COVID outcomes we aim those that allow us to optimize our sample size by selecting the **largest number of cases**:

1. WHO Working Group on the Clinical Characterization and Management of COVID-19 infection

The International Forum for Acute Care Trialists, and the International Severe Acute Respiratory and Emerging Infections Consortium have developed a minimum set of common outcome measures for studies of COVID-19. This set includes three elements:

* Measure of viral burden (quantitative PCR or cycle threshold),
* Measure of patient survival (mortality at hospital discharge or at 60 days)
* Measure of patient progression through the health-care system by use of the WHO Clinical Progression Scale (figure 1), which reflects patient trajectory and resource use over the course of clinical illness.

<https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30483-7/fulltext#seccestitle80%20bec>

Graphical user interface, application, table

Description automatically generated

1. NIAID score

The primary outcome measure was the time to recovery, defined as the first day, during the 28 days after enrollment, on which a patient satisfied categories 1, 2, or 3 on the eight-category ordinal scale. The categories are as follows:

1, not hospitalized, no limitations of activities;

2, not hospitalized, limitation of activities, home oxygen requirement, or both;

3, hospitalized, not requiring supplemental oxygen and no longer requiring ongoing medical care (used if hospitalization was extended for infection-control reasons);

4, hospitalized, not requiring supplemental oxygen but requiring ongoing medical care (Covid-19–related or other medical conditions);

5, hospitalized, requiring any supplemental oxygen;

6, hospitalized, requiring noninvasive ventilation or use of high-flow oxygen devices;

7, hospitalized, receiving invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO); and

8, death.

Other outcomes included mortality at 14 and 28 days after enrollment and grade 3 and 4 adverse events and serious adverse events that occurred during the trial.

https://www-nejm-org.ezp-prod1.hul.harvard.edu/doi/full/10.1056/NEJMoa2007764

1. WHO-China report

* Mild to moderate disease: non-pneumonia and pneumonia cases
* Severe disease (dyspnea, respiratory frequency ≥30/minute, blood oxygen saturation ≤93%, PaO2/FiO2 ratio <300, and/or lung infiltrates >50% of the lung field within 24-48 hours)
* Critical (respiratory failure, septic shock, and/or multiple organ dysfunction/failure).

1. Leong, 2020

* Susceptibility: COVID-19 by RNA PCR, serologic testing, or clinician diagnosis by chart review or ICD-coding (U07.1) or suspected COVID-19 (Z20.828) vs. population controls
* Severity: hospitalization of patients with COVID-19 by RNA PCR, serologic testing, or physician diagnosis vs. population controls defined as any person who was not a case (i.e., people who tested negative, were never tested, or had an unknown testing status
* Lethality. ICD-coding for COVID death: U07.1 or U07.2. clinical or epidemiological diagnosis of COVID-19 where a laboratory confirmation is inconclusive or not available

As controls were not selected based on testing results, specific characteristics, or testing status, they were likely to be representative of the general population.

Sensitivity analysis

For Susceptibility: 1) COVID-19 positive by RNA PCR, serologic testing, or clinician diagnosis vs. COVID-19 negative by RNA PCR, serologic testing, or self-report; 2) predicted COVID-19 based on symptoms or COVID-19 positive by self-report vs. no predicted COVID-19 based on symptoms or no COVID-19 by self-report using a model developed by Menni et al. 2020 47, and for Severity: 3) critical respiratory illness, defined by death, intubation, Continuous Positive Airway Pressure (CPAP), Bilevel Positive Airway Pressure (BiPAP), Continued external Negative Pressure (CNP), or very high flow positive end expiratory pressure oxygen in patients with COVID-19 by RNA PCR or serologic testing (N=536) vs. population controls (N=329,391) and 4) hospitalization (N=928) vs. no hospitalization within 21 days of testing positive for COVID-19 (N=2,028).

COVID Host genetics initiative outcomes:

1. Hospitalization (versus non-hospitalized COVID-19),
2. Susceptibility (affected versus unaffected population),
3. COVID-19 predicted by flu-like symptoms;
4. Severe respiratory confirmed COVID-19 (versus the general population),
5. COVID-19 infection (versus negative control or population),
6. Hospitalized COVID-19 (versus not hospitalized COVID-19 or population),
7. Predicted COVID from self-reported symptoms (versus predicted or self-reported non-COVID-19).
8. COVID-19 death by ICD-code: U07.1 or U07.2.