

Mikrobioloogia sektsiooni koosolek

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Endokardiit



ESC

European Society
of Cardiology

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ESC GUIDELINES

2023 ESC Guidelines for the management of endocarditis

**Developed by the task force on the management of endocarditis
of the European Society of Cardiology (ESC)**

***Endorsed by the European Association for Cardio-Thoracic Surgery
(EACTS) and the European Association of Nuclear Medicine (EANM)***

Soovitud üleminekuks intravenoosselt ravilt suukaudsele ravile

Table S9 Combinations of antibiotics for oral step-down treatment

Penicillin-and methicillin-susceptible <i>S. aureus</i> & CoNS	Methicillin-susceptible <i>S. aureus</i> & CoNS	Methicillin-resistant CoNS	<i>E. faecalis</i>	Penicillin-susceptible streptococci	Penicillin-resistant streptococci
Amoxicillin 1 g × 4 Rifampin 600 mg × 2	Dicloxacillin 1 g × 4 Rifampin 600 mg × 2	Linezolid 600 mg × 2 Fusidic acid 750 mg × 2	Amoxicillin 1 g × 4 Moxifloxacin 400 mg × 1	Amoxicillin 1 g × 4 Rifampin 600 mg × 2	Linezolid 600 mg × 2 Rifampin 600 mg × 2
Amoxicillin 1 g × 4 Fusidic acid 750 mg × 2	Dicloxacillin 1 g × 4 Fusidic acid 750 mg × 2	Linezolid 600 mg × 2 Rifampin 600 mg × 2	Amoxicillin 1 g × 4 Linezolid 600 mg × 2	Amoxicillin 1 g × 4 Moxifloxacin 400 mg × 1	Moxifloxacin 400 mg × 1 Rifampin 600 mg × 2
Moxifloxacin 400 mg × 1 Rifampin 600 mg × 2	Moxifloxacin 400 mg × 1 Rifampin 600 mg × 2		Amoxicillin 1 g × 4 Rifampin 600 mg × 2	Amoxicillin 1 g × 4 Linezolid 600 mg × 2	Linezolid 600 mg × 2 Moxifloxacin 400 mg × 1
Linezolid 600 mg × 2 Rifampin 600 mg × 2	Linezolid 600 mg × 2 Rifampin 600 mg × 2		Linezolid 600 mg × 2 Moxifloxacin 400 mg × 1	Linezolid 600 mg × 2 Rifampin 600 mg × 2	
Linezolid 600 mg × 2 Fusidic acid 750 mg × 2	Linezolid 600 mg × 2 Fusidic acid 750 mg × 2		Linezolid 600 mg × 2 Rifampin 600 mg × 2	Linezolid 600 mg × 2 Moxifloxacin 400 mg × 1	

CoNS, coagulase-negative staphylococci.

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EUCAST guidance document on Infective Endocarditis:

Reporting of antimicrobial susceptibility testing results

November 2025

[minor revision adding screening criteria for benzylpenicillin]

- Tausta tutvustus
- Üldised soovitused
- *Oral follow-up* treatment
 - *Viridans* grupi streptokokid ja tundlikkus moksifloksatsiinile ja rifampitsiinile
 - *Enterococcus sp.* tundlikkus moksifloksatsiinile, *Enterococcus faecalis* rifampitsiinile tundlikkus
- *Viridans* grupi streptokokid



European Committee on Antimicrobial Susceptibility Testing

Breakpoint tables for interpretation of MICs and zone diameters

Version 16.0. valid from 2026-01-01

This group of bacteria includes many species, which can be grouped as follows:

S. anginosus group: *S. anginosus*, *S. constellatus*, *S. intermedius*

S. mitis group: *S. australis*, *S. cristatus*, *S. infantis*, *S. massiliensis*, *S. mitis*, *S. oligofermentans*, *S. oralis*, *S. peroris*, *S. pseudopneumoniae*, *S. sinensis*

