



Data available for COVID-19 research across the UK

August 2021

This document sets out the data sets available for COVID-19 research across a network of UK Trusted Research Environments (TREs), made available by the Data and Connectivity National Core Study, led by Health Data Research UK in partnership with Office for National Statistics.















Contents

${\tt O1.}$ Background	03
Data enabled COVID-19 research impacts	04
Data and Connectivity Partners	07
94. Patient and Public Involvement and Engagement	08
95. Summary of available data and infrastructure	09
96. Discovering and requesting access to data via the Health Data Research Innovation Gateway	12
07. Accessing and using the UK network of Trusted Research Environments	13
Data available in the Office for National Statistics Secure Research Service	17
Data available in the NHS Digital Trusted Research Environment as part of the COVID-IMPACT/CVD-COVID-UK Consortium	18
10. Data available in the Scottish National Data Safe Haven	19
11. Data available in the SAIL Databank	20
12. Data available in the Northern Ireland Honest Broker Service	21
13. Data available in OpenSAFELY	22















Background



Health Data Research UK has been working in partnership with data custodians across the UK to make COVID-19 data sets and data linkages available to researchers to inform the pandemic response in the UK.

At the start of the COVID-19 pandemic, experts and key UK funders of research identified a number of areas where the UK needed to increase its research scale or infrastructure to respond to key near-term strategic, policy and operational questions regarding COVID-19. As a result, the National Core Studies (NCS) programme was established. The NCS is directed by an Oversight Committee chaired by Sir Patrick Vallance, the Government Chief Scientific Adviser and has representatives from Scotland, Wales, England, and Northern Ireland. Health Data Research UK leads the Data and Connectivity National Core Study in partnership with the Office for National Statistics to connect UK health data to support and accelerate research on COVID-19. The programme supports the five other National Core Studies, to answer key research questions on COVID by enabling streamlined data access and analysis. Data and Connectivity NCS is funded by UKRI and we thank them for their support and leadership tin management of the programme.

The Data and Connectivity programme works in partnership with a network of UK Trusted Research Environments (TREs) to make linked data available to accredited researchers for approved uses. Information about these datasets is visible on the Health Data Research Innovation Gateway, a discovery portal for health data for researchers. Researchers can request access to these datasets via the Gateway too.

At the time of the publication (August 2021), there are **88 datasets associated with the National Core Study discoverable on the Health Data Research Innovation Gateway.** There have been 269 data access requests via the gateway from accredited researchers, with further requests made directly to partner TREs.

Number of NCS datasets live on the Innovation Gateway

88

















Data enabled COVID-19 research impacts

Since its inception, the Data and Connectivity National Core Study has been working with key experts and data custodians to enable access to datasets and data linkages needed for urgent COVID-19 research.

In December 2020, the Data and Connectivity programme funded 12 research projects to use the Data and Connectivity data assets and infrastructure to undertake urgent research to contribute to the pandemic response. Read below to find out what more about the research these teams have produced.

1. Demonstrating the real-world effectiveness and safety of COVID-19 vaccines

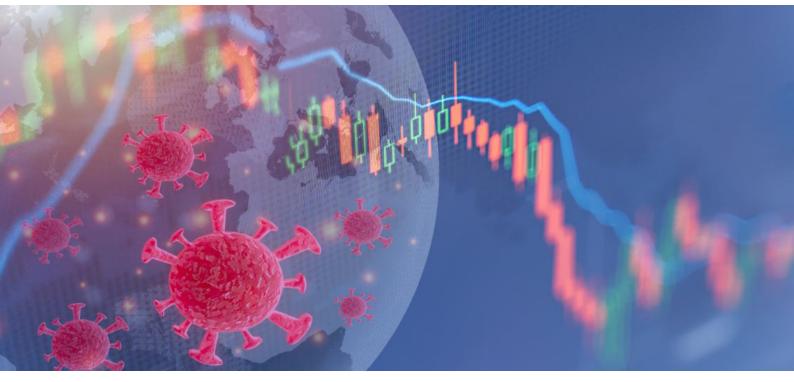
Research from the Early Pandemic Evaluation and Enhance surveillance of COVID-19 (EAVEII) study at the University of Edinburgh, led by Professor Aziz Sheikh, produced the world's first evidence of the effectiveness of the single dose of the AstraZeneca and Pfizer vaccines using linked health data from 5.4 million people. This landmark study attracted extensive global media interest and has informed policy makers, not only in the UK but globally.

