

Abstract

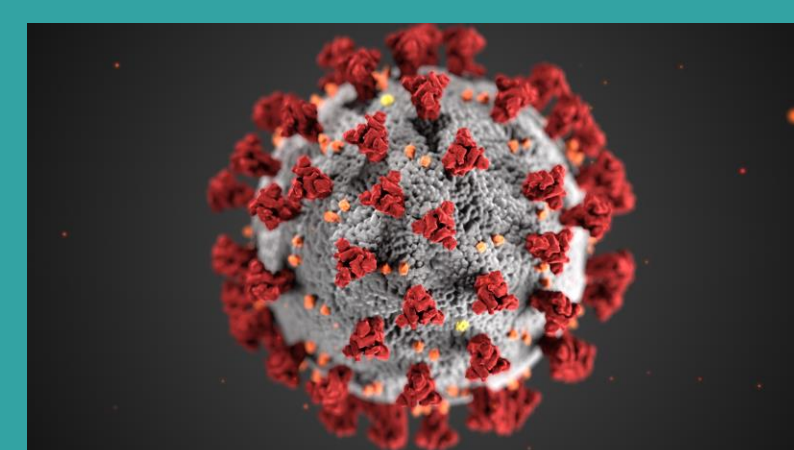
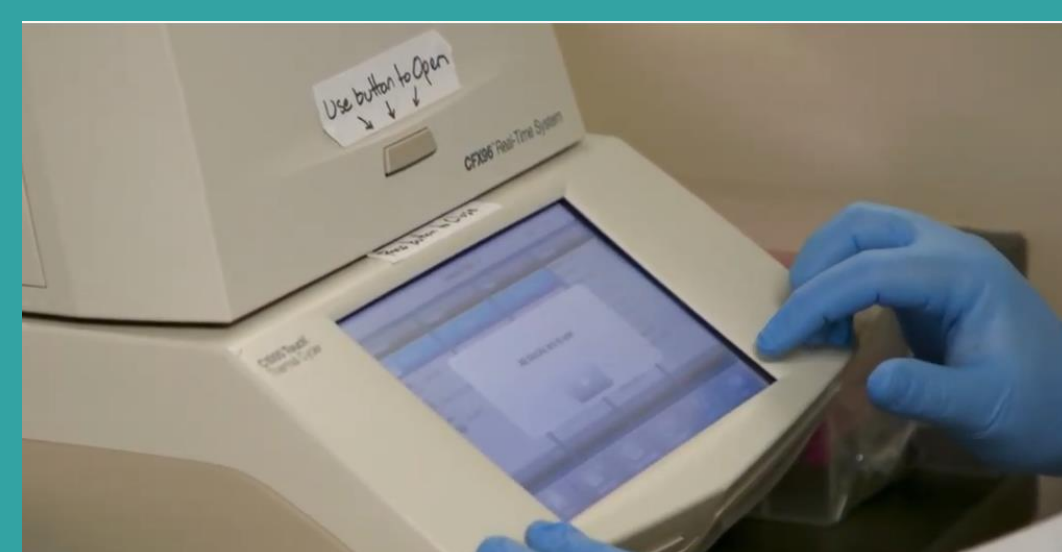
The SARS-CoV-2 is a novel RNA virus that is a part of the Coronaviridae family of viruses. The SARS-CoV-2 virus outbreak was declared a pandemic in March of 2020 and has persisted to this day. The COVID-19 Sentinel Project was created to monitor the rate of COVID-19 infections in individuals who determined themselves to be healthy and an active member of the Coastal Carolina Community. The purpose of this study was to monitor the incident rate of COVID-19 cases in individuals who determined themselves to be healthy and the attitudes and behaviors that were associated with the pandemic. The Sentinel Project did identify behaviors and attitudes that were important during the outbreak. These attitudes and behaviors were also linked to a small surge in on campus COVID-19 infections right before Thanksgiving.

