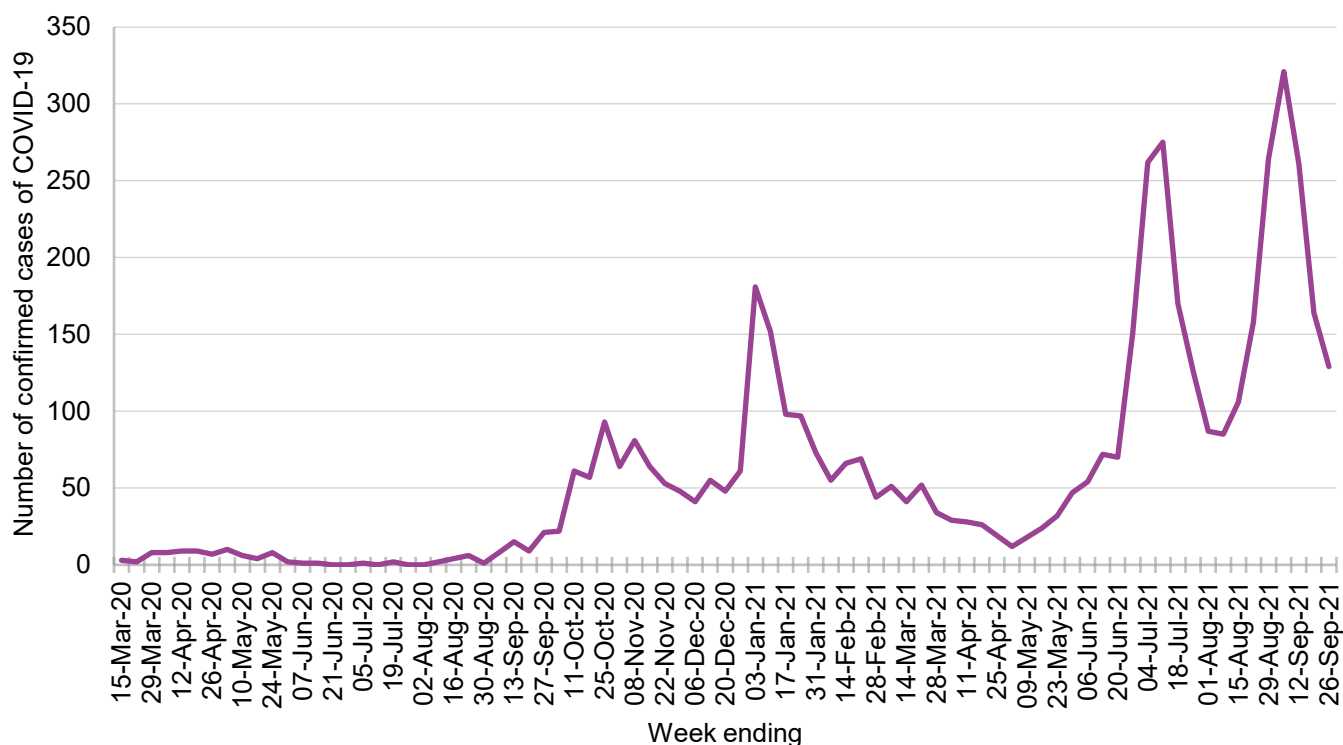
As at mid-October 2021, the COPS database included 139,136 pregnancies in 126,749 women in Scotland from the start of the COVID-19 pandemic on 1 March 2020 onwards. Among these, we have identified a total of 4,979 confirmed cases of COVID-19 in pregnancy with date of onset from 1 March 2020 up to 30 September 2021, in 4,969 pregnancies in 4,969 women.

As noted above, the COPS pregnancy database will be incomplete for recent months, hence these figures are provisional. Updated figures will be published every month, and we expect figures to change over time. Change will occur both as recent pregnancies are added to the COPS database (and hence more cases are identified as happening in early pregnancy) and end of pregnancy records are added to the database (and hence some cases that we initially thought occurred in pregnancy are subsequently identified as occurring after pregnancy).

Detailed data is provided in a supporting Excel file that accompanies this publication, and is also available through the [Scottish Health and Social Care Open data platform](#).

The number of confirmed cases of COVID-19 in pregnancy has varied over time, reflecting sequential waves of infection in the general population and also increasing access to testing (and hence more complete ascertainment of cases) over time. Small numbers of confirmed cases of COVID-19 in pregnant women were seen in the first wave of infection in March to May 2020. Subsequent peaks in case numbers were seen in October 2020 and January 2021. More recent peaks were seen in July and September 2021.

Figure 18: Weekly number of confirmed cases of COVID-19 in pregnancy, March 2020 to September 2021, Scotland



Of the 4,979 total confirmed cases of COVID-19 in pregnancy, 1,592 (32%) occurred (i.e. had date of onset) in the first trimester of pregnancy (at 2⁺⁰ to 13⁺⁶ weeks gestation); 1,875 (38%) occurred in the second trimester (at 14⁺⁰ to 27⁺⁶ weeks gestation); and 1,512 (30%) occurred in the third trimester (at 28⁺⁰ weeks gestation or over).

Overall, 733 (15%) of the 4,979 total cases were associated with a hospital admission, and 99 (2%) were associated with a critical care admission. Cases occurring later in pregnancy were more likely to be associated with a hospital or critical care admission. This is likely to reflect the fact that admission is generally more common in later pregnancy, and also that COVID-19 is more likely to cause severe disease in later pregnancy.

