

Proceedings

Relationship between Influenza Vaccination Uptake and COVID-19 Death Rate in New York City Population

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Abstract: *Background:* Influenza vaccination has been postulated to mitigate COVID-19 severity and may be an effective prevention measure to mitigate the pandemic. The aim of this ecological study was to assess the area-level relationship between cumulative death rate for COVID-19 and historic influenza vaccination uptake in the New York City population. *Methods:* Predictors of COVID-19 death included self-reported flu vaccination in 2018, as well as four CDC-defined risk factors of severe COVID-19 infection available at the ecological level, which were diabetes, asthma, BMI 30-100 (mg/k²) and hypertension. We used publicly available data from the NYC Department of Health Coronavirus repository and survey data from the Community Health Survey. COVID-19 death rate according to modified zip code tabulation areas (MODZCTA) was the outcome for multilinear analysis. *Results:* At univariate analysis, the rate of COVID-19 deaths decreased by 5.869 units for every one-unit increase in flu vaccination uptake for each zip-code area ($p < .0001$). In the multilinear model, predictors accounted for 23% of the variability in the COVID-19 death rate ($p < .0001$). After adjustment for all available risk factors, influenza vaccination and diabetes prevalence were significant predictors of COVID-19 deaths ($B_{adj} = -4.217, p = 0.0024$; $B_{adj} = 8.867, p = 0.0051$ for vaccination and diabetes, respectively). *Conclusions:* Differences in COVID-19 mortality have been documented across New York City. Modified zip codes with a higher prevalence of influenza vaccination had lower rates of COVID-19 mortality, inciting the need to further explore the relationship between influenza vaccination uptake and COVID-19 mortality at the individual level.

Keywords: Influenza Vaccination; COVID-19

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