

# Persisting inequities in second doses of COVID-19 vaccines?

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## Table of Contents

<b>Introduction</b> .....	2
<b>Methods</b> .....	2
<b>Findings</b> .....	2
<b>Discussion</b> .....	3
<b>Figure 1.</b> .....	4
<b>Table 1.</b> .....	5
<b>References</b> .....	6

## Introduction

In mid-April, Wellesley Institute reported that areas in Ontario with higher rates of COVID-19 had lower rates of vaccination.<sup>1</sup> The original report also documented inequities by racial composition of an area: neighbourhoods that had a higher per cent of Black, South Asian, Southeast Asian, or Latino populations had lower rates of vaccination, even after taking COVID-19 infection rates into account.

Since then, at time of writing, 77 per cent of Ontarians have received their first dose of COVID-19 vaccines,<sup>2</sup> enough to begin a substantial rollout of individuals' second doses. Approximately 29 per cent of people in Ontario have now received their second dose.<sup>2</sup> During the first rollout, numerous forms of inequity undermined the distribution of vaccines, often leaving more disadvantaged areas, or areas with a more racialized population, from sharing in the protection that vaccines allowed.<sup>1,3,4</sup> Recent strategies, such as, the implementation of 'hotspots' with increased access to vaccines, addressed some of these inequities, but did not fully close these gaps.<sup>3</sup> Now that the distribution of second dose vaccines is substantially underway, are we doing any better than the rollout of first doses, in terms of equity?

This paper revisits the topics above, by investigating whether associations between neighbourhood characteristics (i.e. racial composition and poverty rates) and vaccination have changed as the second doses of vaccines are being rolled out.

## Methods

Data on cumulative rates of vaccination and infection for Forward Sortation Areas (FSAs) were accessed from Institute for Clinical Evaluative Sciences (ICES) for June 20.<sup>5</sup> These data were linked to 2016 census characteristics for FSAs.<sup>a</sup> Correlations between neighbourhood characteristics and second dose vaccination are computed. Note that these rates exclude people living in long-term care facilities. Note we use the term 'racialized' to refer to specific racial groups, but 'not-visible-minority' to speak of the group that leaves out all racialized groups except Indigenous, since this is the category used in the 2016 census.

## Findings

Looking at Figure 1, several patterns emerge in the data. First, the higher the per cent of South Asian, Black, Southeast Asian, or Latino residents there are in an FSA, the lower the per cent of fully vaccinated individuals.

Second, the association is clearly different for Chinese populations, where areas with a higher per cent of Chinese residents also have higher rates of the population receiving both doses.

Finally, once controlled for other factors, there seems to be no association between neighbourhood poverty rate (measured by LICO), and vaccination rate.

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<sup>a</sup> Second-dose vaccination rate was modeled using a general linear model, where the outcome (a proportion) was logit-transformed to bound it at 0 and 1. These controlled for local age composition, race, region, and poverty rates (using the Low-Income Cutoff/LICO).

Taking a closer look at the disparities by race, Table 1 shows the average expected rate of two-dose vaccination for areas with the highest concentration of each racialized group. That is, the rate of two-dose vaccination for the highest decile. It then compares this rate to areas with the highest per cent non-visible minority, to estimate the size of the gaps by area. By far the largest absolute gap is with the Chinese population, where areas with the highest per cent of Chinese residents have approximately 4 per cent higher vaccination rates than areas with the greatest per cent non-visible-minority. After this, the next largest gap is for Black populations, where areas with the highest per cent of Black residents have approximately 3 per cent lower vaccination rates than areas with the greatest per cent non-visible-minority.

