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Introduction

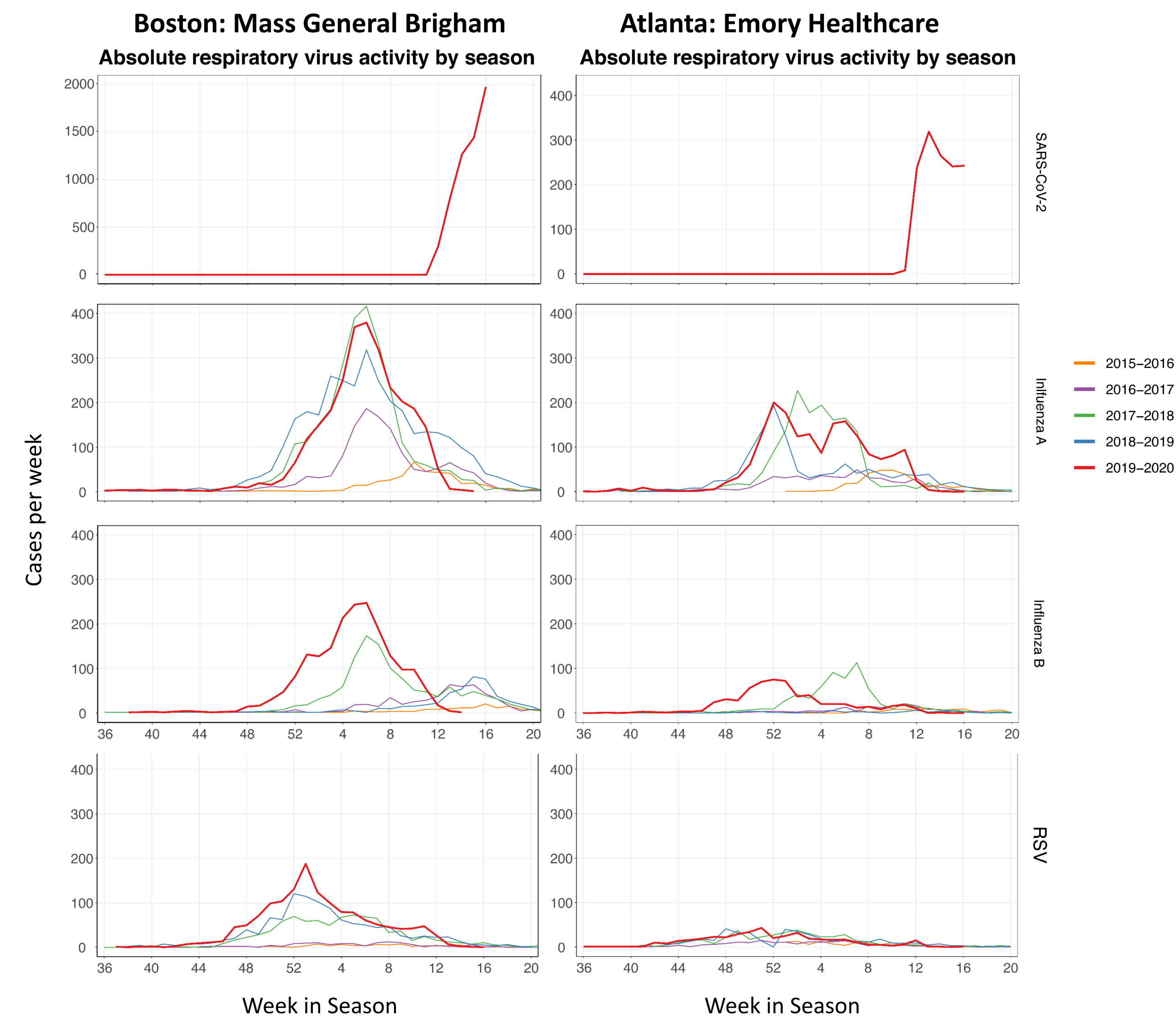
- The COVID-19 pandemic, caused by the SARS-CoV-2 virus, has led to a global health crisis.
- Other respiratory viruses share the same transmission route as SARS-CoV-2, and several studies have shown reduced incidence of seasonal influenza viruses in the 2019-2020 season [1, 2, 3].
- Non-pharmaceutical interventions (NPIs) such as social distancing, masking, and school closures implemented to decrease the transmission of SARS-CoV-2 may also affect transmission of other respiratory viruses.
- No published studies have examined the rates of seasonal influenza and RSV as compared to prior seasons in the United States for two urban areas.

