ROYAL STATISTICAL SOCIETY
DATA | EVIDENCE | DECISIONS

Health Statistics User Group
Royal Statistical Society Official Statistics Section

Statistical Methods for COVID-19:

Test, Trace and Protect

The webinar will start at 12 noon

Scottish Government
Riaghaltas na h-Alba
gov.scot

Llywodraeth Cymru
Welsh Government

Department of Health & Social Care

Public Health Scotland

Office for National Statistics

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Statistical Methods for COVID-19: Test, Trace and Protect

January 28 2021, 12.00-1.30pm

Scottish Government
Riaghaltas na h-Alba
gov.scot

Llywodraeth Cymru
Welsh Government

Department of Health & Social Care

Public Health Scotland

Office for National Statistics

Housekeeping

- All participants, apart from speakers, will be muted during the webinar
- Questions can be submitted via chat. Please put QUESTION at the start, and the speaker to which this is directed.
- No photos or screenshots please. All presentations will be available afterwards.
- A recording of the session will be available for 2 weeks afterwards

Speakers

- **Sarah Whitehead,** Office for Statistics Regulation
- **Jennifer Snape,** Department for Health and Social Care
- **Scott Heald, Jade Carruthers, Emma McNair,** Public Health Scotland
- **Alexandra Fitzpatrick, Sian Cross,** Welsh Government
- **Russell Black,** Office for National Statistics

Office for Statistics Regulation

UK Statistics Authority

Statistical methods for Covid-19: Test, Trace and Protect

Sarah Whitehead
Office for Statistics Regulation
January 2021

Office for Statistics Regulation

An introduction to OSR

- The regulatory arm of the UK Statistics Authority
- Promote and safeguard the production and publication of official statistics
- Independent regulation of official statistics produced in the UK
- Do not produce statistics and are separate from the Office for National Statistics (ONS)

Office for Statistics Regulation

OSR guidance

Changes to statistics

Guidance on statistical practice for statistics producers during the coronavirus crisis

Production and use of management information by government and other official bodies

Guidance on the suspension of national statistics status

Our approach to rapid regulatory reviews

Office for Statistics Regulation

What we've learned from the pandemic

- Trustworthiness really matters – statisticians should not be misleading the public and should be transparent about plans and changes
- Be clear what statistics do and don’t say and their limitations
- Publish as a default
- Provide as much context, insight and granularity as can be managed in the time available
- Collaborate and share knowledge

Office for Statistics Regulation

UK Statistics Authority

To get in touch or find out more:
regulation@statistics.gov.uk

Visit our website and follow us on Twitter:
https://osr.statisticsauthority.gov.uk/
@StatsRegulation

NHS Test and Trace Statistics (England)

Publication Development

Jennifer.snape@dhsc.gov.uk

statistics@dhsc.gov.uk

Development Timeline

12 May – Test and Trace Reporting team created
28 May – Launch of NHS Test and Trace Program
11 June – First NHS Test and Trace Publication (10 pages in length), tracing data only
18 June – Statement of compliance with code of practice published
3 July – First addition of testing data
20 July – UK Stats Authority Rapid Review
10 Aug – Publication restructuring
18 Aug – End of DHSC daily reporting, addition of regional data
24 Sep – New demographic data
1 Oct – New test processed data
17 Dec – removal of UK testing figures
28 Jan – 34th NHS test and Trace Publication: User survey

Transparency data

Weekly statistics for NHS Test and Trace (England) and coronavirus testing (UK): 22 October to 28 October

Published 5 November 2020

Contents

Main points
Introduction
Revisions to figures previously published
NHS Test and Trace
Contact tracing in England
NHS COVID-19 app in England and Wales
Coronavirus (COVID-19) testing in the UK
Terminology
Measuring the data
Quality
Feedback
Annex A: tables

Print this page

Main points

Since NHS Test and Trace launched (28 May to 28 October)

137,180 people tested positive for coronavirus (COVID-19) at least once[footnote 1] in England between 15 October and 28 October. Positive cases have been rising steeply since the end of August and in the latest week there has been an increase of 8% compared to the previous week. 9.3% of people tested had a positive result; this rate has been increasing since the end of August, when the positivity rate was 0.9%.

1,482,528 people were tested at least once for COVID-19,[footnote 1] similar to the previous week. A total of 10,218,475 people has been tested at least once since Test and Trace began.

Turnaround times for pillar 2 (swab testing for the wide population) for all in-person testing routes[footnote 2] have improved compared to the previous week but continue to

Test and Trace - Challenges

Starting from Scratch

Deciding what to publish and how to present it

How to apply the code of practice for statistics

Weekly Development Cycle

Friday	• Planning • Agree what is going to be in the next release • Continuous improvements
Monday	
Tuesday	• Receive Data • Put together Release • QA • Sign off
Wednesday	
Thursday	• Final Changes • Publish 11am • Celebrate!

Understanding the Data

- Multiple data sources for test and trace. We worked with PHE, NHSE, NHS Digital, Commercial Partners

Public Health England

NHS Digital

Deloitte.

Delivering Clear Story for User

- Clear commentary
- Signposting to other data sources
- Creating new DHSC stats mailbox for user feedback

Evolving Programme

- Constantly adapting publication to an evolving T&T program

Test and Trace – Next steps

New Breakdowns

- Mass testing technologies
- Local contact tracing
- Regional contact tracing (weekly)

Publication development

- User survey
- Further consolidation of data
- Re-design of publication commentary

RSS COVID Session
Test & Protect in Scotland

Scott Heald, Emma McNair, Jade Carruthers
21 January 2020

Public Health Scotland

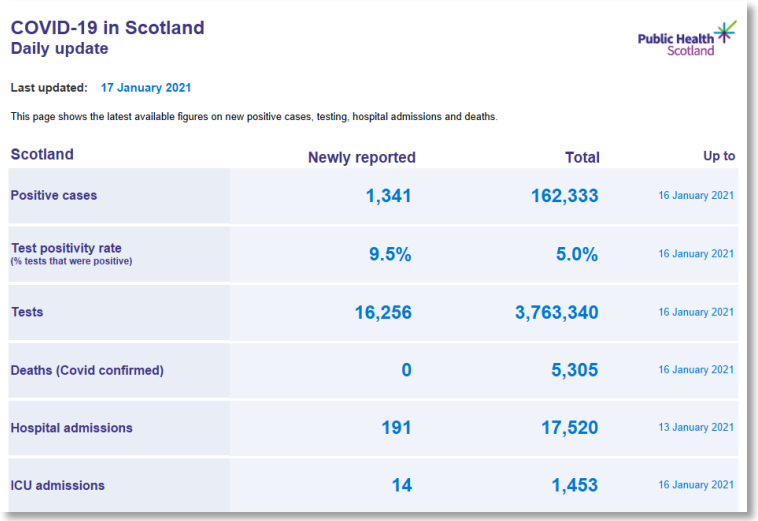
Introduction

- COVID response is a devolved matter and is the responsibility of the Scottish Government in Scotland, working with a range of national and local bodies (e.g. NHS Boards, Local Authorities)
- Public Health Scotland was created in April 2020 and plays a major role in Scotland's COVID response.
    - The "old" Information Services Division (ISD) and Health Protection Scotland (HPS) are now part of Public Health Scotland
    - Majority of public-facing COVID related statistics are produced by Public Health Scotland
- Range of statistics produced daily, weekly and for adhoc reports

Where can you find COVID statistics in Scotland?

