

# CDPH Epidemiology COVID-19 Outbreak and Case Investigation



**Olivia Battistoni**  
Case Western Reserve University  
and Cleveland Department of Public Health



## Background

The Cleveland Department of Health Epidemiology team partnered with the CWRU department of Public Health at the beginning of 2020 to assist and learn from one another and to collaborate in order to provide the Cleveland community the best response to the COVID-19 pandemic.

## Population

We served all Cleveland resident and much of my work was focused particularly on any individuals in living in Long Term Care Facilities (LTCFs) within the City of Cleveland

## Learning Objectives

1. Understand the importance of data input and analysis and apply data analyses to improve understanding of case and outbreak occurrences in at risk groups of employees and residents at long term care facilities.
2. Evaluate the needs of the CDPH employees surrounding case and outbreak investigation and understand how I and other employees might be able to best work towards solutions
3. Understand the integration of various public health department roles and how they collaborate to address complex health problems during a public health crisis

## Activities

- Input data for past and current COVID-19 cases reported by LTCFs in Cleveland. Reconcile unreported cases from these facilities and ensure their input into the Ohio Disease Reporting System (ODRS).
- Analyze LTCF case data to identify, document, and report facility outbreaks. Also assisted with weekly reporting of LTCF cases as needed.
- Organize Case and Outbreak Investigation teams for efficient sharing of relevant information surrounding COVID-19.
- Attend weekly epidemiology meetings to understand the current state of the pandemic in Cleveland and learn from various Public Health experts both at CDPH and CWRU.
- Assist with analyzing data and drafting reports for the COVID-19 City of Cleveland 18-month report. I focused on analyzing case data with respect to age and sex distribution throughout the pandemic and the distribution of hospitalized cases and cases resulting in deaths. I also assisted with the compilation and analyses of LTCF cases, deaths, and Hospitalizations.

## Deliverables

1. Notes for Weekly Case and Outbreak Investigation Meetings
2. Outbreak Reports for LTCFs in the City of Cleveland, sent and reported to ODH
3. 18-month report drafts for Cases (Age and Sex) and Outcomes (Deaths and Hospitalizations) in final editing stages with CDPH/CWRU team prior to public release
4. LTCF Master Document for improved accessibility and clarity of data

## Methods and Results

For the 18-month data analyses we have compiled trends and understanding of cases within Cleveland City Jurisdiction. All data on cases, deaths, hospitalizations, test dates, age, ethnicity, race and gender were obtained from the ODRS database. LTCF data was obtained from CDPH records of weekly reported cases from facilities on staff and resident cases. Preliminary graphs of case data of Cleveland Jurisdiction cases from 2/16/2020-7/1/2021 were created using excel, discussed and reviewed with the CWRU and CDPH epidemiology team and then the final visualizations were created using R-studio. Narratives analyzing and discussing these results were then produced.

