Public Health Scotland
COVID-19 & Winter Statistical Report

As at 6 December 2021

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**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. As part of our continuous review of reporting, as of 08 December 2021 Public Health Scotland has implemented changes to the COVID-19 Weekly Report to support the reader in drawing insights from a wider range of existing metrics around COVID-19 and winter pressures.

Caution should be used when making comparisons between metrics, each metric is calculated independently and may cover different time periods or cohorts of the population. The consolidated report will include the following content weekly:

**COVID-19**

- Summary of tests and cases
- Contact Tracing
- Hospital and ICU admissions
- Testing in care homes
- COVID-19 vaccination status cases, hospitalisations and deaths
- Covid-19 vaccination uptake summary
- Adhoc reporting on topics such as: Covid-19 and Vaccination in pregnancy, Equality reporting etc

**Hospital/ Wider System Pressures**

- Unscheduled Care
- Waiting Times
- Delayed Discharges

Additional charts for a number of variables related to COVID-19 service use in the NHS, including some metrics previously presented in the weekly COVID-19 report, are available to view in our [interactive dashboard](#). These include breakdowns by age, sex and deprivation. The variables currently available on the dashboard include:

- Positive cases per day and cumulative total
- COVID-19 hospital admissions
- COVID-19 patients admitted to ICU admissions
- COVID-19 related contacts to NHS24 and the Coronavirus Helpline
- Community Hubs and Assessment Centres
- Scottish Ambulance Service incidents
- Contact tracing
- Health care workers
- Care homes
- Targeted community testing
- Travel outside of Scotland
- Quarantine Statistics
• NHS Protect Scotland App
• Lateral Flow Device (LFD) Testing

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.

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.
Main Points

• As at 05 December 2021, there have been 743,496 confirmed COVID-19 cases; 16,121 of these were recorded in the most recent week, a decrease of 9.8% from the previous week

• In the week ending 28 November 2021, 17,629 individuals were recorded in the contact tracing software, from which 25,478 unique contacts have been traced

• In the week ending 30 November 2021, there were 429 admissions to hospital with a laboratory confirmed test of COVID-19. The highest number of new admissions are now in those aged 30-39

• 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 3% in the most recent week ending 21 November 2021

• In the week ending 05 December 2021 there were 26 new admissions to Intensive Care Units (ICUs) for confirmed COVID-19. This is a decrease of 36.6% from the week ending 28 November 2021.

• Public Health Scotland has identified a total of 5,653 confirmed cases of COVID-19 occurring in pregnant women from the start of the pandemic until 31st October 2021.

• Vaccination coverage remains much lower amongst pregnant women than amongst non-pregnant women of a comparable age; of the 4,064 women who delivered their baby in October 2021, 43% had received any COVID-19 vaccination prior to delivery. By contrast, 85% of all women aged 18 to 44 years had received any COVID-19 vaccination by 31st October 2021.

• The rate of stillbirth and neonatal death among babies born within 28 days of their mother having confirmed COVID-19 during pregnancy was 20.5 per 1,000 total births, and 4.3 per 1,000 total births among babies born within 28 days of their mother receiving COVID-19 vaccination during pregnancy. It cannot be assumed that deaths following maternal COVID-19 infection or vaccination are related to those events; stillbirth and neonatal death can occur for a wide range of reasons. It is important to also consider that 6.3 per 1,000 of all births registered in Scotland in 2020 resulted in stillbirth or neonatal death. Vaccination remains the safest and most effective way for women to protect themselves and their babies against COVID 19 infection.
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.

There are now confirmed cases of the new Omicron variant in Scotland, originally detected in South Africa. The latest information on the Scotland cases of the new variant of concern is published daily by Scottish Government. Further information can be found below within The Omicron variant of COVID-19 section.

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.
The Omicron Variant of COVID-19

On 23 November 2021, a small number of cases of a new SARS-CoV-2 variant with 32 spike mutations was reported by South Africa to the international genomic database, GISAID. This variant was designated B.1.1.529 on 24 November 2021. On 26 November 2021, the World Health Organisation designated it a Variant of Concern known as Omicron.

There are concerns that due to the number of mutations, the Omicron variant of SARS-CoV-2 may have potential immune escape and/or possibly higher transmissibility as compared to other variants of concern. The impact of this new variant could lead to a further surge in cases, even amongst the vaccinated or recently infected population. Increased severity of disease has not yet been documented. World Health Organisation (WHO) notes that further investigations into the characteristics of the Omicron variant are required.

Like the Alpha variant of COVID-19, which was once dominant in the UK, Omicron has a mutation that leads to S gene target failure in a widely-used PCR testing platform available at UKGov Pillar 2 Lighthouse Laboratories. UKGov laboratories are responsible for reporting 95% of all new cases detected daily in Scotland. Although not all S gene target failures will be the Omicron variant of SARS-CoV-2, S gene target failure background rates in Scotland between July and October 2021 were stable and low, at less than 1 in 1000 cases (See Figure 1), suggesting this marker is a good proxy for monitoring change in the Omicron variant in the recent month.

Current data based on Pillar 2 laboratory testing show that S gene target failures have increased as a proportion of newly daily reported cases, from 0.1% on 23 November 2021 (the first date when an Omicron confirmed case was identified in Scotland) to 3.1% on 6 December 2021. The Omicron variant of SARS-CoV-2 currently represents a very small, but rapidly growing, proportion of all cases in Scotland.
Figure 1: Proportion of cases by specimen date tested for the S gene by S gene category, 1 November 2020 – 3 December 2021

* S gene dropout weak positives are S gene dropouts where the cycle threshold of the two other target genes (ORF1AB and N) have CT values greater than 30, or where one of the target genes has dropped out, and the other is greater than 30.

The strategic aims of the PHS response to the Omicron variant of COVID-19 is to 1) understand the epidemiological and clinical characteristics of Omicron variant of COVID-19 in Scotland and 2) delay the spread of Omicron variant of COVID-19, whilst emerging knowledge informs policy development and the clinical and public health response. Since 02 December 2021, Public Health Scotland has been reporting daily number of confirmed Omicron cases in Scotland via the Scottish Government website.

For the purpose of reporting comprehensively and comparatively across the 4 UK nations, the following case definitions have been adopted:

- **Confirmed case:** Omicron by sequencing or genotyping
- **Highly Probable:** COVID 19 PCR positive, S Gene Target Failure plus red list travel history\(^1\) with specimen dates from 01 November 2021 confirmed by case interview – or- COVID PCR/LFD positive contact of a confirmed case as determined by case interview.
- **Probable case under investigation:** COVID 19 PCR positive but S Gene unknown, plus red list travel history with specimen dates from 01 November 2021 as determined by case interview
- **Possible case under investigation:** COVID 19 PCR positive plus S Gene Target Failure and specimen dates from 01 November 2021

Case definitions are subject to revision as understanding of the international epidemiology of the Omicron variant evolves. Currently, confirmation of cases by whole genome sequencing occurs via testing and reporting by COVID-19 Genomics UK Consortium. For samples that are sent for whole genome sequencing in Scotland, results are typically available within six to ten days following the specimen collection date.

Figure 2 shows the number of confirmed Omicron cases and those cases that are under investigation by specimen reporting date. As of 5 December 2021, 71 confirmed, 9 highly probable, and 309 possible Omicron variant cases had been reported, for a total of 389 confirmed or possible cases.

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\(^1\) Red list countries at the time of publication include Republic of South Africa, Botswana, Namibia, Nigeria, Eswatini, Lesotho, Zimbabwe, Angola, Zambia, Malawi, and Mozambique
Figure 2. Confirmed Omicron variant of COVID-19 cases or cases under investigation by specimen data (n=389), as of 05 December 2021 17h, Scotland

Table 1 shows the breakdown of confirmed cases of Omicron by NHS Health Board. NHS Greater Glasgow and Clyde, and NHS Lanarkshire were the first to identify a large number of cases following a private event on 20 November 2021 and a mass public gathering on 22 November 2021 in Glasgow.

