

# The UK's COVID-19 response with Kate Bingham

A virtual briefing hosted by the APPG for Life Sciences

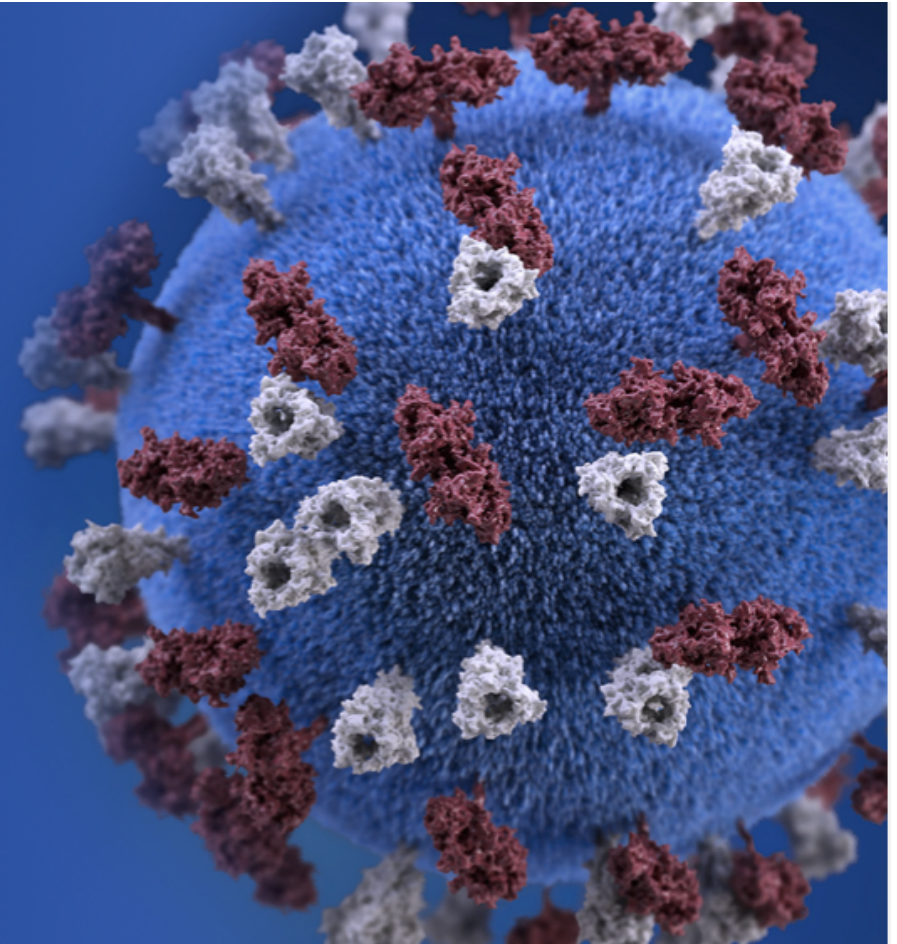
## COVID-19 Genomics UK Consortium

We are delivering large-scale, rapid whole-genome sequencing of SARS-CoV-2, the virus causing the current COVID-19 pandemic, to Public Health Agencies, the NHS and the UK government.

