

## CVD-COVID-UK/COVID-IMPACT Research Outputs

The papers and preprints listed below have been produced on behalf of the [CVD-COVID-UK/COVID-IMPACT Consortium](#), supported by the [BHF Data Science Centre](#).

In line with the consortium's principles - based on a collaborative, transparent and inclusive ethos - all related analysis plans, protocols, code, phenotype code lists and reports are made publicly available via the centre's [collection on the HDR UK Gateway](#), repositories in the centre's [GitHub organisation](#) and through open-access publications (via the links below).

### Published papers/reports and preprints

#### June 2024

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| <b>Title:</b>   | A nationwide, population-based study on specialized care for acute heart failure throughout the COVID-19 pandemic. <i>European Journal of Heart Failure</i> |
| <b>Project:</b> | CCU045_01: The impact of COVID-19 on heart failure epidemiology, quality of care and outcomes across primary and secondary care                             |
| <b>DOI:</b>     | <a href="https://doi.org/10.1002/ejhf.3306">https://doi.org/10.1002/ejhf.3306</a>   |
| <b>GitHub:</b>  | <a href="https://github.com/BHFDSC/CCU045_01">https://github.com/BHFDSC/CCU045_01</a>   |

#### May 2024

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| <b>Title:</b>   | Impact of COVID-19 pandemic on rates of congenital heart disease procedures among children: Prospective cohort analyses of 26,270 procedures in 17,860 children using CVD-COVID-UK consortium record linkage data. <i>medRxiv</i> |
| <b>Project:</b> | CCU007_01: What are the differences in types of congenital heart disease (CHD) procedures in children during periods of lockdown and relaxation of lockdown, compared to before the COVID-19 pandemic?                            |
| <b>DOI:</b>     | <a href="https://doi.org/10.1101/2024.05.20.24307597">https://doi.org/10.1101/2024.05.20.24307597</a>   |
| <b>GitHub:</b>  | <a href="https://github.com/BHFDSC/CCU007_01">https://github.com/BHFDSC/CCU007_01</a>   |

#### February 2024

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| <b>Title:</b>   | Ethnicity data resource in population-wide health records: completeness, coverage and granularity of diversity. <i>Scientific Data</i>                 |
| <b>Project:</b> | CCU037_01: Implementing a novel approach to improve correctness, completeness, and granularity of ethnicity information using routinely collected data |
| <b>DOI:</b>     | <a href="https://doi.org/10.1038/s41597-024-02958-1">https://doi.org/10.1038/s41597-024-02958-1</a>  |
| <b>GitHub:</b>  | <a href="https://github.com/BHFDSC/CCU037_01">https://github.com/BHFDSC/CCU037_01</a>  |

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| <b>Title:</b>   | Long-term cardiovascular safety of COVID-19 vaccination according to brand, dose and combinations: cohort study of 46 million adults in England. <i>medRxiv</i> |
| <b>Project:</b> | CCU002_06: First, second and booster dose COVID-19 vaccination and the risks of arterial and venous vascular events   |
| <b>DOI:</b>     | <a href="https://doi.org/10.1101/2024.02.12.24302698">https://doi.org/10.1101/2024.02.12.24302698</a>   |
| <b>GitHub:</b>  | <a href="https://github.com/BHFDSC/CCU002_06">https://github.com/BHFDSC/CCU002_06</a>   |

## January 2024

**Title:** Association of COVID-19 infection and vaccination with adverse pregnancy outcomes: a population-wide cohort study of 865,654 pregnant women in England and Wales. *Preprints with The Lancet*

**Project:** CCU018\_01: Estimating the short- and longer-term risk of cardiovascular disease and intermediate traits in women infected with COVID during pregnancy

**DOI:** <https://dx.doi.org/10.2139/ssrn.4706364>

**GitHub:** [https://github.com/BHFDSC/CCU018\\_01](https://github.com/BHFDSC/CCU018_01)

**Title:** Undervaccination and severe COVID-19 outcomes: meta-analysis of national cohort studies in England, Northern Ireland, Scotland, and Wales. *The Lancet*

