Tetanus IgG	IFN-γ autoantibody (n=18)		healthy adult (n=18)		p-value[b]
	Pre	Post	Pre	Post	Post vaccination
<0.1	7 (38.9%)	2 (11.1%)	1 (5.6%)	0 (0%)	
≥0.1	11 (61.1%)	16 (88.9%)	17 (94.4%)	18 (100%)	0.151
p-value[w]	0.025*		0.317		
Diphtheria IgG	Pre	Post	Pre	Post	Post vaccination
<0.1	4 (22.2%)	1 (5.6%)	13 (72.2%)	0 (0%)	
≥0.1	14 (77.8%)	17 (94.4%)	5 (27.8%)	18 (100%)	0.317
p-value[w]	0.083		<0.001*		

[b]Mann-Whitney Test (compared between group)
[w]Wilcoxon Signed Ranks Test (compared within group)

Table 2 Study population with positive serology for tetanus and diphtheria prior and after vaccination

History of boosted TT (tetanus IgG; IU/mL)	IFN-γ autoantibody (n=6)		healthy adult (n=7)		p-value[b]
Unboosted	Pre	Post	Pre	Post	Post
<0.1	4 (66.7%)	2 (33.3%)	0 (0%)	0 (0%)	
0.1-0.5	0 (0%)	1 (16.7%)	3 (42.9%)	0 (0%)	
0.5-1	2 (33.3%)	0 (0%)	3 (42.9%)	0 (0%)	0.027*
1.01-5	0 (0%)	3 (50%)	1 (14.3%)	5 (71.4%)	
>5	0 (0%)	0 (0%)	0 (0%)	2 (28.6%)	
p-value[w]	0.059		0.026*		
≥0.1 (Immunized)	2 (33.3%)	4 (66.7%)	7 (100%)	7 (100%)	0.111
p-value[w]	0.157		1		
Boosted	(n=5)		(n=3)		p-value[b]
1-5 yr	Pre	Post	Pre	Post	Post
<0.1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
0.1-0.5	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
0.5-1	2 (40%)	1 (20%)	0 (0%)	0 (0%)	0.172
1.01-5	2 (40%)	4 (80%)	3 (100%)	2 (66.7%)	
>5	1 (20%)	0 (20%)	0 (0%)	1 (33.3%)	
p-value[w]	1		0.317		
≥0.1 (Immunized)	5 (100%)	5 (100%)	5 (100%)	5 (100%)	1
p-value[w]	1		1		
Boosted	(n=7)		(n=8)		p-value[b]
>10 yr.	Pre	Post	Pre	Post	Post
<0.1	3 (42.9%)	0 (0%)	1 (12.5%)	0 (0%)	
0.1-0.5	1 (14.3%)	0 (0%)	2 (25%)	1 (12.5%)	
0.5-1	1 (14.3%)	0 (0%)	2 (25%)	0 (0%)	1
1.01-5	2 (28.6%)	4 (57.1%)	3 (37.5%)	3 (37.5%)	
>5	0 (0%)	3 (42.9%)	0 (0%)	4 (50%)	
p-value[w]	0.015*		0.026*		
≥0.1 (Immunized)	4 (57.1%)	7 (100%)	7 (87.5%)	8 (100%)	1
p-value[w]	0.083		0.317		

[b]Mann-Whitney Test (compared between group)
[w]Wilcoxon Signed Ranks Test (compared within group)

Table 3 Subgroup analysis in previous tetanus booster and immune response after dT

Disclosures. All authors: No reported disclosures.

2710. Novel Analytical Models for Pneumococcal Multiplex Opsonophagocytosis Assay Results from a Healthy Older Adult Population Vaccinated with PCV13

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

Background: The multiplexed opsonophagocytosis assay (MOPA) measures killing of pneumococci by serum antibodies, and is the primary method for measuring pneumococcal antibodies in adults. However, pre-vaccine opsonic activity and vaccine response are highly variable among serotypes and individuals, and there are currently no criteria to define normal MOPA results.

