



Association for **medical quality control**  
Verein für **medizinische Qualitätskontrolle**  
Association **pour le contrôle de Qualité medical**  
Associazione **per il controllo di qualità medico**

## Comment on Proficiency Testing Survey B9 Microbiology 2014-4

**Sample A: Urinary tract infection**

**Requirement: Potentially pathogenic bacteria (genus + species) + resistance testing**

*Enterobacter cloacae* as a cause of permanent catheter-associated urinary tract infection is showing increasing resistance; in the present case, AmpC overexpression is associated with resistance to 3rd generation cephalosporins, possibly against 4th generation cephalosporins and piperacillin/tazobactam. In principle, EUCAST provides for the resistance results to be reported as they were read. However, some clinicians are hesitant with overexpressed AmpC with piperacillin/tazobactam and 4th generation cephalosporins; therefore, we accepted all results for ceftazidime, cefepime and piperacillin/tazobactam. We see increased—more often than carbapenemase-mediated—carbapenem resistances, which first appear as ertapenem resistance; the reason for this are porin defects; we accepted all ertapenem. Please note that with further treatment with a carbapenem, resistance to imipenem and possibly, also meropenem occurs. For screening for possible carbapenem resistance EUCAST calls for a meropenem zone of inhibition of <25 mm or the MIC of > 0.12mg/l for further diagnostics. You can find the EUCAST document at: [http://www.eucast.org/resistance\\_mechanisms](http://www.eucast.org/resistance_mechanisms). Regarding aminoglycoside resistance, the rules of EUCAST must also be observed; if there is resistance to tobramycin, gentamicin should not be listed as sensitive, see [http://www.eucast.org/expert\\_rules](http://www.eucast.org/expert_rules) (p 151, Table 12).

For fosfomycin, only the MIC is currently intended per EUCAST; inhibition zones are in preparation. We accepted all results.

We would also like to point out that you can find a form from the expert laboratories on SGM's homepage ([www.swissmicrobiology.ch](http://www.swissmicrobiology.ch)) that may help with accurate analysis of difficult resistances in Gram-negative rods.

	Number
<i>Enterobacter cloacae</i>	46
<i>Enterobacter cloacae complex</i>	17
<i>Klebsiella species</i>	1
<i>Enterobacter amnigenus</i>	1

**Sample B: i.v. Catheter-associated infection****Requirement: Potentially pathogenic bacteria (genus + species) + resistance testing**

This *Staphylococcus epidermidis* is resistant to methicillin. However, the inhibition zone of ceftazidime is close to the threshold. Because of the inaccuracy of the measurement of the zones of inhibition, this strain may be incorrectly reported as ceftazidime-sensitive. We wanted to demonstrate with this strain that it could sometimes be difficult to detect methicillin resistance using ceftazidime discs alone. For important infections, when inhibition zones are close to the threshold value, additional methods should be performed to detect methicillin resistance (e.g. agglutination of PBP2' or *mecA* PCR) to prevent a relevant infection from being treated with beta-lactams because of incorrectly reported methicillin-sensitivity.

For Bactrim we accepted all the results because the MIC value is close to the threshold.

Regarding aminoglycosides please refer to the expert rules of EUCAST, see [http://www.eucast.org/expert\\_rules](http://www.eucast.org/expert_rules) (p.151, Table 12).

	Number
<i>Staphylococcus epidermidis</i>	61
<i>Staphylococcus hominis</i>	1
<i>Staphylococcus coagulase negative</i>	2
Gram neg. rods	1

**Sample C: Conjunctivitis (material: contact lens solution)****Requirement: Potentially pathogenic bacteria (genus + species)**

*Providencia rettgeri* is an environmental germ, which can appear in contact lens solution with insufficient maintenance of contact lenses. Colistin (resistant) is tested only for diagnostic resistance. The identification is achieved with commercial systems.

	Number
<i>Providencia rettgeri</i>	64
<i>Proteus species</i>	1

**Sample D: Tracheal secrete**

**Requirement: Potentially pathogenic bacteria (genus only)**

*Elisabethkingia meningoseptica* can occur as an opportunistic pathogen; previously, this bacterium was called *Flavobacterium* or *Chryseobacterium meningosepticum*. Conventionally, these non-fermenters are colistin-resistant; shows a zone of inhibition with vancomycin. It was well identified with apiNE and Vitek (gelatinase positive, oxidase+, Eskulin+). Our strain showed no growth on MacConkey agar, which may be an indication of *Elisabethkingia anophelis* (International Journal of Systematic and Evolutionary Microbiology 2011, 61: 2670-2675 and case report. Lancet 2013, 381: 1876). Therefore, we evaluated the genus only.

	Number
<i>Elisabethkingia meningoseptica</i>	44
<i>Aeromonas species</i>	1
<i>Burkholderia cepacia</i>	1
<i>Chryseobacterium indologenes</i>	1
<i>Chryseobacterium species</i>	6
<i>Elisabethkingia species</i>	6
<i>Flavobacterium meningosepticum</i>	1
<i>Leifsoia species</i>	1
<i>Microbacterium species</i>	1
<i>Pseudomonas vesicular</i>	1
Gram negative rods	2

**Sample E: Genital ulcer in a male**

**Requirement: Potentially pathogenic bacteria (genus + species)**

*Klebsiella granulomatis* grew out of this ulcer streak; earlier this bacterium, as the causative agent of Donovanosis, was called *Calymmatobacterium granulomatis*. Often, *K. granulomatis* cannot be cultured; it is detected by Giemsa staining, wherein bacteria are seen in vacuols in large mononuclear cells (= Donovan bodies). In Europe, *K. granulomatis* occurs only sporadically. With Api20E, our internal Bio, Vitek and Maldi-TOF, the identification was always *K. pneumoniae*. However, sequencing of the 16S rRNA gene revealed 2/464 mismatches (99.6%) in *K. granulomatis* and 5/458 mismatches (98.9%) in *K. pneumoniae*. The diagnosis of *K. pneumoniae* from a smear of a genital ulcer should always bring to mind that *K. granulomatis* might be present.

We did not rate this sample.

	Number
<i>Klebsiella pneumoniae</i>	56
<i>Raoultella planticola</i>	1
<i>Klebsiella species</i>	1
<i>Calymmatobacterium (Klebsiella) granulomatis</i>	7

With best regards



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**Resistance testing of Sample A**

**Resistance testing of Sample B**