Viruses sequenced

**334,578**

<https://www.cogconsortium.uk/>



Dr Alessandro Carabelli, 11<sup>th</sup> March 2021

# COVID-19 GENOMICS UK (COG-UK) consortium



16 regional sequencing sites



Central sequencing hub



Four public health agencies



Funders providing £20M



HMT COVID-19 fighting fund



Funders providing £12.2M



DHSC Testing Innovation Fund



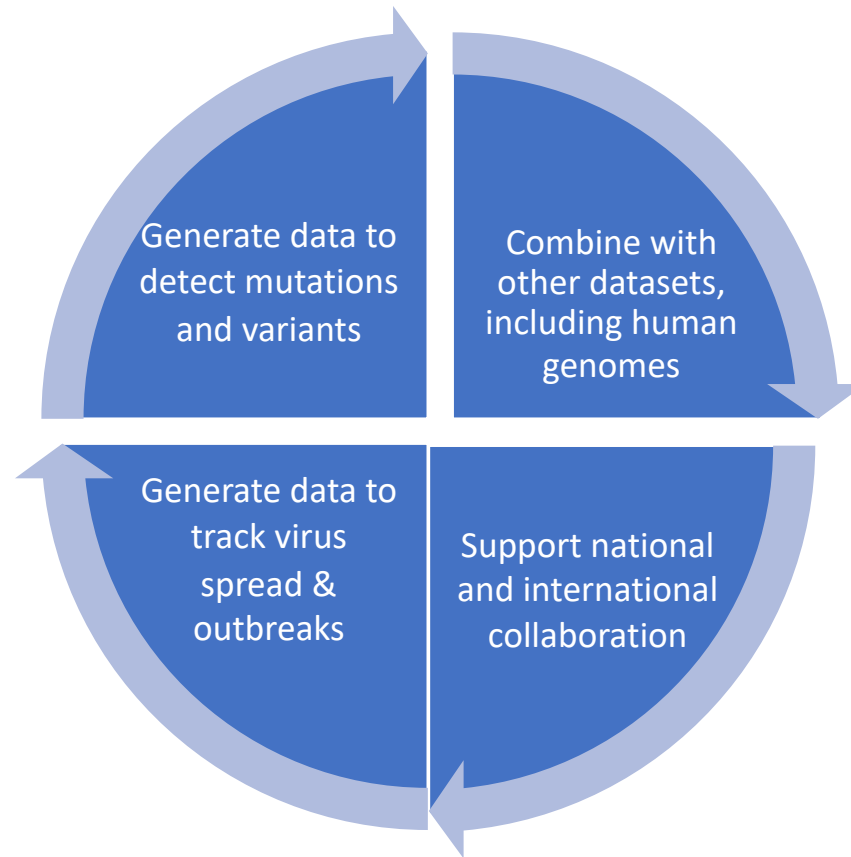
Project administration



COG-UK Director  
Prof Sharon Peacock



# Why sequencing SARS-CoV-2 genome?



# Understanding COVID-19 disease through sequencing data integration



The COG-UK HOCl study

The COG-UK HOCl study is investigating how integrating rapid, real-time COVID-19 genomic sequencing can impact decision-making by infection control teams to prevent the spread of the SARS-CoV-2 virus in NHS hospitals.



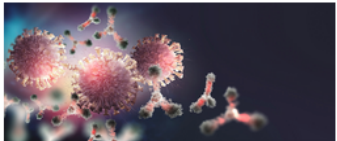
'Investigating a vaccine' study

The 'Investigating a vaccine against COVID-19' study aims to assess whether healthy people can be protected from COVID-19 with a new vaccine called ChAdOx1 nCoV-19 — providing information on the safety of the vaccine and its ability to generate good immune responses against SARS-CoV-2.



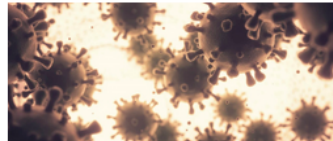
The GenOMICC study

GenOMICC is an open, collaborative, global community of doctors and scientists trying to understand and treat critical illness. Partners in the study have been recruiting patients since 2016 to study emerging infections (SARS/MERS/Flu), sepsis, and other forms of critical illness. It is the largest study of its kind anywhere in the world.



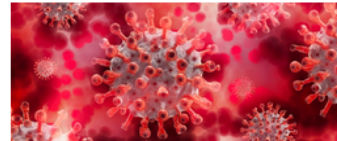
The Real-time Assessment of Community Transmission (REACT) Study

REACT (Real-time Assessment of Community Transmission) is a series of studies that are using home testing to improve our understanding of how the COVID-19 pandemic is progressing across England.