Confirmed cases of COVID-19 occurring in pregnancy are more likely to be associated with a hospital or critical care admission than cases occurring in the general female population. For example, over the course of the pandemic to date, around 2% of all cases occurring in females aged 18 to 44 years have been associated with a hospital admission, and 0.2% have been associated with a critical care admission (general population comparator data available on request). This is likely to reflect the fact that admission is generally more common among pregnant than non-pregnant women, and also that COVID-19 is more likely to cause severe disease in pregnant than non-pregnant women.

Of the 4,274 confirmed cases of COVID-19 in pregnancy occurring in December 2020 (the month the COVID-19 vaccination programme started in Scotland) to September 2021

inclusive, 3,491 (82%) have occurred in unvaccinated women, 461 (11%) in partially vaccinated women, and 322 (8%) in fully vaccinated women.

Cases occurring in unvaccinated women were more likely to be associated with a hospital or critical care admission, than those occurring in partially or fully vaccinated women. Among the 89 confirmed cases of COVID-19 in pregnancy occurring in December 2020 to September 2021 inclusive that were associated with a critical care admission, 88 occurred in unvaccinated women, 1 in partially vaccinated women, and 0 in fully vaccinated women.

The available COVID-19 vaccines are highly effective, however, no vaccine prevents 100% of infections. As the vaccination programme is rolled out, and an increasing proportion of the population is vaccinated, it is therefore inevitable that an increasing proportion of infections will occur in vaccinated individuals. This trend is evident when looking at confirmed cases in pregnant women. However, the proportion of confirmed cases in pregnant women in September 2021 that occurred in fully vaccinated individuals was much lower than the proportion for the general population over the same time period (see section on COVID-19 cases, acute hospitalisations, and deaths by vaccine status in the 6 October 2021 version of this report for information on the general population). This is likely to reflect that fact that vaccination coverage is relatively low in pregnant women (see section on COVID-19 vaccination in pregnancy in this report), and that the available COVID-19 vaccines remain effective at preventing infection and serious illness in pregnant women.

Rate of confirmed COVID-19 in pregnancy

Based on the mid-October 2021 refresh of the COPS database, 33,359 women in Scotland had an ongoing pregnancy at the start of September 2021 and 847 (2,539 per 100,000) women had confirmed COVID-19 in pregnancy during September 2021.

In the most recent peaks of infection seen in July and September 2021, the rate of confirmed COVID-19 in pregnancy was higher in younger, compared to older, women. This was also the case in the 'second wave' peaks of infection seen in late 2020/early 2021.

In the most recent peaks of infection seen in July and September 2021, the rate of confirmed COVID-19 in pregnancy was higher in women living in more, compared to less, deprived areas of Scotland. This was also the case in the 'second wave' peaks of infection seen in late 2020/early 2021. Some of this pattern will reflect the fact that pregnant women living in more deprived areas are on average younger than those living in less deprived areas.

For the duration of the pandemic to date, the monthly rates of confirmed COVID-19 seen in pregnant women have been similar to those seen for the same age and deprivation groups in the general female population (i.e. for all women, including pregnant and non-pregnant women) (comparator data available on request).

Data on COVID-19 infection in pregnancy from other UK nations

No data on confirmed cases of COVID-19 in pregnancy is currently available for England, Wales, or Northern Ireland.

Information is not routinely published on pregnant women in hospital with COVID-19 who have been reported to UKOSS, however a number of [research papers](#) based on the reported data are publicly available.

COVID-19 vaccination in pregnancy

Data and commentary on COVID-19 vaccination in pregnancy is included in the Public Health Scotland COVID-19 Statistical Reports published on [14 July 2021](#), [1 September 2021](#), and [6 October 2021](#). This report provides updated data on this topic, covering vaccinations given in pregnancy up to the end of September 2021.

This report also includes a separate section on [Confirmed cases of COVID-19 in pregnancy](#).

Advice for women on COVID-19 vaccination in pregnancy

The Royal College of Obstetricians and Gynaecologists and the Royal College of Midwives [recommend](#) that pregnant women receive their COVID-19 vaccination when it is offered to their age/risk group. Information for patients on COVID-19 vaccination in pregnancy is available on [NHS inform](#) and from the [RCOG](#).

How have we identified COVID-19 vaccinations given to pregnant women for this report?

Public Health Scotland and the University of Edinburgh are leading the [COVID-19 in Pregnancy in Scotland](#) (COPS) study.

As part of the study, we are regularly linking together a wide range of health records to identify women who are, or recently have been, pregnant. Using these records, we have identified all pregnancies in Scotland where the woman was pregnant (at any stage of pregnancy) on 1 March 2020 (the start of the COVID-19 pandemic), or has subsequently become pregnant. The study database is refreshed every month with new pregnancies added, and previous records of ongoing pregnancies updated as required, for example if a woman has recently delivered her baby.

Whilst this gives us the most up to date information possible on pregnancies in Scotland, there is some unavoidable lag in the data. We can be fairly confident that events (new pregnancies starting and ongoing pregnancies ending) that occurred three months or more before each month's data refresh will be included in the study database. Some more recent events will also be included, but this very recent data will be incomplete.

