COVID-19 Response in Fulton Country

Supporting testing, case investigation, and epidemiologic analysis for public health action

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Noon Seminar
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Outline

• Why Fulton County?
• Testing
• Case investigation
• Data analysis
• What’s next?
Why Fulton County?
Why Fulton County?

Why is a global health TB/HIV researcher working on COVID in Fulton County?

Primary health center, Nasarawa province, Nigeria (Jan 2020)
Started as faculty in HDGH on March 1
Why Fulton County?

How can a global health TB/HIV researcher get involved with COVID in Fulton County?
Emory–Fulton County Partnership

• Long-standing clinical and epidemiologic collaboration
  • Allison Chamberlain (RSPH/Epi)
  • David Holland (SOM/DOM/ID)

• Public health–academic partnership:

• Foundation for rapidly expanding for COVID response
  • Additional Faculty: Neel Gandhi (RSPH/Epi)
  • Current and former Rollins students (MPH, PhD, MD/PhD)
  • Fulton County Office of Epidemiology
  • Fulton County government
COVID-19 in Fulton County

- Popn: 1.1 million
- 29,274 cases
  - 8.8% all GA cases (333K)
  - Peak: 417 cases/day
  - Current: 105 cases/day
- 8.6% hospitalized (GA: 8.9%)
- 2.0% died (GA: 2.2%)
- 3.5% PCR test positivity currently (GA: 5.8%)

Testing initiatives

• Initial guidance limited testing to high-risk “persons under investigation”
  • Older age, medical conditions, symptoms
  • Drive-through site established
  • Low uptake, in part due to testing policy

• Fulton County mobilization to make testing available to anyone who wants a test, regardless of symptoms or risk factors
  • Together with state / national shifts in testing, uptake increased through June-Aug
  • Peak of ~21,000 tests week after July 4 (we’ll come back to this...)
Anyone can get fast, easy testing at Fulton sites!

- Any age (testing kids of all ages!)
- Any county residence
- No referral needed
- No appointment needed (walk up!)
- No symptoms needed
- No lines
- Results in 24 hours (PCR)
- Friendly staff!

Jane Yoon (SOM/ID PGY5), David Holland, Alfonso Hernandez (SOM/ID PGY5)

https://www.fultoncountyga.gov/covid-19/covid-testing-sites
Testing in the community: Long-term care facilities (LTCF)

• First LTCF Outbreak: March 31, 2020

• Case Management and Investigation
  • Mass testing of LTCFs
  • Contact tracing

• Infection Prevention and Control evaluation
  • Site visits and training in key IPC domains: hand hygiene, disinfection, social distancing, PPE, screening
  • Preprint: https://www.medrxiv.org/content/10.1101/2020.08.13.20174466v1 (Telford CT, Bystrom C, Fox T, et al.)

Carson Telford, 2nd year GLEPI MPH student
Mass testing initiative in LTCFs

• Implemented mass testing of all staff and residents in 28 facilities starting 3/31–5/14/2020
  • **15 LTCFs** initiated testing *after the first infection was identified* through symptom based screening
  • **13 LTCFs** initiated testing *preemptively, before a known case* was identified

• All samples tested using SARS-CoV-2 PCR

• Staff and residents followed-up for 4 weeks for additional cases, hospitalization, and death

Telford CT, Onwubiko U, Holland DP, et al. MMWR 2020. 18;69:1296-1299. PMC7498169
Residents in response group had higher positivity than residents in preventive group.
Staff in response group had higher positivity than residents in preventive group

SARS-CoV-2 Test positivity (%) in **Response** Group

SARS-CoV-2 Test positivity (%) in **Preventive** Group

Telford CT, Onwubiko U, Holland DP, et al. MMWR 2020. 18;69:1296-1299. PMC7498169
Testing residents and staff before a symptomatic case was identified helped prevent COVID-19 outbreaks in Georgia long-term care facilities.