Since the detection of these clusters in the Central Belt, all Boards except NHS Dumfries and Galloway, NHS Borders, NHS Orkney, NHS Shetland and NHS Western Isles had at least one confirmed case. All appropriate public health action is being undertaken by NHS Health Boards to mitigate onward transmission. In particular, the exemption from contact self-isolation periods of 10 days has been removed for contacts linked to confirmed or suspected Omicron cases. The need for other public health measures is determined on a risk assessment basis by local Health Protection Teams.
Table 1: Confirmed Omicron variant cases (n=71) by NHS Health Board as of 05 December 2021 17:00h, Scotland

<table>
<thead>
<tr>
<th>NHS Health Board of Residence</th>
<th>Confirmed cases (No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayrshire &amp; Arran</td>
<td>1</td>
</tr>
<tr>
<td>Borders</td>
<td>-</td>
</tr>
<tr>
<td>Dumfries &amp; Galloway</td>
<td>-</td>
</tr>
<tr>
<td>Fife</td>
<td>1</td>
</tr>
<tr>
<td>Forth Valley</td>
<td>8</td>
</tr>
<tr>
<td>Greater Glasgow and Clyde</td>
<td>27</td>
</tr>
<tr>
<td>Grampian</td>
<td>2</td>
</tr>
<tr>
<td>Highland</td>
<td>8</td>
</tr>
<tr>
<td>Lanarkshire</td>
<td>22</td>
</tr>
<tr>
<td>Lothian</td>
<td>1</td>
</tr>
<tr>
<td>Orkney</td>
<td>-</td>
</tr>
<tr>
<td>Shetland</td>
<td>-</td>
</tr>
<tr>
<td>Tayside</td>
<td>1</td>
</tr>
<tr>
<td>Western Isles</td>
<td>-</td>
</tr>
<tr>
<td>Scotland</td>
<td>71</td>
</tr>
</tbody>
</table>

Table 2 compares the age and sex profile of those with a confirmed case of Omicron variant of COVID-19 to the rest of the cases reported between 01 November 2021 and 05 December 2021; No marked differences were observed the distribution of incident cases by sex (54% of Omicron confirmed cases were women versus 52% amongst all cases.)

Confirmed Omicron cases were relatively younger than all cases, with 48% in the former and 25% in the latter between the ages of 20-39 years. The somewhat younger age profile of the confirmed Omicron cases reflects the early detection of a large number of cases in events that typically attract people in these age groups. Currently around 15% (n=11) of confirmed Omicron cases are under age 20, whereas a third (n=31,962) of cases are in this youngest age group.
Table 2. Confirmed Omicron variant of COVID-19 cases (n=71) and all cases since 01 November 2021 (n=95,706) by age group and sex, as of 05 December 2021 17h, Scotland

<table>
<thead>
<tr>
<th>Age band</th>
<th>Confirmed Omicron COVID-19 cases</th>
<th>All PCR confirmed COVID-19 cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female (No.)</td>
<td>%</td>
</tr>
<tr>
<td>&lt;20</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>20-29</td>
<td>8</td>
<td>21%</td>
</tr>
<tr>
<td>30-39</td>
<td>11</td>
<td>29%</td>
</tr>
<tr>
<td>40-49</td>
<td>9</td>
<td>24%</td>
</tr>
<tr>
<td>50-59</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>60-69</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>70-79</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>80+</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>100%</td>
</tr>
</tbody>
</table>

To date, PHS is not aware of any hospitalisations amongst people with a confirmed Omicron variant; at this time, it may be too early to observe this outcome.


Over the coming weeks, as numbers allow, a further update will be provided that summarises findings and presents cases by vaccination status, hospital admissions, and deaths. These analyses form part of the wider COVID-19 national surveillance efforts, which can provide insight into vaccine effectiveness.
COVID-19 Daily Data

The Public Health Scotland COVID-19 Daily Dashboard publishes daily updates (5-days per week, Monday to Friday) 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 743,496 people in Scotland who have tested positive, at any site in Scotland (NHS and UK Government Regional Testing centres), for COVID-19 up to 05 December 2021.
- In the week ending 05 December 2021 there were 16,121 confirmed COVID-19 cases.¹

Figure 3: Number of Positive Cases per day with 7 Day Average

1. Correct as at 05 December, may differ from more recently published data in the previous week’s report and on the COVID-19 Daily Dashboard. Due to a data flow issue on 04 and 05 December 2021 from UK Govt pillar 2 tests, figures are lower than anticipated and will be updated in next week’s publication.
Figure 4 below shows the proportion of confirmed COVID-19 cases by age group for the most recent three weeks. The proportion of cases in the over 60 age groups has decreased since week ending 07 November 2021. This increase could be explained by higher uptake of vaccinations in these age groups.

**Figure 4: Proportion of confirmed COVID-19 cases by age group, weeks ending 07 Nov – 21 Nov 2021**

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

- In the week ending 30 November 2021, there were 429 admissions to hospital with a laboratory confirmed test of COVID-19

- In the week ending 05 December 2021 there were 26 new admissions to Intensive Care Units (ICUs) for confirmed COVID-19 patients

The number of confirmed daily COVID-19 cases increased from 2,879 to 3,437 between 23 November 2021 and 29 November 2021. During this same time period, the daily COVID-19 confirmed hospital admissions has decreased from 68 to 64 (seven-day rolling average). The seven-day average of inpatients in hospital has decreased by 6% (from 769 to 722).
Figure 5: Number of Positive Cases, Admissions and Inpatients, as at 29 November 2021²

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.

² Please refer to Appendix 3: Hospital Admissions Notes for definitions of hospital admissions and inpatients.
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 6 below shows the weekly trend of hospital admissions with COVID-19 from week ending 05 January 2021 to 30 November 2021.

Figure 6: Trend of hospital admissions ‘with’ COVID-19 in Scotland
Table 3 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 3: COVID-19 hospital admissions by age as at 30 November 2021

<table>
<thead>
<tr>
<th>Age Band</th>
<th>03 November – 09 November</th>
<th>10 November – 16 November</th>
<th>17 November – 23 November</th>
<th>24 November – 30 November</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>31</td>
<td>33</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>18-29</td>
<td>25</td>
<td>30</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>30-39</td>
<td>49</td>
<td>51</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td>40-49</td>
<td>56</td>
<td>54</td>
<td>57</td>
<td>49</td>
</tr>
<tr>
<td>50-54</td>
<td>44</td>
<td>48</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>55-59</td>
<td>46</td>
<td>60</td>
<td>49</td>
<td>47</td>
</tr>
<tr>
<td>60-64</td>
<td>57</td>
<td>58</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>65-69</td>
<td>54</td>
<td>47</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>70-74</td>
<td>70</td>
<td>44</td>
<td>31</td>
<td>37</td>
</tr>
<tr>
<td>75-79</td>
<td>60</td>
<td>45</td>
<td>33</td>
<td>27</td>
</tr>
<tr>
<td>80+</td>
<td>100</td>
<td>84</td>
<td>69</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>592</strong></td>
<td><strong>554</strong></td>
<td><strong>439</strong></td>
<td><strong>429</strong></td>
</tr>
</tbody>
</table>

Source: RAPID (Rapid and Preliminary Inpatient Data)
3. Please refer to Appendix 3 – Hospital Admissions Notes for explanatory notes regarding RAPID Hospital Admissions.

In the latest week there has been a 2.3% decrease in the number of new admissions, with those aged 30-39 years having the highest number of admissions. Also, in the latest week approximately 44.5% of the hospital admissions related to patients aged 60+.

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 3% in the most recent week ending 21 November 2021 (Figure 7).
Figure 7: Proportion of weekly cases admitted to hospital within 14 days of a first positive test.
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 November 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 4.

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 28 November 2021 (based on test date), are detailed in Table 4 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 28 November 2021, there were 18,457 Index Cases, of which 16,128 (87.4%) had completed contact tracing by telephone or other digital methods, and a further 103 are in progress (0.6%).
Table 4: Contact Tracing trend information, by week ending

<table>
<thead>
<tr>
<th></th>
<th>24 Oct</th>
<th>31 Oct</th>
<th>07 Nov</th>
<th>14 Nov</th>
<th>21 Nov</th>
<th>28 Nov</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Index Cases</strong></td>
<td>18,393</td>
<td>18,482</td>
<td>20,009</td>
<td>21,610</td>
<td>20,943</td>
<td>18,457</td>
</tr>
<tr>
<td><strong>Individuals</strong></td>
<td>17,732</td>
<td>17,733</td>
<td>19,113</td>
<td>20,763</td>
<td>20,117</td>
<td>17,629</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Status of cases</th>
<th>24 Oct</th>
<th>31 Oct</th>
<th>07 Nov</th>
<th>14 Nov</th>
<th>21 Nov</th>
<th>28 Nov</th>
<th>Cumulative (from May 2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New/ Not yet started¹</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>169</td>
<td>204</td>
</tr>
<tr>
<td>% New/ Not yet started</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>In progress²</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>103</td>
<td>106</td>
</tr>
<tr>
<td>% In progress</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Complete³</td>
<td>16,472</td>
<td>16,462</td>
<td>17,936</td>
<td>19,394</td>
<td>18,528</td>
<td>16,128</td>
<td>640,002</td>
</tr>
<tr>
<td>% Complete</td>
<td>89.6</td>
<td>89.1</td>
<td>89.6</td>
<td>89.7</td>
<td>88.5</td>
<td>87.4</td>
<td></td>
</tr>
<tr>
<td>Incomplete⁴</td>
<td>1,921</td>
<td>2,018</td>
<td>2,072</td>
<td>2,215</td>
<td>2,414</td>
<td>2,057</td>
<td>86,523</td>
</tr>
<tr>
<td>% Incomplete</td>
<td>10.4</td>
<td>10.9</td>
<td>10.4</td>
<td>10.2</td>
<td>11.5</td>
<td>11.1</td>
<td></td>
</tr>
</tbody>
</table>

