Endocardite sur pacemaker : on retire ou pas ?

Séminaire DES 25-03-26
Pierre DANNEELS

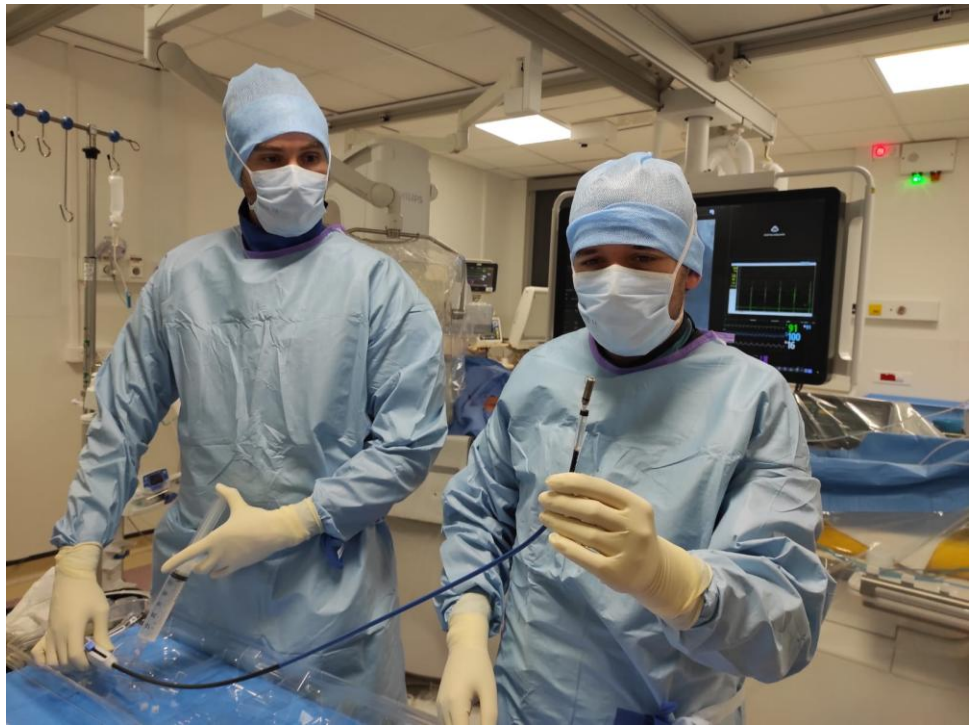
wooclap

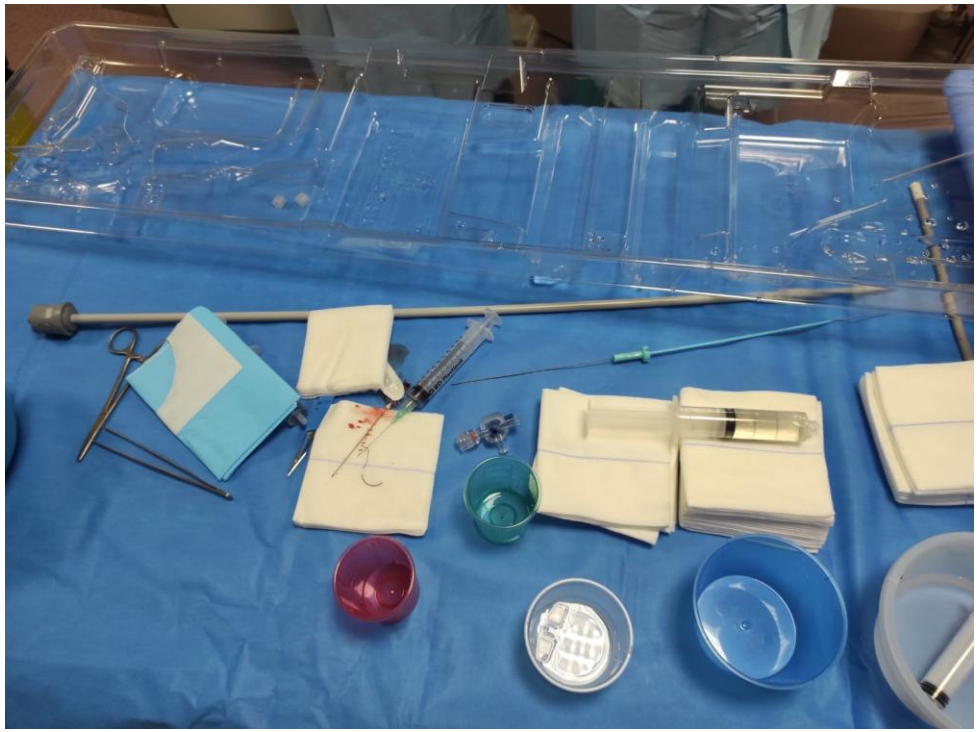
Allez sur wooclap.com

Entrez le code d'événement dans le bandeau supérieur

Code d'événement

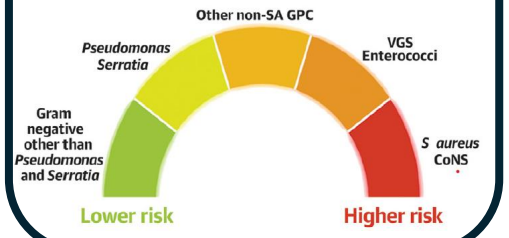
PMENDO



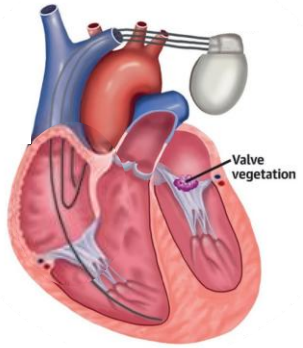


Endocardite sur pacemaker : on retire ou pas ?

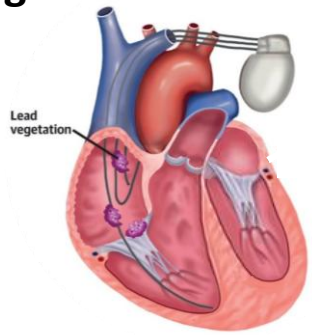
Bactériémie à haut risque ?

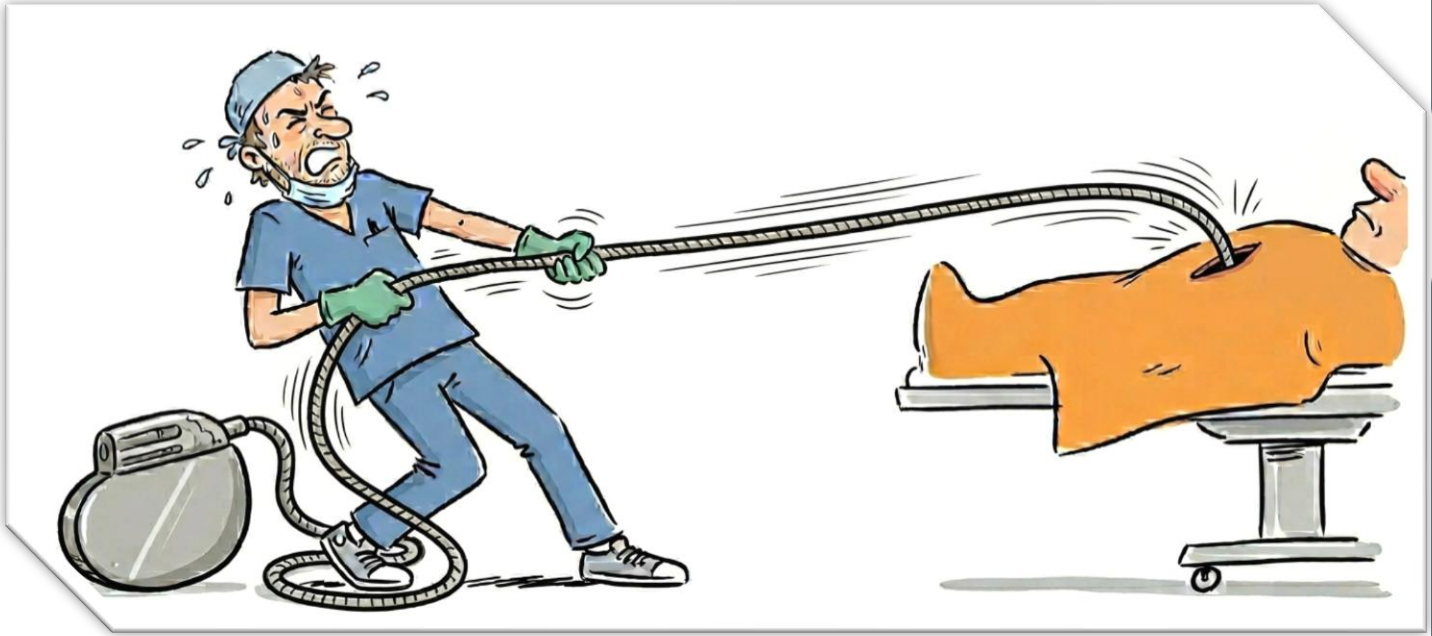


Végétation sur valve ?



Végétation sur sonde ?

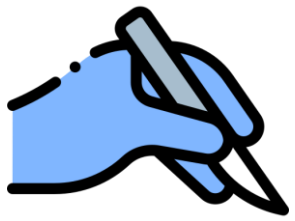




Taille végétation sonde ?

Quel délai ?

Quelle méthode ?



Centre expert ?

Quand réimplanter ?

Sondes récentes ?

2019

Prise en charge infectiologique des infections de dispositif électronique cardiaque implantable (DECI)

Synthèse et prise de position commune
de la SPILF et de la SFC à propos du Consensus
2017 de la Heart Rythm Society (HRS)

2017 HRS expert consensus statement on cardiovascular implantable electronic device lead management and extraction. Chapitre 8, p 519-527
doi.org/10.1016/j.hrthm.2017.09.001

Synthèse réalisée le 4 septembre 2019 par la SPILF

Les recos !

EHRA
European Heart Rhythm Association
European Society of Cardiology

ESC European Society of Cardiology
Europace (2020) **22**, 515–516
doi:10.1093/europace/euz246

2020

EHRA CONSENSUS PAPER

European Heart Rhythm Association (EHRA) international consensus document on how to prevent, diagnose, and treat cardiac implantable electronic device infections—endorsed by the Heart Rhythm Society (HRS), the Asia Pacific Heart Rhythm Society (APHRS), the Latin American Heart Rhythm Society (LAHRS), International Society for Cardiovascular Infectious Diseases (ISCVID) and the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS)

Carina Blomström-Lundqvist (Chair)[1]*, Vassil Traykov (Co-Chair)[2],

Circulation

2023

American Heart Association.

AHA SCIENTIFIC STATEMENT

Update on Cardiovascular Implantable Electronic Device Infections and Their Prevention, Diagnosis, and Management: A Scientific Statement From the American Heart Association

Endorsed by the International Society for Cardiovascular Infectious Diseases

Larry M. Baddour, MD, FAHA, Chair; Zerelda Esquer Garrigos, MD; M. Rizwan Sohail, MD; Eva Havers-Borgersen, MD; Andrew D. Krahn, MD; Vivian H. Chu, MD; Connie S. Radke, MSN, NP; Jennifer Avari-Silva, MD, FAHA; Mikhael F. El-Chami, MD; Jose M. Miro, MD, PhD; Daniel C. DeSimone, MD, Vice Chair; on behalf of the American Heart Association Council on Lifelong Congenital Heart Disease and Heart Health in the Young (Young Hearts); and Council on Clinical Cardiology

ESC European Society of Cardiology
European Heart Journal (2023) **00**, 1–95
https://doi.org/10.1093/eurheartj/ehad193

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)

Authors/Task Force Members: Victoria Delgado *†, (Chairperson) (Spain),

De quoi on parle ?

2019

Prise en charge infectiologique des infections de dispositif électronique cardiaque implantable (DECI)

Extériorisation de matériel

Infection du site d'implantation = signes locaux d'inflammation

Infection de sonde(s) = **pas d'atteinte valvulaire** = **pas d'endocardite**

Endocardite associée à un matériel implanté = **atteinte valvulaire** = **endocardite**

Diapositive : David Lebeaux

De quoi on parle ?

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY VOL. 83, NO. 14, 2024

PUBLISHED BY ELSEVIER

JACC FOCUS SEMINAR: INFECTIVE ENDOCARDITIS

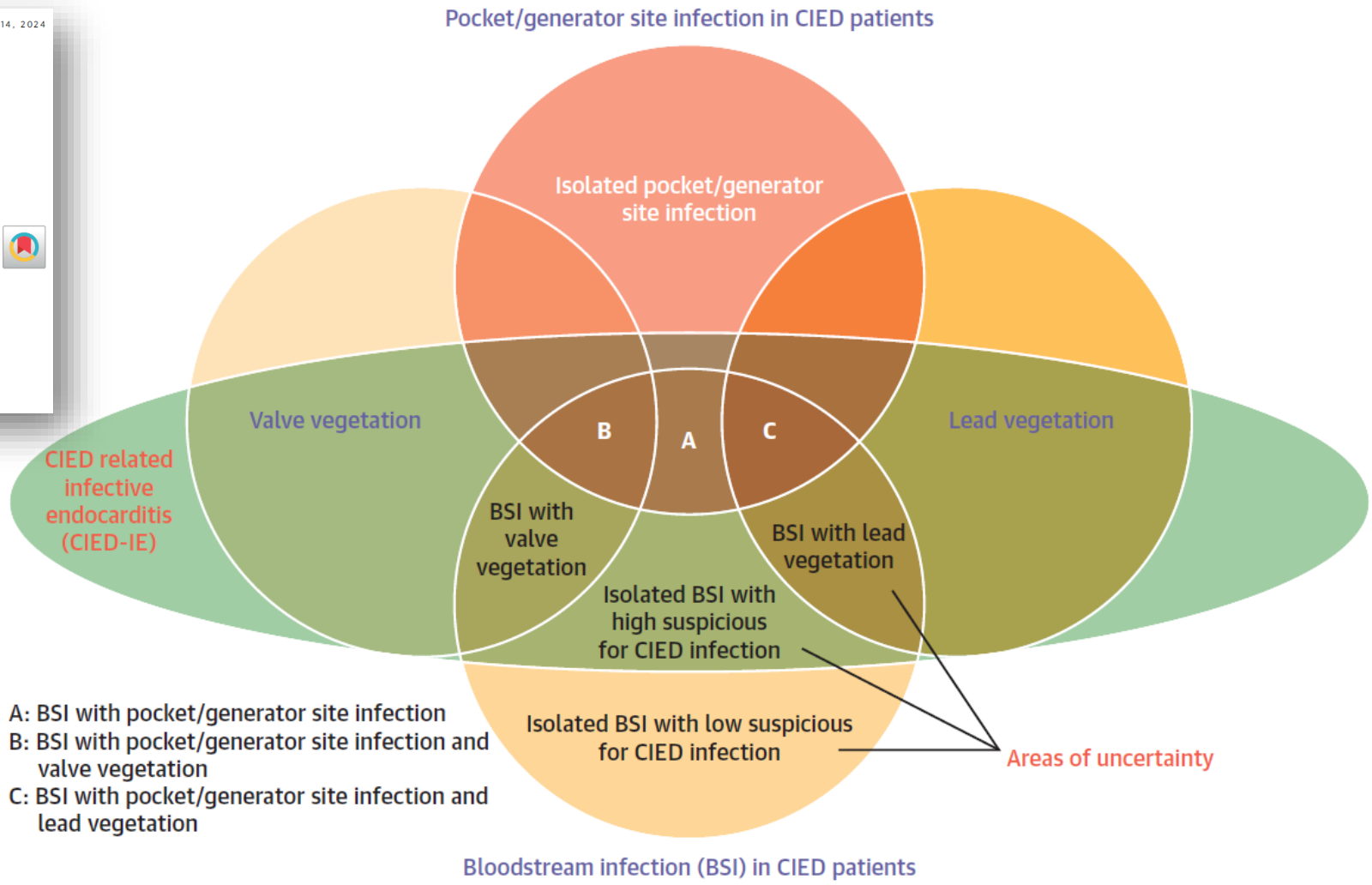
JACC FOCUS SEMINAR

Infective Endocarditis Involving Implanted Cardiac Electronic Devices

JACC Focus Seminar 1/4

Supavit Chesdachai, MD,[a] Zerelda Esquer Garrigos, MD,[a,b] Christopher V. DeSimone, MD, PhD,[c] Daniel C. DeSimone, MD,[a,c] Larry M. Baddour, MD[a,c]

FIGURE 2 Diagnostic Challenges in CIED Infection



Que disent les recos ?