Introduction

The SARS-CoV-2 is a novel RNA virus that is a part of the Coronaviridae family of viruses. The SARS-CoV-2 virus outbreak was declared a pandemic in March of 2020 and has persisted through 2021. The virus causes a severe respiratory illness and has claimed the lives of over half a million Americans. Additionally, the pandemic has affected many universities and their ability to safely hold normal activities. The safety of students, faculty and associates created an emergency need to monitor the virus on campus. Due to the relative difficulty of getting a test when the pandemic started, as well as the absence of a pain free test it was recognized that CCU needed to create its own test. The Chanticleer COVID-19 test is a saliva based test in which participants swabbed their tongue with a flocked swab and run RT-PCR to detect the virus. The accuracy of the Chanticleer COVID-19 test was determined during the summer of 2020 and was found to have an 88% effectiveness in detecting the virus when compared to the DHEC COVID-19 test. The study consisted of approximately 70 tests being completed weekly over a period of 2 days. After completing the test participants were then asked to complete a survey concerning their attitudes and behaviors towards the pandemic. The survey found some statistically significant differences in attitudes and behaviors that may have affected the percentage of positive cases.

Research Question

The purpose of this study was to monitor the incident rate of COVID-19 cases in individuals who determined themselves to be healthy and the attitudes and behaviors that were associated with the pandemic.



