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Background. In the Republic of Korea (ROK), protein conjugated vaccines (PCV13 and PCV10) in replacement of PCV7 have been used in children since 2010, and then included in the childhood national immunization program (NIP) in 2014. This study investigated indirect effect of PVCs on serotypes in PCV-naïve adult invasive pneumococcal disease (IPD) and its clinical implications.

Methods. A prospective observational cohort study was conducted, through the serotype surveillance program following the NIP implementation of 23-valent pneumococcal polysaccharide vaccine (PPV23) for elderly population (≥65 years) from 2013 to 2015. Clinical data and pneumococcal isolates from adult IPD patients (≥18 years) were collected from 20 hospitals. Clinical characteristics were compared between vaccine-serotype (VT) and nonvaccine-serotype (NVT) groups.

Results. Of a total of 319 IPD patients enrolled, 189 cases (59.2%) were available for serotypes. Among them, the proportion of PCV-naïve cases was 99.5% (188/189) and 189 patients consisted of NVT (n = 64, 33.9%) and VT group (n = 125, 66.1%). Compared with the previous study in the ROK (2004–2010), the proportion of PCV13 serotypes was decreased (61.4% vs. 37.0%, P < 0.001) and PPV23 serotypes were stationary (71.5% vs. 65.6%), but NVT serotypes were increased (23.4% vs. 33.9%, P = 0.033) in our study. The most common serotype was 3 (20.8%) and 34 (23.4%) in VT and NVT group, respectively. VT group had more bacteremic pneumonia (72.0% vs. 48.4%, P = 0.002). There was no difference of the case fatality rate between NVT and VT groups (29.7% vs. 35.2%, P = 0.447). Multiple logistic regression analysis showed that chronic kidney disease (odds ratio [OR] 10.26, 95% confidence interval [CI] 1.94–54.44, P = 0.006), younger age of 18–49 years (OR 4.04, 95% CI 1.29–12.71, P = 0.017), deep-seated infection (OR 3.73, 95% CI 1.34–10.39, P = 0.012), meropenem resistance (OR 3.21, 95% CI 1.49–6.91, P = 0.003) were significantly associated with NVT-IPD cases.

Conclusion. Our study indicates that emerging and expanding NVT-IPD among adults, probably due to indirect herd effect of widespread use of pediatric PCV. Further changes of IPD serotypes might occur and IPD serotypes should be monitored for developing better pneumococcal vaccination policy.

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

1004. Frequency of Occurrence and Antimicrobial Susceptibility of Bacteria Isolated From Patients Hospitalized With Bloodstream Infections in United States Medical Centers (2015–2017)

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Background. Bloodstream infections (BSIs) cause significant morbidity and mortality. We evaluated the frequency and antimicrobial susceptibility of bacteria causing BSIs in the United States.

Methods. A total of 9,210 bacterial isolates were consecutively collected (1/patient) from 33 US medical centers in 2015–2017 and tested for susceptibility by reference broth microdilution methods in a central laboratory (JMI Laboratories) as part of the International Network for Optimal Resistance Monitoring (INFORM) program. Whole-genome sequencing was performed on carbapenem-resistant *Enterobacteriaceae* (CRE).

Results. The most common organisms were *S. aureus* (SA; 24.3%), *E. coli* (EC; 20.8%), *K. pneumoniae* (KPN; 9.1%), coagulase-negative staphylococci (7.3%), *E. faecalis* (5.5%), *P. aeruginosa* (PSA; 4.7%), and β-hemolytic streptococci (4.7%). Overall, 50.0% of isolates were Gram-negative bacilli (GNB) and 41.4% were *Enterobacteriaceae* (ENT). All SA were susceptible (S) to dalbavancin (MIC_{90}, 0.03 µg/mL), linezolid, tigecycline (TGC), and vancomycin; >99.9% S to daptomycin, 97.6% S to ceftaroline, and 57.8% S to oxacillin. The most active agents against ENT were CAZ-AVI (99.9% S; table), amikacin (AMK; 99.7% S), and the carbapenems meropenem (MEM) and doripenem (99.1% S). Ceftolozane-tazobactam (C-T; tested in 2017 only) was active against 96.9% of ENT. Ceftriaxone (CRO)-S rates were 83.0% and 86.5% among EC and KPN, respectively. CRO-non-S KPN exhibited low S rates to most agents, except CAZ-AVI (99.1% S), TGC (93.6%), AMK (93.8%), and colistin (COL; 93.4%). Among 28 CRE isolates (0.7% of ENT), 21 produced a KPC-like, 2 an NMD-like, and 1 a KPC-17 and an NDM-1. COL (100.0% S), C-T (98.7%S), CAZ-AVI (98.2% S), AMK (97.9% S), and tobramycin (95.6% S) were very active against PSA. CAZ-AVI and C-T remained active against most PSA isolates non-S to MEM (93.0 and 95.0% S, respectively) and/or piperacillin–tazobactam (P-T; 88.9 and 91.3% S) and/or CAZ (86.9 and 88.2% S).

Conclusion. GNB represented 50.0% of bacteria isolated from patients with BSIs and the most active agents against these organisms were CAZ-AVI and AMK. Various agents exhibited excellent overall coverage against Gram-positives, including dalbavancin, daptomycin, linezolid, and TGC.

