Figure 1: Incidence of PCV13-serotype disease by age-group,2013-2018, TIBDN

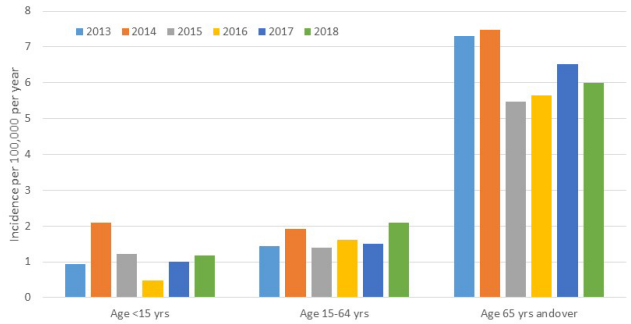
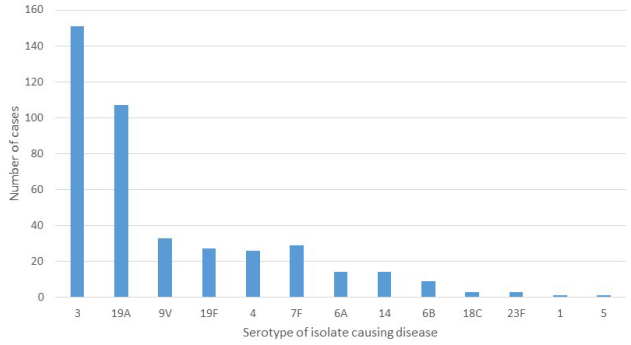


Figure 3: Distribution of PCV13 Serotype IPD in adults, TIBDN, 2015-2018



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

2717. The Impact of Pneumococcal Conjugate Vaccine in Nonbacteremic Pneumococcal Pneumonia Among Cancer Patients

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Session: 277. Vaccines: Bacterial
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Background: Invasive pneumococcal disease (IPD) and non-bacteremic pneumococcal pneumonia (NB-PNA) are associated with substantial morbidity and mortality in cancer patients. IPD incidence among cancer patients at MSKCC sharply declined after the introduction of routine childhood immunization with the 7-valent pneumococcal conjugate vaccine (PCV7) (1). An indirect effect of PCV on pneumococcal pneumonia incidence has also been reported (2, 3). The impact of PCV on the incidence of NB-PNA in patients with cancer has not been well studied.

Methods: Retrospective review of patients treated at MSKCC, 1993–2012. Unique patient visits (UPV) per year were defined as ≥1 inpatient or outpatient encounter within one calendar year. NB-PNA was defined as Isolation of *Streptococcus pneumoniae* from sputum or bronchoalveolar lavage (BAL); with associated symptoms (cough, sputum production, and/or fever) and radiographic findings compatible with pneumonia on chest radiograph or computerized chest tomography. NB-PNA incidence was calculated as number of NB-PNA cases per 1000 UPV. Three-time periods were examined: "before PCV7" (1993–2000), "after PCV7" (2001–2010), "after PCV13" (2011–2012).

Results: Of 323 NB-PNA cases, *S. pneumoniae* was isolated from BAL in 64 (20%) and sputum in 259 (80%). 182 (56%), 121 (37%), and 20 (7%) NB-PNA cases occurred "before PCV7," "after PCV7," and "after PCV13," respectively. The incidence of NB-PNA was highest in patients with hematologic malignancies and in patients ≥65 years during all three periods (Table 1). NB-PNA incidence was lower "after PCV7" compared with "before PCV7" (0.47 vs. 0.13, $P < 0.001$). A non-statistically significant lower incidence of NB-PNA was noted "after PCV13" vs. "after PCV7" (0.13 vs. 0.09, $P = 0.19$). The highest decline of NB-PNA after PCV7 introduction was observed in patients ≥65 years (0.67 vs. 0.16, $P < 0.001$).

Conclusion: (1) The incidence of NB-PNA in adult cancer patient declined after PCV7 compared with before PCV7. (2) The reduction in NB-PNA was highest in patients ≥65 years suggesting an indirect effect from PCV7 childhood immunization. (3) A trend toward decreased incidence in NB-PNA was noted after PCV13; further surveillance is required to ascertain this trend.

