-nonsusceptible [MRSA]), coagulase negative staphylococci, *Streptococcus pneumoniae* and beta hemolytic streptococci. The parenteral cephem ceftaroline fosamil is approved for treatment of patients with community-acquired bacterial pneumonia caused by *S. pneumoniae* (including cases with concurrent bacteremia), MSSA, *Haemophilus influenzae*, and some species of Enterobacterales. Limited data have been published on the *in vitro* activity of ceftaroline against recent gram-positive clinical isolates known to be frequent bacterial causes of blood stream infections.

Methods. Standard CLSI broth microdilution MIC determinations (M07) were performed with ceftaroline and comparator agents. MICs were interpreted using 2021 CLSI MIC breakpoints. Clinically relevant, non-duplicate, isolates cultured from blood by clinical laboratories in 2012-2019 were tested by the ATLAS (Antimicrobial Testing Leadership and Surveillance) program central laboratory (IHMA, Inc., Schaumburg, IL, USA). In total, 21,967 non-duplicate isolates of *S. aureus*, *S. epidermidis*, *S. pneumoniae* and beta hemolytic streptococci from BSI collected between 2012 and 2019 were tested. Isolates came from (n/%): Asia/South Pacific (2,970/13.5%), Europe (13,691/62.3%), Latin America (2,824/12.9%), MidEast/Africa (1,498/6.8%), and North America (Canada only) (984/4.5%).

Results. Ceftaroline and comparator agent activities are summarized in the following table.

Results Table

Organism (n)*	MIC_{90} (µg/mL)/%Susceptible				
	CPT	CRO	LZD	DAP	ERY
Staphylococcus aureus, MRSA (2,831)	1/90.8	> 64/na	2/100	1/99.7	> 8/35.4
Staphylococcus aureus, MSSA (3,969)	0.25/100	4/na	2/100	1/99.9	> 4/75.8
Staphylococcus epidermidis (2,344)	0.5/na	> 32/na	2/98.2	1/99.8	> 8/30.8
Streptococcus pneumoniae (2,861)	0.12/99.9	0.5/96.9	1/100	0.5/na	> 1/77.6
Beta-hemolytic streptococci (1,698)†	0.015/100	0.12/99.9	1/100	0.5/100	> 1/80.6

* n refers to number of isolates tested against ceftaroline; numbers may vary for comparators (range 901-6635); †includes *S. agalactiae* (n=466), *S. dysgalactiae* (n=343), and *S. pyogenes* n=872).
CPT, ceftaroline; CRO, ceftriaxone; LZD, linezolid; DAP, daptomycin; ERY; erythromycin; na, no MIC breakpoints available.

Conclusion. Greater than 99% of *S. pneumoniae,* beta-hemolytic streptococci and MSSA isolates included in a 2012-2019 collection of gram-positive blood stream pathogens were susceptible to ceftaroline. 90.8% of MRSA were susceptible, and 9.1% isolates categorized as susceptible-dose dependent (MIC, 2-4 µg/mL); four isolates (two from Thailand and one each from China and S. Korea) were resistant to ceftaroline (MIC >4 µg/mL). The ceftaroline MIC_{90} for *S. epidermidis* was 0.5 µg/mL, with 97.7% of MICs ≤1 µg/mL. Ceftaroline continues to demonstrate potent *in vitro* activity against clinically relevant pathogens associated with BSI.

Disclosures. **Meredith Hackel, PhD MPH**, **IHMA** (Employee)**Pfizer, Inc.** (Independent Contractor) **Gregory Stone, PhD**, **AztraZeneca** (Shareholder, Former Employee)**Pfizer, Inc.** (Employee) **Daniel F. Sahm, PhD**, **IHMA** (Employee)**Pfizer, Inc.** (Independent Contractor)

1225. *In Vitro* Activity of Aztreonam-Avibactam and Comparator Agents Against Enterobacterales Collected from Geriatric Patients in ICU and non-ICU wards, ATLAS Surveillance Program 2016-2019

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Session: P-72. Resistance Mechanisms

Background. Elevated resistance rates have been reported in ICUs. Aztreonam (ATM) combined with avibactam (AVI) is being developed for use against drug-resistant Enterobacterales (Ebact), including metallo-β-lactamase (MBL)-positive isolates. We examined the activity of ATM-AVI and comparators against Ebact isolates collected from geriatric patients in ICU and non-ICU wards as part of the ATLAS surveillance program.

