COVID-19 Evidence Accelerator Collaborative

Lab Meeting #21

Thursday October 15, 2020, 3 - 4:00 pm ET

Call Summary

Overview of Lab Meeting

This week's lab meeting featured a fireside chat between Dr. Amy Abernethy of FDA and Dr. Peter Lee, head of Research for Microsoft. Their conversation focused on Microsoft's experience responding to COVID-19 in the early days of the pandemic. During the second half of the meeting Bobby Samuels of Datavant presented the outline of a 'living' COVID-19 RWD Textbook - a new initiative out of the Evidence Accelerator lead by Datavant. Next, Dr. Anne-Marie Meyer and Dr. Elizabeth Little of Roche presented the Population Level Analytics (PLAn) for COVID-19, Roche and Aetion's new web-based resource to inform decision making at the local and regional level. The meeting closed with the data visualization of the week, which displayed top drugs being investigated in clinical trials based on enrollment and study count.

Fireside Chat with Dr. Abernethy and Dr. Lee
Peter Lee, Microsoft & Amy Abernethy, FDA

PLEASE NOTE: THESE ARE PARAPHRASED QUESTIONS & ANSWERS

Question 1: Take us back to the early days of COVID. There was a lot of excitement about how data, tech, and AI could help COVID response, what were your thoughts during that time?

Dr. Lee: It was a health crisis for health data systems & hospital tech systems. A lot of questions about how to treat people properly, triage properly, test people, where to get PPE, etc. In a system of 51 hospitals, no one knew where locate the PPE & other resources. My team, which was already working within this hospital system, was able to ramp up and pivot to solve some of these problems. For example, we created a health bot called "Grace" for triage. There were also a lot of failures, we quickly noticed the lack of data connectivity which made it hard to know where PPE was, ventilators, etc. People rushed to respond, but we ended up creating more data silos.

Question 2: What worked and what did you learn that you would like to replicate later?

Dr. Lee: We were quickly able to create a 24/7 assessment system which helped streamline healthcare delivery – handoffs between doctors and nurses, integrating a single button on EPIC systems to order a test, send notification to isolate at home, etc. The orchestration and flow of all these things was really positive, and the pattern was able to be replicated by other tech companies and health systems.

The tech community can work quickly to solve common sense problems, but through that more data silos are created. Very few data systems are harmonized which causes constant process of iteration. A lot of people working on things that are well intentioned, but not always connected and they do not always flow through to state and nationwide coordination.

Question 3: What other places were you able to support using Microsoft's resources, what worked?

Dr. Lee: Able to use tremendous computing power to support various diagnostic companies, vaccine modeling, T-cell analytics, with Adaptive Biotechnologies, worked on the national key server related to Google and Apple's contact tracing efforts. We have also been involved in research around convalescent plasma which helped me understand the challenge of real-world data. Also doing a lot of work on core data such as supporting WHO's global COVID database.

Question 4: How do you think this creativity, brain & computing power can be applied in the real-world data space? Reflecting, how do you think some of the capabilities in the AI space could help tackle some of the questions we are trying to answer in COVID outside of clinical trials?

Dr. Lee: Eight months ago, I thought for sure enough data could be extracted to determine something about the safety/efficacy of transfusion of convalescent plasma, but it ended up being a lot harder. Results out of the data were less convincing than needed, leading to delays, problems, and now some doubt about plasma as a viable therapy. From a computer science perspective – answering some of these questions is more difficult and complicated than I assumed 8 months ago.

Question 5: What makes for effective work together (when responding to something like COVID)?

Dr. Lee: There is a need for merging healthcare delivery, public health, and clinical research. There is a digital separation between healthcare delivery and public health – we didn't know where the vulnerable populations were living, how to treat and isolate people – this separation made responding to COVID harder. Same with advancing clinical knowledge – it is harder to know how well things were working, how well diagnostics were performing when data is not connected. From a data perspective, this disconnectedness speaks to the need for some sort of central repository of data to help respond to crises like COVID and provide the impetus of standardization. There is a need to modernize how we think about trials from a RWD perspective, not just when responding to crises.

Dr. Abernethy's Key Takeaways:

1. From a technology lens, the problems in public health, healthcare delivery, and clinical research do not look especially different; yet we divide them up.
2. Solving problems on the healthcare delivery side gives us fundamental learnings that can then be used to solve other problems.
3. Some of the solution is coming together and creating societal answers such as a public trust for data.

Living COVID-19 Real World Data Textbook

Bobby Samuels, Datavant

- **Genesis of this idea**
  - This group & discussion shows how critical RWD is in addressing health crises
  - Different presentations have shown different backgrounds/approaches are important to answering these questions.
  - **GOAL:** Create a document to help outline different approaches and create a common framework.
- **COVID-19 RWD Textbook**
  - Living website led by Evidence Accelerator & Datavant to be located on www.evidenceaccelerator.org website.
  - **Guiding principles:**
    - Document will evolve over time as knowledge of RWD expands
    - Collaborative effort – involvement from organizations across RWD
    - Granular – cookbook
  - **Proposed Sections:**
    - Overview
    - Methods & Data Characterizations
    - Studies done in RWD
    - Major RWD initiatives
    - Parallel Analysis & Evidence Accelerator
    - Media
- **Working Group**
  - Would like to build a group with a wide variety of constituents to help guide the direction of the textbook & help write sections.

