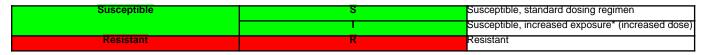
Waterford: Antimicrobial Guidelines - Antimicrobial Guideline: Antimicrobial Susceptibility

Antimicrobial Susceptibility Definition

European Committee on Antimicrobial Susceptibility Testing (EUCAST) has made significant changes to the interpretation of antimicrobial susceptibility testing, in particular, 'I' now refers to 'Susceptible, Increased Exposure' and no longer indicates 'intermediate' susceptibility or uncertain therapeutic effect.



The following revised definitions of 'S', 'I' and 'R' now apply:

- 'S' Susceptible, standard dosing regimen: A microorganism is categorised as 'S' when there is a high likelihood of therapeutic success using a standard dosing regimen of the agent.
- **Triangle of the increased exposure *: A microorganism is categorised as 'l' when there is a high likelihood of therapeutic success because exposure to the (antimicrobial) agent is increased by adjusting the dosing regimen or by its concentration at the site of the infection.
- 'R' Resistant: A microorganism is categorised as 'R' when there is a high likelihood of therapeutic failure even when there is increased exposure.
- *Exposure is a function of how the mode of administration, dose, dosing interval, infusion time, as well as distribution and excretion of the antimicrobial agent will influence the infecting organism at the site of infection.

Antibiotic dosing according to SITE OF INFECTION:

For complicated/deep-seated infections such as meningitis, infective endocarditis, implant infections or systemic/severe infections, high dose systemic antimicrobials are required to achieve therapeutic success. Please discuss with Clinical Microbiologist for further advice.

Frequently asked Questions: What does 'I' Susceptible, increased exposure mean?

Common examples of increased dose regimens for specific bacteria/antibiotics

Pseudomonas aeruginosa

- Will only be reported either as 'I' Susceptible, increased exposure or 'R' resistant to commonly use antibiotics i.e. Piperacillin/Tazobactam,
 Ceftazidime, Aztreonam and Ciprofloxacin. There is no longer 'S' category for these antibiotics for P. aeruginosa.
- 'I' Susceptible, increased exposure: infection can be treated with high dose antimicrobial regimens i.e. an increased dosing interval of Piperacillin/Tazobactam of 4.5g QDS IV or increased dose of Ceftazidime 2g TDS IV (dose adjustment are required for renal/liver impairment). It does NOT indicate escalation to Meropenem (restricted agent).

Haemophilus influenzae (ORAL amoxicillin and ORAL Co-amoxiclav)

- Will only be reported either as 'l' Susceptible, increased exposure or 'R' resistant to ORAL Amoxicillin or ORAL Co-amoxiclav. There is no longer 'S' category for ORAL Amoxicillin or ORAL Co-amoxiclav for H. influenzae.
- "I' Susceptible, increased exposure to ORAL Amoxicillin: infection can be treated with increased dose of oral Amoxicillin 750mg-1g TDS PO or standard dose of IV Amoxicillin. It does NOT indicate escalation to Co-amoxiclav.
- 'I' Susceptible, increased exposure to ORAL Co-amoxiclav: infection can be treated with increased dose of Co-amoxiclav 875/125mg TDS PO, or Co-amoxiclav 625mg TDS PO PLUS Amoxicillin 500mg TDS PO or a standard dose of IV Co-amoxiclav. It does NOT indicate escalation to IV Piperacillin/Tazobactam.

Antibiotic dosing according to SITE OF INFECTION:

For complicated/deep-seated infections such as meningitis, infective endocarditis, implant infections or systemic/severe infections, high dose systemic antimicrobials are required to achieve therapeutic success. Please discuss with Clinical Microbiologist for further advice.

Common examples of increased dose regimens when susceptibility reported as 'I' Susceptible, increased exposure.

Antibiotics	increased dose regimen	Comments
Piperacitin/ Tazobactam IV	4.5g QDS	Consider 3 hour infusion for ontical
		liness
Celtazidine IV	2g TDS	
Ciprotioxaon PO	750 mg BD	HPRA Drug Salety Alert 2018 & 2023
Ciprotoxaon IV	400mg TDS	Caution with use
Amonotin PO	750mg-1g TDS	
Amaxicillin 500mg TDS Option 2:	Option 1:	Options 1 or 2 depend on antibiotic
	Co-amoxiclay 625mg TDS PLUS	stock/availability.
		Option 1 would lead to an increase in
	Amaxicilin 500mg IDS	Amoxicillin consumption
	Option 2:	
	Co-amoxiclav 875/125mg TDS	
	Califazidime IV Caprotoxisan PO Caprotoxisan IV Amostolin PO	Value Valu

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Note: Dosing recommendations are for adult patients with normal renal/liver function. Higher than standard dosing of some antibiotics may be required for severe infections. Please contact the Clinical Microbiology Team for further advice if required. Table adapted from: Scottish Antimicrobial Prescribing Group (SAPG) and the Scottish Microbiology and Virology Network (SMVN).
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