Newsletter 36 (August 2015)

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The CDS website has been rebuilt and relocated and can be found at http://cdstest.net/. The website contains the latest online version of the manual, access to previous ASM workshops via the Archives section and current news in the What's New section. We will endeavour to maintain the site with the latest calibrations and updates as they come to hand and appreciate CDS user's feedback.

As mentioned at ASM 2014 the CDS Reference Laboratory has moved to SEALS – Central at St George Hospital. It has now fully settled in to the new location and with the return of Dianne Rafferty we look forward to a highly productive and informative period. Some CDS users may remember Dianne as she worked alongside Jeanette Pham in the CDS Reference Laboratory from 2000-2006. Any enquiries can be directed to her and the CDS team at cds@sesiahs.health.nsw.gov.au or raffertyd@sesiahs.health.nsw.gov.au

Currently in the CDS laboratory we are undertaking a major project that aims to examine the relationship between agar dilution MICs and broth microdilution MICs. This study may take up to 2 years to complete and at the same time we will be comparing the breakpoints set down by the various methods and investigate ways of achieving harmonisation of these values.

Staphylococcus intermedius group (SIG):

This year we undertook a study to determine whether to use Cefoxitin 10µg or Oxacillin 1µg discs to report Methicillin susceptibility for the Staphylococcus intermedius group (SIG). Although this study was primarily aimed at veterinary laboratory practice it is now of interest to microbiologists working in human diagnostic microbiology. The SIG consists of *Staphylococcus intermedius*, *Staphylococcus pseudintermedius* and *Staphylococcus delphini*. This group of organisms are coagulase positive and difficult to differentiate from *Staph.aureus* and from each other on biochemical testing alone therefore it is recommended that they be reported as the Staphylococcus intermedius group (SIG), the exception occurs where the isolate is obtained from a canine source in which case it is accepted practice to identify the isolate as *Staphylococcus pseudintermedius.*

Like all Staphylococcus spp the SIG can acquire the mecA gene that confers resistance to methicillin and so we needed to investigate whether we should use Cefoxitin 10µg discs as we do with *Staph. aureus* or Oxacillin 1µg discs as we do with CoNS. The Powerpoint presentation at ASM 2015 by Dianne Rafferty of these results has been uploaded to the Archive section and can be accessed here.

Summary of the recommendations:
• Methicillin susceptible (mec A gene negative) SIG have a zone of inhibition to oxacillin 1µg discs > 6mm and should be reported as susceptible to methicillin.
• Methicillin resistant (mec A gene positive) SIG have a zone of inhibition to oxacillin 1µg disc <6mm and should be reported as resistant to methicillin.
• When the identification of the isolate is not available at the time of susceptibility testing then both cefoxitin 10µg disc and oxacillin 1µg discs should be tested. If both have a zone >6mm then the isolate should be reported as susceptible to methicillin.

The CDS method: not just about measuring zone sizes

This Powerpoint presentation was given by Dr Peter Newton at ASM 2015 and has been uploaded into the Archive section and can be accessed here. In summary Peter presented that for some organisms and antimicrobials interpretation of the CDS test involves not only measuring the annular radius of the inhibitory zone but an examination of the inhibitory zone morphology is also important in assessing the susceptibility. This aspect of the CDS test is best exemplified by: (1) the sharp zone edge of beta-lactamase producing strains of Staphylococcus aureus and Enterococcus faecalis and (2) the hazy zone edge of vanB phenotype VRE with vancomycin-susceptible enterococci,. The confluent uniform lawn of growth produced by the CDS inoculum preparation is advantageous in the assessment of the inhibitory zone edge.*

Discussion arising from the Users Group:

1.Susceptibility Testing of *Helicobacter pylori* to metronidazole:
Q: Should *H. pylori* be incubated anaerobically for the first 24hrs to combat the overestimation of resistance to metronidazole?
A: Metronidazole needs to be reduced by the bacterial cell before it is active therefore its use is generally restricted to obligate anaerobes. *H. pylori* cultures are a mixture of aerobic, microaerophilic and anaerobic cells. Incubation under strict anaerobic conditions suppresses the growth of the aerobic and microaerophilic cells and gives rise to an *in vitro* phenomenon of apparent susceptibility. However this has not been tested *in vivo* whereas the results of conventional susceptibility testing (no anaerobic incubation) have been correlated with clinical response in a number of studies. However as metronidazole is invariably used in combination with at least one other antibiotic the correlations are difficult to interpret.
As the CDS test is biased towards specificity (i.e. we try to avoid calling resistant strains susceptible) it is our recommendation that, until further evidence is available to establish a correlation between incubation under anaerobic/microaerophilic conditions, CDS users should adhere to the method described in the manual.

Larsen, A,L. et al. 2012 Resistance rates of metronidazole and other antibacterials in *Helicobacter pylori* from previously untreated patients in Norway. APMIS 121,353-358.
McNulty, Cliodna., et al. 2002 *Helicobacter pylori* susceptibility testing by disc diffusion. Journal Antimicrob. Chemother. 49,601-609.

2.Mixed cultures of VRE (vanA and vanB):
Q: If an isolate of VRE was able to have both vanA and vanB genes can we pick this up using the CDS method?
A: As with all disc diffusion tests the CDS method shows the phenotypic result of expression of vanA or vanB or some strains may even show heterogenous resistance. It is important that interpretation of isolates follow the protocol as set out in section 4.2.6 of the manual with mandatory comparison to the reference strain as interpretation of susceptibility is based on characteristics of the inhibitory zone edge as well as the size of the zone.

3.Zone sizes:
Q: Is it enough to report R/S or should zone sizes be reported in mm?
A: After discussion with the user's group it was pointed out that currently it is not a requirement of NPAAC (National Pathology Accreditation Advisory Council) to record zone sizes in mm so reporting R/S should be sufficient.

<u>Reporting of Meropenem for RCPA QAP Survey:</u>
It has been raised with the CDS Reference Laboratory that with RCPA QAP for the Gram negative isolates CDS user's report Imipenem 10µg. Imipenem is now rarely used to treat patients and has largely been replaced by Meropenem. Imipenem 10µg cannot be used as a surrogate for Meropenem as there have been cases of Proteus spp that are resistant to Imipenem 10µg but sensitive to Meropenem 5µg by mechanisms other than carbapenemase production. Therefore it is recommended that CDS users should test and report Meropenem 5µg susceptibility with all GNR in addition to using Imipenem 10µg adjacent to Cefotaxime 5µg for detection of inducible cephalosporinases.