



UK Health
Security
Agency

The UK coronavirus dashboard: Open data during a pandemic

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Head of UK COVID-19 dashboard
UK Health Security Agency

@statsgeekclare

Background, purpose and audience

- Provide daily, transparent updates on the progress of the pandemic via gov.uk
- For the whole UK along with more granular information
- Provide the latest information on cases, deaths, hospitalisations, testing and vaccination
- Presented in a way that is accessible for the general public and professional audiences alike
- Intended to be a single, trusted version of the truth

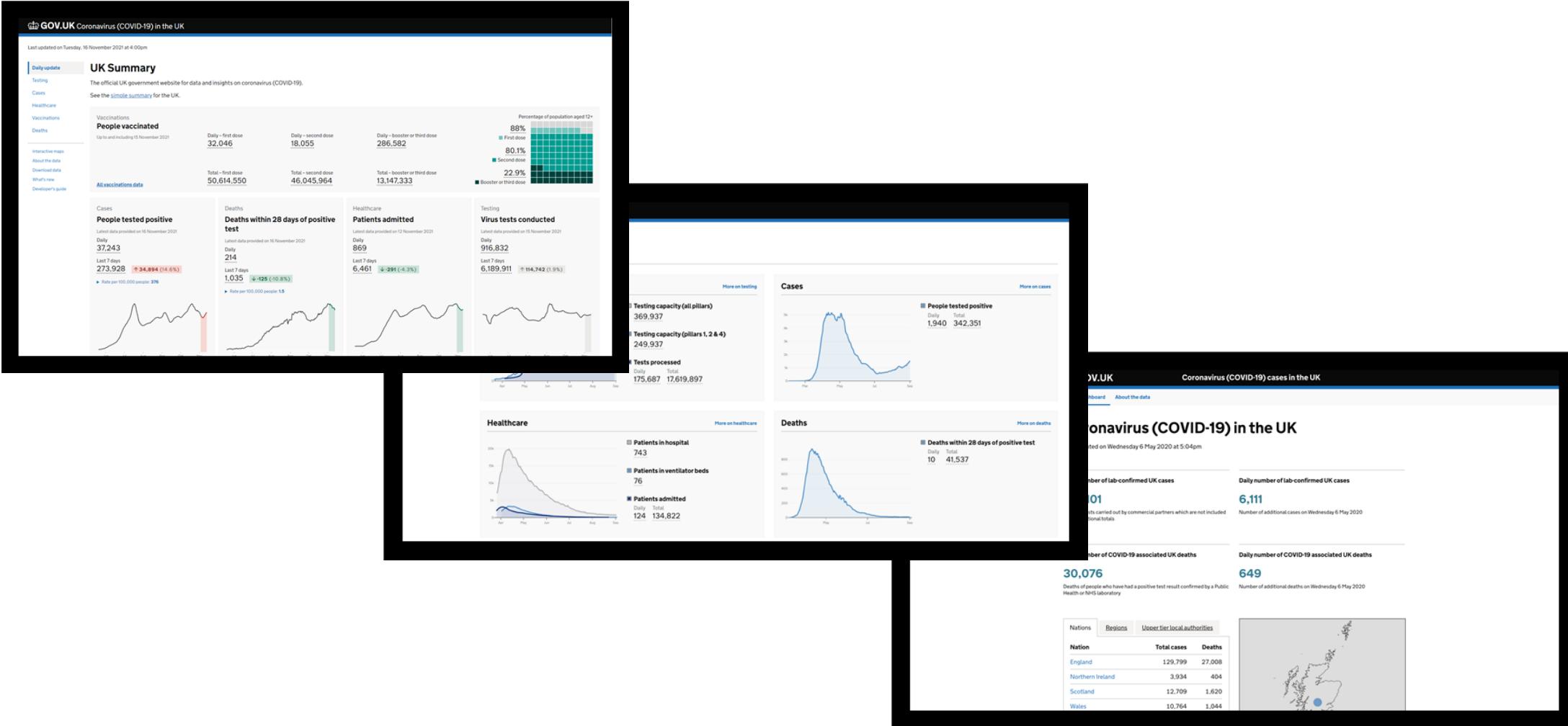
Where are we? How did we get here?

“

During the swine flu epidemic, there wasn't much real time data available on the spread and effect of the infection. Data managers in each PCT were left to devise their own monitoring system. If an equivalent to the COVID19 dashboard had been available in 2010, the epidemic would have been managed more efficiently.

David Lamb
Former Public Health Data Manager in a Primary Care Trust

How did we get here?



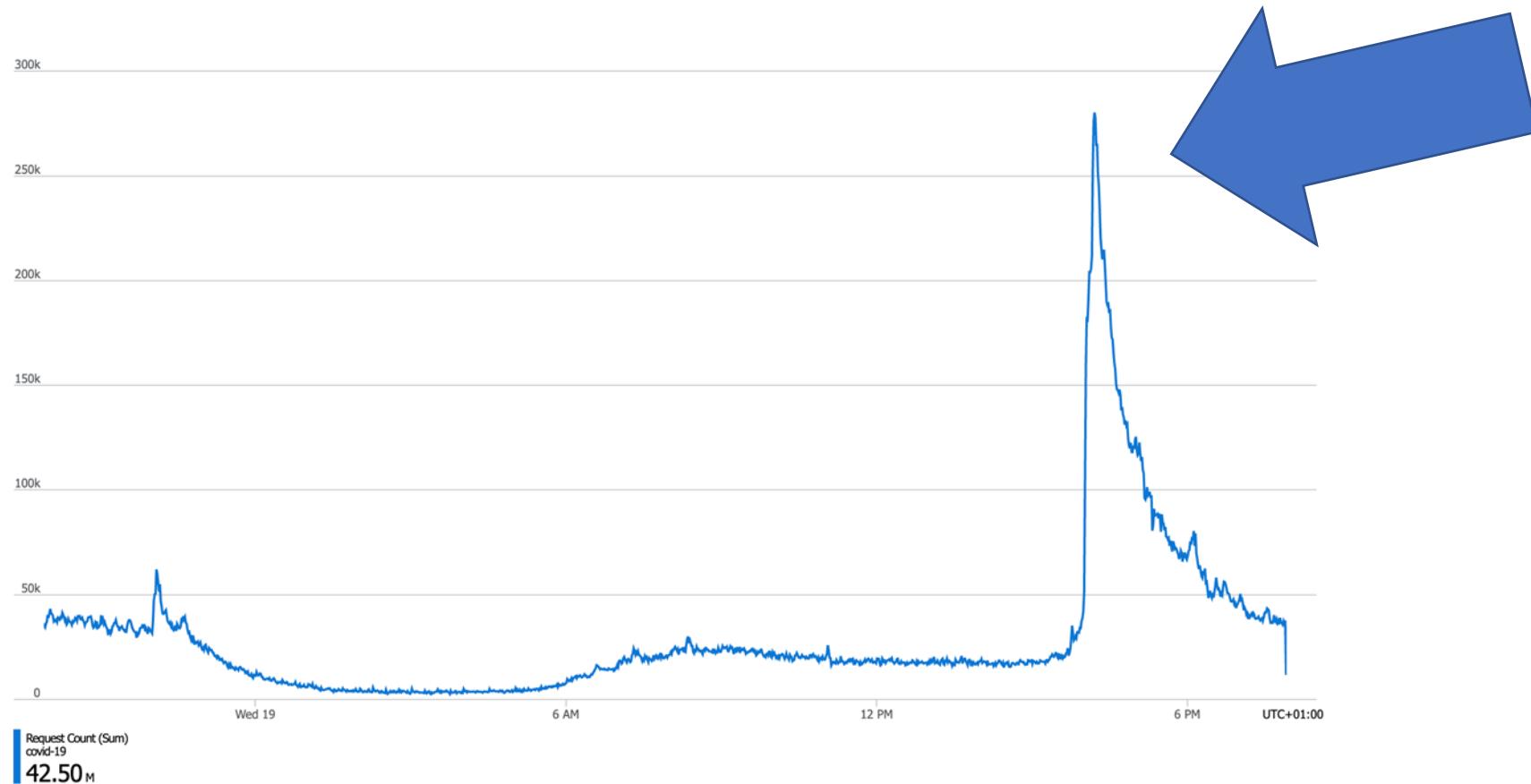
The service in figures

- Daily users: 1.5 million
- Weekly users: 4 million
- Weekly page views: 80 million
- Daily hits: 40 million
- Daily downloads of data: 1.5 million
- Concurrent users at peak time: 200,000



The 4pm surge...

Number of requests on 19 May 2021



The process....

How do we do it?

The team

Project management

Analytical

Pipeline

Research and
design

Tech

What is included?