Que disent les recos ?

EHRA
European Heart Rhythm Association
European Society of Cardiology

2020

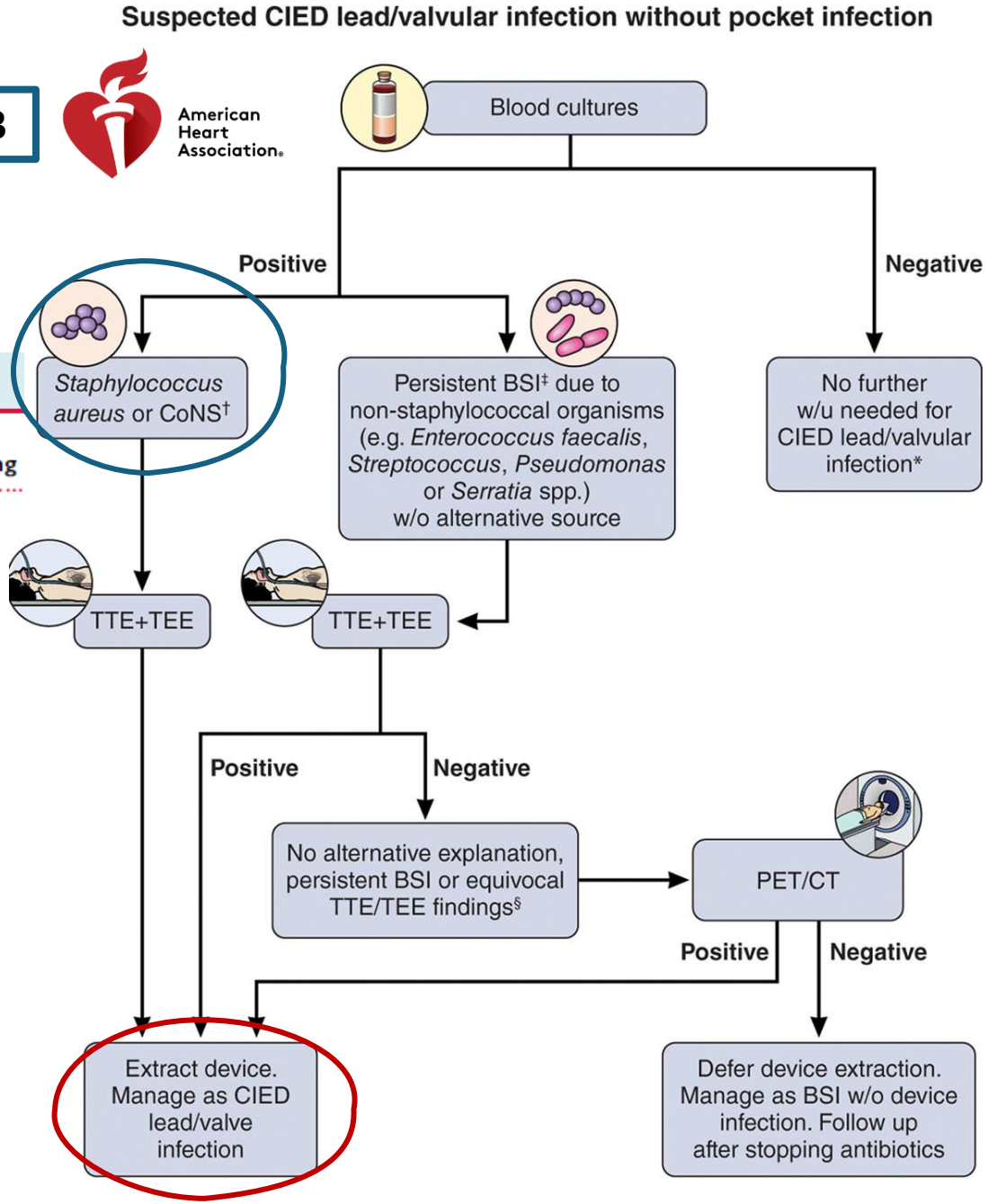
Table 8 Recommendations for device and lead removal

Consensus statement	Statement class	Scientific evidence coding
Complete CIED removal is recommended in patients with infective endocarditis with or without definite involvement of the CIED system	♥	E
Complete CIED removal is indicated in bacteraemia or fungaemia with *S. aureus*, CoNS, *Cutibacterium* spp., and *Candida* spp	♥	E
In bacteraemia with alpha- or beta-haemolytic *Streptococcus* spp. and *Enterococcus* spp., a complete CIED removal may be performed as first-line treatment or in case of recurrent/continued bacteraemia despite appropriate antibiotic therapy as a second step therapy	♥	E
In case of bacteraemia with non-pseudomonal/Serratia Gram-negative bacteria or *Pneumococcus* spp., CIED removal should be performed in the case of recurrent/continued bacteraemia despite appropriate antibiotic therapy when there is no other identifiable source for recurrence or continued infection	♥	E

E : expert opinion

2023

American Heart Association



Que disent les recos ?

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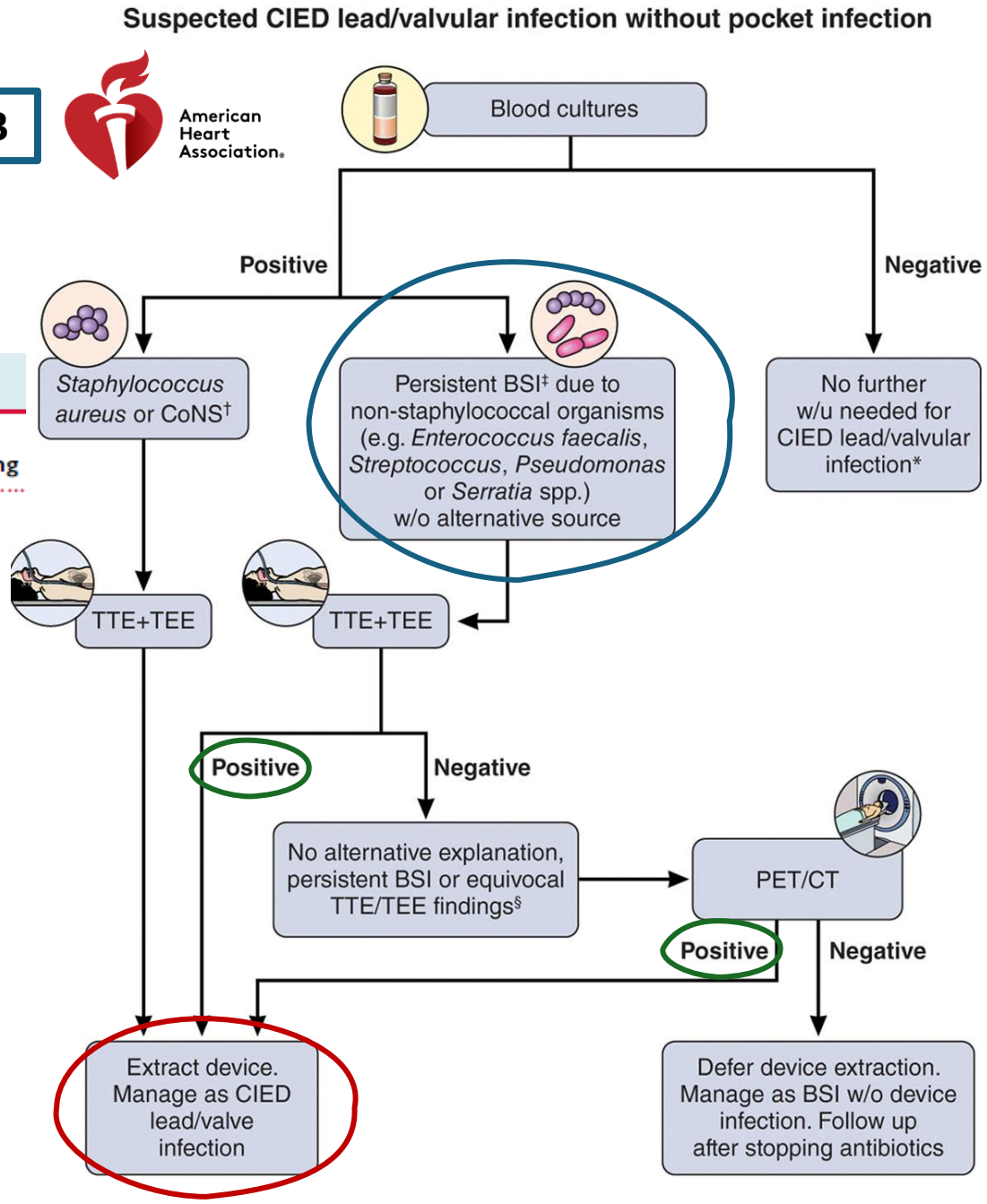
E : expert opinion

2023

American Heart Association



Que disent les recos ?

2019

Prise en charge infectiologique des infections de dispositif électronique cardiaque implantable (DECI)

Extraction de matériel ?

Si infection de DECI certaine

Si persistance ou récidive bactériémie

} **OUI**

Endocardite valvulaire sans atteinte des sondes

Bactériémie à fort pouvoir pathogène sur les DECI (staphylocoques >> streptocoques >> BGN)

} **A discuter en RCP**

Que disent les recos ?

2019

Prise en charge infectiologique des infections de dispositif électronique cardiaque implantable (DECI)

Extraction

A réaliser le plus précocement possible :

- idéalement dans les 3 jours suivant le diagnostic
- indépendamment de la durée du traitement antibiotique préalable

Extraction percutanée :

- si végétations < 2 cm
- à discuter au cas par cas si végétations > 2 cm

Réimplantation

L'évaluation de l'indication de réimplantation est impérative (30 % de non-indication)

Réimplantation possible :

- au plus tôt 72 heures après la première hémoculture négative
- plus tardivement si présence d'une autre source d'infection non traitée.

Que disent les recos ?

ESC European Society of Cardiology
European Heart Journal (2023) 00, 1–95
https://doi.org/10.1093/eurheartj/ehad193

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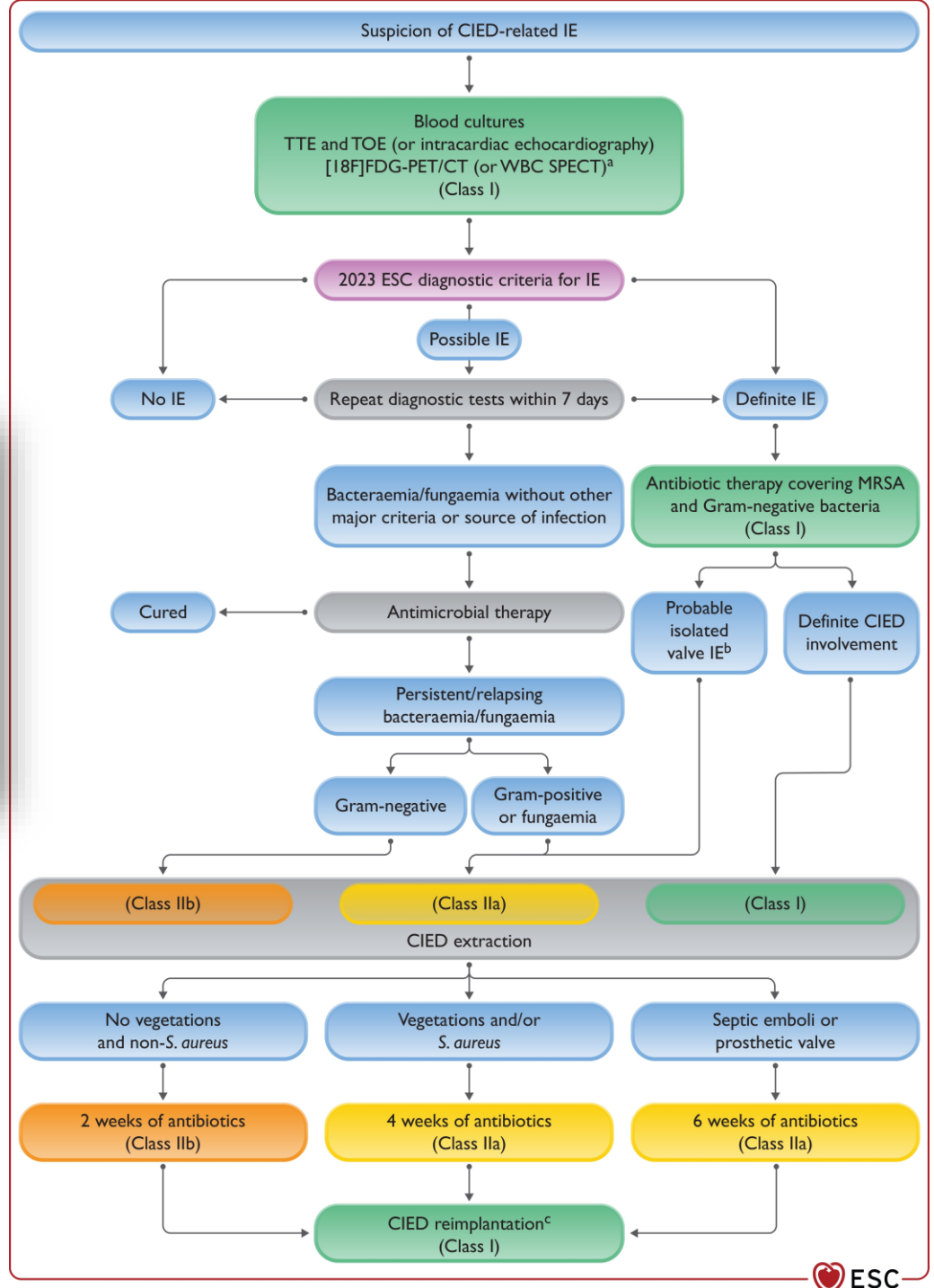