To identify women vaccinated against COVID-19 in pregnancy, we have linked national [vaccination data](#) to the COPS pregnancy database. Only first and second primary doses of vaccination have been included. From September 2021 onwards, third primary doses and booster doses of vaccination have also been offered to eligible individuals in line with [JCVI guidance](#), however these additional doses are not included in this report.

The Community Health Index (CHI) number is the unique patient identifier used on all health records within Scotland. The CHI number has been used to link the vaccination data to the pregnancy records: linkage therefore depends on both the vaccination and the pregnancy records including complete and accurate information on individuals' CHI number. Overall, 99.7% of all records for vaccinations given from the start of the programme to 30 September 2021 have an associated CHI number. The proportion of vaccination records with missing

CHI number has increased slightly from mid-June 2021, from a very low rate up to around 2%. The increase in vaccination records with missing CHI number probably reflects increasing use of drop in vaccination clinics, and roll out of vaccination to younger adults including groups such as students who may change address frequently, making their CHI number harder to identify.

As at mid-October 2021, the COPS database included a total of 140,037 pregnancies among 127,650 women: 139,136 (99.4%) of these pregnancy records (and 126,749, 99.3% of the women) have an associated CHI number. Pregnancy records with no associated CHI number are likely to relate to pregnancies that are already included with an associated CHI number in the study database. For that reason, only pregnancy records with an associated CHI number have been included in the analyses presented in this report.

We have defined vaccinations given in pregnancy as those given at any point from the date of conception to the date the pregnancy ends, inclusive. The date of conception is at 2⁺⁰ weeks gestation, as gestation is traditionally counted as starting from the first day of the woman's last period before her pregnancy. To minimise the chance that we have identified a vaccination as occurring 'in pregnancy' when it actually occurred after a pregnancy has ended, we have discounted any vaccinations that were showing as delivered at 44⁺⁰ weeks gestation or over. It is very likely that these women have completed their pregnancy, but the end of pregnancy record has not yet been received by PHS.

Further information about how the vaccination in pregnancy data has been produced is available in our first report published on [14 July 2021](#).

Number of COVID-19 vaccinations given to pregnant women

For this publication, we have used the COPS database as updated in mid-October 2021 linked to records of vaccinations delivered on up to and including 30 September 2021.

We have identified a total of 22,779 COVID-19 vaccinations given to 16,229 pregnant women in Scotland from the start of the COVID-19 vaccination programme on 8 December 2020 to 30 September 2021.

As noted above, the COPS database of pregnant women will be incomplete for recent months, hence these figures are provisional. Updated figures will be published every month, and we expect figures to change over time. Change will occur both as recent pregnancies are added to the COPS database (and hence more vaccinations are identified as happening in early pregnancy) and end of pregnancy records are added to the database (and hence some vaccinations that we initially thought were given in pregnancy are subsequently identified as given after pregnancy).

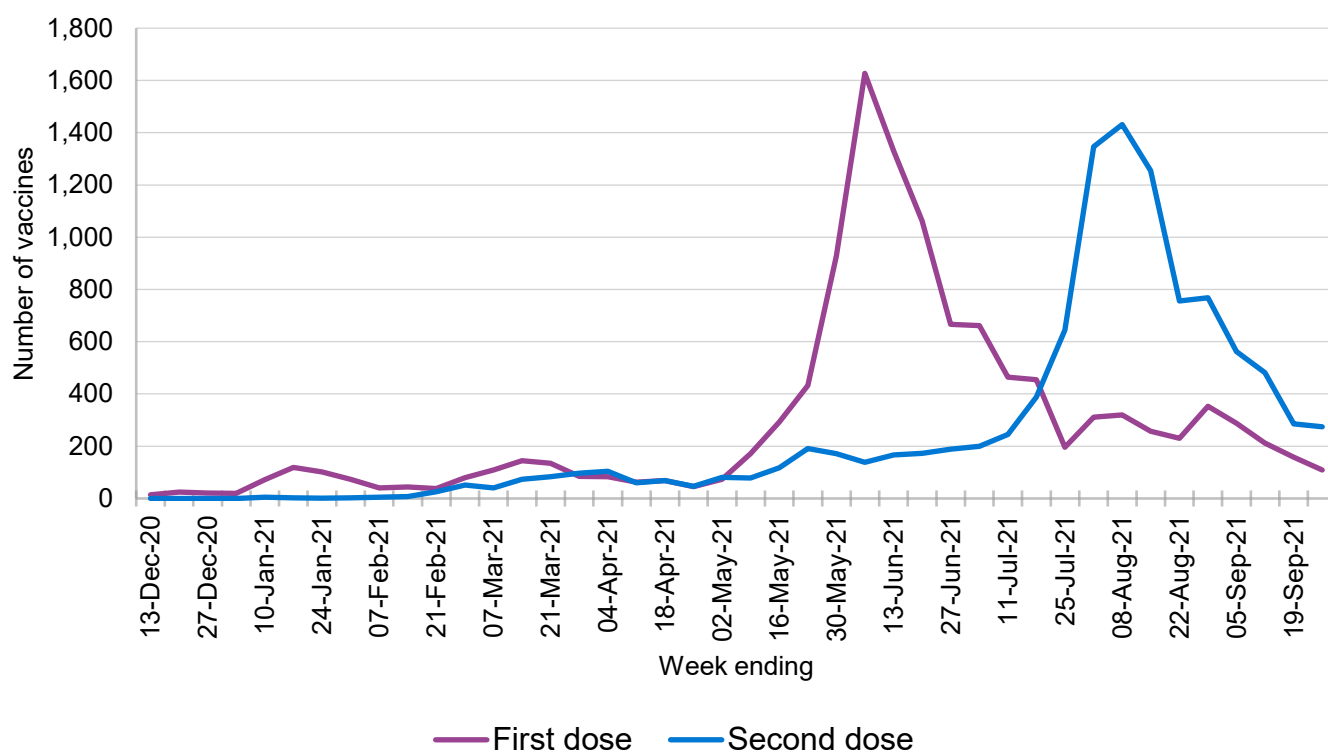
Detailed data is provided in a supporting Excel file that accompanies this publication, and is also available through the [Scottish Health and Social Care Open data platform](#).