Research Paper: Interim findings from first-dose mass COVID-19 vaccination roll-out and COVID-19 hospital admissions in Scotland: a national prospective cohort study

Additional analysis of linked health data from 2.53 million Scottish adults derived from the EAVE II database revealed that a first dose of the Oxford–AstraZeneca vaccine, but not Pfizer-BioNTech, is associated with a small increased risk of an autoimmune bleeding disorder (idiopathic thrombocytopenic purpura).

Research paper: First-dose ChAdOx1 and BNT162b2 COVID-19 vaccines and thrombocytopenic, thromboembolic and hemorrhagic events in Scotland

This research used data and infrastructure set up to advance COVID-19 research across the UK by the Data and Connectivity National Core Study. The research team used linked data on vaccination, primary care, laboratory testing, hospital admission and mortality data available for 5.4 million people in Scotland.



















NEWS

22nd February

Coronavirus Scotland: Vaccination linked to 'substantial reduction' in hospital admissions





The research comes after figures last week showed deaths falling fastest among over 85s and care home residents, who were vaccinated first



MOST READ





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Vaccination has been linked to a substantial reduction in the risk of Covid-19 admissions to Scotland's hospitals, landmark research suggests.

The study is the first to describe across an entire country the effect of the Pfizer and Oxford-AstraZeneca jabs in the community on preventing severe illness resulting in hospitalisation. Previous results



2. Understanding Vaccine Uptake

Research by the University of Leicester, led by Professor Kamlesh Khunti and Professor Tom Yates, and supported by the Data and Connectivity National Core Study, analysed linked data to understand vaccine update amongst elderly adults in England.

The research showed that the by March 2021, 93.2% of people living in England aged over 70 years has received at least one dose of a COVID-19 vaccine. The greatest disparities were seen between ethnic and religious groups with the lowest rates seen in people of Black African and Black Caribbean ethnic background, where only 67.2% and 73.9% had received a vaccine. Older age, greater area deprivation, less advantaged socio-economic position (proxied by living in a rented home), being disabled, and living either alone or in a multi-generational household were also associated with higher odds of not having received the vaccine.

The researchers used linked data from the National Immunisation Management System (NIMS) linked to Public Health Research Database (PHDA), a joint dataset between the Office for National Statistics (ONS) and NHS Digital that is hosted in the ONS Secure Research Service. The creation of the PHDA was supported by the Data and Connectivity National Core Study and is the first time that routine administrative data has been linked with routine health data at this scale for English population.















Research paper: Sociodemographic inequality in COVID-19 vaccination coverage amongst elderly adults in England: a national linked data study

Another study from the team at the University of Leicester explored ethnic differences in COVID-19 mortality during the first two waves using the Public Health Research Database (PHDA). They found that the risk was substantially higher in people from Bangladeshi and Pakistani background in both the first and second waves.

Research paper: Ethnic differences in COVID-19 mortality during the first two waves of the Coronavirus Pandemic: a nationwide cohort study of 29 million adults in England

3. Understanding Long-COVID in children

Research from University of Bristol, led by Dr Rachel Denholm and Dr Katharine Looker, investigated the characteristics of long-COVID and COVID-19 infection in children. The team used data from the Bristol-based COVID-19 Mapping and Mitigation in Schools study (CoMMinS) along with information from Electronic Patient Records, and the COVID-19 Schools Infection Survey.

The team found that the clinical understanding of long-COVID in children is extremely limited and more research is needed to understand whether long-COVID is a new condition in itself, or a group of conditions like post viral fatigue, which is already well documented.

Report: Long COVID in children: a report summarising the views of young people, parents and doctors.

Patient and Public Involvement and Engagement in Data Enabled COVID-19 Research Projects

A key requirement of the funding call ensured proposals demonstrated that patient and public involvement and engagement (PPIE) was an integral part of the planned project. The panel of reviewers included three public contributors from the Health Data Research UK Public Advisory Board_who reviewed and scored the PPIE plans as well as the intended benefit to patients and the public.