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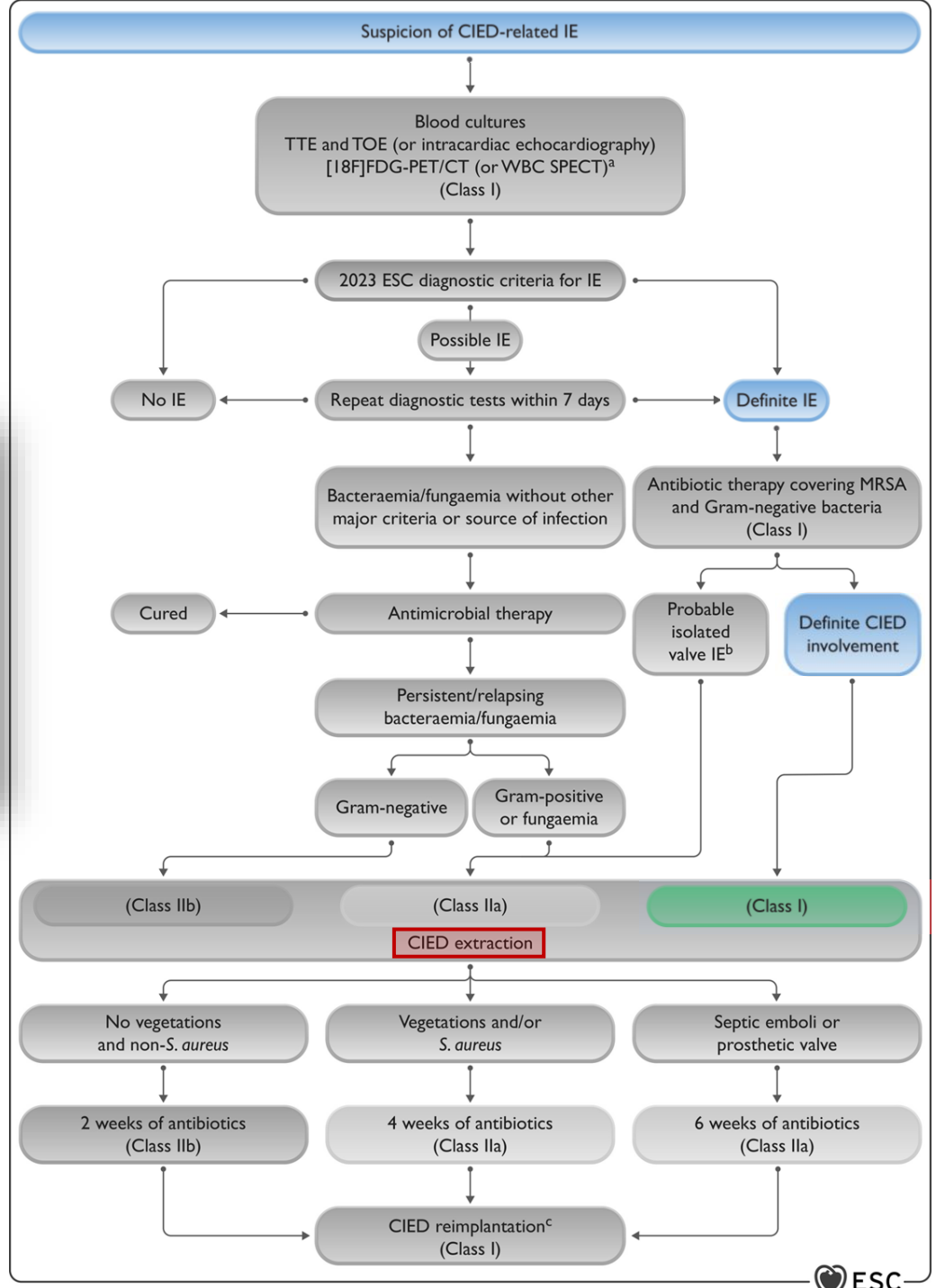

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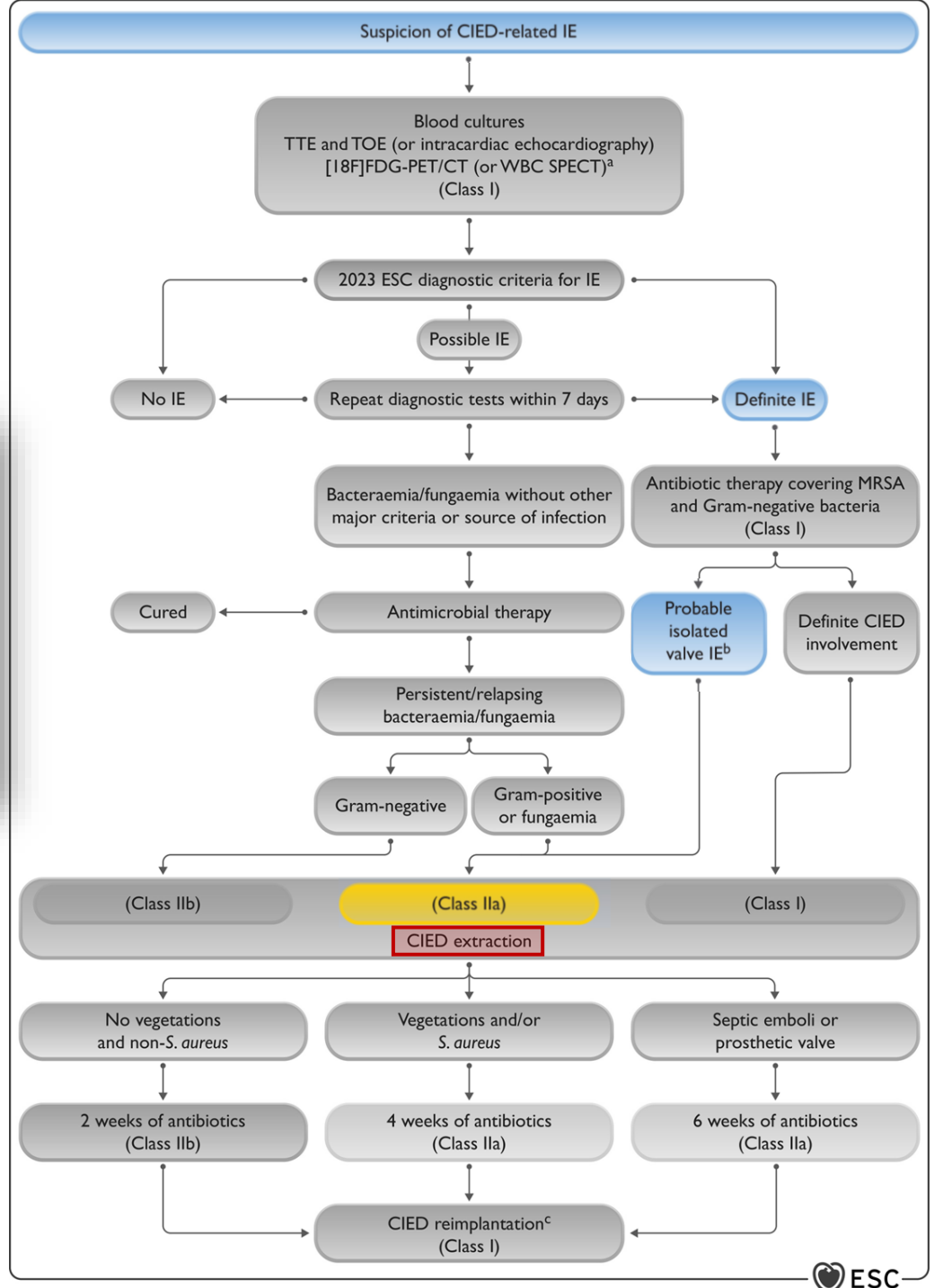

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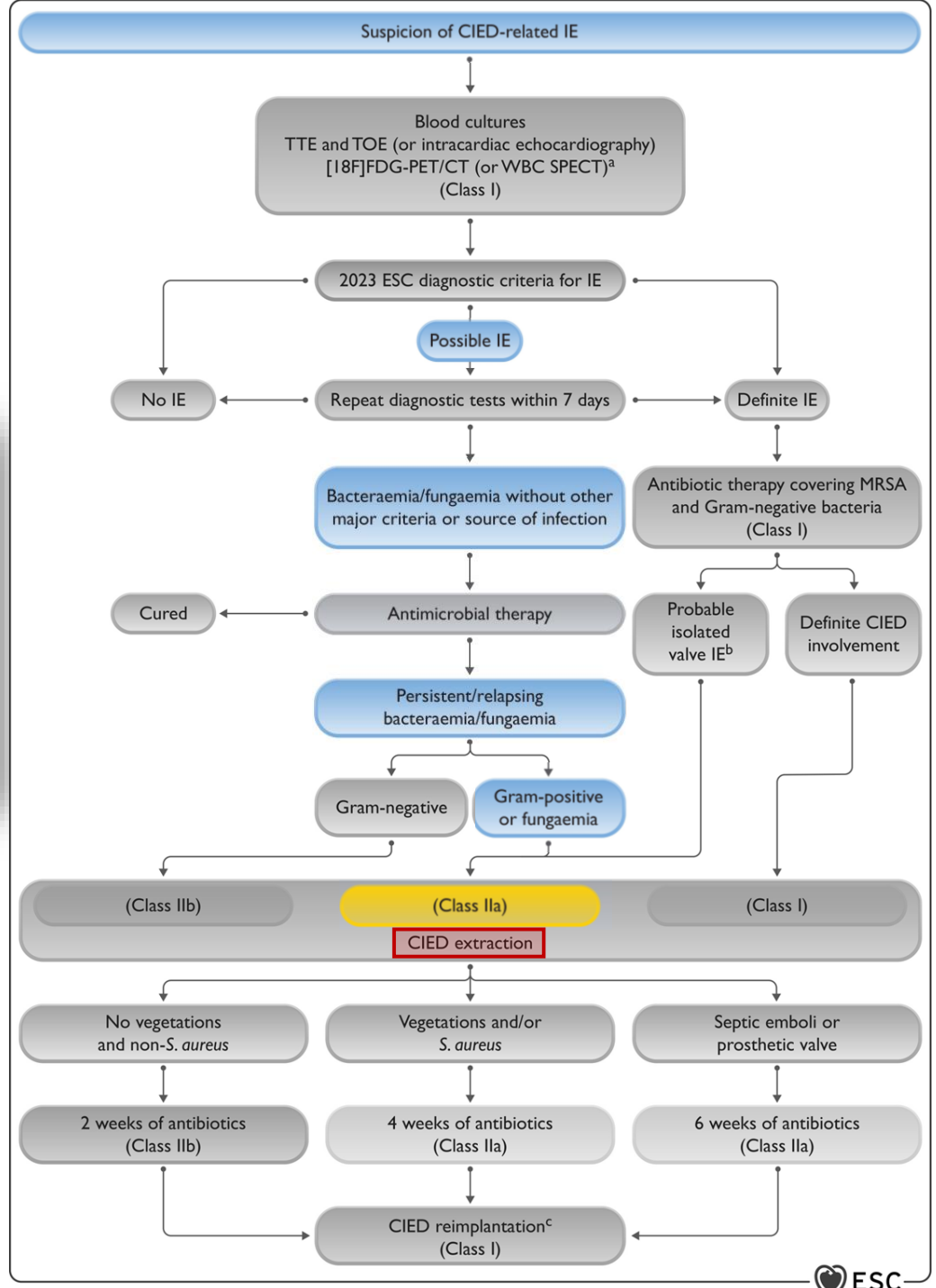

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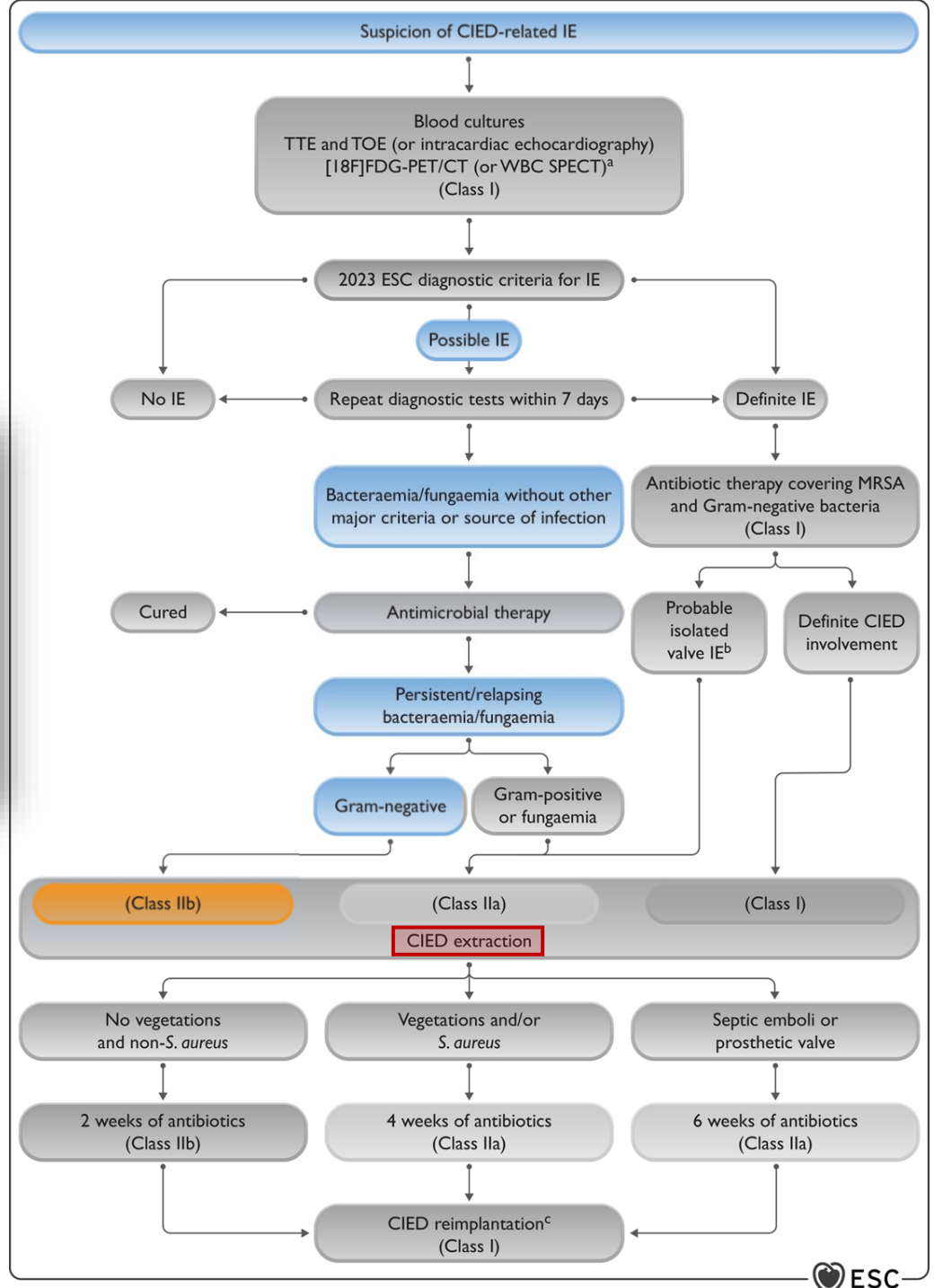

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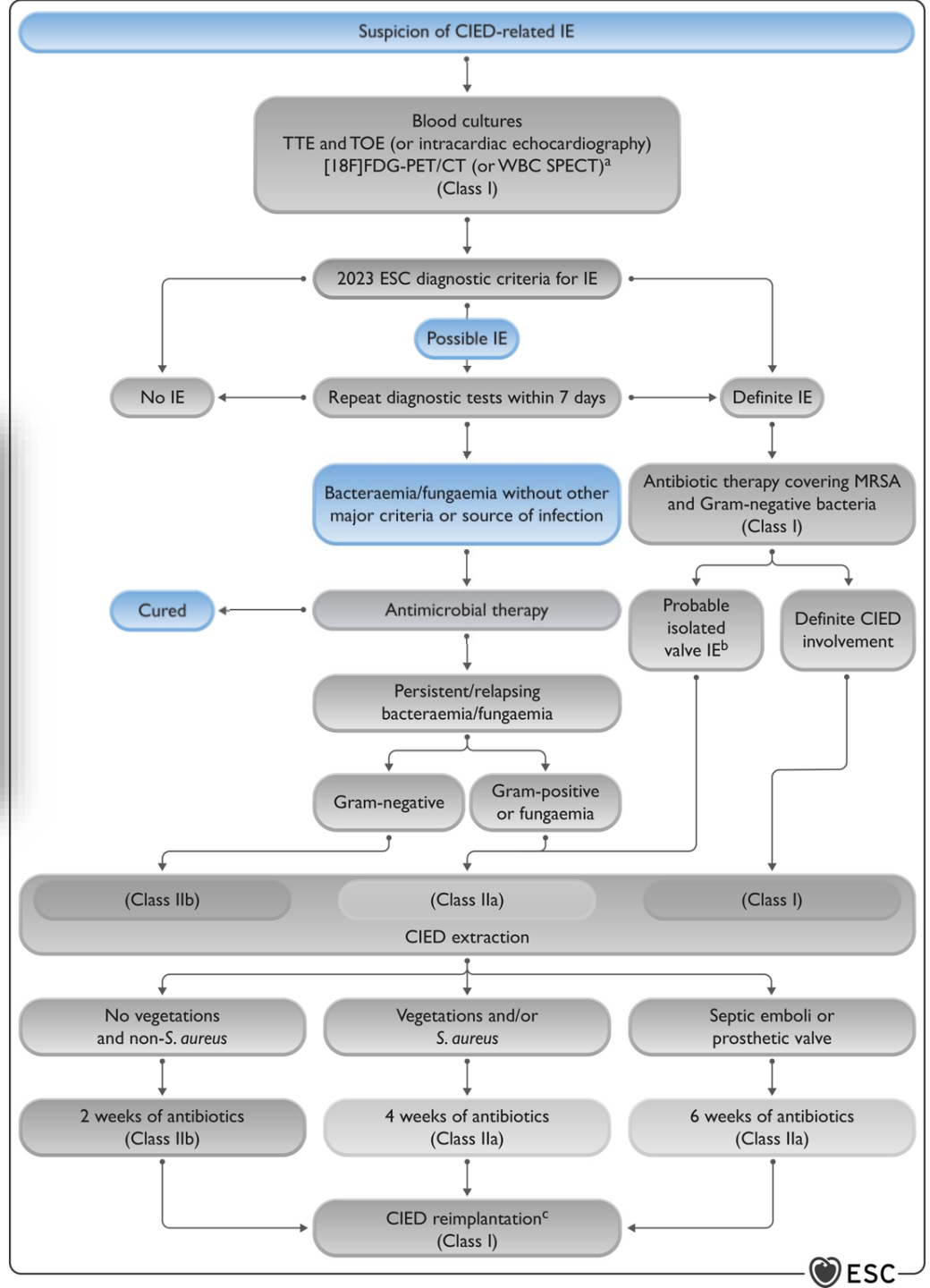
Removal of CIED after a single positive blood culture, with no other clinical evidence of infection, is not recommended.[675]	III	C