- Daily statistics are published each day at 2pm:
  - Scottish Government website for high-level figures
  - Public Health Scotland COVID-19 dashboard, which allows more detailed breakdown and open data
- Public Health Scotland produces a weekly COVID-19 report, bringing together a range of statistics, some produced every week and others produced as one-off “special topics”
- Public Health Scotland also produces a range of reports on COVID-19, including a recent evaluation of shielding in Scotland which was published on Wed 20 January.
- All non-daily COVID reports are published at 12 noon each Wednesday.

PHS COVID-19 Daily Dashboard



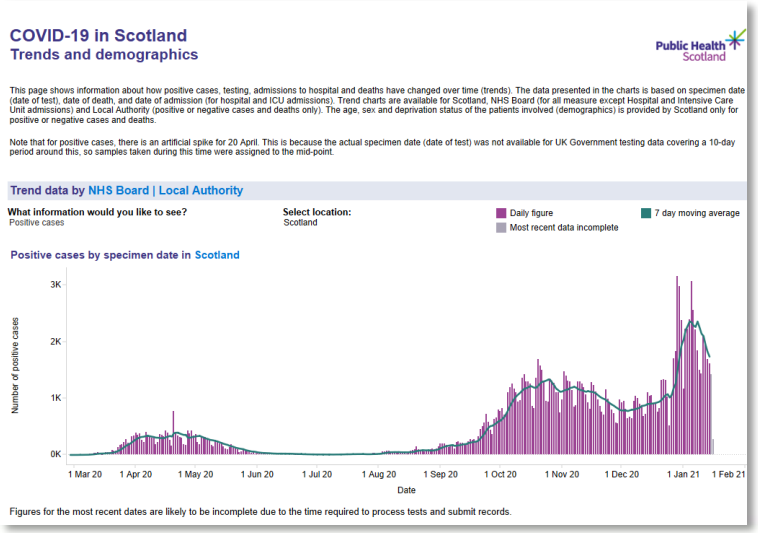
COVID-19 in Scotland
Daily update

Public Health Scotland

Last updated: 17 January 2021

This page shows the latest available figures on new positive cases, testing, hospital admissions and deaths.

Scotland	Newly reported	Total	Up to
Positive cases	1,341	162,333	16 January 2021
Test positivity rate (% tests that were positive)	9.5%	5.0%	16 January 2021
Tests	16,256	3,763,340	16 January 2021
Deaths (Covid confirmed)	0	5,305	16 January 2021
Hospital admissions	191	17,520	13 January 2021
ICU admissions	14	1,453	16 January 2021



COVID-19 in Scotland
Trends and demographics

Public Health Scotland

This page shows information about how positive cases, testing, admissions to hospital and deaths have changed over time (trends). The data presented in the charts is based on specimen date (date of test), date of death, and date of admission (for hospital and ICU admissions). Trend charts are available for Scotland, NHS Board (for all measure except Hospital and Intensive Care Unit admissions) and Local Authority (positive or negative cases and deaths only). The age, sex and deprivation status of the patients involved (demographics) is provided by Scotland only for positive or negative cases and deaths.

Note that for positive cases, there is an artificial spike for 20 April. This is because the actual specimen date (date of test) was not available for UK Government testing data covering a 10-day period around this, so samples taken during this time were assigned to the mid-point.

Trend data by NHS Board | Local Authority

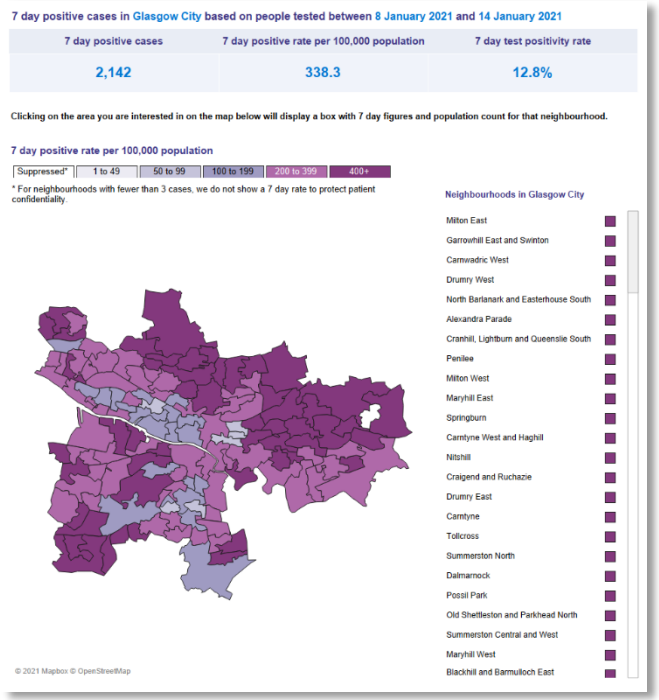
What information would you like to see? Positive cases

Select location: Scotland

Daily figure
7 day moving average
Most recent data incomplete

Positive cases by specimen date in Scotland

Figures for the most recent dates are likely to be incomplete due to the time required to process tests and submit records.



7 day positive cases in Glasgow City based on people tested between 8 January 2021 and 14 January 2021

7 day positive cases	7 day positive rate per 100,000 population	7 day test positivity rate
2,142	338.3	12.8%

Clicking on the area you are interested in on the map below will display a box with 7 day figures and population count for that neighbourhood.

7 day positive rate per 100,000 population

Suppressed* | 1 to 49 | 50 to 99 | 100 to 199 | 200 to 399 | 400+

* For neighbourhoods with fewer than 3 cases, we do not show a 7 day rate to protect patient confidentiality.

