Redefinition of the (I) antimicrobial susceptibility category.

Commencing September 2021

Background:

Antimicrobial susceptibility testing (AST) guide clinicians in the choice of antimicrobial to utilise in patients with a confirmed infection.

Clinicians will be aware of legacy AST categorisations:

- (S) Susceptible: antimicrobial may be utilised to treat the infection.
- (I) Intermediate: antimicrobial may be unsuccessful in the treatment of infection, recommend avoid.
- (R) Resistant: antimicrobial should not be used to treat the infection as likelihood of treatment failure.

EUCAST (the European Committee on Antimicrobial Susceptibility) has reviewed this reporting to reflect the fact that:

- For some organisms previously labelled as (I) for a particular antibiotic, use of a higher dosing regimen will likely effectively treat the infection*
- Increasing levels of antibiotic resistance to standard dosing regimens for some organisms

In light of this, as of September 2021, (I) will now be re-categorised with a new definition. From 31st January 2022, abbreviation (I) will be replaced by (S*)

(S) Susceptible: antimicrobial can be used at standard dosing to treat the infection.

(S*) Susceptible, increased exposure: likelihood of therapeutic success with **use of a higher dosing regimen***

(R) Resistant: antimicrobial should not be used to treat the infection.

**(with multifactorial factors that may determine treatment success including: site of infection, antibiotic dose, duration and route of administration)*

How will it impact my clinical practices?

- You may notice more (S*) results in clinical reports.
- If an antibiotic with susceptibility reported as (S*) is intended for use, then a high dosing regimen is indicated (*taking into consideration patients renal and liver function. If there are any queries or safety concerns about use of high dosing regimens in certain patients, please discuss with pharmacist/Duty Microbiologist*.)
- Oral and IV antibiotics exhibit different bioavailability characteristics. This means some bacteria may be effectively treated with a standard dose of IV antibiotics, but require a high-dose regimen of the oral equivalent (please refer to the attached section '**Standard and High dose antibiotic dosing regimens'** for further information**)**

Why does this change need to occur?

- Increasing levels of antibiotic resistance to standard dosing regimens.
- Recognition that, for some organisms, low-level resistance can be overcome by increasing the dosage of some antibiotics.
- All UK laboratories are required to change to this new definition.

Where can I find out more information?

- **https://eucast.org/clinical_breakpoints**

Standard and High dose antibiotic dosing regimens

All antibiotic regimens in this document refer to adult doses only, therefore any high dose antibiotic decisions for paediatric patients should be discussed with pharmacist/ Duty microbiologist (via East Surrey Hospital switchboard).

Please be aware that renal and/or hepatic impairment may also influence the dosages of antibiotic required. Contact pharmacist or Duty Microbiologist if any queries or concerns in renal/hepatic impairment and drug interactions.

Main oral antibiotics affected by new (S*) definition – susceptible at increased exposure category

Antibiotic	Standard dose (S)	High dose 'increased exposure' **(S*)**	Additional information
Amoxicillin	500mg TDS	1g TDS	
Co-amoxiclav	625mg TDS	625mg co-amoxiclav TDS **plus** 500mg amoxicillin TDS (both antibiotics taken at same time)	
Clarithromycin	250mg–500mg BD	500mg BD	
Erythromycin	500mg QDS	1g QDS	
Doxycycline	loading dose 200mg then 100mg OD	200mg OD	
Flucloxacillin	500mg–1g* QDS	1g QDS*	*PO doses above 500mg can be associated with GI intolerance
Ciprofloxacin	500mg BD	750mg BD	
Levofloxacin	500mg OD/BD	500mg BD	
Clindamycin	300-450mg QDS	Discuss with Duty Microbiologist for an appropriate treatment option.	*PO doses above 450mg can be associated with GI intolerance; therefore switch to IV would be required.
Rifampicin	300mg BD	450–600mg BD	*TB* dosing: 600mg OD
Co-trimoxazole	960mg BD	Discuss with Duty Microbiologist for an appropriate treatment option.	*PCP*: much higher doses required. Consult guideline or discuss with Duty microbiologist Higher doses to be given IV only