

COVID-19 Vaccination During Acute COVID-19 Infection Does Not Improve Clinical Outcomes

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Introduction

- 600 million COVID-19 cases, 6.5 million deaths
- Vaccination may stimulate innate immunity, delayed to avoid HCW exposure and possibly decreased efficacy
- Hypothesis: Peri-diagnostic vaccination might stimulate innate immunity and improve COVID-19 outcomes.

Methods

- Used Optum's EHR repository of 8.8 million patients we identified previously-unvaccinated patients with positive tests between 12/11/2020 and 12/19/2021
- Primary outcome was progression to a worse outcome (hospitalization, ventilation/ICU stay, or death) on days 8-30 after initial test
- All patients who died did so on days 0-7, so death was not considered in analysis

Figure 1: Patients in OPTUM database included in analysis

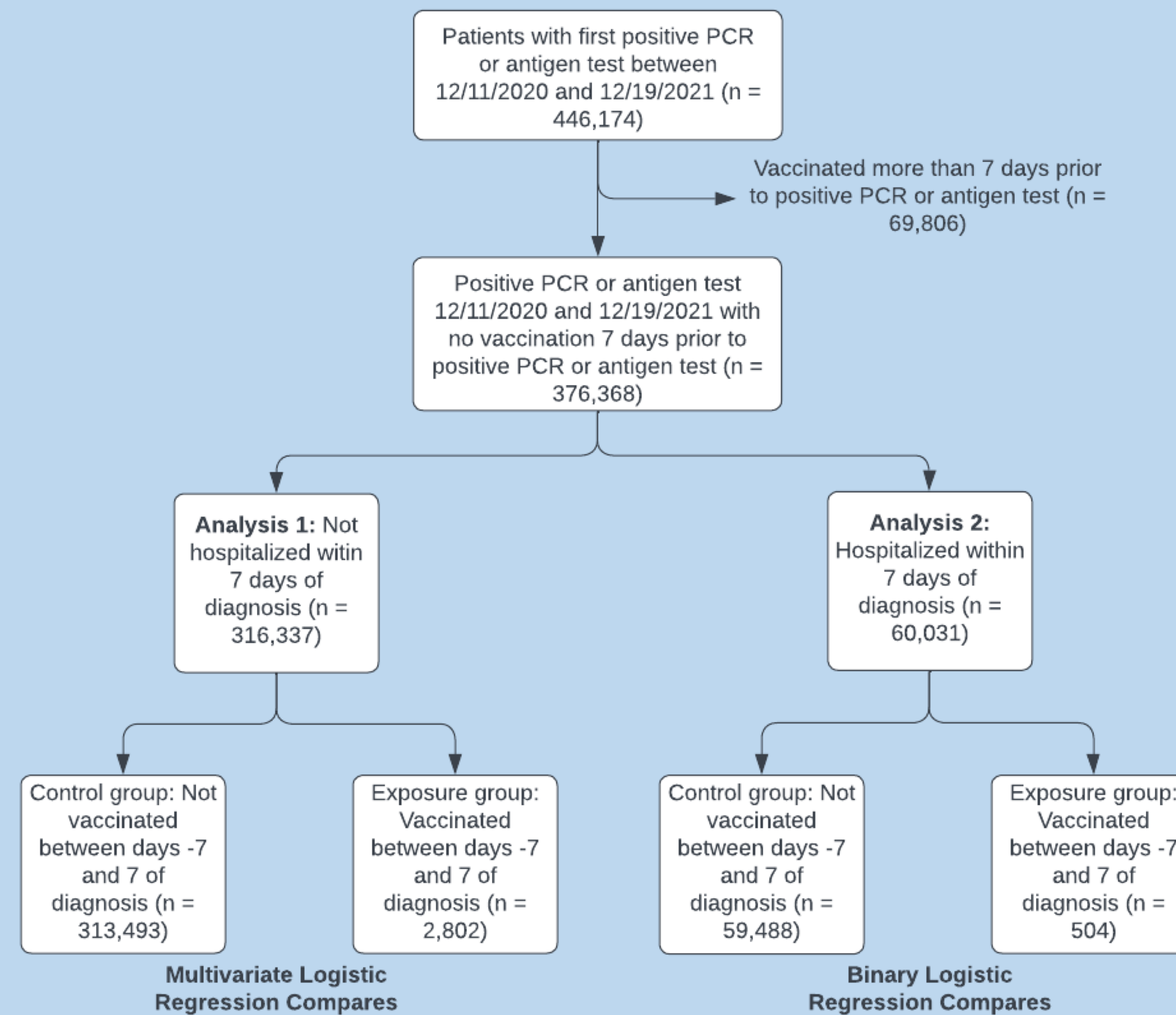


Figure 2: Study design

Days [-7, 7]: vaccination in exposed

Days [8, 30]: outcomes measured

Not hospitalized: progression to hospital, ICU stay
Hospitalized: progression to ICU stay

Day 0: positive test

Results

Table 1: Demographics of analyzed patients

	Not hospitalized			Hospitalized		
	Not vaccinated (n = 313,493, 99.1%)	Vaccinated (n = 2,844, 0.9%)	p-value	Not vaccinated (n = 59,488, 99.1%)	Vaccinated (n = 543, 0.9%)	p-value
Age, mean (SD)	45.4 (17.2)	49.2 (17.0)	<0.001	56.6 (19.2)	61.6 (17.6)	<0.001
Race						
African American	31309 (10.0%)	201 (7.1%)	<0.001	8842 (14.9%)	85 (15.7%)	0.86
Asian	4397 (1.4%)	64 (2.3%)		1359 (2.3%)	10 (1.8%)	
Caucasian	200868 (64.1%)	2032 (71.4%)		40418 (67.9%)	369 (68.0%)	
Other/Unknown	76919 (24.5%)	547 (19.2%)		8869 (14.9%)	79 (14.5%)	
Region						
Midwest	118109 (37.7%)	1044 (36.7%)	<0.001	15172 (25.5%)	183 (33.7%)	<0.001
Northeast	52542 (16.8%)	761 (26.8%)		10199 (17.1%)	127 (23.4%)	
Other/Unknown	54001 (17.2%)	347 (12.2%)		5324 (8.9%)	45 (8.3%)	
South	69111 (22.0%)	535 (18.8%)		27170 (45.7%)	170 (31.3%)	
West	19730 (6.3%)	157 (5.5%)		1623 (2.7%)	18 (3.3%)	
Insurance						
Commercial	165691 (52.9%)	1831 (64.4%)	<0.001	24867 (41.8%)	236 (43.5%)	<0.001
Medicaid	29658 (9.5%)	148 (5.2%)		7069 (11.9%)	53 (9.8%)	
Medicare	27884 (8.9%)	355 (12.5%)		15152 (25.5%)	178 (32.8%)	
Other Payor Type	16871 (5.4%)	87 (3.1%)		3251 (5.5%)	23 (4.2%)	
Uninsured	13873 (4.4%)	57 (2.0%)		3536 (5.9%)	15 (2.8%)	

Table 2: Rates of progression

	Not hospitalized		Hospitalized	
	No vaccine, progression	Vaccine, progression	No vaccine, progression	Vaccine, progression
Number (%) of patients	4765 (1.52%)	46 (1.62%)	497 (0.84%)	7 (1.29%)
P-value	0.987		0.658	

Conclusion

Peri-diagnostic COVID-19 vaccination did not change outcomes in discharged or hospitalized patients

