

# A Retrospective Analysis of Outpatient Prescription Claim Trends During the COVID-19 Pandemic

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## Background

- In response to the COVID-19 pandemic, policies were enacted in New York State (NYS) to ensure patients had access to medications.
- Media reports and peer-reviewed articles fueled speculation about the impact of various drugs/classes on COVID-19, including ACE inhibitors, NSAIDs, and hydroxychloroquine (HCQ).<sup>1-3</sup>
- Fear of opportunistic infections, mental health burden, drug ingredient shortages and manufacturer stoppages associated with social isolation may have influenced prescribing and filling trends.<sup>4,5</sup>
- NYS Governor Andrew Cuomo's lockdown order was signed March 20, 2020 and went into effect March 22, 2020.

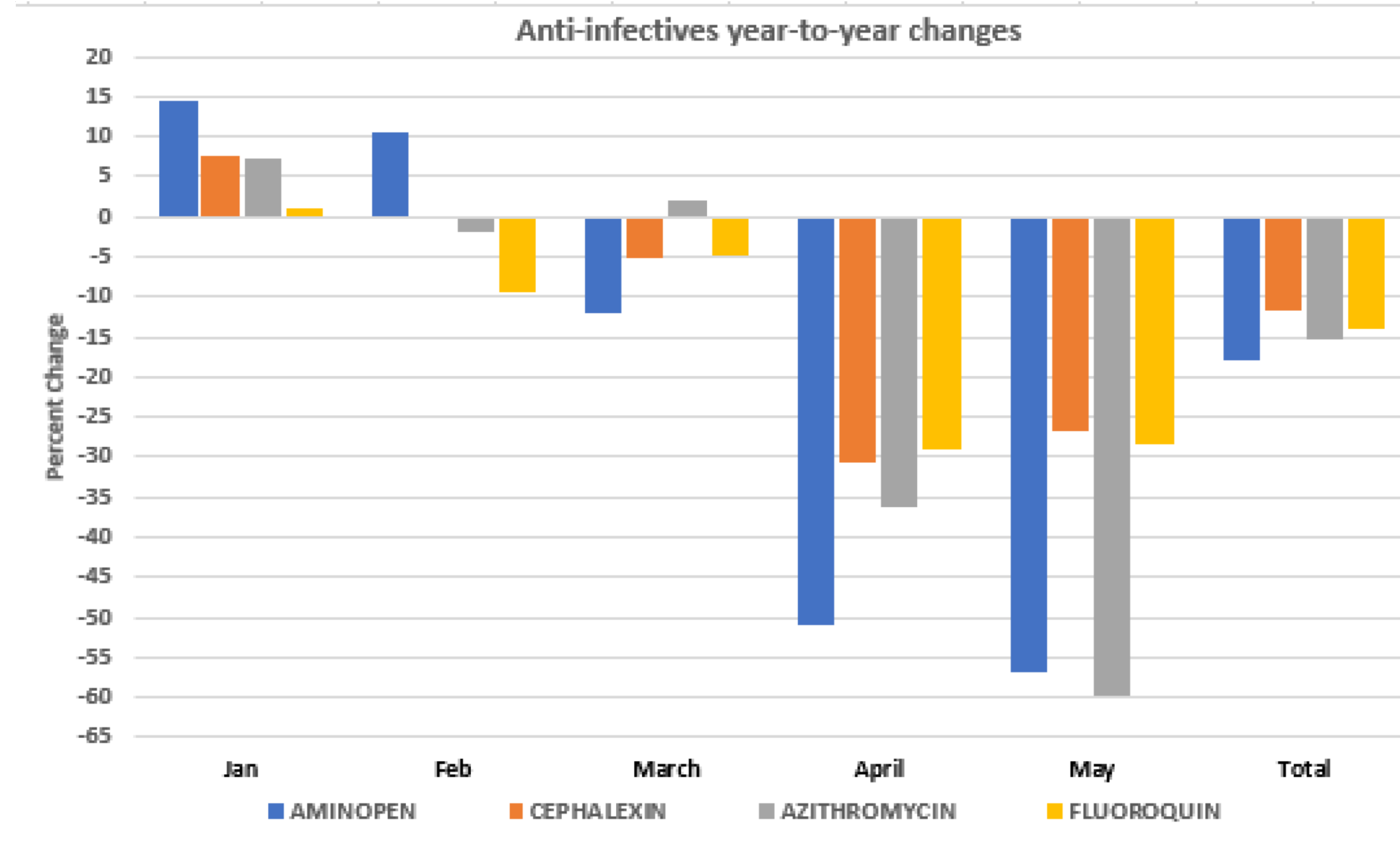
## Objective

- To find outpatient prescription drugs/classes with changes in claim trends at a medium-sized health maintenance organization (HMO) in western NYS after Gov. Cuomo's COVID-19 emergency stay-at-home order, focusing on drugs/classes discussed in the media.