https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview

https://www.opendata.nhs.scot/dataset/covid-19-in-scotland

PHS Contact Tracing outputs

- Weekly Statistics
- Report/Summary

- Detail/Trend Dashboard
- Open data

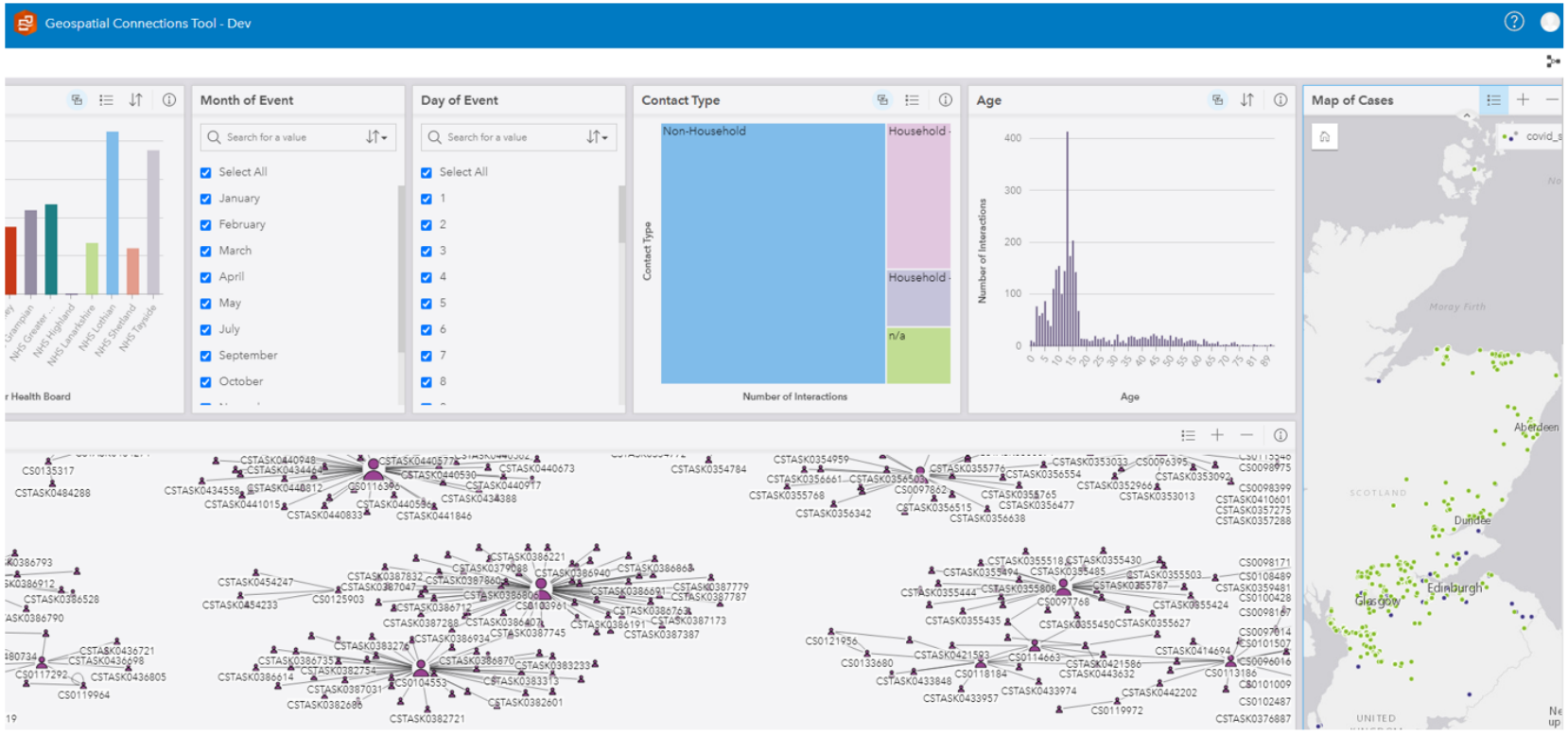
Feedback from users

- Open data – the most hits we have seen for any topic.

- Regular feedback from a variety of users (positive and negative!):
  - “Really helpful and informative”
  - “Information required at local level”
  - “No statistics!!”
  - “Bl**** awful website”

PHS Contact Tracing – Cluster Analysis

Top 30 Clusters Ranks view



Useful links

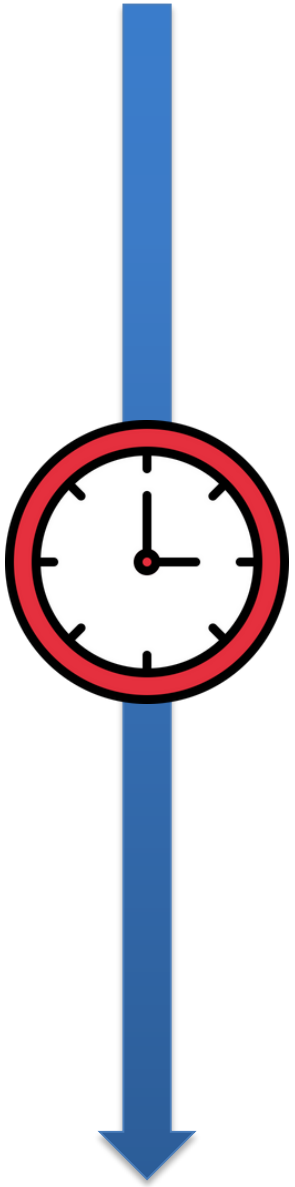
- Daily statistics:
  - Scottish Government: https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/
  - Public Health Scotland: https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview
- Public Health Scotland COVID-19 weekly report: https://beta.isdscotland.org/find-publications-and-data/population-health/covid-19/covid-19-statistical-report/
- Other reports published by Public Health Scotland:
  - Latest releases: https://www.publichealthscotland.scot/downloads/
  - Pre-announced: https://beta.isdscotland.org/forthcoming-publications/

Welsh Government
Contact Tracing

Thursday 28 January 2021

COVID-19 Analytical Hub, Knowledge and Analytical Services
Contact: KAS.COVID19@gov.wales

CONTACT TRACING IN WALES



Test

Coronavirus test is taken

Trace

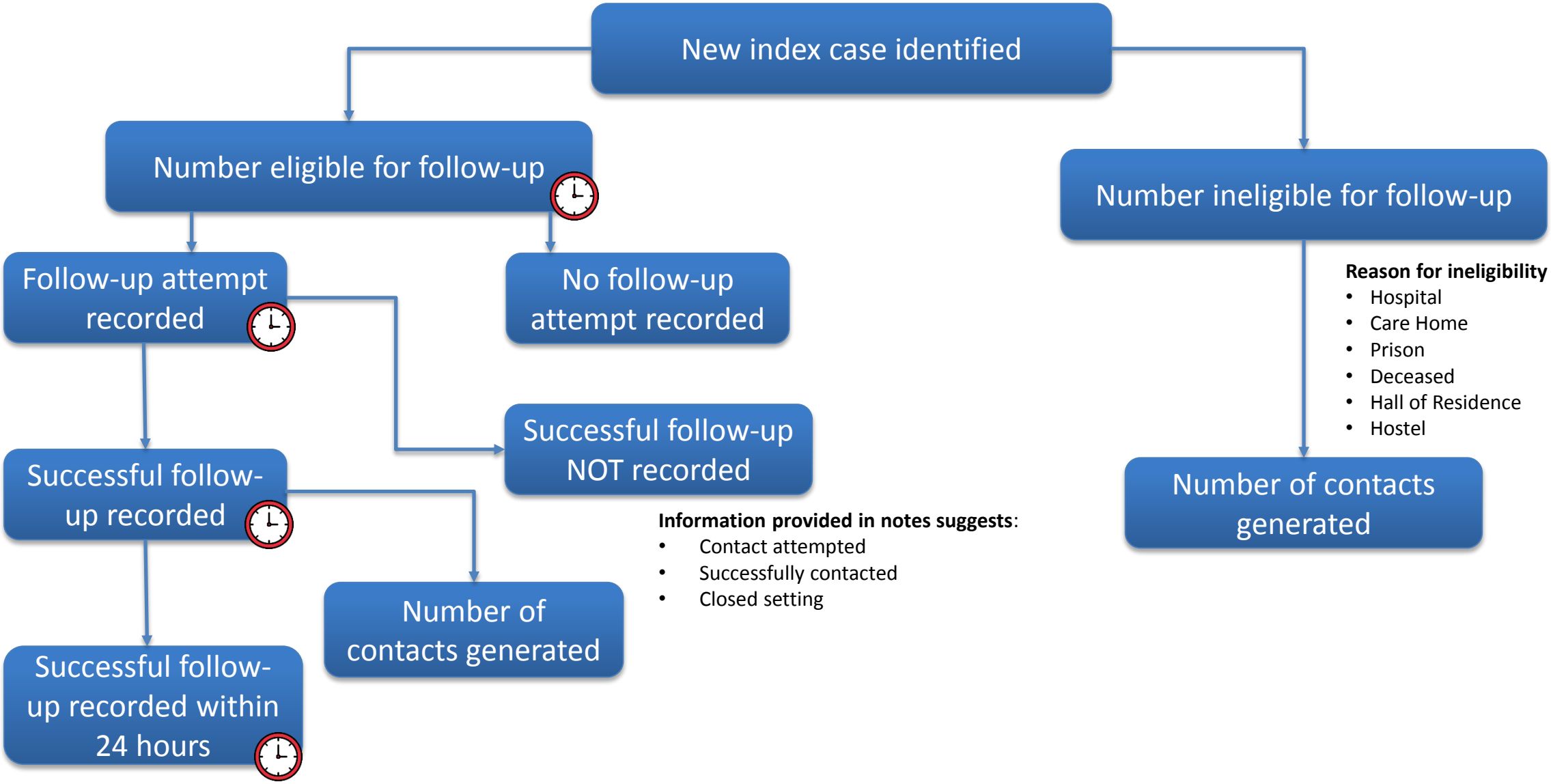
Negative result
No further action

Positive result
Positive cases will be contacted by a contact tracer via the NHS Test, Trace Protect service.