Of the 22,779 total vaccinations given in pregnancy, 12,030 (53%) were first doses and 10,749 (47%) were second doses. 8,945 (39%) vaccinations were given in the first trimester of pregnancy (at 2⁺⁰ to 13⁺⁶ weeks gestation); 8,030 (35%) were given in the second

trimester (at 14⁺⁰ to 27⁺⁶ weeks gestation); and 5,804 (25%) were given in the third trimester (at 28⁺⁰ weeks gestation or over). 17,841 (78%) of the vaccinations given were Pfizer/BioNTech; 2,853 (13%) were Moderna; and 2,085 (9%) were Oxford/AstraZeneca.

The number of first dose vaccinations given in pregnancy started to increase from mid-May 2021 and peaked in early June 2021. The number of second dose vaccinations given in pregnancy started to increase from mid-July 2021 and peaked in early August 2021, as would be expected given the recommended gap between first and second doses. This time trend is similar to that seen for delivery of vaccinations to the general (non-pregnant) population of younger adult age groups (18 to 39 years).

Figure 19: Number of COVID-19 vaccines given in pregnancy by dose, Scotland



Uptake and coverage of COVID-19 vaccination among pregnant women

Based on the mid-October 2021 refresh of the COPS database, 33,359 women in Scotland had an ongoing pregnancy at the start of September 2021, and 2,315 (7%) women received any COVID-19 vaccination during pregnancy in September 2021.

The percentage of pregnant women receiving a vaccine in each month ('monthly uptake') showed an initial peak in June 2021 then a second peak in August 2021, reflecting the provision of first and second doses of vaccination.

The monthly uptake of vaccination has been higher for pregnant women in older, compared to younger, age groups. In addition, the peaks in monthly uptake were seen earlier for older women (in May and July 2021 for women aged ≥ 40 years) than younger women (in June and

August 2021). This pattern reflects the fact that vaccination was rolled out to older age groups before younger groups.

The monthly uptake of vaccination among pregnant women has been consistently lower than the uptake among the general female population in the same age groups. For example, monthly uptake among pregnant women aged 35-39 years showed a peak in June 2021 at 19%. Monthly uptake among the general female population aged 35-39 years also showed a peak in June 2021, but at the higher figures of 33% (general population comparator data available on request).

Since the monthly uptake of vaccination started to increase from May 2021, uptake rates have consistently been much higher in women living in the least, compared to the most, deprived areas of Scotland. Some of this pattern will reflect the fact that pregnant women living in less deprived areas are on average older than those living in more deprived areas.

3,992 women delivered their baby (or babies in the case of a multiple pregnancy) in September 2021. 1,342 (34%) of the women delivering in September 2021 had received any COVID-19 vaccination at any stage prior to delivery, with 946 (24%) of the women having received two doses of vaccination.

As would be expected, the percentage of women delivering their baby in each month who have been vaccinated before the date of delivery ('coverage of vaccination prior to delivery') has increased over time.

To date, the coverage of vaccination prior to delivery has been much higher in women from older, compared to younger, age groups. This will reflect the fact that in general older women were offered vaccination before younger women (so older women have had a longer time prior to delivery in which to get vaccinated), and also that uptake has been higher in older compared to younger groups.

Coverage of vaccination prior to delivery has consistently been much higher in women living in the least, compared to the most, deprived areas of Scotland. Some of this pattern will reflect the fact that pregnant women living in less deprived areas are on average older than those living in more deprived areas.

Vaccination coverage has consistently been much lower among women delivering their babies than among the general female population in the same age groups. For example, 46% (313 / 682) of women aged 35-39 who delivered their baby in September 2021 had received any COVID-19 vaccination by the time of delivery, with 36% (248 / 682) having received two doses. By contrast, by the end of September 2021, 87% of women aged 35-39 years in the general population had received any vaccination, and 81% had received two doses (general population comparator data available on request).

Data on COVID-19 vaccination in pregnancy from other UK nations

Public Health England publishes data on COVID-19 vaccinations delivered to pregnant women in England in their weekly [COVID-19 vaccine surveillance reports](#). As at 31 August 2021, 81,532 women aged less than 50 years who had received a COVID-19 vaccination in England had stated that they were, or could be, pregnant at the time of vaccination, and of these 65,579 had received their second dose. This data is based on women's responses to the pre-screening question "Are you or could you be pregnant?" which is asked prior to vaccination, rather than linkage of vaccination and pregnancy data, hence is not directly comparable to the data reported here for Scotland.

No data on COVID-19 vaccination in pregnancy is currently available for Wales or Northern Ireland.

