



## Deriving and validating a risk prediction model for long COVID-19



### AIMS

Long COVID is a debilitating condition which can occur after COVID-19 infection. To understand the impact of long COVID and to inform future health care and policy planning we used electronic health records from the entire adult population of Scotland to:

1. Identify the number of cases of long COVID in Scotland.
2. Develop a prediction model for long COVID to identify risk factors for long COVID and assess the risk of long COVID occurring after COVID-19.



### KEY FINDINGS

#### Part 1:

- We identified 1.8% (90,712) of the adult population of Scotland as having long COVID. Of all adults with a positive COVID test, 6.2% (68,486) had developed long COVID.
- Clinical codes for long COVID were rarely recorded in health records (n=1,092, 0.02%). More cases were identified using free text in primary care records (n=8,368, 0.2%), sick notes (n=14,4769, 0.3%), and the newly developed definition for long COVID what we termed a “novel operational definition” (n=64,193, 1.4%).

#### Part 2:

- The prediction model identified female sex, increasing age (up to 52 years), increasing Body Mass Index (BMI), deprivation; severe COVID-19 infection and several clinical comorbidities and prescriptions as significant predictors of long COVID.
- Being vaccinated, infected by the Omicron variant, or receiving an injectable blood thinning medicine before COVID-19 infection were associated with reduced long COVID risk.