Contact tracer identifies who the index case has been in contact with and where they have been to trace possible contact cases

Contact advisor gets in touch with identified contacts to inform them that they have been in contact with someone who has tested positive and advises them to self isolate

INDEX CASES & MEASUREMENTS THROUGH THE PROCESS



BACKGROUND

Welsh Government publish weekly:

- Number of positive cases
- Number of close contacts
- Those reached by local contact tracing teams

+ a number of timeliness measures for those eligible for follow up

In preparation for the firebreak in Autumn:

Colleagues were interested in the effects of previous lockdowns/restrictions:

- Testing episodes
- Cases
- **Contacts**
- Hospitalisations

BACKGROUND

LOCKDOWN = FEWER CONTACTS?

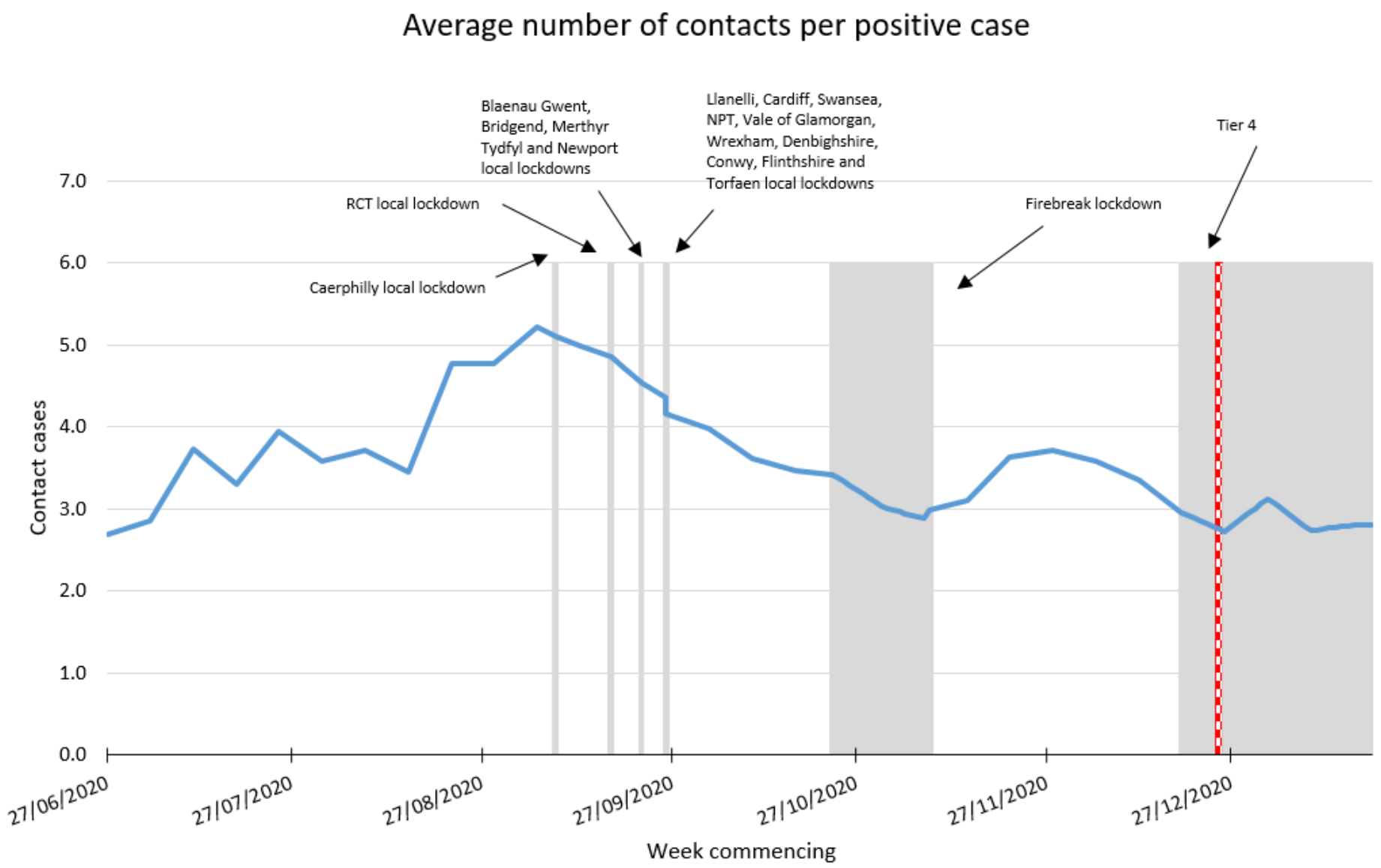
AVERAGE NUMBER OF CONTACTS PER CASE

USE EXPOSURE LOCATION

IDENTIFY SCHOOL CONTACTS

REMOVE SCHOOL CONTACTS

AVERAGE NUMBER OF CONTACTS PER POSITIVE CASE (EXPERIMENTAL ANALYSIS)



CAERPHILLY LOCKDOWN

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NEWS

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Wales | Wales Politics | Wales Business | North West | North East | Mid | South West | South East | Cymru | Local News

Coronavirus in Wales: Caerphilly county to go under local lockdown

7 September 2020

GIG CYMRU NHS WALES | Iechyd Cyhoeddus Cymru Public Health Wales

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Home › News › People in Caerphilly urged to social distance properly as clusters of coronavirus give caus

People in Caerphilly urged to social distance properly as clusters of coronavirus give cause for concern

Public Health Wales, Caerphilly County Borough Council and Aneurin Bevan University Health Board are urging people in Caerphilly to remember the vital importance of social distancing, as rising numbers of positive coronavirus (COVID-19) cases causes concern.

Dr Rhianwen Stiff, Consultant in Communicable Disease Control for Public Health Wales, said:

"There has been a significant rise in positive coronavirus cases in Caerphilly in the past week, and our investigations indicate that a lack of social distancing by a small group of people of all age groups, in a range of different locations has resulted in the spread of the virus to other parts of the population.

