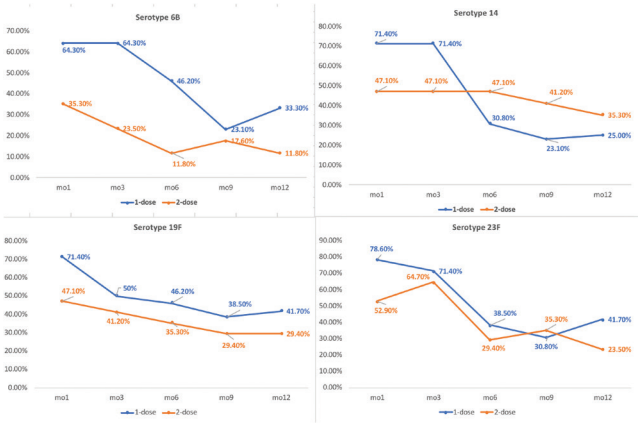
four most common serotypes 6B, 14, 19F, and 23F pre-vaccination, 1, 3, 6, 9, and 12 months after the last dose of PCV13 were performed. Achievement of significant antibody response was defined as greater than equal to twofold increase in the IgG level.

Results. From January 2016 to December 2017, a total of 72 patients were randomized to receive one ($n = 35$) or two doses ($n = 37$) PCV13. Of all, 31 patients (43%), including one dose in 14 and two doses in 17, had completed 12-month follow-up with a median age of 62 years old (IQR 54–66). Sequential changes of significant antibody responses to serotype 6B, 14, 19F, and 23F during 1-year follow-up in one and two does groups are presented in Figure 1. The proportions of significant antibody responses to serotype 6B, 14, 19F, and 23F after 1-year follow-up were 33.3, 25.0, 41.7, and 41.7% in one dose group and 11.8, 35.3, 29.4, and 23.5% in two-dose group, respectively.

Conclusion. Two-dose PCV13 did not provide better immunogenicity to patients with MM. Innovative strategies to improve the immunogenicity of PCV13 in patients with MM are needed.

Figure 1: Sequential changes of significant antibody responses to serotype 6B, 14, 19F, and 23F during 1-year follow-up in one- and two-dose groups.



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

1442. Pneumonia Hospitalizations Averted With 13-Valent Pneumococcal Conjugate Vaccination of Adults Aged 18–64 Years With Diabetes in the United States

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Background. Diabetes, a prevalent chronic condition in younger adults, increases the risk of pneumonia. The incidence of pneumonia hospitalization among adults aged <65 years with diabetes is comparable to that of the overall population aged ≥65 years. While 13-valent conjugate pneumococcal vaccination (PCV13) is routinely recommended for adults aged ≥65 years, it has not been recommended for younger adults with diabetes. We modeled the potential impact of PCV13 use in this population.

Methods. We estimated the cumulative number of pneumonia hospitalizations and hospital days potentially averted with PCV13 use in adults aged <65 years with diabetes over 5 years in the United States. Model inputs are summarized in Table 1. We ran multiple scenarios depending on a number of vaccine efficacy/effectiveness (VE) estimates. We estimated the number of hospitalizations averted as the product of (i) the size of the target population, (ii) the incidence of all-cause CAP, (iii) the proportion of CAP that is PCV13 type, (iv) PCV13 effectiveness, and (v) the duration of protection for PCV13 over a 5-year time horizon. Number-needed-to-vaccinate (NNV) for each scenario was also assessed.

Results. Roughly 15 million adults aged <65 years have diabetes in the United States, accounting for about 250,000 pneumonia hospitalizations annually. Based on published, US estimates of pneumonia incidence and PCV13 etiology, PCV13 vaccination in this population could avert 24,638–44,506 hospitalizations and 206,955–373,854 hospital days over a 5-year period. NNV to avert one hospitalization and one hospital day were 344–622 and 41–74, respectively.

Conclusion. PCV13 vaccination of younger adults with diabetes could reduce a substantial number of pneumonia hospitalizations. NNV is comparable to those for adults aged ≥65 years, for whom PCV13 is currently recommended.

