aged 19–64 years targeted by the high-risk recommendation issued by the Advisory Committee on Immunization Practices (ACIP) in 2012.

Methods. Uptake was evaluated from October 2012 through October 2016 in two statistically de-identified databases: Optum’s Clininformatics™ Data Mart (CDM), consisting of administrative health claims, and the Optum–Humedica Electronic Health Record (EHR) database, which includes EHR data from providers, primarily integrated delivery networks in the United States to cover the continuum of care. Eligibility for the recommendation was determined between October 2011 and October 2016 and served as the index event. Post-index PCV13 uptake was evaluated using prescription and administration codes. Patients with PCV13 prior to the recommendation were excluded to minimize misclassification of PCV13 status. Uptake was calculated using a Kaplan–Meier estimator, with separate estimates for the period before and after the 2014 ACIP age-based recommendation for all adults aged 265 years.

Results. Uptake of PCV13 was lower among 8,888 patients in the CDM vs. 571,993 patients in the EHR dataset, with <15% of recommended high-risk patients receiving PCV13 in the 4 years following publication of the recommendation. Vaccination among 19- to 64-year-old high-risk patients accelerated after the October 2014 publication of the recommendation for all adults aged 265 years. This was consistent in both CDM and EHR databases (Table 1).

Conclusion. Uptake of PCV13 among high-risk adults aged 19–64 years in the US has been very low. Some of the PCV13 vaccination among high-risk patients may have been driven by the subsequent age-based recommendation for adults aged 265 years.

Table 1. KM Estimates at the End of Study with 95% CI

| Uptake Rate | 95% CI |
|-------------|-------|
| her         | 0.042 (0.041–0.043) |
| CDM (claims)| 0.042 (0.041–0.043) |
| 2012–2014   | 0.042 (0.041–0.043) |
| 2014–2016   | 0.048 (0.045–0.052) |

Disclosures. All authors: Employee and Shareholder, Salary.

1439. The Cost-Effectiveness of Vaccinating Adults at Increased Risk of Pneumococcal Disease Against Pneumococcal Disease in The Netherlands
Mark Rozenbaum, PhD, MBA; Pfizer; Capelle aan den IJssel, The Netherlands
Session: 146. Pneumococcal Vaccines
Tuesday, October 5, 2018: 12:30 PM

Background. There is currently no data on the age- and risk-group-specific cost-effectiveness of the 13-valent pneumococcal vaccine (PCV13) compared with the 23-valent polysaccharide vaccine (PPV23). The aim of this study was to evaluate the cost-effectiveness of vaccinating these specific groups against pneumococcal disease.

Methods. A previously published and independently validated (by The Dutch National Health-Care Institute) age- and risk-group-specific Markov-type model was used to compare the cost-effectiveness of PCV13 vaccination vs. PPV23 vaccination of all adults at increased risk of pneumococcal disease (i.e., adults with underlying disease and those ≥50 years). Efficacy estimates for PCV13 were extrapolated from the Community-Acquired Pneumonia Immunization Trial in Adults (CAPiTA). Efficacy estimates for PPV23 were based on systematic literature reviews and other published data.

Results. At list price ($68.56 for PCV13 and $19.99 for PPV23), vaccination of all adults at increased risk of pneumococcal disease resulted in an ICER of <$20,186/QALY, while vaccinating those with chronic medical conditions (moderate risk) and immunocompromising conditions (high risk) resulted in an ICER of <$10,000/QALY. Large differences in ICERs between age- and risk-groups were observed (Table). Vaccinating, high-risk individuals with PCV13 was cost-saving for those aged less than 65 years of age compared with PPV23 while vaccinating those aged 85 years and older with PCV13 was moderate cost-effective with an ICER of $60,900/QALY. Vaccinating moderate risk individuals was highly cost-effective (<$20,000/QALY), while vaccinating those with low-risk of pneumococcal infection was cost-effective (<$50,000/QALY). However, within risk groups the ICER differed significantly between age groups. Sensitivity analysis showed that a proportional decrease in list price, such as common in national vaccination programs, decreased the ICER disproportionally in favor of PCV13.

Conclusion. Vaccination all adults with PCV13 is cost effective compared with PPV23. There is a large variation in the cost-effectiveness between age and risk groups. Targeting individuals with underlying diseases aged less than 85 years would provide most value for money.