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Recommendations	Class[a]	Level[b]
Debulking of right intra-atrial septic masses by aspiration may be considered in selected patients who are high risk for surgery.[753]	IIb	C

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

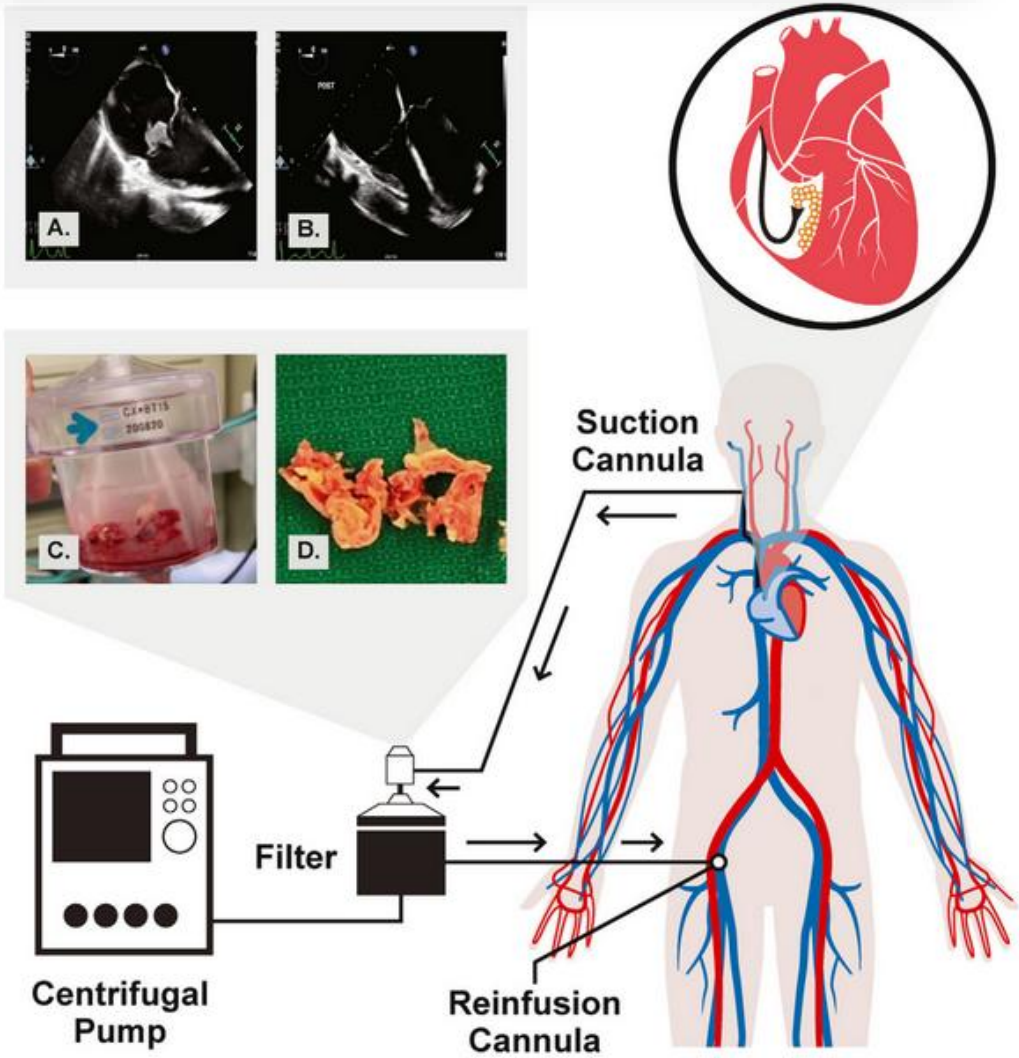
journal homepage: www.clinicalmicrobiologyandinfection.com

CMI CLINICAL MICROBIOLOGY AND INFECTION

Systematic review

Scoping review of percutaneous mechanical aspiration for valvular and cardiac implantable electronic device infective endocarditis

Ahmad Mourad [1], Molly Hillenbrand [1], Lesley A. Skalla [2], Thomas L. Holland [1], Brittany A. Zwischenberger [3], Adam R. Williams [3], Nicholas A. Turner [1,*]



Quelles données ?

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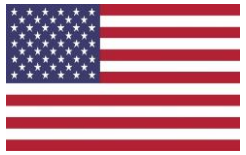


2015

VIA MEDICA

ORIGINAL ARTICLE

Cardiology Journal
2015, Vol. 22, No. 1, 68–74
DOI: 10.5603/CJ.a2014.0038

ISSN 1897–5593

Cardiac implantable electronic device lead extraction in patients with underlying infection using open thoracotomy or percutaneous techniques

Divyang Patel, Faris Khan, Hemal Shah,
Sanjoy Bhattacharya, Evan Adelstein, Samir Saba

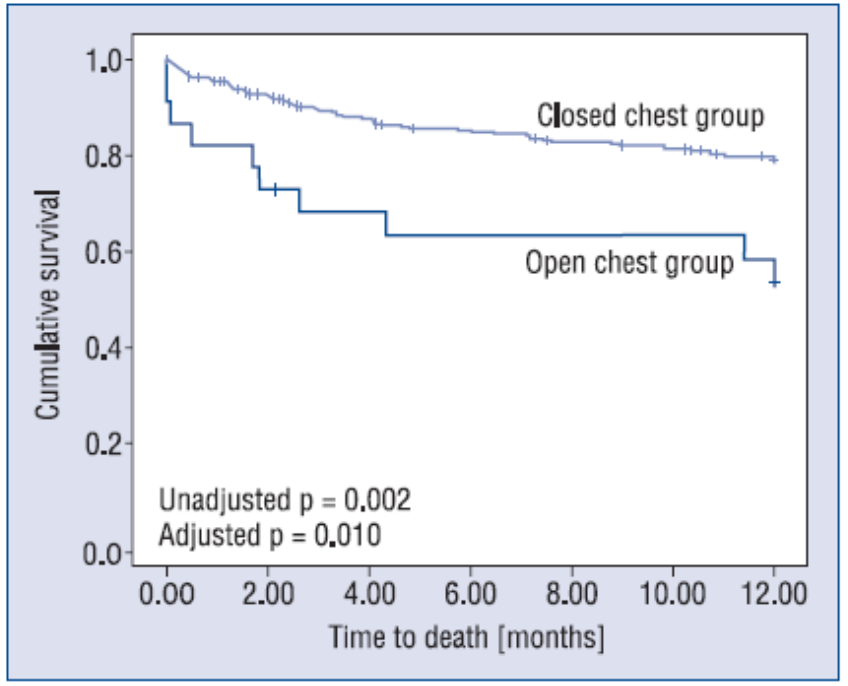
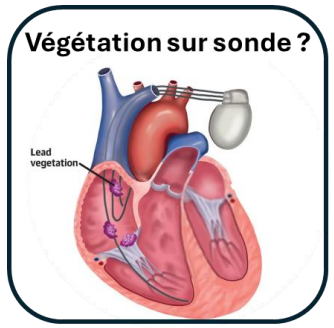


Figure 2. Kaplan-Meier curves showing the survival of patients with cardiac implantable electronic devices infection after lead extraction in both the open-thoracotomy (OR) (open chest) and percutaneously (EP) (closed chest) study groups.

Table 4. Cox proportional hazard predictor of death 1 year after index procedure.

	P	Odds ratio	95% confidence interval	
			Lower	Upper
Open chest (vs. closed chest)	0.010	2.60	1.26	5.37
Gender (women vs. men)	0.08	0.64	0.39	1.05
Age (1 year increment)	< 0.001	1.04	1.02	1.06
Charlson comorbidity index	0.003	1.17	1.05	1.29

Quelles données ?

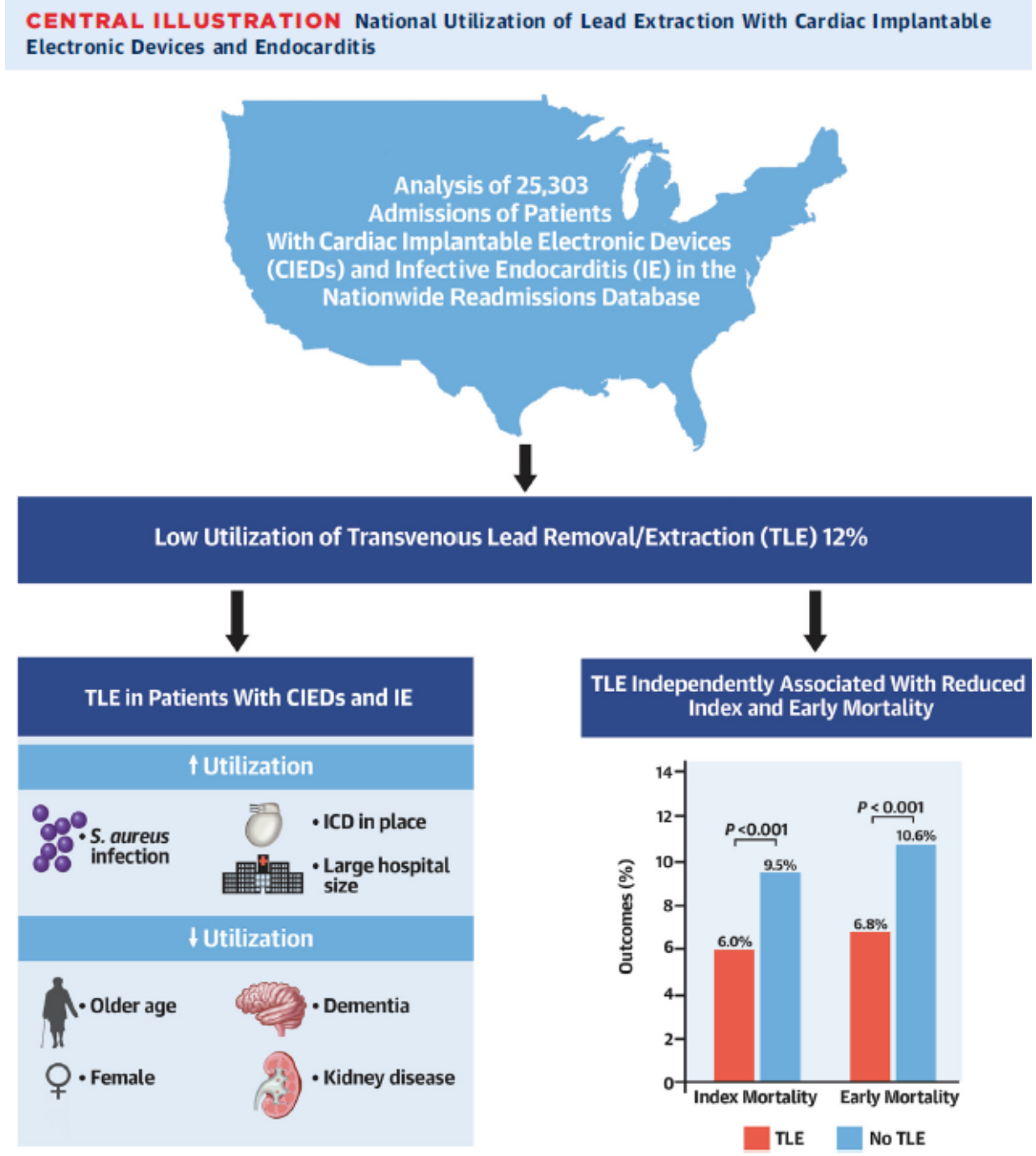


2023

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2023 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER
VOL. 81, NO. 17, 2023

Low Utilization of Lead Extraction Among Patients With Infective Endocarditis and Implanted Cardiac Electronic Devices

Christopher T. Sciria, MD,[a,b] Edward V. Kogan, MD,[a] Ari G. Mandler, MD,[a] Ilhwan Yeo, MD, PhD,[a] Matthew S. Simon, MD,[c] Luke K. Kim, MD,[a] James E. Ip, MD,[a] Christopher F. Liu, MD,[a] Steven M. Markowitz, MD,[a] Bruce B. Lerman, MD,[a] George Thomas, MD,[a] Jim W. Cheung, MD[a]



Nationwide Readmissions Database (NRD)

TLE : transvenous lead extraction

Quelles données ?

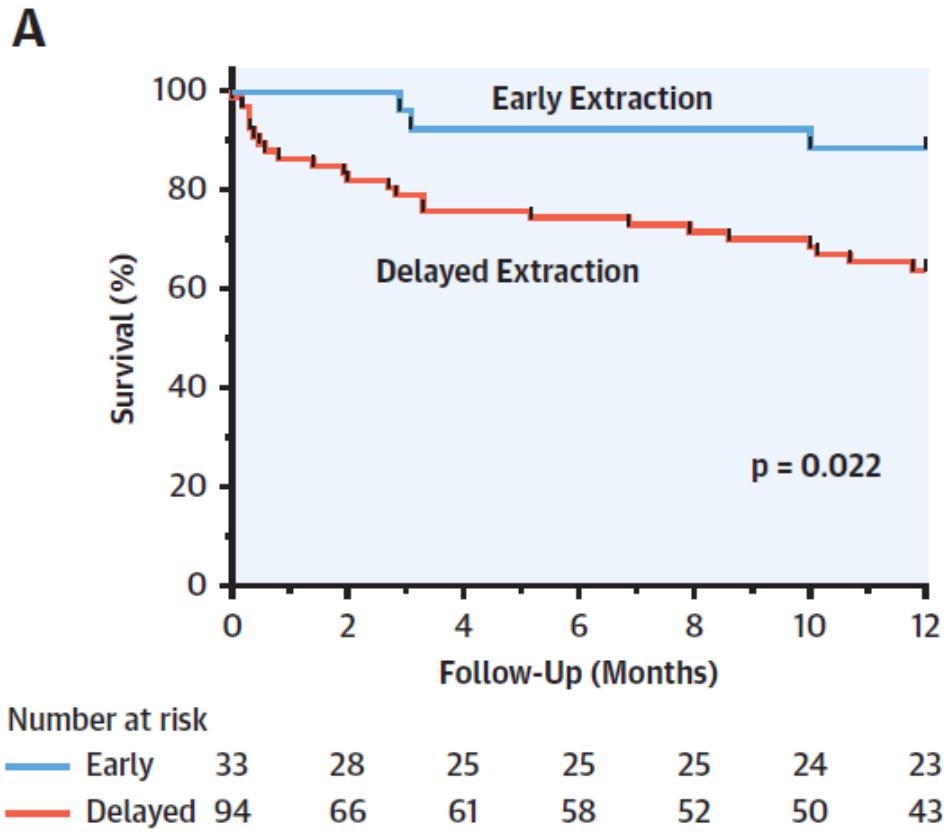
JACC: CLINICAL ELECTROPHYSIOLOGY VOL. 7, NO. 6, 2021

PUBLISHED BY ELSEVIER

Early Versus Delayed Lead Extraction in Patients With Infected Cardiovascular Implantable Electronic Devices

Andrew Y. Lin, MD,[a] Tatiana Saul, MD,[a] Omar M. Aldaas, MD,[a] Florentino Lupercio, MD,[a] Gordon Ho, MD,[a] Travis Pollema, DO,[b] Victor Pretorius, MBChB,[b] Ulrika Birgersdotter-Green, MD[a]

2025

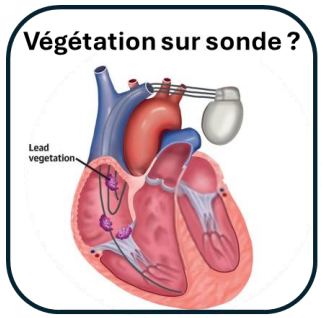


Lin, A.Y. et al. J Am Coll Cardiol EP. 2021;7(6):755-63.

