the conduct of this study..) **Shannon Hunter, MS**, **GSK** (Other Financial or Material Support, Ms. Hunter is an employee of RTI Health Solutions, who received consultancy fees from GSK for conduct of the study. Ms. Hunter received no direct compensation from the Sponsor.) **Sara Poston, PharmD**, **The GlaxoSmithKline group of companies** (Employee, Shareholder) **Patricia Novy, PhD**, **GSK** (Employee, Shareholder) **Parinaz Ghaswalla, PhD, ORCID: 0000-0002-2883-5590**, **GlaxoSmithKline** (Employee, Shareholder)

180. Impact of Pneumococcal Conjugative Vaccine on Antibiotic Resistant Invasive Pneumococcal Disease in the United States

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Session: O-34. Pediatric Vaccines

Background: Antibiotic-nonsusceptible invasive pneumococcal disease (NS-IPD) in the United States declined dramatically following the introduction of pneumococcal conjugative vaccines (7-valent, PCV7 in 2000, replaced by the 13-valent, PCV13 in 2010). We evaluated the long-term impact of PCV13 on NS-IPD.

Methods: IPD cases were identified through CDC's Active Bacterial Core surveillance during 2005–2018. We applied 2012 Clinical and Laboratory Standards Institute breakpoints to minimum inhibitory concentrations determined by broth microdilution (2005–2014) or whole genome sequencing (2015–2018) and classified non-susceptible isolates as those intermediate or resistant to ≥1 antibiotic class. Isolates were serotyped and classified as PCV13 or non-vaccine type (NVT). Incidence rates (cases per 100,000) were calculated using United States Census Bureau population denominators.

Results: From 2005 to 2018, NS IPD incidence decreased from 8.5 to 3.2 among children < 5 years old and from 13.0 to 9.4 among adults ≥ 65 years old. Incidence of vaccine-type NS-IPD decreased in all age groups (Figure 1), while incidence of NVT NS-IPD increased in all age groups (Figure 2). The greatest absolute increase in NVT NS-IPD occurred among adults ≥ 65 years from 4.7 in 2005 to 7.2 in 2018. PCV13 serotypes contributed to 62% of NS-IPD (36% of NS-IPD caused by serotype 19A alone) in 2005–2009, and 27% of NS-IPD in 2014–18 (8% of NS-IPD caused by 19A). During 2014–18, NVTs 35B (11%), 33F (9%), 22F (9%), and 15A (9%) were the most common NS-IPD serotypes.

Figure 1. Incidence of vaccine type antibiotic non-susceptible invasive pneumococcal disease by age group, 2005–2018.

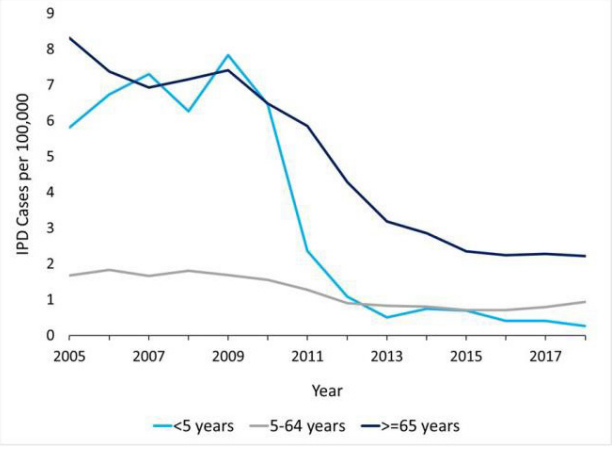
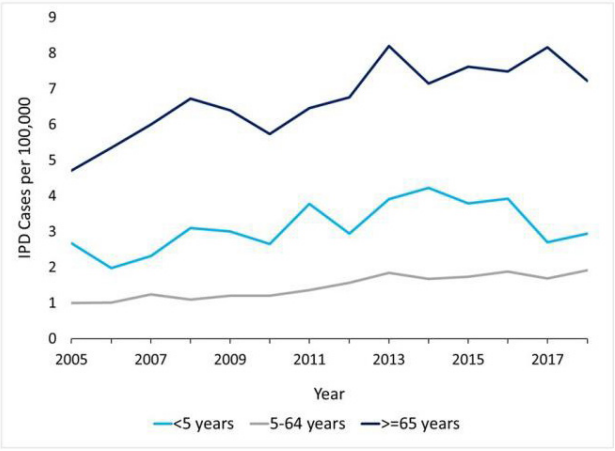