1. New – New/not yet started cases within the contact tracing system.
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)

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

<table>
<thead>
<tr>
<th></th>
<th>24 Oct</th>
<th>31 Oct</th>
<th>07 Nov</th>
<th>14 Nov</th>
<th>21 Nov</th>
<th>28 Nov</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>12,233</td>
<td>12,056</td>
<td>12,386</td>
<td>13,338</td>
<td>15,076</td>
<td>13,187</td>
</tr>
<tr>
<td>% Telephone</td>
<td>66.5</td>
<td>65.2</td>
<td>61.9</td>
<td>61.7</td>
<td>72.0</td>
<td>71.4</td>
</tr>
<tr>
<td>SMS</td>
<td>6,160</td>
<td>6,426</td>
<td>7,623</td>
<td>8,272</td>
<td>5,867</td>
<td>5,270</td>
</tr>
<tr>
<td>% SMS</td>
<td>33.5</td>
<td>34.8</td>
<td>38.1</td>
<td>38.3</td>
<td>28.0</td>
<td>28.6</td>
</tr>
</tbody>
</table>

In the week ending 28 November 2021, 71.4% 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 completed

<table>
<thead>
<tr>
<th>Hours taken</th>
<th>Week Ending 28 November 2021</th>
<th>Number of Complete Index Cases</th>
<th>% of Total Complete Cases</th>
<th>% of Total Complete &amp; Incomplete Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-24</td>
<td></td>
<td>3,767</td>
<td>23.4</td>
<td>20.7</td>
</tr>
<tr>
<td>24-48</td>
<td></td>
<td>6,990</td>
<td>43.3</td>
<td>38.4</td>
</tr>
<tr>
<td>48-72</td>
<td></td>
<td>1,332</td>
<td>8.3</td>
<td>7.3</td>
</tr>
<tr>
<td>Over 72</td>
<td></td>
<td>704</td>
<td>4.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Not recorded* - SMS</td>
<td></td>
<td>3,245</td>
<td>20.1</td>
<td>17.8</td>
</tr>
<tr>
<td>Not recorded* – Phone</td>
<td></td>
<td>90</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Total Complete Cases</td>
<td></td>
<td>16,128</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Incomplete Cases</td>
<td></td>
<td>2,057</td>
<td></td>
<td>11.3</td>
</tr>
<tr>
<td>Total Complete &amp; Incomplete Cases</td>
<td></td>
<td>18,185</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

*For further information and additional notes on Contact Tracing, please see Appendix 4 – 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. This will be implemented early January 2022.

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\(^5,6\)

<table>
<thead>
<tr>
<th>Hours taken</th>
<th>Week Ending 28 November 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Complete Index Cases</td>
</tr>
<tr>
<td>0-24</td>
<td>11,350</td>
</tr>
<tr>
<td>24-48</td>
<td>943</td>
</tr>
<tr>
<td>48-72</td>
<td>139</td>
</tr>
<tr>
<td>Over 72</td>
<td>361</td>
</tr>
<tr>
<td>Not recorded* – SMS</td>
<td>3,245</td>
</tr>
<tr>
<td>Not recorded* - Phone</td>
<td>90</td>
</tr>
<tr>
<td>Total Complete Cases</td>
<td>16,128</td>
</tr>
<tr>
<td>Incomplete Cases</td>
<td>2,057</td>
</tr>
<tr>
<td>Total Complete &amp; Incomplete Cases</td>
<td>18,185</td>
</tr>
</tbody>
</table>

\(^5\) For further information and additional notes on Contact Tracing, please see Appendix 4 – 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. This will be implemented early January 2022.
Table 9: Time (hours) between case created in CMS to its closure\(^5,7\)

<table>
<thead>
<tr>
<th>Hours taken</th>
<th>Number of Complete Index Cases</th>
<th>% of Total Complete Cases</th>
<th>% of Total Complete &amp; Incomplete Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-24</td>
<td>13,117</td>
<td>81.3</td>
<td>72.1</td>
</tr>
<tr>
<td>24-48</td>
<td>2,029</td>
<td>12.6</td>
<td>11.2</td>
</tr>
<tr>
<td>48-72</td>
<td>385</td>
<td>2.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Over 72</td>
<td>589</td>
<td>3.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Not recorded* – SMS</td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Not recorded* - Phone</td>
<td>7</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total Complete Cases</strong></td>
<td><strong>16,128</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Incomplete Cases</strong></td>
<td><strong>2,057</strong></td>
<td><strong>11.3</strong></td>
<td><strong>11.3</strong></td>
</tr>
<tr>
<td><strong>Total Complete &amp; Incomplete Cases</strong></td>
<td><strong>18,185</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

\(^5\) For further information and additional notes on Contact Tracing, please see Appendix 4 – 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. This will be implemented early January 2022.

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

<table>
<thead>
<tr>
<th>Reason for Incompletion</th>
<th>Number of Index Cases</th>
<th>% of Incomplete Index Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed ID &amp; verification</td>
<td>13</td>
<td>0.6</td>
</tr>
<tr>
<td>No response to call</td>
<td>1,851</td>
<td>90.0</td>
</tr>
<tr>
<td>No/incorrect phone number</td>
<td>65</td>
<td>3.2</td>
</tr>
<tr>
<td>Refused to provide contact details</td>
<td>9</td>
<td>0.4</td>
</tr>
<tr>
<td>Declined to participate / unable to recall contacts</td>
<td>81</td>
<td>3.9</td>
</tr>
<tr>
<td>Timed out¹</td>
<td>38</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total incomplete cases</strong></td>
<td><strong>2,057</strong></td>
<td><strong>100.0</strong></td>
</tr>
<tr>
<td><strong>% incomplete as proportion of all index cases</strong></td>
<td></td>
<td><strong>11.3</strong></td>
</tr>
</tbody>
</table>

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 28 November 2021, 90.0% 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

---

25
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**

<table>
<thead>
<tr>
<th></th>
<th>24 Oct</th>
<th>31 Oct</th>
<th>07 Nov</th>
<th>14 Nov</th>
<th>21 Nov</th>
<th>28 Nov</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Primary Contacts</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>34,916</td>
<td>33,985</td>
<td>38,914</td>
<td>40,444</td>
<td>41,479</td>
<td>35,713</td>
</tr>
<tr>
<td><strong>Unique Primary Contacts</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>25,166</td>
<td>25,055</td>
<td>28,665</td>
<td>29,485</td>
<td>29,824</td>
<td>25,478</td>
</tr>
<tr>
<td><strong>Average number of primary contacts per case</strong></td>
<td>1.9</td>
<td>1.8</td>
<td>1.9</td>
<td>1.9</td>
<td>2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

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 28 November 2021, a total of 3,436 cumulative primary contacts, pertaining to completed index cases, were not advised to self-isolate. This represents 1.2% of the total 298,041 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 28 November 2021, of the 25,478 unique contacts recorded, 4,720 (18.5%) went on to test positive within ten days of their contact with an index case.
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.

LFD testing in Scotland expanded from 26 April 2021, with everyone able to access rapid COVID-19 testing even if they had no symptoms. 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. Since 19 November 2020, there have been 15,520,736 LFD tests carried out in Scotland, of which 108,506 were positive (0.7%). Figure 10 below shows the weekly trend of tests carried out from week ending 29 November 2020 to 05 December 2021.

There has been a 8.8% increase in the number of tests carried out since the week ending 28 November 2021. Table 12 shows the number of LFD tests carried out in Scotland by testing group.