COVID-19 across the NHS

Charts for a number of measures related to COVID-19 service use in the NHS were presented in the report up until 15 July 2020. Up to date data for these measures are available to view in our [interactive dashboard](#).

This includes:

- Number of positive confirmed cases per day and cumulative total
- Positive cases by age, sex and SIMD
- COVID-19 admissions to hospital
- COVID-19 patients admitted to ICU
- COVID19 Hub and Assessment Consultations
- COVID-19 related contacts to NHS 24 and calls to Coronavirus helpline
- SAS (Scottish Ambulance Service) Incidents related to COVID-19

Wider Impact of COVID-19

The COVID-19 pandemic has direct impacts on health as a result of illness, hospitalisations and deaths due to COVID-19. However, the pandemic also has wider impacts on health, healthcare, and health inequalities. Reasons for this may include:

- Individuals being reluctant to use health services because they do not want to burden the NHS or are anxious about the risk of infection.
- The health service delaying preventative and non-urgent care such as some screening services and planned surgery.
- Other indirect effects of interventions to control COVID-19, such as changes to employment and income, changes in access to education, social isolation, family violence and abuse, changes in the accessibility and use of food, alcohol, drugs and gambling, or changes in physical activity and transport patterns.

More detailed background information on these potential impacts is provided by the Scottish Public Health Observatory in a section on [Covid-19 wider impacts](#).

The surveillance work stream of the Public Health Scotland social and systems recovery cell aims to provide information and intelligence on the wider impacts of COVID-19 on health, healthcare, and health inequalities that are not directly due to COVID-19. The [wider impact dashboard](#) can be viewed online and includes the following topics:

- Hospital and unscheduled care
- Healthcare for cardiovascular disease
- Healthcare for mental health
- New cancer diagnoses
- Uptake of pre-school immunisations
- Coverage of health visitor child health reviews
- Infant feeding
- Child development
- Women booking for antenatal care
- Terminations of pregnancy
- Births and babies
- Excess deaths

These analyses are based on a selected range of data sources that are available to describe changes in health service use in Scotland during the COVID-19 pandemic. More detailed information is available at NHS Board and Health and Social Care Partnership (HSCP) level.

Weekly National Seasonal Respiratory Report

Since 14 October 2020 Public Health Scotland has also published a weekly report on epidemiological information on seasonal influenza activity in Scotland. Due to COVID health care services are functioning differently now compared to previous flu seasons so the consultation rates are not directly comparable to historical data.

This is available to view here:

[Weekly national seasonal respiratory report - Week 42 2021 - Weekly national seasonal respiratory report - Publications - Public Health Scotland](#)

Surveillance of influenza infection is a key public health activity as it is associated with significant morbidity and mortality during the winter months, particularly in those at risk of complications of flu e.g. the elderly, those with chronic health problems and pregnant women.

The spectrum of influenza illness varies from asymptomatic illness to mild/moderate symptoms to severe complications including death. In light of the spectrum of influenza illness there is a need to have individual surveillance components which provide information on each aspect of the illness. There is no single flu surveillance component that can describe the onset, severity and impact of influenza or the success of its control measures each season across a community. To do so requires a number of complimentary surveillance components which are either specific to influenza or its control, or which are derived from data streams providing information of utility for other HPS specialities (corporate surveillance data). Together, the influenza surveillance components provide a comprehensive and coherent picture on a timely basis throughout the flu season. Please see the [influenza page on the HPS website](#) for more details.

Scottish Intensive Care Society COVID-19 Report

The 8th report from the Scottish Intensive Care Society Audit Group (SICSAG) relating to patients admitted to intensive care units and high dependency units across Scotland with laboratory confirmed Covid 19, was published on the 13th October 2021 and available to view here:

<https://www.sicsag.scot.nhs.uk/publications/main.htm>

Contact

Public Health Scotland

phs.covid19data&analytics@phs.scot

Further Information

COVID surveillance in Scotland

[Scottish Government](#)

[Daily Dashboard by Public Health Scotland](#) [National Records of Scotland](#)

UK and international COVID reports

[Public Health England](#)

[European Centre for Disease Prevention and Control](#)

[WHO](#)

The next release of this publication will be 10 November 2021.

Open data

Data from this publication is available to download from the [Scottish Health and Social Care Open Data Portal](#).

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Appendices

Appendix 1 – Background information

In late December 2019, the People’s Republic of China reported an outbreak of pneumonia due to unknown cause in Wuhan City, Hubei Province.

In early January 2020, the cause of the outbreak was identified as a new coronavirus. While early cases were likely infected by an animal source in a ‘wet market’ in Wuhan, ongoing human-to-human transmission is now occurring.

There are a number of coronaviruses that are transmitted from human-to-human which are not of public health concern. However, COVID-19 can cause respiratory illness of varying severity.

On the 30 January 2020 the World Health Organization [declared that the outbreak constitutes a Public Health Emergency of International Concern](#).

Extensive measures have been implemented across many countries to slow the spread of COVID-19.

Further information for the public on COVID-19 can be found on [NHS Inform](#).

