

ABSTRACT

Analyzing influenza vaccine effectiveness for various age groups is crucial to determine which populations might need refinements in vaccination strategy or additional measures to reduce influenza rates and in turn, hospitalization and deaths. The objective of this study was to understand the mean vaccine effectiveness for different strains of influenza across five age groups, 6 months-8 years, 9-17 years, 18-49 years, 50-64 years, and greater than 65 years old. The vaccine effectiveness for Influenza A, H3N2 and H1N1 strains, and Influenza B vaccines were compared between different age groups. Then, a one-way ANOVA test was used to analyze the vaccine effectiveness data collected from 67,688 individuals between 2011 to 2020. Tukey's Honest Significant Difference (HSD) test was performed for post-hoc differences in means. The results show that there were no statistically significant differences in vaccine effectiveness between the older age groups and adults aged 18–49 years. The ANOVA test and Tukey's HSD tests show a statistically significant difference between the youngest age group (6 months-8 years) and adults from age 18-49 years. Similarly, there is a significant difference between the vaccine effectiveness from the oldest age group (65+ years) and the youngest. Ultimately, the results demonstrate that vaccine effectiveness varies significantly between each year and is limited in both young children and older adults. Future therapeutic development should be tailored to these distinct populations to ensure adequate protection against influenza.

Key Words: Vaccine effectiveness, Influenza H3N2/H1N1, Age