COVID-19: Accelerating Real-Time Electronic Data Capture for Tracking, Learning and Improvement

July 8, 2020 | 2:00 – 3:30 pm ET
About the Series:

- Made possible with funding from the Gordon and Betty Moore Foundation

- To foster collaboration between specialty societies and academia, we are grateful to collaborate with the Association of Academic Medical Colleges

Continue the Conversation:

- Use #COVIDRegistries when tweeting about the webinar series

- Follow @CMSSMed and visit CMSS.org for frequent updates
Today's Webinar:
COVID-19: Accelerating Real-Time Electronic Data Capture for Tracking, Learning and Improvement

Moderator:
Atul Butte, MD, PhD
Priscilla Chan and Mark Zuckerberg Distinguished Professor; Director, Bakar Computational Health Sciences Institute, UCSF, Chief Data Scientist, UC Health

Panelists:
Tellen D. Bennett, MD, MS
Section Head, Informatics and Data Science; Associate Professor, Department of Pediatrics, University of Colorado School of Medicine
Subha Madhavan, PhD, FACMI
Chief Data Scientist, Georgetown University Medical Center

Host:
Helen Burstin, MD, MPH, MACP
Chief Executive Officer, Council of Medical Specialty Societies (CMSS)

Andrew Ip, MD, MS
Outcomes and Value Research Division, John Theurer Cancer Center; Hackensack Meridian Health

Jessie Tenenbaum, PhD
Chief Data Officer, NC Department of Health and Human Services
Precisely Practicing Medicine from 700 Trillion Points of University of California Health Data

Atul Butte, MD, PhD
Chief Data Scientist, University of California Health (UC Health)
Director, Bakar Computational Health Sciences Institute, UCSF
Priscilla Chan and Mark Zuckerberg Distinguished Professor
University of California
• 10 campuses and 3 national labs
• ~200,000 employees, ~250,000 students/yr

University of California Health
• 19 health professional schools (6 med schools)
• Train half the medical students and residents in California
• UCSF and UCLA are in US News top 10
• 5 NCI Comprehensive Cancer Centers, 5 NIH CTSA
• ~$2 billion NIH funding
• $13+ billion clinical operating revenue
• 5000 faculty physicians, 12000 nurses
Combining healthcare data from across the six University of California medical schools and systems
UC Health COVID-19 Patients (Data through 7/8/2020 11:59 PM)

Interim report, data subject to correction, UC Health patients only, tests for external partners excluded.

Cumulative Patient Test Status

<table>
<thead>
<tr>
<th>Patients with Pending Tests</th>
<th>665</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with Results</td>
<td></td>
</tr>
<tr>
<td>UCSF</td>
<td>25,808</td>
</tr>
<tr>
<td>UCD</td>
<td>37,206</td>
</tr>
<tr>
<td>UCLA</td>
<td>38,982</td>
</tr>
<tr>
<td>UCSF</td>
<td>19,129</td>
</tr>
<tr>
<td>UCSD</td>
<td>15,233</td>
</tr>
</tbody>
</table>

Cumulative Testing

<table>
<thead>
<tr>
<th></th>
<th>UCD</th>
<th>UCI</th>
<th>UCLA</th>
<th>UCSD</th>
<th>UCSF</th>
<th>UC Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with Pending Tests</td>
<td>31</td>
<td>137</td>
<td>0</td>
<td>182</td>
<td>315</td>
<td>665</td>
</tr>
<tr>
<td>Patients with Results</td>
<td>19,129</td>
<td>14,018</td>
<td>38,982</td>
<td>37,296</td>
<td>25,808</td>
<td>135,233</td>
</tr>
<tr>
<td>Total Positives</td>
<td>474</td>
<td>1,275</td>
<td>1,474</td>
<td>712</td>
<td>484</td>
<td>4,419</td>
</tr>
</tbody>
</table>

