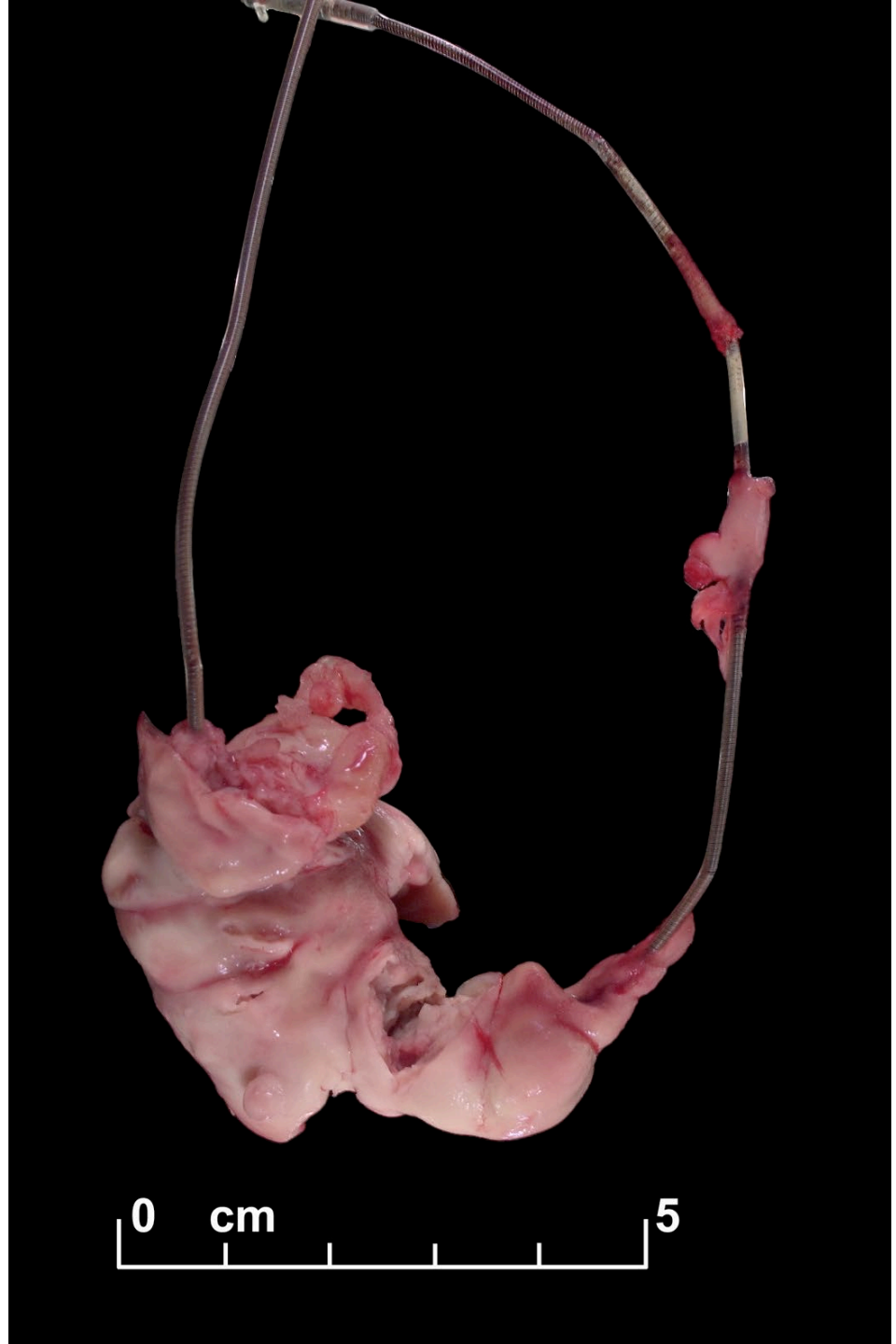
Infective Endocarditis

Dr Martin Williams, PhD, FRCP, FRCPath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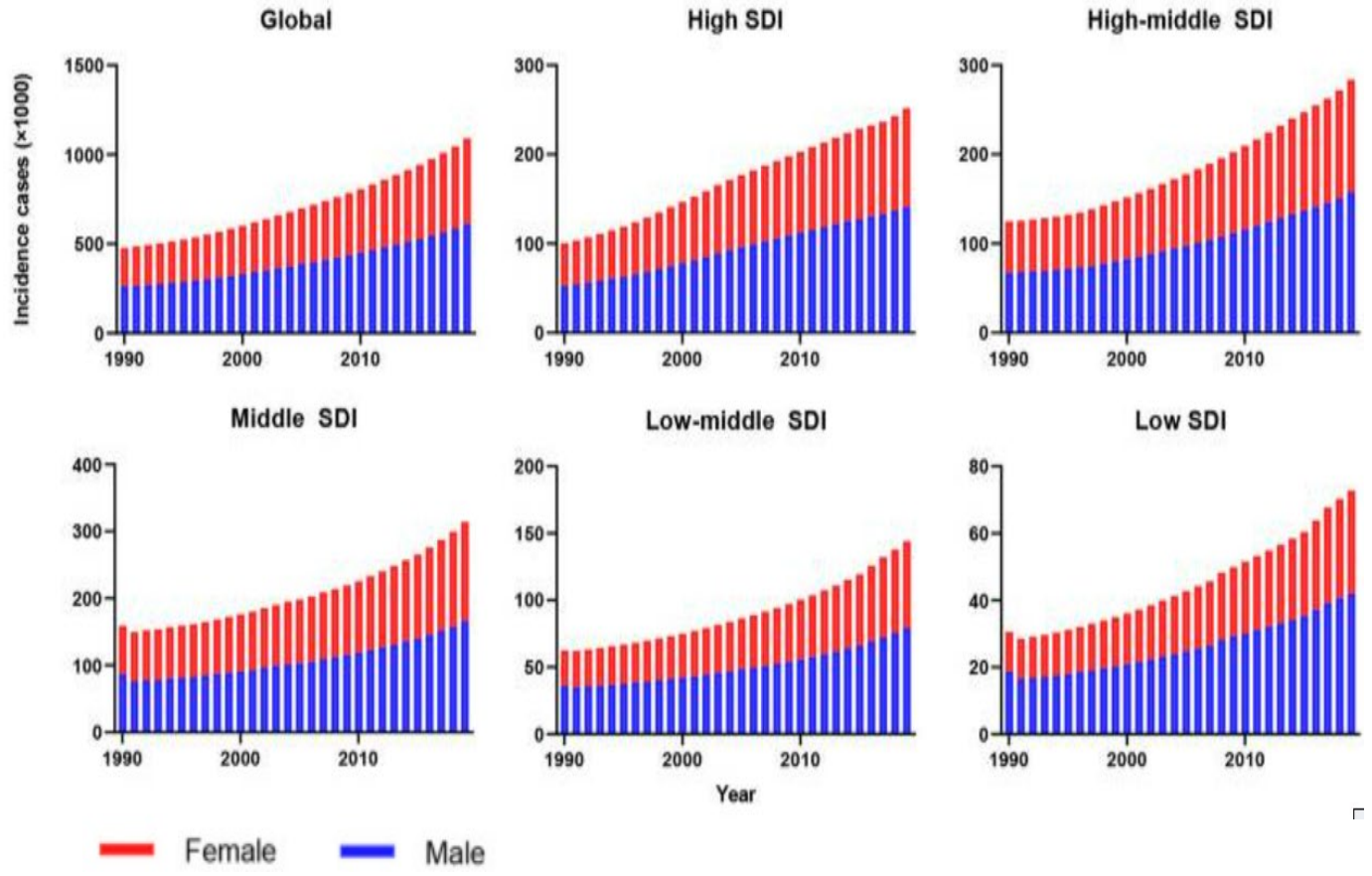
Epidemiology of infective endocarditis

- Increasingly becoming common
- Mortality 0.9/100,000/year
- ~1.7 million Disability Adjusted Life Years



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ESC European Society of Cardiology

European Heart Journal (2023) **00**, 1–95
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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)

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Delgado et al. European Heart Journal 2023; 44(39): 3948–4042, https://doi.org/10.1093/eurheartj/ehad193