CaerphillyObserver
Independent Community News Service of the Year 2018

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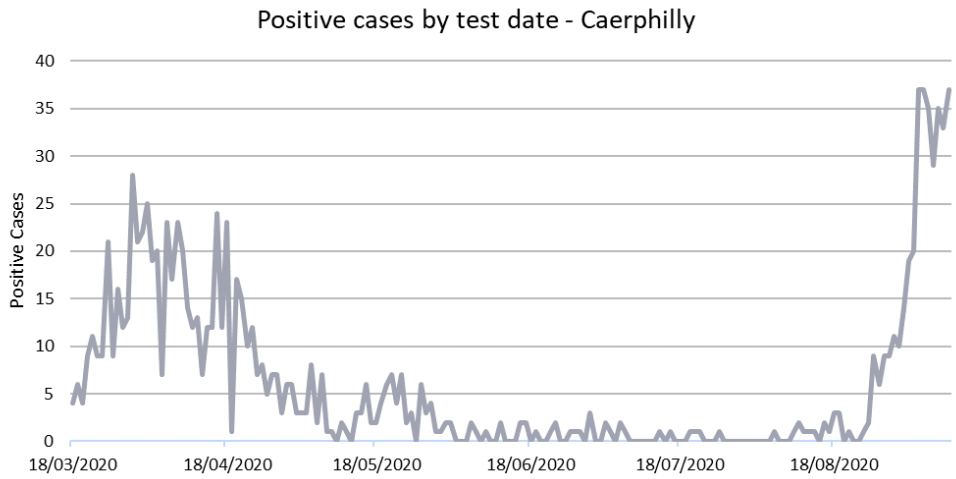
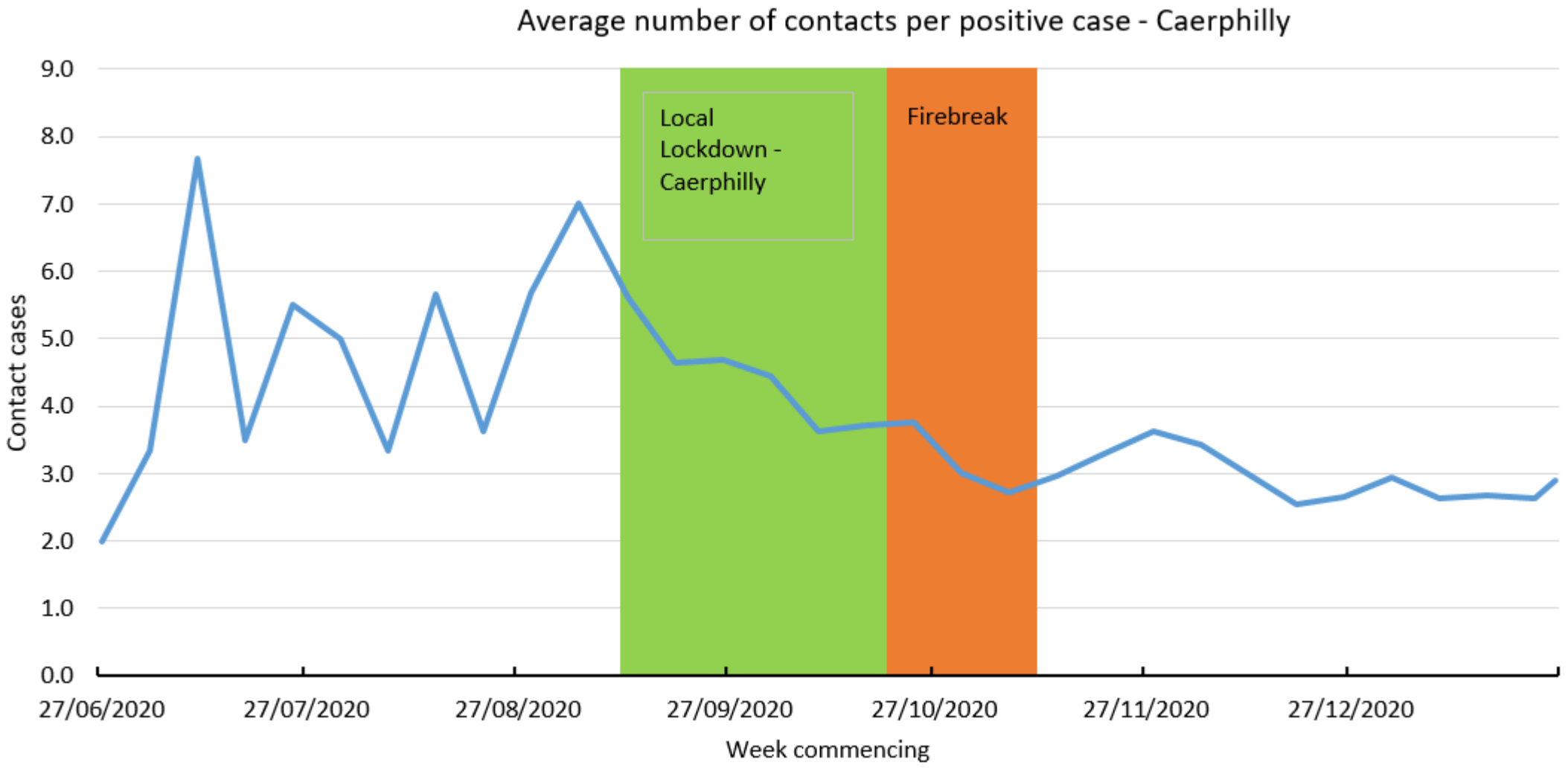
Coronavirus cases on the rise in Caerphilly County Borough

News | Rhys Williams | Published: 16:37, Thursday September 3rd, 2020.
Last updated: 16:40, Thursday September 3rd, 2020



REGIONAL DATA – CAERPHILLY – AVERAGE NUMBER OF CONTACTS PER POSITIVE CASE (EXPERIMENTAL ANALYSIS)



Llywodraeth Cymru
Welsh Government

Welsh Government
Contact Tracing

COVID-19 Analytical Hub, Knowledge and Analytical Services
Contact: **KAS.COVID19@gov.wales**

COVID-19 Infection Survey

RSS Test, Track and Trace Seminar

28 January 2021

Design and user requirements

- Aim: Measure rates of infection and how many people have developed antibodies to the virus over time
- Sample: Representative of UK by age, sex and region
- Method: Repeated at-home swab (infection) and venous blood (antibody)
- Pilot: 11,000 households, 25,000 people, from end-April 2020
- Main study: 150,000 participant visits per fortnight

Design and user requirements

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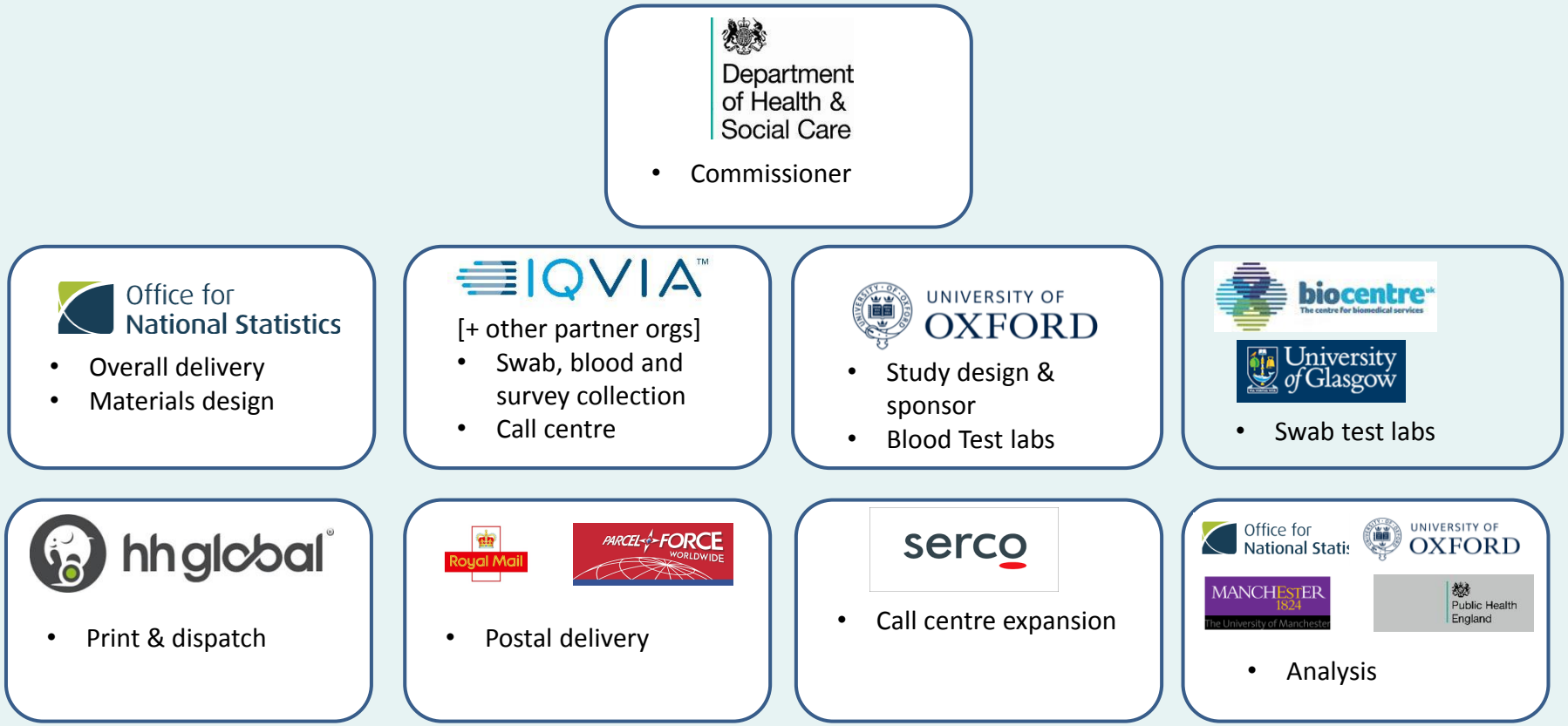
- Pilot: 11,000 households, 25,000 people, from end-April 2020
- Main study: 150,000 participant visits per fortnight