**Project:** CCU051\_01: Unvaccination and under-vaccination against SARS-CoV-2 in England

**DOI:** [https://doi.org/10.1016/S0140-6736\(23\)02467-4](https://doi.org/10.1016/S0140-6736(23)02467-4)

**GitHub:** [https://github.com/BHFDSC/CCU051\\_01](https://github.com/BHFDSC/CCU051_01)

## December 2023

**Title:** The impact of the COVID-19 pandemic on the measurement of routine cardiometabolic disease risk factors in primary care in the population of England (57 million people). *Preprints with The Lancet*

**Project:** CCU008\_01: The impact of the COVID-19 pandemic on the measurement of routine cardiometabolic disease risk factors in primary care

**DOI:** <https://dx.doi.org/10.2139/ssrn.4641150>

**GitHub:** [https://github.com/BHFDSC/CCU008\\_01](https://github.com/BHFDSC/CCU008_01)

## November 2023

**Title:** Association of COVID-19 and influenza vaccinations and cardiovascular pharmacotherapy with hospitalisation and mortality in people with COVID-19 and Long COVID: 2-year follow-up of over 17 million people in England. *Preprints with The Lancet*

**Project:** CCU060\_01: Improving characterisation, prediction and intervention for COVID- and influenza-related morbidity and mortality

**DOI:** <https://dx.doi.org/10.2139/ssrn.4629342>

**GitHub:** [https://github.com/BHFDSC/CCU060\\_01](https://github.com/BHFDSC/CCU060_01)

## October 2023

**Title:** Understanding covid-19 outcomes among people with intellectual disabilities in England. *BMC Public Health*

**Project:** CCU030\_01: Understanding covid-19 outcomes among people with intellectual disabilities in England

**DOI:** <https://doi.org/10.1186/s12889-023-16993-x>

**GitHub:** [https://github.com/BHFDSC/CCU030\\_01](https://github.com/BHFDSC/CCU030_01)

## October 2023

**Title:** Healthcare utilisation of 282,080 individuals with long COVID over two years: a multiple matched control cohort analysis. *Preprints with The Lancet*

**Project:** CCU049\_01: Healthcare utilisation in individuals with Long Covid

**DOI:** <https://dx.doi.org/10.2139/ssrn.4598962>

**GitHub:** [https://github.com/BHFDSC/CCU049\\_01](https://github.com/BHFDSC/CCU049_01)

**Title:** A nationwide study of 331 rare diseases among 58 million individuals: prevalence, demographics, and COVID-19 outcomes. *medRxiv*

**Project:** CCU019\_01: Identification and personalised risk prediction for severe COVID-19 in patients with rare disorders impacting cardiovascular health

**DOI:** <https://doi.org/10.1101/2023.10.12.23296948>

**GitHub:** [https://github.com/BHFDSC/CCU019\\_01](https://github.com/BHFDSC/CCU019_01)

## August 2023

**Title:** Sars-Cov-2 infection in people with Type 1 diabetes and hospital admission: an analysis of risk factors for England. *Diabetes Therapy*

**Project:** CCU040\_01: Investigating why some people with diabetes have a greater risk of becoming seriously unwell or dying with COVID-19

**DOI:** <https://doi.org/10.1007/s13300-023-01456-8>

**GitHub:** [https://github.com/BHFDSC/CCU040\\_01](https://github.com/BHFDSC/CCU040_01)

**Title:** Use of sodium valproate and other anti-seizure medications in England and Wales during the COVID-19 pandemic: a population-level analysis of 60 million individuals. *Preprints with The Lancet*

**Project:** CCU014\_03: The impact of the COVID-19 pandemic on use of sodium valproate and implementation of recommendations of the Cumberlege report

**DOI:** <https://dx.doi.org/10.2139/ssrn.4544777>

**GitHub:** [https://github.com/BHFDSC/CCU014\\_03](https://github.com/BHFDSC/CCU014_03)

**Title:** Antipsychotic drug prescribing and mortality in people with dementia before and during the COVID-19 pandemic: a retrospective cohort study in Wales. *The Lancet Healthy Longevity*