Methods. 23754 non-duplicate Ebact isolates were collected in 53 countries in Asia/Pacific (excluding mainland China and India), Europe, Latin America, and Middle East/Africa from patients ≥65 years with lower respiratory tract (LRTI), urinary tract (UTI), skin and soft tissue (SSTI), intra-abdominal (IAI), and bloodstream (BSI) infections. Susceptibility testing was performed by CLSI broth microdilution and values interpreted using CLSI 2021 breakpoints. PCR and sequencing were used to determine the β-lactamase genes present in isolates with meropenem MIC >1 µg/mL, and *Escherichia coli*, *Klebsiella* spp. and *Proteus mirabilis* with ATM or ceftazidime MIC >1 µg/mL.

Results. Susceptibility of the studied comparator agents was generally slightly lower among Ebact from BSI than other infection types (Table). Susceptibility was also generally lower among Ebact from ICU than non-ICU wards by up to 10 percentage points, and MIC_{90} values were up to 32-fold higher. ATM-AVI MIC_{90} values were within one doubling-dilution across all studied strata (0.12-0.25 µg/mL), were comparable to or lower than for meropenem in all strata, and were 2 to ≥9 dilutions lower than all other tested comparators. MBL-positive Ebact were found in 1.5% of LRTI (n=91), 1.2% of UTI (n=70), 1.1% of SSTI (n=52), 1.3% of BSI (n=49), and 0.7% of IAI isolates (n=22). MBL-positive rates were higher among ICU (1.7%, n=101) than non-ICU isolates (1.0%, n=183). ATM-AVI MIC_{90} values were 0.5 µg/mL against MBL-positive isolates from all ward and infection types except SSTI (MIC_{90} 0.25 µg/mL) and BSI (MIC_{90} 1 µg/mL), 2-4 dilutions lower than tigecycline and at least 5-10 dilutions lower than the other comparators.

Results Table

	MICs/% Susceptible (Infection Type/Ward Type)										
	All	LRTI		UTI		SSTI		BSI		IAI	
Drug	(n=23754)	ICU (n=2799)	Non-ICU (n=3464)	ICU (n=674)	Non-ICU (n=4969)	ICU (n=673)	Non-ICU (n=4050)	ICU (n=893)	Non-ICU (n=2924)	ICU (n=738)	Non-ICU (n=2570)
ATM-AVI	0.12/NA	0.25/NA	0.12/NA	0.25/NA	0.12/NA	0.25/NA	0.12/NA	0.25/NA	0.12/NA	0.25/NA	0.25/NA
ATM	64/73.9	128/70.8	64/74.9	128/68.7	64/73.3	128/72.1	64/78.2	128/64.1	64/74.1	128/71.5	64/75.9
FEP	>16/77.0	>16/74.8	>16/78.1	>16/71.4	>16/75.7	>16/75.8	>16/80.4	>16/66.5	>16/76.2	>16/77.5	>16/80.9
MEM	0.12/95.7	0.12/94.0	0.12/96.0	0.25/93.3	0.12/96.5	0.12/93.5	0.12/96.6	4/88.7	0.12/96.0	0.12/94.6	0.12/97.4
AMK	8/97.4	8/96.6	4/97.9	8/96.6	8/97.2	8/97.5	4/97.7	8/94.3	8/98.2	4/97.7	4/98.2
TGC	2/96.8	2/97.0	1/97.1	2/96.4	2/96.5	2/93.8	2/95.7	2/96.8	1/98.0	1/97.8	1/97.9

LRTI, lower respiratory tract infection; UTI, urinary tract infection; SSTI, skin and soft tissue infection; BSI, bloodstream infection; IAI, intra-abdominal infection; ATM-AVI, aztreonam-avibactam; ATM, aztreonam, FEP, cefepime; MEM, meropenem; AMK, amikacin; TGC, tigecycline.
Isolates for which data regarding infection type and ward type were not available were excluded from the analysis.

Conclusion. ATM-AVI could provide a valuable therapeutic option for treatment of infections caused by Ebact in patients ≥65 years old in both ICU and non-ICU wards.