Cases

- UK, nations, regions, LAs, MSOAs (Eng only)

Deaths

- Within 28 days of positive test; within 60 days of positive test or on death certificate (England only); on death certificate
- UK, nations, regions, LAs

Hospitalisations

- Admissions, people in hospital, people in mechanical ventilation beds
- UK, nations, NHS regions, NHS Trusts

Testing

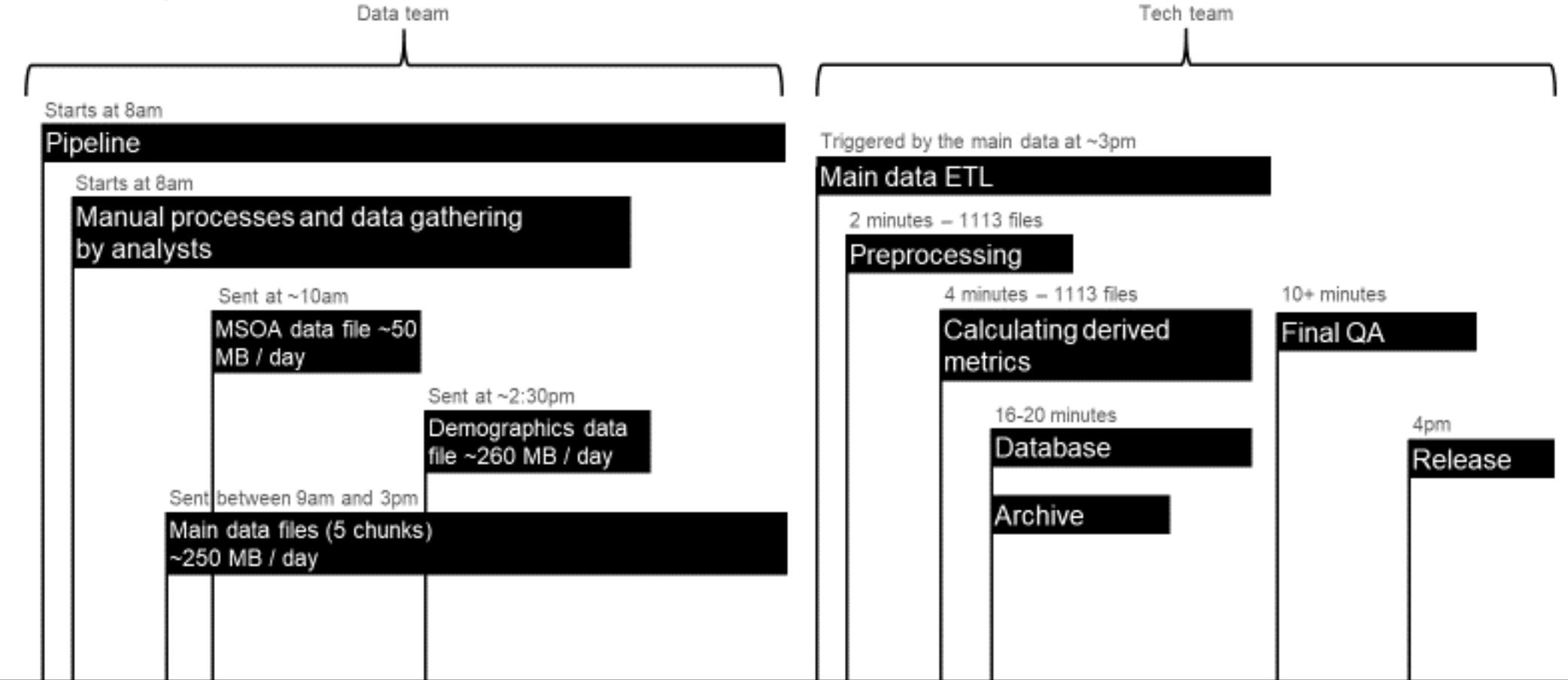
- UK, nations – by pillar and test type
- Positivity and LFD tests conducted for LAs

Vaccinations

- 1st / 2nd dose: UK, nations, regions, LAs (Eng & Scot only), MSOAs (Eng only)
- 3rd / booster doses combined: UK, nations