7.13 Outpatient parenteral or oral antibiotic therapy for infective endocarditis – Table 11

Recommendations	Class[a]	Level[b]
Outpatient parenteral or oral antibiotic treatment should be considered in patients with left-sided IE caused by *Streptococcus* spp., *E. faecalis*, *S. aureus*, or CoNS who were receiving appropriate i.v. antibiotic treatment for at least 10 days (or at least 7 days after cardiac surgery), are clinically stable, and who do not show signs of abscess formation or valve abnormalities requiring surgery on TOE.[43,401]	IIa	A
Outpatient parenteral antibiotic treatment is not recommended in patients with IE caused by highly difficult-to-treat microorganisms,[c] liver cirrhosis (Child-Pugh B or C), severe cerebral nervous system emboli, untreated large extracardiac abscesses, heart valve complications, or other severe conditions requiring surgery, severe post-surgical complications, and PWID-related IE.	III	C

Delgado et al. European Heart Journal 2023; 44(39): 3948–4042, https://doi.org/10.1093/eurheartj/ehad193

Antibiotic Management of Outpatients with Endocarditis Due to Penicillin-Susceptible Streptococci

Daniel Stamboulian, Pablo Bonvehi, Cecilia Arevalo, Rosa Bologna, Isabel Cassetti, Viviana Scilingo, and Ernesto Efron

From the Department of Infectious Diseases, Sanatorio Güemes, Buenos Aires, Argentina

- Randomised to 4 weeks of IV ceftriaxone (2g OD) or 2 weeks of IV ceftriaxone and 2 weeks amoxicillin (1g QDS)

Table 1. Characteristics of the two study groups.

Characteristics	Antibiotic treatment group: Ceftriaxone	Antibiotic treatment group: Ceftriaxone + amoxicillin
No. of patients	15	15
Age (y)		
Mean	63.6	59.0
Range	30–83	28–72
Sex (female/male)	3/12	7/8
Type of cardiac lesion		
Aortic valve	8	7
Mitral valve	3	8
Aortic and mitral valves	2	0
Ventricular septal defect	2	0
Site of initial treatment		
Hospital	11	12
Home	4	3

NOTE. Differences between the two groups were not significant ($P > .05$).

Table 2. Clinical response of patients treated for penicillin-susceptible staphylococcal endocarditis.

Variable	Antibiotic treatment group: Ceftriaxone (n = 15)	Antibiotic treatment group: Ceftriaxone + amoxicillin (n = 15)
Time to defervescence (d)		
Range	<1–2	<1–3
Mean	1.1	1.5
Clinical results (no. of patients)		
Cure	15	15
Failure	0	0
Relapse	1*	0
Complications (no. of patients)		
Heart failure	0	1
CNS disorder	1	0

* Three months after therapy, febrile syndrome and culture of blood negative for pathogens were noted.

Rev Infect Dis. 1991;13(suppl 2):S160-S163. doi:10.1093/clinids/13.Supplement_2.S160

Oral Antibiotic Treatment of Right-sided Staphylococcal Endocarditis in Injection Drug Users: Prospective Randomized Comparison with Parenteral Therapy

Alan W. Heldman, MD, Tina V. Hartert, MD, Stuart C. Ray, MD, Emile G. Daoud, MD, Thomas E. Kowalski, MD, Vincent J. Pompili, MD, Stephen D. Sisson, MD, William C. Tidmore, MD, Keith A. vom Eigen, MD, Steven N. Goodman, MD, PhD, Paul S. Lietman, MD, PhD, Brent G. Petty, MD, Charles Flexner, MD, *Baltimore, Maryland*

- Prospective randomised comparison in right-sided staphylococcal endocarditis in PWID
- Oral ciprofloxacin 750mg BD plus rifampicin 300mg BD vs. IV oxacillin 2g 4 hourly or vancomycin 1g 12 hourly, plus gentamicin 2mg/kg 8 hourly for the 1st 5 days, for 28 days

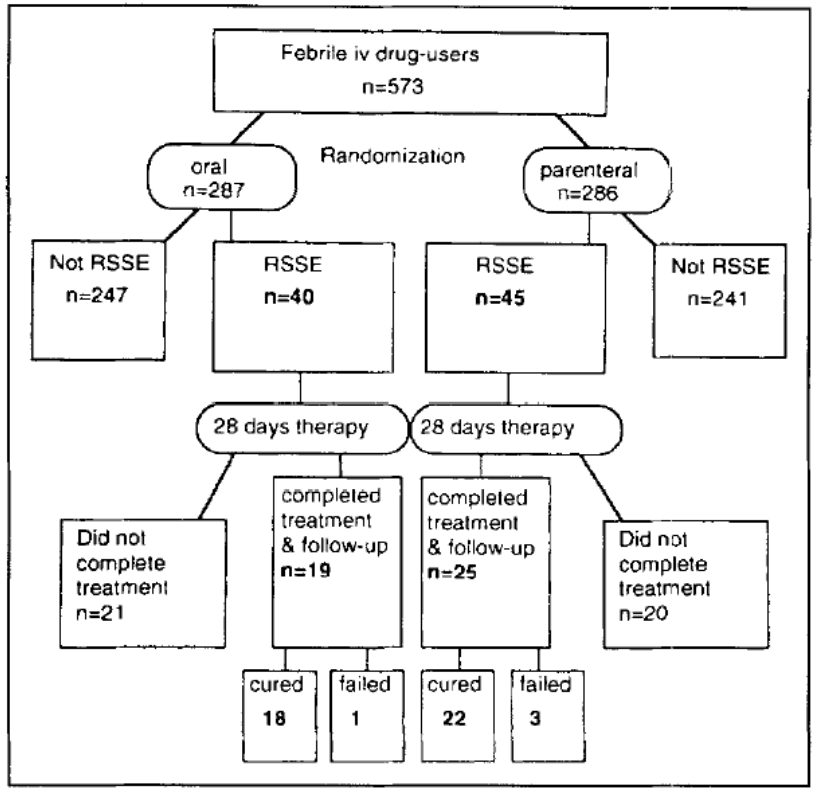
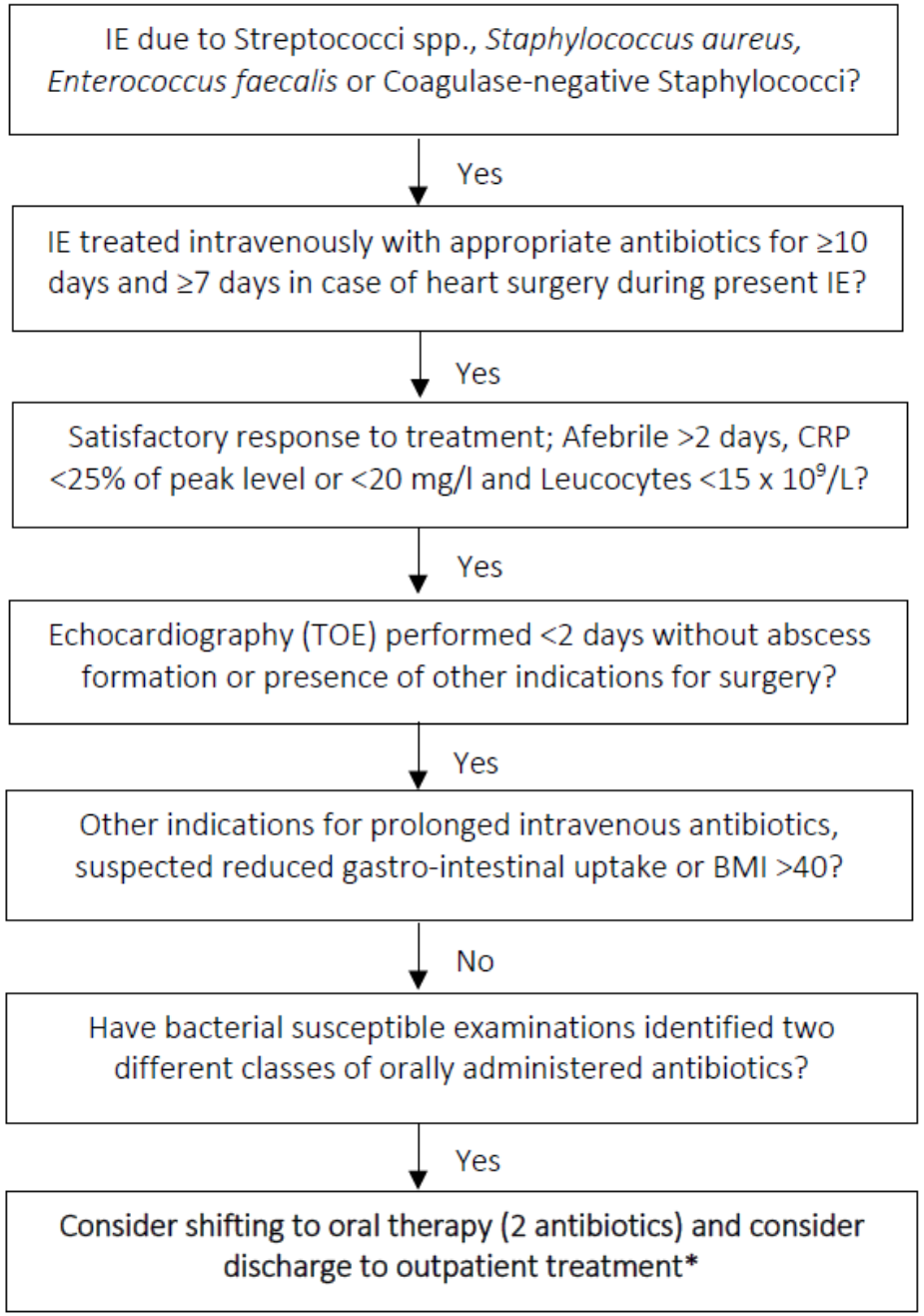
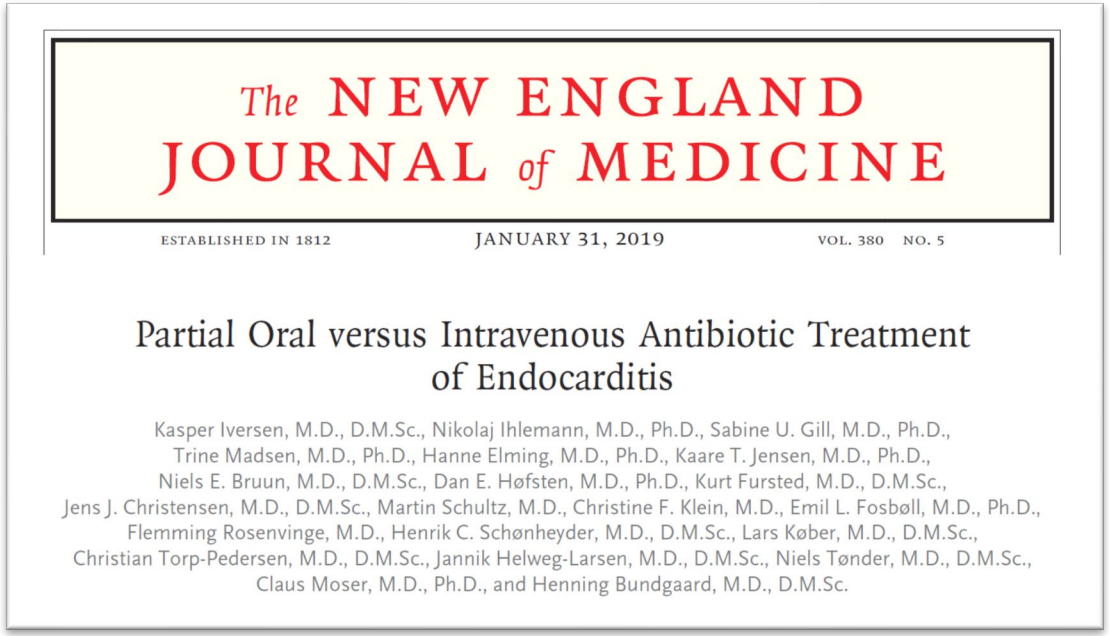