Figure 2. Incidence of non-vaccine type antibiotic non-susceptible invasive pneumococcal disease by age group, 2005–2018.



Conclusion: NS-IPD incidence decreased following PCV13 use in the United States, driven by reductions in PCV13 serotypes. Recent increases in NVT NS-IPD, most pronounced among older adults, have started to erode PCV impact on NS-IPD. PCVs in development that contain serotypes 22F and 33F could help to further reduce NS-IPD.

Disclosures: **Lee Harrison, MD**, **GSK** (Consultant)**Merck** (Consultant)**Pfizer** (Consultant)**Sanofi Pasteur** (Consultant)

181. Antimicrobial Use in the Time of COVID-19 – Data from 84 VA Facilities

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Session: O-35. SHEA Featured Oral and Program Choice

Background: The VA initiated an antimicrobial stewardship program in 2011, which includes participation in the Center for Disease Control (CDC) Antimicrobial Use Option, educational webinars, training programs for antimicrobial stewards, required staffing & reporting, and quality improvement initiatives, that has led to ongoing decreases in antimicrobial therapy nationwide. With the onset of the COVID-19 pandemic, however, there are several factors that may contribute increases in antimicrobial use (increased presentations of lower respiratory tract infection, concern for bacterial co-infection with SARS-CoV-2, etc.). We sought to compare patterns of antibacterial use in the VA from January – May 2020 with corresponding time periods in prior years.

Methods: Data on antibacterial use from 2015 – 2020 were extracted from the VA Corporate Data Warehouse for acute inpatient care units in 84 VA facilities (facilities which provide limited acute inpatient services were excluded). To control for seasonal effects, only data from January to May for each year were included in the analysis. Days of therapy (DOT) per 1000 days-present (DP) were calculated and stratified by CDC-defined antibiotic classes.

Results: From 2015 – 2019, total antibiotic use from January to May decreased by a mean of 9.1 DOT/1000 DP per year. In contrast, from 2019 to 2020, antibiotic use over the same months increased by 26.4 DOT/1000 DP (Table). Increases were observed in all drug classes except for a decrease in narrow spectrum ß-lactam antibiotics. Total antibiotic DOT in 2020 increased by 27.9 and 7.3 DOT/1000 DP in facilities in the highest and lowest terciles of use in 2019 (Figure).

Table – Trends in Yearly Antibiotic Use by CDC Drug Class, 2015 to 2019 versus 2019 to 2020

Year	Narrow Βlactams	Broad GNR Community	Broad GNR Hospital	Anti-MDRO GNR	Anti-MRSA	All other	Total
	Days of Therapy/1000 Days Present						
2015	82	141	156	2.0	123	138	642
2016	84	137	153	1.5	118	137	631
2017	88	131	152	1.7	113	135	620
2018	92	128	147	1.8	107	137	612
2019	94	121	146	1.7	102	142	606
Mean change/year	**2.8**	**-5.2**	**-2.4**	**-0.1**	**-5.2**	**0.9**	**-9.1**
2020	89	130	154	1.8	103	154	632
2020 vs 2019	**-4.4**	**9.1**	**7.6**	**0.1**	**1.5**	**12.7**	**26.4**

Figure – Facility Specific Total Antibiotic Use in 2019 and Change in Use from 2019 to 2020