For additional details on Lateral Flow Device Tests, please see - Appendix 5 – Lateral Flow Device Testing

Figure 10: Trend of LFD tests carried out in Scotland from 29 November 2020 to 05 December 2021
Table 12: Number of LFD\textsuperscript{10} tests by Test group 19 November 2020 – 05 December 2021

<table>
<thead>
<tr>
<th>Test Group</th>
<th>Test Reason</th>
<th>Number of tests</th>
<th>Number of positive tests</th>
<th>% LFT positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care Home Testing</td>
<td>Care Home - Visiting Professional</td>
<td>54,777</td>
<td>70</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>Care Home - Visitor</td>
<td>672,834</td>
<td>506</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>Care Home Staff</td>
<td>1,587,144</td>
<td>1,287</td>
<td>0.1%</td>
</tr>
<tr>
<td>Community Testing</td>
<td>Community Testing</td>
<td>98,497</td>
<td>881</td>
<td>0.9%</td>
</tr>
<tr>
<td>Education Testing</td>
<td>Combined School Staff</td>
<td>51,463</td>
<td>138</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>ELC Staff</td>
<td>298,126</td>
<td>1,179</td>
<td>0.4%</td>
</tr>
<tr>
<td></td>
<td>Primary School Staff</td>
<td>1,428,020</td>
<td>4,241</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>Secondary School Pupils</td>
<td>884,324</td>
<td>8,062</td>
<td>0.9%</td>
</tr>
<tr>
<td></td>
<td>Secondary School Staff</td>
<td>787,485</td>
<td>2,183</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>University Staff</td>
<td>10,821</td>
<td>74</td>
<td>0.7%</td>
</tr>
<tr>
<td></td>
<td>University Students</td>
<td>40,448</td>
<td>345</td>
<td>0.9%</td>
</tr>
<tr>
<td></td>
<td>University Testing Site</td>
<td>96,772</td>
<td>381</td>
<td>0.4%</td>
</tr>
<tr>
<td>Healthcare Testing</td>
<td>Healthcare Worker</td>
<td>2,710,597</td>
<td>4,885</td>
<td>0.2%</td>
</tr>
<tr>
<td></td>
<td>Primary Care And Independent Contractors</td>
<td>189,533</td>
<td>268</td>
<td>0.1%</td>
</tr>
<tr>
<td>Social Care Testing</td>
<td>Children, Young People and Mental Health</td>
<td>986</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>NSS Portal Social Care</td>
<td>649,004</td>
<td>910</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>Residential Homes</td>
<td>14,154</td>
<td>17</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>Support Services</td>
<td>17,327</td>
<td>120</td>
<td>0.7%</td>
</tr>
<tr>
<td>Universal Offer</td>
<td>Attend An Event</td>
<td>630,939</td>
<td>1,712</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>High Cases In Local Area</td>
<td>280,929</td>
<td>5,322</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>Lives With Someone Who Is Shielding</td>
<td>43,062</td>
<td>750</td>
<td>1.7%</td>
</tr>
<tr>
<td></td>
<td>Travel Within UK</td>
<td>145,473</td>
<td>678</td>
<td>0.5%</td>
</tr>
<tr>
<td></td>
<td>Universal Offer</td>
<td>1,914,439</td>
<td>43,457</td>
<td>2.3%</td>
</tr>
<tr>
<td>Workplace Testing</td>
<td>Private Sector</td>
<td>21,142</td>
<td>65</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>Public Sector</td>
<td>67,802</td>
<td>196</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>Quarantine Hotel Staff/Security Personnel</td>
<td>4,259</td>
<td>54</td>
<td>1.3%</td>
</tr>
<tr>
<td></td>
<td>Third Sector</td>
<td>1,789</td>
<td>6</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>UK Gov Other</td>
<td>2,167,591</td>
<td>24,887</td>
<td>1.1%</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>650,999</td>
<td>5,832</td>
<td>0.9%</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>15,520,736</td>
<td>108,506</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Data extracted: 06 December 2021

Please note some of the data is suppressed due to disclosure methodology being applied to protect staff confidentiality.
COVID-19 Infection in Pregnancy

Confirmed cases of COVID-19 in pregnancy

Data and commentary on confirmed cases of COVID-19 in pregnancy have been included in previous versions of this report published on 6 October 2021 and 3 November 2021. This report provides updated data on this topic, covering cases of COVID-19 in pregnancy occurring up to the end of October 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) study pregnancy cohort, which includes a record of all pregnancies in Scotland from 1 March 2020 (the start of the pandemic) onwards.

Detailed information on the data sources and methodology used has been provided in previous versions of this report, and notes are also included in the Excel data tables that accompany this report. Additional information on the COPS study is available on the study website.

In brief, confirmed cases of COVID-19 have been identified by a positive SARS-CoV-2 viral PCR test result. Lateral flow test results have not been considered. 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. 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 (at 2+0 weeks gestation) to the date the pregnancy ended, inclusive. 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.

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.

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. We have also linked national adult critical care
(SICSAG) records 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.

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. Alternatively, a woman may be incidentally found to have COVID-19 following routine testing after 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 pregnancy cohort as updated in mid-November 2021 linked to records of SARS-CoV-2 viral PCR testing results for samples taken on up to and including 31 October 2021.

As at mid-November 2021, the COPS cohort included a total of 144,548 pregnancies among 130,875 women in Scotland from the start of the COVID-19 pandemic on 1 March 2020 (the start of the pandemic) onwards. Among these, we have identified a total of 5,653 confirmed cases of COVID-19 in pregnancy with date of onset from 1 March 2020 up to 31 October 2021, in 5,639 pregnancies in 5,638 women.

The COPS pregnancy cohort 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.

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 increasingly complete ascertainment of cases). 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 have been seen in October 2020 and January, July, and September 2021.

**Figure 11: Weekly number of confirmed cases of COVID-19 in pregnancy, March 2020 to October 2021, Scotland**

Of the 5,653 total confirmed cases of COVID-19 in pregnancy, 1,815 (32%) occurred (i.e. had date of onset) in the first trimester of pregnancy (at 2+0 to 13+6 weeks gestation); 2,099 (37%) occurred in the second trimester (at 14+0 to 27+6 weeks gestation); and 1,739 (31%) occurred in the third trimester (at 28+0 weeks gestation or over).

Overall, 927 (16%) of the 5,653 total cases were associated with a hospital admission, and 114 (2%) were associated with a critical care admission. Cases occurring later in pregnancy were much more likely to be associated with a hospital or critical care admission than cases occurring in early pregnancy. This reflects 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.

Of the 4,950 confirmed cases of COVID-19 in pregnancy occurring in December 2020 (the month the COVID-19 vaccination programme started in Scotland) to October 2021 inclusive, 3,833 (77%) have occurred in unvaccinated women, 567 (11%) in partially vaccinated women, and 550 (11%) 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.

Cases occurring in unvaccinated women were much more likely to be associated with a hospital or critical care admission than cases occurring in partially or fully vaccinated women. Among the 104 confirmed cases of COVID-19 in pregnancy occurring in December 2020 to October 2021 inclusive that were associated with a critical care admission, 102 (98%) occurred in unvaccinated women.

**Rate of confirmed COVID-19 in pregnancy**

Based on the mid-November 2021 refresh of the COPS cohort, 32,696 women in Scotland had an ongoing pregnancy at the start of October 2021 and 553 (1,691 per 100,000) women had confirmed COVID-19 in pregnancy during October 2021.

For the duration of the pandemic to date, the rate of confirmed COVID-19 in pregnancy has generally been higher in younger, compared to older, pregnant women. The rate has also generally been higher in pregnant women living in more, compared to less, deprived areas of Scotland. For the duration of the pandemic to date, the monthly rate of confirmed COVID-19 seen in pregnant women has been similar to that seen in the general female population of reproductive age (i.e. all women aged 18 to 44 years inclusive) (comparator data available on request).

**Babies’ outcomes following maternal confirmed COVID-19 in pregnancy**

Based on the mid-November 2021 refresh of the COPS cohort, a total of 2,986 babies have been born to date following the mother having confirmed COVID-19 at any stage during that pregnancy up to end October 2021. 2,974 of the babies were live births (born at any gestation) and 12 were stillbirths (born at 24+0 weeks gestation or over). 8 of the live born babies subsequently died in the neonatal period (within 28 days of birth). This gives an extended perinatal mortality rate for babies born following maternal confirmed COVID-19 at any stage during pregnancy of 6.7/1,000 total births ([12+8]/2,986, 95% confidence interval [CI] 4.2 to 10.5/1,000).

684 of the 2,986 babies were born within 28 days of the date of onset of the mother’s COVID-19 infection. 674 of these babies were live births (with 4 subsequent neonatal deaths) and 10 were stillbirths, giving an extended perinatal mortality rate for babies born within 28 days of confirmed COVID-19 during pregnancy of 20.5/1,000 total births (95% CI 11.7 to 35.0/1,000).

It cannot be assumed that stillbirths and neonatal deaths following confirmed COVID-19 during pregnancy are related to the mother’s infection. Stillbirths and neonatal deaths unfortunately occur for a wide range of reasons, and it is important to take the background rate of mortality into account when considering the rates seen among births following infection. For example, the overall extended perinatal mortality rate seen among all births registered in Scotland in 2020 was 6.3/1,000 total births ([198 stillbirths+100 neonatal
deaths]/47,007 total births, 95% CI 5.7 to 7.1/1,000)². As the number of perinatal deaths following maternal infection is small, to protect patient confidentiality we are unable to provide additional clinical information on the babies who died.

Public Health Scotland is conducting detailed analyses on the outcomes of women and babies following COVID-19 in pregnancy through the COPS study. These detailed analyses aim to provide accurate estimates of any excess risks associated with infection. In the meantime, in line with what is known from the international research evidence, the preliminary data presented above suggests that COVID-19 in pregnancy may be associated with an increased risk of perinatal mortality, in particular among babies born shortly after the onset of infection.

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.

From the start of the pandemic, the UK Obstetric Surveillance System (UKOSS) has been collecting data from hospitals across the UK on pregnant women admitted with COVID-19. Information is not routinely published by UKOSS, however a number of research papers based on the collected data are publicly available.