S. sanguinis group: *S. sanguinis*, *S. parasanguinis*, *S. gordonii*

S. bovis group: *S. equinus*, *S. gallolyticus* (*S. bovis*), *S. infantarius*, *S. lutetiensis*, *S. pasteurianus*

S. salivarius group: *S. salivarius*, *S. vestibularis*, *S. thermophilus*

S. mutans group: *S. mutans*, *S. sobrinus*

Viridans group streptococci

Expert Rules and Expected Phenotypes

Guidance documents

Penicillins	MIC breakpoints (mg/L)			Disk content (µg)	Zone diameter breakpoints (mm)		
	S ≤	R >	ATU		S ≥	R <	ATU
Benzylicillin (screen only)	0.25 ¹	0.25 ¹		1 unit	21 ^A	21 ^A	
Benzylicillin (indications other than endocarditis)	0.25	1		1 unit	21	12	
Benzylicillin (endocarditis)	0.25	0.25		1 unit	21	21	
Benzylicillin (endocarditis, in combination with other antimicrobial treatment)	(1) ²	(1) ²		1 unit	(12) ^B	(12) ^B	
Ampicillin (indications other than endocarditis)	0.5	2		2	21	15	
Ampicillin iv (endocarditis)	0.5	0.5		2	21	21	
Ampicillin-sulbactam ³	Note ^{1,4}	Note ^{1,4}			Note ^{A,C}	Note ^{A,C}	
Amoxicillin (indications other than endocarditis)	0.5	2			Note ^{A,C}	Note ^{A,C}	
Amoxicillin iv (endocarditis)	0.5	0.5			Note ^{A,D}	Note ^{A,D}	

Viridans group streptococci

Expert Rules and Expected Phenotypes

Guidance documents

EUCAST Clinical Breakpoint Tables v. 16.0, valid from 2026-01-01

For abbreviations and explanations of breakpoints, see the Notes sheet

Fluoroquinolones	MIC breakpoints (mg/L)			Disk content (µg)	Zone diameter breakpoints (mm)			Notes
	S ≤	R >	ATU		S ≥	R <	ATU	
Ciprofloxacin	-	-			-	-		<p>Numbered notes relate to general comments and/or MIC breakpoints. Lettered notes relate to the disk diffusion method.</p> <p>1/B. Moxifloxacin has been used in oral follow-up treatment of endocarditis caused by viridans group streptococci. There are no clinical breakpoints but acquired resistance (indicated by MIC >0.5 mg/L; zone diameter <21 mm for the moxifloxacin 5 µg disk) should be excluded. When acquired resistance has been excluded, the isolate should be reported <u>"devoid of fluoroquinolone resistance mechanisms"</u>, but not as susceptible to moxifloxacin.</p> <p>A. A disk diffusion test awaits action from the responsible pharmaceutical company.</p>
Delafloxacin, <i>S. anginosus</i> group	0.03	0.03			Note ^A	Note ^A		
Levofloxacin	IE	IE			IE	IE		
Moxifloxacin	Note ¹	Note ¹			Note ^B	Note ^B		
Nalidixic acid (screen only)	NA	NA			NA	NA		
Norfloxacin (uncomplicated UTI only)	-	-			-	-		
Ofloxacin	-	-			-	-		

Viridans group streptococci

Expert Rules and Expected Phenotypes

Guidance documents

EUCAST Clinical Breakpoint Tables v. 16.0, valid from 2026-01-01

For abbreviations and explanations of breakpoints, see the Notes sheet

Miscellaneous agents	MIC breakpoints (mg/L)			Disk content (µg)	Zone diameter breakpoints (mm)			Notes
	S ≤	R >	ATU		S ≥	R <	ATU	
Chloramphenicol	-	-			-	-		<p>Numbered notes relate to general comments and/or MIC breakpoints. Lettered notes relate to the disk diffusion method.</p> <p>1/A. Rifampicin has been used in oral follow-up treatment of endocarditis caused by viridans group streptococci. There are no clinical breakpoints but acquired resistance (indicated by MIC >0.25 mg/L; zone diameter <21 mm for the rifampicin 5 µg disk) should be excluded. When excluded, the isolate should be reported <u>"devoid of rifampicin resistance mechanisms"</u>, but not as susceptible to rifampicin.</p>
Colistin	-	-			-	-		
Daptomycin	IE	IE			IE	IE		
Fosfomycin iv	-	-			-	-		
Fosfomycin oral	-	-			-	-		
Fusidic acid	-	-			-	-		
Lefamulin	IE	IE			IE	IE		
Metronidazole	-	-			-	-		
Nitrofurantoin (uncomplicated UTI only)	-	-			-	-		
Nitroxoline (uncomplicated UTI only)	-	-			-	-		
Rifampicin	Note ¹	Note ¹			Note ^A	Note ^A		
Spectinomycin	-	-			-	-		
Trimethoprim (uncomplicated UTI only)	-	-			-	-		
Trimethoprim-sulfamethoxazole	-	-			-	-		

