#312 Lydia Fu

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Daily burden of COVID-19 symptoms in a NYC hotspot: Assessing disparities of vaccine coverage in an academic medical community as assessed through its contact tracing program

We investigate through a newly launched contact tracing program at the SUNY Downstate campus, whether vaccination effectively reduces the symptom burden of COVID-19 illness. Furthermore, we want to understand if certain characteristics such as age, sex, race, and occupation impact vaccine status and likelihood for illness as measured through daily symptom burden over a period of 14 days.

In this prospective cohort study, students and employees aged 20-75 years were included over a one-year period from August 2020. We conducted bivariate Fisher's exact test of independence and multivariate Poisson regression analyses, first adjusting for age and then controlling for other demographic and social confounders in a further adjusted model. In the crude model, having at least some vaccine coverage significantly correlates with 28% lower odds of developing a daily burden of symptoms (95% CI: (0.55, 0.92); $p \leq 0.01$). Compared with those with no vaccine coverage, each additional dose of vaccine imparted an additional protective effect; one dose of vaccine is associated with 76% decreased likelihood of developing a daily burden of symptoms (95% CI (0.06, 0.64); $p \leq 0.05$) and two doses of vaccine is associated with 22% decreased likelihood of developing a daily burden of symptoms (95% CI (0.59, 1.00); $p \leq 0.1$). The multivariate adjusted model maintained a significant association between one dose of the vaccine and lower odds of presenting with daily burden of symptoms, OR=0.25 (CI: (0.04, 0.78); $p \leq 0.05$), and two doses of vaccine is associated with 25% lower odds for daily symptoms (CI:(0.55, 1.00); $p \leq 0.05$). This is a new analysis investigating a local community at an academic and medical center in a New York city COVID-19 hotspot and results align with previous studies. There is a significant effect associated with age and vaccination status. Authorized mRNA COVID-19 vaccines are effective in preventing severe SARS-CoV-2-caused illness and are recommended for all eligible persons.