Disclosures. **Sibylle Lob, PhD**, **IHMA** (Employee)**Pfizer, Inc.** (Independent Contractor) **Krystyna Kazmierczak, PhD**, **IHMA** (Employee)**Pfizer, Inc.** (Independent Contractor) **Francis Arhin, PhD**, **Pfizer, Inc.** (Employee) **Daniel F. Sahm, PhD**, **IHMA** (Employee)**Pfizer, Inc.** (Independent Contractor)

1226. In Vitro Activity of Tebipenem and Comparators Against *Enterobacterales* Collected from Patients with Bloodstream Infections as Part of the 2019 Global STEWARD Surveillance Program

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Session: P-72. Resistance Mechanisms

Background. Bloodstream infections (BSI) are a significant cause of morbidity and mortality. *Enterobacterales* (ENT) are frequently implicated in BSI with an increase in organisms producing extended-spectrum β-lactamase (ESBL). This challenges a possible transition to current oral agents due to co-resistance. Carbapenems are active against ESBL-ENT and tebipenem (TBP) is a new oral carbapenem in clinical development. The aim of the study was to assess resistance (R) among BSI isolates and activity of TBP and comparators against ENT collected in a 2019 surveillance study.

Methods. 2612 ENT from BSI were centrally tested by reference broth microdilution. Isolates were from medical centers in the US, Europe (EU), Latin America (LA) and Asia Pacific (AP). MIC results were interpreted according to CLSI, including ESBL assignment. CRE were sequenced to identify carbapenemase genes.

Results. Among the ENT, non-susceptibility (NS) rates to ceftazidime, levofloxacin were 20.4 and 27.0%, respectively, and R to trimethoprim-sulfamethoxazole was 31.1%. NS rates for ertapenem (ETP) and MER were 4.9 and 2.7%, respectively. MIC_{90}s for TBP, ETP and MER were 0.12, 0.12 and 0.06 µg/mL, respectively. The MIC_{90} for TBP was 0.06 µg/mL for ENT from the US and 0.12 µg/mL for isolates from EU, LA and AP. *Escherichia coli* (EC) was the most prevalent (52% of ENT isolates) and the MIC_{90} for TBP ranged from 0.015 µg/mL for isolates in the US/EU to 0.03 µg/mL for isolates in LA/AP. ESBL-EC ranged from 15.7% in US to 34.3% in LA. TBP was active against ESBL-EC with an MIC_{90} of 0.03 µg/mL. *Klebsiella pneumoniae* (KP) accounted for 22.7% of BSI caused by ENT and TBP MIC_{90} ranged from 0.06 µg/mL for KP in US to >8 µg/mL in EU, LA and AP. MER-R KP ranged from 2.4% in US to 14.9% in LA. KPC-2, -3 and NDM were the most prevalent carbapenemases. TBP MIC_{90} values for MER-S ESBL KP in EU, LA and AP were ≤0.12 µg/mL.

Conclusion. TBP activity was similar to ETP and MER against ENT responsible for BSI. R to oral agents was compromised by ESBL co-resistance. TBP was among the most active agents against EC isolates and ESBL phenotypes. Among KP, TBP was more active against isolates from US where prevalence of CRE was lower than EU, LA and AP. TBP may be considered as an alternative oral option for BSI caused by non-CRE ESBL-producing ENT.

Disclosures. **Ian A. Critchley, Ph.D.**, **Spero Therapeutics** (Employee, Shareholder) **Nicole Cotroneo**, **Spero Therapeutics** (Employee, Shareholder) **Rodrigo E. Mendes, PhD**, **AbbVie** (Research Grant or Support)**AbbVie (formerly Allergan)** (Research Grant or Support)**Cipla Therapeutics** (Research Grant or Support)**Cipla USA Inc.** (Research Grant or Support)**ContraFect Corporation** (Research Grant or Support)**GlaxoSmithKline, LLC** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Melinta Therapeutics, LLC** (Research Grant or Support)**Nabriva Therapeutics** (Research Grant or Support)**Pfizer, Inc.** (Research Grant or Support)**Shionogi** (Research Grant or Support)**Spero Therapeutics** (Research Grant or Support)

1227. A Survey Study of Healthcare Resource Use, and Direct and Indirect Costs, Among Females with an Uncomplicated Urinary Tract Infection in the United States

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Session: P-72. Resistance Mechanisms

Background. Uncomplicated urinary tract infections (uUTI) account for a large proportion of primary care antibiotic (AB) prescriptions. This study assessed uUTI-related healthcare resource use (HRU) and costs in US females with a self-reported uUTI.