

Susceptibility of intra-abdominal pathogens and occurrence of extended-spectrum beta-lactamase producers in 13 European countries – the SMART Study 2010-2011

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Objectives: The Study for Monitoring Antimicrobial Resistance Trends (SMART) has been monitoring the antimicrobial susceptibility of aerobic gram-negative bacteria from intra-abdominal infections (IAI) since 2002. This report compares susceptibility levels of key IAI pathogens in 13 countries Europe to ertapenem (ETP), amikacin (AK), cefepime (CPE), ceftazidime (CAZ), ceftazidime (CAZ), ceftriaxone (CAX), ciprofloxacin (CP), imipenem (IMP), levofloxacin (LVX), ampicillin-sulbactam (AS), and piperacillin/tazobactam (PT) during 2010-2011. **Methods:** 46 labs in 13 European countries each collected up to 100 consecutive gram-negative bacteria/year from IAI in 2010-2011. MICs were determined by broth microdilution, and interpreted using EUCAST guidelines. **Results:** 4,020 isolates were collected. The rate of extended spectrum beta-lactamase (ESBL) producers was 9% in Europe overall, with country-specific rates ranging from 1% and 4% in Estonia and France to 16% and 26% in Latvia and Turkey, respectively. The table below shows % susceptible for each drug for all isolates combined for which EUCAST breakpoints were available; values at least 5% less than the European average are shaded. **Conclusions:** • The susceptibility of IAI pathogens varied dramatically among the 13 European countries that participated in this study, with AK, ETP, and IMP showing the highest % susceptible for all species combined for which EUCAST breakpoints exist. • ESBL rates also varied by country, and countries with high rates showed lower overall susceptibilities against IAI pathogens. • Surveillance studies such as SMART highlighting current regional ESBL rates and susceptibility patterns are important for guiding empiric therapy for IAI.

	n	ESBL% ¹	AS ²	AK	CAX	CAZ	CFT	CP	CPE	ETP	IMP	LVX	PT
Estonia	104	1%	59%	98%	83%	86%	83%	90%	90%	95%	95%	95%	89%
France	408	4%	52%	95%	84%	84%	84%	86%	89%	97%	98%	88%	89%
Germany	390	10%	51%	96%	78%	80%	79%	81%	85%	96%	95%	85%	86%
Greece	183	12%	37%	65%	71%	73%	70%	61%	76%	83%	72%	63%	73%
Hungary	298	13%	40%	82%	67%	69%	67%	58%	74%	92%	91%	64%	79%
Italy	461	15%	33%	85%	65%	65%	64%	65%	72%	94%	90%	68%	73%
Latvia	146	16%	50%	82%	71%	70%	70%	64%	76%	98%	86%	65%	81%
Lithuania	98	8%	58%	92%	84%	90%	84%	80%	89%	99%	100%	83%	92%
Portugal	243	7%	47%	93%	84%	86%	83%	79%	90%	99%	89%	81%	85%
Romania	90	13%	48%	88%	76%	77%	78%	82%	82%	99%	92%	83%	88%
Spain	1155	5%	48%	96%	89%	88%	88%	79%	92%	98%	96%	81%	88%
Turkey	284	26%	34%	80%	59%	66%	58%	61%	64%	90%	85%	61%	68%
UK	160	8%	53%	95%	84%	84%	84%	81%	89%	99%	93%	83%	86%
EU	4,020	9%	46%	90%	79%	80%	78%	75%	84%	96%	92%	77%	83%

¹% of all species of IAI isolates that were ESBL+.

²Only species for which breakpoints exist were included in the %S calculations for each drug; eg, *P. aeruginosa* was not included in the AS, CAX, CFT, or ETP %S calculations as no breakpoints exist.