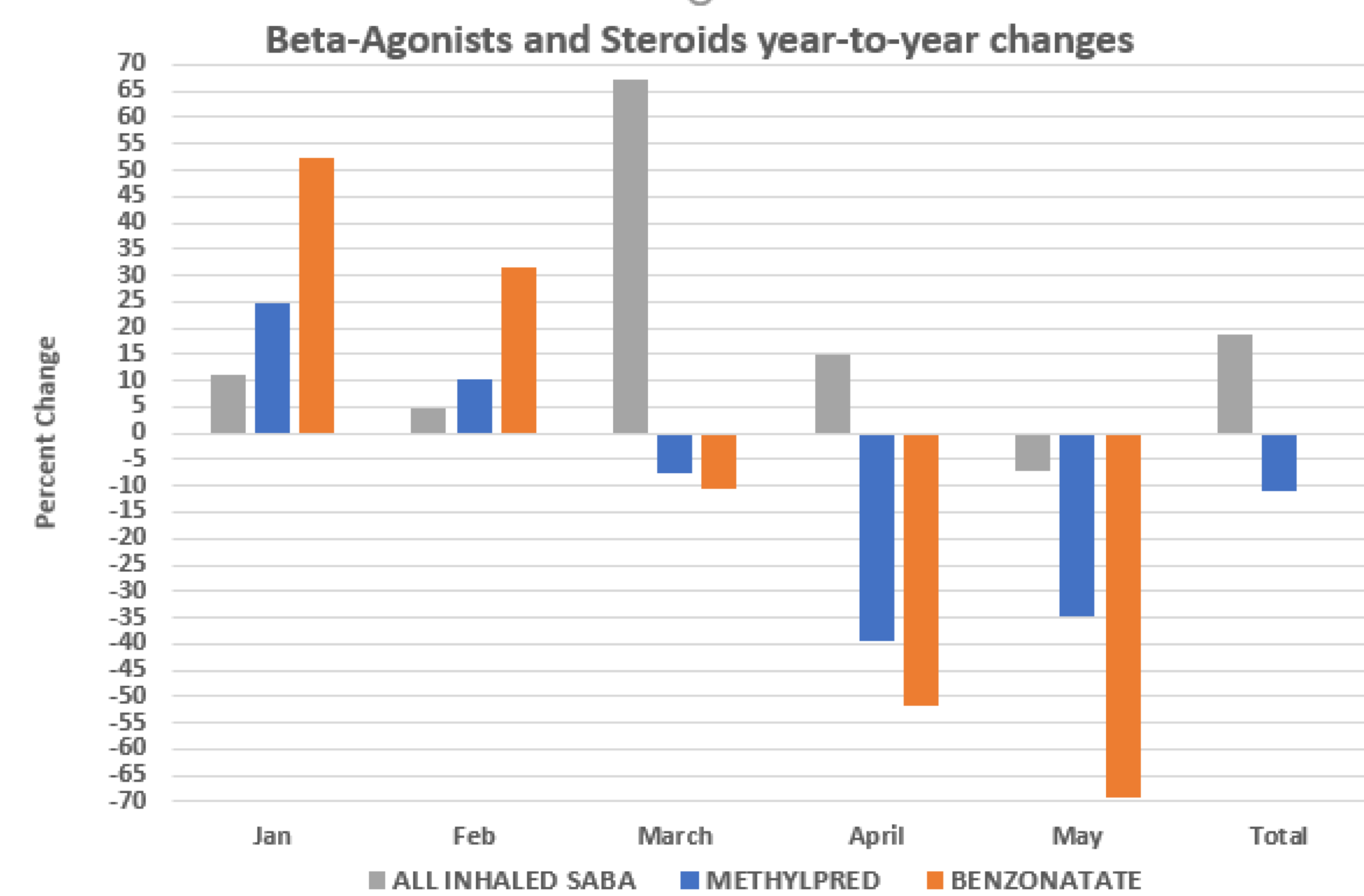
## Methods

- Retrospective study of outpatient pharmacy claims at a 350,000-life HMO covering 8 counties in western NYS.
- Claims information from January 1 to May 31 in 2019 and 2020 included patient age, line of business, zip code, drug name, generic product identifier (GPI) name and number, claim date, and quantity filled.
- Drug classes were sorted by first 4-digit GPI into month and year of fill and normalized by member months.