Methods

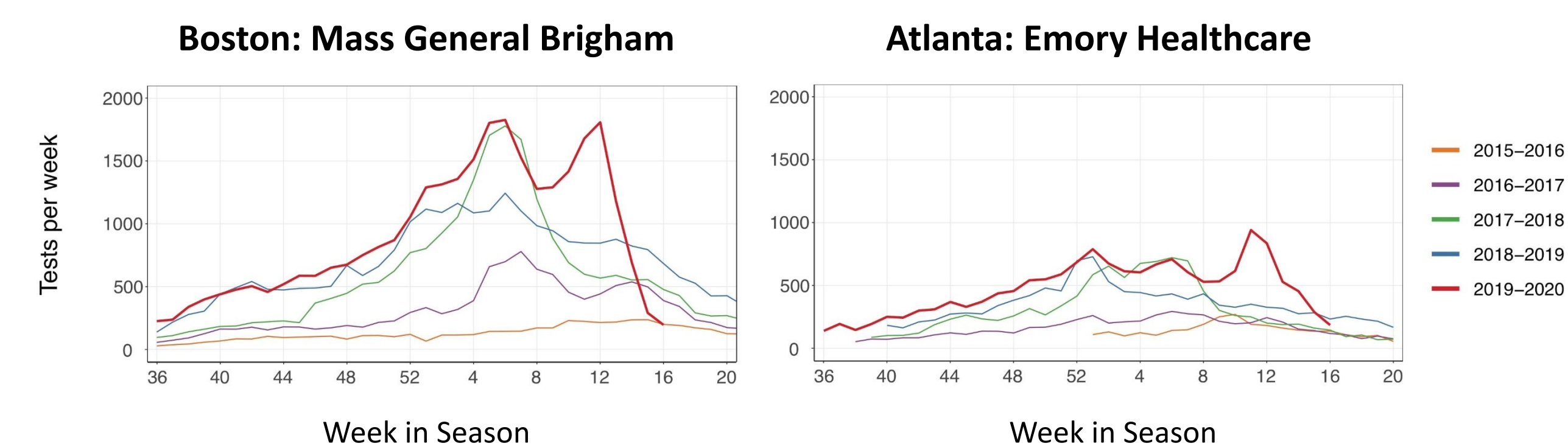
- Retrospective review of all adult medical records who had respiratory viral testing between 9/1/2015-5/30/2020 was conducted at two large academic centers:
 - Mass General Brigham Healthcare System, Boston, MA (n=107,260 subjects)
 - Emory Healthcare, Atlanta, GA (n=46,575 subjects)
- Total cases of influenza A and B, RSV, and SARS-CoV-2 were determined for each week of each season.
 - Pathogen-specific reproductive number over time (R_t) was calculated
 - $R_t > 1.0$ = increase in number of cases between 2 consecutive weeks
 - $0 < R_t < 1.0$ = decrease in number of cases between 2 consecutive weeks
- A bootstrapping approach was used to compare the R_t for influenza A, B, and RSV for 2019-2020 as compared to the average R_t for the past four seasons for Boston and Atlanta.
- All analyses were conducted in R (v. 4.0.0)

