Assessing the Impact of COVID-19 on Immunocompromised Persons

N3C ImmunoSuppressed/Compromised Clinical Domain Team

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Research Questions

The National COVID Cohort Collaborative (N3C) is an innovative approach to integrate real-world clinical observations into a harmonized database. With data from over 1M patients nationwide, we aim to assess the impact of COVID-19 on those with suppressed or compromised immune systems by studying the following:

- What is the incidence of COVID-19 infection in subsets of the ISC population?
- Is there an association between ISC populations and severity of COVID-19 infection?
- Does the type, class, or duration of immunosuppressive drug correlate with severity of COVID-19 infection?
- What are the outcomes of ISC patients after treatment for COVID-19 within those that are hospitalized (e.g., ventilator, LOS, death)?

COVID-19 Positive Cohort: N3C COVID+ is defined by EITHER a COVID-19 positive test result (PCR, antigen, antibody, or ambiguous) OR a diagnosis code U07.1 ‘COVID-19, virus identified’.

Key initial findings*

*All initial findings are preliminary and may change as we refine our cohorts.

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N3C Cohort

8,476 (0.8%) of all N3C patients are HIV+
7,021 (0.6%) of all N3C patients are solid organ recipients

COVID-19 +

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COVID-19 +

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African American patients are disproportionately represented in the COVID+ and HIV+ patients or transplant recipients.

6% of N3C patients hospitalized for COVID-19 had an immunosuppressive drug exposure before or at the time of SARS-CoV-2 infection.

Subdomains

- Immunosuppressed/Compromised ISC Clinical Domain Team
- Human Immunodeficiency Virus
- Solid Organ Transplant**
- Autoimmune Skin Disorders**
- Chronic Immunosuppression
  Collaboration with the pharmacopeia team

**Looking for epidemiologists!

New teams welcome!

Key initial findings*

The ISC team is in the initial stages of analyzing N3C patient data; we will continue to:

- Refine cohort definitions, including COVID+
- Construct analytic dataset(s)
- Define study designs and analytic approaches
- Build subdomain dashboards
- Initiate collaboration with other, overlapping Clinical Domain Teams
- Draft and submit manuscripts with key findings
- Submit an IRB for access to N3C’s Level 3 limited data set to investigate questions that require location and true date information.

Next steps

Ways to engage

Register for access to the Enclave: covid.cd2h.org

Attend ISC meetings
Alternate Fridays 11am ET/8am PT covid.cd2h.org/N3C_calendar

Join a subdomain team or launch a new one! covid.cd2h.org/node/341

These analyses were conducted with data or tools accessed through the NCATS N3C Data Science Collaborative (https://n3c-data.org) and supported by U01HS025364, which was supported by CTSA cooperative agreement UL2RR138888, and by UL1TR002325. This research was possible thanks in part to the generosity and foresight of the leadership of the participating institutions, and scientists who have contributed to the ongoing development of this community resource. doi: 10.5281/zenodo.4156288.

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