The Office of National Statistics (ONS) COVID-19 Infection Survey (CIS)

The overall purpose of this study is to understand how many people of different ages across the UK have already had COVID-19, even if they do not know they had it.



The SARS-CoV-2 Immunity & REinfection EvaluationN (SIREN) Study

The SIREN study is investigating the impact of detectable anti-SARS-CoV-2 antibody on the incidence of COVID-19 in healthcare workers.



The VIVALDI study

The aim of this study is to find out how many care home staff and residents have been infected with COVID-19, to inform decisions around the best approach to COVID-19 testing in the future.



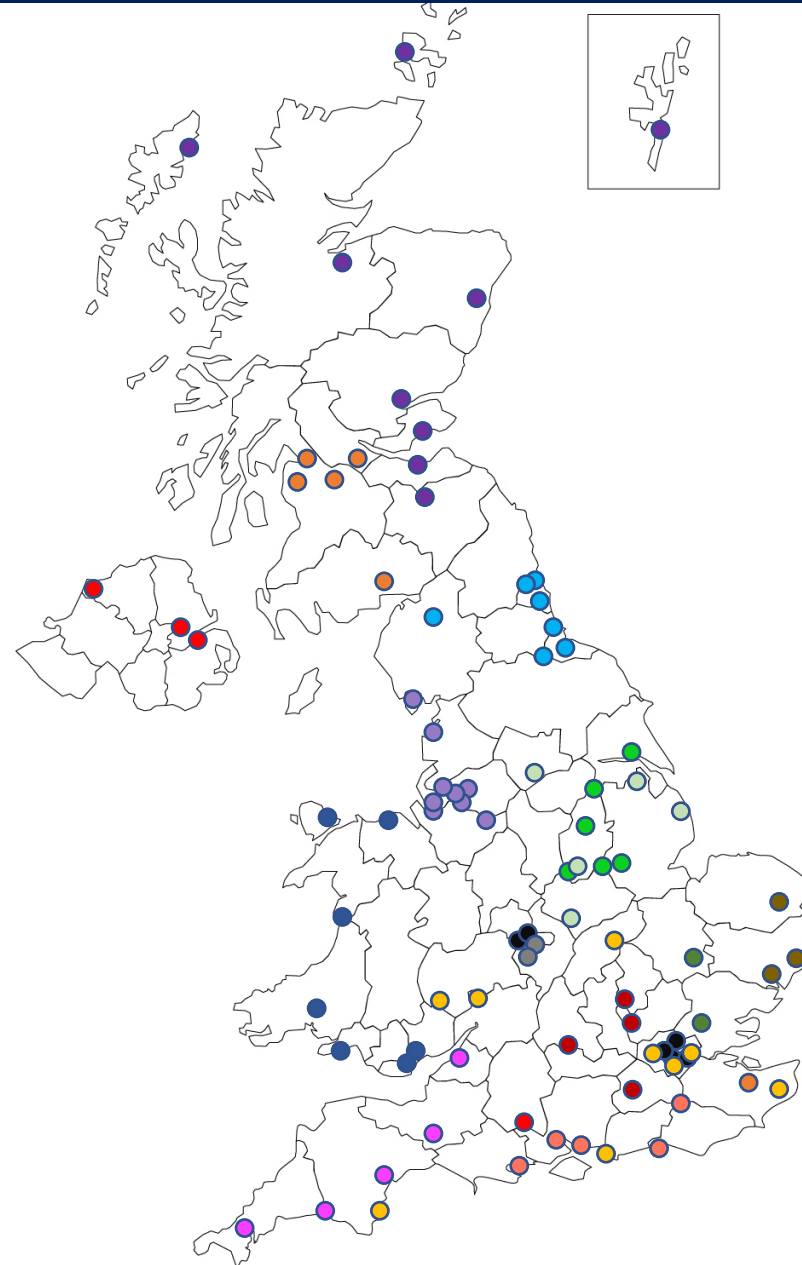
COG-UK data in UK Trusted Research Environments

We work with partners to ensure COG-UK SARS-CoV-2 sequencing data is available in a number of trusted research environments.