Workflow

Daily processes



Complexities

Volume of data

Pipeline

26+ sources

~700+ million raw figures

~10 million figures

ETL

~50 million figures

Database

Main data: 3+ billion

Age demographics data: 3+ billion

Other demographics data: 30+ million

MSOA data: 180+ million

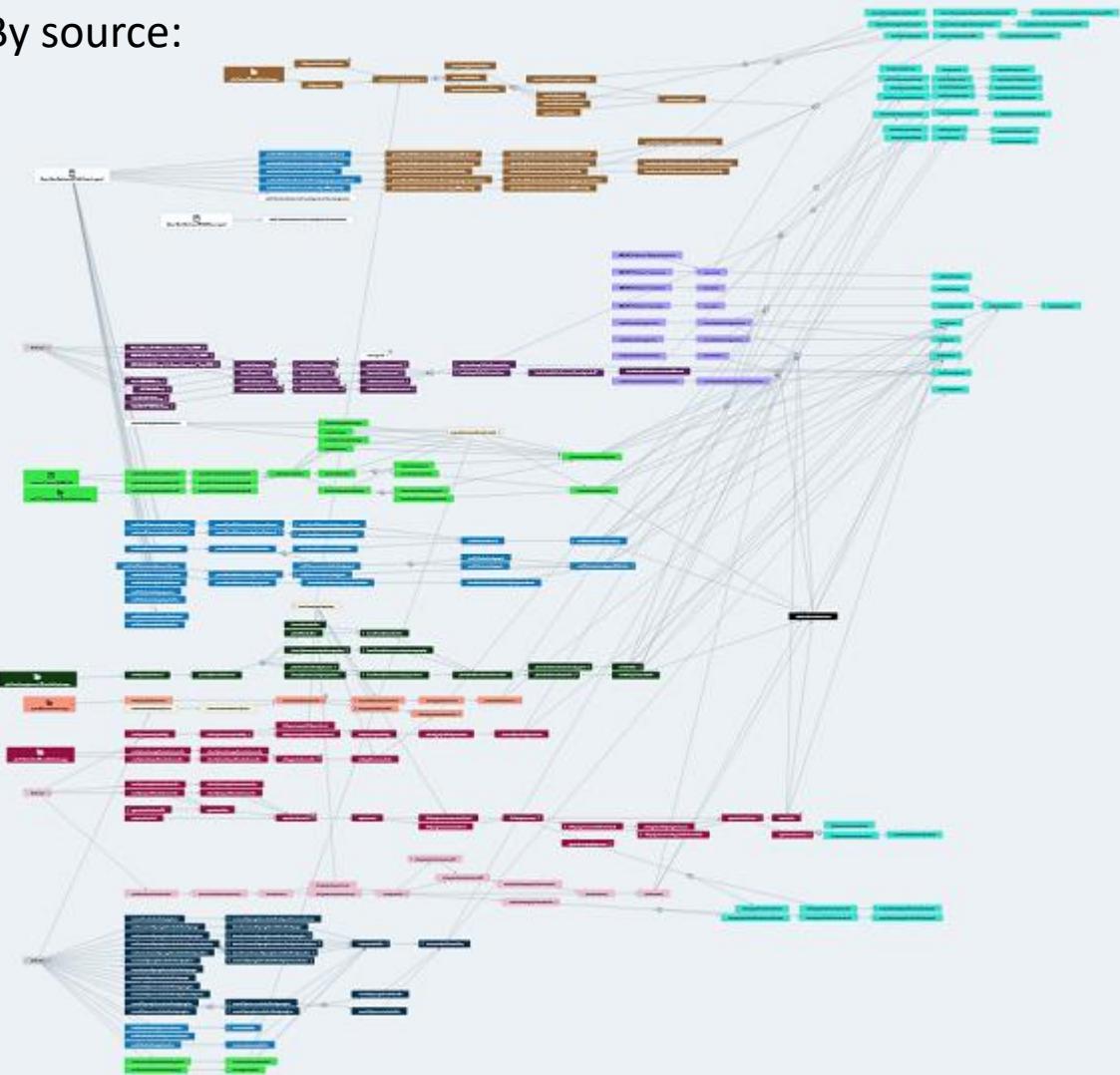
Total records: 6.5+ billion

Data team - the pipeline

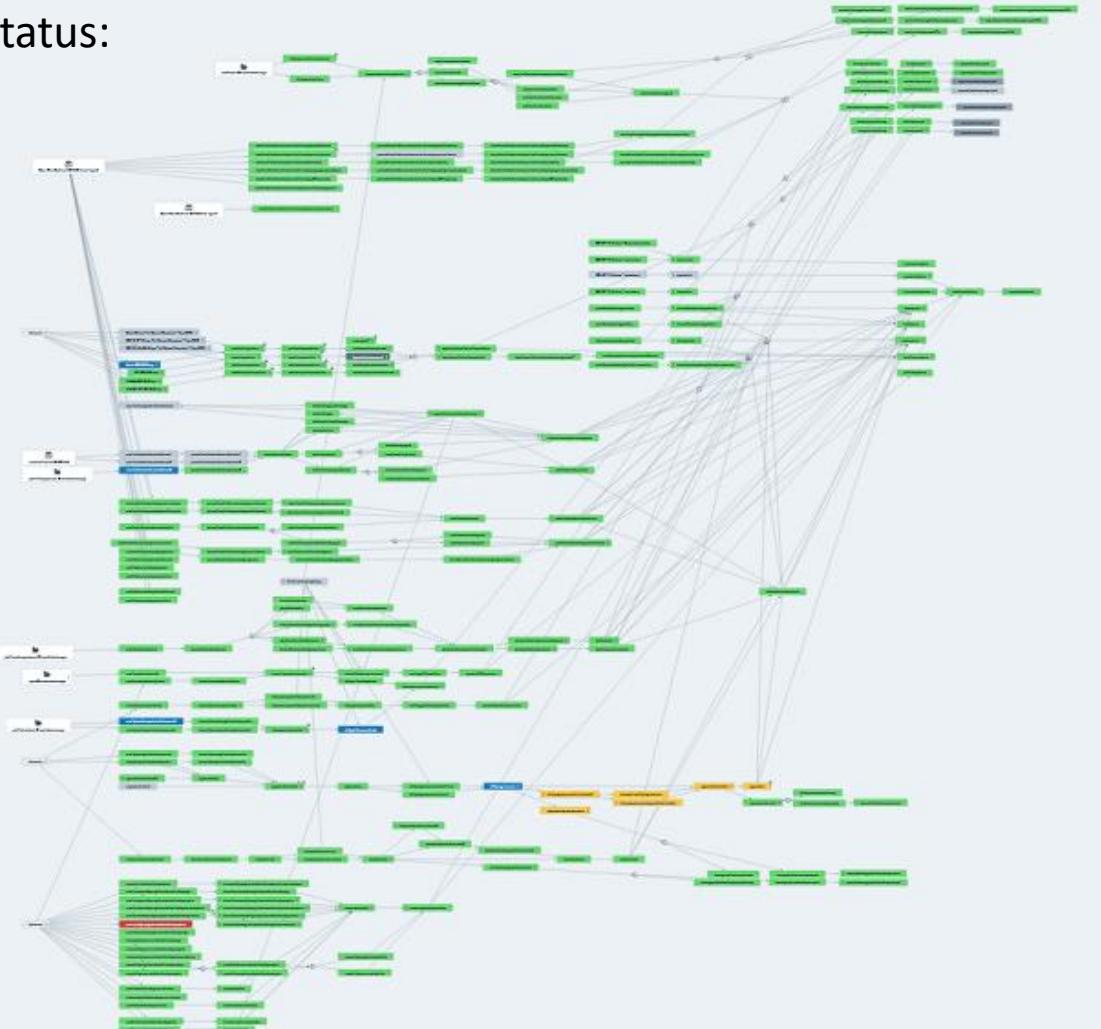
- Foundation = Reproducible Analytical Pipelines (RAP)
<https://gss.civilservice.gov.uk/reproducible-analytical-pipelines/>
- Lots of inputs (20+) sourced from UKHSA, NHSE/I, ONS, the nations (Northern Ireland, Scotland, Wales)
- Mixture of automated and manual inputs
- A series of transforms, coded using PySpark (python)
- Development and maintenance by development team of data engineers

The pipeline

By source:

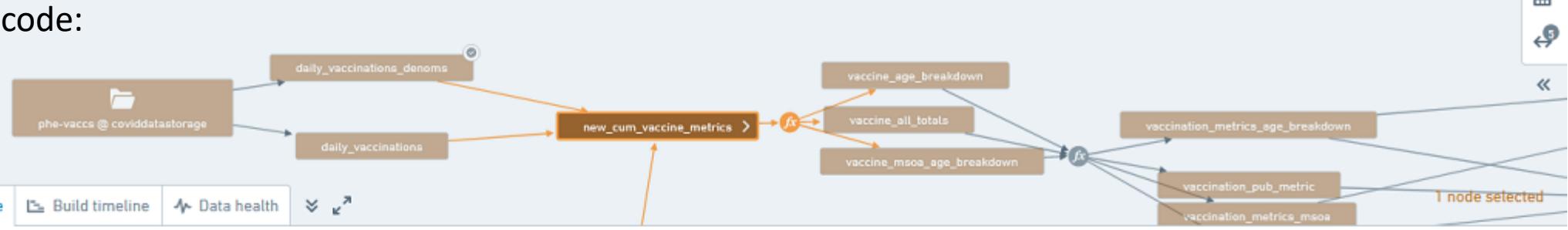


By status:



Data team – the pipeline (ctd)

Transforms & code:



Quick edit Find... View in repository

```
51 new_df_filtered = new_df \
52     .filter(~F.col('age_band')).isin(FILTER_AGE_BAND)) \
53     .filter(F.col('Sex_latest') == 'P') \
54     .filter(F.col('date') < F.current_date()) \
55     .join(vaccination_denominator, ['lsoa11', 'Sex_latest', 'age_band'], 'outer') \
56     .withColumn('age_band', F regexp_replace('age_band', ' years', '')) \
57     .withColumn('age_band', F regexp_replace('age_band', ' to ', '-')) \
58     .withColumn('age_band', F regexp_replace('age_band', ' years and over ', '+')) \
59     .withColumn('age_band', F regexp_replace('age_band', '90 and over', '90+')) \
60     .withColumn('newPeopleVaccinatedFirstDoseByVaccinationDate', F.when(F.col('date').isNull(), 0).otherwise(F.col('newPeopleVaccinatedFirstDoseByVaccinationDate')))\ \
61     .withColumn('newPeopleVaccinatedSecondDoseByVaccinationDate', F.when(F.col('date').isNull(), 0).otherwise(F.col('newPeopleVaccinatedSecondDoseByVaccinationDate'))))\ \
62     .withColumn('newPeopleVaccinatedCompleteByVaccinationDate', F.when(F.col('date').isNull(), 0).otherwise(F.col('newPeopleVaccinatedCompleteByVaccinationDate'))))\ \
63     .withColumn('date', F.when(F.col('date').isNull(), F.date_sub(F.current_date(), 1)).otherwise(F.col('date'))))\ \
64     .drop(*COLUMNS_TO_REMOVE)

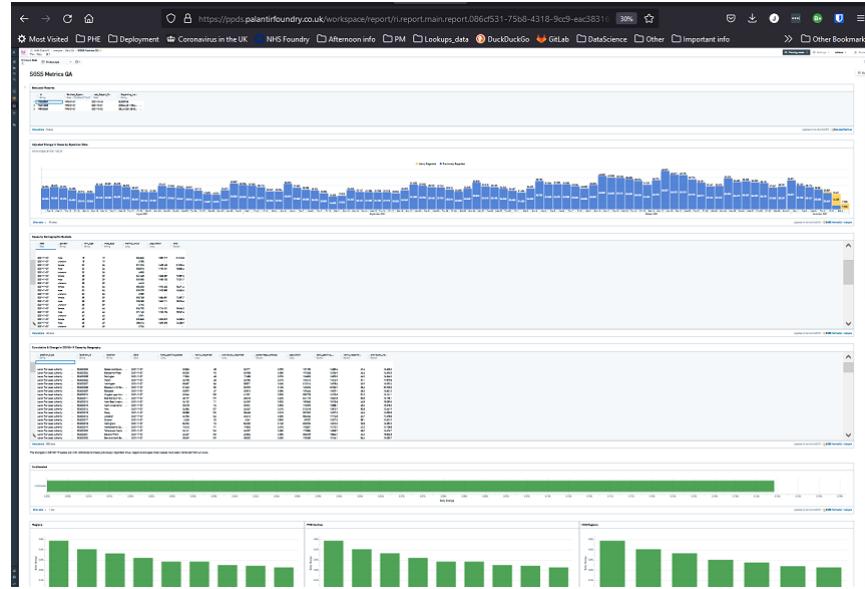
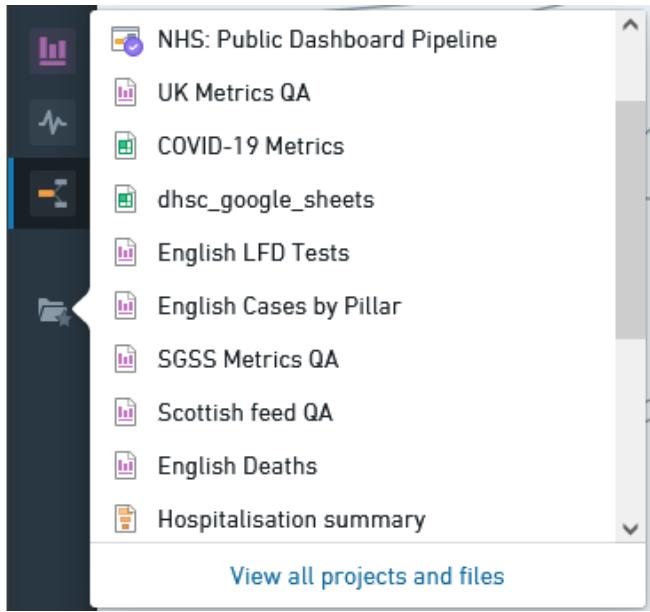
65
66 # adding the 12-15 age group to the final output.
67 add_12_15_age_groups_12 = new_df_filtered\
68     .filter(F.col("age_band") == '12+')\
69     .select(*(F.col(x).alias(x + '_12') for x in new_df_filtered.columns))

70
71 add_12_15_age_groups_16 = new_df_filtered\
72     .filter(F.col("age_band") == '16+')\
73     .select(*(F.col(x).alias(x + '_16') for x in new_df_filtered.columns))

74
75 add_12_15_age_groups_agg = add_12_15_age_groups_12\
```

