EUCAST
update at CLSI, June 2009

Gunnar Kahlmeter
Chairman of EUCAST
Sweden

gunnar.kahlmeter@ltkronoberg.se
EUCAST

• Organised by ESCMID, ECDC and the national breakpoint committees in Europe. Future: “ECDC External Expert Committee”

• Steering committee, General committee (European reps), and Consultation network

• Integrated part of EMEA process for approval of new antimicrobials (SOP)

• Advisors from EMEA and ECDC

• Funding from ECDC and ESCMID
EUCAST Steering Committee
2008 - 10

• Chairperson            Gunnar Kahlmeter  2008 - 10
• Scientific Secretary    Derek Brown       2008 - 10
• Clinical data coordinator Rafael Canton     2008 - 10

• BSAC (The UK)       Alasdair MacGowan   2008 - 10
• CA-SFM (France)     Claude-James Soussy  2008 - 10
• CRG (The Netherlands) Johan W. Mouton   2008 - 10
• DIN (Germany)       Arne Rodloff        2008 - 10
• NWGA (Norway)       A Sundsfjord        2008 - 10
• SRGA (Sweden)       Christian Giske      2008 - 10

• General Committee rep*   Antti Hakanen (Finland)  2008 - 10
• General Committee rep*   Paul Tulkens (ISC)   2008 - 10

Previously: Greece, Czech republic, Spain, Russia, Italy and Poland.
EUCAST Tasks

- Determine clinical breakpoints and epidemiological cutoffs for existing and new antimicrobials (bacteria, fungi)
- Provide standardised and harmonised methodology for AST in Europe (bacteria, fungi)
- Education of laboratory staff
- Liaise with European regulatory organisations and NGOs and with international groups involved in breakpoints, methodology and surveillance of resistance.
The European Committee on Antimicrobial Susceptibility Testing - EUCAST

EUCAST is a standing committee jointly organized by ESCMID, ECDC and European national breakpoint committees. The Steering Committee is the decision making body. It is supported by a General Committee with representatives from European countries, FESCI and ISCoT. The Steering Committee also consults experts within the fields of Infectious Diseases and Microbiology, pharmaceutical companies and susceptibility testing device manufacturers on EUCAST proposals.

EUCAST has subcommittees on antifungal susceptibility testing, expert rules for antimicrobial susceptibility testing, and antimicrobial susceptibility testing of anaerobes.

EUCAST has harmonized most antimicrobial MIC breakpoints in Europe. Breakpoints for new agents are set as part of the licensing process for new agents through EMEA. EUCAST breakpoints will be available in devices for automated susceptibility testing during 2009. A disk diffusion test calibrated to EUCAST MIC breakpoints is being developed for launch around the end of 2009.

EUCAST invites anyone with an interest in antimicrobial agents in general and antimicrobial breakpoints in particular to contact EUCAST, ESCMID or one of the National Breakpoint Committees.
Why European breakpoints in Europe?

- breakpoints for European minimum and maximum dosages
- based on EMEA approved indications and outcome evaluation, Pk/Pd, multiple MIC distributions, and modern principles of determining breakpoints
- accepted by European regulatory authorities (EMEA, ECDC) and the only breakpoints in European SPCs
- European (ECDC) “case definitions” for antimicrobial resistance surveillance
- rationale behind decisions transparent and published
- independent of commercial interests
- reviewed at intervals: with every new member of class and on the initiative of EMEA, the Company, EUCAST
- in the public domain and free of charge
European breakpoints harmonised!

• Harmonising breakpoints for existing antibacterial drugs 2002 – 2009

• All breakpoints revised!

• 2008: review process started – glycopeptides and carbapenems
EUCAST and existing antimicrobials

- Aminoglycosides √
- Carbapenems & aztreonam √
- Cephalosporins iv √
- Cephalosporins oral √
- Fluoroquinolones √
- Glycopeptides √
- Macrolides and lincosamines √
- Miscellaneous antimicrobials √
- Penicillins √
- Tetracyclines √

- Antifungal drugs (flu- and voriconzole) √
EUCAST
– breakpoint committee for new drugs through EMEA*

- Daptomycin ✓
- Tigecycline ✓
- Garenoxacin (√)
- Doripenem ✓
- Cefalosporine (1 ongoing)
- Glycopeptides (ongoing)
- Fluoroquinolone (1 ongoing)
- Diaminopyrimidine (1 ongoing)

- Extensions of indications

*EMEA = European Medicines Agency
EUCAST breakpoint tables available at http://www.eucast.org

Click on name to access MIC distributions

Click for rationale document

Insufficient evidence

“Dashed” – laboratories are recommended not to test against this species

Aminoglycosides - EUCAST clinical MIC breakpoints 2006-01-31

1. The aminoglycoside breakpoints are based on modern once-daily administration of high aminoglycoside doses. Most often and A. Baumannii species.