Endokardiidi suukaudseks raviks antibiootikumide tundlikkuse määramine

	S.aureus				CoNS				E.faecalis			
	disk		MIK		disk		MIK		disk		MIK	
	S ≥	R <	S ≤	R >	S ≥	R <	S ≤	R >	S ≥	R <	S ≤	R >
moksifloksatsiin 5µg	25	25			28	28			norflox 12	12		
linesoliid 10 µg	21	21			21	21			20	20		
rifampitsiin MIK			0,06	0,06			0,06	0,06			ECOFF 8	C
	S.pneumoniae				Beetahem strepto				Viridans strepto			
	disk		MIK		disk		MIK		disk		MIK	
	S ≥	R <	S ≤	R >	S ≥	R <	S ≤	R >	S ≥	R <	S ≤	R >
moksifloksatsiin 5µg	22	22			19	19			21A	21A	0,5A	0,5A
linesoliid 10 µg	22	22			19	19					2B	2B
rifampitsiin MIK			0,125	0,125			0,25	0,25	21C	21C		
A	resistentsusmehhanismid kinoloonidele puuduvad											
B	resistentsusmehhanismid linesoliidile puuduvad											
C	resistentsusmehhanismid rifampitsiinile puuduvad											

Endokardiidi antibakteriaalne ravi

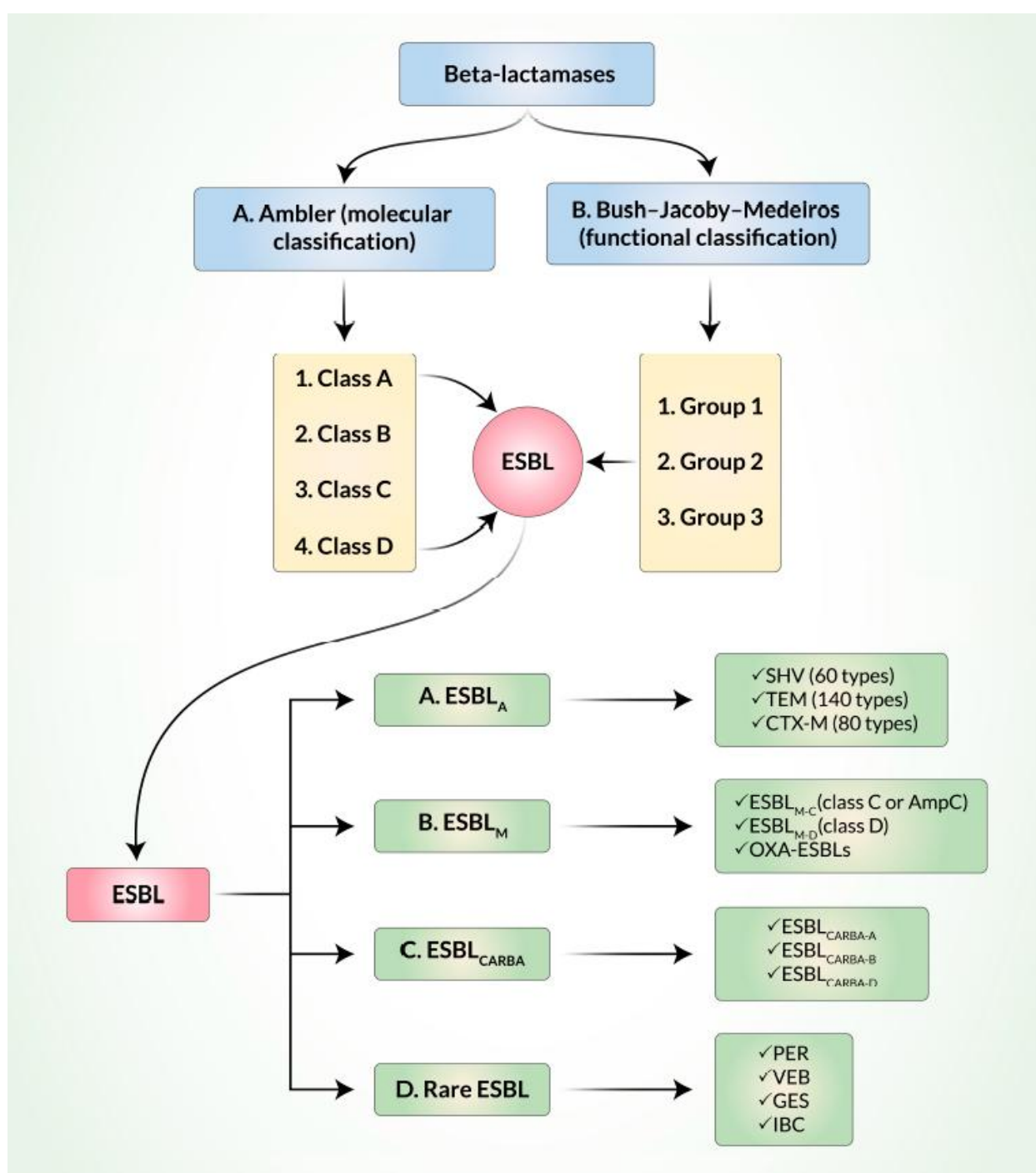
Endokardiit

Natiivklapi endokardiit

Proteesklapi endokardiit

Endokardiidi diagnoosimiseks ja raviks palun pöörduge endokardiidimeeskonna poole meiliaadressil: endokardiit@kliinikum.ee

ESBL ehk laiendatud toimespektriga
beetalaktamaasid



Infektsioonhaiguste arsti soovid

- Isolatsioonivajadus
- Ravivõimalused

Riiklik isolatsiooninõuete juhend

Lisa 2. Infektsioonhaigused ja mikroorganismid, mille puhul tuleb haiglas rakendada isolatsiooninõudeid

-ESBL-produtseerivad enterobakterid (v.a <i>E.coli</i>)	kontakt	hospitaliseerimise kestus 1 aasta jooksul pärast viimast positiivset külvi
-karbapeneemresistentsed enterobakterid	kontakt	hospitaliseerimise kestus

- ESBL-positiivsed *Enterobacterales*
 - *Kommentaar: võiks lisada ESBL-A ja ESBL-A/M vastavalt TEHIKU loendile*
- Ettepanek: eristada
 - ESBL-positiivsed *Enterobacterales*
 - Karbapeneemresistentne *Enterobacterales* (CRE)