Additionally, support and guidance was offered to each of the funded research projects to develop comprehensive and meaningful plans for PPIE. Our HDR UK team also provided support in recruiting public contributors for individual involvement opportunities through established networks, as well as links to external networks.

Following this funding call we published guidelines to embed patient and public involvement in a research funding call. The guidelines were developed with the learnings from this funding call with input from public contributors. This guidance can be used by researchers to ensure they are addressing all of the key requirements that funders may be looking for.

Please read more and download the guidelines here:

Data and Connectivity Rapid Funding Call:
A guide to embedding patient and public involvement - HDR UK















Data and Connectivity Partners



The programme works with partners to deliver streamlined access to a variety of health and administrative data via secure Trusted Research Environments across the four nations of the UK.



The ONS – programme co lead



NHS Digital (England)



SAIL Databank / University of Swansea (Wales)



Public Health Scotland / EPCC University of Edinburgh (Scotland)



HSC Honest Broker Service (Northern Ireland)



British Heart Foundation Data Science Centre



Open Safely















Patient and Public Involvement and Engagement

Health Data Research UK are committed to putting the patient and public voice at the heart of what we do and ensuring that decisions on data access, linkage and use are informed by the public.

We are working with patients and members of the public in several different ways to ensure we are truly embedding the patient and public voice in a meaningful way.

What is Patient and Public Involvement and Engagement?



Involvement = Involve and work with patients and the public who use their unique perspective to influence and shape our work



Engagement = Engage with patients and the public to tell them about our work so that they can become advocates for specific projects, our organisation and the wider safe and secure access and use of data

It is vital to the success of our work that patients and members of the public have been involved from the outset, inform discussions and influence decision making. As the Data and Connectivity National Core Study is part of the UK's research response to the COVID-19 pandemic, it is therefore imperative the patient and public involvement and engagement is a core priority.

The risks of not embedding patient and public involvement and engagement (PPIE) includes not meeting the needs of the public, which results in reduced public trust and public interest, not being transparent and poorer research outcomes.

How are patients and the public involved?

Members of the HDR UK Public Advisory Board have had a crucial role in providing strategic advice to this programme. Additionally, we created an advisory group of public contributors who have a significant voice in our planning process, delivery groups and work with us to push forward our patient and public involvement and engagement in this area.

We also work with existing patient and public networks internally and externally to ensure we have a wider range of voices.

We can provide support and advice to enabling PPIE in research projects. Our team can work with research teams to develop PPIE plans, as well as assist with recruiting participants and provide ongoing advice and support to undertake PPIE.

Case studies:

Find out more about our work supporting researchers to embed PPIE and the impacts this has made:

How public insights led by HDR UK informed vaccine research - HDR UK

Long COVID in Schools - HDR UK

Why Public and Patient Engagement and Involvement is so important to health data research - Dr Sarah Bunney, Imperial College London - HDR UK















Summary of available data and infrastructure



Types of data available for COVID-19 research in England, Wales, Scotland, and Northern Ireland:

COVID-19 datasets

- Pillar 1, 2, 3 testing data
- Viral variant data (COG-UK)
- Vaccination data (status and adverse events data)
- COVID-19 Infection Survey
- COVID-19 Opinions Survey
- Symptom App data (Zoe)