Cumulative Confirmed Cases by Location

Confirmed Cases by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2</td>
<td>109</td>
</tr>
<tr>
<td>2-17</td>
<td>183</td>
</tr>
<tr>
<td>18-29</td>
<td>353</td>
</tr>
<tr>
<td>30-49</td>
<td>794</td>
</tr>
<tr>
<td>50-69</td>
<td>869</td>
</tr>
<tr>
<td>70+</td>
<td>509</td>
</tr>
</tbody>
</table>

Confirmed Cases by Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>662</td>
</tr>
<tr>
<td>Male</td>
<td>653</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
</tr>
</tbody>
</table>
135233 tested
4419 positives (3.27% of tested)
1285 admitted to date (29.1% of positives)
102 expired (7.9% of admitted, 2.31% of positives)
Follow @UofCAHealth for these numbers every afternoon.

1/6 Daily #COVID19 update: 298 #SARS-CoV-2 positive patients have needed admission to date in any of our 10 hospitals and 5 academic medical centers; 166 patients have been discharged home. @UofCAHealth hospitals cared for 121 #SARS-CoV-2 positive inpatients yesterday.

Your Tweets earned 1.8M impressions over this 91 day period.
UC Health COVID Research Data Set (UC CORDS)

• Access open up to all UC Health research faculty, staff, students
  – Users sign a UC-wide CORDS Data Use Agreement

• Access through each campus’s existing secure research environment
  – Cannot download the dataset or remove from the environment

• HIPAA Limited Data Set (deidentified, but with dates)
  – UCSF IRB has approved our UC Health Limited Data Set work as HIPAA Exempt

• All UC Health IRB directors are in agreement
  – Not Human Subjects Research (NHSR)
  – No IRB submission is required for end users

• Regenerated every Wednesday, transferred Thursday and Friday
University of California COVID Research Data Set (UC CORDS)

Overview

The University of California COVID Research Data Set (UC CORDS) is designed to be a timely data set for research purposes, containing SARS-CoV-2 testing results and inpatient COVID-19 treatment information (for those positive for the virus) collected from across UC Health. It is a HIPAA Limited Data Set (LDS) generated from the UC Health Data Warehouse (UCHDW), a UC-wide centralized database with data from all of the medical centers. Certain direct identifiers are removed, but dates of services are retained. The data set is distributed weekly to each UC Health site and will evolve over time as the UCHDW adds more patients and clinical depth.

UC CORDS, as well as the UCHDW, are using the OMOP Common Data Model version 5.3.1.
RE-COV-Ry
Real-world Evidence COVID-19 Registry
The Hackensack Meridian experience

Andrew Ip, MD, MSc
John Theurer Cancer Center
Hackensack Meridian Health
Division of Outcomes and Value Research
Developing RE-COV-Ry database

• Prospective, observational database of patients with COVID-19 at one of 13 Hackensack Meridian Health (HMH) hospitals spanning NJ

• ~5000 in current database with demographics, presenting features and labs on admission, labs on entry to ICU (if applicable), treatments (general) and survival outcomes

• Use of REDCap (Research Electronic Data Capture) to capture, store, and export data
Developing RE-COV-Ry database

• Finding patients rapidly
  • EPIC EHR was used to run a report on all POSITIVE or SUSPECTED COVID19 patients (automatically flagged in patient’s chart if test is positive or pending), and we abstracted based off of this report.

• No automated report tool available to abstract key outcomes, labs, treatments, demographics*
  • Data Managers (Research nurses) were used for MANUAL abstraction into REDCap, with supervision by investigators to ensure data quality
  • *demographics later were pulled automatically from EPIC electronic health records
Utilizing Real-World data to evaluate therapeutics

- Studied ~200 tocilizumab (IL-6 inhibitor) in an ICU cohort of ~700 patients hospitalized at HMH
- An adjusted cox proportional hazards regression model was used to estimate association of tocilizumab use and overall survival
- Data quality issues
  - Missing data (labs, treatments)
  - Time-dependent variables reviewed for accuracy (mechanical ventilation, time to treatment, admission or discharge dates)