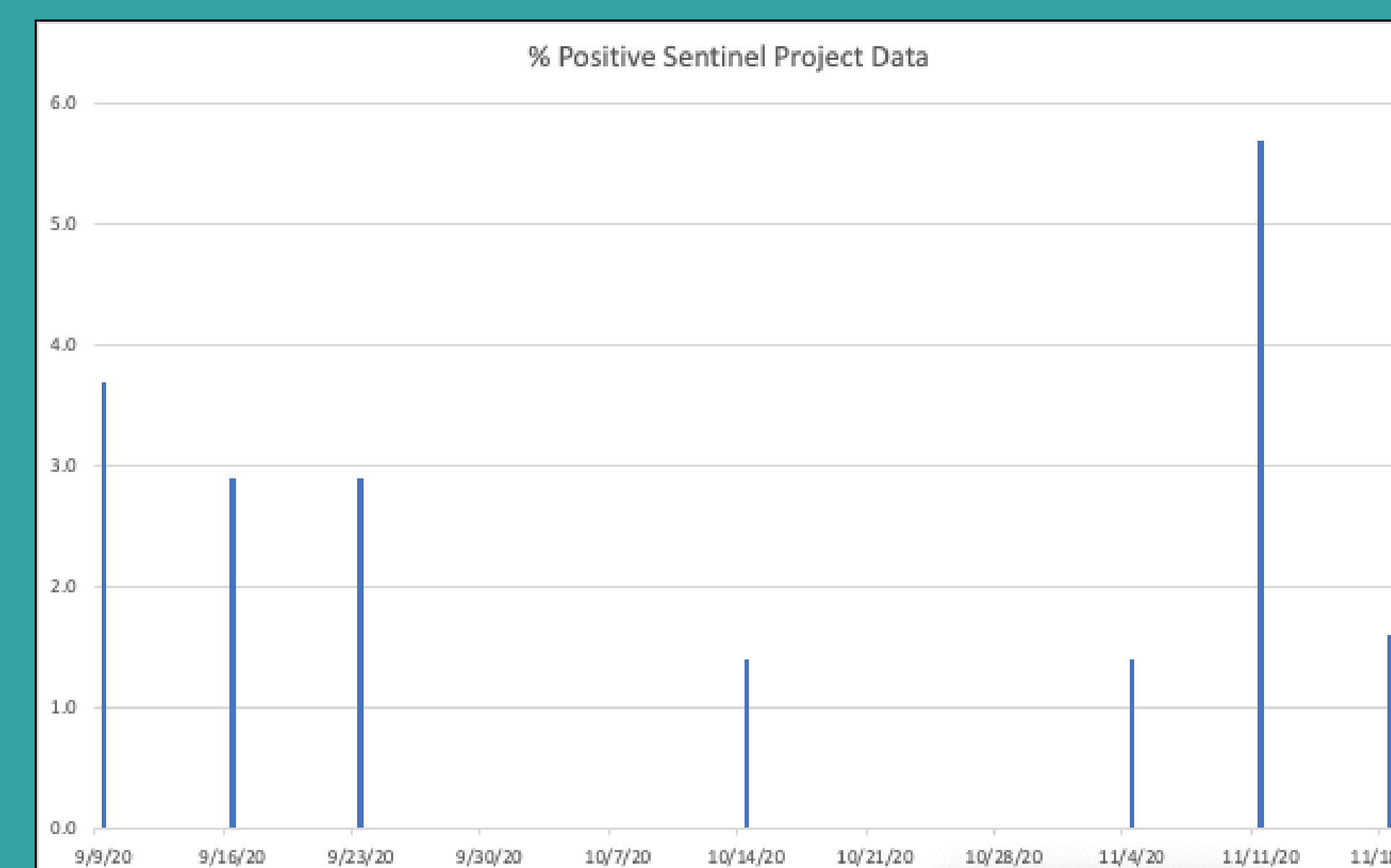