**Percentage of residents and staff who tested positive for COVID-19**

**Facilities testing**

**AFTER**
- 42% RESIDENTS
- 12% STAFF

**BEFORE**
- 2% RESIDENTS
- 2% STAFF

**Testing residents and staff before a case is identified can**

- **RECOGNIZE** cases early
- **GUIDE** infection prevention and control practices
- **PREVENT** outbreaks

*During March-May 2020, based on testing and 4 weeks of follow-up screening conducted among 28 LECFs in Fulton County, Georgia.*
Testing in the community: Persons experiencing homelessness

- Several outbreaks reported in other U.S. cities
- FCBOH initiated testing for all PEH and staff from 4/7–5/6/2020
  - Included PEH living in shelters and those who were unsheltered
- Assessed shelters for infection prevention and control measures
- All samples tested using SARS-CoV-2 PCR
- Collaborative effort with CDC, Mercy Care, Partners for HOME
Mass testing of persons experiencing homelessness

• Tested 2,875 PEH from 24 shelters and 9 outreach events
• Prevalence:
  • 2.1% among sheltered
  • 0.5% among unsheltered
  • 1.3% among staff
• Evaluation of COVID-19 testing criteria at that time:
  • Only 7% were over age 65
  • Only ½ reported an underlying medical conditions
  • 76% of positive cases reported no symptoms

Case Investigations
Why case investigations?

- Very limited information through lab report (e.g., age, gender, address)
- Gaps in critical variables needed for understanding epidemic
  - Race, ethnicity, underlying medical conditions, exposure, occupation, symptoms, disease severity
- Insufficient public health staff to contact all newly diagnosed cases
Case Investigation Team

- Eliot England
- Dylan Fink
- Caitlyn Fong
- Sarah Hamid
- Kristin Harrington
- Pauline Harrington
- Kennedy Houck
- Carol Liu
- Maret Maliniak
- Dallas Rohraff
- Meagan Stephenson
- Daniel Thomas
Training and support

• **Orientation** on expectations, working with sensitive data, state electronic notifiable disease surveillance system (SendSS)

• **Online training** through Johns Hopkins contact tracing course & CITI training on Human Subjects Protection

• **Shadowing** case investigator on making calls

• **Support** from faculty mentors, project coordinator, peer mentors

• **Sharing experiences** on weekly team calls about challenges, new scientific information, how to improve process
Case Investigation Cascade

COVID+ Test → PUI added → SendSS (State Electronic Notifiable Disease Surveillance System) → Contact PUI → Collect data

PUI = Patient Under Investigation

Slide courtesy of Maret Maliniak
Contacting PUIs

Ideal

Reality

Slide courtesy of Maret Maliniak
Real life experience with collecting surveillance data

• 2,740 PUIs assigned from 5/5–9/25/20
  • 1,136 (41%) not investigated for various reasons (e.g., no phone number, not Fulton resident, LTCF resident, incarcerated, hospitalized)
  • 1,604 were investigated
    • 744 (46%) no answer after 2 call attempts on 2 separate days
    • 58 (7%) refused interview
    • 42 (5%) Spanish speaking → referred back to Fulton Co. interviewers; new Spanish-speaking Emory team member since Sept!
• 692 interviews completed (25% of PUIs assigned; 43% of those investigated)
• Very unwilling to provide contacts for contact tracing
Contact tracing challenges

• June 22–September 25, 2020
• 2/3 of PUIs reported having a close contact
  • only 13% provided their contacts’ information for tracing
  • Main reason cited was contact had already been notified and/or tested
• Lag in testing -> SendSS -> case investigation

Reason for not providing contacts, among those who reported contacts (N=244)
Lessons learned

• I have learned the significance of being flexible, adaptable, and inquisitive as a public health student and future professional. (Dallas Rohraff, GLEPI 2nd year MPH)

• While COVID-19 has been devastating for so many and the case interviews can be difficult at times, I really enjoy doing them and being part of this process. They give you an insight into people’s experiences that you just can’t get from looking at data alone. (Maret Maliniak, 3rd year PhD student)

• Doing case investigations gives you an appreciation for how surveillance data are generated and the limitations of various data points, which is important to understand when analyzing the data. (Sarah Hamid, 4th year PhD student)

• Calling PUIs and speaking to individuals who have been personally affected by the epidemic has placed a face and humanity to the numbers I’m often tasked to crunch. (Carol Liu, 2nd year PhD student)

