

# A long-term observational study of people who have had coronavirus disease (COVID-19) in Scotland

<b>Submission date</b> 22/10/2020	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 05/03/2021	<b>Overall study status</b> Ongoing	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 06/04/2021	<b>Condition category</b> Infections and Infestations	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims:

COVID-19 is a condition caused by the coronavirus (called SARS-CoV-2) that was first identified in late 2019. This virus can infect the respiratory (breathing) system. Some people do not have symptoms but can carry the virus and pass it on to others. People who have developed the condition may develop a fever and/or a continuous cough among other symptoms. This can develop into pneumonia. Pneumonia is a chest infection where the small air pockets of the lungs, called alveoli, fill with liquid and make it more difficult to breathe.

Severe COVID-19 infection can cause severe pneumonia and acute respiratory distress syndrome (ARDS) leading to a requirement for mechanical ventilation. It is also now recognised that it can cause inflammation of blood vessels which may lead to a longer term increased risk of cardiovascular disease. NHS Scotland must plan for the long term care of potentially thousands of patients who will experience long term complications of COVID-19, both within the lung and outside the lung. As COVID19 is a new disease, there is a need to identify the long term consequences and future care needs of COVID19 survivors.

### Who can participate?

We wish to establish a national cohort of 300 people over the age of 18 years who have had COVID19, either as hospital inpatients or in the community.

### What does the study involve?

In this study, blood testing, urine, respiratory samples, and tests of blood vessel function will be used to help determine the long term consequences of this disease and identify future management approaches. This will be through the current study and in the future with analysis of healthcare use.

Specific interests will include the recovering epithelial function in the lungs; endothelial function relating to cardiovascular disease and diabetes; effects of COVID-19 on complications related to, and management of diabetes; characterising the microbiome of the airway epithelium after COVID-19; development of a biobank of samples to further research predictors of long term health outcomes; long term assessment of healthcare use following COVID disease.

What are the possible benefits and risks of taking part?

There is no direct benefit to participants as this study will not directly change the clinical care that they receive. The information that is collected may help clinicians to better care for other patients in the future. If there are any test results that require follow-up, the participant and their doctor will be informed.

Whenever possible any study samples will be taken at the same time as regular samples to reduce the extra procedures. There is a risk of discomfort when samples are taken, and this is detailed in the participant information sheet.

Where is the study run from?

From NHS Tayside (UK) and will recruit participants from multiple sites across Scotland.

When is the study starting and how long is it expected to run?

From June 2020 to December 2046.

Who is funding the study?

The study is funded by Chief Scientist Office, Scottish Government (UK) and the British Lung Foundation (UK)

Who is the main contact?

Dr David Connell, Chief Investigator  
david.connell@nhs.scot

## Contact information

### Type(s)

Public

### Contact name

Ms Stephanie Gallant

### ORCID ID

<https://orcid.org/0000-0002-7008-8883>

### Contact details

Department of Population Health and Genomics

School of Medicine

University of Dundee

Dundee

United Kingdom

DD1 9SY

+44 (0)1382 385968

s.gallant@dundee.ac.uk

### Type(s)

Scientific

### Contact name

Dr David Connell

## Contact details

Department of Respiratory Medicine  
NHS Tayside  
Ninewells Hospital and Medical School  
Dundee  
United Kingdom  
DD1 9SY  
+44 (0)1382 660111  
david.connell@nhs.scot

## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Integrated Research Application System (IRAS)

284116

### Protocol serial number

IRAS 284116

## Study information

### Scientific Title

FOcused Longitudinal Observational study to improve knowLedge of COVID-19 (FOLLOW-COVID)

### Acronym

FOLLOW-COVID

### Study objectives

1. To describe the consequences of COVID-19, on the airway epithelial microbiome, and on longitudinal lung epithelial and vascular function, in a cohort of patients who have had a spectrum of disease as a result of infection with SARS-CoV-2
2. To describe neutrophil function in survivors of severe COVID-19 pneumonia
3. To generate a biobank of samples from patients who are recovering from COVID-19, which can later be used to identify and predict recovery from severe COVID-19 across a range of health domains, including diabetes
4. To determine long term healthcare resource utilisation in patients who have had COVID-19 disease

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Approved 16/09/2020, Yorkshire and The Humber - South Yorkshire Research Ethics Committee (NHSBT Newcastle Blood Donor Centre, Holland Drive, Newcastle, HE2 4NQ, UK: +44 (0)207 1048091; southyorks.rec@hra.nhs.uk), ref 20/YH/0265

### Study design

Multi-centre prospective observational longitudinal study

### **Primary study design**

Observational

### **Study type(s)**

Other

### **Health condition(s) or problem(s) studied**

COVID-19 (SARS-CoV-2 infection)

### **Interventions**

FOLLOW-COVID is an observational longitudinal follow-up study of adults with COVID-19. The researchers propose to analyse routine clinical data with linkage to retrospective and prospective health and social care records with research-specific biosampling.

