

Pediatric Group A Streptococcus (GAS) Pharyngitis has Decreased During the COVID-19 Pandemic

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Background

- The COVID-19 pandemic has affected respiratory disease epidemiology.
- Measures to reduce transmission of SARS-CoV-2 (e.g., masking, social distancing, school closures) have reduced the incidence of common infectious diseases.
- At least one early report describes a decrease in diagnosis of pediatric GAS pharyngitis.

Objective

- To evaluate the difference in GAS pharyngitis rates before and after the onset of the pandemic at our urban, tertiary care children's hospital.

Methods

- We analyzed clinical pharyngeal specimens tested for GAS by rapid antigen tests (RADTs) or loop-mediated isothermal amplification of GAS DNA (LAMP) from January 2019 to March 2022 at our children's hospital.
- Clinicians evaluating patients for GAS pharyngitis perform a RADT. If the RADT is positive, the patient is treated for GAS pharyngitis. If the RADT is negative, a LAMP test is performed.
- Patients were considered test-positive if either test was positive regardless of clinical symptoms.
- Annual positivity rates were compared using statistical process control (SPC) charts with both 2019 and 2020 as baseline years.
 - 2019 vs 2020-March 2022 and 2020 vs 2021-March 2022
- The change in GAS incidence rate (positive tests/1000 patients tested) between years was assessed by chi-square tests .