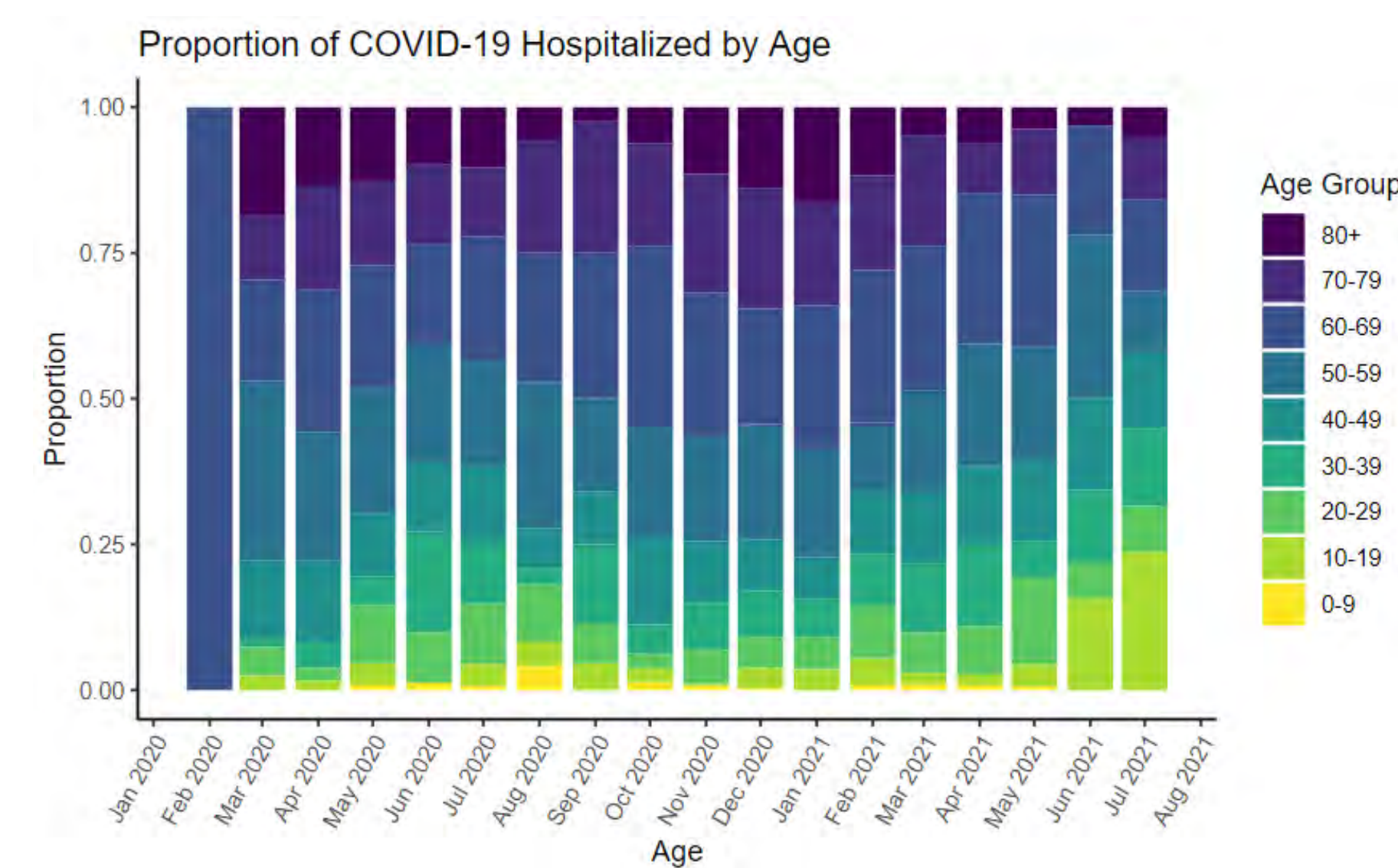


Figure 3. Proportion of COVID-19 Hospitalizations by Age. Each bar represents the proportion of all hospitalized cases within each reporting month that fall within that age group.