Early ≤7 jours

Plus de complication d'extraction sur les sondes anciennes (135 vs 78 mois)

Quelles données ?



Données Medicare 2006-2019
Taux extraction 18,6%

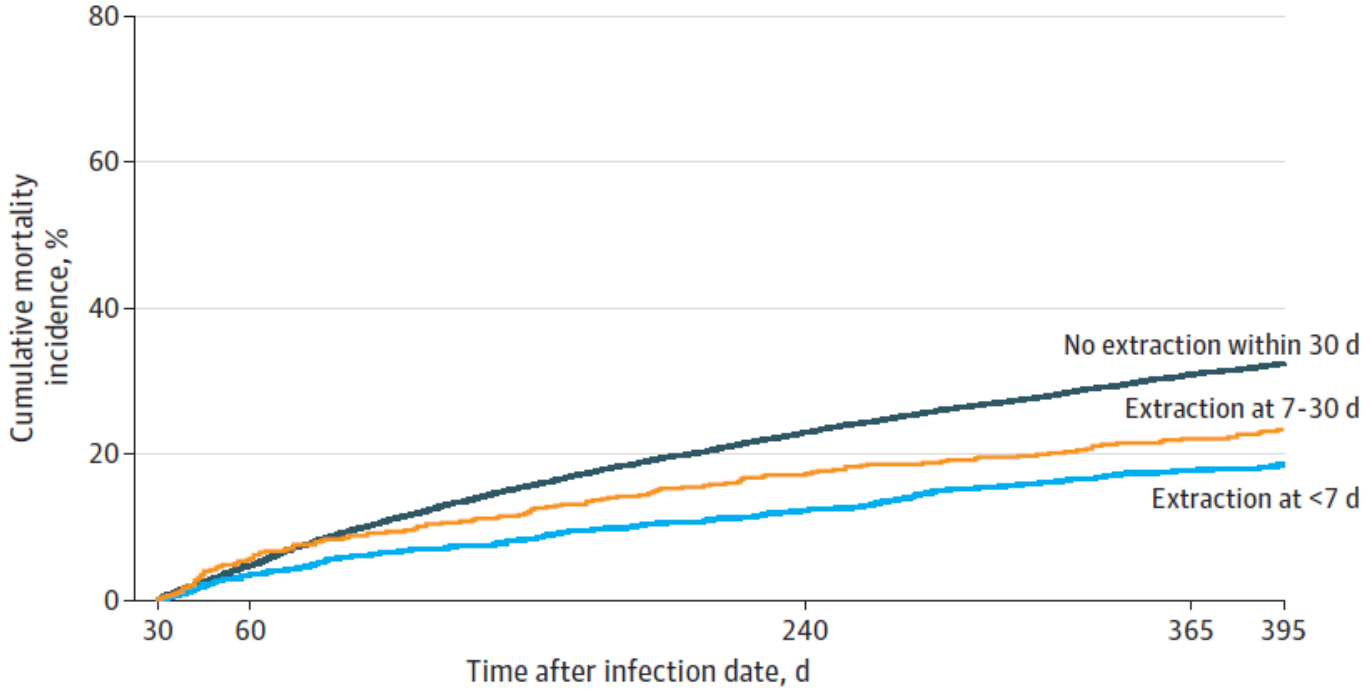
2023

JAMA Cardiology | Original Investigation

Lead Extraction and Mortality Among Patients With Cardiac Implanted Electronic Device Infection

Sean D. Pokorney, MD; Lindsay Zepel, MS; Melissa A. Greiner, MS; Vance G. Fowler Jr, MD, MHS; Eric Black-Maier, MD; Robert K. Lewis, MD, PhD; Donald D. Hegland, MD; Christopher B. Granger, MD; Laurence M. Epstein, MD; Roger G. Carrillo, MD; Bruce L. Wilkoff, MD; Chantelle Hardy, MPH; Jonathan P. Piccini, MD, MHS

Figure. Observed 1-Year Cumulative Incidence of All-Cause Mortality in the Cohort With Infection Using the Landmark Approach



No. at risk					
No extraction within 30 d	8777	8307	6288	5377	5199
Extraction at <7 d	1475	1415	1199	1056	1036
Extraction at 7-30 d	580	542	445	388	373

Quelles données ?

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY VOL. 81, NO. 13, 2023

THE PRESENT AND FUTURE

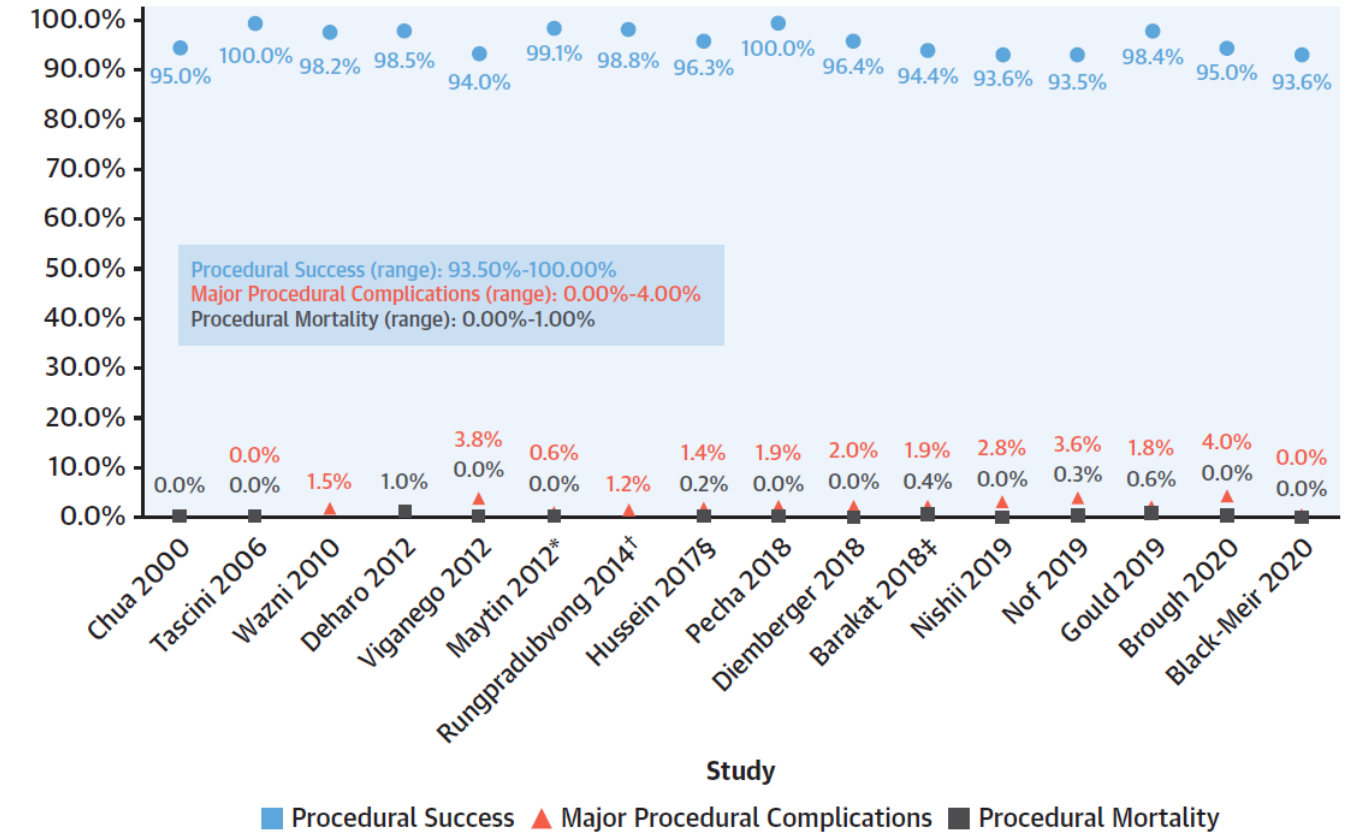
JACC REVIEW TOPIC OF THE WEEK

Early Lead Extraction for Infected Implanted Cardiac Electronic Devices

JACC Review Topic of the Week

Dhanunjaya R. Lakkireddy, MD,[a] Douglas S. Segar, MD,[b] Ami Sood, MD,[c] MaryAnn Wu, MBiotech,[d] Archana Rao, MD,[e] M. Rizwan Sohail, MD,[f] Sean D. Pokorney, MD, MBA,[g] Carina Blomström-Lundqvist, MD, PhD,[h,i] Jonathan P. Piccini, MD,[g] Christopher B. Granger, MD[g]

FIGURE 2 Clinical Outcomes for Cardiac Implantable Electronic Device Extractions in Patients With Cardiac Implantable Electronic Device Infection



Extraction for cardiac implantable electronic device infection is associated with high procedural success (majority of studies showing rates of >95%), low major procedural complication (between 0% to 4%), and very low procedural mortality (0% to 1%). *Results reported for the local infection cohort. †Results reported for the early extraction cohort. ‡Results reported for the normal renal function group. §Results reported for patients without abandoned leads.

Quelles données ?

ESC European Society of Cardiology

Europace (2025) **27**, euae308
https://doi.org/10.1093/europace/euae308

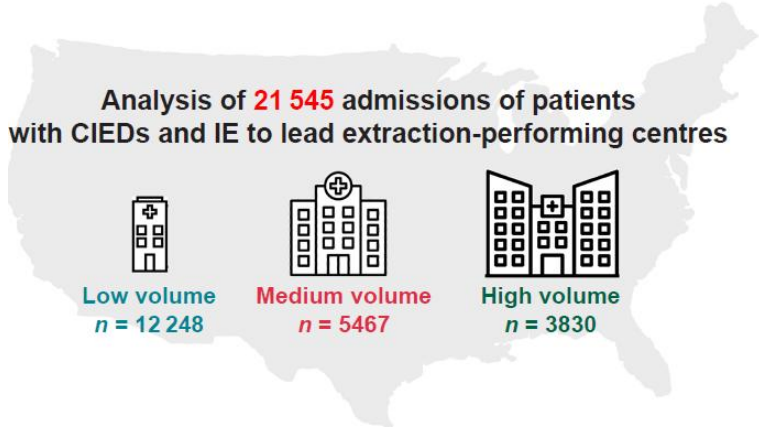
CLINICAL RESEARCH

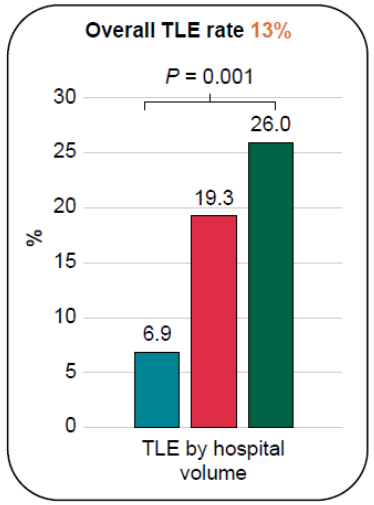
Impact of hospital lead extraction volume on management of cardiac implantable electronic device-associated infective endocarditis

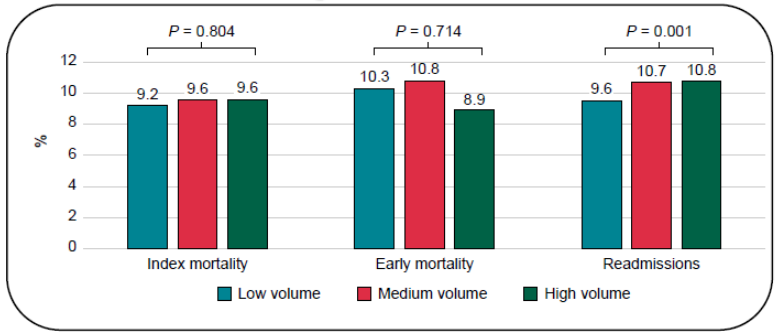
Ari G. Mandler [1], Christopher T. Sciria[1,2], Edward V. Kogan [1], Ilya Kim [1], Ilhwan Yeo [1], Matthew S. Simon[3], Luke K. Kim [1], James E. Ip [1], Christopher F. Liu [1], Steven M. Markowitz[1], Bruce B. Lerman[1], George Thomas [1], and Jim W. Cheung [1]*

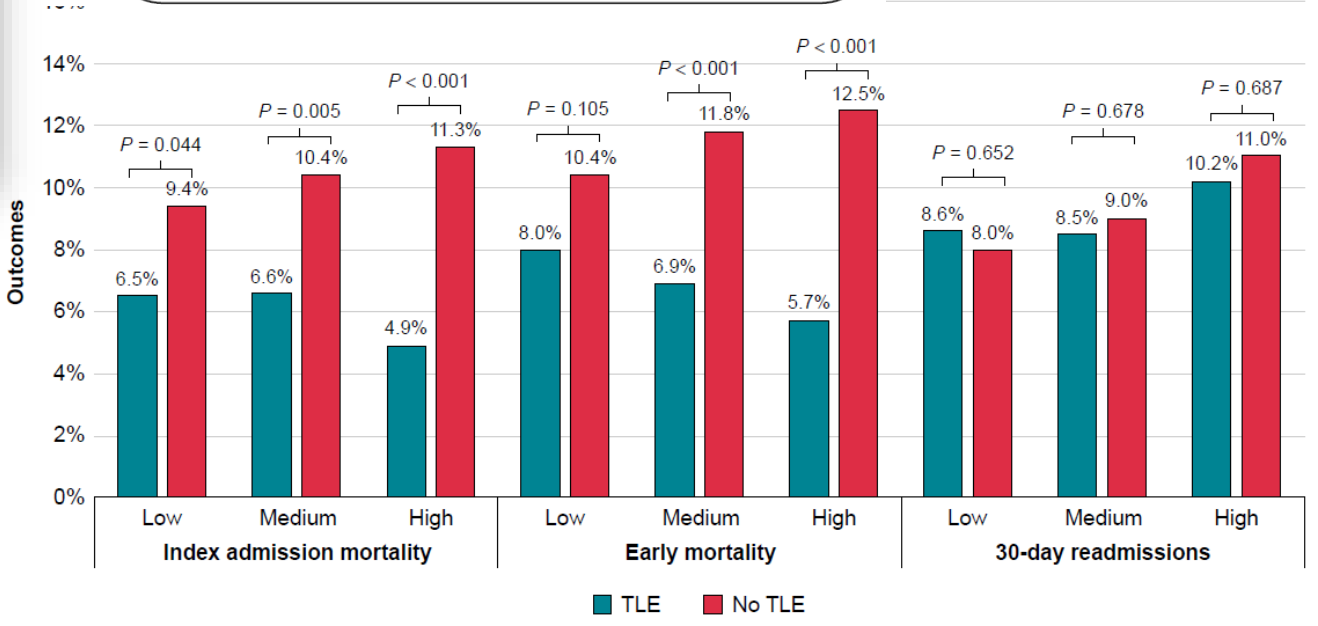
2025

Nationwide Readmissions Database (NRD)

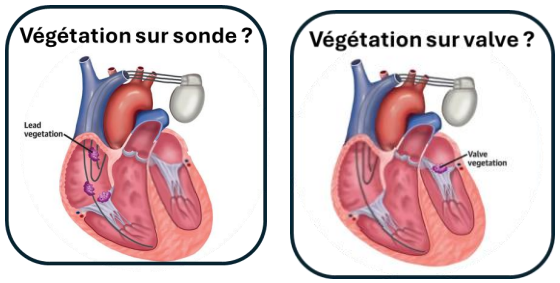








Quelles données ?

