BREAK POINT

2013 - ISSUE 02

WELCOME TO THE 2nd NEWS SHEET OF THE SOCIETY FOR 2013

We trust you took time to think about the new in brief look of the Newsletter introduced in February this year. In this issue, Narelle George, from the Department of Microbiology, Queensland Pathology, Brisbane provides a much anticipated guide with tricks in adopting the EUCAST protocols for antimicrobial susceptibility testing, followed by a Quiz…. answers in the next issue of Breakpoint. In "NEWS", some lateral thinking has given birth to a plant extract to alleviate HIV-related diarrhea (ok, it's strictly speaking not really an anti-infective). Notices and the conference calendar follow.

Feedback, as always, is most welcome.

All the best

Sharon Chen
ASA News sheet Editor
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Antimicrobials 2014

Thurs 20th - Sat 22nd February 2014 Melbourne Convention Exhibition Centre. Melbourne, Victoria

PLENARY SPEAKERS

Resistance Amplification by Cross Transmission. Susan Huang. University of California, USA
Epidemiology and Susceptibility Testing of Fungal Infections. Maiken Arendrup. Staten Serum Institute, Denmark
Antibiotic Dosing in ICU: Moving towards Individualised Therapy? Dr Jason Roberts. University of Queensland, Australia

SYMPOSIUM

Clostridium difficile	Transmission of Multi Drug Resistance	Mycology	Therapeutic Drug Monitoring	Bug Specific
Epidemiology: "Where the Wild things Are? (Tom Riley)	Mathematical Modelling (Emma McBryde)	Australian Perspective: Antifungal Susceptibility (Sarah Kidd)	Mobile β-lactam TDM in Clinical Practice (Jason Roberts)	*Streptococcus pneumoniae*: the Attributable Disease Burden Due to Resistance (Susan Huang)
Hypervirulence or Just Hype? (Allen Cheng)	Antibiotics in Agriculture - Is this an Ethics Dilemma? (Peter Collignon)	Non-Culture Based Diagnostics in Mycology (Catriona Halliday)	Aminoglycoside Dosing – Current Controversies (Evan Begg)	Staphylococcal Bacteraemia: New Knowledge on Optimum Treatment (Natasha Holmes)
Infection Control (Rhonda Stuart)	How can Whole Genome Sequencing Enhance our Understanding – Information Overload (Ben Howden)	Treatment of Candidaemia: What's New (Maiken Arendrup)	Australian Guidelines: Where are we Going? (John Turnidge)	ASA Research Grant: Multi Resistant Plasmids in Enterobacteriaceae (Sally Partridge)

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NEWS: ANTI DIARRHEAL AGENT FOR HIV PATIENTS

From a potential novel anti-TB drug (Bedaquiline) highlighted in the last Edition of Breakpoint, the news for this edition focuses on release in December 2012 by the FDA of Crofelemer – (Fulyzaq) – to treat diarrhoea in HIV/AIDS patients on antiretroviral therapy. It is intended for those whose diarrhoea is not caused by a virus, bacteria, or parasite.

Derived from the red sap of the Croton lechleri plant aka known as "Dragon's blood" (see picture), this is the second botanical extract approved for human use by the DFA. The first was sinetechin (Veregen), now a treatment for external genital warts and perianal warts! Before treating patients with crofelemer, healthcare professionals should confirm that diarrhoea is not caused by an infection or a gastrointestinal disease.

Awaiting its arrival in Australia……

Read: Kaye D: Editorial: Clinical Infectious Diseases. 2013; 56: 15 April, Page i.

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

The European Committee on Antimicrobial Susceptibility Testing (EUCAST) has developed new standardised test protocols and interpretative guidelines for the antimicrobial susceptibility testing of bacteria. Whilst other organisations have been slow to respond to user requests to update their standards, EUCAST has published MIC breakpoint and zone diameter interpretations[1] that more closely reflect our current understanding of antimicrobial activity and bacterial resistance. These testing and reporting guidelines are available free of charge on the EUCAST website (*www.eucast.org*).