Data team – Quality assurance

We have various QA reports used to ensure data look sensible

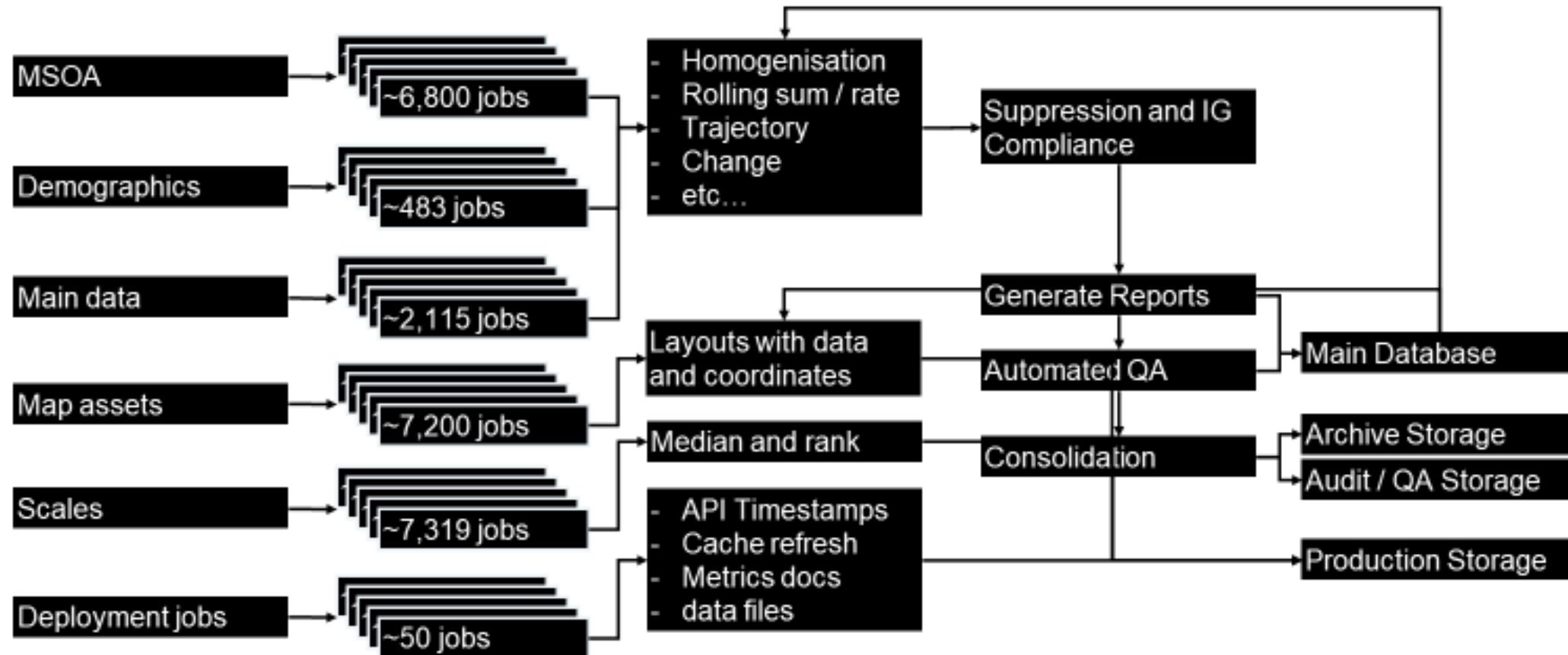


These culminate in a QA of headline figures for the UK:

UK Metrics QA

Reporting_Date	Metric	Figure	Diff_from_Previous
Date	String	Double	Double
1 2021-11-08	New positive cases	32,322.0	2,017.0
2 2021-11-08	Total positive cases	9,333,891.0	31,982.0
3 2021-11-08	New deaths within 28 days of a positive test	***	-5.0
4 2021-11-08	Total deaths within 28 days of a positive test	***	57.0
5 2021-11-07	Virus tests conducted	869,016.0	219,026.0
6 2021-11-07	PCR tests conducted	262,951.0	-75,281.0
7 2021-11-07	Antibody tests processed	305.0	-132.0
8 2021-11-07	PCR testing capacity	862,002.0	493.0
9 2021-11-07	Antibody testing capacity	122,400.0	0.0
10 2021-11-02	Patients admitted	1,054.0	-22.0
11 2021-11-05	Patients in hospital	8,966.0	-225.0
12 2021-11-05	Patients in ventilator beds	1,026.0	-8.0
13 2021-11-07	New people vaccinated — 1st dose	25,840.0	-10,908.0
14 2021-11-07	Total people vaccinated — 1st dose	50,262,735.0	25,840.0
15 2021-11-07	Vaccination uptake — 1st dose (%)	87.4	0.0
16 2021-11-07	New people vaccinated — 2nd dose	14,610.0	-9,890.0
17 2021-11-07	Total people vaccinated — 2nd dose	45,852,677.0	14,610.0
18 2021-11-07	Vaccination uptake — 2nd dose (%)	79.7	0.0
19 2021-11-07	New people vaccinated — Booster or 3rd dose	***	209,885.0
20 2021-11-07	Total people vaccinated — Booster or 3rd dose	10,302,544.0	209,885.0
21 2021-11-07	Vaccination uptake — Booster or 3rd dose (%)	***	17.9
22 2021-11-07	Daily vaccines given	250,335.0	-233,795.0
23 2021-11-07	Total vaccines given	106,417,956.0	250,335.0
24 2021-11-06	Patients admitted — England only	688.0	2.0
25 2021-11-08	Patients in hospital — England only	7,075.0	165.0
26 2021-11-08	Patients in intensive care — England only	81.0	0.0

The ETL



Data team - release

GOV.UK Coronavirus Dashboard - Admin

Home > Service admin > Releases

Select release to change

RECOVER DELETED RELEASES PURGE STORAGE CACHE REPOPULATE SUMMARY CACHE FLUSH DESPATCH CACHE FLUSH ALL CACHE ADD RELEASE +

Search 11 results (2665 total)

< 2022 8 February

Action: ----- Go 0 of 11 selected

ID	RECEIPT TIME	RELATIVE RECEIPT TIME	RELEASE CATEGORY	ETL STATUS	COUNT	DELTA	RELEASED	D
136591	Tue, 08 Feb 2022 – 15:29:08	–	Main	Completed	9,065,418	31,840	✓	1
136534	Tue, 08 Feb 2022 – 15:23:24	–	Cases	Completed	14,995,380	40,181	✓	1
136509	Tue, 08 Feb 2022 – 15:08:53	–	Healthcare	Completed	1,473,116	160	✓	1
136468	Tue, 08 Feb 2022 – 15:05:34	–	Testing	Completed	2,196,880	6,216	✓	1
136459	Tue, 08 Feb 2022 – 15:01:29	–	Age demographics: Deaths 28 days	Completed	6,987	10	✓	1
136410	Tue, 08 Feb 2022 – 14:52:50	–	Vaccinations	Completed	2,731,250	7,119	✓	1
136361	Tue, 08 Feb 2022 – 14:48:02	–	Age demographics: Vaccinations	Completed	230,124	539	✓	1
136360	Tue, 08 Feb 2022 – 13:08:57	–	MSOA: Vaccinations	Completed	61,119	0	✓	1
136319	Tue, 08 Feb 2022 – 12:32:34	–	Positivity & People Tested	Completed	673,636	0	✓	1
136277	Tue, 08 Feb 2022 – 11:07:30	–	Age demographics: Cases	Completed	331,874	474	✓	1
136318	Tue, 08 Feb 2022 – 10:20:06	–	MSOA	Completed	667,644	1,054	✓	1

GOV.UK Coronavirus (COVID-19) in the UK

DATA ISSUE 8 November 2021 — Delay in update to local vaccination data in England More

Last updated on Monday, 8 November 2021 at 5:45pm

Daily update Testing Cases Healthcare Vaccinations Deaths Interactive maps About the data Download data What's new Developer's guide

UK Summary

The official UK government website for data and insights on coronavirus (COVID-19). See the [simple summary](#) for the UK.

Vaccinations

People vaccinated

Up to and including 7 November 2021	Daily – first dose	Daily – second dose	Daily – booster or third dose
25,840	14,610	209,885	

Percentage of population aged 12+
87.4% First dose
79.7% Second dose
17.9% Booster or third dose

Cases

People tested positive

Latest data provided on 8 November 2021

Daily	Last 7 days
32,322	239,782

Rate per 100,000 people: 391.2

Deaths

Deaths within 28 days of positive test

Latest data provided on 8 November 2021

Daily	Last 7 days
57	1,191

Rate per 100,000 people: 1.6

Healthcare

Patients admitted

Latest data provided on 2 November 2021

Daily	Last 7 days
1,054	7,249

↑ 214 (3%)

Testing

Virus tests conducted

Latest data provided on 7 November 2021

Daily	Last 7 days
869,016	6,060,764

↑ 168,425 (2.9%)

What's the situation in your local area?

Search by postcode

View data for your local area

Enter a postcode

For example SW1A 0AA

Find a postcode on [Royal Mail's postcode finder](#)

UK interactive maps

Explore maps for:

- cases
- vaccinations

View maps



Presentation

Why do we show it as...



User engagement

Profiling our users

- Who are the dashboard users
- how the user base changes
- important to provide a good user experience.

Understanding interest in new topics over time

- Which are the areas of growing importance for our audiences.