Appendix 2 – World Health Organisation (WHO): Contact tracing in the context of COVID-19

The WHO initially produced guidance on “*enhanced criteria to adjust public health and social measures in the context of Covid-19*” in May 2020. The relevant extract from the criteria about the effectiveness of contact tracing within the context of public health surveillance at that time was:

At least 80% of new cases have their close contacts traced and in quarantine within 72 hours of case confirmation	These indicate that the capacity to conduct contact tracing is sufficient for the number of cases and contacts
-------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------

Source: <https://apps.who.int/iris/rest/bitstreams/1277773/retrieve>

In response to questions about whether the Scottish Government had been incorrectly comparing Scottish performance with the WHO “standard” (on the basis that counting in Scotland might start at the wrong point in the process), an assessment was undertaken at the start of 2020, and is available within Appendix 2 of the [Weekly Covid-19 Statistical report \(publication date 27 January 2021\)](#).

Please note this “standard” has subsequently been replaced with further [WHO guidance issued in February 2021](#), reflecting the evolution of the state of the pandemic. This revised guidance now focuses on targeted approaches to contact tracing based on transmission patterns, engaging communities, and prioritising follow-up of high risk cases when it is not possible to identify, monitor and quarantine all contacts.

Appendix 3 – Hospital Admissions Notes

Hospital Admissions

RAPID(Rapid and Preliminary Inpatient Data)

COVID-19 related admissions have been identified as the following: A patient’s first positive PCR test for COVID 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 PCR test is after their date of discharge from hospital, they are not included in the analysis.

In the data presented here, an admission is defined as a period of stay in a single hospital. There may be multiple admissions for a single patient if they have moved between locations during a continuous inpatient stay (CIS), or if they have been admitted to hospital on separate occasions.

RAPID is a daily submission of people who have been admitted and discharged to hospital. Figures

are subject to change as hospital records are updated. It can take 6-8 weeks or longer before a record is finalised, particularly discharge details.

Hospital Inpatients (Scottish Government Data)

Number of patients in hospital with recently confirmed COVID-19

This measure (available from 11 September 2020 and first published 15 September 2020) includes patients who first tested positive in hospital or in the 14 days before admission. Patients stop being included after 28 days in hospital (or 28 days after first testing positive if this is after admission). Further background on this new approach is provided in [this Scottish Government blog](#).

This is based on the number of patients in beds at 8am the day prior to reporting, with the data extract taken at 8am on the day of reporting to allow 24 hours for test results to become available. Where a patient has not yet received a positive test result they will not be included in this figure. Patients who have been in hospital for more than 28 days and still being treated for COVID-19 will stop being included in this figure after 28 days.

All patients in hospital, including in intensive care, and community, mental health and long stay hospitals are included in this figure.

Appendix 4 – RAPID Hospital Admissions

COVID-19 related admissions have been identified as the following: A patient may have tested positive 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 has tested positive after their date of discharge from hospital, they are not included in the analysis.

The number reported does not take into account the reason for hospitalisation. Therefore, people that were admitted for a non COVID-19 related reason (and tested positive upon admission) may be included.

Total specimen dates may not equal reported new cases due to denotifications.

These data include admissions to acute hospitals only and do not include psychiatric or maternity/obstetrics specialties.

RAPID – Please note a three-day time lag is applied to recent records being incomplete. Data are updated daily and figures are subject to change.

Total figures for COVID-19 related admissions published by PHS are updated daily and figures are subject to change, and so total figures presented here will not match data published elsewhere.

Appendix 5 – Healthcare Worker Testing

Number of Staff not tested – declined a test

The number of staff who were offered a test and actively declined to take it.

Staff not tested for operational reasons

The number of staff who were not able to be tested for operational/capacity reasons e.g. issues with test availability, staff unable to be tested due to work pressures etc.

Number of Staff not tested for other reasons

The number of the staff present on wards in the reporting week who were not tested. They were eligible for testing (excluding those who declined and those who were not tested for operation reasons). This should be the remainder of eligible staff not recorded in the other groupings.

Appendix 6 – Contact Tracing

Background

On 26 May 2020, the Scottish Government set out the strategy for Test and Protect - Scotland's approach to implementing the 'test, trace, isolate, support' strategy. This strategy was designed to minimise the spread of COVID-19. On 22 June 2021, that [strategy](#) was refreshed in order to progress Scotland's recovery to "Beyond Level 0".

Public Health Scotland works closely with National Services Scotland (NSS) and the Scottish Government to enable local NHS Boards and the National Contact Centre (NCC) to carry out COVID-19 contact tracing effectively. The approach to contact tracing has adapted as restrictions and policy have changed throughout the pandemic in order to best meet the needs of the Scottish population. As numbers of new cases have increased, the method has changed from attempting to phone all new cases and contacts - to prioritising the highest risk situations for telephone calls and sending public health advice by SMS text to all others who have tested positive for COVID-19 and their close contacts.

The introduction of SMS messaging was designed to get the best public health advice about isolation to cases and contacts as quickly as possible, this is especially pertinent when daily case numbers are very high. The approach was part of a deliberate decision to manage resources through an agreed framework and is in keeping with the evidence-informed advice of the European Centre for Disease Control.

On 8 August 2021, a refreshed framework was implemented to take account of the wider societal re-opening and personal freedoms reintroduced as Scotland moved 'Beyond Level 0'. It sets out how fluctuations within new case numbers will be managed and ensures the Test and Protect system is able to flex during times of increased caseloads. It achieves this by using digital contact tracing tools, when required, to make best use of resources and contact tracing teams to ensure that public health information is shared with those at greatest risk of contracting or passing COVID-19 to others.