Table 1. trends in the incidence of Non-bacteremic pneumococcal pneumonia "before PCV7," "after PCV7" and "after PCV13"

	"Before PCV7" (1993-2000)		"After PCV7" (2001-2010)		Change in incidence from "before PCV7" to "after PCV7"	"After PCV13"		Change in incidence from "after PCV7" to "after PCV13"
	NB-PNA cases n = 182	NB-PNA incidence	NB-PNA cases n = 106	NB-PNA incidence	% change, (95% CI, P value)	NB-PNA cases n = 20	NB-PNA incidence	% change, (95% CI, P value)
Age (years)								
1-4	0	0.00	1	0.30	N/A	0	0.00	N/A
5-14	4	0.77	2	0.22	-71 (0.05-1.57, 0.20)	0	0.00	N/A
15-64	92	0.37	61	0.11	-71 (0.21-0.40, <0.001)	9	0.07	-35 (0.76-3.10, 0.22)
≥65	86	0.67	57	0.16	-76 (0.18-0.34, <0.001)	11	0.14	-14 (0.61-2.23, 0.64)
Cancer type								
Hematologic malignancies	36	1.37	23	0.41	-70 (0.18-0.50, <0.001)	4	0.25	-39 (0.57-4.77, 0.35)
Solid tumors	125	0.58	83	0.17	-70 (0.23-0.39, <0.001)	16	0.12	-29 (0.82-2.40, 0.21)
No cancer	21	0.15	15	0.04	-74 (0.13-0.51, <0.001)	0	0	N/A

Incidence is the number of NB-PNA cases per 1,000 UPV (unique patient visits).

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

2718. Effectiveness of 13-Valent Pneumococcal Conjugate Vaccine in US Adults Hospitalized with Pneumonia, 2014–2017

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Session: 277. Vaccines: Bacterial
Saturday, October 5, 2019: 12:15 PM

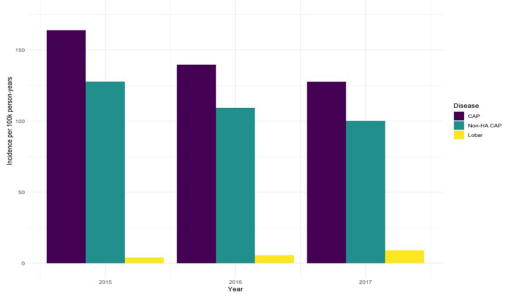
Background: Efficacy of 13-valent pneumococcal conjugate vaccine (PCV13) against pneumococcal pneumonia in adults aged >65 years was shown in a 2014 clinical trial. However, its benefits in countries with a mature PCV infant program remain unclear. In August 2014, PCV13 was recommended for all US adults aged >65 years. We evaluated the direct effect of this recommendation on pneumonia hospitalizations among the elderly.

Methods: We analyzed claims data from US Medicare beneficiaries aged >65 years enrolled in part A/B during September 1, 2014 through December 31, 2017. Participants were followed until they died, left part A/B, or developed a study outcome: community-acquired pneumonia (CAP), non-healthcare-associated CAP (non-HA CAP) or lobar pneumonia (LP). We identified outcomes using inpatient diagnosis codes, and vaccination status using procedure codes. We used discrete-time survival models, stratified by influenza season (October–April) and influenza vaccination status, to estimate incidence rate ratios (IRR) by pneumococcal vaccination status (PCV13-only vs. no pneumococcal vaccination). We adjusted for demographic factors, healthcare utilization, month/year of hospital discharge, and underlying conditions. We derived vaccine effectiveness (VE) and number of hospitalizations averted by PCV13 from the IRRs.

Results: Of 26.6 million beneficiaries in September 2014, 43.4% were male, 54.2% were aged 65–74 years, and 28.9% had a Charlson comorbidity score >3. PCV13 coverage increased from 0.8% in September 2014 to 41.5% in December 2017. Annual incidence of CAP, non-HA CAP, and LP are shown in the figure. PCV13-vaccinated persons were more likely to be older, sicker, and have received flu vaccine than unvaccinated persons. VE estimates for CAP, non-HA CAP, and LP ranged from 6.0–11.4%, 5.0–11.0%, and 1.3–11.0%, respectively. From September 2014 to December 2017, an estimated 28,600 (95% CI: 21,000–36,000) CAP, 18,700 (12,000–25,800) non-HA CAP and 1,100 (190–1,900) LP hospitalizations were averted.

Conclusion: Within 40 months after implementation of the adult PCV13 program, 2.0% (28,600) of US CAP hospitalizations were averted. Despite PCV13 effectiveness against adult CAP, only a small fraction of CAP hospitalizations was prevented.

Figure: Annual Incidence of CAP, non-HA CAP, and Lobar Pneumonia per 100,000 person-years



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