Figure. Study design. RSSE = right-sided staphylococcal endocarditis.

Am J Med. 1996;101(1):68-76. doi:10.1016/S0002-9343(96)00070-8

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ESTABLISHED IN 1812 JANUARY 31, 2019 VOL. 380 NO. 5

Partial Oral versus Intravenous Antibiotic Treatment of Endocarditis

Kasper Iversen, M.D., D.M.Sc., Nikolaj Ihlemann, M.D., Ph.D., Sabine U. Gill, M.D., Ph.D., Trine Madsen, M.D., Ph.D., Hanne Elming, M.D., Ph.D., Kaare T. Jensen, M.D., Ph.D., Niels E. Bruun, M.D., D.M.Sc., Dan E. Høfsten, M.D., Ph.D., Kurt Fursted, M.D., D.M.Sc., Jens J. Christensen, M.D., D.M.Sc., Martin Schultz, M.D., Christine F. Klein, M.D., Emil L. Fosbøll, M.D., Ph.D., Flemming Rosenvinge, M.D., Henrik C. Schønheyder, M.D., D.M.Sc., Lars Køber, M.D., D.M.Sc., Christian Torp-Pedersen, M.D., D.M.Sc., Jannik Helweg-Larsen, M.D., D.M.Sc., Niels Tønder, M.D., D.M.Sc., Claus Moser, M.D., Ph.D., and Henning Bundgaard, M.D., D.M.Sc.

N Engl J Med 2019; 380; 415-424. DOI: 10.1056/NEJMoa1808312

Oral regimens recommended in the POET trial

Penicillin and meticillin sensitive *S.aureus* and CoNS
Amoxicillin 1g x4 + fusidic acid 0.75g x2
Amoxicillin 1g x4 + rifampicin 0.6g x2
Linezolid 0.6g x2 + fusidic acid 0.75g x2
Linezolid 0.6g x2 + rifampicin 0.6 x2

Meticillin sensitive *S.aureus* and CoNS
Dicloxacillin 1g x4 + fusidic acid 0.75g x2
Dicloxacillin 1g x4 + rifampicin 0.6g x2
Linezolid 0.6g x2 + fusidic acid 0.75g x2
Linezolid 0.6g x2 + rifampicin 0.6 x2

Meticillin resistant CoNS
Linezolid 0.6g x2 + fusidic acid 0.75g x2
Linezolid 0.6g x2 + rifampicin 0.6g x2

E.faecalis
Amoxicillin 1g x4 + rifampicin 0.6g x2
Amoxicillin 1g x4 + moxifloxacin 0.4g x1
Linezolid 0.6g x2 + rifampicin 0.6 x2
Linezolid 0.6g x2 + moxifloxacin 0.4gx1

Streptococci with MIC for penicillin <1mg/L
Amoxicillin 1g x4 + rifampicin 0.6g x2
Linezolid 0.6g x2 + rifampicin 0.6 x2
Linezolid 0.6g x2 + moxifloxacin 0.4gx1

Streptococci with MIC for penicillin ≥1mg/L
Linezolid 0.6g x2 + rifampicin 0.6 x2
Moxifloxacin 0.4g x1 + rifampicin 0.6g x2
Moxifloxacin 0.4g x1 + clindamycin 0.6g x3