ESCMID guidelines for the management of the infection control measures to reduce transmission of multidrug-resistant Gram-negative bacteria in hospitalized patients

E. Tacconelli¹, M. A. Cataldo², S. J. Dancer³, G. De Angelis⁴, M. Falcone⁵, U. Frank⁶, G. Kahlmeter⁷, A. Pan^{8,9}, N. Petrosillo², J. Rodríguez-Baño^{10,11,12}, N. Singh¹³, M. Venditti⁵, D. S. Yokoe¹⁴ and B. Cookson¹⁵



CMI 2014



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2026 ESCMID-EUCIC recommendations

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Congress of the European Society of Clinical
Microbiology and Infectious Diseases

ESCMID Global



Definitions

- **Target pathogens:**
ESBL-producing Enterobacterales; MDR, CR, carbapenemases-producer, XDR *A. baumannii*, *K. pneumoniae*, *P. aeruginosa*, and *E. coli*
- **Target interventions:**
Patient-level measures (pre-emptive isolation, single-room isolation /cohort, contact precautions), enhanced environmental cleaning, and antibiotic stewardship



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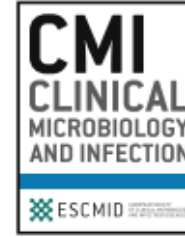
Ravisooovitused



Contents lists available at [ScienceDirect](#)

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com



Guidelines

European Society of Clinical Microbiology and Infectious Diseases (ESCMID) guidelines for the treatment of infections caused by multidrug-resistant Gram-negative bacilli (endorsed by European society of intensive care medicine)

Clinical Infectious Diseases

IDSA GUIDELINES



Infectious Diseases Society of America 2024 Guidance on the Treatment of Antimicrobial-Resistant Gram-Negative Infections

- Ettepanek: eristada
 - ESBL-positiivsed *Enterobacterales*
 - Karbapeneemresistentne *Enterobacterales* (CRE)

Täna kõiki koostöö eest!