Many laboratories within Australia are now considering the adoption of EUCAST methods and interpretative guidelines within their laboratories. But where do you begin? A good starting point is to consider the following questions – how will EUCAST be rolled out, who will do it, what individual tasks are required and how long will it take?

A good management strategy is absolutely essential to ensure success. In my experience with the implementation of EUCAST throughout Pathology Queensland in 2012, there are three absolute essentials for a smooth transition.

Firstly, the scope of this change is such that an implementation team is recommended. The team needs to comprise laboratory scientists and clinical specialists with a varied skill set that includes not only experience in antimicrobial susceptibility testing but also expertise in quality assurance, training / competency assessment and an understanding of regional/satellite laboratory operations for those organisations that manage laboratory networks.

Secondly, the implementation team needs to be supported by a senior manager within your laboratory who has the authority to make the difficult decisions when these need to be made and who will ensure that the agreed outcomes will be enacted.

Thirdly, set a realistic timeframe with a fixed "go live" date to provide focus for the transition to the new protocol. Six months is the absolute minimum with an additional month for larger organisations where the scope of the change process will be greater.

Although the goal is to change from your existing method (either CLSI or CDS) to EUCAST, laboratories will still need to use a combination of methods as EUCAST lacks published MIC breakpoint data for less commonly isolated pathogens such as *Aeromonas species, Burkholderia cepacia*, *Corynebacterium species* and others as listed in Table 1. Pathology Queensland laboratories have chosen to continue to test and report antimicrobial susceptibility results on these organisms using the current CLSI M45-A2[2] and CLSI M100-S23 standards[3]. Additionally there are a limited number of antibiotics routinely tested and reported that are not calibrated by EUCAST (Table 2) Where these drug:bug calibrations exist within CLSI standards[2,3], then CLSI methods and interpretations are being used within our laboratories to allow reporting of antimicrobials that are considered clinically relevant. For laboratories using automated broth microdilution susceptibility testing methods, lower EUCAST MIC breakpoints may not be achieved for all antimicrobials within current pre-formatted susceptibility test panels. For example, the current Vitek2™ AST-N246 and AST-P612 panels used in Australia are configured to CLSI breakpoints which are higher than EUCAST for some antimicrobials (e.g. rifampicin, ciprofloxacin, high level gentamicin synergy) resulting in the inability to accurately report susceptibility to these agents according to EUCAST criteria. Laboratories need to decide on an interim reporting strategy whilst commercial suppliers reconfigure AST panels to incorporate these changes.

Managing both CLSI and EUCAST methods within the laboratory adds another level of diversity and complexity to routine antimicrobial susceptibility testing. How do you communicate this diversity of testing to your laboratory staff? In Pathology Queensland, Dr Sally Appleton has developed a series of 3 tables that summarise the test requirements (media, incubation conditions, interpretative standard) according to organism. This guide is widely used by staff and is applicable to all laboratory types irrespective of the range of antimicrobial susceptibility testing performed (Table 3).

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

So now that the decisions have been made relating to the range of testing and application of different methods, what are the important technical aspects of the change to EUCAST methods at the bench level that need to be addressed?

EUCAST uses a single test medium for fastidious microorganisms (*Streptococcus pneumoniae* and *Haemophilus influenzae)*. Mueller Hinton Fastidious Agar (MH-F agar = Mueller Hinton agar + 5% horse blood + 20 mg/L NAD) replaces the Mueller Hinton Sheep Blood agar (MHSB) and Haemophilus Test Medium (HTM) required by CLSI. Unfortunately, laboratories will need to retain some MHSB agar to test those organisms that are not calibrated by EUCAST so care needs to be exercised in the labelling and storage of these agar media as MH-F and MHSB are similar in appearance. Whilst MH-F media is commercially available in Australia, laboratories that chose to manufacture this medium "in-house" need to ensure that the basal MH formulation selected for use is evaluated thoroughly for performance particularly with respect to the testing of cotrimoxazole. Additionally, the use of high potency NAD is essential to ensure good growth of *Haemophilus species*.