N Engl J Med 2019; 380; 415-424. DOI: 10.1056/NEJMoa1808312

Table 1. Characteristics of the Patients at Baseline.*

Characteristic	Intravenous Treatment (N=199)	Oral Treatment (N=201)
Mean age — yr	67.3±12.0	67.6±12.6
Female sex — no. (%)	50 (25.1)	42 (20.9)
Body temperature — °C	36.9±0.45	37.0±0.44
Coexisting condition or risk factor — no. (%)		
Diabetes	36 (18.1)	31 (15.4)
Renal failure	25 (12.6)	21 (10.4)
Dialysis	13 (6.5)	15 (7.5)
COPD	17 (8.5)	9 (4.5)
Liver disease	7 (3.5)	6 (3.0)
Cancer	14 (7.0)	18 (9.0)
Intravenous drug use	3 (1.5)	2 (1.0)
Pathogen — no. (%)†		
Streptococcus	104 (52.3)	92 (45.8)
Enterococcus faecalis	46 (23.1)	51 (25.4)
Staphylococcus aureus‡	40 (20.1)	47 (23.4)
Coagulase-negative staphylococci	10 (5.0)	13 (6.5)
Laboratory results at randomization		
Hemoglobin — mmol/liter	6.3±1.1	6.5±1.0
Leukocytes — $\times 10^{-9}$/liter	7.6±3.6	7.2±2.6
C-reactive protein — mg/liter	24.3±18.4	19.9±16.7
Creatinine — μmol/liter	124±112	141±164
Preexisting prosthesis, implant, or cardiac disease — no. (%)		
Prosthetic heart valve	53 (26.6)	54 (26.9)
Pacemaker	15 (7.5)	20 (10.0)
Other known valve disease	82 (41.2)	90 (44.8)
Cardiac involvement at randomization — no. (%)§		
Mitral-valve endocarditis	65 (32.7)	72 (35.8)
Aortic-valve endocarditis	109 (54.8)	109 (54.2)
Mitral-valve and aortic-valve endocarditis	23 (11.6)	20 (10.0)
Endocarditis in other locations§	2 (1.0)	0
Pacemaker endocarditis	6 (3.0)	8 (4.0)
Vegetation size >9 mm	7 (3.5)	11 (5.5)
Moderate or severe valve regurgitation	19 (9.5)	23 (11.4)
Valve surgery during current disease course	75 (37.7)	77 (38.3)

Table 2. Distribution of the Four Components of the Primary Composite Outcome.*

Component	Intravenous Treatment (N=199)	Oral Treatment (N=201)	Difference	Hazard Ratio (95% CI)
	number (percent)		*percentage points (95% CI)*	
All-cause mortality	13 (6.5)	7 (3.5)	3.0 (−1.4 to 7.7)	0.53 (0.21 to 1.32)
Unplanned cardiac surgery	6 (3.0)	6 (3.0)	0 (−3.3 to 3.4)	0.99 (0.32 to 3.07)
Embolic event	3 (1.5)	3 (1.5)	0 (−2.4 to 2.4)	0.97 (0.20 to 4.82)
Relapse of the positive blood culture†	5 (2.5)	5 (2.5)	0 (−3.1 to 3.1)	0.97 (0.28 to 3.33)

* Six patients, three in each group, had two outcomes.
† For details about relapse of the positive blood culture, see the Supplementar

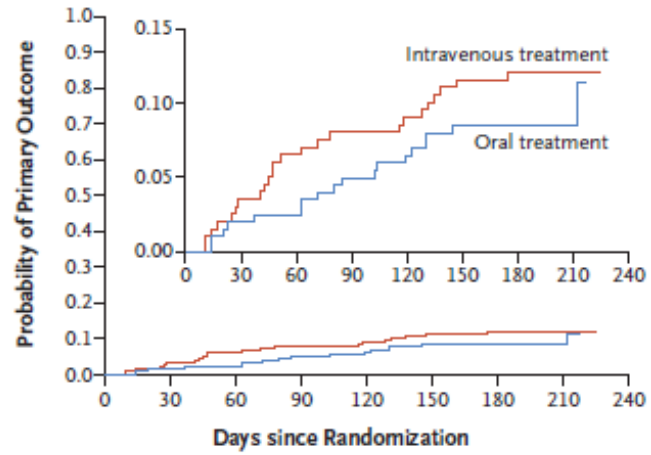

Figure 2. Kaplan–Meier Plot of the Probability of the Primary Composite Outcome.

The primary composite outcome was all-cause mortality, unplanned cardiac surgery, embolic events, or relapse of bacteremia with the primary pathogen, from randomization until 6 months after antibiotic treatment was completed. The oral treatment group shifted from intravenously administered antibiotics to orally administered antibiotics at a median of 17 days after the start of treatment. The inset shows the same data on an enlarged y axis.

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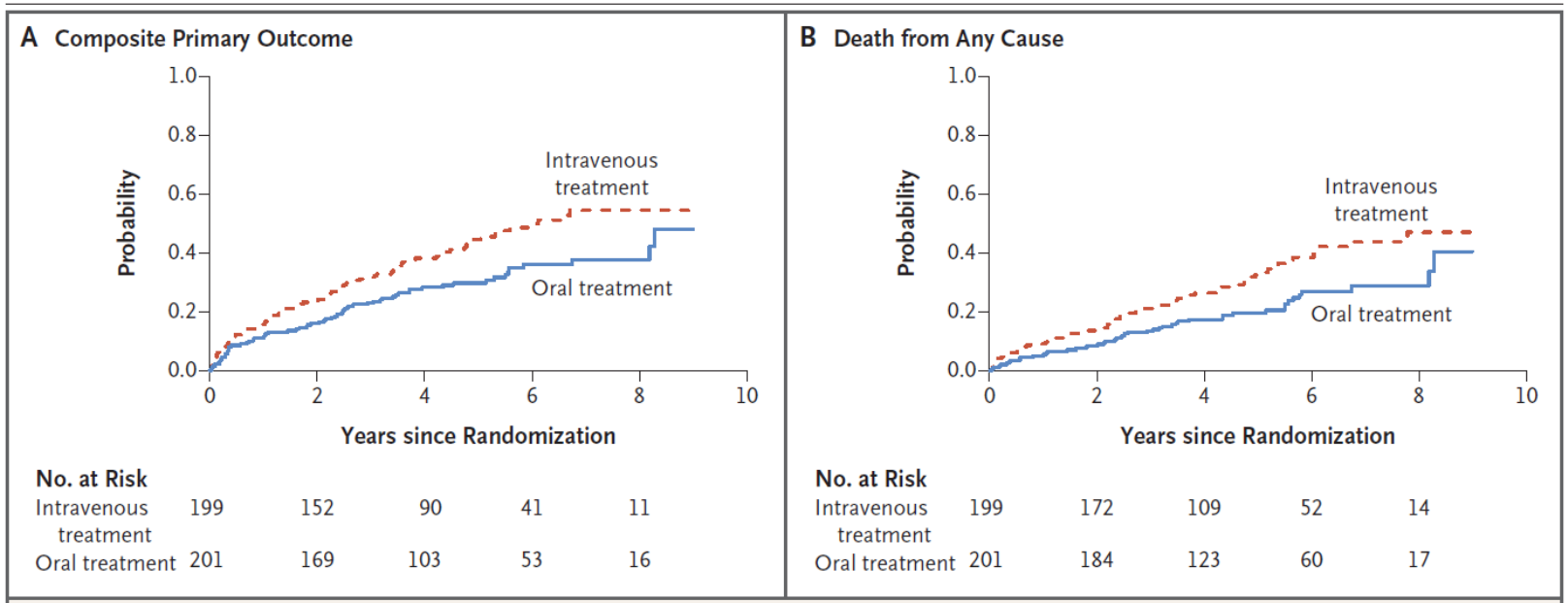