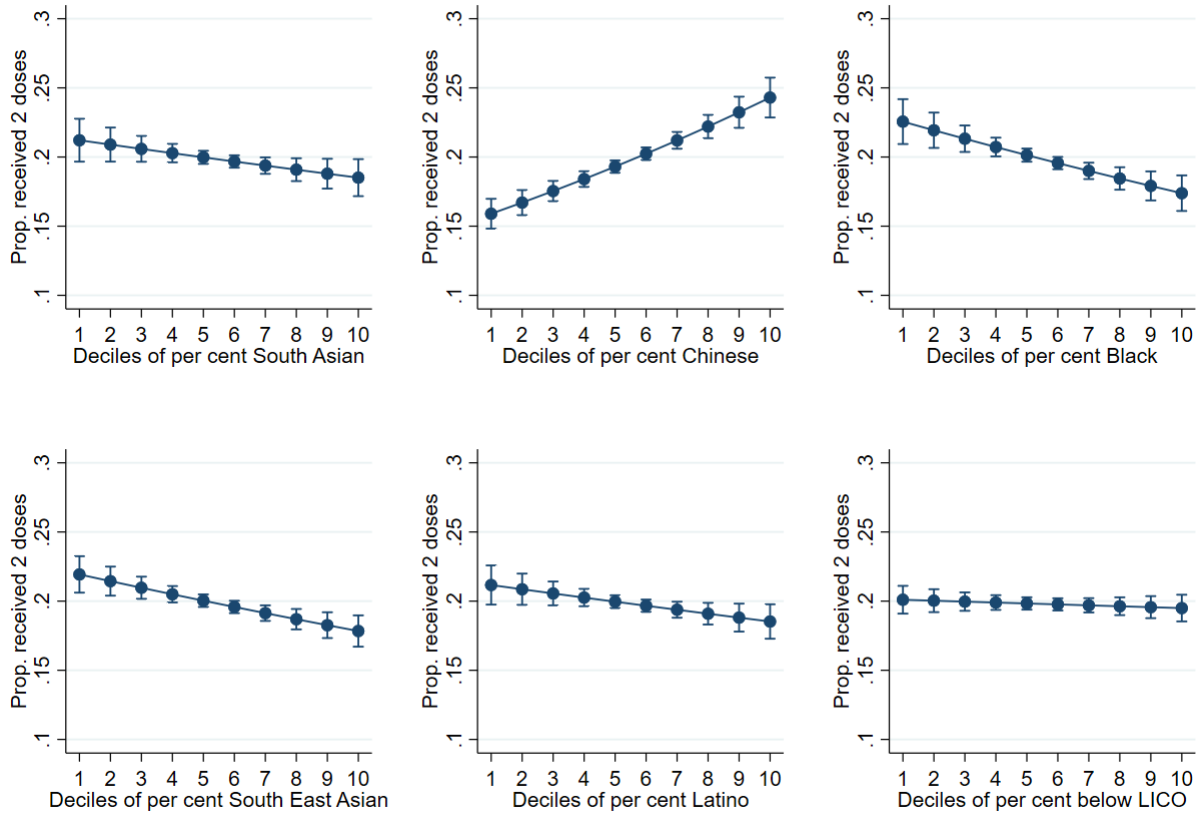
In brief, for every racialized group except Chinese, the greater the per cent of an area that is made up of that racialized population, the lower their vaccination rate for second doses. Conversely, where there is a higher per cent of Chinese residents, the greater the per cent receiving second doses. Neighbourhood poverty showed no association with second doses, after taking controls into account.

## Discussion

A previous Wellesley Institute report showed that provincial efforts appeared to have been insufficient to produce equity by race, in terms of vaccination rates. Inequities still persist for Black and South Asian populations.<sup>6</sup> However, these results for second doses much more strongly resemble the inequities glimpsed at the start of the vaccine rollout. Per cent Black, South Asian, Latino and Southeast Asian in an FSA all showed negative associations with per cent receiving a second dose, demonstrating substantial racial inequities in the rollout. In sum, Ontario is going backwards, not forwards.

Individual sociodemographic data collected at source during vaccination may help to explain the mechanisms behind these inequities. It is worth underscoring the same point made previously: addressing systemic racism will be key to ensuring that vaccine supplies meet population needs. Additional temporary hot spot strategies may help to address this,<sup>7</sup> but if experience is any guide, it may only dampen inequities that return later with the similar force. Policy makers must commit to significantly increased efforts to support equitable vaccination rates in Ontario. As the overall per cent of the population receiving a second dose rises, the Province should also take exceeding care to ensure that they do not declare an early victory and leave behind people who are more likely to face social disadvantage. We should work collectively to avoid this possible future, because in order to build back from the pandemic, all Ontarians should equally and fairly have access to the full protection that vaccines allow.

**Figure 1.** Associations between second-dose COVID-19 vaccination rates and neighbourhood characteristics (racial composition and per cent below Low-Income Cut-Off/LICO).



**Table 1.** Relative rates of COVID-19 second dose vaccination rates, by racial groups  
Model-based estimates.

	Not vis. Min.	South Asian	Chinese	Black	S.E. Asian	Latino
Predicted rate in areas with highest per cent of group (i.e. top decile)	20.1%	18.5%	24.3%	17.4%	17.8%	18.5%
Compared to not-visible-minority areas, these areas' vaccination rates were...	-	1.6% lower	4.2% higher	2.7% lower	2.3% lower	1.6% lower

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