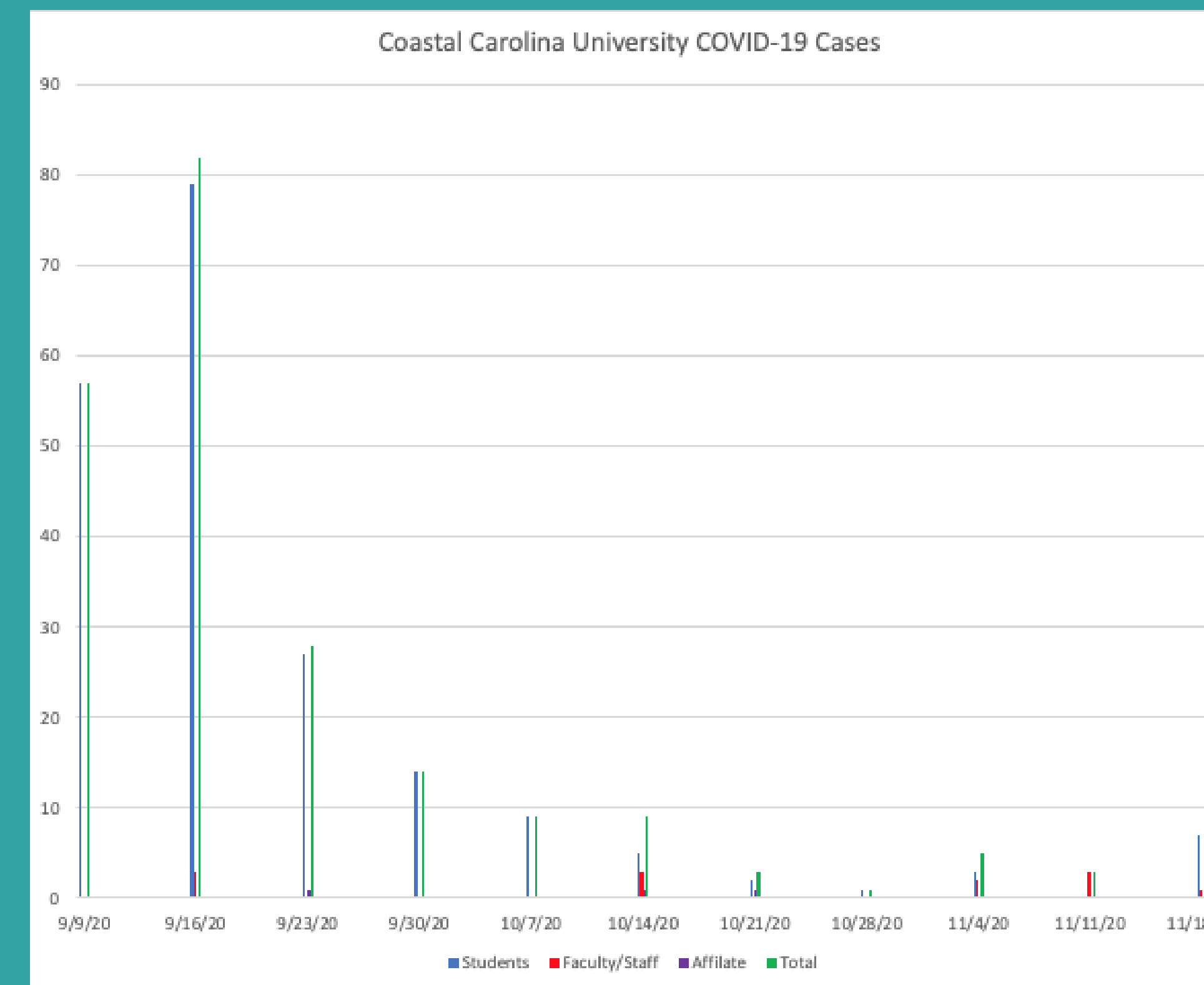
Methods

