The most common infection type in hospitalised paediatric patients was urinary tract infections. Other antibiotics tested were amikacin, cefepime, ceftazidime, colistin, and ceftolozane-tazobactam. Ceftolozane-tazobactam has been approved in >50 countries, including the US and the European Union. Antibiotic-resistant phenotypes identified for Enterobacteriaceae include ESBL, non-CRE, MDR, P. aeruginosa, and MDR and ESBL, non-CRE. For P. aeruginosa, ceftolozane-tazobactam was the most potent β-lactam tested with activity similar to colistin.

This study analysed the susceptibility of gram-negative isolates from European hospitals (PACTS, 2012–2017) to ceftolozane-tazobactam and comparator antimicrobials for the treatment of urinary tract infections, complicated intra-abdominal infections in adults, complicated intra-abdominal infections in adults, and complicated urinary tract infections, acute pyelonephritis, and pneumonia in hospitalised patients. Ceftolozane-tazobactam susceptibility was 89.8% against Enterobacteriaceae and 97.1% against P. aeruginosa. Other pathogens tested included S. aureus, enterococci, coagulase-negative staphylococci, Enterococcus faecium, and vancomycin-resistant Enterococcus faecium (VRE).

Materials and Methods
A total of 2,056 gram-negative isolates were collected during 2012–2017 from paediatric (≤18 years old) and adult (≥19 years old) patients in 50 European hospitals participating in the Program to Assess Ceftolozane-Tazobactam Susceptibility (PACTS) study. A total of 3,635 isolates were submitted for susceptibility testing, with 2,056 included in the primary analysis. Isolates were submitted to JMI Laboratories and analysed using the microdilution method (EUCAST, 2018) with EUCAST breakpoints (2018).

Results
The most common infection type in hospitalised paediatric patients was pneumonia (45.4%) followed by bloodstream infection (31.2%) and abdominal infections (18.9%). Other age groups and %: 2-6 yo, 22.0%; 7-12 yo, 18.6%; ≥13 yo, 15.5%.

Conclusions
Ceftolozane-tazobactam susceptibility was 89.8% against Enterobacteriaceae, 97.1% against P. aeruginosa, and 80.5% against K. pneumoniae paediatric isolates. Ceftolozane-tazobactam and piperacillin-tazobactam were both tested at a fixed 4 mg/L tazobactam concentration.

Acknowledgements
Funding for this research was provided by Merck & Co., Inc., Kenilworth, NJ, USA.

References

Contact Information:
Dee Shortridge; Leonardo R. Duncan; Michael A. Piérad; Jennifer M. Streit; Robert K. Flamm
JLT Laboratories, North Liberty, Iowa, USA.