2727. Numbers Needed to Vaccinate for Prevention of Adult Pneumonia with Pneumococcal Conjugate Vaccine: Which Values Should Determine Policy?

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Background: At the meeting of the Advisory Committee on Immunization Practices (ACIP) on February 28, 2019, the US Centers for Disease Control and Prevention (CDC) and the Pneumococcal Work Group (PWG) presented data to inform the public health question of whether the 13-valent pneumococcal conjugate vaccine (PCV13) should continue to be recommended for routine immunization of all adults age 65 years and older in the United States.

Methods: We reviewed all three available studies reporting adult PCV13 vaccine effectiveness against all-cause pneumonia, calculated numbers needed to vaccinate (NNV), and compared these results to NNV data presented to the ACIP based on etiologically and radiologically confirmed vaccine-type (VT) disease. Studies included a randomized controlled trial of inpatient pneumonia among Dutch persons age 65+ years, a US CDC-led observational study among the US Medicare population of inpatient pneumonia, and an observational study of inpatient and outpatient pneumonia in Germany.

Results: Based on a background incidence of etiologically and radiologically confirmed VT community-acquired pneumonia of 17–76 per 100,000 per year and PCV13 VE of 43%, the CDC presented to ACIP an annual NNV estimate for preventing one pneumonia case of 3,000 to 14,000. For the three studies we reviewed, VEs were 6% to 12% against all-cause pneumonia and background all-cause pneumonia incidences were 891 to 1776 per 100,000 per year. Assuming a 5-year PCV13 duration of protection, for these three studies NNVs to prevent a case of pneumonia were 95 to 277, or 11- to 147-fold lower than what was presented at ACIP.

Conclusion: To avoid inaccurate conclusions for potentially efficient interventions, calculations of NNVs, rate reductions, and economic benefits should include sensitive outcomes, such as all-cause pneumonia, in addition to more specific but lower sensitivity outcomes such as VT, radiologically confirmed pneumonia.

Disclosures. **All authors:** No reported disclosures.

2728. Proportion of Invasive Pneumococcal Disease Potentially Covered by Current and Next-Generation of Higher-Valency Pneumococcal Conjugate Vaccines in Canada, 2010–2016

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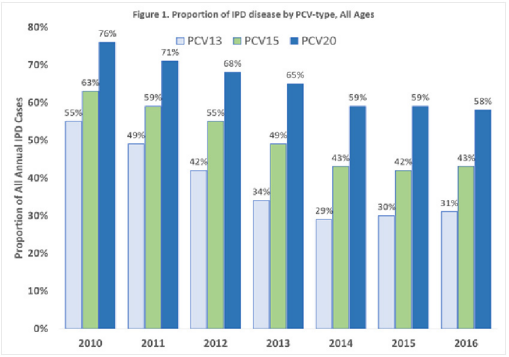
Background: In Canada, routine pediatric immunization with 7-valent pneumococcal conjugate vaccine (PCV7) was introduced between 2002 and 2006. Two of ten provinces transitioned to PCV10 in 2009; by mid-2011, following a national preferential recommendation, PCV13 replaced PCV7/PCV10 across Canada. PCV13 also has been recommended for immunocompromised adults since 2013, and immunocompetent adults aged ≥65 years on an individual basis since 2016. Immunization with 23-valent polysaccharide vaccine (PPV23) is recommended in adults with certain comorbidities, and routinely in those aged ≥65 years. Two higher-valency PCVs, PCV15, and PCV20 are currently under development.

Methods: Case counts of invasive pneumococcal disease (IPD) by serotype and age group were obtained from published annual reports of passive laboratory-based national IPD surveillance conducted by the National Microbiology Laboratory (NML) since April 2010.