With respect to antibiotic discs, there are some major changes to commonly tested antibiotics (Table 4). Once again where dual CLSI and EUCAST protocols may be in routine use, ensuring that the correct concentration is used within disc dispensers is essential to prevent errors in reporting.

Overall, the change to EUCAST test protocols has the greatest impact on those laboratories that routinely perform disc diffusion testing with the need to use new media and antibiotic disc concentrations and to apply new zone diameter interpretation criteria. For automated broth microdilution test protocols, the workflow impacts are minimal as the new EUCAST breakpoint interpretations can be preset within the instrument. User-defined AES configuration files can be developed, tested and validated within one instrument in preparation for copying to all other Vitek2™ instruments within your laboratory network. Preloading of the EUCAST configuration file can be performed prior to the "go live" date and then activated locally at the agreed time.

Whilst the technical aspects of this change are the easiest to deal with, there are three *"not so easy"* tasks that need to be addressed by all laboratories moving to EUCAST. These include the quality aspects of method implementation, training and competency assessment of laboratory staff and communication of the change to laboratory clients.

Current regulatory authorities (NATA, ISO, and TGA) require validation of new test protocols prior to implementation within the laboratory. Any validation process needs to include the EUCAST media (MH-F agar), discs, test protocol and the new QC organism (*Haemophilus influenzae* NCTC 8468). For large laboratory networks, centralising this process to one laboratory provides the added benefits of efficiency and cost containment. In Pathology Queensland, the validation of the EUCAST protocols was undertaken in the Central Laboratory utilising multiple staff to perform routine disc diffusion tests over consecutive days for up to 4 weeks followed by data and trend analysis. Ongoing verification of test performance is still required at each satellite laboratory but this can then be monitored via routine weekly Quality Control testing.

Documentation is also an important component of the laboratory quality system. In Pathology Queensland, standardised test protocols are used across all laboratories for disc diffusion testing and operation of Vitek2™ instruments. This has the advantage of controlling the number of documents that require updating and centralising ongoing revision of laboratory documents following release of new versions of interpretative standards. Don't forget that supporting documents such as disc reading templates, computer codes and training records are all need to be included as part of the document revision process. Laboratories in the process of moving to EUCAST should remember that this document review needs to be undertaken as early as possible within the implementation schedule because documented procedures are required to support the staff training component of the change process.

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

Comprehensive training and competency assessment of laboratory staff is absolutely essential to ensure the successful implementation of EUCAST within your laboratory. For single laboratory transitions, this task can be achieved by one-in-one training however for larger organisations with multiple test sites, training programs need to address a range of different laboratory workflow requirements and the variable skill level of laboratory scientists. Whilst use of dedicated training teams had been utilised in Pathology Queensland on previous occasions, financial constraints at the time rendered this option untenable. In response, we developed a model that utilised a range of different IT applications including videoconferencing, digital capture of AST results and computer based data analysis to allow our centralised training team to remotely deliver the training program. Selected resource staff within each of our Group Coordinating and Metropolitan Laboratories were trained using a series of lectures and information sharing sessions, followed by "hands-on" set up of antimicrobial susceptibility tests in the laboratory. Zone diameter measurements and digital images of the disc susceptibility results were analysed by the centralised training team as part of the competency assessment process. Our trained resource personnel were then responsible for the training of staff within their own laboratories and laboratory networks. Resource toolkits including materials such as Reference Standards, PowerPoint presentations, documented procedures and training forms were provided to all resource staff to assist in this process