All positive results are reported to the contact tracing system, assessed and followed up as needed. However, an individual can have multiple tests. In many cases, there is no follow up for a repeat positive test (because the person was already contact traced when their first positive result was reported). To reflect this, Test and Protect data only includes details on the number of individuals whose positive test resulted in contact tracing being undertaken. The number of individuals who tested positive is more comparable with the figures given in the COVID-19 Confirmed Cases section of this report, which reports on new positive cases.

Definitions

An **index case** is generated for each positive result with a test date on or after 28 May 2020. This includes tests derived from Scottish laboratories and from UK Government laboratories.

An **individual** is a unique person who has had a positive test. An individual can have multiple positive tests which results in multiple cases within the test and protect system. In these figures, each person is only counted once.

A **contact** may be contacted more than once if multiple positive cases list them as a contact.

Completed cases are cases which are marked as completed in the case management system, which means that all contacts have been followed up and completed. It excludes cases marked as failed, excluded, in progress or new. In the latest weeks there will be cases which are still open either because contact tracing is still underway (particularly for the latest week) or the NHS Board is still managing the case as part of an open outbreak.

Weekly data presented from Monday to Sunday in order to be consistent. Figures are provisional and may change as the test and protect tool is updated by contact tracers.

Individuals unable to be contacted

This information is only available for index cases that have been recorded on the CMS. The CMS went live on 22 June 2020 with NHS Boards migrating on a phased approach with all Boards using CMS from 21 July 2020. Prior to a Board migrating to CMS, data was recorded in a Simple Tracing Tool which did not give the level of granularity required to report on these measures. These data are developmental and an extensive data quality assurance exercise is underway and data may be revised in subsequent publications. Please note the methodology has changed as of 1 November 2020, a refined method has now been applied to identify unique indexes.

Contact tracers will contact index cases by telephone, and by default all close contacts will receive an automated SMS. This approach ensures high quality calls can continue to be prioritised for index cases. Even when SMS is defaulted to, in these scenarios, a number of close contacts are still telephoned, following clinical risk assessment, particularly if they are linked to complex cases. When close contacts of index cases are contacted via SMS text message, the GOV.UK Notify Service is used which means it is known if the SMS has been received by the mobile phone, not just that it has been sent. Where the SMS is not received, a contact tracer will attempt to contact the individual through other means. The case will not be marked as complete unless someone has spoken to the individual.

Appendix 7 – Quarantine Statistics

Number of people arriving in Scotland

Number of Passenger Locator Forms received, as notified to Public Health Scotland by the Home Office. Passenger Locator Forms indicate intention to travel; passengers may not have actually arrived in the UK. Multiple forms for the same traveller may also be counted

Number of people requiring to quarantine in a hotel (anywhere in the UK)

From 15 February 2021 any person arriving directly from a high risk country into the UK with a Scottish residence or any arriving directly into Scotland from a non high-risk listed country. Count is based on Passenger Locator Form data received from Home Office.

Number of people requiring to quarantine at home

From 30 June 2020 – 14 February 2021. Any persons who are required to quarantine in Scotland (all countries prior to 30 June 2020; high risk countries from 30 June 2020), adults aged 18 and over only. From 15 February 2021 this is anyone arriving from a non-high risk country and did not arrive directly into Scotland. Count is based on Passenger Locator Form data received from Home Office.

Number of people contacted by National Contact Centre (NCC)

Sample of people who are passed to NCC for follow-up to provide advice and support. Some contacts made relate to arrivals from the previous week; therefore contacts can sometimes exceed arrivals.

Up to the 23 June 2021, a sample of those individuals quarantining at home were contacted by the NCC. These calls, along with any in progress, have now been paused in order to prioritise contact tracing. Since 13 July 2021, these call have resumed.

Successful contacts made

People who were successfully contacted by NCC

Unable to contact individual

Calls could not be completed because the individual could not be contacted (invalid phone number or no response to call). Where appropriate details of individuals are passed to Police Scotland for further follow up. Includes not completed due to quarantine ending before NCC could contact individual.

Appendix 8 – Lateral Flow Device Testing

UK Gov other includes any LFD result which has come through the UK Government route (NHS Digital) which has the test site code "Other". Please note the universal offer results up to 28 July 2021

are reported via this method. From 28 July 2021 onwards, universal offer results are reported separately as Universal Offer.

The Attend An Event, High Cases In Local Area, Lives With Someone Who Is Shielding, Travel Within UK and Universal Offer categories only include data from 28 July 2021 onwards. From this date these categories are now options when entering a non-work LFD result via the UK Gov portal. Please note that it is up to the user to select the Attend An Event, High Cases In Local Area, Lives With Someone Who Is Shielding or Travel Within UK category, these are not part of any defined testing programme such as Community Testing or University Testing.

University Testing Site tests are tests which took place at a university testing site, generally in the 2020/21 academic year, though there are still a small number of tests each week in this category. Tests in the university students and university staff categories are tests via the UK Gov portal for someone entering a test to attend their place of work/education, these tests are from 28th July 2021 onwards and will be for the 2021/22 academic year.

For information regarding LFD testing during term time as part of the Schools Asymptomatic Testing Programme, please visit the [COVID-19 Education Surveillance Report](#).

Please note bulk uploading functionality is not yet available so data is likely to be an undercount. Data will be update and revised in future publications.

Other is any result entered via the [gov.uk website](#) where “none of the above” has been selected. Please note anyone requesting a LFD test via the general population offer, will currently report their results via this category.