- Cumulative list of normalized differences and percentage changes between 2019 and 2020 for all classes were compiled separately for overall January through May data and individual months.
- Data were plotted as a bell curve; any value greater than 1 standard deviation from the monthly mean was investigated to see if specific drugs drove the overall class trend.
- Drugs/classes mentioned by the media or scientific journals were also examined if they were not identified in the previous step.<sup>1-5</sup>
- Normalized script counts of the drugs and drug classes of interest were analyzed weekly between 2018/2019 and 2019/2020 to see if there were any notable trends in weekly utilization.
- Data were analyzed using Microsoft Excel and an interrupted time series was performed using STATA.

## % changes in normalized script count from 2019 to 2020:

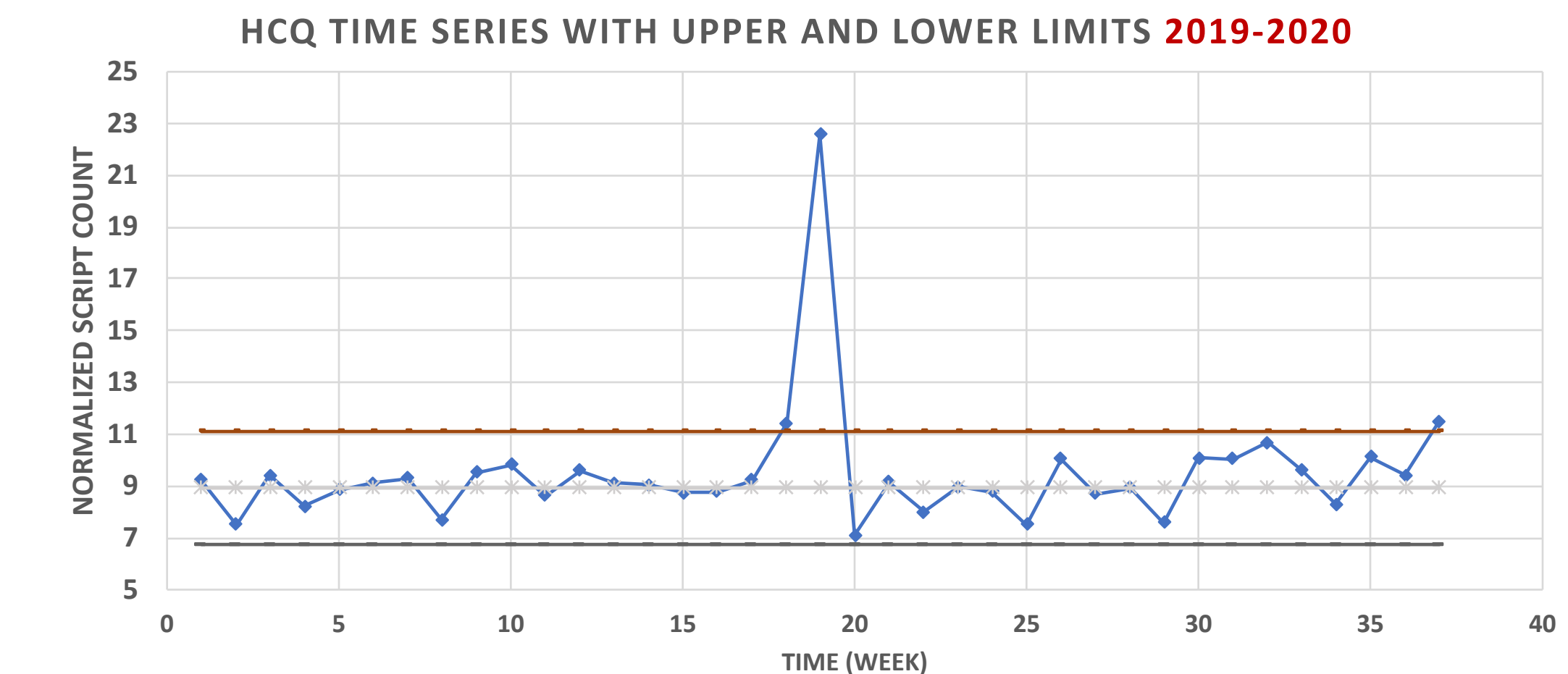
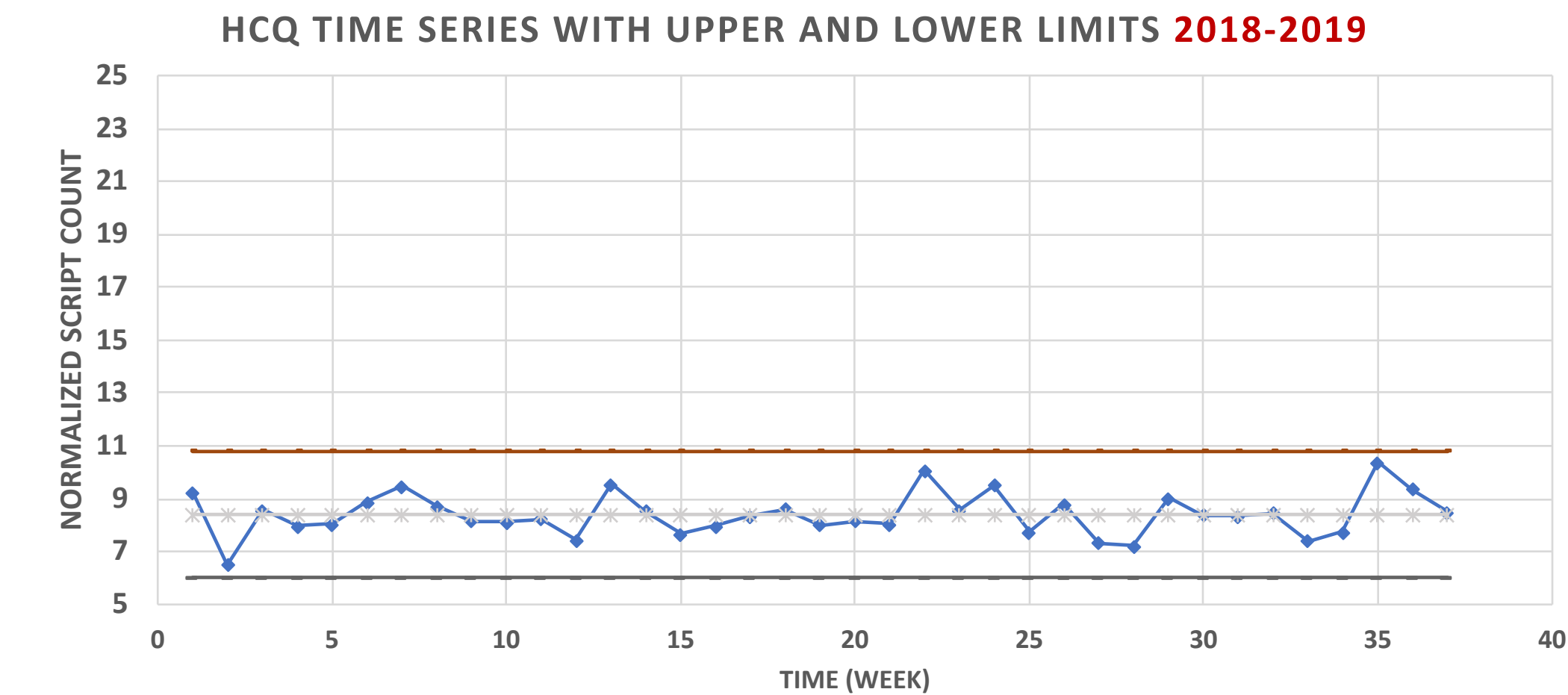