Table. Incremental cost-effectiveness ratios (IQR/QALY) of vaccinating adults at increased risk of pneumococcal disease with PCV13 compared to PPV23 at list prices ($68.56 and $19.99 for PPV23). Note: The individuals within specific age and risk groups are all selected using a random sample, and thus the individuals in these subgroups are not representative of the general population. The proportion of individuals with pneumococcal infection (age-adjusted) was determined using a risk factor for pneumococcal disease.

| Age Group | Low Risk Individuals | Moderate Risk Individuals | High Risk Individuals | All Individuals within Specific Age and Risk Group |
|-----------|---------------------|--------------------------|----------------------|-----------------------------------------------|
| 18-64     | 4,078               | 4,078                     | 4,078                | 12,234                                        |
| 65-74     | 4,414               | 4,414                     | 4,414                | 13,242                                        |
| 75-84     | 4,797               | 4,797                     | 4,797                | 15,381                                        |
| 85+       | 4,900               | 4,900                     | 4,900                | 15,700                                        |

Disclosures. M. Rozenbaum, Pfizer: Employee and Shareholder, Salary.

1440. Potential Impact of Routine Use of 13-Valent Pneumococcal Conjugate Vaccine on Hospitalizations for Pneumonia among Older Adults in Canada
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Session: 146. Pneumococcal Vaccines
Friday, October 5, 2018: 12:30 PM

Background. In Canada, 13-valent pneumococcal conjugate vaccine (PCV13) was licensed for the prevention of vaccine-type (VT) pneumonia in adults in July 2015. Herd effects stemming from the routine pediatric PCV13 program have historically led to reductions in VT disease in older adults, and there is currently no recommendation for a routine age-based PCV13 program for this age group.

Methods. We constructed a mathematical model based on Canada-specific burden of disease estimates and published estimates of PCV13 effectiveness and durability. We estimated the number of hospitalizations averted as the product of (i) the size of the Canadian population aged ≥265 years, (ii) the incidence of all-cause CAP, (iii) the proportion of CAP that is VT, (iv) PCV13 effectiveness, and (v) the duration of protection for PCV13 over a 5-year time horizon. We assumed that rates of all-cause CAP, the proportion of VT CAP, and PCV13 effectiveness remained constant over the 5-year assessment period. We assumed a 5% annual all-cause mortality rate in the overall population. We estimated hospital days averted as the product of hospitalizations averted and median length of stay. Model assumptions are summarized in Table 1.

Results. Based on model assumptions, PCV13 use in Canadian adults aged ≥265 years would lead to an annual rate reduction of 62 (11–77) hospitalizations per 100,000 persons per year. This reduction, applied to the entire Canadian population of older adults, would avert an estimated 17,274 (3,037–21,711) hospitalizations and 138,192 (24,298–173,690) hospital days over a 5-year period.

Conclusion. Despite herd effects from the routine pediatric program, direct PCV13 immunization of older adults in Canada could result in considerable additional reduction in hospitalizations for pneumonia.

Table 1. Model Assumptions

| Parameter | Value | Source |
|-----------|-------|--------|
| Population size | 6,195,500 | Statistics Canada |
| Annual all-cause CAP incidence | 1,692 per 100,000 | Canadian Institute of Health Information Discharge Abstract Database (2015) |
| Percentage of all-cause CAP caused by PCV13 serotypes | 5% | LeBlanc et al. Vaccine, 2017; 35(26):3647-3654 |
| PCV13 effectiveness against hospitalization for VT CAP | 72% (12.9–91.5%) | McLaughlin et al. Clin Infect Dis, 2018; in press |
| Duration of PCV13 effectiveness | 5 years (ie, no waning) | Patterson et al. Trials Vaccinol, 2016;5:92-96 |
| Median length of hospital stay (pneumococcal CAP) | 8 days | LeBlanc et al. Vaccine, 2017; 35(26):3647-3654 |

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1441. Doses of 13-Valent Conjugated Pneumococcal Vaccine for Patients With Multiple Myeloma (MM)
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Background. Patients with MM are vulnerable to bacterial infection, especially invasive pneumococcal diseases. Vaccination with one-dose PCV13 is recommended, but their poor immunogenicity was observed. We aimed to assess whether two-dose PCV13 might help.

Methods. Patients with MM were randomized to receive one- or two-dose PCV13. The two doses were given 1 month apart. Measurements of antibody to the