Finally, laboratories moving to EUCAST need to communicate the potential impacts of this change to the users of the pathology service. Each laboratory needs to identify who their key clients are and what level of information relating to the EUCAST change that needs to be imparted. Clinicians and General Practitioners will primarily be interested only in how this change will affect what they see on their reports. However, specialist ID physicians will want to know what the impact the change will have on antibiotic resistance detection and resistance rates. To answer these questions access to detailed laboratory information such as the most common clinical isolates by site of collection and cumulative antimicrobial MIC data for these organisms is required. MIC data is essential as you need to overlay the EUCAST MIC breakpoints to assess the percentage change in susceptibility for individual organisms and antibiotics. Infection Control practitioners will require assurance that the EUCAST MIC breakpoints will not affect the sensitivity and specificity of multi-resistant organism detection. Whilst there should be no adverse impacts on the detection rates of MRSA and VRE, laboratories will need to decide how they will manage the detection of ESBL and *ampC* producing Enterobacteriaceae. EUCAST currently recommends that susceptibility to third generation cephalosporins be reported as found so that there is no need to verify the presence of resistance mechanisms for clinical reporting. Additional testing may be warranted for the purposes of epidemiology or Infection Control but this will depend upon your client's requirements.

In conclusion, Pathology Queensland laboratories have now been operating on EUCAST since July 2012. Our only post-implementation challenges have been related either to technical issues such as wrong antibiotic concentrations getting into the wrong dispensers particularly for the testing of *Burkholderia cepacia* and *Pseudomonas aeruginosa* isolates from patients with cystic fibrosis where both CLSI and EUCAST methods are required or to problems with detection of beta-lactam resistance in *Haemophilus influenzae*. Although the amoxicillin-clavulanate susceptible zone diameter breakpoint in the current version of the EUCAST MIC and Zone Diameter Interpretation Tables[1] has changed from 17 to 15mm to reduce the number of false resistant strains, problems with reporting are still occurring. This just goes to show you that whatever method you use, there will always be ongoing challenges with the testing and reporting of antimicrobial susceptibility results.

Happy EUCASTing!

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

Table 1: Non-EUCAST Calibrated Organisms tested by Pathology Queensland

ORGANISM	ACTION
Aeromonas species *Plesiomonas Vibrio species*	Use CLSI M45-A2
Burkholderia cepacia	*Use CLSI M100-S23*
Burkholderia pseudomallei	Use CLSI M45-A2
Non-fermenting GNB (Achromobacter, Alcaligenes, Chryseobacterium, etc)	*Use EUCAST Non species Specific Breakpoints + Comment Non standardised testing performed*
HACEK Group *Pasteurella sp******	Use CLSI M45-A2 (*EUCAST V3.*1 now has calibration criteria)
Corynebacterium sp	*Use CLSI M45-A2*
Bacillus species (B anthracis)	Use CLSI M100-S23
Streptococcus milleri	*Use CLSI M100-S23*
Abiotrophia, Granulicatella	Use CLSI M45-A2
Leuconostoc sp *Pediococcus sp*	Use CLSI M45-A2
Lactobacillus sp	Use CLSI M45-A2
Erysipelothrix rhusiopathiae	Use CLSI M45-A2

Table 2: Antibiotics Tested by Pathology Queensland not Calibrated by EUCAST

ORGANISM	ANTIBIOTIC	ACTION
Staphylococcus aureus	Nitrofurantoin (urines)	EUCAST only available for *Staph saprophyticus*
Enterococcus species	Daptomycin	Use CLSI
Enterobacteriaceae	Cefazolin	Urines – test cefalexin by disc instead (EUCAST calibrated)
	Cefoxitin screen only	Use <8 breakpoint - same as CLSI
	ESBL screen	Still test report if positive, if negative Add comment
Pseudomonas aeruginosa	Norfloxacin	Use CLSI
Stenotrophomonas maltophilia	Ticarcillin-clavulanate	Use CLSI
	Ceftazidime	Use CLSI
Acinetobacter species	Ampicillin, Amoxicillin-clavulanate, Ticarcillin-clavulanate, Piperacillin-tazobactam, third generation cephalosporins, cefepime	Use CLSI where published breakpoints are available