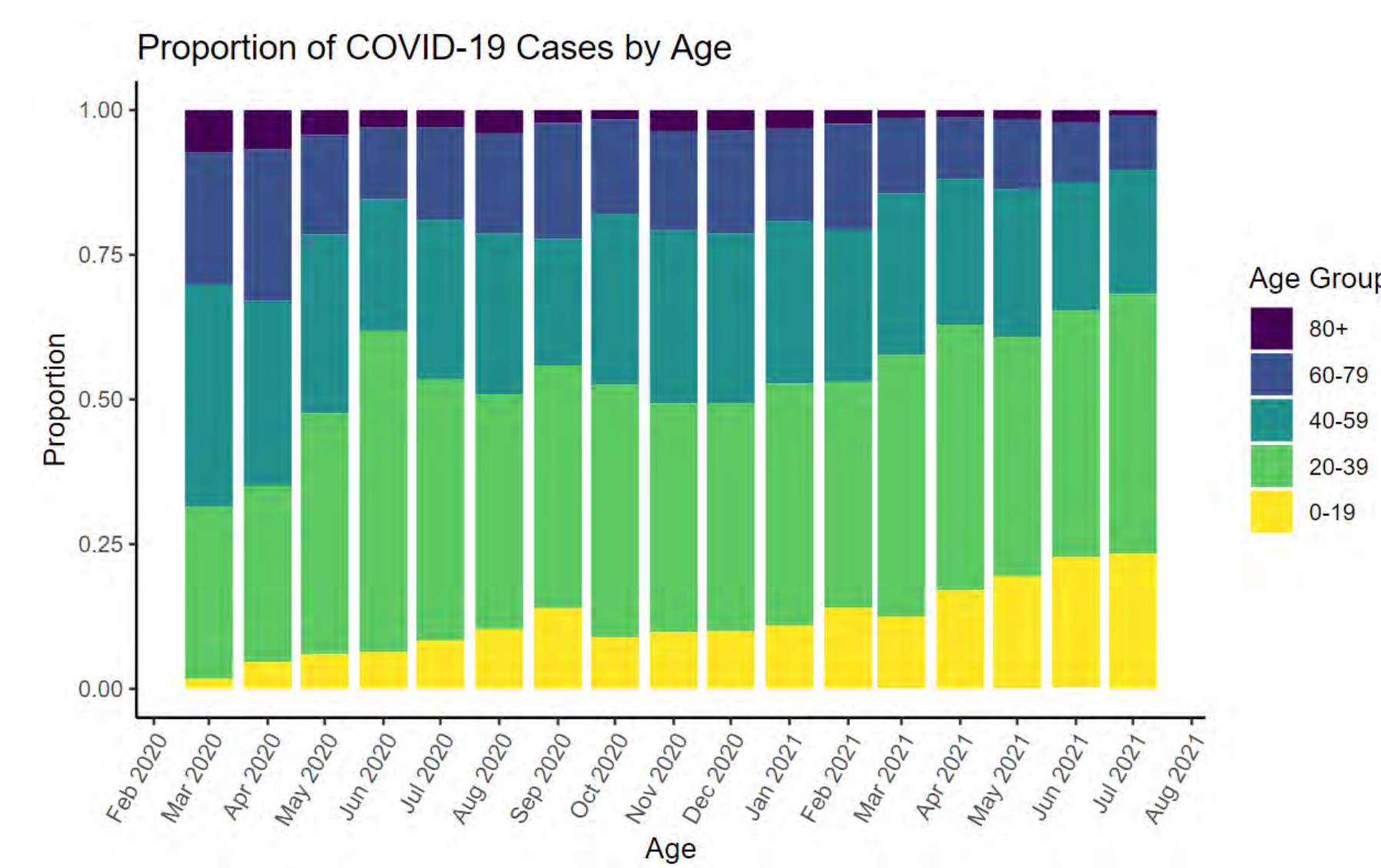


Figure 2. Proportion of COVID-19 Cases in Cleveland by age. Cases within the city of Cleveland for each month within each of the 5 age groups were divided by the total number of cases for the month. February of 2020 consists of 3 total cases. 5 cases did not have reported age data associated with them and are not reported within this figure.