- Year-to-year relative prescription count decreases >25% in major anti-infective classes in the two months following Gov. Cuomo's stay-at-home orders.



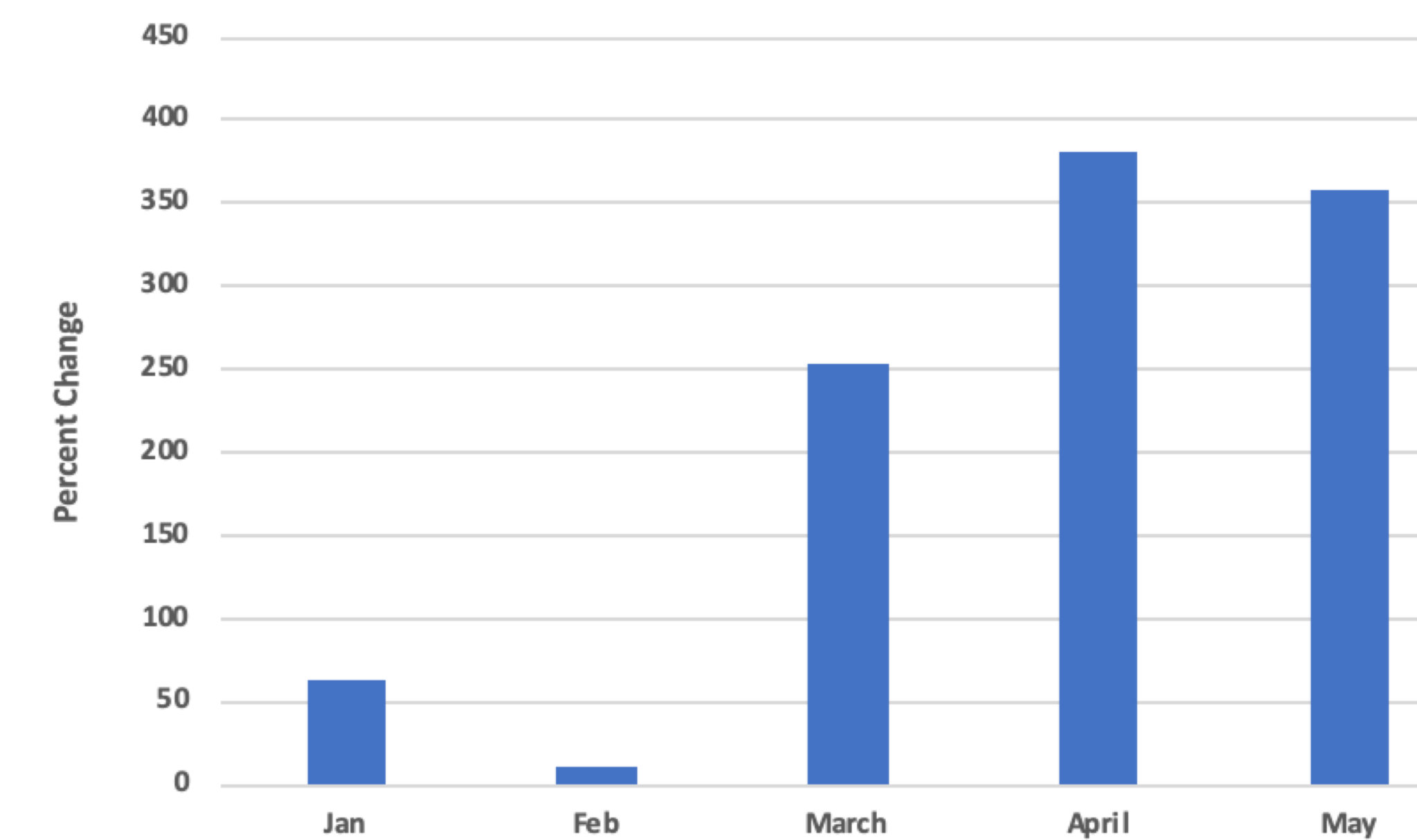
- Similar large declines in relative prescription count were seen with steroids and benzonatate, a medication for acute cough.
- Short-acting beta-agonist (SABA) fills spiked in March and decreased 7.00% in May from 2019 to 2020; coincided with concerns about a possible COVID-19-related albuterol shortage.

## Results



- Reference week 1 represents week 46 of the first year and the numbering is continuous through week 30 of the following year.
- March 2020 saw a 50.7% relative increase in HCQ fills compared to March 2019.
- A 2020 weekly run chart showed claim trends within a normal range of values until week 19 (week starting March 15, 2020).
- In the following week, on March 23, 2020, Gov. Cuomo signed an executive order limiting HCQ dispensing to FDA-approved indications only.
- The HMO implemented an indication-based prior authorization for HCQ on April 1, 2020 to enforce the executive order.

## Rejected HCQ year-to-year changes



- Year-to-year rejected HCQ claims increased 254% in March 2020, 382% in April 2020, and 359% in May 2020.
- Compared with the prior 16 weeks, there was a statistically significant increase of 6.4 rejected HCQ claims per week for the 21 weeks beginning March 2020 ( $p < 0.001$ , 95% CI 3.0-9.9).
- Despite mounting evidence throughout the 21 weeks against HCQ's efficacy for COVID-19,<sup>6</sup> claim rejections remained steady throughout the study period.

## Limitations

- Observed trends cannot establish causation without further statistical analysis and data on diagnostic codes or intended use.
- Data were normalized but no mathematical method can account for other factors that could explain fluctuations in trends.

## Conclusions

- HCQ claim increases and continued rejections coincided with media coverage of COVID-19.
- Decreases in claim trends could be explained by fewer patients seeking medical attention for mild infections and symptoms.
- If decreases in anti-infective, steroid, and cough and cold medication were caused in part by decreased social interaction due to stay-at-home orders, there may be a benefit to socially distancing (working from home, remote learning) during illness.

## References

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