Methods: We performed post-hoc analysis of data from $n = 311$ healthy, pneumococcal-vaccine naïve adults aged 55–74 who received 0.5 mL PCV13, and had MOPA performed for PCV13 serotypes (except serotype 3) at baseline, then on days 29 and 181 post-vaccine (Jackson et al. 2018, Vaccine). MOPA results (reported as opsonic index, or OI) were standardized using pneumococcal reference serum 007sp. Pairwise comparisons of proportions of undetectable baseline OI (≤ 4) between serotypes were performed using Pearson's Chi-square. Immunogenicity (mean change in OI at day 29 post-PCV among samples with undetectable baseline OI) was compared between serotypes using one-way ANOVA. We then assigned a score based on cutoffs for pre-vaccine OI (cutoff 1, or C1) and fold-rise in OI at day 29 (cutoff 2, or C2) for each serotype, as shown in Figure 1. The sum of the scores for 12 serotypes was determined for each participant. We plotted the frequency distribution of total scores using different combinations of values for C1 and C2 to visually identify the optimal fit for the left-skewed distribution expected in a healthy population.

Results: Serotype 1 had the highest prevalence of undetectable OI at baseline (77.0%, $P < 0.001$), and serotype 19A had the lowest (8.8%, $P < 0.001$). Immunogenicity was highest for serotype 7F (mean change of 18354, $P < 0.001$ for all comparisons). For vaccine response analysis, C1 = 300 and C2 = 8 produced a left-skewed distribution (Figure 2). Using these cutoffs, the median total score was 7 and the 5th percentile score was −1.

Conclusion: Criteria for normal MOPA results can be developed for single-time-point data, or using a scoring system for vaccine response data that integrates pre-vaccine OI and fold-rise in OI. Additional studies in healthy and disease populations are needed to further optimize diagnostic criteria for discriminating normal vs. abnormal results.
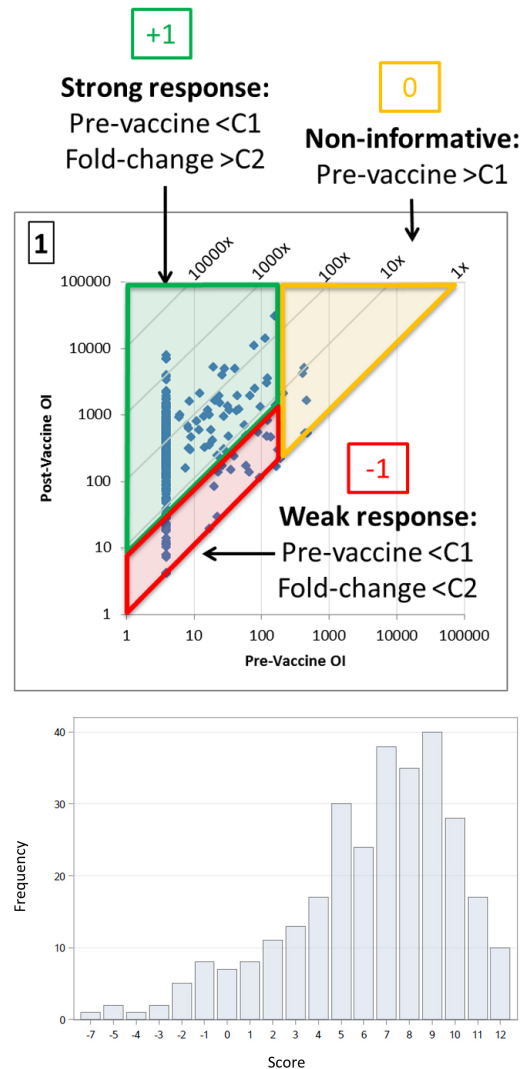
Disclosures. All authors: No reported disclosures.

2711. Effectiveness of 13-Valent Pneumococcal Conjugate Vaccine Against Invasive Pneumococcal Disease in Older Adults

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

Background: Routine use of 13-valent pneumococcal conjugate vaccine (PCV13) has been recommended for infants since early 2010 and for adults ≥65 years since 2014 when KPNC began routine use of PCV13 in adults. PCV13 vaccine effectiveness (VE) against vaccine-type invasive pneumococcal disease (IPD) has been demonstrated; however, recent surveillance data have been interpreted as showing limited population-level impact of PCV13 on serotype 3 IPD. We estimated PCV13 VE against IPD due to vaccine serotypes at Kaiser Permanente Northern California (KPNC).

Methods: The study period spanned September 2014 through September 2018. The cohort included KPNC members who were aged ≥65 years with no record of pneumococcal polysaccharide vaccine (PPV23) receipt before age 65 years. We compared IPD cases with KPNC members who were the same age on the date of the positive pneumococcal culture using conditional logistic regression, conditioned on age and date, and controlled for sex, race, KPNC service area and membership history, prior season influenza vaccine receipt, PPV23 receipt after age 65 years, risk factors for IPD, and healthcare utilization.