**Project:** CCU016\_01: Cardiovascular and cerebrovascular diseases related to antipsychotic prescribing in patients with dementia during the COVID-19 pandemic

**DOI:** [https://doi.org/10.1016/S2666-7568\(23\)00105-8](https://doi.org/10.1016/S2666-7568(23)00105-8)

**GitHub:** [https://github.com/BHFDSC/CCU016\\_01](https://github.com/BHFDSC/CCU016_01)

## July 2023

**Title:** Hospital admissions linked to SARS-CoV-2 infection in children and adolescents: cohort study of 3.2 million first ascertained infections in England. *BMJ*

**Project:** CCU029\_01: Hospital admissions linked to SARS-CoV-2 infection in children and adolescents: cohort study of 3.2 million first ascertained infections in England

**DOI:** <https://doi.org/10.1136/bmj-2022-073639>

**GitHub:** [https://github.com/BHFDSC/CCU029\\_01](https://github.com/BHFDSC/CCU029_01)

## March 2023

**Title:** Risk of cardiovascular events following COVID-19 in people with and without pre-existing chronic respiratory disease. *medRxiv*

**Project:** CCU035\_01: SARS-CoV-2 infection and risk of major vascular events in people with chronic respiratory diseases

**DOI:** <https://doi.org/10.1101/2023.03.01.23286624>

**GitHub:** [https://github.com/BHFDSC/CCU035\\_01](https://github.com/BHFDSC/CCU035_01)

## January 2023

**Title:** The impact of the COVID-19 pandemic on cardiovascular disease prevention and management. *Nature Medicine*

**Project:** CCU014\_01: Assessing cardiovascular disease impact through medicines

**DOI:** <https://doi.org/10.1038/s41591-022-02158-7>

**GitHub:** [https://github.com/BHFDSC/CCU014\\_01](https://github.com/BHFDSC/CCU014_01)

**Title:** Harmonising electronic health records for reproducible research: challenges, solutions and recommendations from a UK-wide COVID-19 research collaboration. *BMC Medical Informatics and Decision Making*

**Project:** CCU005\_03: Harmonising electronic health records for reproducible research: challenges, solutions and recommendations from a UK-wide COVID-19 research collaboration

**DOI:** <https://doi.org/10.1186/s12911-022-02093-0>

**GitHub:** [https://github.com/BHFDSC/CCU005\\_03](https://github.com/BHFDSC/CCU005_03)

## November 2022

**Title:** Better End of Life 2022. Mind the gaps: understanding and improving out-of-hours care for people with advanced illness and their informal carers. Research report. *Marie Curie*

**Project:** CCU024\_01: Mind the gaps: understanding and improving out-of-hours care for people with advanced illness and their informal carers.

**URL:** <https://www.mariecurie.org.uk/globalassets/media/documents/policy/beol-reports-2022/better-end-of-life-report-2022.pdf>

**GitHub:** [https://github.com/BHFDSC/CCU024\\_01](https://github.com/BHFDSC/CCU024_01)

## November 2022

**Title:** Effects of the COVID-19 pandemic on secondary care for cardiovascular disease in the UK: an electronic health record analysis across three countries. *European Heart Journal - Quality of Care and Clinical Outcomes*

**Project:** CCU003\_04: Quantifying the impact of the COVID-19 pandemic on the provision of cardiovascular disease-related hospital healthcare in the UK

**DOI:** <https://doi.org/10.1093/ehjqcco/qcac077>

**GitHub:** [https://github.com/BHFDSC/CCU003\\_04](https://github.com/BHFDSC/CCU003_04)

**Title:** Using national electronic health records for pandemic preparedness: validation of a parsimonious model for predicting excess deaths among those with COVID-19 – a data-driven retrospective cohort study. *Journal of the Royal Society of Medicine*

**Project:** CCU003\_03: Using national electronic health records for pandemic preparedness: validation of a parsimonious model for predicting excess deaths among those with COVID-19.

