743. Severity and Costs of Respiratory Syncytial Virus and Bronchiolitis Hospitalizations in Term, Lowly Immature, and Term, Salients Before and After the 2014 American Academy of Pediatrics Guidance Change on Immunoprophylaxis

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Background. In 2014, the American Academy of Pediatrics (AAP) stopped recommending respiratory syncytial virus (RSV) immunoprophylaxis in infants 29–34 weeks gestational age (wGA) without chronic lung disease (CLD) or congenital heart disease (CHD). This study examined the impact of this guidance change on the severity and costs of RSV hospitalizations (RSVIIH) and all-cause bronchiolitis hospitalizations (BH) among preterm (PT) vs. term infants in the 2014–2016 seasonal years relative to the 2011–2014 seasonal years.

Methods. Infants aged <1 year between July 1, 2011 and June 31, 2016 were identified from commercial insurance claims in the Optum Research Database. Diagnosis codes identified births of term and 29–34 wGA infants without CLD, CHD, or other health problems, RSVIIH, and BH. Length of stay (LOS), admission to the intensive care unit (ICU), and use of mechanical ventilation (MV) captured RSVIIH and BH severity. Costs were adjusted to 2015 USD.

Results. A total of 362,382 births (29–34 wGA and term without major health problems) were identified, of which 13,666 (3.8%) were PT. RSVIIH and BH were more severe among PT infants in 2014–2016 vs. 2011–2014, with a greater mean LOS (RSVIIH: 6.8 vs. 4.7 days, P = 0.008; BH: 7.2 vs. 4.6, P = 0.021), a higher proportion of infants admitted to the ICU (RSVIIH: 42.4% vs. 41.6%, P = 0.014; BH: 39.1% vs. 23.7%, P = 0.009), and increased use of MV (RSVIIH: 14.1% vs. 6.1%, P = 0.006; BH: 14.8% vs. 5.3%, P = 0.013). Among term infants, LOS and ICU admissions were similar between 2014–2016 and 2011–2014 (P = 0.05), but there was an increased use of MV in the 2014–2016 season (14.3% vs. 9.6%, P = 0.006; BH: 5.3% vs. 3.1%, P = 0.000). Mean costs per hospitalization were greater for PT infants in 2014–2016 compared with 2011–2014 (RSVIIH: $29,382 vs. $16,572, P = 0.059; BH: $26,101 vs. $15,896, P = 0.047), whereas mean term hospitalization costs were similar (RSVIIH: $15,011 vs. $15,472, P = 0.705; BH: $14,555 vs. $14,603, P = 0.957).

Conclusion. RSVIIH and BH severity and per-hospitalization costs (higher among PT infants relative to term infants) increased following the 2014 AAP immunoprophylaxis guidance change. The increases are likely explained by more frequent RSV hospitalizations among higher-risk 29–34 wGA infants in 2014–2016.

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744. Effectiveness of 23-Valent Pneumococcal Polysaccharide Vaccine and Influenza Vaccine Against Pneumococcal Pneumonia Among Elderly Patients Aged 65 Years and Older in the Republic of Korea: A Case–Control Study

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Background. The national immunization program (NIP) of annual influenza vaccination to the elderly population (265 years of age) in the Republic of Korea (ROK) has been implemented since 1987. Recently, the 23-valent pneumococcal polysaccharide vaccine (PPV23) through the NIP has been provided to the elderly population in the ROK since May 2013. The aim of this study was to assess PPV23 and influenza vaccine (IV) effectiveness in preventing pneumococcal pneumonia (PP) among elderly patients 265 years of age.

Methods. A case–control study using a hospital-based cohort was conducted. Cases of PP including bacteremic PP and nonbacteremic PP were collected from 14 hospitals in the pneumococcal diseases surveillance program from March 2013 to October 2016. Controls matched to the case hospitalization index were selected. Demographic, clinical information, and vaccination histories were collected. Previous immunization was categorized into “vaccinated” if a patient had received vaccines as follows: PPV23 (4 weeks to 5 years) and IV (2 weeks to 6 months) prior to the diagnosis of PP for case patients and prior to the hospital admission for control patients. Adjusted odds ratio (OR) was calculated, controlling for underlying medical conditions. Vaccine effectiveness was defined as (1 – OR) x 100.

Results. From the study period, a total of 661 cases (104 bacteremic PP cases and 557 nonbacteremic PP cases) and 661 controls were enrolled for analyses. For overall patients 265 years of age, there was no significant vaccine effectiveness against PP. For young elderly patients with 65–74 years, IV alone (1.2%, [95% confidence interval (CI) –9.3% to 50.0%]) and PPV23 alone (21.9%, [95% CI –39.0% to 50.8%]) were not effective. However, significant vaccine effectiveness was observed for PP (IV vs. PP was noted (54.4%, [95% CI 6.9–77.7%], P = 0.031). For older elderly patients 75 years of age, no significant vaccine effectiveness was observed.

Conclusion. Our study indicates that PPV23 plus IV may be effective in preventing PP among young elderly patients with 65–74 years, suggesting additive benefits of influenza plus PPV23 vaccination. Further studies are required to confirm the consistent additive protective effectiveness.

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745. Surveillance for Osel tamivir-Resistant Influenza A(H1N1)pdm09 Virus Infections During 2016–2017 and 2017–2018, United States

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Background. Three neuraminidase inhibitors (NAIs) are approved and recommended for treatment of influenza in the United States; however, antiviral resistance can emerge during or after treatment, and sporadic resistant viruses unrelated to NAI exposure may occur, especially in influenza A(H1N1)pdm09 viruses. Limited transmission of oseltamivir-resistant A(H1N1)pdm09 viruses between persons has also occurred. Oseltamivir resistance is most commonly caused by an H275Y substitution in the neuraminidase (NA). We describe findings from surveillance for oseltamivir-resistant A(H1N1)pdm09 viruses.

Methods. The CDC requested state public health laboratories to submit up to eight viruses (two of each sublineage) every 2 weeks for virus sequencing and NA inhibition assay testing; up to five additional A(H1N1)pdm09 clinical specimens were tested for oseltamivir substitution PM1,4. Center for Disease Prevention and Control, Atlanta, Georgia, New York State Department of Health, Albany, New York, and Department of Health, Albany, New York, 3Influenza Division, Centers for Disease Control and Prevention, Atlanta, Georgia

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