Routine health data

- Primary care
- Secondary care
- · Intensive care
- Accident and Emergency



Administrative data

- Census 2011
- Death registry
- Labour Force Survey

















Summary of the UK Trusted Research Environments and available linked data

Population coverage	Trusted Research Environment	Key linked data assets available
England	Office for National Statistics	ONS hosts the Public Health Research Database which is a linked data asset of ONS and NHS Digital data from the English population and includes census, secondary care (HES), primary care (GPES), mortality.
England	NHS Digital TRE for England (via the COVID-IMPACT/CVD- COVID-UK Consortium, co-ordinated by BHF Data Science Centre)	A linked health data resource covering >55 million people from England is available for researchers in NHS Digital's trusted research environment. Linked data includes primary and secondary care data, COVID testing, COVID vaccination, deaths, ITU/HDU admissions, prescribing, cardiovascular and stroke audits, with more to follow. For more information: Cardiovascular Disease and COVID CVD – COVID project
Scotland	Scottish National Safe Data Haven (Public Health Scotland/Edinburgh Parallel Computing Centre)	The Scottish National Safe Data Haven hosts many routine health datasets for the Scottish population. Notably, it also hosts the Outbreak analysis platform which includes clinical data from the ISARIC4C study, Post-hospitalisation COVID-19 study (PHOSP-COVID), and the GenOMICC study linked with viral variant and routine health data for both the English and Scottish populations.
Wales	SAIL databank	The SAIL databank hosts many routine health datasets for the Welsh population, but notably hosts the unlinked UK wide data from the Zoe COVID-19 Symptom App, and the linked data for the Welsh population.
Northern Ireland	Northern Ireland Honest Broker Service	The Honest Broker Service hosts many routine health datasets for the Northern Irish population and for the first time researchers can access Honest Broker Service data remotely via the Health Data Research Northern Ireland tenancy of the UK SeRP platform hosted by the University of Swansea.

















Population coverage	Trusted Research Environment	Key linked data assets available
England	OpenSAFELY	OpenSAFELY includes raw pseudonymised primary care records (ie not GPES) from two electronic health record providers, TPP and EMIS, covering 40% and 56% of the English population respectively, with federated analytics across the two. Linked datasets include COVID tests (SGSS), Covid-related in-hospital deaths (CPNS), hospital records (SUS, including APCS, OPA and EC datasets, ITU), ONS death certificates, vaccination data; additional cohorts have been imported and linked for specific users (e.g. ICNARC, RCT data, etc).

















Discovering and requesting access to data via the Health Data Research Innovation Gateway

Searching for datasets

You can find out more about the datasets available in each TRE, see what properties these datasets have and decide which would be most suitable for answering your research questions through the Health Data Research Innovation Gateway.

The Gateway is a portal that lists information about each dataset such as where the data has come from, the time period the dataset covers, what data elements are included, and its geographical coverage.

To search for datasets that are part of the National Core Studies, and are most relevant to COVID-19 research, please use the keyword 'National Core Study' in your search. You can view all COVID-19 datasets here. And visit the collections for each TRE here.

When planning which datasets you could use in your research, and which TRE to work in, you should consider:



How readily datasets can be linked with other datasets held in the same or other TREs, and whether they may already be available as a linked asset.



Whether your research question requires UK-wide data, or whether a focus on one of the 4 nations would be suitable.



Whether a TRE can provide any specialist analytical tools or software you require

The Data & Connectivity NCS team is available to answer pre-application queries, in coordination with the nationwide network of Trusted Research Environment providers.

Communicating with data custodians and requesting access to data

Before you begin completing the application form, please contact the data custodian to discuss your requirements using the 'Make an enquiry' messaging function on each dataset page. Not all enquiries progress to the application stage, for example it may be that your requirement can be satisfied through existing published data, or, in the case of the NHS Digital TRE, through the BHF Data Science Centre's facilitated, streamlined access process.

When you've discussed your requirement with the data custodian and are re ready to proceed with an application click the button 'Start Application'. The application form is structured following the Five Safe model.















Accessing and using the UK network of Trusted Research Environments



To access data, researchers must ensure they meet the accreditation requirements of each Trusted Research Environment they have requested data from. We strongly recommend completing the accreditation process in parallel with – or before – your data access request.

UK Trusted Research Environment	Accreditation Process
Office for National Statistics Secure Research Service	Access to the ONS Secure Research Service uses the Digital Economy Act 2017 (DEA) legal gateway.
	Researchers wishing to access the ONS SRS must become an accredited researcher, either as a 'full researcher' or a 'provisional researcher'. This is also accepted by Scottish National Safe Data Haven, SAIL databank and Northern Ireland Honest Broker ServiceResearchers' host organisation must also have Assured Organisational Connectivity agreement to enable them to access the Secure Research Service remotely.
	For more information: Accessing secure research data as an accredited researcher
	Contact: srs.customer.support@ons.gov.uk
NHS Digital (for CVD-COVID-UK consortium)	Researchers' host organisation must be have met the requirements of the Data Security and Protection Toolkit
	Researchers must complete the NHS Data Security Awareness training course from Health Education England
	Contact: bhfdsc@hdruk.ac.uk
Scottish National Safe Data Haven	Researchers must complete the Safe Research Training provided by the UK Data Service
	If researchers are already an Accredited Researcher under the Digital Economy Act that is accepted
	Contact: phs.edris@phs.scot
SAIL databank	Researchers must complete the Safe Research Training provided by the UK Data Service
	If researchers are already an Accredited Researcher under the Digital Economy Act that is accepted
	Contact: SAILDatabank@swansea.ac.uk
Northern Ireland Honest Broker Service	Researchers must complete the Safe Research Training provided by the UK Data Service
	If researchers are already an Accredited Researcher under the Digital Economy Act that is accepted
	Contact: hbs@hscni.net