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

Table 3: Susceptibility Testing Guidelines for Pathology Queensland

	ORGANISM	GUIDELINE	MEDIA	INOCULUM	INCUBATION (OC/H)		EXCEPTIONS
GRAM NEGATIVE	*Enterobacteriaceae*	EUCAST	MH	0.5 McF	Air 35±1ºC	18±2	ESBL testing per CLSI M100-S23 If Cefazolin required – use CLSI If urine, cefalexin, use EUCAST MICs
	Pseudomonas spp.	EUCAST	MH	0.5 McF	Air 35±1ºC	18±2	If Norfloxacin required – use CLSI breakpoints
	Stenotrophomonas maltophilia	EUCAST	MH	0.5 McF	Air 35±1ºC	18±2	If Ticarcillin-clavulanate or Ceftazidime or minocycline required – use CLSI
	Acinetobacter spp.	EUCAST	MH	0.5 McF	Air 35±1ºC	18±2	If β-lactams or Tetracycline required – use CLSI breakpoints
	Haemophilus influenzae	EUCAST	MH-F	0.5 McF	5% CO_2 35±1ºC	20	β-lactamase all isolates
	Haemophilus parainfluenzae	CLSI M100-S23	(MH-F)	(0.5 McF)	(5% CO_2 35±2ºC)	(22±2)	β-lactamase only (If MIC needed, use MHF and comment)
	Moraxella catarrhalis	EUCAST	MH-F	0.5 McF	5% CO_2 35±1ºC	20	If Clindamycin required – use CLSI
	Aeromonas spp. *Plesiomonas shigelloides*	CLSI M45-A2	MH	0.5 McF	Air 35±1ºC	16-18	Use CLSI breakpoints
	Pasteurella spp.	EUCAST	MH-F	0.5 McF	5% CO_2 35ºC	16-18	
	Burkholderia pseudomallei	CLSI M45-A2	MH	0.5 McF	Air 35±2ºC	18±2	Use CLSI breakpoints No disc - MIC only: Ceftazidime SXT Doxycycline Meropenem (interpret mero using imipenem breakpoints)
	Burkholderia cepacia	CLSI M100-S23	MH	0.5McF	Air 35±2ºC	22±2	Use CLSI breakpoints
	Neisseria gonorrhoeae	EUCAST CLSI M100-S23	GC agar with 1% supplement	0.5 McF in MHB or 0.9% PBS	5% CO_2 35±1ºC	22±2	β-lactamase only No disc MIC only Not routinely tested Please refer to Central laboratory if requiring MICs for clinical purposes
	Neisseria meningitidis	EUCAST	MH-F	0.5 McF x Choc	5% CO_2 35±1ºC	20	No disc MIC only If SXT required – use CLSI with comment
	Other non-*Enterobacteriaceae*	CLSI M100-S23	MH	0.5 McF	Air 35±2ºC	18±2	GN BC disc dispenser with comment
	Chryseobacterium spp.	No calibrated method	MH	0.5 McF	Air 35±2ºC	18±2	MIC only Report with comment

MH = Mueller-Hinton Agar MH-F = Mueller-Hinton Fastidious Agar (5% Horse blood and 20mg/L β-NAD) MHSB = Mueller-Hinton Agar with 5% sheep blood
Choc = Chocolate Agar HACEK group (per M45-A2): Aggregatibacter spp., Cardiobacterium spp., Eikenella corrodens, Kingella spp.