Table 1. Model Assumptions

Model Assumptions for Adults Aged 18–64 Years	Parameter	Source
US population size	199.1 Million	2014 US Census
All-cause population mortality rate	2.0%	2014 US Census
Prevalence of diabetes	7.7%	2014 Behavioral Risk Factor Surveillance System (BRFSS)
Incidence rate of all-cause pneumonia hospitalizations (per 100,000, per year)	1683	Shea et al. *OFID.* 2014;1(1)ofu024
Average length of stay for all-cause pneumonia hospitalization (in days)	8.4	Suaya et al. 2017 ID Week. Poster #1976
Percentage of all-cause hospitalized pneumonia caused by PCV13 serotypes	5%	Pfizer SSUAD data on file. McLaughlin J. Presented at: ACIP; Feb 22, 2018; Atlanta, GA.
PCV13 vaccine efficacy/effectiveness against pneumonia hospitalizations:		
CAPiTA (overall)	45.6%	Bonten et al. *NEJM.* 2015;372(12):1114-1125
CAPiTA post hoc analyses of patients with comorbid illness (2 studies)	40.3% 45.3%	Suaya et al. *Vaccine* 2018;36(11):1477-1483 Huijts et al. *Vaccine.* 2017;35(34):4444-4449
US real-world effectiveness test-negative design study	72.8%	McLaughlin et al. *Clin Infect Dis.* 2018; in press.
PCV13 duration of protection	5 Years (ie, no waning)	Patterson et al. *Trials Vaccinol.* 2016;5:92-96

Disclosures. **J. Suaya**, **B. D. Gessner**, **E. Chilson**, **D. L. Swerdlow**, **J. M. McLaughlin:** Pfizer Inc.: Employee and Shareholder, Salary. **J. Vojicic**, Pfizer: Employee and Shareholder, Benefits and stock and Salary. **R. E. Isturiz**, Pfizer: Employee and Shareholder, Benefits and stock and Salary.

1443. Serotypes 8 and 3 Are the Leading Cause of Invasive Pneumococcal Disease in Adults in Portugal (2015–2017)

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Background. In Portugal, following the use of PCVs in children, there were major changes in the serotype distribution of the pneumococcal population in adult pneumococcal invasive disease (IPD). The inclusion of PCV13 in the National Immunization Plan in 2015 could have an even greater impact on adult IPD. To evaluate this, we monitored the serotypes and antimicrobial resistance of invasive pneumococcal isolates in 2015–2017.

Methods. A total of 1,495 adult IPD isolates were recovered, serotyped by Quellung and tested for susceptibility to antimicrobials by disk diffusion or Etest.

Results. The number of isolates recovered in each year remained approximately constant. Among the 1,495 isolates, 58 different serotypes were found and only a small proportion of these were nontypeable (0.6%, $n = 9$). The most common were serotypes 8 (18%), 3 (15%), 22F and 14 (7% each), 19A (6%), and 20 (4%). The majority of isolates expressed serotypes exclusively found in the 23-valent polysaccharide vaccine (41%, $n = 619$). A considerable number of isolates expressed PCV serotypes ($n = 563$), of which 207 isolates (14%) expressed PCV7 serotypes and the remaining isolates expressed the additional serotypes included in PCV13 ($n = 356$, 24%). Non-vaccine types (NVT) were found in 313 isolates ($n = 21$%) and among these, serotypes 6C, 15A, 16F, 23A and 31 were the most prevalent, together accounting for approximately half of the NVT. Overall, 19% of the isolates presented resistance to erythromycin and penicillin nonsusceptibility was found in 17% of the isolates recovered in 2015–2017.

Conclusion. After several years of pneumococcal conjugate vaccines use in children, PCV serotypes are still frequently responsible for adult IPD. Moreover, serotypes exclusively found in PPV23 were also found to be important causes of invasive disease in this period, suggesting an important role for vaccination in disease prevention in this age group.

Disclosures. **M. Ramirez**, Pfizer: Speaker's Bureau, Speaker honorarium; GlaxoSmithKline: Consultant, Consulting fee; Merck Sharp and Dohme: Consultant, Consulting fee. **J. Melo-Cristino**, Pfizer: Grant Investigator and Speaker's Bureau, Research grant and Speaker honorarium; Merck Sharp and Dohme.: Speaker's Bureau, Speaker honorarium.

1444. Trends in Antimicrobial Non-susceptibility of PCV13-Type *Streptococcus pneumoniae* Pneumonia in Adults in the United States During 2009–2017

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