Organism/ resistant subset (no.)	MIC_{50}/MIC_{90} in µg/mL (%S)				
	CAZ-AVI	C-T[a]	Cefepime	P-T	MEM
P. aeruginosa (433)	2/4 (98.2)	0.5/1 (98.7)	2/16 (87.8)	4/64 (85.5)	0.5/8 (80.1)
Enterobacteriaceae (3,746)	0.12/0.25 (99.9)	0.25/0.5 (96.9)	≤0.12/8 (88.8)	2/8 (93.4)	0.03/0.06 (99.1)
E. coli (1,902)	0.12/0.25 (99.9)	0.25/0.5 (98.7)	≤0.12/>16 (85.8)	2/8 (95.6)	≤0.015/0.03 (99.7)
K. pneumoniae (832)	0.12/0.25 (99.9)	0.25/1 (96.9)	≤0.12/8 (88.5)	2/16 (92.2)	0.03/0.03 (97.7)
CRO-NS KPN (112)	0.25/1 (99.1)	1/>16 (81.6)	>16/>16 (14.3)	16/>64 (64.3)	0.03/8 (83.0)
E. cloacae (297)	0.25/0.5 (100.0)	0.25/16 (83.9)	≤0.12/4 (89.9)	2/64 (81.1)	0.03/0.12 (99.0)

[a] Tested in 2017 only.

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1005. HIV-Associated Bloodstream Infection (BSI): Trends Over 7 Years

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Background. Patients with HIV are known to be at risk for bacteremia. Whether the type of organisms changed over time is uncertain. We present a review of bacteremia in HIV-patients during 2010–2016.

Methods. We reviewed blood culture (BC) results (January 1, 2010–December 31, 2016), selected patients with BSI, defined their HIV status, the place of onset (community onset [CO]: 0–3 days after admission; hospital onset [HO]: ≥4 days), patient demographics, the source and organism distribution and compared patients with and without HIV.

Results. We encountered 5,179 BSI episodes, 93 were among 73 HIV-patients (table). HIV patients were younger, and more likely to be African Americans. Majority of cases were community onset (79.1% and 74.5% in cases with/without HIV, respectively). The three most common organisms in HIV patients were *Staphylococcus aureus* (SA), *Escherichia coli* (EC) and *Streptococcus pneumoniae* (SPN) and in non-HIV patients SA, EC, and *Klebsiella pneumoniae* (KP). While the rate of SA (25.3%–22.0%), SPN (2%–3%), and KP (10.2%–8.4%) remained stable during the study period, EC rate increased (18.5–25.7; P = 0.002). HIV patients were more likely to have the respiratory tract as the source of BSI.

Conclusion. HIV-patients remain at higher risk for SPN and to have a respiratory source of BSI but the top causes of BSI in patients with and without HIV are SA and EC. Whether the higher rate of SPN among HIV patients is related to poor compliance with vaccination or suboptimal immune status is uncertain. Further studies are needed to compare pneumococcal vaccination compliance rate in patients with or without HIV.

Table: Bloodstream Infection: Organism Distribution in Patients Stratified to Their HIV Status.

	Patient Characteristics			Common Organisms				Source			
HIV Status	Age (years): mean ± SD	Male	AA	SA	EC	SPN	KP	VA	STB	UTI	Res
Yes (93)	48.5 ± 13.1	60.2	86.0	28.0	19.4	11.8	4.3	16.3	17.5	22.6	19.4
No (5,086)	63.2 ± 17.2	53.0	57.6	24.0	21.6	2.2	9.0	21.2	18.3	24.3	8.4
P	<0.001	0.2	<0.001	0.4	0.7	<0.001	0.08	0.3	0.9	0.8	<0.001

African Americans; vascular; Soft tissue/bone; urinary tract; respiratory.

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1006. Demographic, Clinical, Microbiological Characteristics and Outcome of Patients Admitted to the Emek Medical Center with Blood Stream Infection Acquired in LTCF: A 5-Year Surveillance

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Background. Residents from long-term care facilities (LTCF) hospitalized with an acute infectious disease are challenging in terms of diagnosis and treatment, considering atypical clinical presentation are high rate of resistant bacteria,.

This study aimed to Characterize patients with LTCF acquired bacteremia (LTCF-B), epidemiology of blood cultures (BC) and potential risk for mortality.

Methods. A retrospective study of LTCF residents hospitalized with LTCF-B. Demographic, clinical and laboratory data were collected and analyzed using SPSS 22 and SAS.

Results. One hundred seventy-seven LTCF residents hospitalized in internal wards were included, mean age 81.6 years, mostly completely dependent, 54.8% were males. Most frequent diagnoses was urinary tract infection (UTI), second by respiratory tract infections. Half were hospitalized during prior 6 months, one-third had a permanent indwelling urinary catheter. On admission, 70% had WBC blood count >10,000 cells/mL. The following pathogens were isolated from BC: Gram-negative enterobacteriaceae (70%): *E. coli* were 40% and Gram-positive cocci (21%): *S. aureus* 5.08% (55.5% of them MRSA). Extended-spectrum-β-lactamase (ESBL) producing enterobacteriaceae were in 47.1% BC, clearly document increase during the years, 26% (2010)–63% (2014). Absolute majority of enterobacteriaceae were sensitive to carbapenems and