UK Trusted Research Environment	Accreditation Process
OpenSAFELY	Analysis of OpenSAFELY data must be for COVID-19 purposes; the approval process is overseen by NHS England.
	Researchers must complete the Safe Research Training provided by the UK Data Service or the ONS.
	If researchers are already an Accredited Researcher under the Digital Economy Act that is accepted.
	All researchers must sign a data access agreement.
	Contact: team@opensafely.org



















Using the Trusted Research Environments - Data tools

UK Trusted Research Environment	Tools and software
Office for National Statistics	Default software: Office, SAS, SPSS, STATA, R, Python and more
Secure Research Service	Additional software listed here
	Code/library import: Governance process where 2 people check code
	No collaboration Software
NHS Digital (for COVID-IMPACT/ CVD-COVID-UK consortium)	Default software: Databricks (which includes Python and SQL), R-Studio, Tableau and Stata are also pipelined for provision, alongside a number of desktop tools.
	Code/library import: Code can be imported by Service Request (limited to reference data only). Additional R packages/Python libraries can also be added by Service Request.
	Collaboration Software: BETA Gitlab
Scottish National Safe Data Haven	Default software: R, Stata, SAS, SPSS, MS Office.
	Code/library import: users may import software code associated with the standard packages above. These code imports use standard managed file transfer mechanisms under eDRIS control, and basic security checks are performed.
	Collaboration software: in development; not yet available.
	No software installation by users is permitted.
SAIL databank (remote-access via UK SeRP)	Default software: Office, R, Python, Conda, SPSS, STATA, SAS, Jupter Notebook, eclipse, VS Code, DB tooling
	Code/library import: Whitelisted package libraries for R, Python Conda, SAS, STATA, SPSS. Extra packages can be added by technical team on request. AV/Malware, SEIM and N/W monitoring
	Collaboration Software: Git, Wiki, Confluence, Shared File Store, Shared DB
Northern Ireland Honest Broker Service (remote-access via UK	Default software: Office, R, Python, Conda, SPSS, STATA, SAS, Jupter Notebook, eclipse, VS Code, DB tooling
SeRP)	Code/library import: Whitelisted package libraries for R, Python Conda, SAS, STATA, SPSS. Extra packages can be added by technical team on request. AV/Malware, SEIM and N/W monitoring
	Collaboration Software: Git, Wiki, Confluence, Shared File Store, Shared DB







