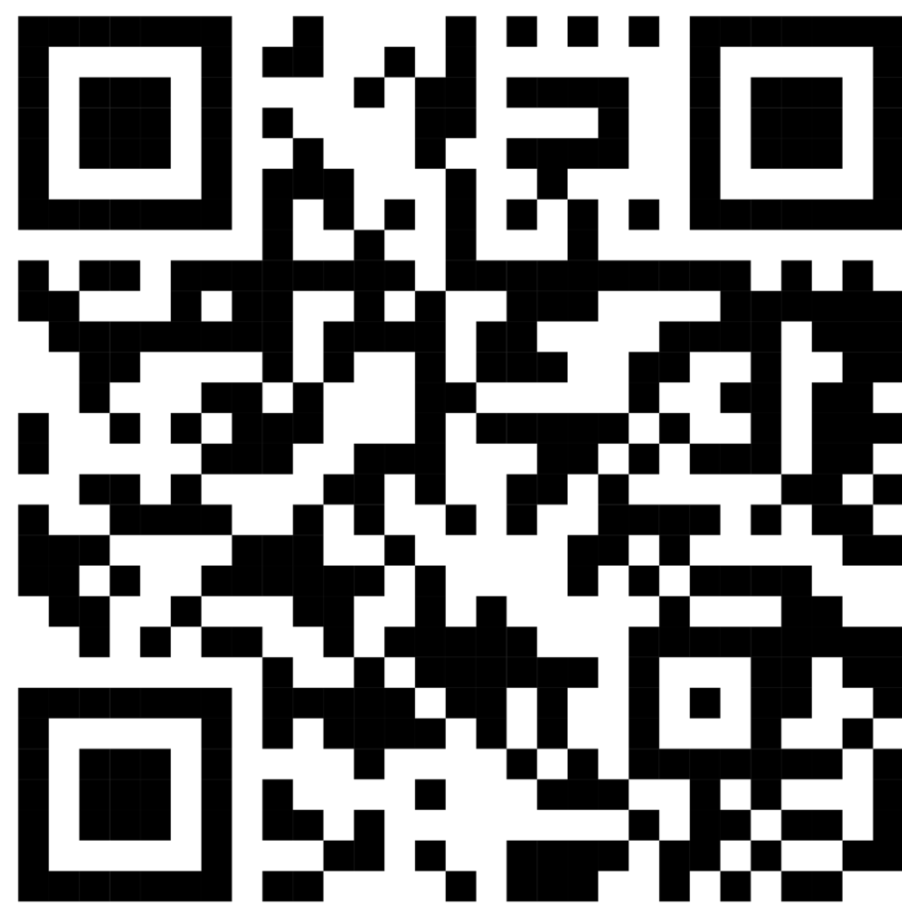


# Impact of the COVID-19 pandemic on cervical cancer screening rates in Colombia: An interrupted time series analysis, stratified by region

Thomas, R.<sup>1</sup>, Guarin DF.<sup>2</sup>

(1) Boston University, Boston, USA (2) Merck, Kenilworth, NJ, USA



## OBJECTIVES

- Measure the national impact of COVID-19 on cervical cancer screening rates in Colombia in five of its geographic regions to inform future health policy decision-making.

## METHODS

- This study utilized a quasi-experimental interrupted time-series design to examine changes in trends for the number of cervical cancer screenings performed in five geographic regions of Colombia.
- Data was extracted from SISPRO<sup>1</sup>, the Colombian Ministry of Health and Social Protection Database that houses a registry of healthcare claims data organized by Unique Health Procedure Codes (CUPS) over the period of October 2018-December 2021.
- The single point intervention was denoted as the March 31, 2020, when the government declared the national emergency in response to the Covid-19 pandemic.
- A series of univariate linear regressions were performed to assess the impact of the ‘intervention’ (the start of the COVID-19 pandemic) on the screening levels in Colombia in each of the five regions of study.
- All analyses were conducted in R Studio (V3.1.0) using R (V.3.1.0).