All participants will be seen at two study visits, 3-6 months post-COVID-19 infection, at which samples will be obtained, then followed up by telephone at years 1, 2, and 5. The researchers will ask participants for their agreement to continue to extract data from their electronic records, and to be contacted about future research, for up to 25 years after recruitment to the study.

### **Intervention Type**

Other

### **Primary outcome(s)**

1. A description of the early longitudinal changes in the airway epithelial microbiome and mycobiome using radiological and clinical note review at 3-6 months post-COVID-19
2. Recovery of symptoms post-COVID as self-defined by the patient at 3-6 months post-COVID-19

### **Key secondary outcome(s)**

1. A detailed description of the early (3-6 months) regenerating ultrastructural changes in the nasal airway epithelium measured using a combination of video microscopy, electron microscopy, and cell culture techniques, in a spectrum of patients recovering from COVID-19 at 3-6 months post-COVID-19
2. Assessments of microvascular and macrovascular endothelial function, arterial stiffness, vascular inflammation, and fat metabolites in the 3-6 months following severe and non-severe COVID-19 measured using non-invasive techniques; these can be linked to inflammatory intravascular gene expression in PBMCs and whole blood; at 3-6 months post-COVID-19
3. A description of neutrophil function in patients recovering from severe COVID-19 pneumonia, including those with ARDS using radiological and clinical note review at 3-6 months post-COVID-19
4. Linking with the SCI-Diabetes database to obtain a comprehensive analysis of the impact of COVID-19 on diabetes care in affected patients and linking this to changes in serum metabolic biomarkers obtained 3-6 months following COVID-19
5. Long-term assessment of healthcare utilisation measured using electronically linked health care records, and phone interviews, and linking these outcomes with the work streams described above, and with biomarker discovery from stored samples, initially over 5 years and up to 25 years

**Completion date**

31/12/2046

## Eligibility

**Key inclusion criteria**

1. Previous clinical (only if hospitalised) or microbiological (if hospitalised or non-hospitalised) diagnosis of COVID-19 disease
2. Aged >18 years

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 years

**Sex**

All

**Key exclusion criteria**

1. Unable to give informed consent
2. Participation is not in the interests of the patient as determined by the investigator (e.g. palliative care)
3. If an individual has any symptoms compatible with current COVID-19 (as per the Health Protection Scotland Guidelines relevant at that time)
4. Currently isolated following a contact with COVID-19
5. Has had an upper respiratory tract infection in the preceding 14 days
6. Nasal brushings only: Patient has a history of significant epistaxis or is anti-coagulated

**Date of first enrolment**

13/10/2020

**Date of final enrolment**

31/01/2021

## Locations

**Countries of recruitment**

United Kingdom

Scotland

**Study participating centre**

**NHS Tayside**

Kings Cross  
Cleington Road  
Dundee  
United Kingdom  
DD1 9SY

**Study participating centre**

**NHS Fife**

Springfield House  
Cupar  
United Kingdom  
KY15 5UP

**Study participating centre**

**NHS Lanarkshire**

14 Beckford Street  
Hamilton  
United Kingdom  
ML3 0TA

**Study participating centre**

**NHS Highland**

Reay House  
17 Old Edinburgh Road  
Inverness  
United Kingdom  
IV2 3HG

**Study participating centre**

**NHS Lothian**

Waverley Gate  
2-4 Waterloo Place  
Edinburgh  
United Kingdom  
EH1 3EG

**Study participating centre**

**NHS Forth Valley**

33 Spittal Street

Stirling  
United Kingdom  
FK8 1DX

## Sponsor information

### Organisation

NHS Tayside

### ROR

<https://ror.org/000ywep40>

## Funder(s)

### Funder type

Government

### Funder Name

Chief Scientist Office, Scottish Government Health and Social Care Directorate

### Alternative Name(s)

Chief Scientist Office, Scottish Government Health Directorate CSO, Chief Scientist Office, Scottish Government Health Directorates, Chief Scientist Office of the Scottish Government Health Directorates, Scottish Government Health and Social Care Directorate of the Chief Scientist Office, Scottish Government Health Directorate Chief Scientist Office, The Chief Scientist Office, CSO

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

United Kingdom

### Funder Name

British Lung Foundation

### Alternative Name(s)

BLF

## Funding Body Type

Private sector organisation

## Funding Body Subtype

Trusts, charities, foundations (both public and private)

## Location

United Kingdom

# Results and Publications

## Individual participant data (IPD) sharing plan

The data sharing plans for the current study are unknown and will be made available at a later date

## IPD sharing plan summary

Data sharing statement to be made available at a later date

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Protocol file</a>	version V1.1	03/09/2020	06/04/2021	No	No