Important Changes to Antimicrobial Susceptibility Reporting & Dosing Recommendations EUCAST 2022

EUCAST Antimicrobial Susceptibility & Dosing Recommendations Update

Background

Antimicrobial susceptibility testing guides clinicians in their choice of antimicrobial therapy. Results of susceptibility testing are reported when there is a reliable correlation between the results of *in vitro* susceptibility tests and clinical outcome. Since 2002, the European Committee on Antimicrobial Susceptibility Testing (EUCAST) has used the terms 'susceptible' (S), 'intermediate' (I) and 'resistant' (R) to classify the likely outcome if the organism is treated with a specific antimicrobial agent.

Susceptibilities reported as 'intermediate' tended to be problematic to interpret by clinical teams to mean 'We are not really sure if this pathogen is susceptible to this antibiotic, so probably safest not to use it'. In light of this ambiguity & new EUCAST 2022 guidance, the definitions of **S** and **I** have been updated for particular bug-drug combinations.

Furthermore, you will see changes to how certain bug-drug combinations are interpreted for different source sites i.e. urinary and systemic. This may mean less antimicrobials reported, please refer to the Microguide App for full guidance.

Changes to Susceptibility Reporting & Interpretation

- **S – Susceptible at standard dosing regimens**. A high likelihood of therapeutic success using a standard dosing regimen of the agent.
- **I** – **Susceptible at increased dosing.** A high likelihood of therapeutic success because exposure to the agent is increased by adjusting the dosing regimen or by its concentration at the site on infection. An increase dosing can mean higher individual antibiotic doses and/or a reduction in the time between doses.
- **R – Resistant.** A high likelihood of therapeutic failure even at increased exposure.

Why are these changes indicated?

- Recognition that, for some organisms, higher dosing of antimicrobials is required
- Increasing levels of antibiotic resistance to standard dosing regimens

From 3rd May, you will see a comment on reports stating:
'If antimicrobial susceptibility testing is reported as 'I' intermediate this now means susceptible at increased dosing. Please refer to the Microguide App for full guidance.'

Please note multiple factors, in addition to *in vitro* susceptibility play a role in determining treatment outcome, including the site of the infection, the ability of the antimicrobial agent to reach the site of infection, the antimicrobial dose, duration and route of administration, and the propensity of the organism to develop resistance to the antibiotic being used. As

such, the results of antimicrobial susceptibility testing should be seen as a guide to treatment, rather than a guarantee of treatment success.

Changes to Antimicrobial Dosing Recommendations

When a particular antibiotic is reported as '**I**' - the higher dose regimen below should be used. In addition, there are certain clinical scenarios for which a high-dose regimen is recommended. These are also listed in the table below.

Please note that the doses listed are for adult patients with normal renal function, liver function and BMI. If you have queries or concerns about the safety of using a higher antibiotic dose in a particular patient, please discuss with a pharmacist or the Microbiology team.

Drug	High dose Regimen	Clinical scenarios where high dose recommended
Amoxicillin	1g PO TDS	High dose regimen should be considered in patients with more complicated infections (e.g. undrained abscess) or high BMI
Amoxicillin	2g IV QDS	High dose regimen should be used when treating meningitis
Ceftazidime	2g IV TDS or 3g IV BD	
Ceftriaxone	2g IV BD OR 4G IV OD	High dose regimen should be used when treating meningitis and considered when treating bone and joint infection
Cefuroxime	1.5g IV TDS	This is considered the standard dose at Barts Health and should be used in all scenarios
Ciprofloxacin	750mg PO BD OR 400mg IV TDS	For courses of > 5 days please discuss with Microbiology as monitoring for adverse effects is required
Co-amoxiclav	625mg PO + Amoxicillin 500mg PO TDS OR 1.2g IV + Amoxicillin 1g IV TDS	"Boosted" co-amoxiclav should be considered in patients with more severe or complicated infections (e.g. undrained abscess) or high BM
Co-trimoxazole	1.44g PO/IV BD	N.B. This is NOT the correct dose for PCP – please see section on HIV infections. Monitor FBC and renal function
Levofloxacin	500mg PO/IV BD	High dose regimen should be used if treating severe community-acquired pneumonia
Meropenem	2g IV TDS	High dose regimen should be used when treating meningitis. Please discuss with microbiology to see if an alternative may be used
Piperacillin-tazobactam	4.5g IV QDS	High dose regimen should be considered in patients with more severe or complicated infections (e.g. undrained abscess, sepsis, necrotising otitis externa), particularly if caused by *Pseudomonas aeruginosa,* and/or patients with high BMI.
Temocillin	2g IV TDS	High dose regimen should be considered in complicated Gram-negative infections. N.B For uncomplicated UTI standard dose 2g BD is adequate even if reported as "D"

References

https://www.eucast.org/clinical_breakpoints/

Please do not hesitate to contact us should you have any questions.

Katy Stocker | Viapath
Operations Manager in Microbiology
Third Floor Cheyne Wing | King's College Hospital, Denmark Hill | London | SE5 9RS
020 3299 3442
(Int X 33442)
Katystocker@nhs.net
katy.stocker@viapath.org
www.viapath.co.uk