- To date: 2.4m swab tests and 115,000 blood tests across 400,000 participants in 200,000 households

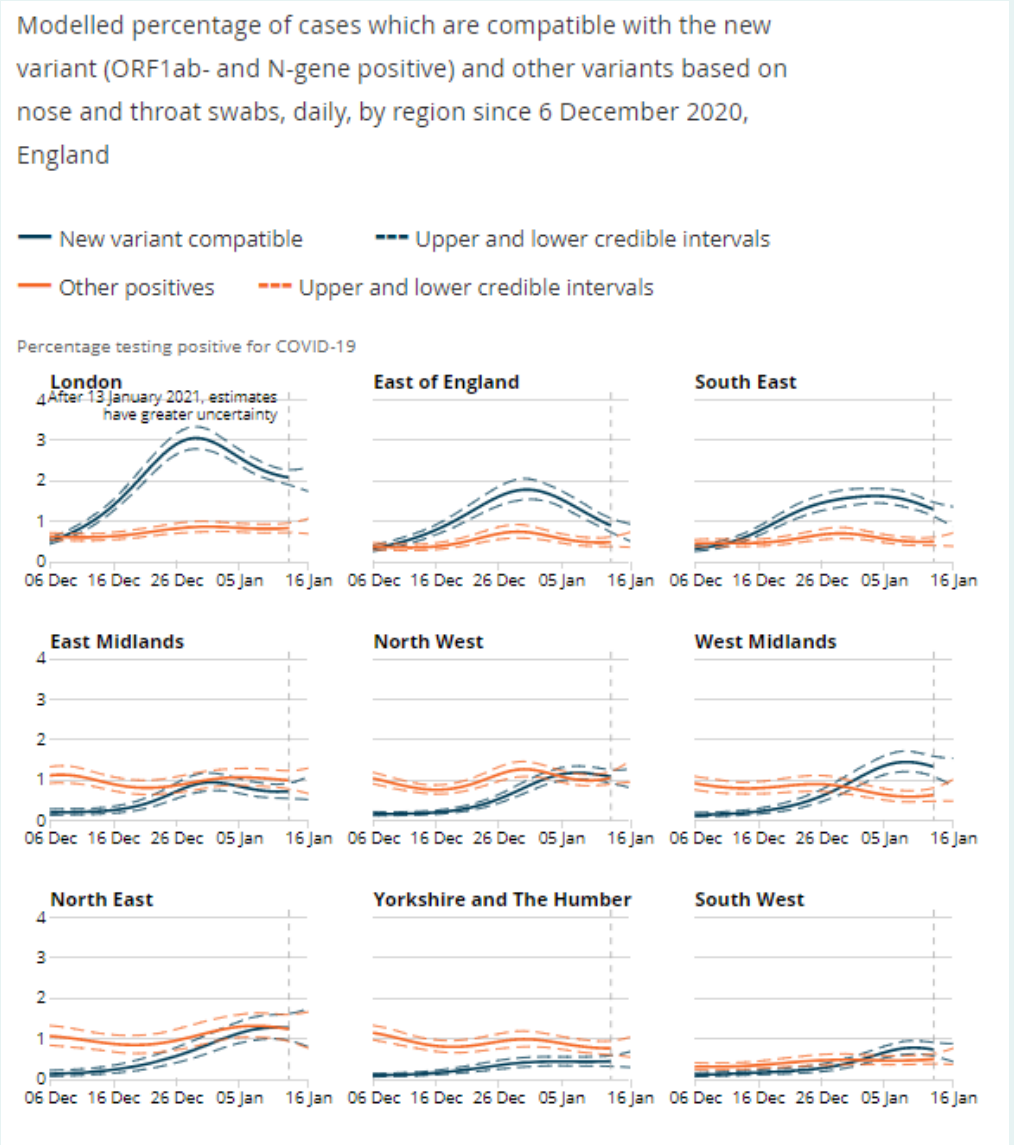
Partnership at pace – established in 7 days



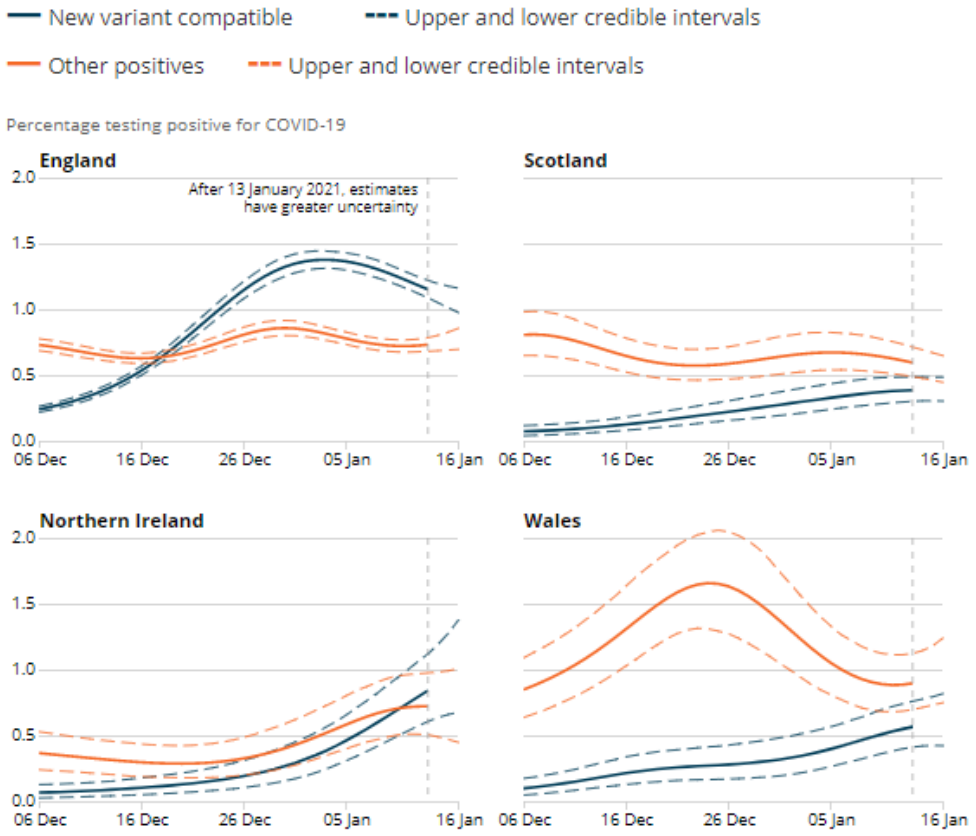
Recent results:

Infection rates in the community

- 1.02m in England in week ending 16 January 2021 (1 in 55)
- New variant compatible analysis
- Regional sub-regional and age profiles
- Covering England, Wales, Scotland and NI



Modelled percentage of cases that are compatible with the new variant (ORF1ab- and N-gene positive) and other variants based on nose and throat swabs, daily, by country since 6 December 2020, UK



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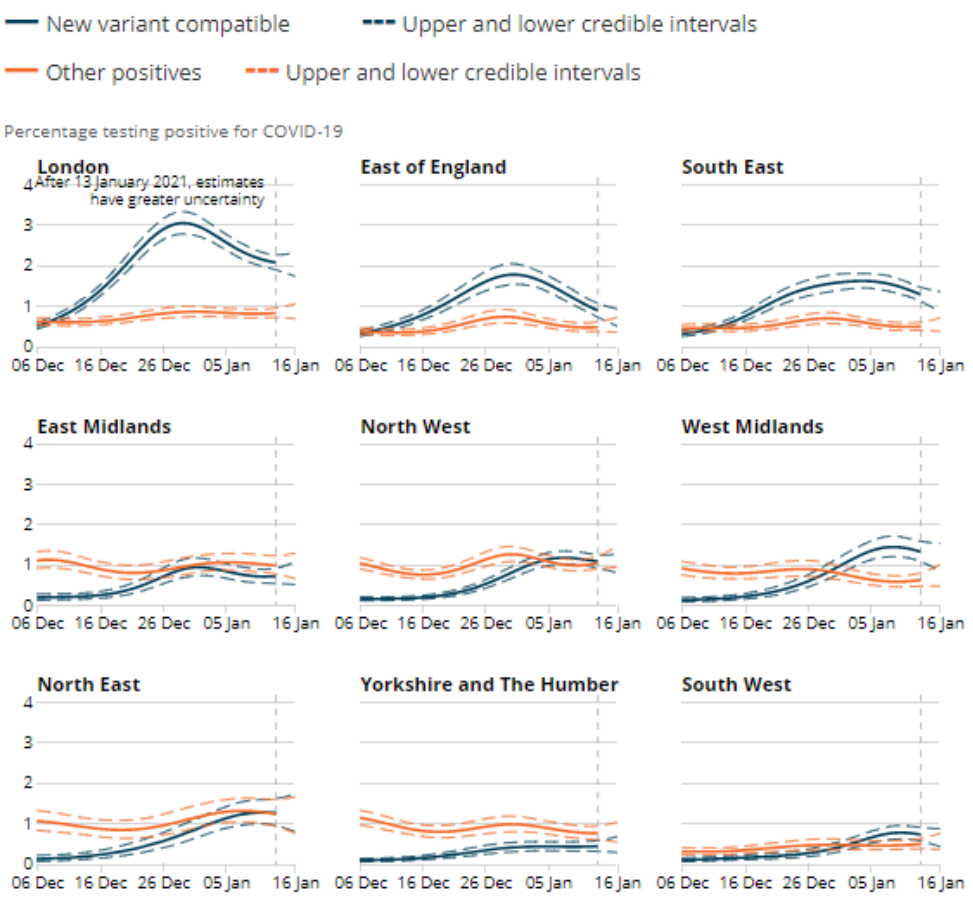
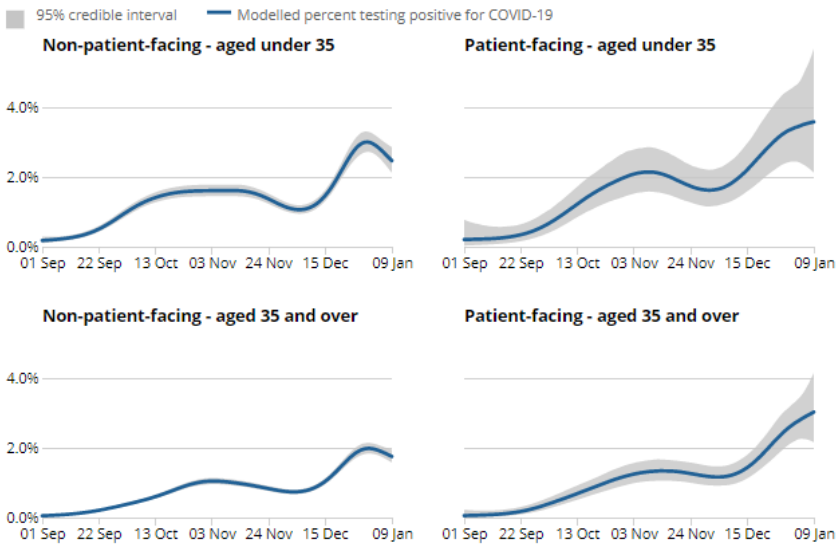


Estimated percentage of the population testing positive for COVID-19 on nose and throat swabs by patient-facing role and age from 1 September 2020 to 9 January 2021



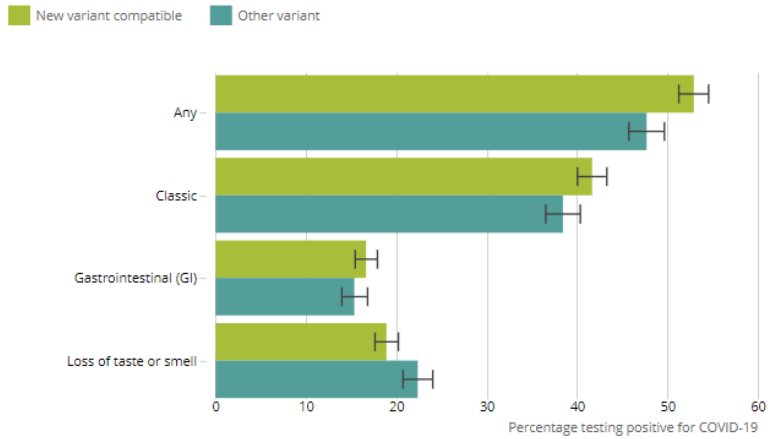
Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

▶ Embed code

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.

Percentage of people with symptoms by variant, including only those who have strong positive tests (Ct less than 30), from 15 November 2020 to 16 January 2021, in England



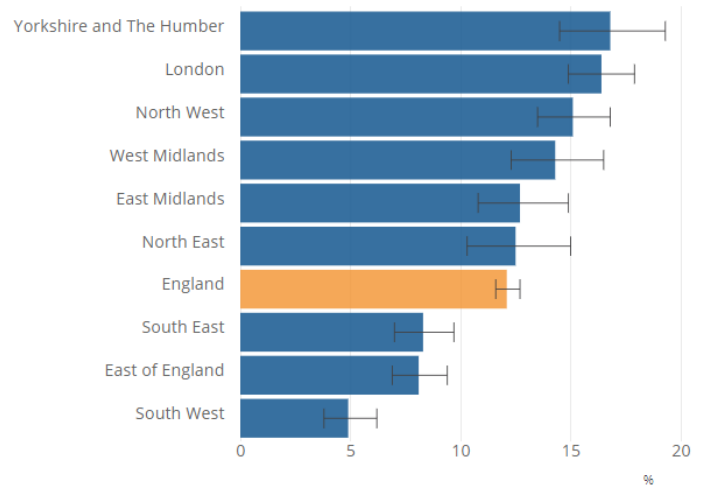
Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

▶ Embed code

Notes:

1. These results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes or other institutional settings.
3. Symptoms are self-reported and were not professionally diagnosed
4. This analysis covers the time period between 15 November 2020 to 16 January 2021.