**DOI:** <https://doi.org/10.1177/01410768221131897>

**GitHub:** [https://github.com/BHFDSC/CCU003\\_03](https://github.com/BHFDSC/CCU003_03)

## September 2022

**Title:** Association of COVID-19 with major arterial and venous thrombotic diseases: a population-wide cohort study of 48 million adults in England and Wales. *Circulation*

**Project:** CCU002\_01: SARS-CoV-2 infection and risk of venous thromboembolism and arterial thrombotic events

**DOI:** <https://doi.org/10.1161/CIRCULATIONAHA.122.060785>

**GitHub:** [https://github.com/BHFDSC/CCU002\\_01](https://github.com/BHFDSC/CCU002_01)

## June 2022

**Title:** A retrospective cohort study measured predicting and validating the impact of the COVID-19 pandemic in individuals with chronic kidney disease. *Kidney International*

**Project:** CCU003\_01: Predicting and validating risk of pre-pandemic and excess mortality during the COVID-19 pandemic in individuals with chronic kidney disease

**DOI:** <https://doi.org/10.1016/j.kint.2022.05.015>

**GitHub:** [https://github.com/BHFDSC/CCU003\\_01](https://github.com/BHFDSC/CCU003_01)

**Title:** COVID-19 trajectories among 57 million adults in England: a cohort study using electronic health records. *The Lancet Digital Health*

**Project:** CCU013\_01: Characterising COVID-19 related events in a nationwide electronic health record cohort of 57 million people in England

**DOI:** [https://doi.org/10.1016/S2589-7500\(22\)00091-7](https://doi.org/10.1016/S2589-7500(22)00091-7)

**GitHub:** [https://github.com/BHFDSC/CCU013\\_01\\_ENG-COVID-19\\_event\\_phenotyping](https://github.com/BHFDSC/CCU013_01_ENG-COVID-19_event_phenotyping)

## March 2022

**Title:** Evaluation of antithrombotic use and COVID-19 outcomes in a nationwide atrial fibrillation cohort. *Heart*

**Project:** CCU020: Evaluation of antithrombotic use and COVID-19 outcomes

**DOI:** <http://dx.doi.org/10.1136/heartjnl-2021-320325>

**GitHub:** <https://github.com/BHFDSC/CCU020>

**Title:** Risk of myocarditis and pericarditis following BNT162b2 and ChAdOx1 COVID-19 vaccinations. *medRxiv*

**Project:** CCU002\_03: COVID-19 vaccination and disease and the risks of myocarditis and pericarditis

**DOI:** <https://doi.org/10.1101/2022.03.06.21267462>

**GitHub:** [https://github.com/BHFDSC/CCU002\\_03](https://github.com/BHFDSC/CCU002_03)

## February 2022

**Title:** Association of COVID-19 vaccines ChAdOx1 and BNT162b2 with major venous, arterial, or thrombocytopenic events: A population-based cohort study of 46 million adults in England. *PLOS Medicine*

**Project:** CCU002\_02: COVID-19 vaccination and disease and the risks of major venous and arterial vascular events

**DOI:** <https://doi.org/10.1371/journal.pmed.1003926>

**GitHub:** [https://github.com/BHFDSC/CCU002\\_02](https://github.com/BHFDSC/CCU002_02)

## December 2021

**Title:** A nationwide deep learning pipeline to predict stroke and COVID-19 death in atrial fibrillation. *medRxiv*

**Project:** CCU004\_02: Prediction of stroke and COVID-19 death using deep learning and sequential medical histories in a nationwide atrial fibrillation cohort

**DOI:** <https://doi.org/10.1101/2021.12.20.21268113>

**GitHub:** [https://github.com/BHFDSC/CCU004\\_02](https://github.com/BHFDSC/CCU004_02)

## April 2021

**Title:** Linked electronic health records for research on a nationwide cohort of more than 54 million people in England: data resource. *BMJ*

**Project:** CCU005: Data management and analysis methods

**DOI:** <https://doi.org/10.1136/bmj.n826>

**GitHub:** <https://github.com/BHFDSC/Linked-EHR-England-2021>