Title: Pediatric COVID-19 Vaccination Challenges and Successes: An Evaluation of Patient Factors in an FQHC Setting

Emily R Egbert, ScM Candidate, MPH, MAT[1]; Jason Schreiber, MBA, FACHE[2]; Jonathan Gates, MD[2]; Karen Saal, MD[1]

[1]Brown University/Warren Alpert Medical School
[2]Providence Community Health Centers

Background: While the American Academy of Pediatrics recommends that all children and adolescents 6 months and older receive COVID-19 vaccinations,[1] research has shown that pediatric COVID-19 vaccination rates nationally (37.8%)[2,3] and locally (52.4%)[4] lag substantially behind that of adults.

Objective: This study analyzes the pediatric COVID-19 vaccination rates at Providence Community Health Centers (PCHC) as well as how the following factors are associated with vaccination: zip code, age, primary language, completion of influenza vaccination, and select underlying conditions.

Methods: Pediatric vaccination data from January 2021 through December 2022 across PCHC sites were gathered from Electronic Health Records for analysis. Excel was utilized to analyze the dataset.

Results: Of the total PCHC pediatric population (N=22747), 11.1% (n=2520) of patients received at least 1 COVID-19 vaccination. Most received only the primary two-dose series (75.4%). The majority identified Spanish as a primary language (n=1301, 51.6%), followed by English (n=1176, 46.7%). 62.8% of the COVID-19 vaccinated patients also received the influenza vaccine, whereas only 30.4% of the pediatric population that received a flu vaccine also received a COVID-19 vaccination. At the vaccine visit, reported underlying conditions included asthma: 4.7%, diabetes 2.3%, obesity 7.9%, immune deficiencies 0.3%, behavioral health: 4.8%. The 0-4 years old group demonstrated the lowest vaccination rate of the total pediatric population (1.7%), followed by the 5-11 years old (7.4%).

Conclusion: The PCHC pediatric population demonstrates lower COVID-19 vaccination rates than state and national levels. COVID-19 vaccination appeared to be associated with receipt of a flu vaccine, which has been suggested in other studies.[5,6,7] The higher proportion of Spanish-speaking patients who received COVID-19 vaccines highlights the strength of PCHC in facilitating language concordance and presents a model for interventions for other languages. Both the low proportion of patients under age four and the low number of patients recorded to have underlying conditions, compared to the total PCHC pediatric population, present opportunities for targeted interventions. These findings could be used to develop further pediatric COVID-19 vaccination efforts at PCHC. Further studies should explore pediatrician experiences with COVID-19 vaccination uptake[8] and parent/guardian characteristics impact on vaccination decisions.[9,10]

[1] Committee on Infectious Diseases. COVID-19 Vaccines in Infants, Children, and Adolescents. Pediatrics. 2022; 150(3). DOI: 10.1542/peds.2022-058700

[2] American Academy of Pediatrics. Summary of data publicly reported by the Centers for Disease Control and Prevention. 2023. Retrieved from https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-vaccination-trends/

[3] Murthy BP, Fast HE, Zell E, Murthy N, Meng L, Shaw L, et al. COVID-19 Vaccination Coverage and Demographic Characteristics of Infants and Children Aged 6 Months–4 Years — United States, June 20–December 31, 2022. Morbidity and Mortality Weekly Report (MMWR). 2023;72(7):183-9. Doi: 10.15585/mmwr.mm7207a4

[4] Rhode Island Department of Health. Rhode Island COVID-19 Data: Young People. [updated February 2023.] Available from: https://ri-department-of-health-covid-19-response-young-people-rihealth.hub.arcgis.com/.

[5] Rogers BG, Tao J, Almonte A, Toma E, Nagel K, Fain R, et al. Statewide evaluation of COVID-19 vaccine hesitancy in Rhode Island. PLoS One. 2022; 17(6): e0268587. doi:10.1371/journal.pone.0268587

[6] Shen AK, Browne S, Srivastava T, Michel JJ, Tan ASL, Kornides ML. Factors Influencing Parental and Individual COVID-19 Vaccine Decision Making in a Pediatric Network. Vaccines. 2022; 10(8): 1277.

[7] Drouin O, Fontaine P, Arnaud Y, Montmarquette C, Prud'homme A, Da Silva RB. Parental decision and intent towards COVID-19 vaccination in children with asthma: an econometric analysis. BMC Public Health. 2022;22(1):1547. doi: 10.1186/s12889-022-13933-z

[8] Ryan GW, Goulding M, Borg A, Minkah P, Hermann S, Fisher L, et al. Clinician perspectives on pediatric COVID-19 vaccination: A qualitative study in central and western, Massachusetts. Preventive Medicine Reports. 2022; 29:101966.

[9] Drouin O, Fontaine P, Arnaud Y, Montmarquette C, Prud'homme A, Da Silva RB. Parental decision and intent towards COVID-19 vaccination in children with asthma: an econometric analysis. BMC Public Health. 2022; 22(1):1547. doi: 10.1186/s12889-022-13933-z

[10] Krakowczyk JB, Bäuerle A, Pape L, Kaup T, Nulle L, Teufel M, et al. COVID-19 Vaccine for Children: Vaccination Willingness of Parents and Its Associated Factors; A Network Analysis. Vaccines. 2022; 10(7): 1155. doi: 10.3390/vaccines10071155