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, 5 days a week at 2pm (Monday to Friday). 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.
COVID-19 Vaccination Uptake

As of 06 December 2021, there has been over 10.2 million Covid-19 vaccine doses administered in Scotland, since the programme began on 08 December 2020.

- 4.35 million people protected through their first dose of the COVID-19 vaccination; 92.9% of those aged 18 and over and 90.9% of those aged 12 and over.
- 3.96 million people provided with further protection by receiving their second dose, of these, 88.5% are aged 18 and over and 82.8% of those aged 12 and over.
- 1.89 million people have received their booster/dose 3, of these, 42.5% are aged over 18 and over and 39.5% of those aged 12 and over.

More detailed age information can be in Figure 12.

Daily Vaccination uptake information is available via the PHS Covid Daily Dashboard.

Figure 12: Covid-19 Vaccine uptake – percentage coverage by age group in Scotland
COVID-19 Vaccination in Pregnancy

Data on COVID-19 vaccination in pregnancy was first provided in the Public Health Scotland COVID-19 Statistical Report published on 14 July 2021, 1 September 2021, 6 October 2021, and 3 November 2021. This report provides updated data on this topic, covering vaccinations given in pregnancy up to the end of October 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

COVID-19 vaccination is the safest and most effective way for women to protect themselves and their babies against severe COVID-19. The Royal College of Obstetricians and Gynaecologists (RCOG) 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?

To identify women vaccinated against COVID-19 in pregnancy, we have linked national vaccination data to the COVID-19 in Pregnancy in Scotland (COPS) study pregnancy cohort, which includes a record of all pregnancies in Scotland from 1 March 2020 (the start of the pandemic) onwards.

Detailed information on the data sources and methodology used has been provided in previous versions of this report, and notes are also included in the Excel data tables that accompany this report. Additional information on the COPS study is available on the study website.

In brief, COVID-19 vaccinations have been identified as occurring in pregnancy if they were given at any point from the date of conception (at 2+0 weeks gestation) to the date the pregnancy ends, inclusive. 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.

Number of COVID-19 vaccinations given to pregnant women

For this publication, we have used the COPS database as updated in mid-November 2021 linked to records of vaccinations delivered on up to and including 31 October 2021. As at mid-November 2021, the COPS database included a total of 144,548 pregnancies among 130,875 women in Scotland from 1 March 2020 (the start of the pandemic) onwards, and 91,183 pregnancies in 87,694 women from 1 December 2020 (the month the COVID-19 vaccination programme started) onwards. Among these, we have identified a total of 25,917 COVID-19 vaccinations given in 18,457 pregnancies to 18,399 women from the start of the COVID-19 vaccination programme on 8 December 2020 up to 31 October 2021.
The COPS pregnancy cohort 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.

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 25,917 total vaccinations given in pregnancy, 12,518 (48%) were first doses, 12,194 (47%) were second doses and 1,205 (5%) were third or booster doses.

Small peaks in the number of first dose vaccinations given in pregnancy were seen in January and March 2021, likely representing vaccination of health and care workers, and clinically vulnerable women, respectively. A more substantial peak in first dose vaccinations was then seen in early June 2021, reflecting the time when vaccination was being offered to the general young adult population. As would be expected given the recommended gap between first and second doses of vaccination, a substantial peak in second dose vaccinations was then seen in early August 2021. Small numbers of first and second dose vaccinations have continued to be given to pregnant women up to the end of October 2021, reflecting the fact that vaccination remains available to anyone who was not vaccinated when initially invited for whatever reason.

Third primary doses of vaccination have been offered to immunosuppressed individuals from September 2021. Booster doses have been offered to individuals in the initial vaccination priority groups 1-9 (health and care workers, clinically extremely vulnerable and clinically vulnerable individuals, and all adults aged 50 years or over) from September 2021. Booster doses have also been offered to all adults aged 40-49 years from November 2021, but as this report only covers vaccinations given up to end October 2021, this will not yet be reflected in the data presented. Booster doses are given at least 6 months (24 weeks) after the second primary vaccination. Small numbers of third and booster dose vaccinations have been given to pregnant women in September and October 2021.
Of the 25,917 total vaccinations given in pregnancy, 9,905 (38%) vaccinations were given in the first trimester of pregnancy (at 2+0 to 13+6 weeks gestation); 9,317 (36%) were given in the second trimester (at 14+0 to 27+6 weeks gestation); and 6,695 (26%) were given in the third trimester (at 28+0 weeks gestation or over). 20,572 (79%) of the vaccinations given were Pfizer/BioNTech; 3,224 (12%) were Moderna; and 2,121 (8%) were Oxford/AstraZeneca.

Uptake of COVID-19 vaccination among pregnant women

Based on the mid-November 2021 refresh of the COPS database, 32,696 women in Scotland had an ongoing pregnancy at the start of October 2021, and 2,405 (7%) women received any COVID-19 vaccination during pregnancy in October 2021 (‘monthly uptake of vaccination’).

For the duration of the pandemic to date, the monthly uptake of vaccination has generally been higher in older, compared to younger, pregnant women. Monthly uptake has also generally been higher in pregnant women living in less, compared to more, deprived areas of Scotland.

From the start of the vaccination programme in December 2020 until August 2021, the monthly uptake of vaccination among pregnant women was considerably lower than that seen in the general female population of reproductive age (i.e. all women aged 18 to 44 years inclusive) (comparator data available on request). In September and October 2021, uptake has been more similar in pregnant women and the general female population.
Coverage of COVID-19 vaccination by the time of delivery

4,064 women delivered their baby (or babies in the case of a multiple pregnancy) in October 2021. 1,738 (43%) of the women delivering in October 2021 had received any COVID-19 vaccination prior to delivery, with 1,311 (32%) of the women having received two doses of vaccination, 36 (1%) having received three doses.

As would be expected, the percentage of women delivering their baby in each month who have received any vaccination before the date of delivery (‘coverage of vaccination by delivery’) has increased over time.

To date, the coverage of vaccination by delivery has been higher in women from older, compared to younger, age groups. Coverage of vaccination prior to delivery has also been higher in women living in the least, compared to the most, deprived areas of Scotland.

To date, vaccination coverage has been considerably lower among women delivering their babies than among the general female population of reproductive age. By the end of October 2021, (85% of all women aged 18 to 44 years inclusive had received at least one dose of vaccination, compared to the 43% of women who delivered their baby in October 2021 (comparator data available on request). Of note, however, coverage in the general female population increased rapidly up to July 2021, and has been broadly stable from August 2021 onwards. By contrast, coverage among women delivering their babies has continued to increase up to end October 2021.

Babies’ outcomes following maternal COVID-19 vaccination in pregnancy

Based on the mid-November 2021 refresh of the COPS cohort, a total of 5,766 babies have been born to date following the mother receiving COVID-19 vaccination at any stage during that pregnancy up to end October 2021. 5,752 of the babies were live births (born at any gestation) and 14 were stillbirths (born at 24+0 weeks gestation or over). 11 of the live born babies subsequently died in the neonatal period (within 28 days of birth). This gives an extended perinatal mortality rate for babies born following maternal COVID-19 vaccination at any stage during pregnancy of 4.3/1,000 total births ([14+11]/5,766, 95% confidence interval [CI] 2.9 to 6.5/1,000).

1,635 of the 5,766 babies were born within 28 days of the date of the mother’s COVID-19 vaccination. 1,632 of these babies were live births (with 4 subsequent neonatal deaths) and 3 were stillbirths, giving an extended perinatal mortality rate for babies born within 28 days of COVID-19 vaccination during pregnancy of 4.3/1,000 total births (95% CI 1.9 to 9.2/1,000).

It cannot be assumed that stillbirths and neonatal deaths following COVID-19 vaccination during pregnancy are related to the mother’s vaccination. Stillbirths and neonatal deaths unfortunately occur for a wide range of reasons, and it is important to take the background rate of mortality into account when considering the rates seen among births following vaccination. For example, the overall extended perinatal mortality rate seen among births registered in 2020 was 6.3/1,000 total births ([198 stillbirths+100 neonatal deaths]/47,007...
total births, 95% CI 5.7 to 7.1/1,000). As the number of perinatal deaths following maternal vaccination is small, to protect patient confidentiality we are unable to provide additional clinical information on the babies who died.

Public Health Scotland is conducting detailed analyses on the safety of COVID-19 vaccination in pregnancy through the COPS study. In the meantime, in line with what is known from the international research evidence and data from England (see the COVID-19 vaccine weekly surveillance report published on 25 November 2021), the preliminary data presented above shows no increased risk of perinatal mortality following COVID-19 vaccination in pregnancy. This finding contrasts to the relatively high rates of perinatal mortality seen among babies born soon after COVID-19 infection in pregnancy (see separate section in this report on Confirmed cases of COVID-19 in pregnancy). Vaccination remains the safest and most effective way for women to protect themselves and their babies against COVID-19 infection.