Samples were collected twice a week on Mondays (Prince lawn) and Fridays (Hick's dining hall), approximately 70 tests were run each week with 35 samples being taken on each collection day. Each participant wiped over their tongue for 5 seconds using a flocked swab. Then the participant placed the swab into a microcentrifuge tube of RNA viral buffer and mixed the solution to release any viral particles trapped in the swab. The tube containing the viral buffer was placed by the participant into a box that would be locked until the tests were run on Tuesday at the clinical lab at Conway Medical Center using the Chanticleer COVID-19 test. Participants were then asked to complete a survey asking about their attitudes and behaviors towards the pandemic. The survey data was then compared to the test results to potentially explain and contextualize the testing results.

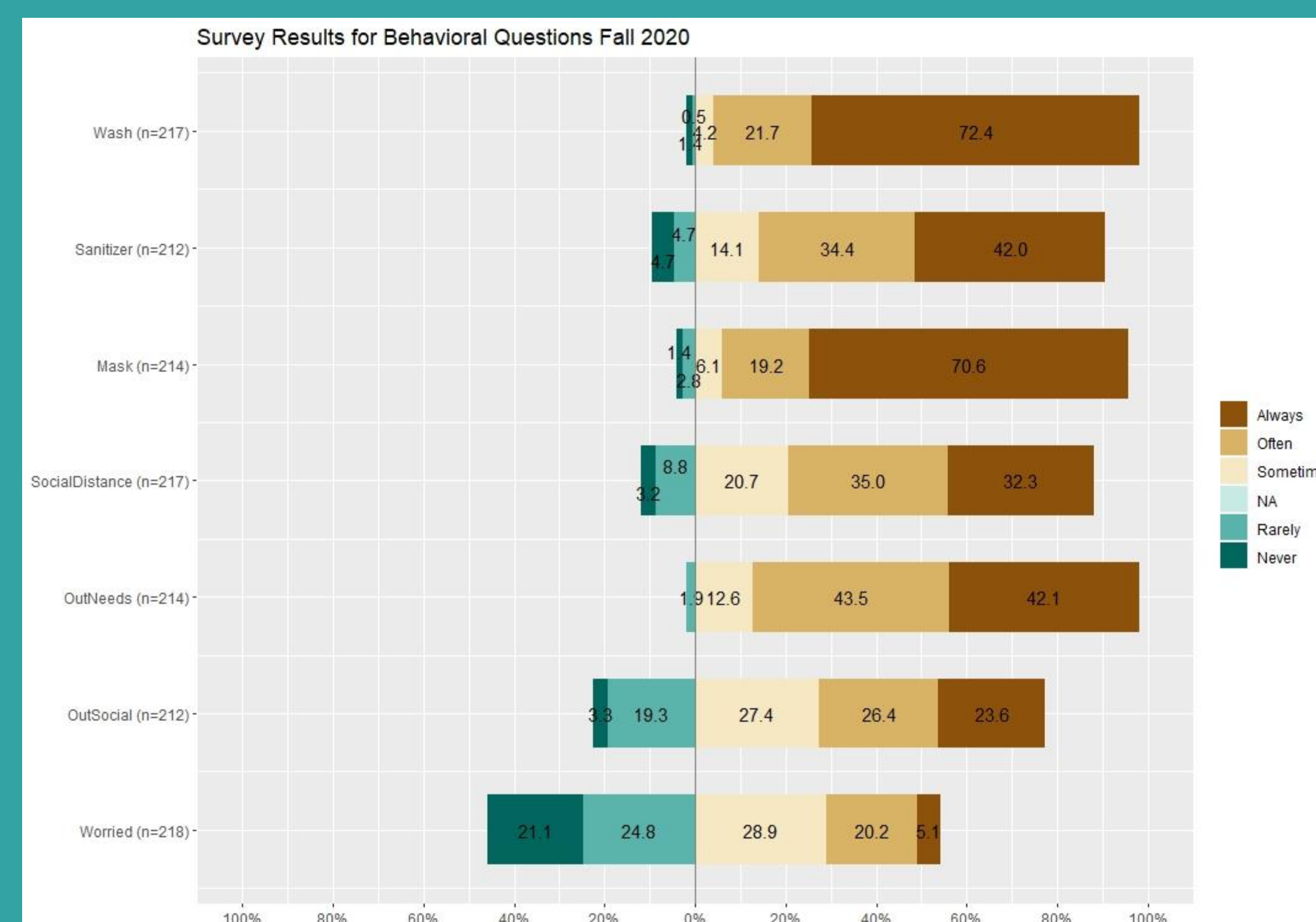


Results

COVID-19 Testing Data



Attitude and Behavioral Survey



Attitudes (Answers that showed a statistically significant difference)

- Females were more concerned about COVID-19 than Males
- non-whites more concerned about COVID-19 than Whites
- Faculty more concerned about COVID-19 than Students or Staff

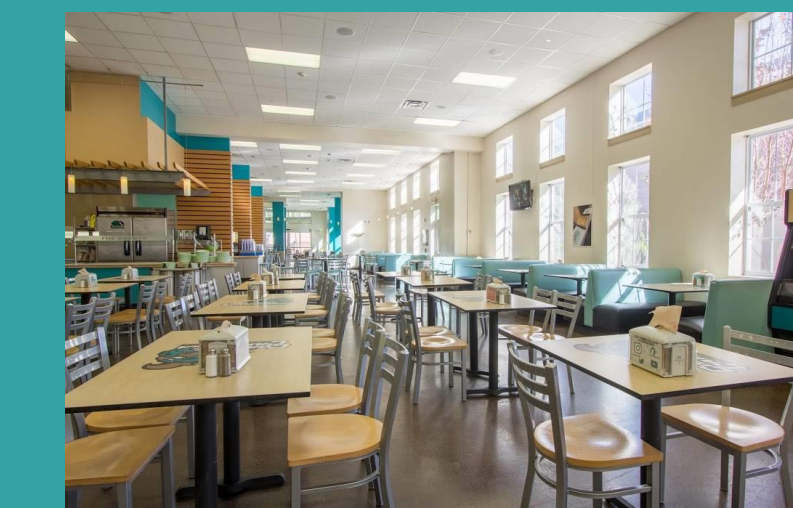
Biggest factors that effected behavior

- Concern for personal health
- Contracting COVID-19
- Individuals doing their part to help stop the spread of the virus.

