**Agenda Meeting Feb 09**

* Milestones for the first paper
  + [Fatir, Alireza] Data cleaning and understanding by March 31st
  + [Alireza] Literature Review by March 31st
  + Data analysis by May 31st
  + Manuscript by June 30th
* Status of the data and who to do what (ICU data and Shield data)
  + Fatir (oversight by Alireza) to focus on Shield data
  + Alireza to focus on Shield data
* Contributions and focus of the first paper
  + Any work on disparity and covid testing with Shield Illinois data
  + Any work on disparity and covid testing in Illinois (Will’s paper)
  + Any work on disparity and covid testing in US
  + Any work on disparity and covid in US

**Prework (By Postdoc or MS student):**

* Descriptive Analysis of Shield Data and EHR Data
  + Summary Stats and primary test of our hypotheses
  + Identify missing data
* Literature Review
  + All published papers with Shield Data
  + Covid testing and adverse outcome literature
  + Covid outcome in underrepresented community literature
* Process flow of a Shield testing center
  + Questions to be asked from Shield

**Notes from the kickoff meeting:**

* Are there other testing sites in those neighborhoods?
  + Difference-in-difference method or similar
* Compile all questions and share with Anna so she can connect us to the right person.
* Think about distance from a shield testing site vs same zip code as a measure of accessibility of test centers for people from a community.
* Follow up on processing the sub awards

**Proposed research questions:**

* **Aim 1: Determine if SHIELD sites reduced severe COVID and COVID deaths in disadvantaged neighborhoods.**
  + **Paper 1.1:** Evaluate the effectiveness of Shield in underrepresented blocks/Zipcodes
    - **Outcome Measures:** the occurrence of severe outcomes related to COVID, including ICU admission, mechanical ventilation, and death due to COVID
    - **Research Questions:**
      * Whether blocks/zipcodes with access to Shield testing centers have lower outcome measures than blocks/zipcodes without access?
      * Whether underrepresented blocks/zipcodes (with low CCVI and ADI indices) have lower outcome measures than the others?
      * Do the outcome measures change as a function of the test volume?
      * What blocks/zip codes should Shield open a testing center in the future first?
    - **Methods:** Regression Analysis, Panel Data Analysis,
    - **Data Requirements:** Shield Testing Center zip codes and test volumes over time, EHR data of ICU admissions at Loyola University Chicago and the University of Chicago between 2020 and 2022
    - **Step1:** First we need to see which areas and zipcodes have a lower CCVI and ADI index which can be categorized as disadvantaged neighborhoods.
    - **Step2:** Then we need to see what is the proportion of race/ethnicity in each neighborhood (based on SHIELD and ICU data)
    - **Step3:** After that, we need to check the rates of ICU admission, ventilation, and COVID death in each neighborhood (based on ICU data)
    - **Step4:** Based on this information, we need to find the association between the race/ethnicity and being from more disadvantaged neighborhoods with the adverse results of COVID-19. According to the literature, there is a positive correlation between race (Black, Hispanic, Asia) and these adverse outcomes of COVID.
    - **Step5:** In the next step, we need to check the number [or existence] of SHIELD sites in each neighborhood and compare this information with adverse results of COVID from those neighborhoods to see whether the SHILED sites reduced severe COVID-19 results.
* **Aim-2: Identify the effective attributes of the locations of higher education testing centers on testing volume.**
  + **Paper 2.1:** Determine the optimal number of testing centers and the optimal volume of tests to be performed at each testing center
* **Aim-3: Develop policies to optimize testing center operations and maximize patient outcome measures.**
  + **Paper 3.1:** Optimal patient scheduling in test centers (Multicenters, multiprocessors systems) to maximize equity and efficiency

**Shield Illinois:**

SHIELD Illinois, (also referred as “SHIELD”), is the University of Illinois System’s initiative to make the innovative saliva-based covidSHIELD COVID-19 test available to: K-12 schools, colleges, universities, companies, and the public across the state of Illinois. SHIELD began testing in the Fall of 2020. SHIELD’s clients are across the state of Illinois and included over 1,700 K-12 schools at its peak, as well as other higher education institutions, community colleges, and other organizations.

SHIELD grew rapidly in its tenure. SHIELD progressed from processing less than 5,000 tests in the Fall of 2020, 85,500 tests in May 2021, and just under 900,000 tests in January 2022. SHIELD crossed the 6-million-test threshold in May 2022, and surpassed the 7 million-test threshold in February 2023.