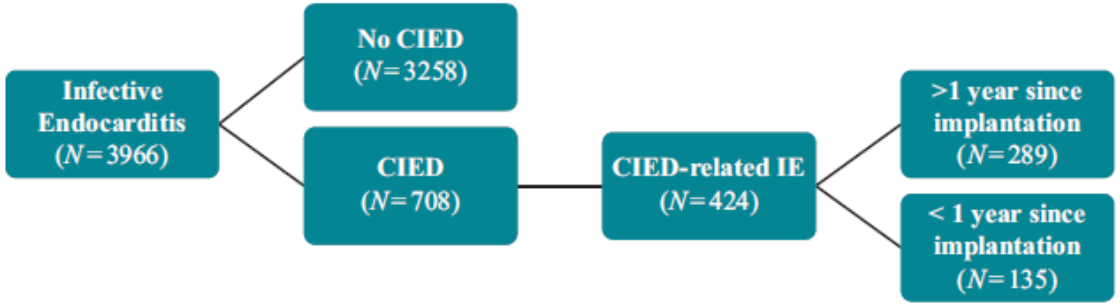


2020
Games cohort

ESC European Society of Cardiology
Europace (2020) 22, 1062–1070
doi:10.1093/europace/euaa076
CLINICAL RESEARCH
Pacing and cardiac resynchronization therapy

Infective endocarditis in patients with cardiac implantable electronic devices: a nationwide study

Roberto Mateos Gaitán[1], Lucía Boix-Palop[2], Patricia Muñoz García[3],



1/6 patient avec IE a un CIED
Plus âges, plus comorbides
Moins de complication
Bénéfice de la chirurgie en cas d'atteinte CIED

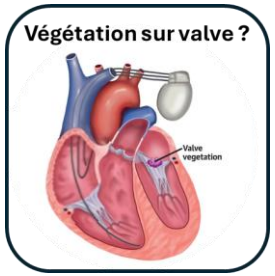
Table 4 Multivariate analysis of independent predictors of in-hospital mortality in cardiac implantable electronic devices (CIEDs) carriers with CIED-related IE or with valve IE and no CIED lead involvement (analysed separately)

	OR (95% CI)	*P*-value
CIED-related IE		
Neurological involvement	5.4 (1.9–15.1)	0.002
Renal dysfunction	3.1 (1.6–6.0)	0.001
Severe sepsis	2.3 (1.1–4.7)	0.03
Heart failure	3.2 (1.6–6.1)	0.001
Surgery	0.4 (0.2–0.7)	0.004
Valve IE and no CIED lead involvement		
Renal dysfunction	2.1 (1.2–3.7)	0.01
Heart failure	5.2 (2.9–9.4)	<0.001
Surgery	0.9 (0.5–1.7)	0.77

Table 3 *Continued*

Variables (%)	CIED-related IE (N = 424)	Valve IE and no CIED lead involvement (N = 284)	*P*-value
Surgery indication	354 (83.5)	185 (65.1)	<0.001
Surgery (total)	330 (77.8)	83 (29.3)	<0.001
Valvular repair/replacement	0	49 (59)	<0.001
Complete system removal	304 (92.1)	10 (12.1)	<0.001
Valvular repair/replacement + complete system removal	26 (7.9)	24 (28.9)	<0.001
Complete system removal (total)	330 (77.8)	34 (11.9)	<0.001
With open heart surgery	146 (44.3)	25 (73.5)	0.002
With transvenous lead extraction	184 (55.7)	9 (26.5)	0.002
Duration of antibiotic treatment, median (IQR)	38 (27–48)	38 (21–44)	0.05
Hospital admission days, median (IQR)	34 (22–53)	37 (18–53)	0.55
In-hospital mortality	62 (14.6)	109 (38.4)	<0.001
1-year mortality	85 (20.0)	131 (46.1)	<0.001

Quelles données ?



The Journal of Thoracic and Cardiovascular Surgery JTCVS

2026

Early extraction versus conservative management in patients with noninfected cardiac implantable electronic devices undergoing cardiac surgery for left-sided infective endocarditis: Insights from the multicentric Clinical Multicenter Project for Analysis of Infective Endocarditis in Germany Registry

Mateo Marin-Cuartas, MD [a] · Zara Dietze, MD [a] · Sebastian Freiburger, MD [b] · Carolyn Weber, MD [c] · Maximilian Luehr, MD [c] · Manuela De La Cuesta, MD [a] · Gottfried T. Drywa, MD [a] · Guillermo Stöger, MD [a] · Shekhar Saha, MD [d] · Asen Petrov, MD [e] · Artur Lichtenberg, MD [f] · Christian Hagl, MD [d,g] · Hug Aubin, MD [f] · Klaus Matschke, MD [e] · Mahmoud Diab, MD [h] · Payam Akhyari, MD [i] · Sems-Malte Tugtekin, MD [e] · Thorsten Wahlers, MD [c] · Lenard Conradi, MD [c] · Mohammed Morjan, MD [f] · Alexey Dashkewich, MD [a] · David Holzhey, MD [a] · Philipp Kiefer, MD [a] · Martin Misfeld, MD, PhD [j,k,l,m] · Suzanne de Waha, MD [a,n] · Torsten Doenst, MD [b] · Michael A. Borger, MD [a] Show less

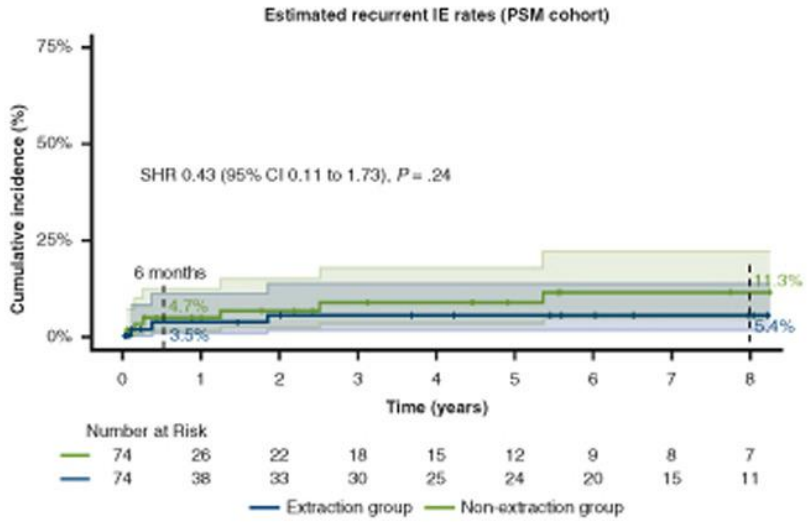
Early extraction versus conservative management in patients with non-infected cardiac implantable electronic devices undergoing cardiac surgery for left-sided infective endocarditis: Insights from the multicentric CAMPAIGN Registry

Methods:

- Retrospective analysis based on the **CAMPAIGN Registry**, comprising patients with IE who underwent cardiac surgery between **1994 and 2018 in 6 German centers**.
- Cardiac surgery and **CIED extraction** vs. cardiac surgery with **no CIED extraction**.
- PSM was performed to account for baseline differences.

Results:

- A total of **245 patients** included. The CIED was not extracted in 145 (59.1%) patients, and extracted in 100 (40.8%) patients. PSM led to **74 similar pairs**.
- The **30-day mortality = 13.5% vs. 20.3%** in the extraction and no-extraction groups, respectively ($P = .23$).
- **ICU stay was significantly longer** in the extraction group (median 4 vs. 8 days; $P = .003$).
- **Hospital stay was significantly shorter** in the non-extraction group (median 17 vs. 24 days; $P < .001$).
- **CIED-reimplantation** was required in **44 (59.5%)** patients.
- **8-year survival = 31.5% (extraction) vs. 28.6% (no extraction)**
- **8-year incidence of recurrent IE = 5.4% (extraction) vs. 11.3% (no extraction)** (SHR 0.43 [95% CI 0.11-1.73]; $P = .24$).

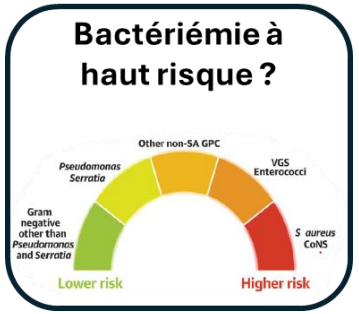


Clinical implication

In patients with left-sided IE and non-infected CIED undergoing cardiac surgery, CIED extraction is not associated with a survival advantage or lower recurrent IE rates, but with longer ICU and hospital stays and a frequent need for CIED reimplantation.

Abbreviations: CI confidence interval; CIED cardiac implantable electronic device; ICU intensive care unit; IE infective endocarditis; PSM propensity score matching; SHR subdistribution hazard ratio

Quelles données ?



HeartRhythm Heart Rhythm Society

2021

Staphylococcus bacteremia without evidence of cardiac implantable electronic device infection

Ikutaro Nakajima, MD, PhD, Ryohsuke Narui, MD, PhD, Kenichi Tokutake, MD, PhD, Caleb A. Norton, MD, William G. Stevenson, MD, FHRS, Travis D. Richardson, MD, Christopher R. Ellis, MD, FHRS, George H. Crossley III, MD, FHRS, Jay A. Montgomery, MD

From the Cardiovascular Division, Department of Medicine, Vanderbilt University Medical Center, Nashville, Tennessee.

Staphylococcus Bacteremia Without Evidence of a CIED Infection

360 Patients With a CIED and Staphylococcus Bacteremia

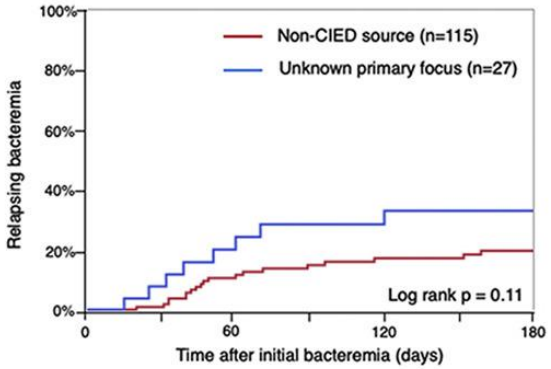
↓

178 Patients Without Evidence of CIED Infection

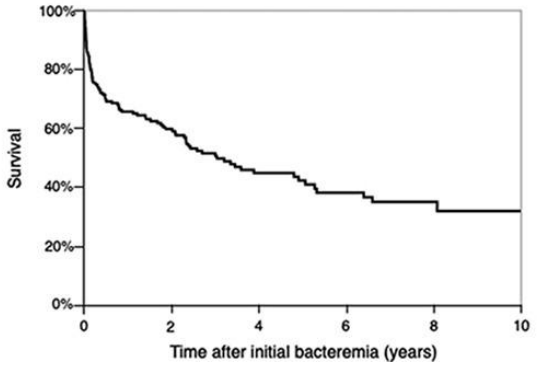
132 Other Source of Infection

46 Unknown primary focus

20% Relapse of Bacteremia

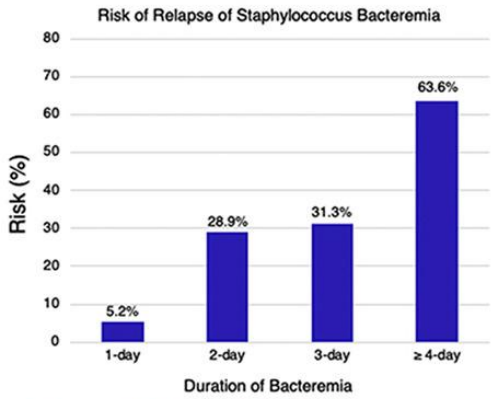


35% 1-year Mortality



9.99 Odds Ratio for Relapse

>1-day of Staphylococcal Bacteremia



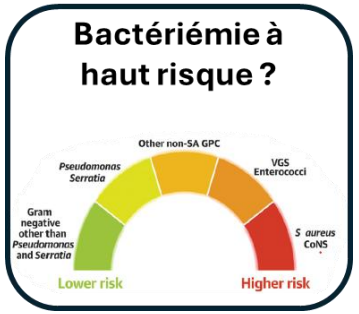
Empiric CIED Removal

72%

↓

Risk Reduction in 1-year mortality

Quelles données ?



2026

ORIGINAL RESEARCH

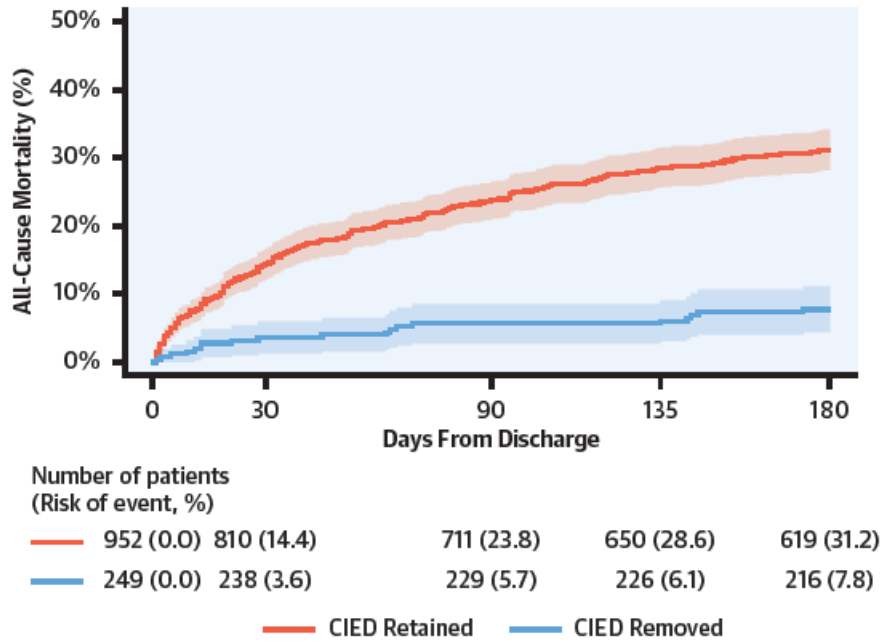
RHYTHM DISORDERS AND ELECTROPHYSIOLOGY

Device-Removal, Reinfection, and Mortality After *Staphylococcus aureus* Bacteremia in Patients With Cardiac Implantable Electronic Devices