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

The UK Health Security Agency has recently published information on the coverage of COVID-19 vaccination by delivery in England (see the COVID-19 vaccine weekly surveillance report published on 25 November 2021). 22% (10,486/47,157) of women who delivered their baby in England in August 2021 had received any vaccination prior to delivery.

Public Health Wales has also recently published comparable information for Wales. 18% (409/2,220) and 31% (707/2,309) of women who delivered their baby in Wales in August and September 2021 respectively had received any vaccination prior to delivery. These data for England and Wales are based on linkage of national maternity and vaccination records.

For comparison, this report shows that 25% (1,064/4,265) and 33% (1,407/4,232) women who delivered in Scotland in August and September 2021 respectively had received any COVID-19 vaccination prior to delivery.

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

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 Stauts 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 04 December 2021 the NHS Covid Status App has been downloaded 1,971,047 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 03 September 2021 (introduction of QR codes) and midnight 04 December 2021
  - 574,706 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)
  - 1,397,092* 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 oscillated with small peaks and troughs, with higher case rates in unvaccinated individuals

- In the last week from 27 November 2021 to 03 December 2021, the seven-day rolling average of COVID-19 related acute hospital admissions decreased from 57.00 to 50.29 admissions per day

- In the last four weeks from 06 November 2021 to 03 December 2021, the age-standardised acute COVID-19 related hospital admission rates are lower for vaccinated individuals than unvaccinated individuals

- From 29 December 2020 to 26 November 2021, 1,544 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 0.040% of those who have received at least two doses of COVID-19 vaccines.

- Age-standardised mortality rates for COVID-19 deaths are lower for people who have received at least 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 (Alpha and Delta variants). 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. Data from the UKHSA shows that vaccine effectiveness against Delta infection is waning, but remains high, against hospitalisation and death. The first real world results of the effectiveness of the booster vaccination against symptomatic disease (Delta variant) shows very high vaccine effectiveness, higher than for the primary course, at 93-94%.
Table 13: Number of COVID-19 positive cases individuals by week and vaccination status, 06 November 2021 to 03 December 2021

<table>
<thead>
<tr>
<th>Vaccination Status</th>
<th>Unvaccinated</th>
<th>1 Dose</th>
<th>2 or more Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Cases</td>
<td>Total pop. unvaccinated</td>
<td>% Cases</td>
</tr>
<tr>
<td>06 November - 12 November 2021</td>
<td>8,112</td>
<td>1,598,503</td>
<td>0.51%</td>
</tr>
<tr>
<td>13 November - 19 November 2021</td>
<td>7,992</td>
<td>1,587,234</td>
<td>0.50%</td>
</tr>
<tr>
<td>20 November - 26 November 2021</td>
<td>6,651</td>
<td>1,579,519</td>
<td>0.42%</td>
</tr>
<tr>
<td>27 November - 03 December 2021</td>
<td>6,069</td>
<td>1,573,551</td>
<td>0.39%</td>
</tr>
</tbody>
</table>

Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 6. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated.

In the last four weeks from 06 November to 03 December 2021, COVID-19 case rates have been decreasing for fully vaccinated and unvaccinated individuals. In the last week from 27 November to 03 December 2021, the case rate in unvaccinated populations was 386 COVID-19 cases per 100,000 individuals, compared to 239 COVID-19 cases per 100,000 individuals vaccinated with two or more doses.
Figure 14: COVID-19 case rate per 100,000 individuals eligible for vaccination by vaccination status, seven-day rolling average from 10 May 2021 to 03 December 2021

Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 6. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated.

There are lower rates of cases in fully vaccinated individuals compared to unvaccinated individuals.
Figure 15: 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 03 December 2021

Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 6. Patient age is determined as their age the date of admission. Data displayed in this figure only includes ages groups currently eligible for the vaccine e.g. 12 years and over. The data displayed within the greyed-out section 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.
COVID-19 case rates are similar between females and males.

Vaccination status is determined as at the date of PCR specimen date according to the definitions described in Appendix 6. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated.
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 03 December 2021, there were a total of 1,364,400 acute hospital admissions for any cause, of which 31,381 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, 31,316 individuals were admitted to hospital, of which 100 were readmitted more than 90 days after their first admission.
Figure 17: 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 03 December 2021

Data displayed are on a log$_{10}$ scale. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated.

In the last four weeks from 06 November 2021 to 03 December 2021, the number of COVID-19 related hospital admissions have decreased. The number of COVID-19 related hospital admissions are small, relative to all acute hospitalisations.
Table 14: 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, 06 November 2021 to 03 December 2021

| Week/Vaccination Status | Unvaccinated | | | 1 Dose | | | 2 or more 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 |
| 06 November - 12 November 2021 | 138 | 24.60 (17.82 - 31.37) | 17 | 17.38 (5.31 - 29.44) | 371 | 7.23 (6.48 - 7.98) |
| 13 November - 19 November 2021 | 134 | 19.83 (14.36 - 25.31) | 19 | 17.08 (5.45 - 28.72) | 327 | 6.33 (5.63 - 7.02) |
| 20 November - 26 November 2021 | 116 | 19.10 (14.00 - 26.00) | 22 | 21.79 (8.97 - 34.60) | 253 | 5.01 (4.37 - 5.64) |
| 27 November - 03 December 2021 | 121 | 19.09 (13.49 - 24.69) | 17 | 17.79 (5.58 - 30.01) | 210 | 4.20 (3.61 - 4.78) |

Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 6. The data displayed within the greyed-out section 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 6).

On average, unvaccinated individuals are younger than individuals with two or more 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 14 and Figure 17. In all age groups, the age-standardised hospitalisation rate of admissions per 100,000 were higher in unvaccinated individuals compared to vaccinated individuals.

In the past four weeks, from 06 November 2021 to 03 December 2021, the age-standardised rate of hospital admissions per 100,000 were higher in unvaccinated individuals compared to vaccinated individuals. In the last week in an age-standardised population, individuals were 4.5 times more likely to be in hospital with COVID-19 if they were unvaccinated compared to individuals that had received two or more 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.

The PHS Weekly Statistical Report, published 01 December 2021, provides an updated analysis of hospital admissions ‘because of’ COVID-19 (where COVID-19 is the primary cause of admission) in comparison to admissions ‘with’ COVID-19 (where COVID-19 is not the primary reason for admission, but the individual has tested positive by PCR). This was based on aggregated data for six NHS Boards up to August 2021 and does not provide a breakdown by vaccine status. It was estimated that in August 2021, 68% of admissions were ‘because of’ COVID-19 and the remaining 32% were ‘with’ COVID-19.
Figure 18: 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 03 December 2021.

Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 6. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated. 95% confidence intervals are shown as the shaded regions.

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 or more ASR).

The age standardised rate of acute hospital admissions for fully vaccinated individuals remains lower than that in unvaccinated individuals.
Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 6. Patient age is determined as their age the date of admission. Data displayed in this figure only includes ages groups currently eligible for the vaccine e.g. 12 years and over. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated.

Overall, the highest rates of acute hospital admissions were in the oldest age groups. 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.

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 26 November 2021, there have been 5,401 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, 65.4% (n = 3,534) were in unvaccinated individuals, 6.0% (n = 323) had received one dose of COVID-19 vaccine and 28.6% (n = 1,544) had received at least 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 3.9 million individuals had been fully vaccinated with at least two doses of COVID-19 vaccine. Of these, 1,544 individuals (0.040%) 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. Of the confirmed COVID-19 related deaths, in individuals that have received at least two doses of COVID-19 vaccine, 78.0% were in over 70 year old individuals.

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 15).
Table 15: Number of confirmed COVID-19 related deaths by vaccination status at time of test and age-standardised mortality rate per 100,000, 30 October 2021 to 26 November 2021

<table>
<thead>
<tr>
<th>Week/Vaccination Status</th>
<th>Unvaccinated</th>
<th>1 Dose</th>
<th>2 or more Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of deaths</td>
<td>Age Standardised Mortality Rate per 100,000 with 95% confidence intervals</td>
<td>No. of deaths</td>
</tr>
<tr>
<td>30 October - 05 November 2021</td>
<td>21</td>
<td>10.45 (5.14 - 15.75)</td>
<td>3</td>
</tr>
<tr>
<td>06 November - 12 November 2021</td>
<td>11</td>
<td>5.05 (1.52 - 8.58)</td>
<td>4</td>
</tr>
<tr>
<td>13 November - 19 November 2021</td>
<td>13</td>
<td>4.91 (1.58 - 8.25)</td>
<td>2</td>
</tr>
<tr>
<td>20 November - 26 November 2021</td>
<td>19</td>
<td>8.93 (4.15 - 13.71)</td>
<td>1</td>
</tr>
</tbody>
</table>

Vaccination status is determined as at the date of positive PCR test according to the definitions described in Appendix 6. The data displayed within the greyed-out section are considered preliminary and are subject to change as more data is updated. 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 6). 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.