2. The SI breakpoint has been increased from 2 to 4 mg/L for agents other than amikacin to avoid divergency with Acinetobacter species.

3. Enterococci spp. and some Pseudomonas species. Monotherapy is ineffective against enterococci. There is synergism between aminoglycosides and gentamicin, and resistance mechanisms. Enterococci spp. have a species-specific breakpoint which is most reliably determined using kanamycin as test substrate.

4. Resistance to aminoglycosides is most reliably determined using kanamycin as test substrate. Enterococci spp. are a species-specific breakpoint.

5. Non-species related breakpoints are generally determined mainly on the basis of PK/PD data and are given a species-specific breakpoint for those species where susceptibility testing is not recommended. For enterococci, the breakpoint for gentamicin is 1 mg/L. For Pseudomonas species and some Acinetobacter species, the breakpoint is 4 mg/L.

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Click for rationale document

Version* | Date     | Action
---------|----------|--------
1.2      | 2006-01-31 | Added an explanation of links from antibiotic names to wild type MIC distributions.
1.1      | 2004-04-30 | European aminoglycoside breakpoints harmonised by EUCAST.

*The number before the point indicates breakpoint change. The number after the point indicates major changes (does not indicate change in breakpoint change)
Ciprofloxacin | Rationale for the EUCAST clinical breakpoints, version 1.9 | 22nd August 2007

Introduction

The fluoroquinolones comprise a class of agents derived from nalidixic acid and developed since the 1960s. The early fluoroquinolones had a limited spectrum of antibacterial activity, mainly against Gram-negative pathogens. The newer fluoroquinolone agents have enhanced intrinsic activity against Gram-positive organisms and anaerobes and improved pharmacokinetic characteristics in comparison with preceding derivatives. Emergence of resistance is mainly due to mutations in the QRDR region where phenotypic resistance arises as a result of stepwise mutations. Microorganisms with one mutation may exhibit elevated fluoroquinolone MICs that are sometimes difficult to distinguish from wild-type MIC distributions. Other low level resistance mechanisms include increased activity of efflux pumps, Qnr proteins (capable of protecting DNA gyrase from quinolones) and inactivating enzymes.

EUCAST has defined clinical breakpoints for the fluoroquinolones ciprofloxacin (CIP), levofloxacin (LEV), moxifloxacin (MOX), norfloxacin (NOR) and ofloxacin (OFL). They are with few exceptions available in all European countries. Older fluoroquinolones which are available only in few countries or in topical preparations have not been addressed.

Some fluoroquinolones are available for both oral and intravenous therapy while others are available for oral therapy only. This is reflected in the breakpoints.

Ciprofloxacin is used to treat complicated and uncomplicated urinary tract infections, acute and chronic bacterial prostatitis, gonorrhoea, lower respiratory tract infections, acute sinusitis, skin and skin structure infections, bone and joint infections, complicated intra-abdominal infections and bloodstream infections, mainly involving Gram-negative organisms including Pseudomonas aeruginosa. It is also used in infectious diarrhoea caused by susceptible bacteria when antibacterial therapy is indicated. Other than in cystic fibrosis patients its use in paediatric patients is still a matter of debate.

1. Dosage

<table>
<thead>
<tr>
<th>BSAC</th>
<th>CA-SFM</th>
<th>CRG</th>
<th>DIN</th>
<th>NWGA</th>
<th>SRGA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most common dose (mg)</strong></td>
<td>500 x 2 oral</td>
<td>500 x 2 oral</td>
<td>250 x 2 oral</td>
<td>500 x 2 oral</td>
<td>250-500 x 2 oral</td>
</tr>
<tr>
<td></td>
<td>400 x 2 iv</td>
<td>200 x 2 iv</td>
<td>200 x 2 iv</td>
<td>200 x 2 iv</td>
<td>400 x 2 iv</td>
</tr>
<tr>
<td><strong>Maximum dose schedule (mg)</strong></td>
<td>750 x 2 oral</td>
<td>750 x 2 oral</td>
<td>750 x 2 oral</td>
<td>750 x 2 oral</td>
<td>750 x 2 oral</td>
</tr>
<tr>
<td></td>
<td>400 x 3 iv</td>
<td>400 x 3 iv</td>
<td>400 x 3 iv</td>
<td>400 x 3 iv</td>
<td>400 x 3 iv</td>
</tr>
<tr>
<td><strong>Available formulations</strong></td>
<td>oral, iv</td>
<td>oral, iv</td>
<td>oral, iv</td>
<td>oral, iv</td>
<td>oral, iv</td>
</tr>
</tbody>
</table>
EUCAST determines epidemiological cut-off values for early detection of resistance.