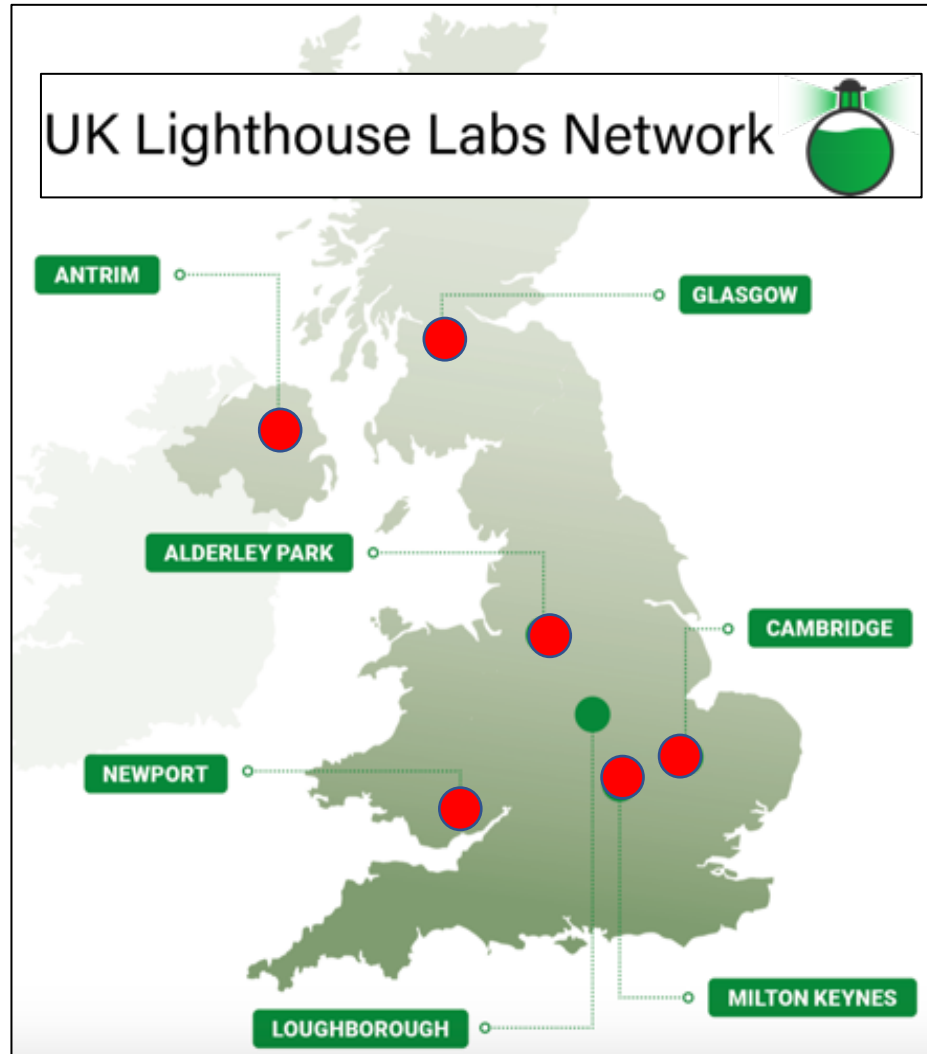
- **Severity of COVID-19 disease**
  - Sequencing of severe COVID-19 cases
  - Host genomics – GenOMICC study
  - VOC and outcomes - clinical record linkage – data in trusted research environments
- **Immunity**
  - SIREN study, vaccine trials, vaccine failures, reinfection
- **Transmission in hospitals and care facilities**
  - Hospital-Onset COVID-19 Infections Study (COG-UK HOCl)
  - VIVALDI study
- **Community transmission**
  - ONS and REACT studies