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

	ORGANISM	GUIDELINE	MEDIA	INOCULUM	INCUBATION (OC/H)		EXCEPTIONS
GRAM POSITIVE	*Staphylococcus spp.*	EUCAST	MH	0.5 McF	Air 35±1ºC	18±2	CLSI M100-S23 for - hVISA screening - Inducible Clindamycin resistance D test
	Enterococcus spp.	EUCAST	MH	0.5 McF	Air 35±1ºC	18±2	24h incubation for glycopeptides If Daptomycin or chloramphenicol required – use CLSI breakpoints
	β-haemolytic *Streptococcus sp.* Group A, B, C & G	EUCAST	MH-F	0.5 McF	4-6% CO_2 35±1ºC	18±2	If Quinupristin-Dalfopristin required – use CLSI breakpoints
	Streptococcus pneumoniae	EUCAST	MH-F	0.5 McF x HBA 1 McF x Choc	4-6% CO_2 35±1ºC	20	If Quinupristin-Dalfopristin required – use CLSI breakpoints
	Viridans group Streptococci	EUCAST	MH-F	0.5 McF	4-6% CO_2 35±1ºC	20	If required – use CLSI breakpoints for : Fluoroquinolones, Quin-Dal, Linezolid, Chloramphenicol or Tetracycline
	Streptococcus milleri group	CLSI M100-S23	MHSB	0.5 McF	5% CO_2 35±1ºC	22±2	Penicillin MIC only Refer viridans group table
	Listeria monocytogenes	EUCAST	MH-F	0.5 McF	5% CO_2 35±1ºC	20	
	Clostridium difficile	EUCAST	Choc	0.5 McF	Anaerobic 36±1ºC	48	MIC only With comment
	Corynebacterium spp. and Coryneforms*	CLSI M45-A2	MHSB	0.5 McF	Air 35ºC	24-48	MIC only calibrated
	Bacillus spp. (not *B. anthracis*)	CLSI M45-A2	MHSB	0.5 McF	Air 35ºC	18±2	MIC only calibrated

MH = Mueller-Hinton Agar MH-F = Mueller-Hinton Fastidious Agar (5% Horse blood and 20mg/L β-NAD) MHSB = Mueller-Hinton Agar with 5% sheep blood

Choc = Chocolate Agar Coryneforms* (per M45-A2): includes Arcanobacterium, Brevibacterium, Cellulomonas, Dermabacter, Leifsonia, Microbacterium, Oerskovia, Rothia, Turicella

	ORGANISM	GUIDELINE	MEDIA	INOCULUM	INCUBATION (OC/H)		EXCEPTIONS
LESS COMMON	*Abiotrophia spp* *Granulicatella spp..*	CLSI M45-A2	MHSB	0.5 McF	Air 35ºC	22±2	MIC only Supplement media with pyridoxal
	Campylobacter jejuni/coli	EUCAST	MH-F	0.5 Mc F	Microaerobic 42ºC	24 or 48	Not routinely performed
	Erysipelothrix rhusiopathiae	CLSI M45-A2	MHSB	0.5 McF	Air 35ºC	22±2	MIC only
	HACEK group	CLSI M45-A2	MHSB	0.5 McF	5% CO_2 35ºC	24-48	MIC only
	Helicobacter pylori	EUCAST breakpoints	Choc	2 McF From 72-hour old subculture from Blood Agar	Microaerobic 35±2ºC	72	MIC only
	Lactobacillus spp.	CLSI M45-A2	MHSB	0.5 McF	5% CO_2 35ºC	24-48	MIC only
	Leuconostoc spp.	CLSI M45-A2	MHSB	0.5 McF	Air 35ºC	22±2	MIC only
	Pediococcus spp.	CLSI M45-A2	MHSB	0.5 McF	Air 35ºC	22±2	MIC only
	Vibrio spp.	CLSI M45-A2	MH	0.5 McF	Air 35±2ºC	16-18	
	Anaerobes	EUCAST	Brucella agar	0.5 McF	Anaerobic 36±1ºC	48	MIC only

MH = Mueller-Hinton Agar MH-F = Mueller-Hinton Fastidious Agar (5% Horse blood and 20mg/L -NAD)

MHSB = Mueller-Hinton Agar with 5% sheep blood Choc = Chocolate Agar

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

Table 4: Antibiotic Disc Concentration Changes (Pathology Queensland)