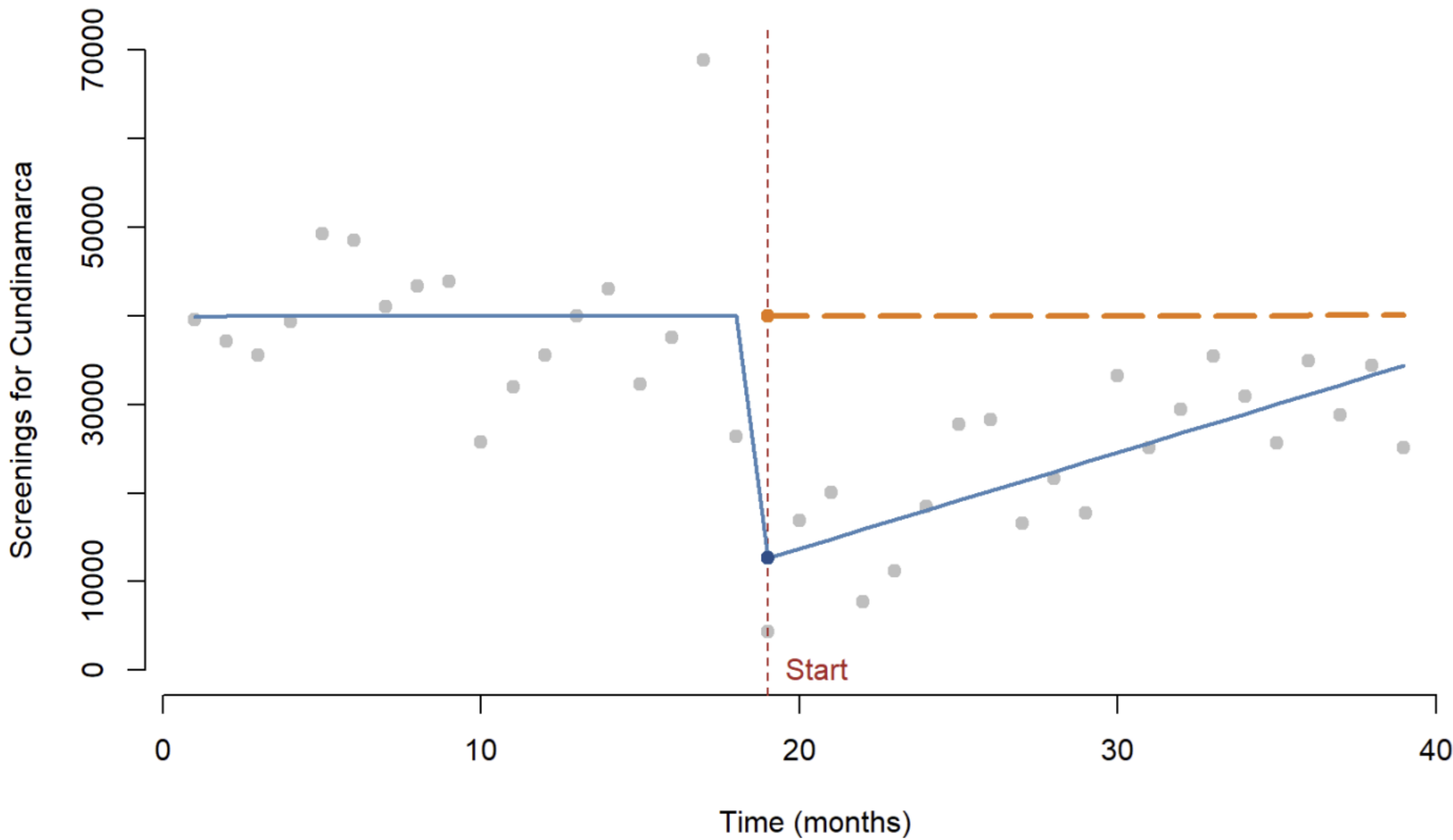
## RESULTS

- In all five regions studied, there was a sharp drop in cervical cancer screenings at the onset of the public health emergency in the COVID-19 pandemic.
- In the Cundinamarca region (Fig.1), the region which hosts the urban capital city, we observed a stagnant pre-pandemic trend, a sharp drop in screenings in March 2020, and an immediate upward trend starting in April 2020. This subsequent upward trend in was unlike any of the other regions analyzed.
- In the rural and remote region of Vichada (Fig.2), we observed a sharp upward trend pre-pandemic, a drop in March 2020, and a subsequent slight downward trend in cervical cancer screenings performed.
- In the Antioquia region, which hosts the second largest city and rural areas surrounding it, there was an upward trend pre-pandemic, and a subsequent downward trend from March 2020 onwards.
- In the Coffee Region, we observed an upward trend prior to the start of the pandemic, a downward spike in March 2020, and a stagnant trend following the steep drop in screenings.
- In the Valle del Cauca region, we observed an upward trend prior to the start of the pandemic, a steep drop in March 2020, and a slight downward trend following the decrease in screenings.