Collecting feedback on the current version of the dashboard

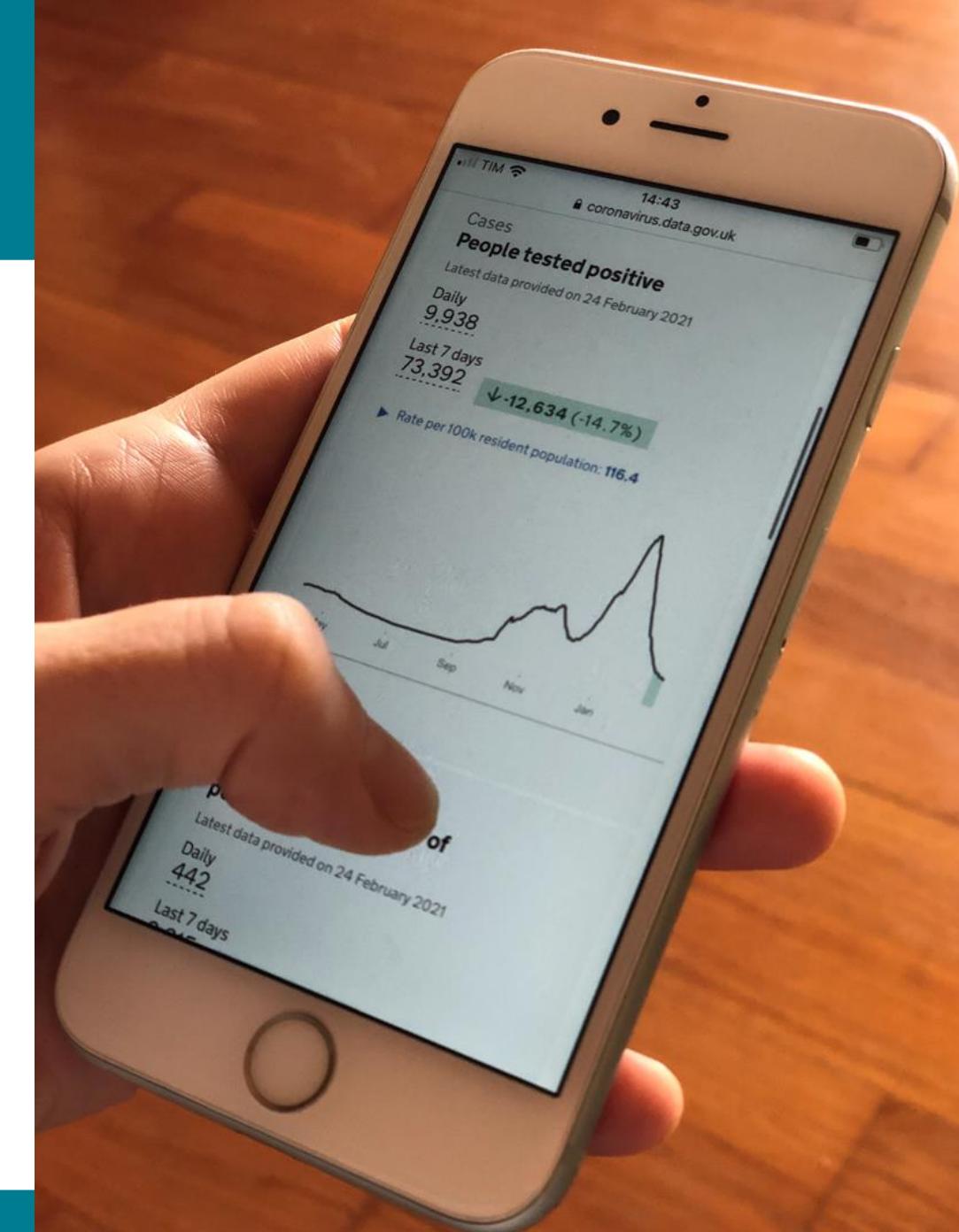
- Do users find what they need to understand what is happening with COVID-19?
- Do they understand the data and create a coherent narrative?

Monitoring trust and satisfaction over time

- This is in line with GDS standards for measuring success.

Understanding users' behaviour and feelings

- How does the dashboard make users feel and act?



Who are our users?

- 62% view the dashboard on **mobile devices**
- 54% use **Safari** and 30% use **Chrome**
- 89% visit the dashboard only for **personal use** and 11% for **professional use** or both
- 84% visit the dashboard **every day**
- **Peak time is 4:00pm** when the new data is published
- 66% are aged **40 to 69**
- 82% rate their digital skills as **confident or expert**
- 97% are in **England**

Main user engagement channels

User research sessions

- One-on-one user research sessions with members of the public, data professionals and users with disabilities – participants (116 in total so far) recruited from pools of volunteers with the criteria of having a good representation of user personas

Online surveys

- Five user surveys (47,000 responses in the last survey)

Email tracker

- Analysed over 23,500 emails sent to the feedback email address

Google analytics

- Where do users go and when? Which devices and browsers do they use?

Social media

- Users (e.g. Twitter) talk about what they think of the dashboard



Dashboard design principles

- The dashboard is intended for everyone. 89% use the dashboard for personal interest rather than professional use.
- We need to show detailed, sometimes complex data as simply as possible, using language and visualisations that everyone can understand.
- As a government website, we apply the Service Standard

Service Standard

4. Make the service simple to use

Build a service that's simple, intuitive and comprehensible. And test it with users to make sure it works for them.

Service Standard

5. Make sure everyone can use the service

Provide a service that everyone can use, including disabled people and people with other legally protected characteristics. And people who do not have access to the internet or lack the skills or confidence to use it.

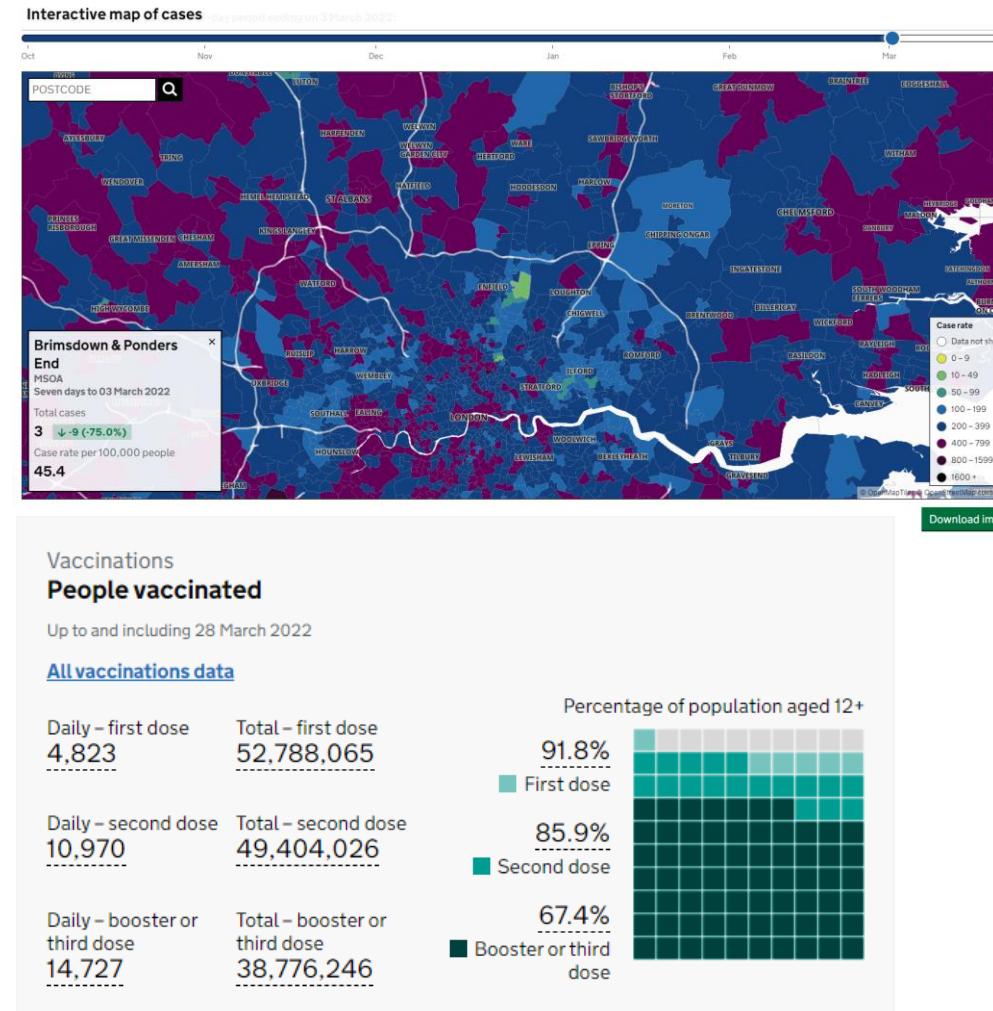
Design context – a rapidly changing situation

The COVID-19 pandemic is a fast-changing situation

This means we need to constantly reassess users' interests and needs and make sure design and data reflects this.

For example:

- testing capacity – high interest in mid-2020 but now much lower
- local data – interest grew when local restrictions were introduced
- vaccinations – interest grew quickly once the vaccination programme started



Expressions

People vaccinated — 1st dose

3,234,946 up to and including 14 January 2021. [View vaccination data](#)

Alternatives considered:

- Vaccines delivered
- People vaccinated
- Vaccinations
- People given first dose vaccination
- Vaccines - First done

Potential issues / criteria considered:

- Undefined dose, potentially misleading
- Gives false impression that they are now immune
- Too verbose for a headline figure
- Gives impression that they have been offered, not given

Accessibility

- One size doesn't fit all.
- Structural hierarchy is important.
- Accessibility is not only for people with visual impairment.
- Making a service accessible should not make it less useful to other users.
- It is always a work in progress...

Let's not turn inclusivity into a box-ticking exercise.