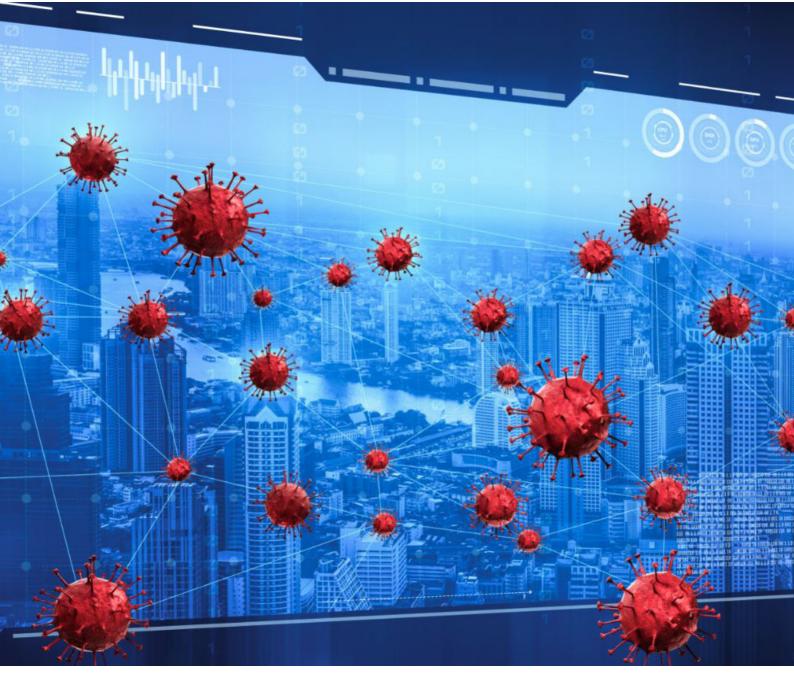








UK Trusted Research Environment	Tools and software
OpenSAFELY	Default software: OpenSAFELY cohort extractor, Python, Jupyter Notebook, Stata, R.
	Code/library import: Whitelisted package libraries for R, Python, STATA. Extra packages can be added by technical team on request. User written code can only be sent to the secure server from the OpenSAFELY GitHub organisation (https://github.com/opensafely).
	Collaboration Software: Git/GitHub















Data available in the Office for National Statistics Secure Research Service



Data category	Dataset name
C-19 vaccine data collection	COVID Immunisation
COG-UK viral genome	COVID-19 COG-UK Viral Genome (variant strain data)
Primary Care	Available as part of the Public Health Research Database
	(Census-Mortality-HES-GPES linked data asset)
Secondary Care	Available as part of the Public Health Research Database
	(Census-Mortality-HES-GPES linked data asset)
Intensive Care data	Coming soon
Death registry	Death Registration Data – Provisional Monthly Extracts
	Death Registration Data – Finalised Extracts
	Linked Census and Death Occurrence
C-19 Infection Survey (CIS)	COVID-19 Infection Survey
	COVID-19 Infection survey linked with VOA and EPC data
Census 2011	Census 2011 E&W – Household structure for COVID-19 models
Covid Opinions Survey	Coronavirus and the social impacts on Great Britain
Business Impact of Covid Survey	Business Insights and Conditions Survey (BICS)
Labour Force Survey	Labour Force Survey (Household)
	Labour Force Survey (Longitudinal)
	Labour Force Survey (Person)

You can view a full list of datasets available from the ONS here

Information about the ONS SRS can be found here

















Data available in the NHS Digital Trusted Research Environment as part of the COVID-IMPACT/CVD-COVID-UK Consortium

Information about the NHS Digital TRE for CVD-COVID-UK / COVID-IMPACT can be found via the collection or webpage.

Data category	Dataset name
C-19 vaccine data collection	COVID-19 Vaccination Status COVID-19 Vaccination Adverse Reaction
Pillar 1 COVID-19 Testing Data	COVID-19 Second Generation Surveillance System (SGSS)
Pillar 2 Testing data (UK Gov)	COVID-19 UK Non-hospital Antigen Testing Results (Pillar 2)
Pillar 3	COVID-19 UK Non-hospital Antibody Testing Results (Pillar 3)
Primary Care	GPES Data for Pandemic Planning and Research (COVID-19)
Secondary Care	 Hospital Episode Statistics (HES): Admitted Patient Care Outpatients County Uses Service (SUS) Coming soon: Uncurated Low Latency Hospital Data Emergency Care Data Set
Prescribing and dispensing data	Medicines dispensed in Primary Care (NHSBSA data) Hospital prescribing data (EPMA) (not visible on the Gateway)
Death registry	Civil Registrations - Deaths
Intensive Care data	COVID-19 SARI-Watch (formerly CHESS)
	HES Critical Care
	Intensive Care National Audit and Research Centre (ICNARC) COVID-19 – coming soon
NICOR cardiovascular audits	NICOR – MINAP: Myocardial Ischaemia National Audit Project NICOR – PCI: Percutaneous Coronary Interventions NICOR – NHFA: National Heart Failure Audit
	 Coming soon: NICOR – NACSA: National Adult Cardiac Surgery Audit NICOR – NACRM: National Audit of Cardiac Rhythm Management NICOR – NCHDA: National Congenital Heart Disease Audit NICOR – TAVI: Transcatheter Aortic Valve Implantation
Stroke audit	Sentinel Stroke National Audit Programme (SSNAP)
National vascular registry	National Vascular Registry Audit - coming soon
Other datasets	 Coming soon: Improving Access to Psychological Therapies Patient Reported Outcome Measures (PROMs) Maternity Services Data Set Mental Health Services Data Set Mental Health of Children and Young People (not visible on the Gateway)