COVID-19 Population Level Analytics: PLAn

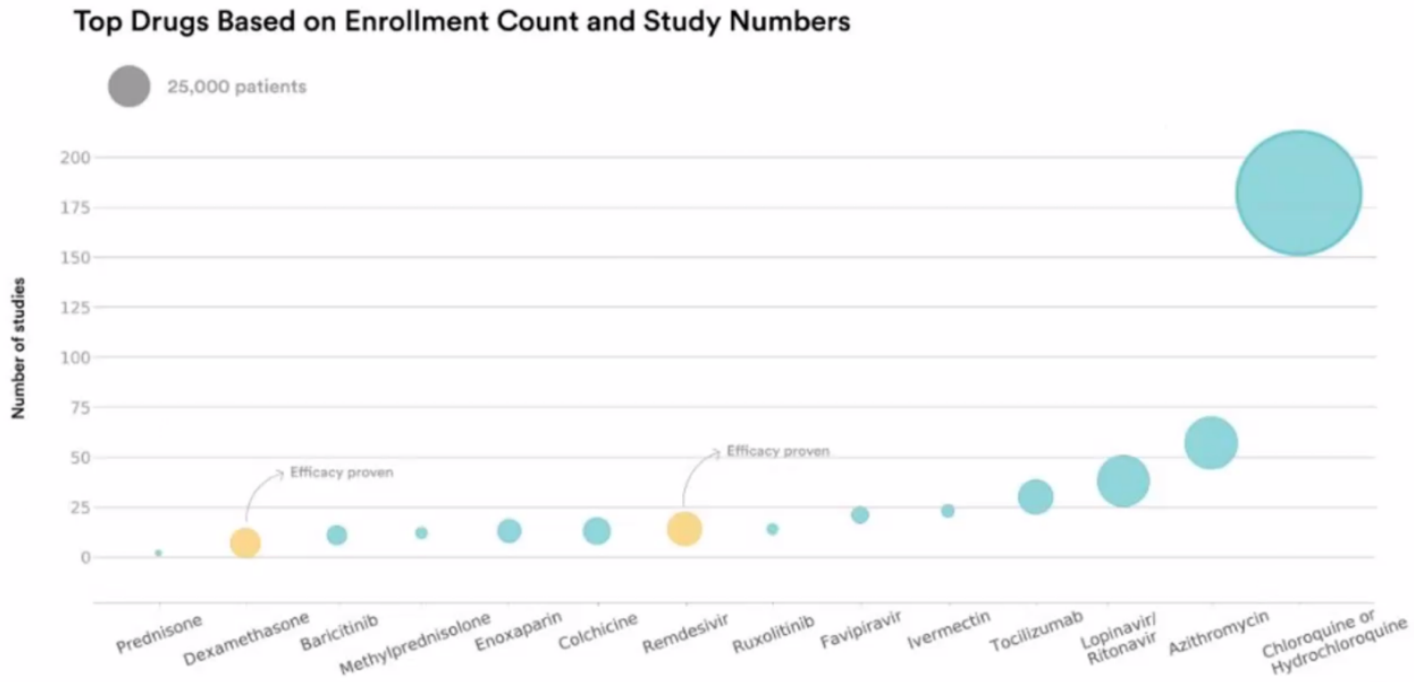
Dr. Anne-Marie Meyer & Dr. Elizabeth Little, Roche

- **Overview of PLAn**
  - Pro bono platform to support public response to COVID, in partnership with Aetion.
  - Built with two stakeholders in mind – policy makers & hospital administrators (Those making decisions and those living with the decisions)
  - Multiple datasets in one platform – can compare two datasets

- **Features:**
  - Ability to toggle through time to see how things like mobility change & hot spots change
  - Individual county level data - date of shelter in place, emergency declaration, demographic factors/socioeconomic, testing data, mobility index

- **Approach**
  - Leverage past experience in population level analytics applied to oncology in CRC in NC
    - Looked at hot spots of incidence of colorectal cancer in North Carolina but found these were not hot spots for mortality.
    - Able to intersect data to put a light on the who, when, where, and why of the data, then drill down on patient cohorts & preference to design an impactful intervention.
    - Targeted intervention based on population data insights.
  - A similar approach applied to COVID-19 could guide effective policy & intervention.
- **Future Vision**
  - Multiple additional use cases in other disease areas possible
    - Flu, oncology, CV/diabetes, pandemic preparedness
    - Health debt – to predict future impacts
    - Low vaccine uptake – areas of vaccine skepticism where intervention may be needed

Data Visualization of the Week – Visualization shows data collected from 1212 studies on clinicaltrials.gov all registered as related to COVID. Different treatments & count of studies for each. Size shows # of patients enrolled in each study. (Source: *STAT)*



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