

READING IN BETWEEN THE LINES IN A SUSCEPTIBILITY TEST REPORT

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Susceptibility test results for bacteria conventionally are recorded and categorized individually and expressed as susceptibility, intermediate susceptibility or resistance of an organism to an antimicrobial agent. This is a direct approach which understates the fact that a single mechanism may be responsible for resistance to an antibiotic. Interpretative reading aims to analyse the overall susceptibility pattern, not just the results of individual antibiotics and so to predict the underlying mechanisms. Based on this type of interpretation susceptibilities that appear doubtful in the light of the inferred mechanism can be identified and reviewed and further drugs that merit testing can be identified.

There are some pre- requisites for an interpretative reading to gain in significance in the laboratory as well as for infection control and to direct antibiotic therapy in an individual patient. Recognising unusual resistances, detecting antibiotics that are likely to select for resistance and to use indicator drugs to pick out difficult to detect resistance mechanisms are important not only from the point of view of therapy of individual patients but also from an infection control perspective.

Some of the resistance mechanisms are easy to detect, some require special tests to be set up that may place additional demands on the laboratory, nevertheless this has to be done as it is important to segregate infected or colonized patients and institute appropriate isolation precautions. Patients infected with or colonized with ESBL producing gram negative organisms, methicillin resistant staphylococci, vancomycin resistant enterococci, metallo-beta-lactamase producing Carbapenem-Resistant gram-negative organisms must be detected, extended colonization to other patients in the unit or the ICU worked out so that all patients colonized with the same organism are cohorted and managed with contact isolation precautions.

Detection of this resistance depends on the ability of the laboratory to screen for certain resistance patterns irrespective of a special request from clinical colleagues. A classic example of this are faeces cultures that are accepted by the laboratory for *C. difficile* toxin detection. It is important to remember that such patients, suspected to be colonized or infected with *C. difficile* may also harbor VRE (Vancomycin resistant enterococci). Screening of such patients for VRE gives additional and valuable information regarding the colonization status. If this patient is admitted to an unit or the ICU, other patients in the same facility also need to be screened for the same pattern of resistance and all of the will need cohorting and isolation precautions.

The same principle holds good for Carbapenem resistant enterobacteriaceae and Non fermenters. Cleaning protocols need to be stepped up and enhanced if colonization or infection with such organisms are detected in an unit or the intensive care unit. Hence lateral reading of susceptibility tests and institution of additional and supplemental tests becomes necessary in many situations, many of which may be of importance in the sphere of infection control.

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