## CONCLUSION

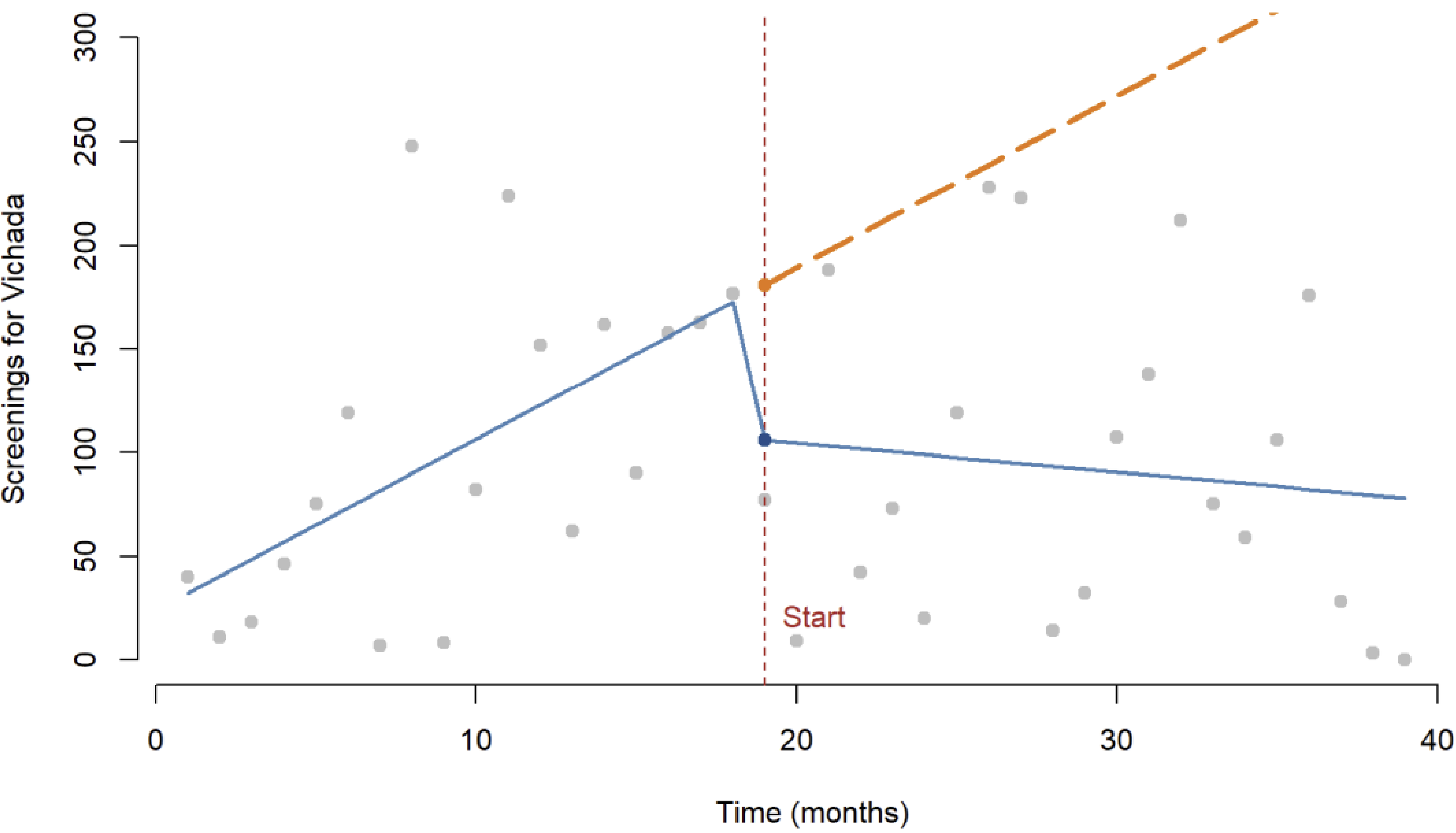
- The study demonstrates a correlation between the COVID-19 pandemic and a drop in screening rates.
- In the more urban region of Colombia, Cundinamarca, the recovery of cancer screening rates may have been correlated with its high-density capital city, Bogotá, where there is strong health governance. In contrast, the second and third largest regions studied have lower density cities.
- A limitation in the study includes potential data gaps in rural regions in the national database utilized.
- Areas for further research include the examination of social determinants of health, such as the breakdown of the type of insurance patients who access screenings have (public versus private), geographic demographics (urban versus rural), insurance providers of those screened, the ethnicities of the patients screened, and the percentage of screenings that resulted in early detection of cervical cancer.

**Figure 1. Impact of COVID-19 on Cervical Cancer Screening Rates in Cundinamarca, an Urban Region of Colombia | Oct 2018 - Dec 2021**



In the month of April 2020, compared to the counterfactual, there were 27,359 screenings missed, and by the month of December 2021, there were only 5,633 cervical cancer screenings missed.

**Figure 2. Impact of COVID-19 on Cervical Cancer Screening Rates in Vichada, a Rural and Remote Region of Colombia | Oct 2018 - Dec 2021**



From October 2018 to December 2021, a much smaller amount of cervical cancer screenings was performed in Vichada than the other regions, totaling at a meager 3,771 screenings. This small total number of screenings could be a reflection of underreporting, scarcity of health system resources, and/or an economically fragile region.