COVID-19 Evidence Accelerator Collaborative

Diagnostics Evidence Accelerator #7

Thursday*, July 16, 2020, 12:00-1:00PM ET*

Call Summary

Introduction to Diagnostics Evidence Accelerator Meeting 7

With the Diagnostics Evidence Accelerator workstream, we are working with RWD to answer questions, conduct rapid analysis, and communicate with the research community to answer COVID-19 questions.

This week's Diagnostics Evidence Accelerator meeting consisted of 3 presentations and a discussion. Those presentations were as followed

1. What are We Learning About the Data (Susan Winckler, Reagan-Udall Foundation for the FDA; Amy Abernethy, FDA; Gina Valo, FDA/OC)
2. United Health Group Testing Activity (Ethan Berke, UHG)
3. HHS PROTECT Requirements (Harvey Kaufman, Quest Diagnostics)
4. Discussion

What are we Learning About the Data (Susan Winckler, Reagan-Udall Foundation; Amy Abernethy, FDA; Gina Valo, FDA/OC)

The research information that is being gathered in the Diagnostics Evidence Accelerator is foundational to answering the first round of diagnostic questions. This will allow research teams to connect the pipes for this pandemic and beyond for future use. Working together will harmonize an infrastructure and develop a foundation that will ensure that we have timely access to data needed to address the needs of this pandemic and optimize opportunities to work with patients to personalize medicine.

The first question set that Diagnostics Evidence Accelerator workgroup will look at is called Project One. Project One will evaluate individuals that have a positive PCR test and the probability of a subsequent positive serology test. Key questions that will be answered are how the sensitivity varies by serology test manufacturer, the timing of the positive serology results, and test sensitivity varying by age group, gender, race, ethnicity, severity of COVID-19 disease, and co-morbidities. The main objective of this project is to support the creation of linked data elements that would be necessary to answer questions. The reason why we are starting with this question set is to ensure that we can develop data connections needed, and then start looking at other aspects of COVID 19 in a longitudinal way.

FDA has developed 7 projects that designed to answer Project One. The key data elements required for this project exist in a variety of locations. Data created by a testing device or instrument transmit back to the manufacturer for quality control purposes. At a minimum, the clinical result data flows into the

Lab Information System (LIS), and typically includes data about the test (e.g. manufacturer). The data fields received by the LIS are determined and configured by the laboratory. From the LIS patient-identifiable clinical results are pushed to the provider's EHR. Similar to the LIS, the EHR data fields and requirements are determined and configured by the provider. Typically, data such as device and manufacturer are not included in the data feed from LIS to HER. Each stakeholder captures a unique set of data on the patient, lab, and manufacturer. Stakeholders include the healthcare system, health data aggregators, commercial lab and testing facilities, and test manufacturers. There is data overlap between stakeholders, but there is no data linkage. It is essential to develop a linkage between data to better answer the question for Project One. In fact, connecting these data sources is the primary goal in order to unlock additional research opportunity.

For the projects that the FDA is working on, they have 4 large health systems and 3 data aggregators. They are looking at 3 questions with the 7 groups that are involved. The requirements they are assessing are 1) do the groups have lab results, 2) do the groups have device manufacturer data, and 3) are these two data elements connected at the patient level. They currently have one group, Data Aggregator A, that has been able to connect the data elements, which is promising. Some groups are still in the early stages of research and data collection and some groups that are further along. All have similar but different challenges in connecting data sources.

United Health Group Testing Activity (Ethan Berke, UHG)

United Health Group has done a lot of work on the necessity of PPEs and collection methodology. They are doing a national surveillance study where they send mail-in PCR tests to 10,000 patients weekly and follow up with a serology test if the patient test positive. Also, they launched a study called DISTANCE Study where they collect daily PCR tests results for healthcare workers before they develop symptoms. The individuals that do test positive get a follow up PCR test and serial antibody test. This study is designed to understand viral shedding and asymptomatic and symptomatic trends. They are running this study as a virtual study. More information on the study can be found on https://www.thedistancestudy.com/s/.

UHG developed a group called Optum Serve which focuses on governmental work. It is led by the former Army Surgeon General, General Patricia Horoho. They are able to set up pop-up testing facilities, conduct physicals, and conduct readiness exam for the US Public Health Service and Military. They are fulfilling testing requirements for the State Health Departments with the pop-up testing sites. The UHG Research & Development team is gathering research on what is the best way to test, what is the safest way to test, and what is the progression of the virus. Also, UHG is conducting tests themselves at their testing facilities.

Ethan Berke asked what is the point of testing and should we be doing universal testing with PCR? There is a challenge of integrating all of the data that is available since not all data is going to be in a LIS. UHG believes that it is critical to be able to connect all of the data pipes in order to see the full impact of the disease. UHG used ProtectWell to collaborate with LabCorp and Quest Diagnostics when evaluating their employees return to work, so there is a possibility to connect all of the data pipes together.