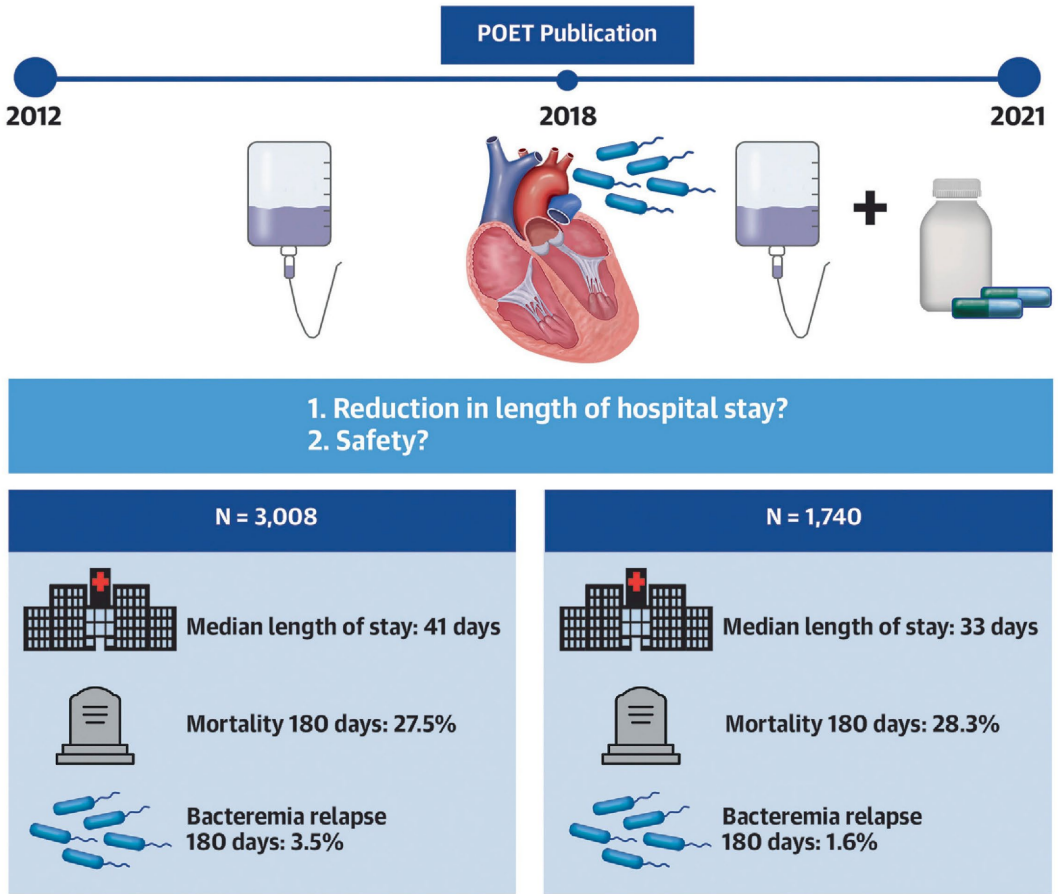
Figure 1. Cumulative Incidence of Events.

Shown are plots of the cumulative incidence of events from randomization to a median follow-up of 5.4 years. The patients assigned to the intravenous treatment group received intravenous antibiotic therapy for the entire treatment period, and the patients assigned to receive step-down treatment shifted from intravenous antibiotics to oral antibiotics after clinical stabilization was reached. The composite primary outcome consisted of death from any cause, unplanned cardiac surgery, embolic events, and relapse of a blood culture result positive for the primary pathogen.

Median follow-up of 5.4 years (IQR 4.0-6.9) a primary composite outcome had occurred in 66 patients (32.8%) in the group that had received step down treatment and in 90 (45.2%) in the group that had received continued IV treatment (hazard ration 0.65; (95% CI 0.47-0.9)

N Engl J Med. 2022 Feb 10;386(6):601-602. doi: 10.1056/NEJMc2114046

CENTRAL ILLUSTRATION: Changes in Length of Stay, 6-Month Mortality, and Bacteremia Relapse After Publication of the Partial Oral Treatment of Left-sided Endocarditis Trial



Østergaard L, et al. JACC. 2024;84(23):2293-2304.

The ENDO-ORAL study

Rallet et al., Clin Infect Dis doi: 10.1093/cid/ciaf452 August 2025

- Observational, retrospective cohort study in 2 French centres between Jan 2016 and Dec 2023
- NVE and PVE
- 333 patients recruited; 233 (70%) IV and 100 (30%) oral switch
- Primary outcome was treatment failure up to 90 days after the end of the initial antibiotic course, defined as death, recurrence with the same bacteria or secondary introduction of suppressive therapy.

	Total	IV treatment (n=233)	Oral switch (n=100)	p
Age, Median (IQR)	71.0 (60.0-79.0)	71.0 (61.0-79.0)	71.0 (58.8-78.2)	0.45
Male, n (%)	233 (70%)	159 (68.2%)	74 (74.0%)	0.29
Current IV drug use, n (%)	20 (6.0)	13 (5.6)	7 (7.0)	0.62
History of previous IE, n (%)	25 (7.5)	13 (5.6)	12 (12.0)	0.04
Native valve, n (%)	233 (70.0)	156 (67.0)	77 (77.0)	0.07
Presence of CIED, n (%)	46 (13.8)	30 (12.9)	16 (16.0)	0.45
Infected CIED, n (%)	12 (3.6)	8 (3.4)	4 (4.0)	0.76
Surgery, n (%)	115 (34.5)	88 (37.8)	27 (27.0)	-
Infected device removal, n (%)	10 (3.0)	8 (3.4)	2 (2.0)	-
At presentation				
2 major 2023 Duke criteria, n (%)	252 (75.7)	177 (76.0)	75 (75.0)	0.85
Left heart localisation	280 (84.3)	195 (84.1)	95 (85.0)	0.15
Peripheral embolization, n (%)	183 (55.0)	128 (54.9)	55 (55.0)	0.99
Valvular abscess, n (%)	29 (8.7)	24 (10.3)	5 (5.0)	0.99
Acute heart failure, n (%)	59 (17.7)	45 (19.3)	14 (14.0)	0.24
Septic shock, n (%)	31 (9.3)	22 (9.4)	9 (9.0)	0.90
Eligibility in POET trial	184 (55.3)	132 (56.7)	52 (52.0)	0.43

10+ days of IV, absence of abscess, left-heart involvement, no immunosuppression, no IV drug use, BMI<40, no atypical organisms)

The ENDO-ORAL study, Rallet et al., CID doi: 10.1093/cid/ciaf452 August 2025

	Total	IV treatment (n=233)	Oral switch (n=100)
S.aureus, n (%)	105 (31.5)	63 (27.0)	42 (42.0)
MSSA, n (%)	87 (26.1)	49 (21.0	38 (38.0)
MRSA, n (%)	18 (5.4)	14 (6.0)	4 (4.0)
CoNS	35 (10.5)	29 (12.4)	6 (6.0)
Streptococcus spp, n (%)	106 (31.8)	70 (30.0)	36 (36.0)
E.faecalis, n (%)	42 (12.6)	37 (15.9)	5 (5.0)
E.faecium, n (%)	6 (1.8)	6 (2.6)	0 (0.0)
Other*, n (%)	32 (9.6)	22 (9.4)	10 (10.0)

**P.aeruginosa* 1/0; *C.acnes* 0/4; *Haemophilus* spp 1/1; *M.catharralis* 0/1; *S.pneumoniae* 3/1; E. durans 3/0; *E.galinarum* 1/0; *O.intermedium* 1/0; *G.morbillorum* 1/0; *A.defectiva* 2/0; *P.multocida* 0/1; *E.coli* 4/0; *K.pneumoniae* 1/0; *E.cloacae* 1/0; *M.morganii* 1/0; *Bartonella* spp 0/1; *T.bernardii* 1/0; Aggregatibacter spp 1/0

The ENDO-ORAL study, Rallet et al., CID doi: 10.1093/cid/ciaf452 August 2025

	Total	IV treatment (n=233)	Oral switch (n=100)
Duration of effective therapy, median (IQR)	42.0 (32.0-42.0)	42.0 (31.0-42.0)	42.0 (37.0-42.0)
Days of effective IV therapy, median (IQR)	36.0 (22.0-44.0)	42.0 (31.0-42.0)	16.0 (13.0-23.2)
Days of effective oral therapy, median (IQR)	26.5 (17.0-31.0)	N/A	26.5 (17.0-31.0)
Early oral switch (<10 days IV), n (%)	18 (5.4)	N/A	18 (18.0)
Main IV antibiotic therapy , n (%)			
Cefazolin	35 (10.5)	21 (9.0)	14 (14.0)
Cloxacillin	85 (25.5)	45 (19.3)	40 (40.0)
Amoxicillin	62 (18.6)	36 (15.4)	26 (26.0)
Amoxicillin + ceftriaxone	50 (15.0)	43 (18.4)	7 (7.0)
Amoxicillin + gentamicin	22 (6.6)	14 (6.0)	8 (8.0)
Daptomycin	54 (16.2)	44 (18.9)	10 (10.0)
Vancomycin	30 (9.0)	27 (11.6)	3 (3.0)
Rifampicin	43 (12.9)	33 (14.2)	10 (10.0)
Other*	87 (26.1)	75 (32.2)	12 (12.0)