Ip et al, under revision
Utilizing Real-World data to evaluate therapeutics

- An association of improved OS was seen in the tocilizumab group
- The ICU mortality rate in BOTH groups is quite high, reflecting the early epidemic in North Jersey
- Attempts to adjust for confounders, immortal time bias, indication bias, can be tedious

Ip et al, under revision
*data not to be shared without permission
Future Directions of RE-COV-Ry

• Ongoing analysis of other therapeutics
  • Outpatient Hydroxychloroquine (manuscript in preparation)
  • Empiric anticoagulation in ICU (analysis still pending)
  • Inpatient hydroxychloroquine (manuscript under review)

• Collaborations
  • w/ FDA Evidence Accelerator (COVID-19 Therapeutics) in partnership with COTA
  • w/ University of Miami to develop an in-patient risk score predicting intubation / mortality
  • w/ Center of Discovery and Innovation to connect viral genomic studies with database
RE-COV-Ry
Changes to Improve registry

- REDCap will integrate and automatically pull from our EHR demographic, clinical data including diagnoses, medications, laboratory (over 3,000 lab variables available)
  - ongoing testing to implement within HMH

- EPIC Business Intelligence to automate more data pulls on specific queries
  - Human resource fatigue / burnout from manual data pull

- Second REDCap administrator needed
Thank you

Acknowledgements:

Stuart Goldberg, MD (Director of Outcomes and Value Research)
Michael Marafelias (REDCap manager)
All nurses, physicians who abstracted data at John Theurer Cancer Center
Georgetown Statistical group (Jaeil Ahn, Shuqi Wang)
COTA for analytics support

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COVID-19: Accelerating research, learning and improvement

Subha Madhavan, PhD, FACMI
Chief Data Scientist
Georgetown University Medical Center
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subha.madhavan@georgetown.edu

Council of Medical Specialty Societies
July 8, 2020
2 PM ET to 3.30 PM ET
What Academic Medical Centers are Facing

1. Data challenges
   - Geographic and political divides
   - Burden of emergency orders
   - Socio-cultural, ethical, legal, trust issues
   - Data collection, standardization, integration, reporting

2. Pathways forward
   - Use-case driven
   - Reuse of existing data infrastructure to solve problems efficiently
   - Training and education
   - Convening and coordinating activities
   - Research data networks
   - Security, Privacy & Compliance

3. Example Projects
   - First look at data from TERAVOLT registry
   - AI approaches to organize massive research and scientific progress
   - Immuno-genomic analysis of COVID-19 patients
Thoracic cancERs internAtional coVid 19 cOLLaboraTion
TERAVOLT Registry

• Patients with COVID-19 and Thoracic Cancers
• 200 patients from 8 countries included
• **Time period:** March 26 – April 12
• **Data collected:** Demographics, Diagnostic test, Symptoms, Comorbidities, Concomitant medication, History of cancer, Complications, COVID-related treatments administered, Imaging modality, outcome (admission to ICU, death, reason for death, discharged, continue/delay of oncological treatment
• **Median age** was 68 years
• **ECOG** performance status: 0-1
• Stage: Majority (74%) had Stage 4 disease
• Majority were current or former smokers
Thoracic cancers international COVID-19 collaboration TERRAVOLT Registry

• 76% were hospitalized
• 33% died
  – 79% of deaths were due to COVID-related complications
• Only 10% met criteria and were admitted to the ICU
• Following factors were associated with higher risk of death
  – Being older than 65 years
  – Being a current/former smoker
  – Currently receiving chemotherapy treatment
  – Presence of comorbidities
• Whether mortality could be reduced with treatment in intensive care remains to be determined
COVID-19 Flattening the Curve
Data Visualization Challenge

FLATTENING THE CURVE:
COVID-19 DATA CHALLENGE
13 April 2020 through 3 May 2020
 Winners announced Tuesday, 12 May 2020