NEW ANTIBIOTIC DISC CONCENTRATIONS	REPLACE OR ADD	REPLACES (CLSI) OR IN ADDITION TO
Ampicillin 2 (XV)	A	Ampicillin 10 (GNB)
Penicillin 1 unit	A	Penicillin 10 (CLSI)
Vancomycin 5	A	Vancomycin 30 (CLSI)
Nitrofurantoin 100	R	Nitrofuratoin 300
Linezolid 10	R	Linezolid 30
Mupirocin 200	R	Mupirocin 5
Amoxicillin clavulanate 2/1 (XV)	A	Amoxicillin clavulanate 30 (GNB)
Cefotaxime 5	A	Cefotaxime 30 (ESBL)
Ceftazidime 10	A	Ceftazidime 30 (CLSI)
Piperacillin 30	R	Piperacillin 100
Piperacillin Tazobactam 36	A	Piperacillin Tazobactam 110 (CLSI)
Gentamicin 30 (ENC)	A	Gentamicin 10 (GNB)

MOVING TO EUCAST - A STATEWIDE SERVICE APPROACH CONT'D

Narelle GEORGE, Supervising Scientist, Microbiology, Pathology Queensland, HSSA, Brisbane, Queensland, 4029

References

1. EUCAST Breakpoint Tables for Interpretation of MICs and Zone Diameters, version 3.1 (2013-02-11) http://www.eucast.org/fileadmin/src/media/PDFs/EUCAST_files/Breakpoint_tables/Breakpoint_table_v_3.1.pdf.

2. Methods for the Antimicrobial Dilution and Disk Susceptibility Testing of Infrequently Isolated or Fastidious Bacteria; Approved Guideline – Second Edition, M45-A2, Clinical and Laboratory Standards Institute, Wayne, Pennsylvania, USA, 2010.

3. Performance Standards for Antimicrobial Susceptibility Testing; Twenty Third Informational Supplement, M100-S23, Clinical and Laboratory Standards Institute, Wayne, Pennsylvania, USA, 2013.

Acknowledgements

The Pathology Queensland EUCAST Implementation Team

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Dr Graeme Nimmo, Director of Microbiology, Pathology Queensland, Brisbane.

EUCAST QUIZ

This is an open book exam. You will need a copy of the current EUCAST breakpoints Tables for interpretation of MICs and zone diameters, version 3.1, valid from 2013-02-11(www.eucast.org).

There is a total of 30 marks.

To pass you need to achieve 80% pass mark or 24 / 30.

Question 1
Complete the following Table

ORGANISM	EUCAST DISC TEST MEDIUM
Enterobacteriaceae	
Streptococcus pneumoniae	
Acinetobacter	
Moraxella catarrhalis	
Haemophilus influenzae	
Pseudomonas aeruginosa	

Question 2
Circle the appropriate inoculation method when using EUCAST

0.5	1.0		McFarland
1%	0.85%	0.45%	Saline concentration
Swab	Flood		Plate inoculation
35oC	30oC	25oC	Incubation Temperature
16 hr	18 hr	24 hr	Duration of Incubation

EUCAST QUIZ CONT'D

Question 3

Complete the following EUCAST antibiotic concentrations when testing Escherichia coli

ANTIBIOTIC	EUCAST DISC CONCENTRATION
Augmentin	
Cefotaxime	
Meropenem	
Ciprofloxacin	

Question 4

Complete the following EUCAST antibiotic concentrations when testing Enterococcus faecalis

ANTIBIOTIC	EUCAST DISC CONCENTRATION
Ampicillin	
Vancomycin	
High Level Gentamicin	
Nitrofurantoin	

Question 5

ESBL testing is not recommended as a routine test by EUCAST

☐ YES ☐ NO

Question 6

Cefazolin is not calibrated for disc testing using EUCAST

Which of the following cephalosporins can be used instead of cefazolin for testing in URINE isolates