# Sequencing network: hospital labs & patients ('pillar 1')

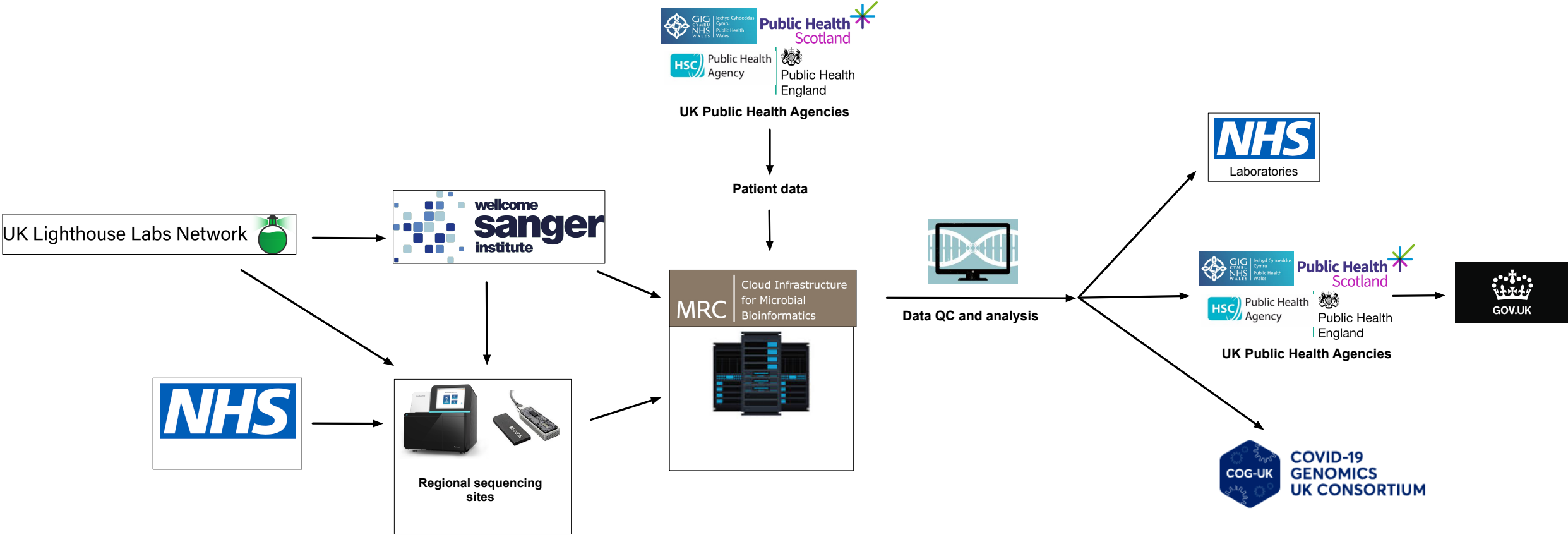
- Belfast Health & Social Care Trust/Queen's University Belfast
- Nottingham University Hospitals
- PHE Colindale
- MRC University of Glasgow Centre for Virus Research
- Northumbria University
- Public Health Wales/Cardiff University
- Royal Infirmary Edinburgh
- University College London
- University of Birmingham
- Addenbrooke's Hospital/University of Cambridge
- Quadram Institute
- University of Exeter
- University of Liverpool
- University of Oxford
- University of Portsmouth
- University of Sheffield
- Porton Down