Age-standardised mortality rates for COVID-19 deaths shown in Table 15 are lower for people who have received two or more doses of a COVID-19 vaccine compared to individuals that are unvaccinated or have received one dose of a COVID-19 vaccine. This is comparable with data published by the Office for National Statistics which showed the risk of death involving COVID-19 was consistently lower for people who had received two vaccinations compared to one or no vaccination, as shown by the weekly age-standardised mortality rates for deaths involving COVID-19.
Overall deaths that have occurred in the 28 days following a COVID-19 vaccination

Analyses are presented to show the total number of deaths from any cause in people aged 16 and over that occurred within 28 days of receipt of a dose 1 or dose 2 COVID-19 vaccine in Scotland from 8 December 2020 (the beginning of the COVID-19 Vaccination Programme) to 26 November 2021. The analysis includes all recorded deaths due to any cause and does not refer to deaths caused by or associated with the vaccine itself.

Please note that this is the last publication scheduled to provide an update of this information.

To understand about the effectiveness of the COVID-19 vaccinations, please refer to section COVID-19 cases, acute hospitalisations, and deaths by vaccine status, and for the number of deaths caused or associated with the vaccine itself, please refer to National Records of Scotland (NRS) monthly mortality report. From 1 March 2020 to 31 October 2021, NRS released that there have been five deaths where the underlying cause was adverse effects of COVID-19 vaccines: [https://www.nrscotland.gov.uk/files//statistics/covid19/covid-deaths-21-data-week-45.xlsx](https://www.nrscotland.gov.uk/files//statistics/covid19/covid-deaths-21-data-week-45.xlsx) (refer to Table 12).

As the vaccination programme has been rolled out to the entire adult population, many people will experience an illness or death in the days following their vaccination by coincidence. This is particularly the case for those vaccinated early in the programme, when the programme prioritised the very elderly population and those with pre-existing underlying health conditions. In order to account for this, we have compared the total number of observed deaths per month to the number we would have expected, based on the average number of deaths that occurred per month (by age band and gender) for the same time-period between 2015 and 2019. This is called excess mortality.

We have calculated a ratio of the observed versus expected number of deaths and 95% confidence intervals. The observed versus expected analysis does not take into account or provide information on cause of death, it does not predict deaths due to vaccination, and it does not estimate risk of death following vaccination. Calculating the observed versus expected ratio is a standard method for comparing cases or deaths occurring in different time periods. The confidence interval gives the range of values that we can be 95% certain contains the true ratio. For example, an observed versus expected ratio of 0.5 (95% CI: 0.25-0.75) means that the observed number of deaths was 50% lower what was than expected, but may have ranged from a 25% to a 75% reduction.

Between 8 December 2020 and 26 November 2021, a total of 5,958 people aged 16 and over died of any cause within 28 days of receiving a dose 1 or dose 2 COVID-19 vaccine in Scotland (number of days between vaccine and death is 0-27, where 0 is the day of vaccination). A breakdown of these deaths from any cause, by day and vaccine type is available in the [spreadsheet](https://www.nrscotland.gov.uk/files//statistics/covid19/covid-deaths-21-data-week-45.xlsx) provided along with this report. Using the 5-year average monthly death rate (by age band and gender) from 2015 to 2019 for comparison, 9,262 deaths would have been expected among the vaccinated population within 28 days of receiving their dose 1 or dose 2 COVID-19 vaccination. This means the observed number of deaths from any cause is lower than expected compared with mortality rates for the same time period in previous years (dose 1 observed/expected ratio: 0.67, 95%CI= 0.65 to 0.69; dose 2 observed/expected ratio: 0.61, 95%CI=0.59 to 0.64).

Tables 16 and 17 below provide the observed and expected deaths of people aged 16 and over from any cause within 28 days of vaccination for the period 8 December 2020 to 26
November 2021, by age group and vaccine dose number. The majority of these deaths (3,176; 53.3%) occurred within the 80+ age group. For all age groups, there were less deaths than we would have expected based on mortality rates for the same time period in previous years.

Table 16: Number of deaths that have occurred within the 28 days following a dose 1 COVID-19 vaccination

<table>
<thead>
<tr>
<th>Number of days post 1st dose vaccination</th>
<th>Age Group in Years</th>
<th>Observed Number of Deaths</th>
<th>Expected Number of Deaths</th>
<th>Observed/Expected Ratio</th>
<th>95% Lower Confidence Interval</th>
<th>95% Upper Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-27</td>
<td>16-49</td>
<td>133</td>
<td>222</td>
<td>0.60</td>
<td>0.50</td>
<td>0.71</td>
</tr>
<tr>
<td>0-27</td>
<td>50-69</td>
<td>606</td>
<td>953</td>
<td>0.64</td>
<td>0.59</td>
<td>0.69</td>
</tr>
<tr>
<td>0-27</td>
<td>70-79</td>
<td>779</td>
<td>1,245</td>
<td>0.63</td>
<td>0.58</td>
<td>0.67</td>
</tr>
<tr>
<td>0-27</td>
<td>80+</td>
<td>1,841</td>
<td>2,611</td>
<td>0.71</td>
<td>0.67</td>
<td>0.74</td>
</tr>
<tr>
<td>0-27</td>
<td>All Ages (16+)</td>
<td>3,359</td>
<td>5,030</td>
<td>0.67</td>
<td>0.65</td>
<td>0.69</td>
</tr>
</tbody>
</table>

The sum of the breakdowns may not match totals due to rounding.

Table 17: Number of deaths that have occurred within the 28 days following a dose 2 COVID-19 vaccination

<table>
<thead>
<tr>
<th>Number of days post 2nd dose vaccination</th>
<th>Age Group in Years</th>
<th>Observed Number of Deaths</th>
<th>Expected Number of Deaths</th>
<th>Observed/Expected Ratio</th>
<th>95% Lower Confidence Interval</th>
<th>95% Upper Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-27</td>
<td>16-49</td>
<td>91</td>
<td>199</td>
<td>0.46</td>
<td>0.37</td>
<td>0.56</td>
</tr>
<tr>
<td>0-27</td>
<td>50-69</td>
<td>533</td>
<td>864</td>
<td>0.62</td>
<td>0.57</td>
<td>0.67</td>
</tr>
<tr>
<td>0-27</td>
<td>70-79</td>
<td>640</td>
<td>1,074</td>
<td>0.60</td>
<td>0.55</td>
<td>0.64</td>
</tr>
<tr>
<td>0-27</td>
<td>80+</td>
<td>1,335</td>
<td>2,095</td>
<td>0.64</td>
<td>0.60</td>
<td>0.67</td>
</tr>
<tr>
<td>0-27</td>
<td>All Ages (16+)</td>
<td>2,599</td>
<td>4,232</td>
<td>0.61</td>
<td>0.59</td>
<td>0.64</td>
</tr>
</tbody>
</table>

The sum of the breakdowns may not match totals due to rounding.

The lower-than-expected mortality rates observed post dose 1 and dose 2 could be explained by a number of factors. In the pandemic period from 16 March 2020 to 6 December 2020 inclusive, there were 6,358 excess deaths recorded in Scotland compared with the previous 5-year average (2015 to 2019) (https://www.nrscotland.gov.uk/covid19stats). In the same period, 5,877 deaths were recorded with a confirmed or suspected COVID-19 cause of death. COVID-19 infection may have caused premature deaths among some individuals prior to the start of the vaccination programme, who would have otherwise died in the months after the vaccination programme commenced. Additional information on excess mortality during the COVID-19 pandemic, including comparisons with other countries is available at https://ourworldindata.org/excess-mortality-covid. Furthermore, high mortality rates in winter months are usually attributed to seasonal influenza. However, the 2020/2021 rate of
influenza in Scotland was much lower than previous years. This is likely due to the restrictions in place to prevent the spread of COVID-19 as well as a higher than average rate of vaccine uptake for influenza across most eligible cohorts. For more information on the seasonal influenza activity in Scotland, please see the latest Weekly National Seasonal Respiratory Report. Restrictions and behavioural changes to prevent the spread of COVID-19 may have also reduced deaths due to other infectious and non-infectious causes.
Hospital/ Wider System Pressures

NHS services across NHS Scotland are subject to increased demand during the winter period. The information presented in this section aims to support the reader in drawing insights from a wider range of existing metrics around COVID-19 and winter pressures.

Unscheduled Care

As individuals in Scotland make contact with Unscheduled Care Services, data about who they are, where they have come from, what is wrong with them and what happens to them are collected, mainly to inform their care. This provides a good picture of the potential unscheduled care journeys that an individual may travel through.

Pressures on unscheduled care services are a familiar sight during the winter. Increased incidence of respiratory infections, alongside an increased acuity of illness and demands on primary care leads to increased demand on unscheduled care.

NHS inform is Scotland’s digital health and care resource, providing the up to date standardised information on COVID-19 from a health perspective. Information is provided in a range of languages and alternative formats (www.nhsinform.scot/coronavirus).