Pandemic Data Room
COVID-19 Data Challenge By the Numbers
90 Entries to the first Challenge from more than 30 countries
10 Expert judges
13 Partnering organizations
850 Registered participants representing 92 countries
COVID-19 Flattening the Curve
Data Visualization Challenge - 1st Prize

- Aggregation and synthesis of papers, news articles and social media posts
- Use of advanced NLP algorithms for topic modeling, relevance and current trends
- Updated every 24 hours
- Weekly briefings
New One-year Masters Program in Health Informatics & Data Science

https://healthinformatics.georgetown.edu/
Thank you

• [http://icbi.georgetown.edu/](http://icbi.georgetown.edu/)
• subha.madhavan@georgetown.edu
• @subhamadhavan
Automating statewide collection of medical surge capacity during a pandemic

July 8, 2020

Jessie Tenenbaum, PhD, FACMI
Chief Data Officer, NC DHHS
Duke University School of Medicine
@jessiet1023
Medical Surge Data: “Stuff, Staff, Space”

- How many beds are full, how many available?
- ICU beds?
- Ventilators?
- How many COVID+ in the hospital? In ICU? Admitted in past 24 hours?
- Doctors, nurses?
- Other questions- ED waiting room, ECMO, labs, morgue, etc.
MedSurge Survey

• Daily email to ~120 hospitals statewide
• Person filling out survey rotates
• Data validation is difficult
• Results highly visible
• Missing hospitals
• 1+ hour nightly data cleaning
**National Healthcare Safety Network (NHSN) Hospital capacity module data collection instructions**

### Instructions for Completion of the COVID-19 Patient Impact and Hospital Capacity Module Form (CDC 57.130)

<table>
<thead>
<tr>
<th>Data Field</th>
<th>Instruction for Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities ID</td>
<td>The facility's ID will be automatically entered by the computer.</td>
</tr>
<tr>
<td>Summary Group ID</td>
<td>Auto-generated by the computer.</td>
</tr>
<tr>
<td>Data for which patient impact and hospital capacity counts are reported</td>
<td>Required; select the date for which the recorded data was collected for the following questions.</td>
</tr>
</tbody>
</table>

### Section 1: Patient Impact

#### Hospitalized:** Patients currently hospitalized in an inpatient bed who have suspected or confirmed COVID-19

- Enter the number of patients hospitalized in an inpatient bed at the time the data is collected who have suspected or confirmed COVID-19. This includes patients with laboratory-confirmed or clinically diagnosed COVID-19.
- Confirmed: A patient with a laboratory-confirmed COVID-19 diagnosis.
- Suspected: A patient without a laboratory-confirmed COVID-19 diagnosis, who, in accordance with CDC's Inpatient Public Health Guidance for Evaluating Persons Under Investigation (PUI), has signs and symptoms compatible with COVID-19 (most patients with COVID-19 have developed fever and/or respiratory symptoms). Note: Shortness of breath or myalgia/myalgia is also included.

#### Hospitalized and Ventilated:** Patients currently hospitalized in an inpatient bed who have suspected or confirmed COVID-19 and are on a mechanical ventilator

- Enter the number of patients hospitalized in an inpatient bed who have suspected or confirmed COVID-19 and are currently on a mechanical ventilator at the time the data is collected. This includes patients with laboratory-confirmed or clinically diagnosed COVID-19.

#### Hospital Onset:** Patients currently hospitalized in an inpatient bed with onset of suspected or confirmed COVID-19 fourteen or more days after hospital admission due to a condition other than COVID-19

- Enter the number of patients hospitalized in an inpatient bed at the time the data is collected with onset of suspected or confirmed COVID-19 fourteen or more days after hospital admission. This includes laboratory-confirmed or clinically diagnosed COVID-19 cases.