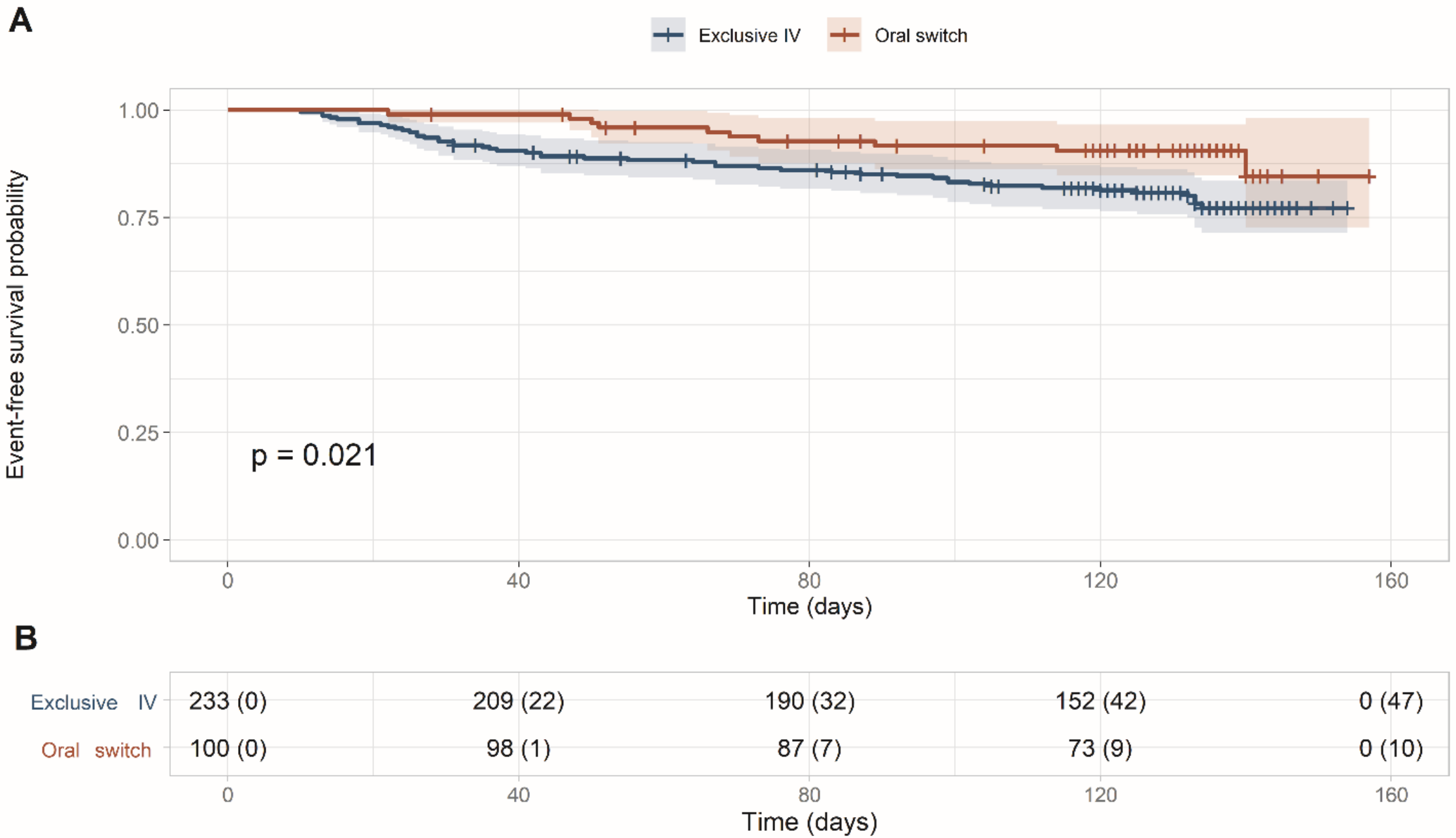
*ceftaroline, ceftobiprole, carbapenem, aztreonam, piperacillin-tazobactam, cefotaxime, vancomycin, teicoplanin, dalbavancin, linezolid, clindamycin, doxycycline, fluoroquinolone

The ENDO-ORAL study, Rallet et al., CID doi: 10.1093/cid/ciaf452 August 2025

	Oral switch (n=100)
Main oral antibiotic, n (%)	
FQ + rifampicin	33 (33.0)
FQ + clindamycin	13 (13.0
FQ + doxycycline	3 (3.0)
FQ + amoxicillin	2 (2.0)
FQ + cefuroxime	1 (1.0)
Amoxicillin	26 (26.0)
Clindamycin + rifampicin	9 (9.0)
Clindamycin + co-trimoxazole	2 (2.0)
Co-trimoxazole + rifampicin	2 (2.0)
Clindamycin + linezolid	1 (1.0)
Other*	10 (10)

*clindamycin, doxycycline, co-trimoxazole, amoxicillin, fusidic acid, rifampicin (always in combination), fluoroquinolone monotherapy (only one case)

The ENDO-ORAL study, Rallet et al., CID doi: 10.1093/cid/ciaf452 August 2025



A: Kaplan-Meier event-free survival curves comparing two treatment strategies for definite infective endocarditis.
B: A risk table shows, at days 0, 40, 80, 120, and 160 days

The ENDO-ORAL study, Rallet et al., CID doi: 10.1093/cid/ciaf452 August 2025

Summary

- Treatment failure within 90 days after the end of the antibiotic course was observed in 57 participants (17.1%) (53 deaths, 4 recurrences, 0 suppressive therapy). Treatment-failure-free survival was significantly better in the oral switch group compared to the exclusive IV group (10 (10.0%) events versus 47 (20.2%)) events, log-rank test: p = 0.021
- No significant difference in adverse events between the oral switch (n=20 (20.0%)) and the IV (n=34 (14.6%), p = 0.22) groups

The ENDO-ORAL study, Rallet et al., CID doi: 10.1093/cid/ciaf452 August 2025

Box 2. Summary of Oral Step-Down Antibiotics by Organism[a]

Streptococci: penicillin-sensitive (MIC ≤0.12 µg/ml)

- Amoxicillin 1 g 4 times daily, only for native valve infection[b]
- Amoxicillin 1 g 4 times daily with rifampin 600 mg once daily
- Linezolid 600 mg twice daily alone or with rifampin 600 mg once daily
- Moxifloxacin 400 mg once daily with rifampin 600 mg once daily or linezolid 600 mg twice daily

Streptococci: penicillin-intermediate (MIC 0.25-1.00 µg/mL) or *Enterococcus*

- Amoxicillin 1 g 4 times daily with rifampin 600 mg once daily or linezolid 600 mg twice daily
- Linezolid 600 mg twice daily alone or with rifampin 600 mg once daily
- Moxifloxacin 400 mg once daily with rifampin 600 mg once daily

Streptococci: penicillin-resistant (MIC ≥2 µg/mL) or amoxicillin-resistant *Enterococcus*

- Linezolid 600 mg twice daily alone or with (rifampin 600 mg once daily)
- Moxifloxacin 400 mg once daily with rifampin 600 mg once daily

Staphylococcus spp

- Levofloxacin 750 mg once daily with rifampin 600 mg once daily or linezolid 600 mg twice daily
- Linezolid 600 mg twice daily alone or in combination with rifampin 600 mg once daily (rifampin lowers linezolid blood levels, so whether monotherapy or combination therapy is preferred remains unclear)
- TMP-SMX 960 mg or 4800 mg daily in divided doses[c]
- Dicloxacillin 1 g 4 times daily plus rifampin 600 mg once daily (only for methicillin-sensitive strains)

Abbreviations: MIC, minimum inhibitory concentration; TMP-SMX, trimethoprim-sulfamethoxazole.

[a] Combination regimens were used in the largest randomized clinical trial; other published regimens have included either monotherapy or combination therapy regimens.[3]

[b] Amoxicillin monotherapy was studied in a 30-patient randomized clinical trial with excellent outcomes,[1] whereas dual therapy was used in a substantially larger randomized clinical trial.[3] Thus, it is not clear that rifampin is needed for sensitive streptococci, but there are more data for the combination.