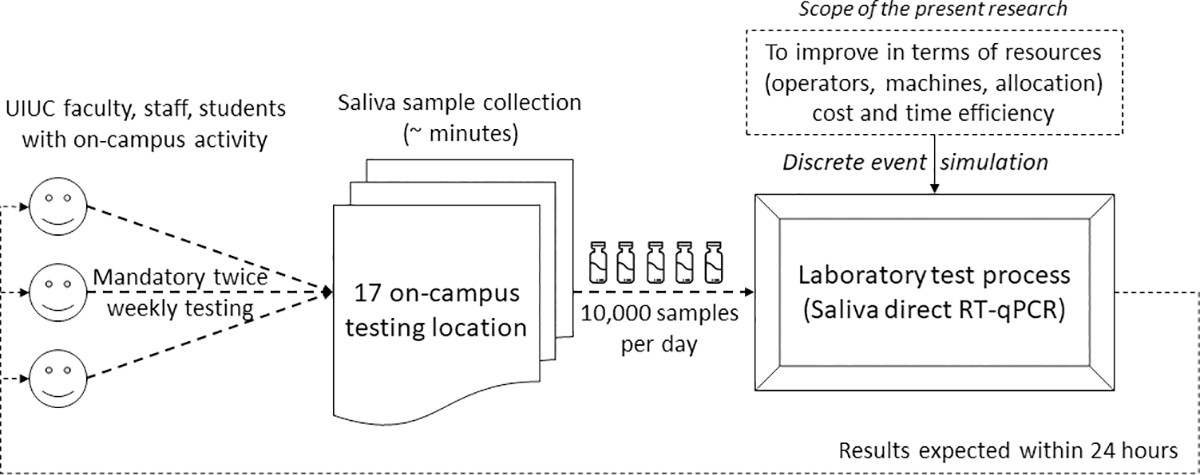
SHIELD started with fewer than 10 direct employees in 2020 and grew to over 300 direct employees by early 2022. The most growth experienced at SHIELD was during the time of April 2021 to November 2021, when SHIELD grew from 70 direct employees to over 280 direct employees, increasing 300% within about 7 months.

In news:

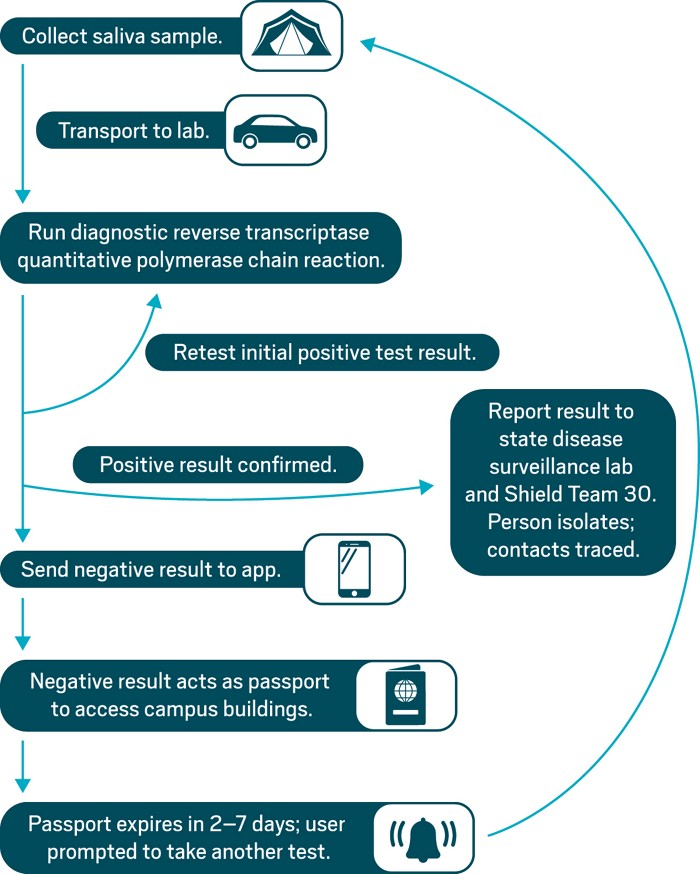
<https://covid19.illinois.edu/on-campus/return-to-on-site-operations-committees/shield-target-test-tell-committee/>

<https://cendev.acs.org/biological-chemistry/infectious-disease/one-university-built-COVID-19/98/i42>

Shield Testing Data Dashboard: <https://go.illinois.edu/COVIDTestingData>



COVID-19 testing workflow at the University of Illinois at Urbana-Champaign (UIUC)



**Studies used Shield Illinois Data:**

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0253869>

* determine the adequate number of machines and operators required, as well as their allocation at different workstations, according to the resources available and the rate of samples to be tested per day.

<https://journals.sagepub.com/doi/abs/10.1177/00333549231173014?casa_token=RqAQ4PEPPoEAAAAA:LX5UiaAlAvqAL5fnsGx2pJn_qTbCRfkmY-vevtCkoFmYPPflRbmeXxE9FOWEACw-ZIVVVyDbwKUfmQ>

* describe SARS-CoV-2 transmission, testing preferences, and the number of inperson days saved among participating ECE facilities.
* SARS-CoV-2 transmission rates were low in ECE facilities during the study period. Serial testing after COVID-19 exposure among children and staff at ECE facilities is a valuable strategy to allow children to remain in person and parents to avoid missing workdays.

<https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4428747&download=yes&redirectFrom=true>

* study the relative impacts of the two enrollment policies on the testing and positivity rates with data from 259 schools in Illinois.
* Our results indicate a 42.6% higher testing rate and 33.1% lower positivity rate in schools that chose the opt-out policy. If all schools adopted an opt out policy, 20% of the total lost school days could have been saved. The lower positivity rate among the opt-out group is largely explained by the higher testing rate in these schools, which we believe is a manifestation of status-quo bias.

<https://pubsonline.informs.org/doi/abs/10.1287/educ.2022.0241>

* Discuss some of the key considerations and challenges in modeling epidemics, predicting their diffusion within and across populations and evaluating their control policies.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2792748>

Chicago’s coronavirus disparity: Black Chicagoans are dying at nearly six times the rate of white residents, data show

<https://www.chicagotribune.com/2020/04/07/chicagos-coronavirus-disparity-black-chicagoans-are-dying-at-nearly-six-times-the-rate-of-white-residents-data-show/>