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ePoster Viewing

Antifungal drug susceptibility and resistance

Performance in EQA for antifungal susceptibility from 2007 to 2013 by United Kingdom national external quality assessment service

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Objectives

The United Kingdom National External Quality Assessment Service (UK NEQAS) for Microbiology introduced a scheme for Antifungal susceptibility in February 2007 and provides participants with the opportunity to assess their performance in identification and antifungal susceptibility for a variety of clinically significant yeasts and filamentous fungi. Antifungal susceptibility testing results of clinically important fungal isolates are of particular interest to clinicians, enabling them to adopt appropriate strategies for treatment, empiric and prophylactic therapies. To review participant performance in identification of fungi (predominantly yeasts) and testing of antifungal susceptibility for isolates distributed as part of the UK NEQAS Antifungal susceptibility EQA scheme between 2007 and 2013.

Methods

Panels of two pure cultures of yeasts or filamentous fungi were distributed three times per year. Specimens included 38 yeasts and 2 moulds, covering the most prevalent yeasts causing fungaemia, and emerging pathogens that have been previously isolated in clinical specimens. Reported results from participants were analysed for concordance with intended results.

Results

Participation has increased since the first distribution in February 2007 from 65 to 190 registered participants in October 2013. Participants' results showed a range of outcomes from excellent performance for fungal identification to notable

variations in the interpretations of susceptibility results, dependant on the method employed and interpretation of the MICs determined.

Candida krusei are innately resistant to fluconazole so identification of such an isolate should preclude use of this agent. All isolates should be reported as resistant, irrespective of the MIC obtained. Marked improvement in identification was seen over time and the majority of participants correctly reported the yeast as fluconazole resistant. There were high levels of discrepancy with the susceptibility results for flucytosine and itraconazole in distributions in 2007 and 2013 (table 1). This was notable with laboratories using MIC gradient strips where there appeared to be inconsistencies in reporting end points.

Incorrect identification of *Aspergillus terreus* has important clinical implications as unlike most other *Aspergillus* species it is often resistant to amphotericin B. This isolate was correctly identified by 105/121 laboratories. Only 50 participants returned results for susceptibility to amphotericin with all but one reporting the correct result.

Conclusions

Overall, participants have demonstrated satisfactory competence in performing antifungal susceptibility tests on the isolates distributed in the EQA scheme. Analysis of participants' results has highlighted determining susceptibilities of some yeasts, particularly certain species remains challenging.

Table1

Antifungal agents	Distribution (year) % correct result			
	2186 (2007)	2530 (2009)	2697 (2010)	3307 (2013)
amphotericin B	100	93	95	85
fluconazole	61	87	84	95
itraconazole	33	46	94	29
flucytosine	27	65	60	11
voriconazole	100	87	96	93
caspofungin	-	-	100	87
Correct identification	89	96	98	98