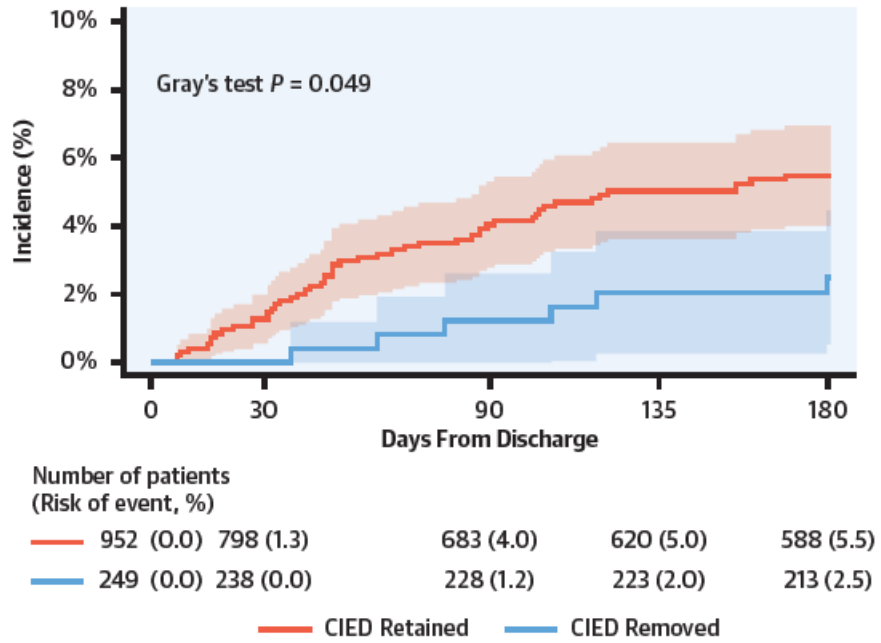
Kasper Høtoft Bengtsen, MD,[a] Melanie Vuong Le, MD,[a] Ketil Haugan, MD, PhD,[a] Berit Thornvig Philbert, MD, PhD,[b] Jens Brock Johansen, MD, PhD,[c] Christian Torp-Pedersen, MD, DMSc,[d,e] Sam Riahi, MD, PhD,[f] Jens Cosedis Nielsen, MD, PhD, DMSc,[g] Charlotte Larroudé, MD, PhD,[h] Amna Alhakak, MD,[b] Henning Bundgaard, MD, DMSc,[b] Andreas Petersen, MSc, PhD,[i] Anders Rhod Larsen, PhD,[i] Lauge Østergaard, MD, PhD,[b] Emil Fosbøl, MD, PhD,[b] Niels Eske Bruun, MD, DMSc,[a,j,k] Anne-Christine Ruwald, MD, PhD[a,b]

CIED Removal vs Retainment

All-Cause Mortality

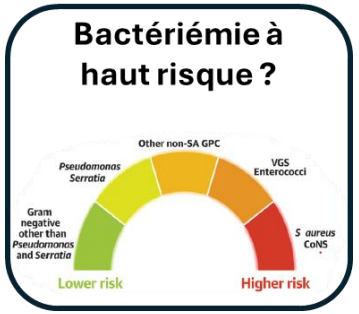


SAB Reinfection



Bengtsen KH, et al. JACC Adv. 2026;5(2):102480.

Quelles données ?



Infection (2022) 50:1517–1523
https://doi.org/10.1007/s15010-022-01838-3 2022

ORIGINAL PAPER

Enterococcus faecalis bacteremia, cardiac implantable electronic device, extraction, and the risk of recurrence

Andreas Berge[1,2] · Ludvig Arkel[3] · Bo Nilson[4,5] · Magnus Rasmussen[3,6]

INFECTIOUS DISEASES,
2024; VOL. 56,
NO. 7, 543–553 2024

RESEARCH ARTICLE

Staphylococcus aureus bacteraemia, cardiac implantable electronic device, extraction, and the risk of recurrent infection; a retrospective population-based cohort study

Andreas Berge[a,b], Casper Carlsén[a], Alexandros Petropoulos[c,d], Fredrik Gadler[e,f] and Magnus Rasmussen[g,h]

Infection (2024) 52:1911–1919
https://doi.org/10.1007/s15010-024-02221-0 2024

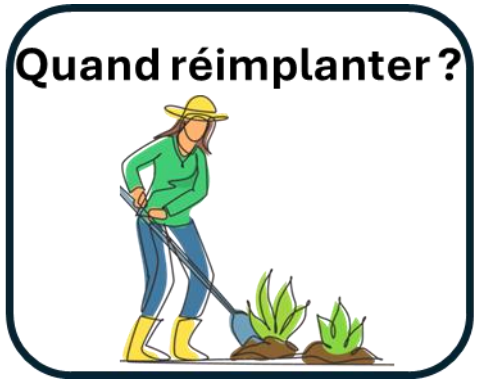
RESEARCH

Non-betahemolytic streptococcal bacteremia, cardiac implantable electronic device, endocarditis, extraction, and outcome; a population-based retrospective cohort study

Andreas Berge[1,2] · Johannes Lundin[3] · Anna Bläckberg[3,4] · Torgny Sunnerhagen[3,5] · Magnus Rasmussen[3,4]

Espèce	Bactériémie sans extraction (n)	Taux de rechute (Sans extraction)	Taux de rechute (Avec extraction)
Enterococcus faecalis	68 patients	**10 %** (7/68)	**0 %** (0/4)
Staphylococcus aureus	236 patients	**6 %** (14/236)	**5 %** (2/38)
Streptocoques non-bêta-hémolytiques	71 patients	**6 %** (4/71)	**0 %** (0/4)

Quelles données ?



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Vol. 49, No. 18, 2007
ISSN 0735-1097/07/$32.00
doi:10.1016/j.jacc.2007.01.072

Heart Rhythm Disorders

Management and Outcome of Permanent Pacemaker and Implantable Cardioverter-Defibrillator Infections

Muhammad R. Sohail, MD,* Daniel Z. Uslan, MD,* Akbar H. Khan, MD,‡ Paul A. Friedman, MD,† David L. Hayes, MD,† Walter R. Wilson, MD,* James M. Steckelberg, MD,* Sarah Stoner, MS,§ Larry M. Baddour, MD*

2007

N=189 CIED infection

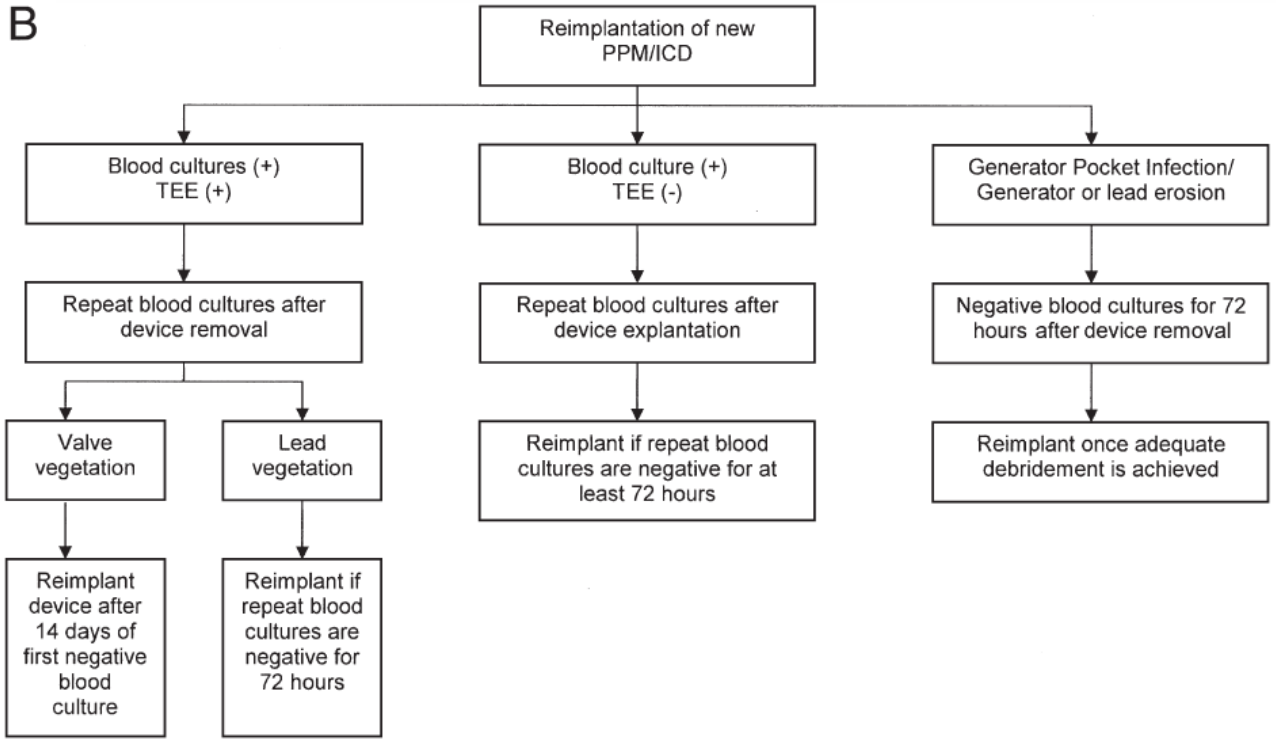
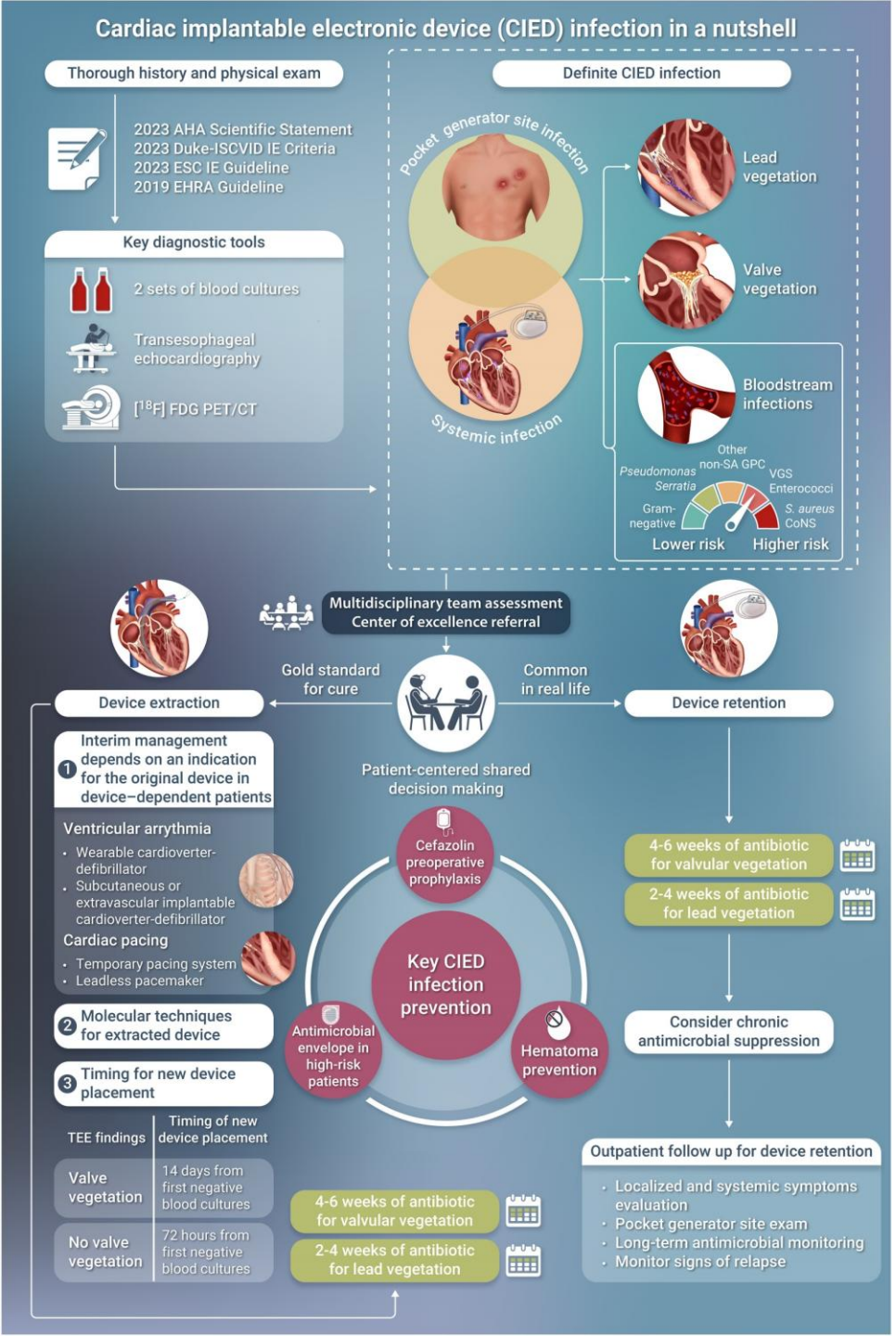


Figure 3 Mayo Clinic Algorithm of Cardiac Device Infection Management

En synthèse !



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VOL. 83, NO. 14, 2024

2024

JACC FOCUS SEMINAR: INFECTIVE ENDOCARDITIS

JACC FOCUS SEMINAR

Infective Endocarditis Involving Implanted Cardiac Electronic Devices

JACC Focus Seminar 1/4

Supavit Chesdachai, MD,[a] Zerelda Esquer Garrigos, MD,[a,b] Christopher V. DeSimone, MD, PhD,[c] Daniel C. DeSimone, MD,[a,c] Larry M. Baddour, MD[a,c]

Clinical Infectious Diseases
STATE-OF-THE-ART REVIEW

2025

IDSA Infectious Diseases Society of America
hivma hiv medicine association
OXFORD

State-of-the-Art Review: Complexities in Cardiac Implantable Electronic Device Infections: A Contemporary Practical Approach

Supavit Chesdachai,[1,*] Larry M. Baddour,[1,2] Hussam Tabaja,[1] Malini Madhavan,[2] Nandan Anavekar,[2] Brittany A. Zwischenberger,[3] Paola Anna Erba,[4] and Daniel C. DeSimone[1,2]