[ARIA] Region aria-labelledby=last-update ←
Last updated on Sunday 27 September 2020 at 4:00pm

(landmark) [ARIA]
Navigation aria-label=Side navigation

[ARIA] Current (location)
UK Summary

Testing
Cases
Healthcare
Deaths

About the data
Developer's guide

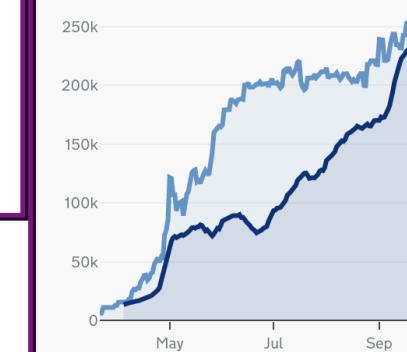
(unlabelled) (landmark) [ARIA] Main

[ARIA] Heading aria-level=1

[ARIA] Article aria-labelledby=card-heading-testing

[ARIA] Heading aria-level=2

Testing



More on

[ARIA] Region aria-label=Testing: Latest data

[ARIA] Heading aria-level=3

Testing capacity (pillars 1 & 2)

268,815

[ARIA] Button

[ARIA] Heading aria-level=3

Tests processed (pillars 1 & 2)

Daily

226,900

[ARIA] Button

[ARIA] Heading aria-level=4

Total

20,304,308

[ARIA] Button

Accessibility

It goes beyond the website.

The screenshot shows a Google search results page. The search query is "Coronavirus United Kingdom". The top result is a link to the official COVID-19 dashboard: "Daily summary | Coronavirus in the UK". The page content includes sections like "Vaccinations", "Cases", "Deaths", and "Healthcare". A blue bracket on the right side of the dashboard content is labeled "Structured micro-data".

Google

Coronavirus United Kingdom

COVID-19

Coronavirus disease United Kingdom

Overview

Statistics

Testing

Prevention

Symptoms

News

Treatments

Share

Top results

<https://coronavirus.data.gov.uk> ▾

Daily summary | Coronavirus in the UK

Official Coronavirus (COVID-19) disease situation dashboard with latest data in the UK.

20 hours ago - Vaccinations

Vaccines are currently given in 2 doses, at least 21 days apart. By the end of 23 May 2021, 126,357 people had been given a first dose and 252,139 a second dose. In total, 38,070,038 people (72.3% of the adult population) have received a first dose and 22,895,556 people (43.5% of the adult population) a second dose of a vaccine.

Additional info

20 hours ago - Cases

20 hours ago - Deaths

20 hours ago - Healthcare

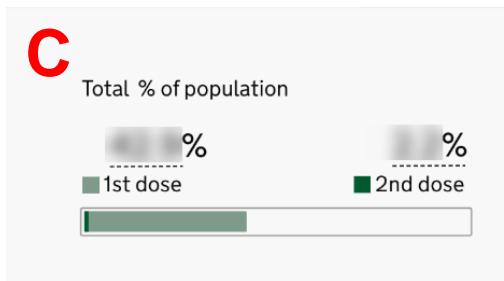
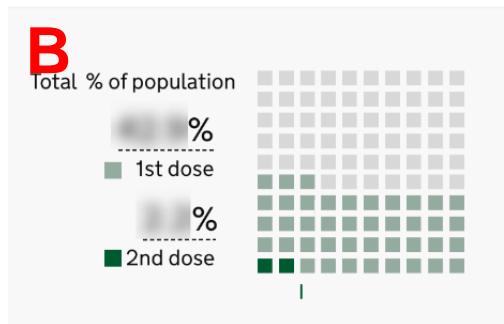
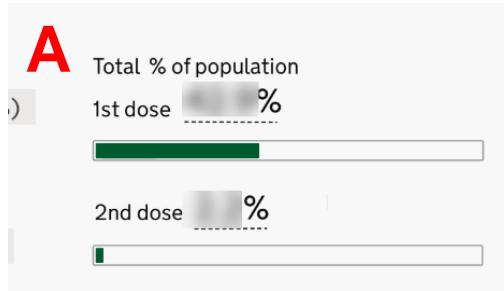
Deaths · Cases · Simple summary · Interactive Map

You've visited this page many times. Last visit: 14/05/21

Structured micro-data

User testing... with a twist

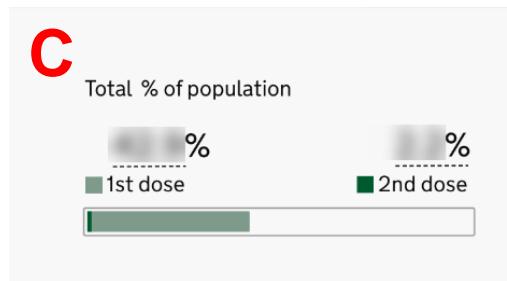
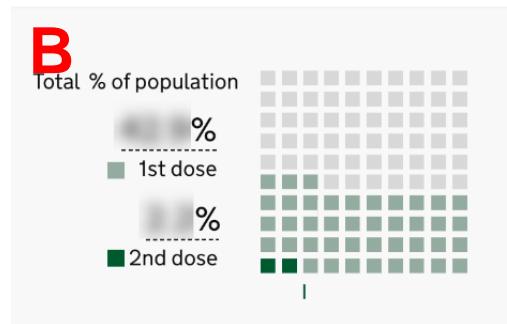
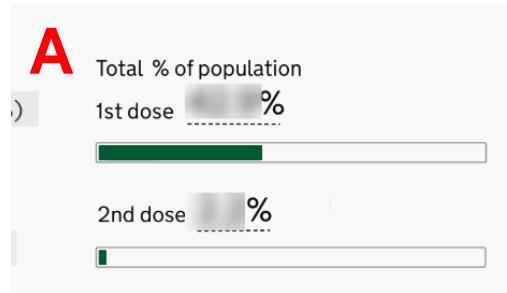
Is it always about which one the users like?



Type of graph	Users initial preference
A Double bar	60%
B Waffle	30%
C Single bar	10%

User testing... with a twist

Is it always about which one the users like?



30% Initially preferred waffle:

- *"It is good as it fills till 100% of the population is vaccinated"*
- *"This is good to understand risks, as it is more precise (than the other 2 graphs)"*

30% Initially preferred the double bars, but switched to waffle:

- *"I get it now! I actually like it now"*
- *"I quite like this one but I've been influenced because I've already seen it"*

60% Guessed the right % with waffle

10% Preferred the single bar :

- *"I don't find graphs useful anyway"*

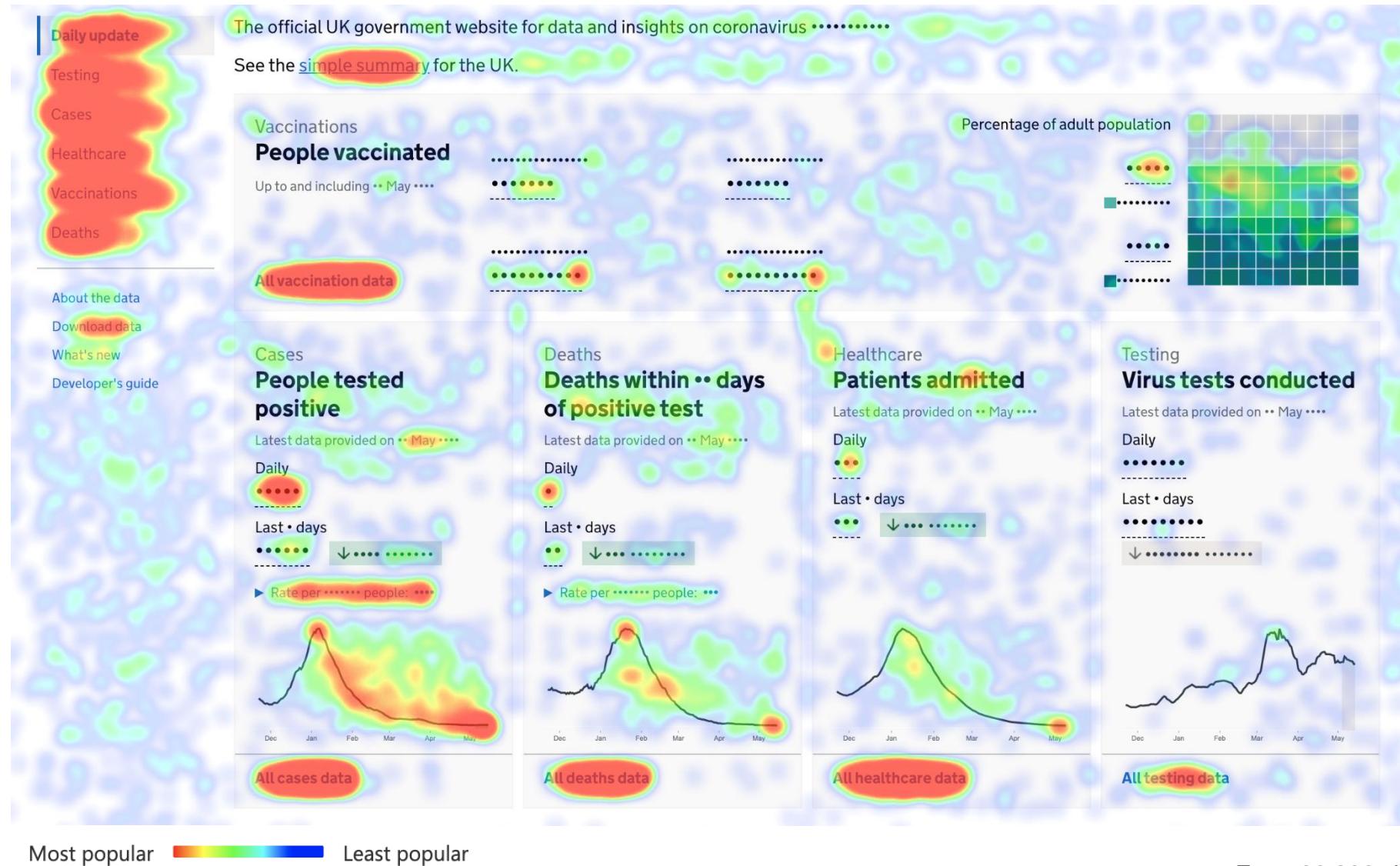
There is
a journey



Final result... 90% found waffles more useful.