Results

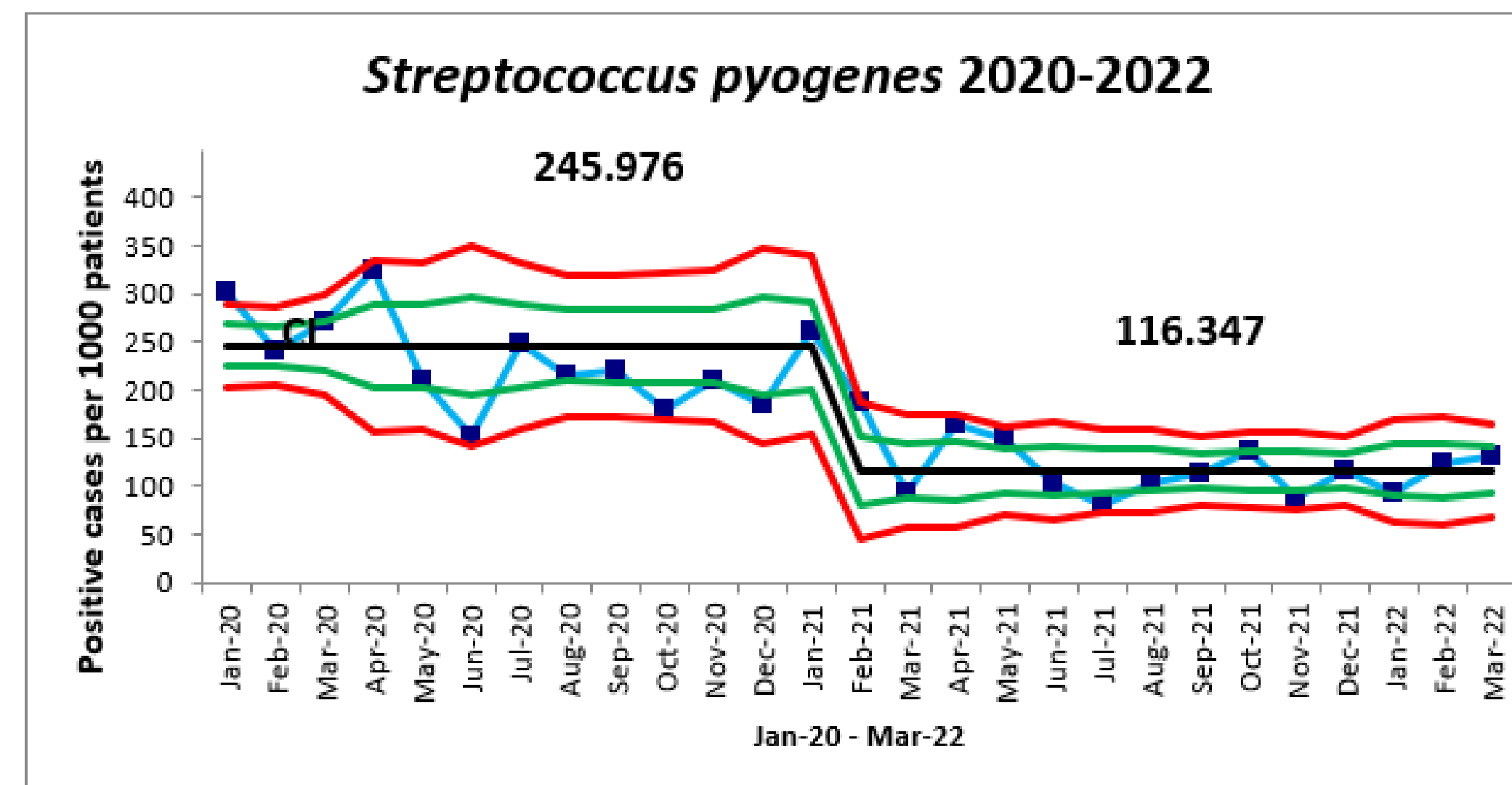
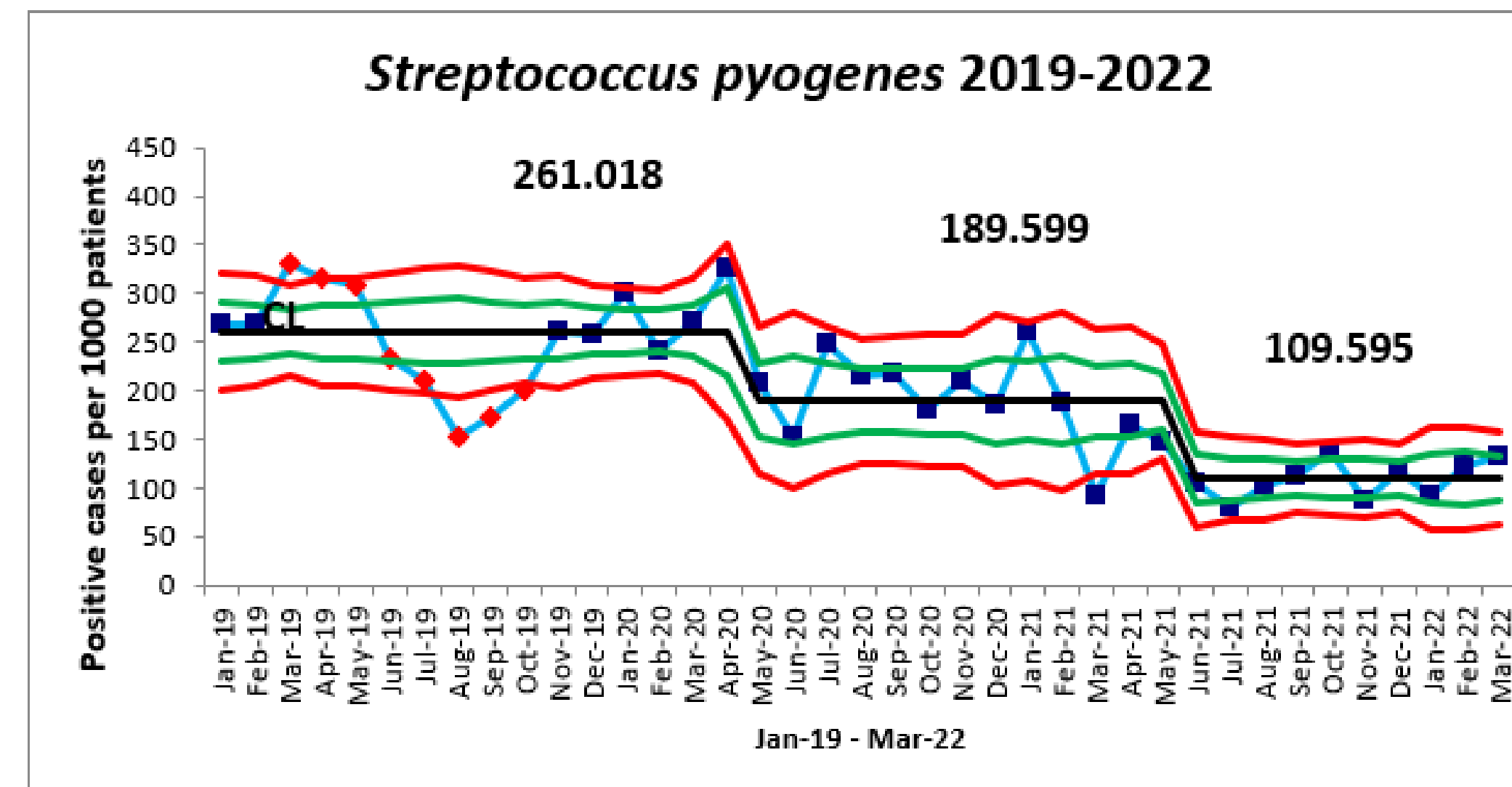


Figure 1: Statistical Process Control (SPC) charts demonstrating the change in GAS test positivity rate per 1000 pediatric patients tested. The top chart uses 2019 as a baseline to compare test positivity in years 2020, 2021, and 2022 (through March). The bottom chart uses 2020 as a baseline to compare test positivity in the year 2021 through March 2022.

- 9,896 patients had throat swabs tested for GAS from January 2019 through March 2022.
- Using SPC with 2019 as a baseline, there was a **15.1% decrease in mean GAS positivity** through March 2022.
- Using SPC with 2020 as baseline, there was a **13.0% decrease in mean GAS positivity** through March 2022.
- The incidence of positive GAS tests decreased significantly:
 - 2019 vs. 2020-3/2022 ($\chi^2 = 84.97$, $p \leq 0.00001$)
 - 2020 vs. 2021-3/2022 ($\chi^2 = 154.01$, $p \leq 0.00001$)

Conclusions

- Using throat swab results, the incidence of pediatric GAS pharyngitis diagnosed at our hospital has decreased significantly during the COVID-19 pandemic.
- **Implications:** Pandemic-related risk mitigation measures, such as masking, social distancing, and school closures, were likely associated with significantly decreased incidence of GAS pharyngitis.
 - It is likely that GAS colonization and invasive infections were also affected.

