

National Core Studies Impact Report

Oct - Dec 2021

The COVID-19 National Core Studies (NCS) are a crucial part of the UK's ongoing pandemic response. They are enabling the UK to use health data and research to inform both our near and long-term responses to COVID-19, as well as accelerating progress to establish a world-leading health data and research infrastructure for the future

The 6 National Core Studies are:

Epidemiology and Surveillance led by Ian Diamond (Office for National Statistics) collects and analyses data to inform restrictions and protection against imminent outbreaks.

Clinical Trials Infrastructure led by Patrick Chinnery (Medical Research Council) accelerates delivery of large scale COVID-19 trials for drugs and vaccines.

Transmission and Environment (also known as PROTECT) led by Andrew Curran (Health and Safety Executive) improves understanding of COVID-19 virus transmission in different settings and environments.

Immunity led by Paul Moss (University of Birmingham) supports research to improve understanding of immunity against COVID-19, to inform back-to-work policies.

Longitudinal Health and Wellbeing led by Nish Chaturvedi (University College London) and Jonathan Sterne (University of Bristol) uses data from longitudinal studies to address the impact of COVID-19 and inform mitigating strategies

Data and Connectivity led by Andrew Morris (Health Data Research UK) in partnership with Office for National Statistics makes UK-wide health and administrative data available to catalyse COVID-19 research.

This new quarterly report aims to:



Communicate the impact the National Core Studies are having on COVID-19 response



Promote NCS Open Science data, tools and resources to ensure they are taken up



Highlight where advances & learning gained during NCS translates into a legacy of stronger health threat preparedness

Managed by:



Funded by:



Key outputs across the NCS programme to date

489

Publications in academic journals, with 124 pre-prints

93

High-quality datasets made available via the [Health Data Innovation Gateway](#), described in [this brochure](#)

190

NCS-linked data uses in the [Data Use Register](#), a new standard for transparent public reporting [shared in this HDRUK white paper](#)

847

Researchers supported through 86 projects

Highlights from NCS programme delivery in Oct - Dec 2021

Transmission & Environment NCS researchers, government policymakers and industry stakeholders came together in November for their first conference on how the COVID-19 virus transmits, and how to stop it – [available for catch-up here](#)

Data & Connectivity NCS collaborated with Alan Turing Institute to fund [9 projects tackling ongoing, urgent COVID-19 questions](#) using NCS-enabled datasets and infrastructure. User feedback and leveraging the data access process of the [COVID-IMPACT Consortium](#) led by [BHF Data Science Centre](#) reduced authorisation time from 120 days to within 30 days for most projects.

What to look out for from NCS in Jan – Mar 2022

Epidemiology & Surveillance NCS publish [the latest findings](#) from COVID Infection Survey on how well vaccines work against Omicron. The Schools Infection Survey, redeployed at pace in autumn 2021, will start releasing nationally representative estimates of antibody positivity in children and young people.

Transmission & Environment NCS announced plans via their [website](#) and [Twitter](#) for their next phase of work, and [surveyed](#) stakeholders to inform their priorities for research, translational guidance resources, and the long-term sustainability of UK research capacity on respiratory virus transmission.

Key findings published by NCS teams in October – December 2021

The EAVE II team collaborated with **Data & Connectivity NCS** to study Oxford-Astra Zeneca vaccine protection against COVID-19 in Scotland and Brazil, [finding waning protection within three months of second vaccine doses](#).

A **Longitudinal Health & Wellbeing NCS**-funded study found that people discharged from a COVID-19 hospital admission had [markedly higher risks for rehospitalisation and death](#) than the general population.

A new model developed by **Transmission & Environment NCS**-funded researchers uses occupancy and CO₂ monitoring data to [predict the risk of airborne COVID-19 infection](#).

A **Clinical Trials Infrastructure NCS** commentary describes how platform trials and independent Therapeutics Advisory Panels [could accelerate progress](#) in other areas such as long term conditions.

An **Immunity-NCS** study found [impaired antibody responses](#) to COVID-19 vaccination in people with leukaemia made them more vulnerable to delta variant.

Between October – December 2021, NCS worked with the public via advisory groups, workshops and surveys, to shape and communicate our programmes

In December, **Data and Connectivity NCS** used a workshop to understand public perspectives on using regional, linked health data for research into vaccine safety. The workshop outputs will shape the scale up of regional data pilots.

Longitudinal Health & Wellbeing NCS developed a long Covid online forum to host a diverse and inclusive public/patient conversation on defining and researching long Covid.

In December, **Immunity NCS** launched UK COVID Vaccine Research Hub, a website with trustworthy and up-to-date information on vaccine research for researchers, policymakers and the public.

A November public webinar on NCS research into vaccine safety led by NCS-funded experts is available to watch on the Data and Connectivity NCS webpage

Epidemiology & Surveillance NCS used telephone helpline feedback from public participants to improve antibody testing kits usability, improving sample quality.

Between October – December 2021, the media engaged with NCS results every single day, informing public understanding of topics from waning immunity to the threat posed by Omicron

The EAVE-II study, in collaboration with **Data and Connectivity NCS**, found Omicron is less likely to lead to hospitalisation. This was reported internationally including by Wall Street Journal, with direct comment from Scotland's First Minister Nicola Sturgeon.