#### ED/Overflow:** Patients with suspected or confirmed COVID-19 who are currently in the Emergency Department (ED) or any overflow location awaiting an inpatient bed

- Enter the number of patients with suspected or confirmed COVID-19 who are in the Emergency Department (ED) or any overflow location awaiting an inpatient bed at the time the data is collected. This includes patients with laboratory-confirmed or clinically diagnosed COVID-19. Overflow locations include any physical locations created to accommodate patients and are not limited to 24-hour observation units, hallways, parking lots, tents.

#### ED/Overflow and Ventilated:** Patients with suspected or confirmed COVID-19 who are in the ED or any overflow location awaiting an inpatient bed and on a mechanical ventilator

- Enter the number of patients with suspected or confirmed COVID-19 who are in the ED or any overflow location awaiting an inpatient bed and on a mechanical ventilator at the time the data is collected. This includes patients with laboratory-confirmed or clinically diagnosed COVID-19.
Enter Appriss/Open Beds

• Controlled substance use disorder platform - used in NC
• Purchased Open Beds

• Cloud-based platform that tracks behavioral health resources

Repurpose for Covid resources!
MedSurge Data Automation

• Appriss developed API to ingest resource use from HL7 feeds
• Hospital systems onboarded to extract required data elements, feed into Appriss system
• Appriss pushes data hourly to NCDHHS
• As data feeds go live, hospitals can stop filling out manual survey- still fulfill state and federal reporting requirements
Dashboard
Resource Availability – Submitting Data

1) Automated API

Hospitals have the flexibility to submit data via four mechanisms

2) Automated CSV
Dashboard
Resource Availability – Submitting Data

3) Manual CSV

4) Manual direct entry into form at Tracker
A bed by every other name...
Hospital Onboarding

Onboarding Status of Hospitals

<table>
<thead>
<tr>
<th>Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Done</td>
<td>35</td>
<td>31%</td>
</tr>
<tr>
<td>Currently In Progress</td>
<td>53</td>
<td>47%</td>
</tr>
<tr>
<td>Currently Not Started</td>
<td>24</td>
<td>21%</td>
</tr>
</tbody>
</table>
Challenges

• Surprisingly hard to settle on data element definitions, even when you think you understand them
• Tension between complying with what’s written and what we were told is sufficient (and not overburdening hospital staff)
• Onboarding systems over time- merging data from 2 different sources
• Some data elements were dropped- not worth the squeeze (and priorities change)
Summary

• Successful public/private partnership between NC DHHS and Appriss Inc.
• NC hospital personnel can spend their time on patient care, not data entry
• State gets accurate, up-to-date snapshot of available resources
• Saves resources on state side as well- eliminate need for manual data cleaning
Acknowledgements

NC DHHS
• Charles Carter
• Danielle Brady
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• Kimberly Clement
• Jean Chiang

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• John Brown
• Cameron Hurst

Appriss
• Nishi Rawat
• Lauren Whitsell
• Bruce Bridges
• Harrison White

UNC
• Mike Plesh

And many, many others
National COVID Cohort Collaborative (N3C)

CMSS COVID-19 Webinar 7.8.2020
Presenter: Tell Bennett
PI’s: Melissa Haendel & Chris Chute

https://covid.cd2h.org/
@data2health
@ncats_nih_gov
https://ncats.nih.gov/n3c
This pandemic highlights urgent needs

- ML algorithms (diagnosis, triage, predictive, treatment pathways, etc.)
- Best practices for resource allocation
- Drug discovery
- Coordinate our efforts to maximize efficiency

All these things require the creation of a comprehensive clinical data set
**But, am I not already sending data?**

N3C is synergistic with distributed data networks!

