Background: Risk factors for vaccine failure against mediately-attacked influenza are largely unknown. We examine the risk factors for BSWH for 5 seasons.

Methods: BSWH has been a CDC-US Flu VE network site since 2011. We enrolled patients ages 6-85 months seeking outpatient care for acute respiratory illness (ARI) with onset 7 days prior to first eligibility. Cases were defined for influenza A/B by PCR. Subjects with vaccine failure and vaccinated controls were identified by influenza PCR were used to measure interval between vaccine failure. 14 days prior to or before first MAPRI (ARI). Subjects with influenza status could not be vaccinated. Multivariable logistic regression models were built using covariates with a p-value ≤0.2 in the univariate analysis. Odds ratios (OR) with 95% confidence interval (CI) were computed.

Results: Out of 1445, 1035 and 1783 enrolled subjects during 2012-13, 2013-14 and 2014-15, we had 130, 53 and 153 PCR-confirmed vaccine failure cases. Enrolled cases with EMR-verified influenza vaccination compared to influenza PCR results and EMR-verified vaccination. Influenza positive based on PCR results and PCR-confirmed influenza vaccine failure at each MAARI site.

Conclusions: The risk factors for vaccine failure against mediately-attacked influenza are age-group 165 years and prior season vaccination. Prior year enrollment days from vaccination to illness onset and days from illness onset to enrollment had protective effects. Better and longer lasting vaccines are needed to prevent influenza.

Abstract

- Annual influenza vaccination is recommended for persons ages 6 months in the US.
- Seasonal vaccines are not always effective in preventing influenza.
- Influenza vaccine failure may be associated with factors related to the virus such as antigenic drift and to the host such as immunosuppression associated with aging.

Objective

- To investigate risk factors for vaccine failure by comparing vaccinated subjects with medically attended acute respiratory illness (MAARI) who test positive for vaccine failure vs. those who test negative by PCR.