[c] If used for transitioning from intravenous to oral therapy, the dosing of TMP-SMX is uncertain. The quasi-experimental study used a very high dose equivalent to 3 double-strength tablets twice daily, which had a relatively high rate of intolerance.[46] Many WikiGuidelines authors prefer to use lower doses, such as 2 double-strength tablets twice daily; 1 double-strength tablet twice daily may be conceivably sufficient, but there are currently no published data demonstrating efficacy of such a dose.

JAMA Network Open

Consensus Statement | Infectious Diseases

Guidelines for Diagnosis and Management of Infective Endocarditis in Adults

A WikiGuidelines Group Consensus Statement

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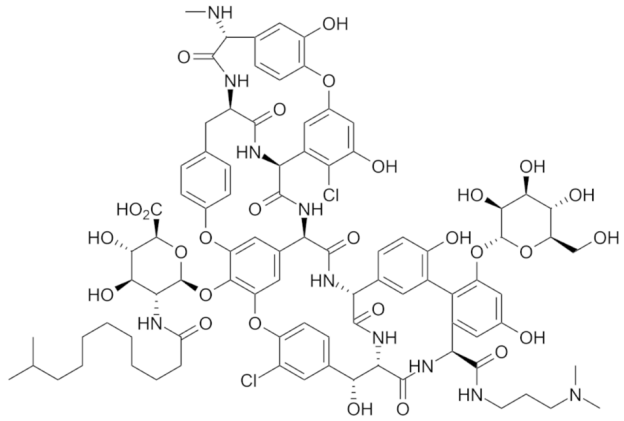
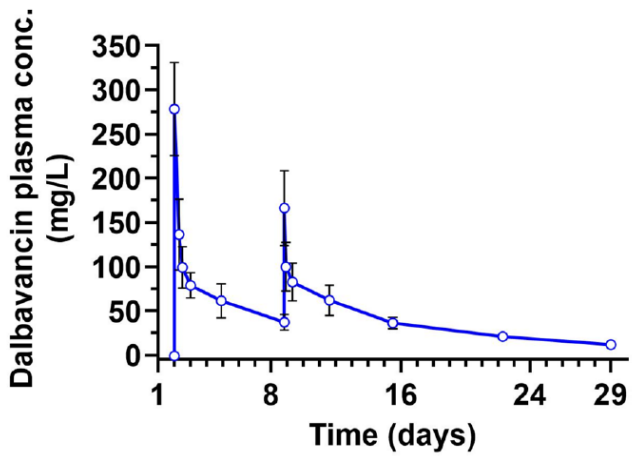
Dalbavancin



- Lipoglycopeptide
- Anti-gram positive agent inc. CoNS and enterococci (not VRE)
- Half-life of approx. 204 hours
- Volume of distribution 15.7L, 93% protein bound
- Indication – acute bacterial skin and skin structure infection
- Dose 1500mg for 1 dose or 1000mg, then 500mg
- IV – 30 minute infusion



Dalbavancin in IE

- Systematic review of 9 studies – all observational and 8/9 retrospective
- Spain (4), France (2), Austria (2), USA (1)
- NVE - 128/263 (48.7%), PVE -107 (40.7%), CIED - 28 (10.6%)
- CoNS - 83/269 (30.1%), *S.aureus* - 78 (29%) (67.9% MSSA), *Enterococcus* spp. - 19.7%, *Streptococcus* spp. – 13%
- Majority as follow-on therapy
- Variable dosing regimen
  - Single 1500mg dose (n=77)
  - 1000mg then 500mg after 1 week (n=29)
  - Single 1000mg dose (n=25)
  - 1500mg weekly (n=10)

Infection, 2025: 53:15-23. doi.org/10.1007/s15010-024-02393-9

Dalbavancin in IE

	Study period	No.	Type	Dosing	Outcome
Tobudic, 2018	2015-16	31	NVE 16, PVE 6, CIED 5	1000mg then 500mg or 1500mg then 1000mg twice weekly – median 6 weeks	6-months clinical/ microbiological failure: 7.4%
Dinh, 2019	2017-18	19	NVE8, PVE 10	1500mg twice	Clinical failure at last visit (mean of 97.9 ± 99.7 d since first dose): 27.8%
Wunsch, 2019	2016-19	25	NVE 15, PVE 6, CIED 4	1500mg twice	90 d-clinical failure: 8.7% (2/23 patients with a complete FU)
Morata, 2022	2018-19	38	?	1500mg single (~50%) 1000mg single (15%)	Clinical failure: 2.6% (timing not specified)
Hidalgo-Tenori, 2023	2016-21	124	NVE 56, PVE 54, CIED 18	1500mg twice	12-months clinical failure: 4.8%
Courjon, 2023	2018-20	21	PVE 17, NVE 4	Not specified	30 d-clinical failure: 0% (for patients who completed the FU)
Veve, 2020	2016-19	12	NVE 12	Not specified	90 d-overall-mortality: 16.7%
De Pablo-Miro, 2021	2015-22	8	NVE 7, CIED 1	5 doses	30 d-Clinical failure: 50%
Suarez, 2024	2015-22	22	NVE 8, PVE 14	Not specified	12 months-Clinical failure: 22.7% (4 deaths and 1 recurrence)

Infection, 2025: 53:15-23. doi.org/10.1007/s15010-024-02393-9

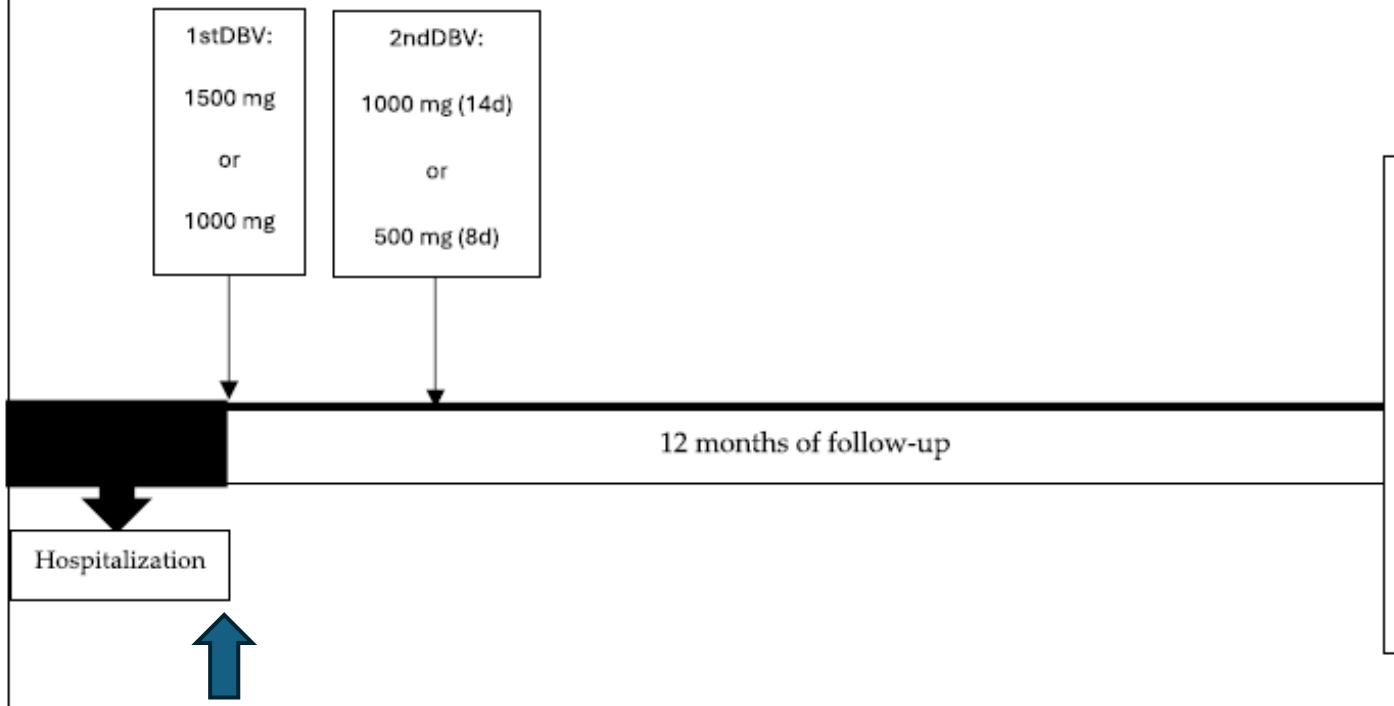
Real-world evidence of dalbavancin effectiveness as consolidation therapy in infective endocarditis due to *Enterococcus* spp.