Additional information can be found on the wider impacts dashboard and also in our interactive dashboard.

NHS 24

During COVID-19 there has been a rapid reconfiguration of primary and community care services. As part of this NHS 24’s 111 service has been reconfigured as an in-hours (as well as out-of-hours) route for COVID-19 triage for rapid access to care via local COVID-19 assessment hubs. In addition to this, from 1st December 2020, the national Redesign of Urgent Care Programme introduced new pathways from NHS 24 to Flow Navigation Centres, with the aim of reducing the numbers of people attending A&E and diverting to more appropriate care closer to home. This is available as part of a 24/7 service, further increasing NHS 24 in-hours activity (Monday to Friday, 8am to 6pm).

Information on COVID-19 related contacts to NHS24 and the Coronavirus Helpline are presented in our interactive dashboard which supplements this report.

Primary Care Out of Hours (OOH)

Across Scotland, NHS Boards provide Primary Care Out of Hours (OOH) services for patients’ when their registered GP practice is closed. Information is available via the Wider Impacts dashboard.

Scottish Ambulance Service (SAS)

Key statistics on unscheduled care operational measures across Scotland, including trends in the number of unscheduled care incidents, responses, conveyances to hospital, response times and hospital turnaround times is available from the Scottish Ambulance Service (SAS) weekly unscheduled care operational statistics release.
Accident & Emergency (A&E) activity

Additional information on Accident and Emergency (A&E) performance is available via the weekly A&E activity and Waiting Times publication, which provides an update of key statistics on attendances at Accident and Emergency (A&E) services across Scotland.

Accident and Emergency waiting times and activity reporting on performance against the 4 hour waiting time standard, and the target to reduce attendances at Emergency Departments.

Large decreases in attendances at A&E services in NHSScotland were observed in spring 2020 winter 2020/21 due to the measures put in place to respond to COVID-19. Since spring 2021 attendances at A&E have been rising and are getting closer to the pre-COVID levels. However, from the summer of 2021 performance against the four hour standard has dropped below 80% and has remained at this rate for a prolonged period of time.

Emergency Admissions

The information presented in this section aims to provide a better understanding of the underlying trends in emergency admissions during this period.

Figure 19 below shows the overall weekly trend of emergency acute hospital admissions (including COVID-19) from week ending 05 January 2021 to 30 November 2021. The number of emergency admissions have generally been decreasing since week ending 09 November 2021.

Figure 20: Trend of all Emergency Acute Hospital Admissions in Scotland
Table 18 below shows a breakdown of Emergency Admissions to acute hospital across all ages and by age group for the period 03 November 2021 to 30 November 2021.

### Table 18: Emergency Hospital Admissions by age as at 30 November 2021

<table>
<thead>
<tr>
<th>Age Band</th>
<th>03 November – 09 November</th>
<th>10 November – 16 November</th>
<th>17 November – 23 November</th>
<th>24 November – 30 November</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>1,694</td>
<td>1,590</td>
<td>1,529</td>
<td>1,435</td>
</tr>
<tr>
<td>18-29</td>
<td>789</td>
<td>782</td>
<td>753</td>
<td>733</td>
</tr>
<tr>
<td>30-39</td>
<td>841</td>
<td>864</td>
<td>829</td>
<td>759</td>
</tr>
<tr>
<td>40-49</td>
<td>962</td>
<td>858</td>
<td>958</td>
<td>842</td>
</tr>
<tr>
<td>50-54</td>
<td>598</td>
<td>680</td>
<td>595</td>
<td>591</td>
</tr>
<tr>
<td>55-59</td>
<td>722</td>
<td>717</td>
<td>772</td>
<td>732</td>
</tr>
<tr>
<td>60-64</td>
<td>810</td>
<td>730</td>
<td>758</td>
<td>745</td>
</tr>
<tr>
<td>65-69</td>
<td>898</td>
<td>831</td>
<td>751</td>
<td>810</td>
</tr>
<tr>
<td>70-74</td>
<td>1,029</td>
<td>976</td>
<td>988</td>
<td>1,032</td>
</tr>
<tr>
<td>75-79</td>
<td>962</td>
<td>955</td>
<td>937</td>
<td>996</td>
</tr>
<tr>
<td>80+</td>
<td>2,262</td>
<td>2,180</td>
<td>2,161</td>
<td>2,179</td>
</tr>
<tr>
<td>Total</td>
<td>11,567</td>
<td>11,163</td>
<td>11,031</td>
<td>10,854</td>
</tr>
</tbody>
</table>

Source: RAPID (Rapid and Preliminary Inpatient Data)

3. Please refer to Appendix 3 – Hospital Admissions Notes for explanatory notes regarding RAPID Hospital Admissions.

In the latest week there has been a 1.6% decrease in the number of emergency admissions, those aged 80+ years having the highest number of admissions. Also, in the latest week more than 53.1% of the hospital admissions related to patients aged 60+.
Waiting Times

Waiting times are important to patients and are a measure of how the NHS is responding to demands for services. Measuring and regular reporting of waiting times highlights where there are delays in the system and enables monitoring of the effectiveness of NHS performance throughout the country.

Public Health Scotland routinely publish a range of statistics on Waiting Times, including: waiting times for diagnostic tests, new outpatient appointments, inpatient and day case treatments.

These statistics continue to be affected by the COVID-19 (Coronavirus) pandemic. At the start of the outbreak, many services were paused or reduced and there were fewer referrals. Boards started to resume relevant services, from June 2020. However, as a second wave of COVID-19 cases emerged through the Autumn and winter months, many Boards had to temporarily pause non-urgent diagnostic tests during the months of January and February 2021. Access to services has generally increased since then but some Boards may have been temporarily impacted by a return to high infection rates in recent months as lockdown restrictions eased.
**Delayed Discharges**

Timely discharge from hospital is an important indicator of quality. It is a marker for person-centred, effective, integrated and harm free care.

For most patients, following completion of health and social care assessments, the necessary care, support and accommodation arrangements are put in place in the community without any delay and the patient is appropriately discharged from hospital.

A delayed discharge occurs when a patient aged 18 years and over, clinically ready for discharge, cannot leave hospital because the other necessary care, support or accommodation for them is not readily accessible and/or funding is not available, for example to purchase a care home place.

Public Health Scotland publish monthly statistics on [Delayed Discharges](https://www.publichealthscotland.gov.uk) in Scotland. These figures provide the number of hospital bed days associated with delayed discharges and the number of discharges from hospital following a period of delay. Information is also provided on the number of people experiencing a delay in discharge from hospital at the monthly census point.

Delayed Discharge figures in NHSScotland have been affected by measures put in place to respond to COVID-19. The marked fall in delayed discharges during 2020 is likely due to patients being moved out of hospital to increase capacity.
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
- Accident and Emergency attendances
- NHS 24 completed contacts
- Out of hours cases
- Scottish Ambulance Service
- Excess deaths
- Outpatient appointments
- Healthcare for cardiovascular disease
- Healthcare for mental health
- Women booking antenatal care
- Healthcare for birth and babies
- Termination of pregnancy
- Child health
- Cancer
- Substance use
- Injuries

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.
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

Weekly National Seasonal Respiratory Report
Weekly national seasonal respiratory report - Week 46 2021 - Weekly national seasonal respiratory report - Publications - Public Health Scotland
The next release of this publication will be 15 December 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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Early access details

Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", PHS is obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

Scottish Government Health Department
NHS Board Chief Executives
NHS Board Communication leads
COVID in Pregnancy (COPS) co-investigators (Covid in pregnancy linked academia paper)
Nature Mecine Editorial Team (Covid in pregnancy linked academia paper)
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.

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.

RAPID is a daily submission of people who have been admitted and discharged to hospital. These data include admissions to acute hospitals only and do not include psychiatric or maternity/obstetrics specialties. 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.

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.

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 – Contact Tracing

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 5 – 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 us 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.

Appendix 6 – 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 EC OSS. 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 for the 16 and over population are taken from the COVID-19 vaccination database. The denominator under 16 year olds 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. This is a particular issue for the denominator for the unvaccinated cohort, because for vaccinated individuals we know they were resident in Scotland at the time of their vaccination whereas for the unvaccinated cohort there will be a mixture of people who have chosen not to have the vaccine and those who are no longer resident in Scotland. This means that the rates of COVID infection and harm for the
unvaccinated groups will be underestimated, whereas the rates for the vaccinated groups will be more accurate.

**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 or more**: An individual that has had at least 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.

**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.

Hospital admission data is extracted from the Rapid and Preliminary Inpatient Data (RAPID) dataset on Monday 29 November 2021.

**Confirmed COVID-19 deaths** Death data were extracted from the SMRA dataset on Thursday 18 November 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 an underlying or
contributory cause of death on the death certificate. Vaccine status is determined at time of most recent specimen date.

**Age standardised hospitalisation and mortality rates** are used to allow comparisons of hospitalisation and 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.