- *"My eye goes to the waffle straightaway"*
- *"The graph is the story for me"*
- *"Very straightforward and easy to read"*
- *"It tells me pretty well everything"*

Build. Break. Build again.



Transparency

Why do we do it?

“

[...] someone sitting at home in Newcastle sees the latest trends and graphs for the first time at 4pm, the same moment as Boris Johnson in his office in Downing Street does.

[The i – weekend, 13 February 2021](#)

Open Data

Advantages

- Helps people understand government decisions
- Accessible to millions
- Justifies decisions
- Improves trust
- We can't do it all
- *Rapid identification of mistakes*
- *Ever growing demand for data*

Disadvantages

- Room for misinterpretation
- Pressure to publish as soon as possible
- Limited time for QA
- No room for delays
- *Rapid identification of mistakes*
- *Ever growing demand for data*

Rapid identification of mistakes: 100k reviewers

Our mistakes are broadcast on national television within ~2 minutes.



Open Data

Rapid identification of mistakes: 100k reviewers

There's also this... well, it was a Sunday!

sky news
UK TOTAL 1st DOSES
42.2% OF ADULTS

7 March 2021

Owing to processing issues for deaths in England, the numbers of deaths throughout the UK will be updated later. In the meantime, the number of newly reported deaths for 7 March 2021 may incorrectly show as zero.

Haaretz.com @haaretzcom · 2h
Just in...

BREAKIN NEWS
HAARETZ

Britain reports no deaths within 28 days of positive COVID test

haaretz.com

4 11 21

Pouria Hadjibagheri @Pouriaaa

Replying to @haaretzcom

This is incorrect, @haaretzcom. Reuters has corrected its article. There is a delay in the processing of data.

6:36 PM · Mar 7, 2021 · Twitter for Android

REUTERS @Reuters

OFFICIAL PROCESS

skynews.com IR MP TULIP SIDDIQ HAS SAID B

Britain reports no deaths within 28 days of positive COVID test reut.rs/3sYpyiQ

4:50 PM · Mar 7, 2021 · True Anthem

86 Retweets 23 Quote Tweets 421 Likes

Open Data

Rapid identification of mistakes: 100k reviewers

Our mistakes are broadcast on national television within ~2 minutes.

Vast majority of users tell us about a possible problem: that helps us fix the problem.

A minority try to catch us making a mistake to either ridicule us or justify an unfounded theory.



Both are:

- Our users
- Make equally important points
- Have equal right to see the data
- Both deserve to be heard

They just go about it in different ways.

Open Data

There is a different way to look at the second group.

Their points provide a unique opportunity to:

- Inform the design of user research sessions
- Improve robustness of SOPs
- Improve the QA process
- Improve the design

The API – v2 for high volume

- User interface
- Easy to use
- Informative
- Comprehensive

Permanent link
This is the permanent link for your specific request. Click on the box to copy the link into clipboard.

<https://api.coronavirus.data.gov.uk/v2/data?areaType=nation&areaCode=E92000001&metric=newCasesBySpecimenDateAgeDemographics&format=csv>

Download data

You may download the data by clicking on the "Download data" button, or using the permanent link. Download requests are subject to the [Fair usage policy](#).

You must select an area type and at least one metric to enable the "Download data" button and create a link. You may further choose a specific area name to reduce the data to a specific location.

Area type
Required.
United Kingdom

Area name
Optional. Leave blank to download the data for all locations in your selected area type.
Select area

Metrics
Required. Select up to 5 metrics. Some metrics may not be available for your selected area type. Such metrics will still be included in the resulting document, but will not contain any data.
Records contain at least 4 additional metrics as follows: areaType, areaCode, areaName, date
Note that you can only request one metric at a time for demographics data.
Select Metrics

Data release date
Required. Note that when the "Latest" option is selected, the permanent link will always produce the data as they appear on the website — that is, the very latest release.
 Latest
 Archive

Supplementary downloads
Population dataset - excluding MSOs
[Latest ONS estimates](#)

Metrics
Required. Select up to 5 metrics. Some metrics may not be available for your selected area type. Such metrics will still be included in the resulting document, but will not contain any data.
Records contain at least 4 additional metrics as follows: areaType, areaCode, areaName, date
Note that you can only request one metric at a time for demographics data.

Select Metrics

changeInNewCasesBySpecimenDate
Latest record: 2021-09-27

covidOccupiedMVBeds
Latest record: 2021-09-28

cumAdmissions
Latest record: 2021-09-26

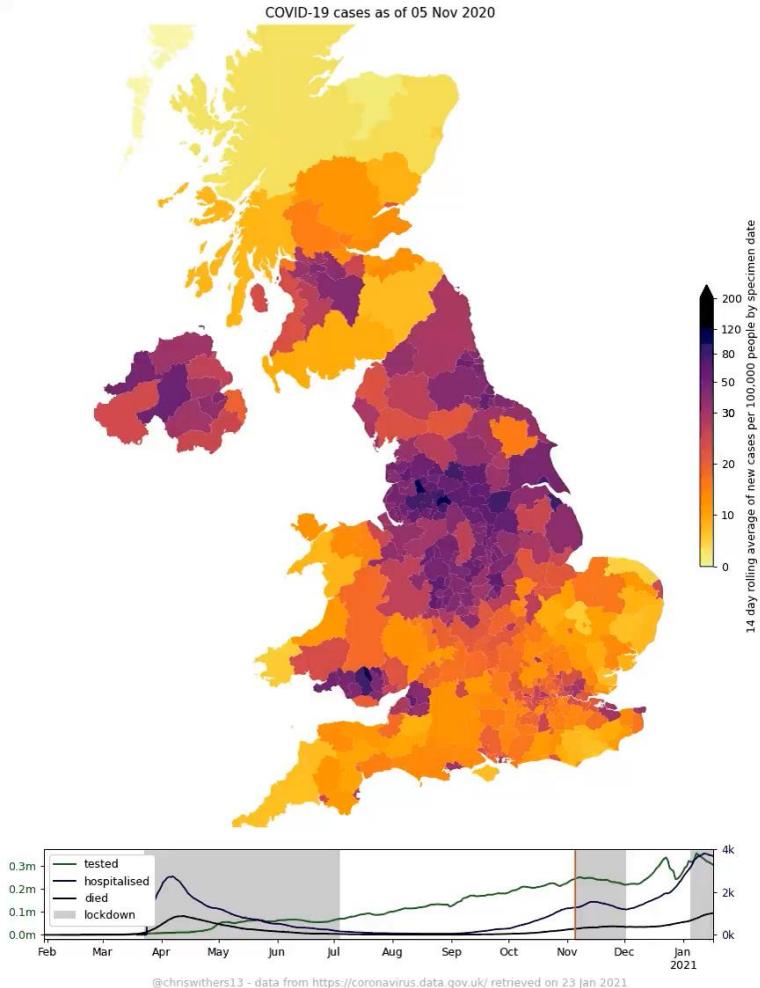
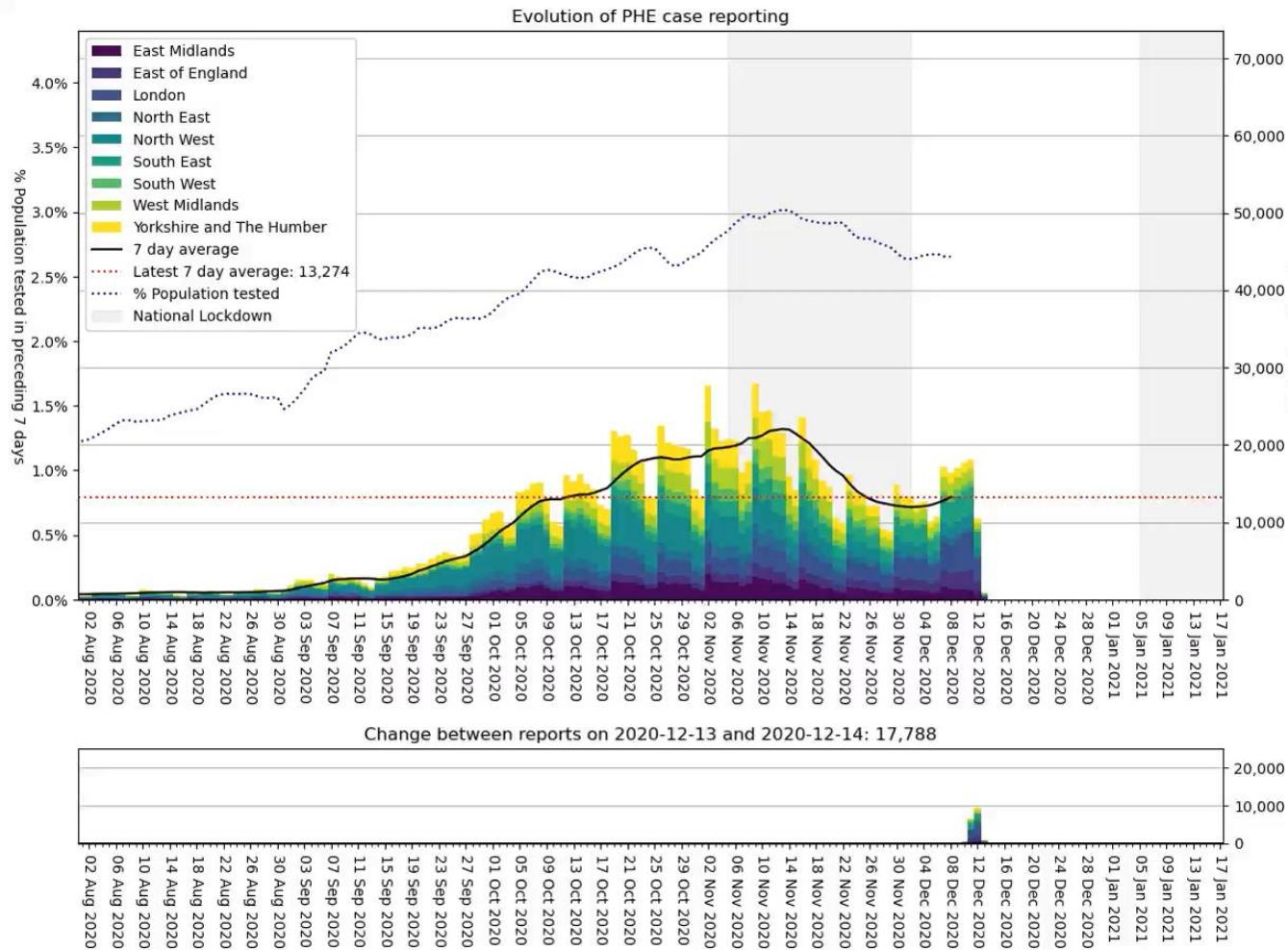
cumAdmissionsByAge
Latest record: 2021-09-26