Results: In all ages, the proportion of IPD due to PCV13 serotypes declined from 55% in 2010 to 31% in 2016 (Figure 1); in children age < 5 years, from 66% to 19%; in adults age 50–64 years, from 52% to 34%, and in adults age > 65 years from 51% to 25%. While most age groups have experienced declines in the proportion of PCV13-type IPD, this proportion has plateaued since 2014 in all age groups except 2–4 years old. During 2016, among all ages, the proportions of IPD due to PCV13, PCV15, and PCV20 types were 31%, 43%, and 58%, respectively; among children age < 5 years 19%, 35%, and 50%, respectively, among adults 50–64 years, 34%, 47%, and 61%, respectively, and among adults age ≥65 years, 25%, 38%, and 53%, respectively.

Conclusion: The proportion of PCV13-type IPD has declined across all ages since the introduction of PCV13 in children. The plateau in this proportion observed across most age groups since 2014 suggests that herd effect may have been maximized, and additional reductions could be expected primarily from direct PCV13 adult immunization. PCV20 could potentially protect against a large proportion of the remaining IPD burden in Canada.



Disclosures. **All authors:** No reported disclosures.

2722 B. Efficacy and Safety of a Booster Dose of the MenACWY-TT Vaccine Administered 10 Years After Primary Vaccination with MenACWY-TT or MenACWY-PS

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Background: The quadrivalent meningococcal ACWY polysaccharide tetanus toxoid conjugate vaccine (MenACWY-TT; Nimenrix) is licensed in various countries to prevent disease caused by meningococcal serogroups A, C, W, and Y. In a previous study (NCT00464815), subjects aged 11–17 years received a primary dose of MenACWY-TT or a quadrivalent polysaccharide vaccine (MenACWY-PS). Here, we report the long-term antibody persistence of the primary dose and the immunogenicity and safety of a booster dose given 10 years after primary vaccination of subjects.

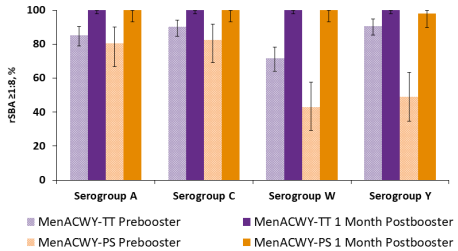
Methods: Participants were enrolled from the Philippines and received a booster dose of MenACWY-TT at 10 years postvaccination. Antibody persistence 10 years postprimary vaccination and immunogenicity 1 month after the booster dose were evaluated by serum bactericidal activity assays using rabbit complement (rSBA) to assess the percentages of subjects with titers ≥ 1:8 and ≥ 1:128 and geometric mean titers (GMTs) for each serogroup. Safety was assessed for the booster dose.

Results: Of 229 subjects enrolled in this extension study, 169 and 58 subjects in the MenACWY-TT and MenACWY-PS groups, respectively, completed the booster phase. The percentages of primary MenACWY-TT recipients with prebooster rSBA titers ≥ 1:8 and ≥ 1:128 at year 10 ranged from 71.6%–90.7% and 64.8%–85.2% for all serogroups, respectively, compared with 43.1%–82.4% and 25.5%–76.5% of primary MenACWY-PS recipients; rSBA GMTs for all serogroups were higher in the MenACWY-TT group than in the MenACWY-PS group at year 10. For the MenACWY-TT and MenACWY-PS groups, respectively, the MenACWY-TT booster dose elicited rSBA titers ≥ 1:8 in 100% and ≥ 98.0% of subjects (figure); 100% and ≥ 96.1% of all subjects had titers ≥ 1:128. For all serogroups, rSBA GMTs at 1 month after the booster dose were higher than before the booster dose. No new safety signals were observed during the booster phase.

Conclusion: Functional antibody responses elicited by MenACWY-TT persisted 10 years after primary vaccination; the booster dose was well tolerated and elicited robust immune responses.

ClinicalTrials.gov: NCT03189745, **EudraCT** # 2013-001512-29. Funded by Pfizer.

Figure. Percentages of Subjects with rSBA Titers ≥1:8 before and 1 Month after a Booster Dose of MenACWY-TT



MenACWY-TT=meningococcal polysaccharide groups A, C, W, and Y conjugate vaccine; MenACWY-PS=serogroups A, C, W, and Y polysaccharide meningococcal vaccine; rSBA=serum bactericidal assay using baby rabbit complement.

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