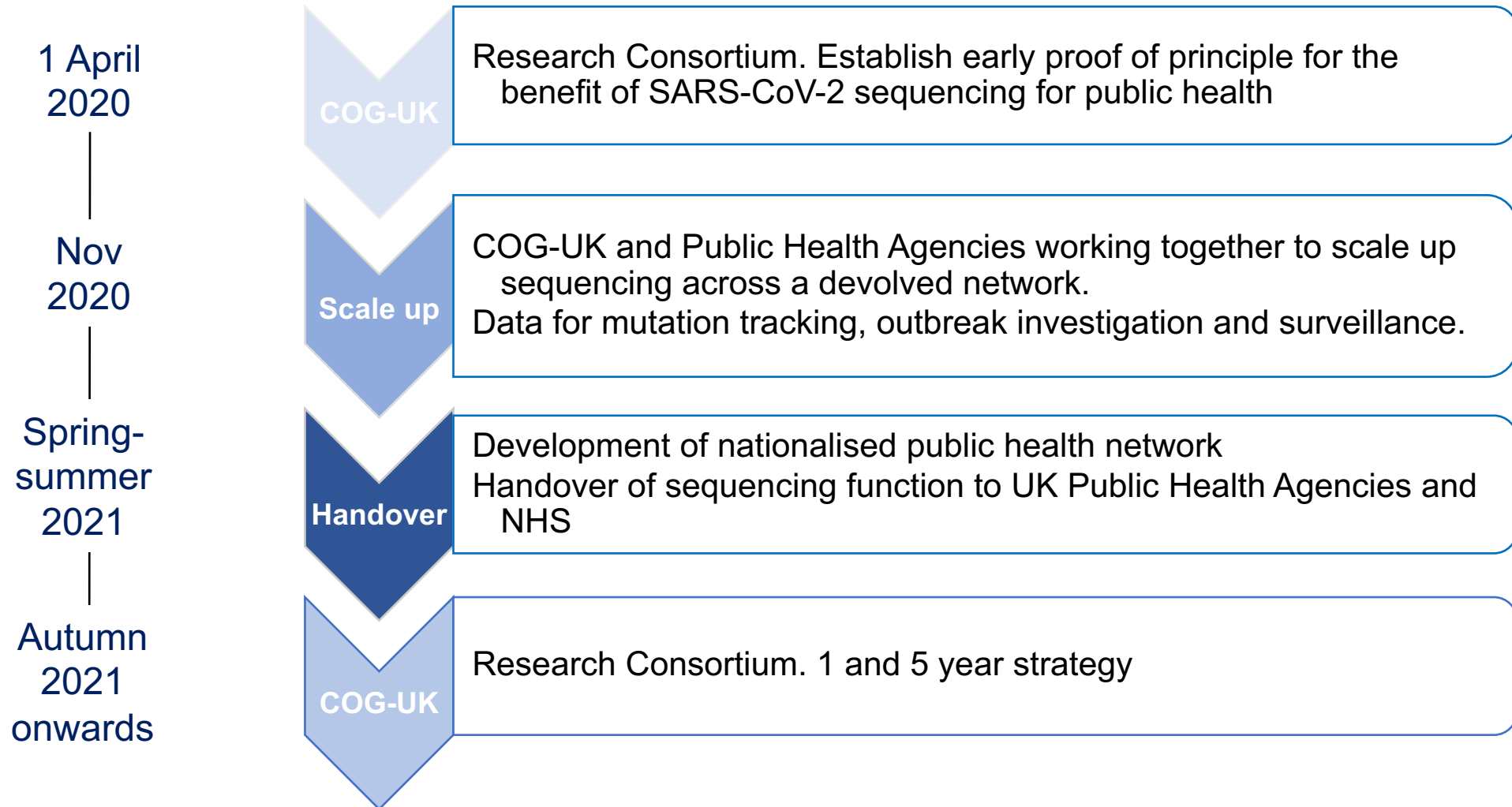
# Sequencing network: community testing ('pillar 2')



# Operational structure



# COG-UK: an evolving brief







==1026==  
Sheffield SARS-CoV-2 Genomes

69788  
Genomes sequenced

| Country | Genomes |
|---------|---------|
| UK      | 1026    |
| USA     | 1000    |
| Spain   | 1000    |
| France  | 1000    |
| Germany | 1000    |
| Italy   | 1000    |
| China   | 1000    |
| Other   | 1000    |

**COG-UK**  
**COVID-19**  
**GENOMICS**  
**UK CONSORTIUM**

MRC  
Medical  
Research  
Council

University  
of Glasgow