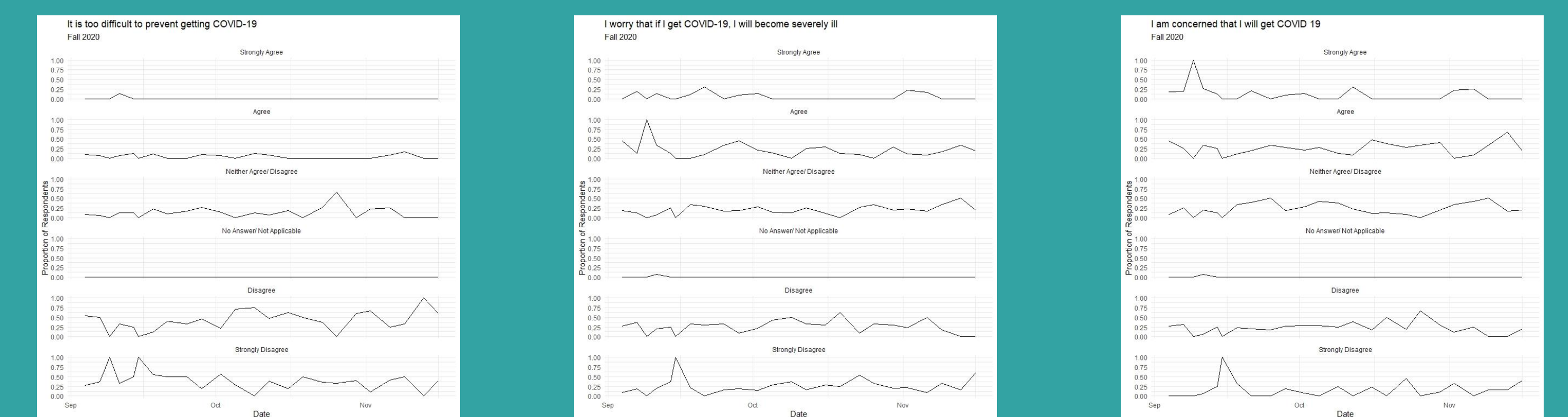
Results

Sentinel Testing location data

Date	Hicks Dining hall	Prince Lawn
9/9/20	2	0
9/16/20	1	1
9/23/20	2	0
9/30/20	0	0
10/7/20	0	0
10/14/20	1	0
10/21/20	0	0
10/28/20	0	0
11/4/20	1	0
11/11/20	3	1
11/18/20	1	0



Changes in behaviors during the semester



Conclusions

The Sentinel Project was developed to help monitor the campus community for COVID-19 and keep the community safe. The data collected was used to monitor the incident rate of individuals on campus that were assumed to be healthy. The subjects were not only tested for COVID, but were asked about their attitudes and behaviors to help understand what was driving the infection rates on campus. The study was found to be effective in identifying cases on campus as well as identifying key attitudes and behaviors to explain upticks in cases.

The survey identified three significant attitudes about COVID-19 within the campus: (1) females were more concerned about COVID-19 than males, (2) non-whites more concerned about COVID-19 than whites, and (3) faculty more concerned about COVID-19 than students or staff. The survey data also found that the biggest factors that affected behavior were: (1) concern for personal health, (2) contracting COVID-19, and (3) individuals doing their part to help stop the spread of the virus.

The Sentinel testing data revealed that almost all positive cases were found at Hicks dining hall. Despite most cases being found at Hicks dining hall, the university's data, as well as contact tracing, showed no link between the dining hall and an outbreak of cases on campus. The lack of an outbreak suggests that the cleaning protocols put in place by the university were effective in preventing COVID-19 spread in Hicks dining hall.

The most interesting aspect of this project was the data collected on November 11. While the University data from the medical centers did not show many cases relative to previous dates (comparing trends), the Sentinel data did show a significant uptick in % positive cases on campus. Taking a closer look at the daily survey data did show changes in attitudes that might be responsible for this uptick. During any epidemic/pandemic the behaviors of society can have a significant impact on the number of cases and length of these problems.

Acknowledgements

We would like to thank Conway Medical Center for the use of their microbiology lab and helping us set up the efficacy testing for our Chanticleer COVID-19 test. We would also like to thank the Coastal Foundation and INBRE for the funds to support this research. Finally we like to thank Dr Paul M Richardson M.D. for his support with this project.