N3C
National Covid Cohort Collaborative update
NCATS CTSA Steering Committee
January 11th, 2021

@ontowonka  @data2health

ncats.nih.gov/n3c

covid.cd2h.org
# N3C Enclave Data Stats

**Over Two Billion Rows**

2.5 Million Patients

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 Positive Patients</td>
<td>413,228</td>
</tr>
<tr>
<td>Total Patients</td>
<td>2,509,112</td>
</tr>
<tr>
<td>Sites</td>
<td>36</td>
</tr>
<tr>
<td>Total Rows</td>
<td>2.6b</td>
</tr>
<tr>
<td>Procedures</td>
<td>185.6m</td>
</tr>
<tr>
<td>Lab Results</td>
<td>1.1b</td>
</tr>
<tr>
<td>Drug Exposures</td>
<td>472.9m</td>
</tr>
<tr>
<td>Visits</td>
<td>134.1m</td>
</tr>
<tr>
<td>Observations</td>
<td>185.5m</td>
</tr>
</tbody>
</table>
Predicting Clinical Severity using machine learning (64 input variables)

The most powerful predictors are patient age and widely available vital sign and laboratory values.
N3C team Science within & across institutions

CTSAs

Key functions can nucleate projects:

- Education & training
- Biostatistics
- Study design
- Evaluation
- Informatics
- Clinical expertise
- Innovation & commercialization
- Community & partnerships

N3C Domain Team Expertise:

- Enclave technology
- Data model (OMOP)
- Terminologies
- Data quality
- Codesets, variables, phenotype
- Using/parsing N3C data
- Workflows, methods, algorithms

Roles

Ingredients (Methods, datasets, instruments)

Scientific questions

https://covid.cd2h.org/domain-teams
A Tsunami of Acute Kidney Injury

The New York Times

An Overlooked, Possibly Fatal Coronavirus Crisis: A Dire Need for Kidney Dialysis

Ventilators aren't the only machines in intensive care units that are in short supply. Doctors have been confronting an unexpected rise in patients with failing kidneys.

May 2020

A Life and Death Battle: 4 Days of Kidney Failure but No Dialysis

At the peak of the pandemic in New York, a longtime city employee joined a crush of patients in desperate need of treatment.

April 2020
Kidney Domain Team

PREMISE:
Kidney Injury contributes importantly to mortality and leads to long term mortality.

QUESTIONS:
What factors predict kidney injury early?
Are there regional differences in AKI incidence?
Is AKI incidence in COVID-19 decreasing?
What are the predictors of ESKD after AKI?

https://covid.cd2h.org/kidney/
### N3C Upcoming Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, Jan 11&lt;sup&gt;th&lt;/sup&gt;</td>
<td>9-11am PT/12-2pm ET</td>
<td><a href="https://covid.cd2h.org/n3c-calendar">N3C Data Harmonization Symposium</a></td>
</tr>
<tr>
<td>Tuesday, Jan 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8am PT/11am ET</td>
<td>N3C Pilot Orientation Part A</td>
</tr>
<tr>
<td>Friday, Jan 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>11-2pm PT/ 2-4 ET</td>
<td><a href="https://covid.cd2h.org/n3c-calendar">N3C Nurses &amp; Nurse Scientists Webinar</a></td>
</tr>
<tr>
<td>Tuesday, Jan 19&lt;sup&gt;th&lt;/sup&gt;</td>
<td>9am PT/12pm ET</td>
<td><a href="https://covid.cd2h.org/n3c-calendar">N3C Community Symposium &amp; N3C Open House Week</a> Jan 19th - 25th</td>
</tr>
<tr>
<td>Tuesday, Jan 19&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8am PT/11am ET</td>
<td>N3C Pilot Orientation Part B</td>
</tr>
<tr>
<td>Monday, Feb 1st</td>
<td>9am PT/12pm ET</td>
<td><a href="https://covid.cd2h.org/n3c-calendar">Trial Innovation Network (TIN) Collaboration Webinar</a> - Using N3C Data to Inform your Protocol Development</td>
</tr>
</tbody>
</table>

[https://covid.cd2h.org/n3c-calendar](https://covid.cd2h.org/n3c-calendar)
Benefits to CTSA (and other) Organizations

● Access to large scale COVID-19 data from across the nation

● Pilot data for grant proposals

● Opportunities for KL2 and TL1 and other scholars

● Team science opportunities for new questions and access to Teams, statistics, machine learning (ML), informatics expertise

● Learn ML analytics, NLP methods & access to tools, software, additional datasets
Help, Support & Training

N3C Support Desk page: https://covid.cd2h.org/help_desk

Support Desk

If you need assistance with the N3C Data Enclave, the following options are available:

- Attend Support Desk office hours on Tuesdays & Thursdays at 10-11 am PT/1-2 pm ET Register here.
- Submit a Support Request.
- Consult the Frequently Asked Questions (FAQs).
- A quick start tour is available inside the Enclave.

Orientation will be scheduled in January/ Tutorials available in the Enclave