Centralizing patient-level data makes it possible to ask qualitatively different and more powerful questions, but is only possible due to each institution having their data in a common data model.
N3C Overview

Limited Data Sets

1. Data partnership & governance
2. Phenotype & Data acquisition
3. Data ingest & harmonization

Limited/Safe Harbor Data Sets

Collaborate (Analytics Platform)

OMOP

Ingest

Harmonize

N3C Overview

Data partnership & governance
Phenotype & Data acquisition
Data ingest & harmonization
Collaborative analytics & FAIR Sharing/Credit

N3C Overview
Timeline

AMIA Kickoff
APRIL 13

APRIL 20

DTA finalized by NIH
Phenotype v1.0 published

APRIL 27

N3C platform provisioned in Cloud
1st DTA signed
Platform training initiated

MAY 4

NCATS C.Austin community mtg
Phenotype & extract scripts published
Data Harmonization maps created

MAY 11

500+ members
71 requested DTAs; 37 signed as of 6/10
5 sites submitted data
49 people trained
1st Test ML models: intubation & AKI
Data Harmonization pipeline built

MAY 18

Workstreams launched
JHU IRB established
7/8/2020

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>DTAs executed</td>
</tr>
<tr>
<td>27</td>
<td>IRB protocols approved (23 reliance, 4 local)</td>
</tr>
<tr>
<td>24</td>
<td>Regulatory complete (both DTA and IRB)</td>
</tr>
<tr>
<td>36</td>
<td>Met with Data Acquisition Group</td>
</tr>
<tr>
<td>9</td>
<td>Deposited data:</td>
</tr>
<tr>
<td>4</td>
<td>- PCORI</td>
</tr>
<tr>
<td>3</td>
<td>- OMOP</td>
</tr>
<tr>
<td>1</td>
<td>- TriNetX</td>
</tr>
<tr>
<td>1</td>
<td>- ACT</td>
</tr>
</tbody>
</table>
Data Partnership and Governance

Goal of the Data Use Agreement is broad access:
- COVID-Related research only
- **Open platform to all Credentialed researchers**
- Security: Activities in the N3C Enclave are recorded and can be audited
- Disclosure of research results to the N3C Enclave for the public good
- Analytics provenance
- Contributor Attribution tracking
- No download of data

Data Access Committee: [in formation]

Central IRB option through SMARTIRB

cd2h.org/attribution
Phenotype & Acquisition

Dual-purpose workstream:

1. Work with the community to write and maintain a computable phenotype for COVID-19.
2. Write and maintain a series of scripts to execute the computable phenotype in each of four common data models (CDMs): OMOP, i2b2/ACT, PCORnet, and TriNetX.

What does it look like to run our process locally?

1. Run our phenotype code to define your COVID-19 cohort.
   - 2x per week if possible
   - Code available for all data models, multiple database systems

2. Run our lightweight local data quality checks.
   - Checks only for “showstopper” issues to prevent back-and-forth after submission.

3. Run our extract code, which will dump out data for that cohort to a series of flat files.
   - Export code available as a Python script or plain SQL files.

4. Zip up the flat files and transmit to N3C.
   - Transmit via SFTP
   - Data will be picked up by the Data Harmonization team for integration into repository.

Support is available for all parts of this process!

Latest phenotype: covid.cd2h.org/phenotype
Documentation: covid.cd2h.org/phenotype-wiki

All specifications and software shared on GitHub
Second Stage Ingestion

- Repair or encode aberrant data (COVID LOINC codes)
- Transform source CDM into OMOP 5.3
- Leverage library of validated CDM to OMOP maps
Data Harmonization: Secure Integration

Contributed Hub data as OMOP databases

NCATS Secure Cloud, Staging Area

Final Merge
- OMOP versioned data from all sources combined into analytic database
- Analytic database will transfer to Palantir Analytic Platform

Combined Hub Data as OMOP 5.3 instance

FedRAMP

Palantir

AWS GovCloud
Data Access

Institutions contributing data
- IRBs
- DTAs

Original LDS data sets

Harmonized data

Data stewards
NIH NCATS

Registered Data Tier
- Synthetic

Controlled Data Tier
- Aggregate data
- HIPAA safe harbor

Controlled-Plus Data Tier
- HIPAA limited

Data Access Committee (DAC) approval

Data User Institutions

Registration
- Community guiding principles

Data Use Request (DUR)
- User Code of Conduct (UCoC)
- Data use statement

User project-specific IRB
NCATS N3C website: ncats.nih.gov/n3c
CD2H N3C website: covid.cd2h.org
Hub Partnership packet: https://covid.cd2h.org/partnership_welcome_packet
Onboarding to N3C: bit.ly/cd2h-onboarding-form
Partners, Teams, Collaborators