Results

Absolute Respiratory Virus Activity

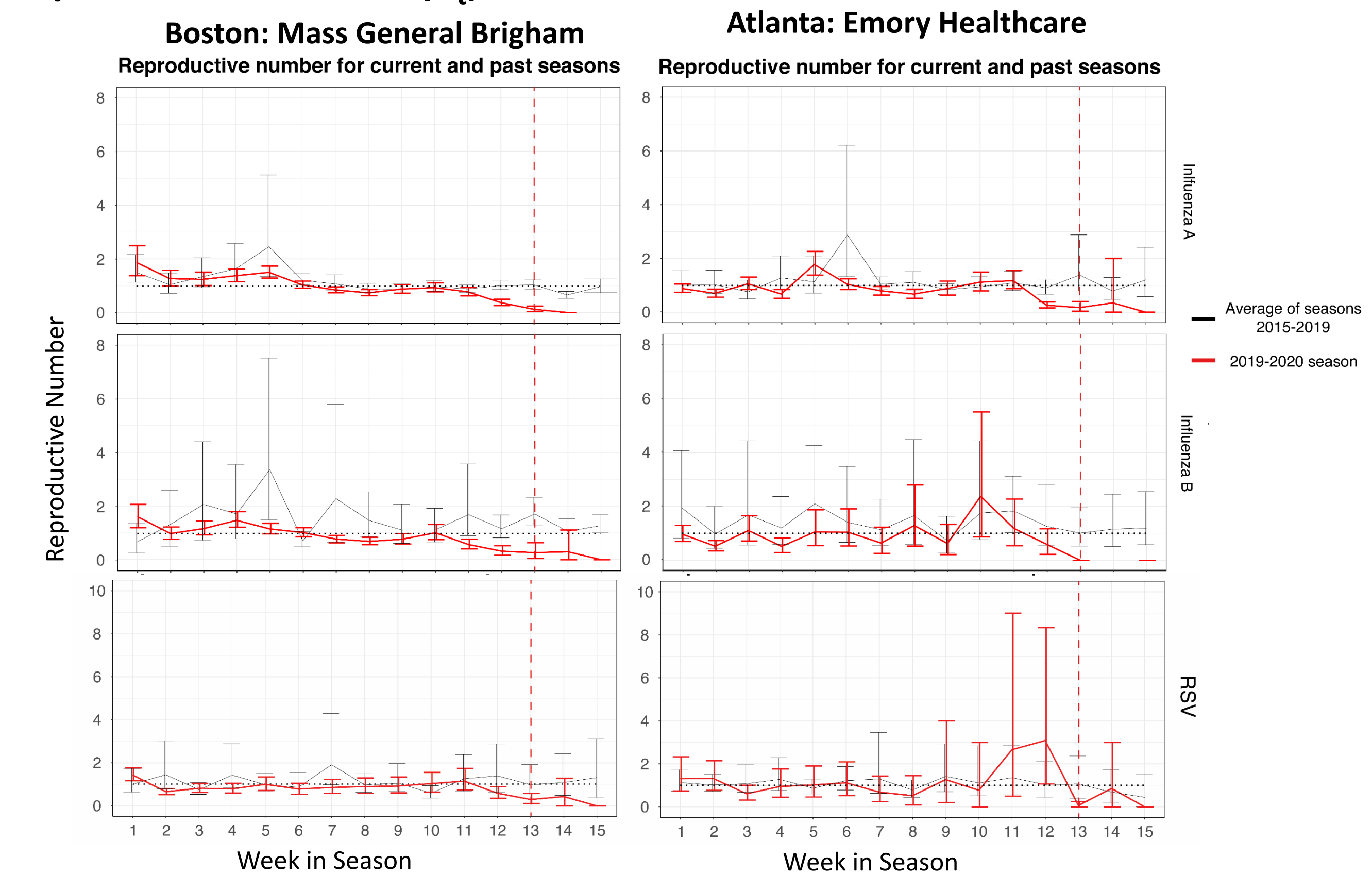


Total Tests Conducted by Season



Results

Reproductive Number (R_t)



The R_t for the 2019-2020 season as compared to the average of the past 4 seasons for Boston and Atlanta, respectively. The dotted black line represents $R_t=1$, and the red dotted vertical line represents the approximate week when NPIs were implemented.

Limitations and Conclusions

- Limitations:** There was decreased testing of influenza and RSV during the period studied, likely due to reduced outpatient visits, shortages of viral media and equipment, and prioritization of SARS-CoV-2 testing.
- Conclusion 1:** Decreased transmission of influenza and RSV occurred in Boston and Atlanta during a time when widespread movement restrictions and social distancing were imposed to control COVID-19.
- Conclusion 2:** Our findings should help inform pre- and post-test probabilities of seasonal viral infections when evaluating patients presenting with acute respiratory viral syndromes.

References: [1] Cowling BJ, Ali ST, Ng TWY, et al. Impact assessment of non-pharmaceutical interventions against coronavirus disease 2019 and influenza in Hong Kong: an observational study. *The Lancet Public Health* 2020; 5(5): e279-e88. [2] Sakamoto H, Ishikane M, Ueda P. Seasonal Influenza Activity During the SARS-CoV-2 Outbreak in Japan. *Jama* 2020; 323(19): 1969-71. [3] Zipfel CM, Bansal S. Assessing the interactions between COVID-19 and influenza in the United States. *medRxiv* 2020: 2020.03.30.20047993.

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