ECOFF: WT ≤ 0.032 mg/L

Epidemiological cut-off: WT ≤ 0.032 mg/L

Clinical breakpoints: S ≤ 0.5 mg/L, R > 1 mg/L
Gentamicin / Escherichia coli

Antimicrobial wild type distributions of microorganisms – reference database

ECOFF: WT ≤ 18 mm

ECOFF: WT ≤ 2 mg/L

Disc diffusion - Disc content: 10 mg/mL
Epidemiological cut-off: -
Clinical breakpoints: S ≥ - mm, R < - mm

563 observations
EUCAST and CLSI are different
EUCAST and CLSI are different

EUCAST

• Committee of representatives of national breakpoint committees and the medical profession in European countries.

• In dialogue with regulatory authorities (ECDC, EMEA)

• In consultation with industry.

• Consensus decisions, no vote

CLSI

• Committee of representatives from the medical profession, science, industry and regulatory authorities

• Decisions by vote
EUCAST and CLSI are different

EUCAST

- Funded by ESCMID, ECDC and national breakpoint committees.

CLSI

- Funded by memberships (industry, government institutions, societies, laboratories) and sale of documents.
EUCAST and CLSI are different

EUCAST

• Industry consultative role

CLSI

• Industry part of decision process
EUCAST and CLSI are different

EUCAST

- Five meetings per year.

CLSI

- Two meetings per year.
EUCAST and CLSI are different

EUCAST
- EUCAST functions as the breakpoint committee of EMEA

CLSI
- FDA determines breakpoints
- CLSI will be recognized by FDA from 2010. Breakpoints determined by FDA may be amended by CLSI after 2 yrs.
EUCAST and CLSI are different

EUCAST

• Rationale documents published on EUCAST website

CLSI

• Rationale for decisions not published in an organised fashion.
EUCAST and CLSI are different

EUCAST

• Documents for free.

CLSI

• Documents for sale.
EUCAST and CLSI are different

EUCAST

• Clinical breakpoints and epidemiological cut-offs

CLSI

• Clinical breakpoints
EUCAST and CLSI breakpoints are different

<table>
<thead>
<tr>
<th>Microbe</th>
<th>No of breakpoints</th>
<th>S and R</th>
<th>S</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterobacteriaceae</td>
<td>36</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pseudomonas</td>
<td>18</td>
<td>1 (imipenem)</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Acinetobacter</td>
<td>11</td>
<td>1 (colistin)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Staphylococci</td>
<td>31</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Enterococci</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Streptococci</td>
<td>25</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>S.pneumoniae</td>
<td>29</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>H.influenzae</td>
<td>27</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
# Staphylococcus spp
## EUCAST vs. CLSI

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>EUCAST S(\leq)/R(&gt;) (mg/L)</th>
<th>CLSI S(\leq)/R(&gt;) (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefoxitin</td>
<td>4 / 4</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>1 / 1</td>
<td>1 / 2</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>1 / 2</td>
<td>0.5 / 4</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>0.25 / 0.5</td>
<td>0.5 / 2</td>
</tr>
<tr>
<td>Genta/Tobramycin</td>
<td>1 / 1</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Daptomycin</td>
<td>1 / 1</td>
<td>1 / -</td>
</tr>
<tr>
<td>Linezolid</td>
<td>4 / 4</td>
<td>4 / -</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>4 / 8</td>
<td>2 / 8</td>
</tr>
<tr>
<td>Vancomycin for consultation*</td>
<td>2 / 2</td>
<td>-</td>
</tr>
</tbody>
</table>