**NCATS**
Chris Austin
Joni Rutter
Mike Kurilla
Clare Schmitt
Ken Gersing
Xinzhi Zhang
Erica Rosemond
Sam Bozzette
Lili Portilla
Chris Dillon
Penny Burgoon
Emily Marti
Meredith Temple-O'Connor
Sam Jonson
Christine Cutillo
Nicole Garbarini

**NIH & HHS Partners**
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Denise Warzel

**CD2H**
FDA
Mitra Rocca
Scott Gideon
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**NIDDK**
Robert Star

**NIGMS**
Ming Lee

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Mark Backus
Nam Ngo
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**Washington U.**
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Tom Dillion

**Teams**
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**Data Harmonization**
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Stephanie Hong
Harold Lehmann
Tanner Zhang
Richard Zhu

**Jax Labs**
Peter Robinson

**Scripps**
Chunlei Wu

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Emily Pfaff, UNC

**ACT**
Michele Morris, Pitt
Shyam Visweswaran, Pitt
Shawn Murphy HRD

**OMOP**
Kristin Kostka, IQVIA
Karthik Natarajan, Columbia
Clare Blacketer JNJ

**PCORI**
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Robert Bradford, UNC
Marshall Clark, UNC
Adam Lee, UNC
Evan Colmenares, UNC

**NCATS**
Raju Hemadri
Nancy Nurthen
Sai Manjula

**Adeptia**
Sandeeple Naredia

**Teams**
**Analytics**
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Heidi Sprait, UTMB
Tell Bennett, U of CO
Andrew Williams, Tufts
Joel Saltz, SBU

**Palantir**
Nabeel Qureshi
Andrew Girvin
Amin Manna

**Synthetic Data**
Regenstrief
Peter Embi

**MDClone**
Daniel Blumenthal
Hovav Dror

**Microsoft**
Allison T Rodriguez
Kenji Takeda
Thank you!
Questions & Answers

Please submit all questions through the question box.
Summary & Evaluation

• Thank you to all our panelists.
• A recording of the webinar will be available on the CMSS website in the coming weeks.
• Please complete a short evaluation following the webinar.
• For more information, contact info@cmss.org.
CMSS WEBINAR SERIES

Advancing Clinical Registries to Support Pandemic Treatment and Response

The series will address key questions related to the rapid development, deployment and implementation of Covid-19 focused clinical registries and clinical repositories by specialty societies and academia.

SUMMER 2020 | FREE TO ATTEND
Upcoming Webinar:

CMSS WEBINAR SERIES
Advancing Clinical Registries to Support Pandemic Treatment and Response

Reflecting on Our Covid-19 Failures –
A New Vision for Integrated Registries

July 17 | 1:30 - 3:00 pm ET

Panelists:

Elizabeth Garrett-Mayer, PhD
Division Director, Biostatistics and Research Data Governance; Center for Research and Analytics (CENTRA), American Society of Clinical Oncology

Clifford Ko, MD, MS, MSHS, FACS, FASCRS
Director, Division of Research and Optimal Patient Care, American College of Surgeons; Vice Chair and Professor of Surgery and Health Services, University of California, Los Angeles (UCLA)

Greg Martin, MD, MSc
Professor of Medicine, Emory University; School of Medicine, Executive Associate Division Director, Division of Pulmonary, Allergy, Critical Care, and Sleep Medicine; President-Elect, Society for Critical Care Medicine

Moderator:

Helen Burstin, MD, MPH, MACP
Chief Executive Officer
Council of Medical Specialty Societies (CMSS)

Michael Howell, MD, MPH
Principal Scientist, Google
Invited

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