The Pediatric Infectious Disease Journal

An official publication of the European Society for Paediatric Infectious Diseases

Wolters Kluwer

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Pediatric Infectious Disease Journal:
March 2016 - Volume 35 - Issue 3 - p 309–315
doi: 10.1097/INF.0000000000000999
Vaccine Reports

Influenza Vaccine Effectiveness and Uptake in Children at Risk of Severe Disease

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Abstract

Background: Data demonstrating the effectiveness of inactivated trivalent influenza vaccine (TIV) for children at increased risk of severe disease are limited. Our objective was to determine the effectiveness of TIV in children with risk factors for severe disease and to compare vaccine uptake, parental attitudes and prescriber recommendations in children with and without risk factors for severe disease.

Methods: Children aged 6–59 months presenting for emergency care (2008 to 2014) with an influenza-like illness were eligible. Influenza polymerase chain reaction/culture was performed on nasopharyngeal samples. Vaccination status was confirmed via the national register and/or vaccine providers. The test-negative design was used to estimate vaccine effectiveness (VE). Risk factors, parental attitudes and prescriber recommendations were assessed by parental questionnaire.

Results: Two thousand seven hundred twenty-three children were recruited. Risk factors for severe disease included comorbid medical conditions (11.6%), preterm birth (13.0%) and indigeneity (5.0%). Influenza was identified in 546 (20.1%) participants. Overall VE (2008 and 2010 to 2014) was 70.0% (95% confidence interval: 47.7 to 82.9); VE for children with medical comorbidities, children born preterm and children <2 years were 82.5% (14.6 to 96.4), 79.2% (10.9 to 95.1) and 84.7% (49.6 to 95.3), respectively. After adverse events in 2010, the number of children fully vaccinated with TIV declined significantly. This included children with and without risk factors for severe disease. Attitudes were similar in parents of children with and without risk factors for severe disease.

Conclusions: VE for TIV in young children with and without risk factors for severe disease was ≥70%. Despite this, participation in the preschool influenza vaccination program remains low with parents and prescribers unconvinced of the benefits and safety of TIV.

Keywords
influenza, trivalent influenza vaccine, vaccine effectiveness, children