National media including The Sun picked up of an interactive graphic developed by **Transmission & Environment NCS**-funded researchers for the British Medical Journal that explores how the COVID-19 virus is transmitted

Immunity NCS gave media briefings and interviews to Sky News and BBC Radio 4 on key findings from their CAIRO study of vaccine responses in older people

Epidemiology & Surveillance NCS COVID- 19 Infection Survey had 6,298 media mentions - an average of 68 mentions per day

International media covered **Longitudinal Health & Wellbeing NCS'** finding that people with prior mental ill health were hit harder by pandemic disruption.

How the NCS have informed the UK's COVID-19 response: impact case studies from October – December 2021

What do we need to know to manage long COVID?



Research based on linked electronic health records and longitudinal population studies makes vital contributions to our understanding of **risk factors for ill-health**, but these different sources of data have distinct strengths and limitations.



Longitudinal Health and Wellbeing NCS developed [a new way to triangulate the two sources](#) to study long COVID. They triangulated data before and during the pandemic from 45,000 longitudinal population study participants, with 1.2 million primary care records, using the OpenSAFELY platform. This showed being older, female and having poorer pre-pandemic health including asthma were [the key long COVID risk factors](#).



These findings formed the basis of a [July 2021 special report](#) on long COVID to the UK government's Scientific Advisory Group for Emergencies, and were used in a November 2021 update of the National Institute for Health and Care Excellence guidelines on [managing the long-term effects of COVID-19](#).

5% of 30-50 year olds cannot carry on with daily life as normal 12 weeks after catching COVID-19



How many people currently have COVID-19?



One foundation of COVID-19 response is understanding **how many people currently have COVID-19**.



The **Epidemiology & Surveillance NCS**-funded [Coronavirus Infection Survey](#), first launched in April 2020, is one of the largest population sample surveys in the world. It enables accurate estimates of positivity in the population - including those with asymptomatic infection who may not otherwise seek a test. In December 2021 it moved to twice weekly reporting to track the rise in cases triggered by Omicron.



Cross-government stakeholders, including the Cabinet Office and 10 Downing Street, use it to inform a broad range of policies on pandemic response, most recently in response to Omicron.

“Thanks to the Office for National Statistics and its Infection Survey we had great insights into the incidence of asymptomatic infection; regional variations in prevalence, and the spread across demographics.”

Simon Case, Cabinet Secretary

How the NCS have informed the UK's COVID-19 response: impact case studies from October – December 2021

How can we mitigate airborne transmission?



Airborne transmission and the importance of ventilation were previously under-valued parts of COVID-19 risk assessment, with surveys showing only a third of the public understood the importance of ventilation at home



Transmission & Environment NCS-funded researchers from the Universities of Cambridge and Leeds used experimental data on virus emission to build computer models of how particles we breathe out move in the air, and how they are affected by ventilation.



The researchers directly advised the Department of Health and Social Care on the content of [a public information campaign](#) launched in November 2021 as part of increasing UK Government focus on mitigating airborne transmission of the COVID-19 virus.



How can we track and respond to COVID-19 impact inequalities?



Medical records do not usually include many factors that influence health outcomes, such as ethnicity. This makes **tracking and reducing inequalities** harder.



Data & Connectivity NCS worked with NHS Digital and the Office for National Statistics on a [Public Health Research Database](#). It solves this problem by linking health and administrative data for 29 million anonymised adults.



NCS-funded University of Leicester and Office for National Statistics researchers used it to show [higher risk of severe COVID-19 for ethnic minority communities](#) linked to [obesity](#), and inequalities in vaccine uptake by [ethnicity](#) and [age](#). These findings were cited in a December 2021 Race Disparity Unit [report on Covid Impact inequalities](#).

“Data linkage, and [developing] quick processes to allow others to access linked data” are key lessons learned from the pandemic to date

[UK Government Race Disparities Unit reports](#) citing NCS-funded research and resources

How the NCS have informed the UK's COVID-19 response: impact case studies from October – December 2021

How do we protect clinically vulnerable people?



Not everyone has the same quality of immune response following COVID-19 vaccination. People with lower immune response need additional protection.



Immunity NCS commissioned the OCTAVE and OCTAVE-DUO studies to examine when and how to boost vaccine responses in clinically vulnerable people. They found [a very low antibody response](#) in some clinically vulnerable people, and are trialling the [best way to boost responses](#).



OCTAVE study findings are cited in [JCVI's September 2021 recommendation](#) that immune suppressed people should receive third vaccine doses.

10% of clinically vulnerable participants had **no antibody response** to existing vaccine regimens.

– OCTAVE study



Research resources: how NCS prepares the UK for future health threats

- Longitudinal Health and Wellbeing NCS established [the UK Longitudinal Linkage Collaboration](#), a resource which brings together information from longitudinal study volunteers with their routine records.
- This aligns previously complex legal, ethical and governance frameworks into a single streamlined access process for 24 pan-UK interdisciplinary study data sets.
- Researchers are using the new resource to answer priority questions from government and the NHS, and will feed findings back to help guide decision making.



- **Clinical Trials Infrastructure** NCS integrated 7 platform trials across phases I-III in diverse settings and groups of people to test 45 COVID-19 drugs more quickly and with greater efficiency than conventional clinical trials.
- They were guided by the independent [COVID-19 Therapeutics Advisory Panel](#) who assessed over 300 potential therapies for testing.
- Protas, a non-profit organisation [now launched](#) to find treatments for other conditions, is capitalising on the high profile success of this platform trial approach.