Estimated percentage of people testing positive for antibodies to COVID-19 from a blood sample in December 2020, England



Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

▶ Embed code

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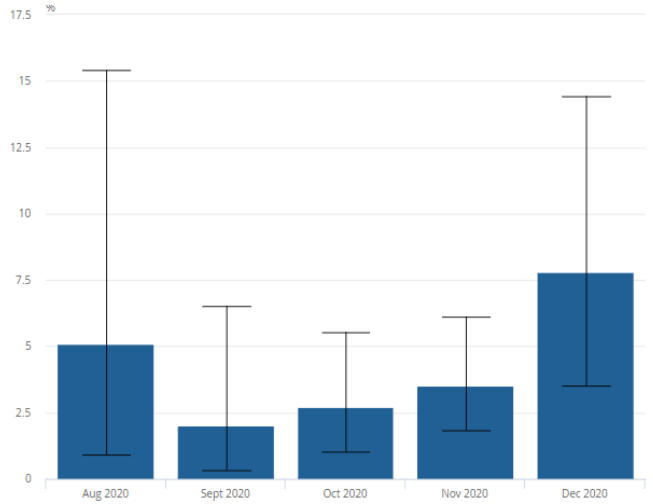
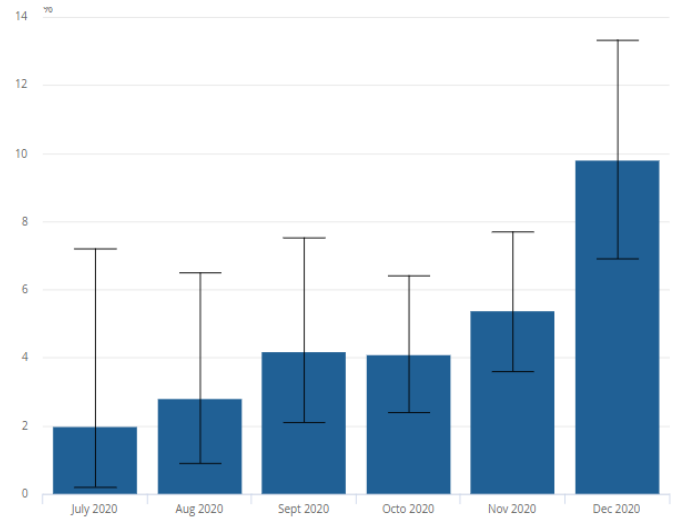
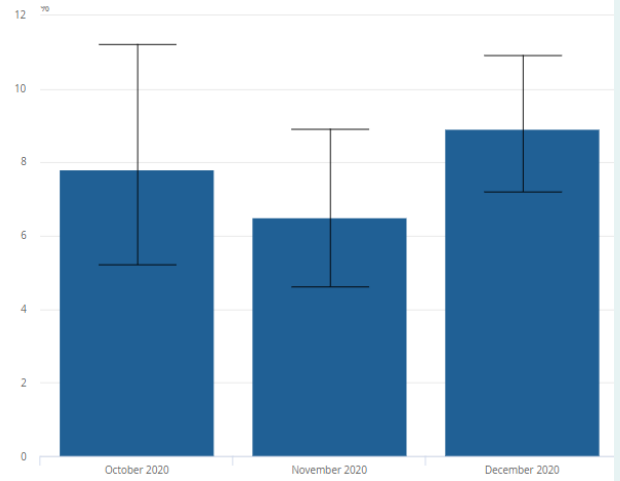
Estimated percentage of those testing positive for antibodies to SARS-CoV-2 from a blood sample, by month, Northern Ireland, August to December 2020



Estimated percentage of those testing positive for antibodies to SARS-CoV-2 from a blood sample, by month, Wales, July to December 2020



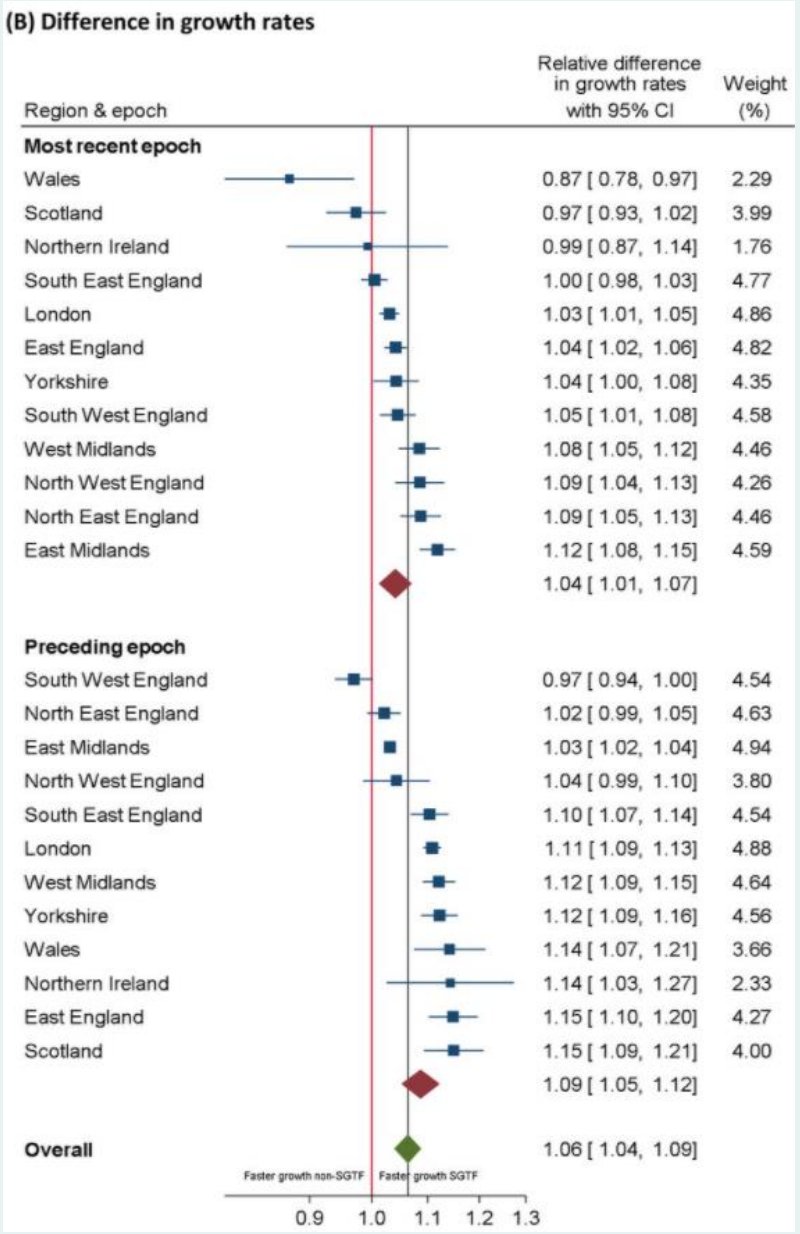
Estimated percentage of those testing positive for antibodies to SARS-CoV-2 from a blood sample, by month, Scotland, October to December 2020



Source: Office for National Statistics – Coronavirus (COVID-19) Infection Survey

Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. Estimates for Scotland do not include data for Orkney, Shetland or the Western Isles due to operational issues. We are working to resolve these issues as soon as possible.



- Fig 4b in Walker et al., 2021
- https://www.medrxiv.org/content/10.1101/2021.01.13.21249721v1

- Any questions?

- https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19/latestinsights
- Covid.infection.survey@ons.gov.uk

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Royal Statistical Society Official Statistics Section

Thank you for attending

The slides and other material will be placed on statusernet

To join, see www.hsug.org.uk

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