*Decision pending sept 2009*
### E.coli, Klebsiella, Proteus

EUCAST vs. CLSI

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>EUCAST S≤/R&gt; (mg/L)</th>
<th>CLSI S≤/R&gt; (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampicillin</td>
<td>8 / 8</td>
<td>8 / 16</td>
</tr>
<tr>
<td>Cefotaxime</td>
<td>1 / 2</td>
<td>8 / 32</td>
</tr>
<tr>
<td>Ceftazidime</td>
<td>2 / 8</td>
<td>8 / 16</td>
</tr>
<tr>
<td><strong>Cefuroxime</strong></td>
<td>8* / 8</td>
<td>4 / 16</td>
</tr>
<tr>
<td>Imi-/Meropenem</td>
<td>2 / 8</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>0.5 / 1</td>
<td>1 / 2</td>
</tr>
<tr>
<td>Gentamicin/Tobra</td>
<td>2 / 4</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Amikacin</td>
<td>8 / 16</td>
<td>16 / 32</td>
</tr>
<tr>
<td>Trimethoprim</td>
<td>2 / 4</td>
<td>8 / 8</td>
</tr>
<tr>
<td>Nitrofurantoin</td>
<td>64 / 64</td>
<td>32 / 64</td>
</tr>
</tbody>
</table>

*Increased from 4 to 8 mg/L to avoid dividing the wild type MIC distribution*
### P. aeruginosa
### EUCAST vs. CLSI

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>EUCAST S≤/R&gt; (mg/L)</th>
<th>CLSI S≤/R&gt; (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftazidime</td>
<td>8 / 8</td>
<td>8 / 16</td>
</tr>
<tr>
<td>Piperacillin(tzb)</td>
<td>16 / 16</td>
<td>64 / 64</td>
</tr>
<tr>
<td>Imipenem</td>
<td>4 / 8</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>0.5 / 1</td>
<td>1 / 2</td>
</tr>
<tr>
<td>Genta/Tobra</td>
<td>4 / 4</td>
<td>4 / 8</td>
</tr>
</tbody>
</table>
### Streptococcus pneumoniae

#### EUCAST vs. CLSI

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>EUCAST $S \leq R$ (mg/L)</th>
<th>CLSI $S \leq R$ (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzylpenicillin&lt;sup&gt;Meningitis&lt;/sup&gt;</td>
<td>0.064 / 0.064</td>
<td>0.064 / 0.064</td>
</tr>
<tr>
<td>Benzylpenicillin&lt;sup&gt;Pneumonia&lt;/sup&gt;</td>
<td>0.064 / 2*</td>
<td>2 / 4**</td>
</tr>
<tr>
<td>Benzylpenicillin&lt;sup&gt;Miscellaneous&lt;/sup&gt;</td>
<td>0.064 / 2</td>
<td>?</td>
</tr>
<tr>
<td>Penicillin V</td>
<td>PcG 0.064 / 0.064</td>
<td>0.064 / 1</td>
</tr>
<tr>
<td>Ampi/Amoxicillin</td>
<td>0.5 / 2</td>
<td>2 / 4</td>
</tr>
<tr>
<td>Cefotaxime</td>
<td>0.5 / 2</td>
<td>1 / 2</td>
</tr>
<tr>
<td>Moxifloxacin</td>
<td>0.5 / 0.5</td>
<td>1 / 2</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>0.25 / 0.5</td>
<td>0.25 / 0.5</td>
</tr>
<tr>
<td>Azitromycin</td>
<td>0.25 / 0.5</td>
<td>0.5 / 1</td>
</tr>
</tbody>
</table>

*MIC-related (0.125 – 2 mg/L) variable dosing for pneumonia

**High dose for pneumonia
### H. influenzae EUCAST vs. CLSI

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>EUCAST S≤/R&gt; (mg/L)</th>
<th>CLSI S≤/R&gt; (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampicillin</td>
<td>1 / 1</td>
<td>1 / 2</td>
</tr>
<tr>
<td>Cefuroxime IV</td>
<td>1 / 2*</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Cefuroxime oral</td>
<td>0.12/1**</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>0.5 / 0.5</td>
<td>1 / -</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>0.5 / 16 (I)</td>
<td>- / -</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>1 / 2</td>
<td>2 / 4</td>
</tr>
</tbody>
</table>

*Wildtype = S
**Wild-type = I
Implementation of EUCAST breakpoints

- MIC-testing of any kind ✓
- National systems for disk diffusion from France, UK or Sweden ✓
- Phoenix ✓
- Vitek2, MicroScan – ongoing
- Disk diffusion – ongoing (provisional breakpoints available by end of 2009)
Disc tests from EUCAST and CLSI

**EUCAST**
- Mueller Hinton
- Inoculum 0.5 McF
- Incubation 18 +/-2 h (24h for some organisms)
- MH+5% Horse Blood and 20 mg β-NAD for streptococci, pneumococci & H.influenzae
- Disk strengths
- QC strains and reference ranges

**CLSI**
- Mueller Hinton
- Inoculum 0.5 McF
- Incubation 18 +/-2 h (24h for some organisms)
- Two different plates for fastidious organisms
- Disk strengths
- QC strains and reference ranges
S. pneumoniae ATCC 49619  

H. influenzae NCTC 8468
### MIC and Zone Diameter Limits for Quality Control Strains

**Escherichia coli ATCC 25922**

Mueller-Hinton agar. McFarland 0.5 air. 35±1°C. 18±2 h. Read complete inhibition from the back of the plates against a black background illuminated with reflected light.