Data available in the Scottish National Data Safe Haven



Data category	Dataset name
C-19 vaccine data collection	Scottish Vaccination Data
COG-UK viral genome	Viral variant data available in TRE - Subset also linked to CO-CIN data
	Full viral sequence data coming soon
Pillar 1 and 2 COVID-19 Testing Data	Electronic Communication of Surveillance in Scotland (ECOSS)
Primary Care	Albasoft ESCRO GP Extraction
	Prescribing Information System
,	NHS Scotland General Practice Contact Data
Secondary Care	General Acute Inpatient and Day Case – Scottish Morbidity Record 100% coverage
	Outpatient Appointments and Attendances - Scottish Morbidity Record
Intensive Care data	Scottish Intensive Care Audit Group SICSAG (updated weekly)
	SICSAG Episodes
Emergency Care	Scotland Accident and Emergency
Death registry	National Records of Scotland – Deaths Data
COVID-19 Clinical Information	COVID-19 Clinical Information Network (CO-CIN)
Network (CO-CIN/ISARIC)	Limited metadata. Includes English linked data, and COG-UK/CO-CIN data asset
GenOMICC study data	Coming soon via the Outbreak Analysis Platform
Post-hospitalisation COVID-19 study (PHOSP) data	Coming soon via the Outbreak Analysis Platform
Census 2011	2011 Census variables

















Data available in the SAIL Databank

Data category	Dataset name
C-19 vaccine data collection	COVID Vaccination Dataset
COG-UK viral genome	COVID-19 Sequence Data
Pillar 1, 2, 3 COVID-19 Testing Data	COVID-19 Test Results
Lateral flow test data	COVID Lateral Flow Test
Primary Care	GP dataset – Welsh Primary Care (80%+ coverage of full longitudinal record, with 100% coverage for COVID codes)
Secondary Care	Patient Episode Dataset for Wales (100% coverage)
Intensive Care data	Intensive Care National Audit and Research Centre (Case-mix programme)
	Intensive Care National Audit and Research Centre – COVID-19
	Critical Care dataset
Welsh Demographic Service	Welsh Demographic Service 100% coverage
Death registry	COVID-19 Consolidated Deaths
Census 2011	ONS 2011 Census Wales
Symptom Study App Data (Zoe)	COVID-19 Symptom Tracker Dataset (Available as UK wide unlinked dataset and linked Welsh dataset)
Test and Trace data	COVID-19 Test Trace and Protect (CTTP)

















Data available in the Northern Ireland Honest Broker Service



Data Category	Dataset name
C-19 vaccine data collection	Data is available, meta data to be available asap via the HSCNI Collection on the Gateway
COG-UK viral genome	Data is available, meta data to be available asap via the HSCNI Collection on the Gateway
Pillar 1 COVID-19 Testing Data	COVID antigen testing - Pillar 1
Pillar 2 COVID-19 Testing Data	COVID antigen testing - Pillar 2
Pillar 3 Testing data (iELISA)	Data undergoing validation
Primary Care	Enhanced Prescribing Database as proxy
Secondary Care	Admissions & Discharges
Emergency Care	Emergency Department (Symphony), Emergency Department (eEMS)
Maternity	Northern Ireland Regional Maternity System (NIMATS)
Death registry	Mortality (Death registration)
Personal Demographics Service	Patient Medical Card Registration (Northern Ireland)

















Data available in OpenSAFELY

Data category	Dataset name
Primary Care	TPP and EMIS electronic health record primary care data-covering 40% and 56% of the English population respectively, with federated analytics across the two. Linked to numerous data sets, examples below:
C-19 vaccine data collection	COVID vaccination status
COVID-19 Testing Data	COVID testing (SGSS)
Secondary Care	SUS, including APCS, OPA, EC)
Death registry	ONS death certificates, COVID related in-hospital deaths (CPNS)