Carmen Hidalgo-Tenorio [a,*], Svetlana Sadyrbaeva-Dolgova [b], Eduardo Aparicio-Minguijón [c], Arístides Alarcón [d], Antonio Plata [e]

N=98 patients with EIE

-Inclusion criteria: inclusion criteria were age >17 years, diagnosis of IE, microbiological isolation of *Enterococcus* spp. (in blood culture, endovascular tissue, cardiovascular implantable electronic devices infectious endocarditis (CIED-IE)], stable condition, no requirement for early surgery, no need to remain in hospital other than for intravenous (iv) antibiotics, and prescription by the attending physician of at least one dose of DBV as IE consolidation treatment.

-Exclusion criteria were dalbavancin administered as suppressive antibiotic treatment, pregnancy, and IE not produced by gram-positive cocci.



Median duration before dalbavancin 22.5 days (IQR 15.0-34.25)

Outcomes

-Clinical cure rate: 81.2% (n=80)

-Microbiological eradication rate: 93.9% (n=92)

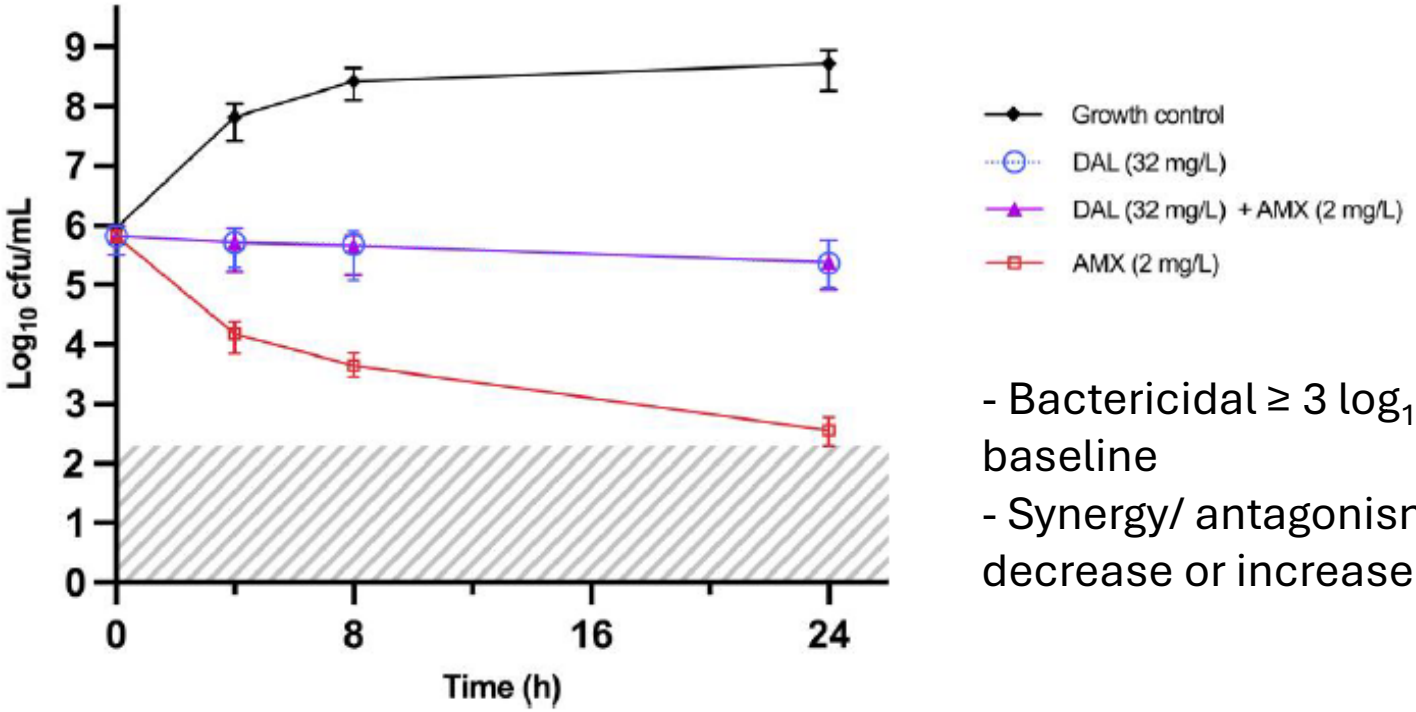
-Relapse rate: 8.2% (n=8)

-Death rate: 9.2% (n=9)

-Reduced the hospital stay by 21 days (IQR: 14-28 days).

J Microbiol Immunol Infect 2025; 58: 429-436. doi.org/10.1016/j.jmii.2025.03.001

Paradoxical interaction between dalbavancin and β-lactams against endocarditis-associated *Enterococcus faecalis* clinical isolates



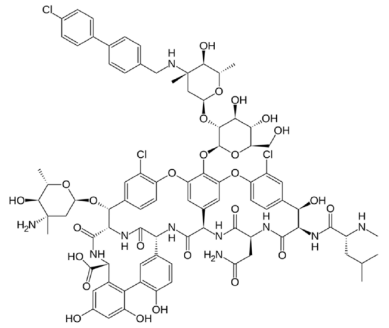
- Bactericidal ≥ 3 $\log_{10}$ CFU/ml reduction from baseline
- Synergy/ antagonism ≥ 2 $\log_{10}$ CFU/ml decrease or increase at 24 hours

Figure 1. Median time–kill curves of dalbavancin (DAL: 32 mg/L) or amoxicillin (AMX: 2 mg/L) alone, and combination of dalbavancin (32 mg/L) plus amoxicillin (2 mg/L) for 12 *E. faecalis* strains. Error bars represent IQRs of triplicate experiments. The hatched area represents the interval below the lower limit of reliable detection.

Dalbavancin MIC 0.03-0.12mg/L
Amoxicillin MIC 0.5-1mg/L

J Antimicrob Chemother 2025:80: 2524-2529. doi.org/10.1093/jac/dkaf262

Oritavancin



- Lipoglycopeptide
- Anti-gram positive agent inc. CoNS and *enterococcal* spp. including VRE
- Approximate half life of 245h
- Volume of distribution 87.6L and 85% protein bound
- Indication – acute bacterial skin and skin structure infection
- 1200mg IV over 3 hours
- Affects with aPTT and INR monitoring

The Use of Oritavancin as Consolidation Therapy for Infective Endocarditis Caused by *Enterococcus* spp.

Federico Frondizi,[1] Gabriele Maria Leanza,[1,*] Marta Chiuchiarelli,[2,*] Francesca Catania,[1] Flavio Sangiorgi,[1,3] Francesca Giovannenze,[2] Eleonora Taddei,[2] Enrica Tamburrini,[1,2] Carlo Torti,[1,2,a] and Giancarlo Scoppettuolo[2,a,*]

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	1	2	3	4	5	6	7
Age/gender	66M	61M	88F	75M	77M	79M	63M
IE type	PVE (Ao)	NVE (M+Ao)	NVE (M+Ao)	PVE (Ao)	NVE with CIED (PV)	PVE (Mi)	NVE (Mi)
Surgery	No	Yes	No	No	No	No	Yes
Initial Rx	Lin/dapto	Dapto/ceftaroline	Lin/dapto	Amp/CT3X	Amp/CT3X	Amp/CT3X	Amp/CT3X
Time to Oritavancin	30d	27d	35d	23d	27d	23d	82d
Dosing	1200mg x2	1200mg x2	1200mg x2	1200mg x1	1200mg x2	1200mg x1	1200mg x1
Outcome 12 months	Relapse at 8 months	Alive	Death non-IE related	Alive	Alive	Alive	Alive

Open Fourm Infect Dis; 12: ofaf416. doi. 10.1093/ofid/ofaf416