<table>
<thead>
<tr>
<th>Antimicrobial agent</th>
<th>MIC (mg/L)</th>
<th>Disk content (μg)</th>
<th>Inhibition zone size (mm)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Range1</td>
<td>Target</td>
<td>Range2</td>
</tr>
<tr>
<td>Amikacin</td>
<td>1-2</td>
<td>0.5-4</td>
<td>30</td>
<td>23</td>
</tr>
<tr>
<td>Amoxicillin-clavulanic acid</td>
<td>4/2</td>
<td>2/1-8/4</td>
<td>20/10</td>
<td>21</td>
</tr>
<tr>
<td>Ampicillin</td>
<td>4</td>
<td>2-8</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Aztreonam</td>
<td>0.12</td>
<td>0.06-0.25</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>Cefadroxil</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>Cefepime</td>
<td>0.03-0.06</td>
<td>0.015-0.12</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Cefotaxime</td>
<td>0.06</td>
<td>0.03-0.12</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>Cefotaxine</td>
<td>0.06</td>
<td>0.03-0.12</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>Cefoxitin</td>
<td>4</td>
<td>2-6</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Ceftazidine</td>
<td>0.12-0.25</td>
<td>0.06-0.5</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Ceftizime</td>
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<td>0.03-0.12</td>
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<td>34</td>
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<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>4</td>
<td>2-6</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Chloramphenicol</td>
<td>4</td>
<td>2-6</td>
<td>30</td>
<td>24</td>
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<tr>
<td>Ciprofloxacin</td>
<td>0.008</td>
<td>0.004-0.015</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Ertapenem</td>
<td>0.008</td>
<td>0.004-0.015</td>
<td>5</td>
<td>33</td>
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<tr>
<td>Gentamicin</td>
<td>0.5</td>
<td>0.25-1</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>0.5</td>
<td>0.25-1</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Imipenem</td>
<td>0.012-0.25</td>
<td>0.06-0.25</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Mecillinam</td>
<td>0.06-0.12</td>
<td>0.03-0.25</td>
<td>10</td>
<td>27</td>
</tr>
<tr>
<td>Meropenem</td>
<td>0.015-0.03</td>
<td>0.008-0.006</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>Moxifloxacin</td>
<td>0.015-0.03</td>
<td>0.008-0.006</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>Nalidixic acid</td>
<td>2</td>
<td>1-4</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>Nitrofurazol</td>
<td>8</td>
<td>4-16</td>
<td>100</td>
<td>21</td>
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<tr>
<td>Nitrofurazol</td>
<td>8</td>
<td>4-16</td>
<td>300</td>
<td>21</td>
</tr>
<tr>
<td>Norfloxacin</td>
<td>0.06</td>
<td>0.03-0.12</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>Piperacillin-tazobactam</td>
<td>2/4</td>
<td>1/4-4/4</td>
<td>30/6</td>
<td>24</td>
</tr>
<tr>
<td>Piperacillin-tazobactam</td>
<td>2/4</td>
<td>1/4-4/4</td>
<td>30/6</td>
<td>24</td>
</tr>
<tr>
<td>Rifampicin</td>
<td>8</td>
<td>4-16</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>1</td>
<td>0.5-2</td>
<td>30</td>
<td>22</td>
</tr>
</tbody>
</table>

Now available on www.eucast.org
Mecillinam / Escherichia coli
Antimicrobial wild type distributions of microorganisms - reference database
EUCAST Disc Test

Disc diffusion – Disc content: 10
Epidemiological cut-off: –

1527 observations (2 data sources)
Clinical breakpoints: S ≥ – mm, R < – mm
Harmonisation process finalised during 2009
- Subcommittee on Antifungals – flu- and voriconazole finalised
- Subcommittee on Anaerobes – finalised breakpoints 2008

EUCAST Rationale documents on web and ETNs in CMI
- New drugs through EMEA (several ongoing)
- MIC distribution database >19 000 MIC distributions
- Zone diameter distribution database
- Breakpoints implemented in existing methods 2009.
- European disk test available before end of 2009
Thank you!

Gunnar.kahlmeter@ltkronoberg.se

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