HHS PROTECT Requirements (Harvey Kaufman, Quest Diagnostics)

Quest Diagnostics will have conducted 8 million molecular tests by the end of this week (July 17,2020). Harvey Kaufman brought up the point that the molecular test should not be referred to as the PCR test,

but it should be referred to as the molecular test or the NAAT because the Hologic Platform is not based only on the PCR test. Quest Diagnostics reports to the CDC every day, but they do not report on the PHI. They are reporting aggregated state and county level data to the HHS and the White House.

Through their data collection, Quest Diagnostics learned that the testing landscape changes in the population based on different factors. There is no or minimal community surveillance data. The question of will we be ready for the influenza season or the next pandemic was asked which is a key factor in understanding the data as much as possible so we can be prepared.

Quest Diagnostics represents 99.9% of the US population in testing. They saw that positivity rate changes in the molecular test and serology test based on which data elements (e.g. gender and age range) are being looked at. Therefore, it is important to take into account which patients are being tested to rule out any biases that may arise. Quest Diagnostics found that 93% of patients demonstrated positivity for seroconversion after a positive NAAT and 10% of patients that tested negative for NAAT showed positivity for seroconversion. Males and patients within the age range of 35-74 showed a higher rate of seroconversion. They did not see an association with the chronic disease index. Quest Diagnostics saw a higher rate of seroconversion among people living in the same household. Also, it is possible for a patient to be positive and then negative and go back to being positive within days of their last test result. To evaluate race impact, they sorted results by ZIP Code, and 22% of the quintile with the highest percent of Black non-Hispanics were positive versus 11% of White non-Hispanic that were positive. This cause for difference is multifactorial. A higher positivity rate is seen in patients that have the Rh factor on the surface of their blood cell. The impact of higher vitamin D levels showed a strong correlation of lower COVID-19 positivity rate. Finally, since many states are cutting back funding for drug overdose programs, the number of drug overdoses have risen.

The takeaway from this presentation was that we need to be aware of data structure since some structures are structured differently which can impact how we see the results. Quest Diagnostics is able to provide information on which test was used allowing for a better collection of data.

Discussion:

There were many important points raised during the discussion.

- Using health plan data with identifiers can help with data linkage of clinical data, longitudinal data, and laboratory data.
- The question of what are the core linkages that will needed for Project One?
    - The idea of understanding the immune response to the virus is a critical research point.
    - Also, understanding how long immunity lasts for individuals that are infected is important for future reinfections.
- Device ID data is a term of art so it may be more than we need for Project One
- The question of what is the role of regional HIEs? Since there are many HIEs developed, we do not need a national database. We can federate amongst each other with the HIEs that are already developed and establish a governance for it. This was presented as a solution for gathering data efficiently.
- The idea of leveraging a state-level reporting system for data collection was proposed.

From the Chat Box

There were important points and questions asked in the Chat Box.

- Would it be possible to use health plans to collect and connect data elements instead of using health system or data aggregators?
- How do we connect collection information to test results?
- Is United Health Group testing for antibodies in healthcare workers following a positive PCR test? This is likely to confer immunity which is why most vaccines are directed to spike proteins.
    - It was brought up that this is a key element to look at since it will be difficult to confer anything about accuracy of serology tests in patients with a positive PCR result if we do not have an adequate understanding of the biology of the virus.
- HHS reporting requirement link was provided for researchers and reporter to access- https://www.hhs.gov/sites/default/files/covid-19-laboratory-data-reporting-guidance.pdf
- Is there a non-PHI unique identifier that links test result to a test order that can eventually be linked to a patient? Is that non-PHI available in a structured format?
    - In response, the lab orders and results are linkable by accession, in order to link to a patient, the researcher will have to do a privacy preserving linkage which does require some level of PHI typically. Health Verity technology has enabled this for Quest and other labs. Then they link this to other data sources to get the full picture.
- When we refer to "device identifier", it is important to distinguish information that identifies the device (e.g. Manufacturer Name, Platform name, Serial No., Lot No., Expiration Date) versus what we formally refer to as the Device Identifier in the UDI, (e.g. GS-1: (01)Device Identifier (GTIN))
- How would we integrate lab results from tests done at local labs and department of health?
    - The answer that was provided for this question was that within the Anthem environment for the Sentinel CDM, Quest and LabCorp data is already integrated, and some local academic lab data is integrated as well.
- To connect the pipes, we have to consider PHI accessibility and tokenization or create an interoperable environment to be used before the data are generated.

Next Steps:

- Continue moving the 7 FDA projects forward with the information learned on this call.
- Continue the discussion of Project One next week

Next Meeting: Thursday July 23rd, 2020 12-1 pm ET