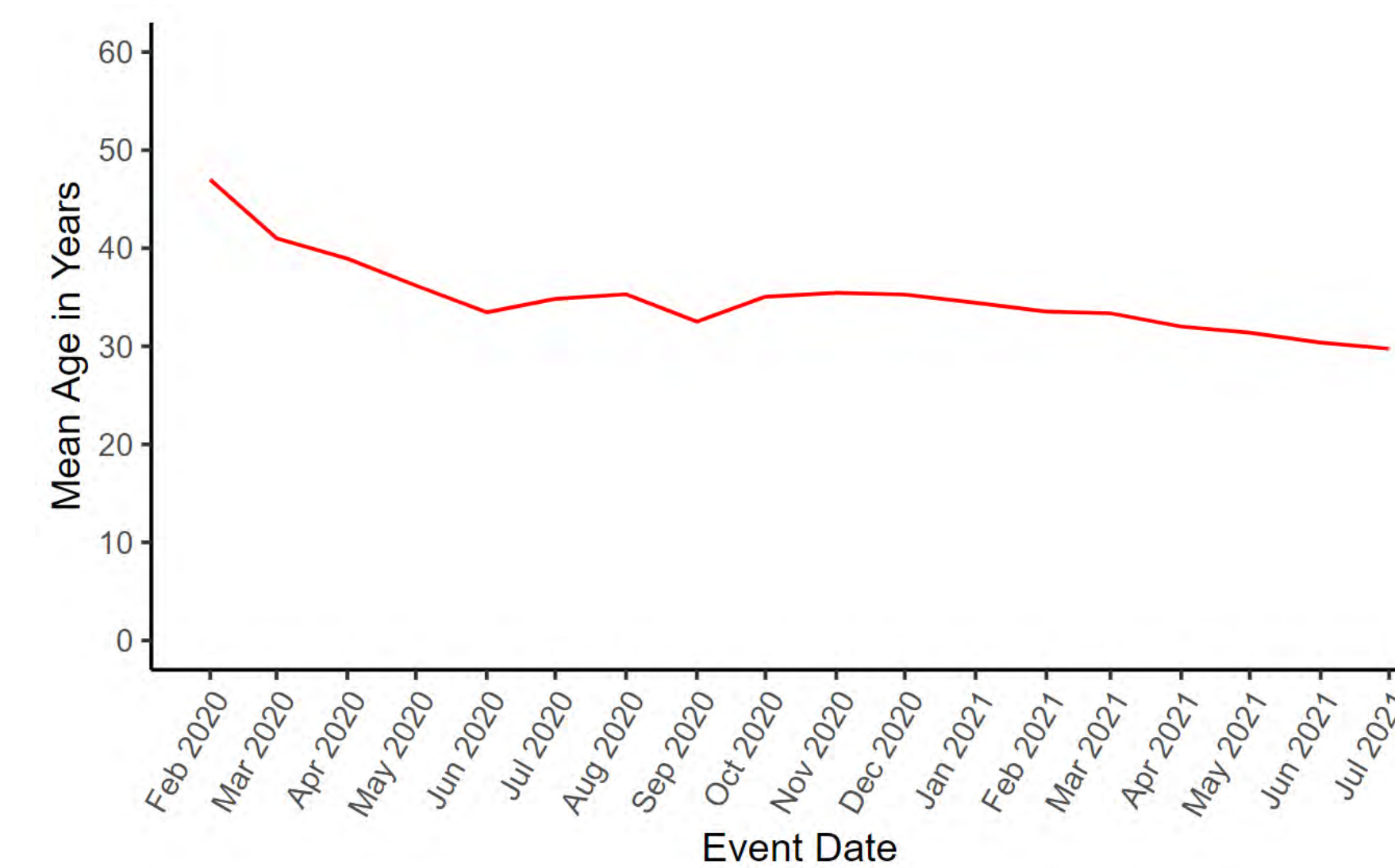


Figure 2. Mean Age of COVID-19 Cases. The mean age of all cases reported in the City of Cleveland for each month was calculated. The 5 cases that did not have associated age data were omitted from these calculations and graph.

## Lessons Learned

During my time working at CDPH I gained an important understanding of how public health systems function and the importance of teamwork and collaboration in creating an efficient and effective response to a public health crisis. I have come to understand the dynamic and flexible nature of public health and the need to change as circumstances change. The health needs of the population fluctuated with changes in CDC recommendations, the rollout of vaccination, declines and spikes in cases, and shifts in hotspots. As a department of public health, it was important to be aware of and respond to these changes as necessary.

Witnessing the importance of collaborative discussions in response to these changes to build a strong coordinated response to the problem was very informative. I saw firsthand the value in seeking expertise from various fields of public health to integrate things such as spatial analyses of cases, computer science to create a COVID dashboard for the city, medical expertise, and statistical analysis to have an appropriate and robust response to protect and serve the health of our community

## Public Health Implications

This project served to gain a better understanding of the health needs of Cleveland residents with regards to the COVID-19 pandemic. Data on outbreaks and cases along with specific updates on LTCF data were used to inform targeted outreach campaigns for testing locations, vaccination distribution and PPE safety messaging and material distributions. It was important to compile and analyze this data to create transparency with the public so that they can be aware of the state of COVID-19 cases and outbreaks. It was also important for the health department to know and understand where health needs lie when trying to address these needs.

## Acknowledgements

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[Link to Presentation](#)