Those within **Unknown** in the table reporting tests by **NHS Board of Residence** (Table 12) is any test that had an invalid or missing postcode.

Appendix 9 – Data Sources and Limitations

Due to delays in reporting, figures are subject to change as records are updated. A marker (greyed-out block) has been applied where data is preliminary and caution should be taken in their interpretation.

The definitions described below are being used for the purposes of evaluating the impact of the COVID-19 vaccine on COVID-19 cases, COVID-19 related acute hospital admissions and confirmed COVID-19 deaths. The numbers reported in this section use test data, accounting for potential reinfections, and may differ from other sections and elsewhere which only count the number of new COVID-19 cases.

COVID-19 PCR test results

All positive COVID-19 PCR test results and associated demographics of an individual are extracted from the Test and Protect database (Corporate Data Warehouse) which contains test results from Electronic Communication of Surveillance in Scotland (ECOSS). Data included in this analysis is reported up until the Friday of the previous week. Non-Scottish residents are excluded from the dataset.

COVID-19 cases are identified as the following: An individual that has tested positive for COVID-19 by PCR. If an individual tests positive more than once, the repeat positive PCR test is only counted if the positive PCR test is more than 90 days apart. Records with missing CHI numbers are excluded as these data cannot be linked to vaccination status.

Denominators used are from the COVID-19 vaccination data that provides information on vaccine eligibility for the 16 and over population, and for vaccinated individuals under the age

of 18. Given the small number of individuals eligible for vaccination under 16, the denominator for unvaccinated under 16s is from the NRS mid-2020 population estimates. Population data are extracted from Community Health Index (CHI) dataset representing all those currently registered with a GP practice in Scotland. These are different denominators than those in the Public Health Scotland COVID-19 Daily Dashboard and may over-estimate the population size as they will include, for example, some individuals who are no longer residents in Scotland.

Vaccination status

Vaccination status for all individuals who test positive for COVID-19 by PCR is extracted from the data used to produce the PHS vaccine uptake/daily dashboard. Vaccine records include the number of doses and date of vaccination. Individuals are listed as unvaccinated if there is no vaccination record linked to their unique CHI identifier at the time of analysis. Vaccination status is taken at date of specimen for COVID-19 cases, acute hospital admissions, or death and assigned to number of doses according to the case definitions described below.

COVID-19 vaccination status is defined as per the following:

- **Unvaccinated:** An individual that has had no doses of COVID-19 vaccine and has tested positive for COVID-19 by PCR or has had one dose of COVID-19 vaccine and has tested positive less than or equal to 21 days after their 1st dose of COVID-19 vaccine.
- **Dose 1:** An individual that has had one dose of COVID-19 vaccine and has tested positive for COVID-19 by PCR more than 21 days after their 1st dose of COVID-19 vaccine or less than or equal to 14 days after their second dose of COVID-19 vaccine.
- **Dose 2:** An individual that has had two doses of COVID-19 vaccine and has tested positive for COVID-19 by PCR more than 14 days after their 2nd dose of COVID-19 vaccine.

Acute hospital admissions

Hospital admission data is extracted from the Rapid and Preliminary Inpatient Data (RAPID) dataset at 16:00 on Monday 25 October 2021. RAPID is a daily submission of people who have been admitted and discharged to hospital. Figures are subject to change as hospital records are updated. Data included in this analysis is reported up until the Friday of the previous week.

In the data presented here, 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. Therefore, there may be multiple admissions for a single patient if they have moved between locations during a continuous inpatient stay (CIS), or if they have been admitted to hospital on separate occasions.

COVID-19 related acute hospital admissions have been identified as the following: An individual that has tested positive for COVID-19 by PCR:

- Up to 14 days prior to hospital admission
- On the day of, or day following admission (if no discharge date is available)
- In between hospital admission and discharge (if there is a valid discharge date available).

Where an individual has more than one PCR positive test, positive results are only included for the first PCR positive test associated with a hospitalisation, or if the positive PCR test is more than 90 days after the previous PCR positive test that was eligible for inclusion. Using these criterion, all records of hospitalisation occurring within 90 days of a previous positive test are excluded. Therefore, if a positive PCR test result for an individual meets these criteria for multiple hospital stays, for example, an individual is admitted twice within a week, only the earliest hospital admission is included in the analysis.

If a patient tested positive after their date of discharge from hospital, they are not included in the analysis unless they are readmitted to hospital and meet the criteria described above.

The number of reported acute hospitalisations does not take into account the reason for hospitalisation, Therefore, people that were admitted for a non-COVID-19 related reason (and tested positive upon admission) may be included and result in an overestimation of COVID-19 related acute hospitalisations.

Confirmed COVID-19 deaths

Death data were extracted from the SMRA dataset at 16:00 on Thursday 21 October 2021. Data included in these analysis are reported up until the last date of death registration for the previous week.

A confirmed COVID-19 related death is defined as an individual who has tested positive by PCR for SARS-CoV-2 at any time point and has COVID-19 listed as a underlying or contributory cause of death on the death certificate. Vaccine status is determined at time of most recent specimen date.

Age-standardised mortality rates are used to allow comparisons of mortality rates between populations that have different age distributions. The 2013 European Standard Population is used to standardise rates. For more information see the ONS methods. Denominators used to calculate age-standardised mortality rates are the same as the cases and hospitalisations rate figures and tables described above.