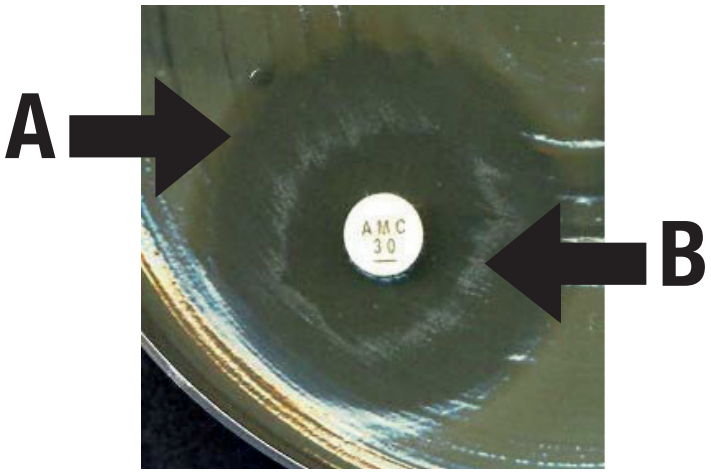
☐ Cefuroxime ☐ Cefalexin ☐ Cefoxitin

EUCAST QUIZ CONT'D

Question 7

When reading Proteus, where is the zone diameter read from

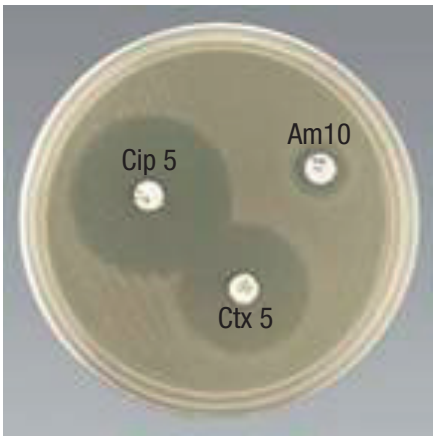
☐ A ☐ B



Question 8

This is the Quality control plate test for the Haemophilus disc dispenser using the QC strain Haemophilus influenzae ATCC 10211.

What is wrong with this test result if using EUCAST method?



EUCAST QUIZ CONT'D

Question 9

What action should be taken when AST of non-EUCAST calibrated organisms is required

- ☐ Test and report using CLSI method
- ☐ Test and report with non-standard AST comment
- ☐ Refer to another laboratory for AST testing
- ☐ Do not test at all
- ☐ Any of the above

Question 10

Complete the following EUCAST MIC interpretative breakpoints when testing Pseudomonas aeruginosa

ANTIBIOTIC	S (<=)	R (>)
Piperacillin Tazobactam		
Ceftazidime		
Chloramphenicol		
Meropenem		

Thank you for completing this series of questions.

Mark: _____ / 30.

Signature: _____

Date: __/____/____

2013 - 2014 MEETING CALENDAR

2013

23rd European Congress of Clinical Microbiology and Infectious Diseases (ECCMID)
27 – 30 April, 2013, Berlin, Germany
website: http://www.escmid.org

American Society for Microbiology Annual Meeting
28-31 May, Denver, Colorado
Website: www.asm/org

28th International Congress of Chemotherapy and Infection
5-8 June, Yokohama, Japan
Website: http://www2.convention.co.jp/icc2013/

Australian Society for Microbiology Annual meeting
7-10 July, Adelaide, South Australia
Website: www.theasm.org.au

52nd Interscience Conference for Antimicrobial Agents and Chemotherapy
Sept 10-13, Denver, Colorado
Website: www.icaac.org/

ID week (IDSA, SHEA, HIVMA, PIDS)
Oct 2-6, San Francisco, California
Website: http://www.idweek.org/idweek2013

2014

Australian Society for Microbiology, Annual meeting
July 6-9, Melbourne
Website: www.the asm.org.au

15th Asia Pacific congress of Clinical Microbiology and Infection.
Nov 26-29, Kuala Lumpur
Website: http:/www.apccmi2014.org/