cumAntibodyTestsByPublishDate
Latest record: 2021-09-27

cumCasesByPublishDate

Open Data

We can't do it all.



Courtesy of Chris Withers - @chriswithers13

Open Data

Promoting collaboration

Websites created by members of the public

News outlets use the data to inform the public

International agencies use the data to derive policies

Researchers use the data for studies

National organisations use the service to obtain consolidated data

Examples

<https://coronavstats.co.uk>

Financial Times, Sky News

WHO

Imperial and Hopkins

JBC, Local authorities

Open source

Advantages

- 18 public repositories to date
- Worldwide contributions
- Better transparency and elevated trust
- Improved security
- Increased need for maintenance

Disadvantages

- Report issues with data in the repository
- Increased need for maintenance

Open Source Public engagement



Don Syme
@dsymetweets

The UK government Coronavirus dashboard is implemented in F# using Giraffe as the server-side implementation.

Great work by @Pouriaaa and team! Please give a talk on this at [@FSharpLondon](#), and add a testimonial at [fsharp.org](#).

[github.com/publichealthen...](#)

#fsharp

[publichealthengland/coronavirus-dashboard-...](#)



UK Coronavirus Dashboard - Summary pages

2 Contributors 1 Issue 21 Stars 1 Fork

github.com
GitHub - publichealthengland/coronavirus-dashboard-summary: UK Coronavir...
UK Coronavirus Dashboard - Summary pages. Contribute to publichealthengland/coronavirus-dashboard-summary development by creatin...

7:04 PM · Feb 8, 2022 · Twitter Web App

14 Retweets 93 Likes



Bozhidar Bozhanov
@bozhobg
The UK coronavirus dashboard. It's also on GitHub
[coronavirus.data.gov.uk](#)

12:20 PM · Apr 15, 2020 · Twitter Web App



Don Syme
@dsymetweets

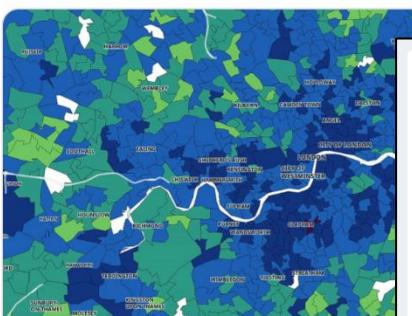
The code is really impressively clean (see repo above).

The dashboard is here



Johannes Weiss
@johannesweiss

Wow, times have changed: Microsoft & the UK government discussing in quite some detail the UK Covid dashboard (Open Source!) implementation:



techcommunity.microsoft.com
UK COVID-19 dashboard built using Postgres and Citus
From the beginning of the COVID-19 pandemic, the UK government has made it a top priority to track key health

Posted by u/TelephoneSanitiser 17 days ago

69 The implementation of the UK COVID-19 dashboard

[techcommunity.microsoft.com/t5/azu...](#)

Statistics

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r/CoronavirusUK

Spreading news, advice, and media following the UK's spread of the virus.
Please note, this sub is a disinformation-free zone and we do not tolerate conspiracy theories, fear-mongering, "alternative facts", or encouraging people to ignore public health advice.

95.3k Members 228 Online

Created Feb 11, 2020

Overlapping text in Twitter card image [bug](#)

#337 by gwire was closed on 13 May 2021

No menu options available for certain screen dimensions [bug](#)

#336 by DaveJephson was closed on 18 Jun 2021

The API has stopped including a valid hash in returned queries. It worked until about 9 days ago but now returns null [invalid](#)

#335 by renduh was closed on 8 May 2021

Add figures to 'Latest reported vaccination uptake' waffle chart - exploration of options [enhancement](#)

#334 by FloraDeath was closed on 6 Jun 2021

Incorrect positioning of the diamond on the comparison of case rate to the UK average on the map [bug](#)

#333 by statsgeekclare was closed on 10 Dec 2021

Dates appear twice on hover-over on bar charts [bug](#) [dependencies](#)

#332 by statsgeekclare was closed on 8 Jun 2021

Update developer guide to remove reference to nested queries [Correction](#)

#331 by statsgeekclare was closed on 10 May 2021

Change to rates description in cards on map page [enhancement](#)

#329 by DaveJephson was closed on 19 Jun 2021

Repeated labels on y-axes of cumulative charts on mobile [bug](#) [dependencies](#)

#328 by statsgeekclare was closed on 9 May 2021

Y-axis labels partially hidden on mobile [bug](#)

#327 by xenatisch was closed on 31 Mar 2021

Hover over on R / Growth rate chart showing details that are not required [bug](#)

#323 by DaveJephson was closed on 30 Mar 2021

Tick labels and tooltips display all numbers to 1 dp [bug](#)

#320 by xenatisch was closed on 30 Mar 2021

Open Source

Global contributions

The image shows a GitHub pull request interface with several annotations:

- Code Review:** A large callout highlights the commit message "Fix 2nd dose tooltip wording on homepage vaccination section #68".
- Code Changes:** A screenshot of the GitHub diff view shows the change from "Percentage of adults vaccinated (first dose)" to "Percentage of adults vaccinated (second dose)".
- UI Mockups:** Two screenshots of the dashboard UI illustrate the change. The first shows the incorrect tooltip "Percentage of adults vaccinated (first dose) up to and including {{ secondDosePer.date }}". The second shows the corrected tooltip "Percentage of adults vaccinated (second dose) up to and including {{ secondDosePer.date }}".
- Reviewers:** A callout points to the "Reviewers" section, which lists "xenatisch".
- Assignees:** A callout points to the "Assignees" section, which also lists "xenatisch".
- Labels:** A callout points to the "Labels" section, which includes a yellow "Testing" label.
- Projects:** A callout points to the "Projects" section, which says "None yet".
- Milestone:** A callout points to the "Milestone" section, which says "No milestone".
- Linked Issues:** A callout points to the "Linked issues" section, which says "Successfully merging this pull request may close these issues. None yet".
- Notifications:** A callout points to the "Notifications" section, which includes an "Unsubscribe" button and a note about receiving notifications because you're watching the repository.

What's next?

- Review metrics to keep them relevant
 - Changes to vaccination data (5-11s, spring boosters etc)
 - Variants data
 - Coronavirus Infection Survey data
-
- Stabilise and strengthen the platform to build on what we have learned
 - Repurpose to supply open data and public-facing dashboard capability for other UKHSA topics (eg flu, HIV, TB, climate)

Concluding remarks

Agility and resilience demand forethought

- Daily reporting in a high profile situation is challenging but valued
- Requires constant review and development
- Openness can be risky but builds trust

Acknowledgements

Many people and organisations have contributed to the service.

- Current and former members of the Coronavirus dashboard team
- UKHSA / Public Health England / NHS Test and Trace
- NHS England
- NHS Arden & GEM Commissioning Support Unit
- Department of Health and Social Care
- National statistics organisations
- Devolved administrations
- Palantir
- Microsoft and Microsoft Azure support team, especially the Customer Success Unit (CSU) and the Citus team

Thank you

Questions?