• The enormous range of responses from the community to the pandemic have been fascinating to witness. By speaking with all of these individuals, I have been fortunate to get a glimpse into understanding the struggles people are going through. Many of the calls I have made have been incredibly draining and taken an emotional toll. However, the strength with which individuals face these challenges has been equally moving.” (Daniel Thomas, Epi 2nd year MPH)

https://scholarblogs.emory.edu/epi/weareemoryepi/emory-epi-responds-students-at-the-fulton-county-board-of-health
Data Analysis
Several types of analyses for different purposes

Data

Monitor epidemiological trends

Monitor process indicators

In-depth analysis

Slide courtesy of Carol Liu
Monitor local epidemiological trends

- Routine reports (2-3x/week)
- Near real-time information
- Detailed descriptions of cases and testing by age, gender, race, location, LTCF
- Time trends
- Comparison to neighboring districts and GA state

https://www.fultoncountyga.gov/covid-19/epidemiology-reports
Monitor local epidemiological trends

Geographic distribution of cases

Testing and positivity by age

Carol Liu, 2nd year Epi PhD candidate
Applying epi methods to fill gaps

• Several reports of disproportionate disease burden and severity among Hispanic, Black, and American Indian/Alaskan Native persons

• Race and ethnicity missing for 35-40% of COVID-19 cases in Fulton

• Used imputation and bias-adjustment to estimate racial and ethnic disparities in infection, hospitalization, and death

• After adjustment, increase in disparity by 1.3–1.6 times
Process measures:
Testing turnaround time

Days between positive sample collection and report creation over time

We FINALLY received our test results taken 8 days before. One person in my house was positive then. By the time we tested again 1 week later, 3 of us had COVID. If we had known sooner, we would have immediately quarantined. Perhaps the National Guard can help with testing too.

Carol Liu, 2nd year Epi PhD candidate
Ad-hoc in-depth analysis

• Responsive to needs of local constituents and policy makers
• Analytic questions from Fulton and Emory epis

Examples

- Pediatric report in response to school-reopening
- Household clustering analysis
- Severe disease risk factors
Pediatric COVID weekly report

- Case rates by school district over time
- Age distribution of cases over time
- Symptoms by age group

Chloe Barrera, 2nd year Epi PhD candidate
Risk factors for severe disease

- N=2,820 hospitalized
- 3/2–5/31/2020
- Severe disease = hospitalization, ICU, or death
- Logistic regression with random effects analysis
- Model included demographic and chronic medical conditions
- Older age, male, black and Hispanic individuals at higher risk

Chishinga N, Gandhi NR, Onwubiko U, et al. submitted
Public reception and data usage

- Routine epidemiology report website has 30K hits per month
- Nursing homes use county-wide % positivity to guide screening strategy (per CMS guidance)
- Pediatrics report reviewed by superintendents and leadership to guide school planning
Data analysis & visualization team

Without pictures:
• Dr. Fazle Khan (FCBOH)
• Mallory Hazle (FCBOH)
• Shamim Khan (FCBOH)
• Nathaniel Chisinga (FCBOH)
Doing more at testing sites

- Eliciting contacts at time of testing with goal of:
  - More rapidly and more completely identify close contacts
  - Reach close contacts faster
  - Pilot underway at central SPOC testing site

- Case-control study of who provides contacts vs. who does not

- Flu vaccination with COVID testing *started this week!*

- COVID vaccination at testing sites?
Beyond Fulton County

• Georgia Health Equity Dashboard (Shivani Patel, Laura Edison)
  • [https://covid19.emory.edu/](https://covid19.emory.edu/)

• RADx-UP testing program for persons with or at risk of diabetes (GA Center for Diabetes Translation Research; Venkat Narayan)

• Emory University Midtown Hospital serosurvey (Neel Gandhi, John Roback)

• Impact of COVID on HIV continuity of care (Karla Galaviz, Jonathan Colasanti, Vince Marconci)
  • Ponce Center Infectious Diseases Program telehealth survey
  • NA-ACCORD observational clinical cohorts
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