

## Changes to antibiotic susceptibility reporting from microbiology laboratories

### EUCAST recommendations

Reporting of antibiotic susceptibility from microbiology laboratories is changing in line with the European Committee on Antimicrobial Susceptibility Testing (EUCAST) recommendations.<sup>1</sup>

The change affects the 'I' category of susceptibility.

**I = Susceptible, Increase exposure i.e. increased drug dose** (previously this was I = 'intermediate').

The new definitions are shown below where S is susceptible, I is increased exposure required, and R is resistant:

<b>S</b>	<b>Susceptible at standard dose</b>
<b>I</b>	<b>Susceptible, Increased exposure (increased dose)</b>
<b>R</b>	<b>Resistant even with increased exposure/dose</b>

### Principles for use of antibiotics reported as 'I'

- Agents reported as I should not be avoided but should be given at an increased dose, they are appropriate treatment options when given at the correct dose.
- Increased dose regimens for commonly used antibiotics which will be more frequently reported as I are listed below.
- *Pseudomonas aeruginosa*, for many antibiotics, is never reported S, only I, but it is still possible to treat provided the dosing and mode of administration is considered.
- Where an antibiotic dose is not listed, and for paediatric patients, please discuss dosing with the clinical microbiologist or antimicrobial pharmacist.
- Refer to the <https://bnf.nice.org.uk/> and [www.medicines.org.uk](http://www.medicines.org.uk) for advice on dosing in patients with renal or hepatic impairment but take into account the higher dose required to treat these organisms effectively.

### Increased dosage of antibiotics when reported as 'I'

Organism	Drug	Increased Dose for Adults	Comments
Enterobacterales ( <i>E.coli</i> , <i>Klebsiella</i> sp, <i>Raoultella</i> sp, <i>P. mirabilis</i> )	Cefuroxime IV	1.5 g 8 hourly <sup>1, 2, 3</sup>	In patients with obesity BMI $\geq 30$ kg/m <sup>2</sup> consider 1.5g 6 hourly <sup>8</sup> In patients with life threatening or less susceptible infections consider 1.5 g 6 hourly <sup>2, 9</sup>
Enterobacterales ( <i>E.coli</i> , <i>Kleb</i> sp and <i>P. mirabilis</i> )	Temocillin IV	2 g 8 hourly <sup>1, 2, 4,</sup>	
<i>Pseudomonas</i> spp	Piperacillin 4g/tazo-bactam 500mg IV	4.5 g 6 hourly <sup>1, 2, 5</sup> 3 hour infusion recommended in critical illness	EUCAST recommends 3 hour infusions as standard. Due to practical constraints, and in line with other nations, this should be prioritised for patients with critical illness

	Ceftazidime IV	2 g 8 hourly <sup>1, 2, 6</sup>	BNF states for pseudomonal lung infection in patients with cystic fibrosis; 100–150 mg/kg daily in 3 divided doses; maximum 9 g per day.
	Aztreonam IV	2g 6 hourly <sup>1,2,8</sup>	
<b>Organism</b>	<b>Drug</b>	<b>Increased Dose for Adults</b>	<b>Comments</b>
<i>Pseudomonas</i> spp/ <i>Acinetobacter</i> spp/ <i>S. aureus</i>	Ciprofloxacin IV	400mg 8 hourly <sup>1,2,19</sup>	-
	Ciprofloxacin Oral	750mg 12 hourly <sup>1,2,10</sup>	Already used but not standard practice and will likely lead to an increase in Defined Daily Doses (DDD).
<i>S. maltophilia</i>	Co-trimoxazole IV/Oral	1440mg 12 hourly <i>except in urinary tract infections: 960mg 12 hourly</i> <sup>1,2, 11</sup>	Although not included in the BNF or SPC, the dose usually recommended in Scotland and quoted in international dosing reference sources is higher i.e. 90-120mg/kg/day in 2 – 4 divided doses. <sup>7,16</sup>
<i>H. influenzae</i>	Amoxicillin Oral	1g 8 hourly <sup>1,2,12</sup>	EUCAST recommend 750 – 1g but suggest 1g 8 hourly dosing for simplicity and to avoid need for 250mg capsules which are not routinely stocked in most adult hospital wards. This dosing advice may lead to more routine use of the 1g dose in primary care and an increase in amoxicillin DDDs.
	Co-amoxiclav Oral	Co-amoxiclav 625mg 8 hourly + Amoxicillin 500mg 8 hourly <sup>1,2 12,13</sup>	EUCAST recommend 875/125mg 8 hourly. 875/125 tablets are available in the UK but not stocked in Scottish hospitals and cost should be taken into account. According to the BNF 875/125 tablets cost £18 for 14 tablets vs £2.70 for 21 of 625mg tablets. <sup>2</sup> The dosing shown would give 1000/125mg 8 hourly. Again this dosing increase would lead to an increase in oral amoxicillin DDDs.
Streptococcus groups A/B/C/G & <i>S. pneumoniae</i>	Levofloxacin IV	500mg 12 hourly <sup>1,2,14</sup>	-
	Levofloxacin Oral	500mg 12 hourly <sup>1,2,15</sup>	-

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