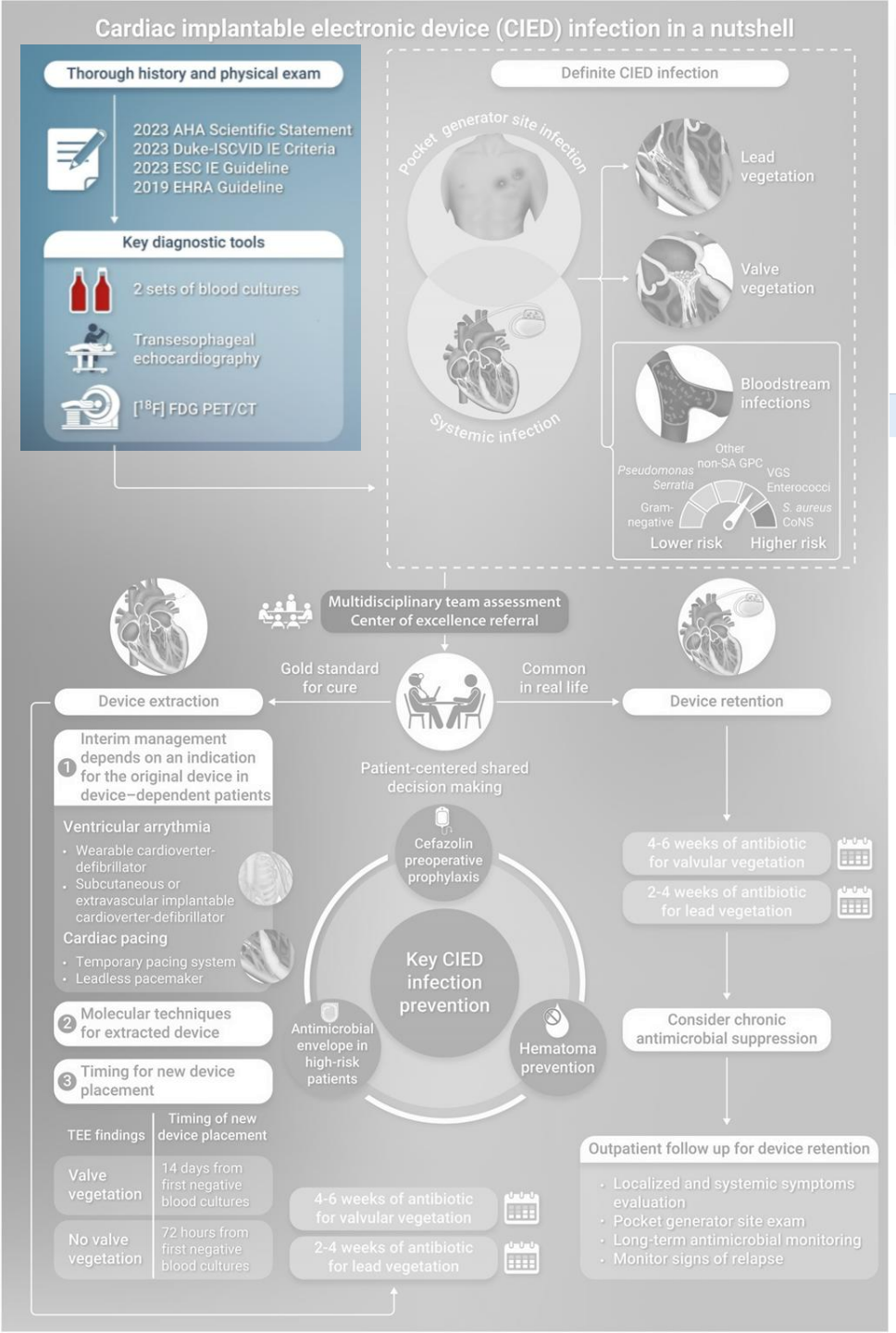

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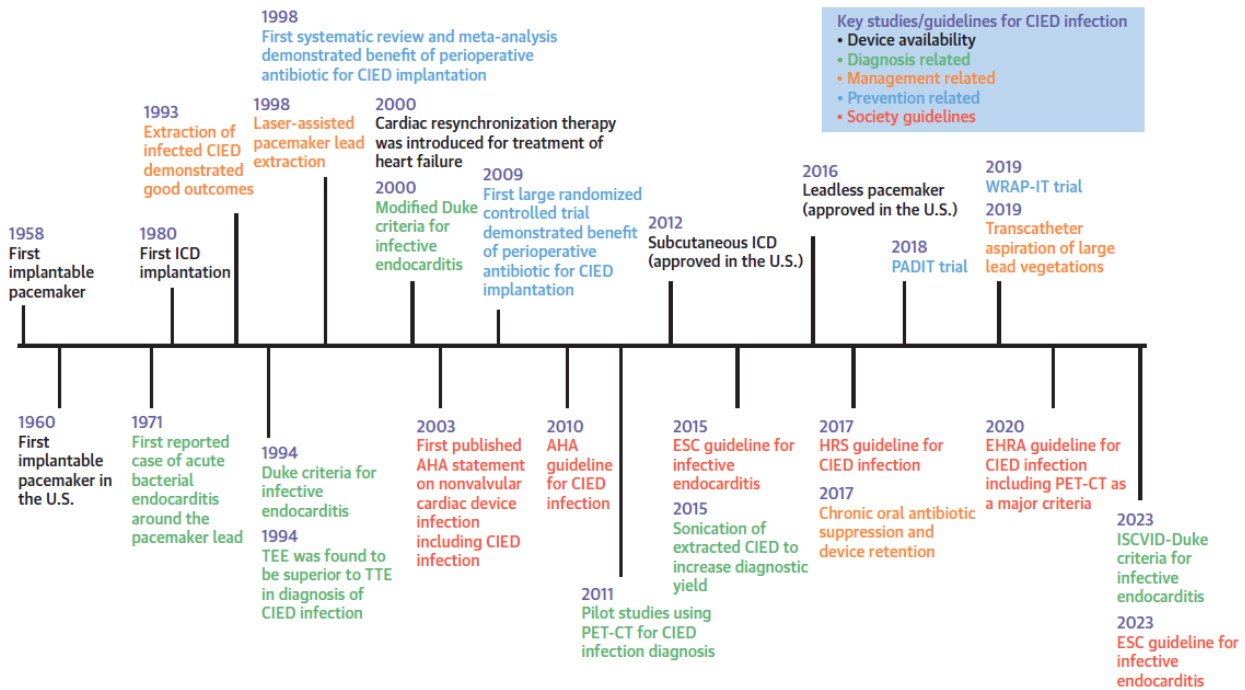
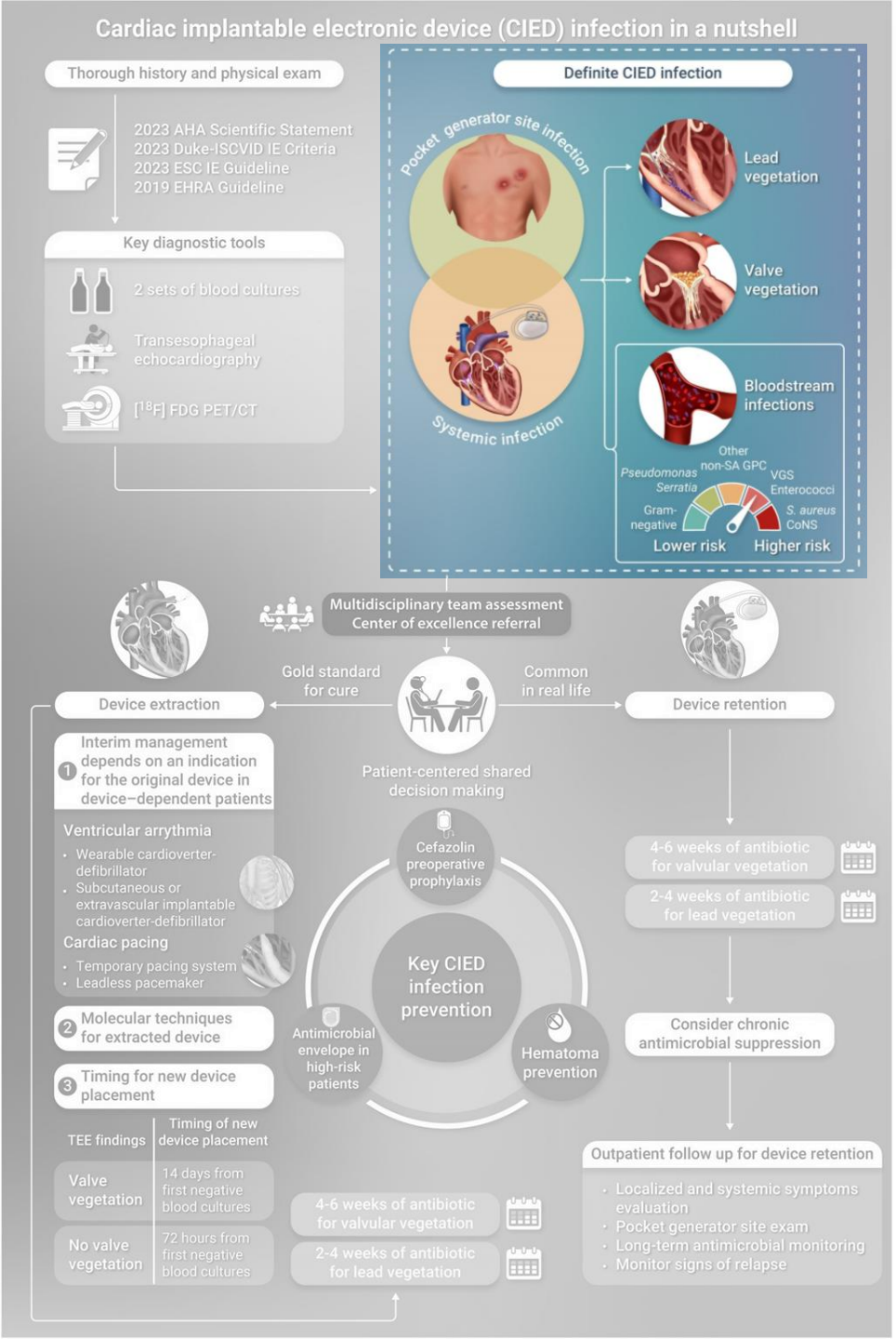
FIGURE 1 Timeline of Key Studies/Guidelines for CIED Infection





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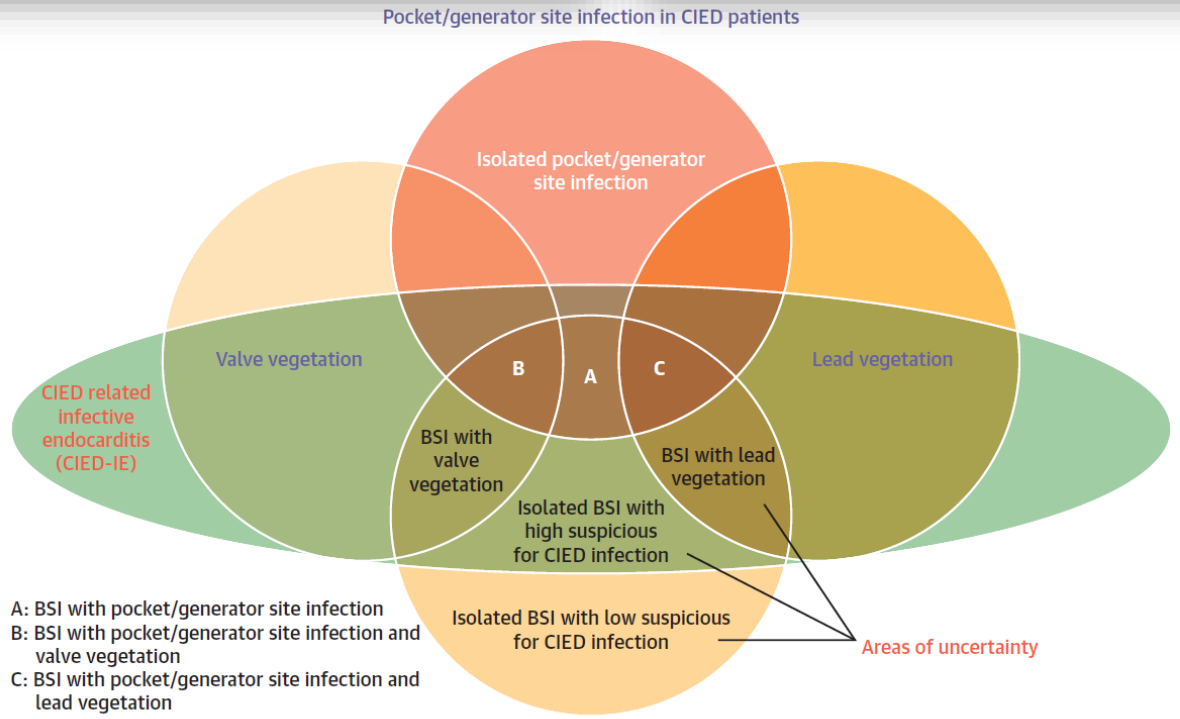

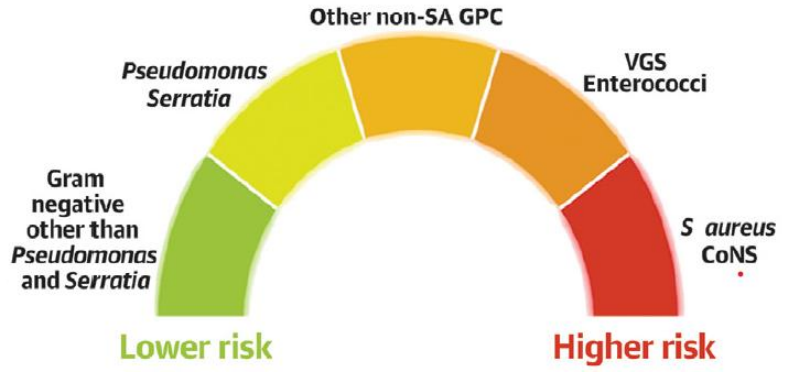

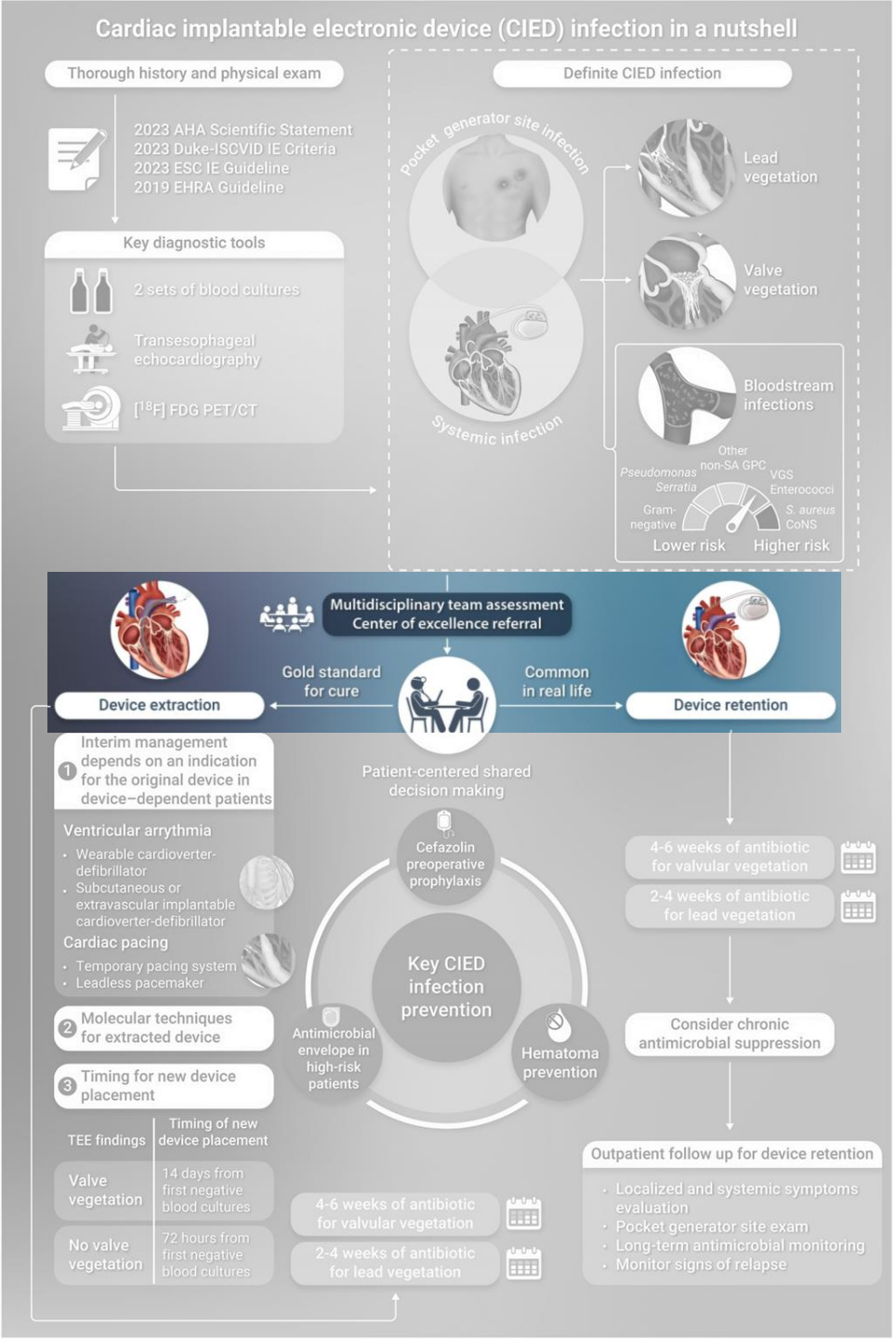

Clinical Infectious Diseases

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JACC FOCUS SEMINAR

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JACC Focus Seminar 1/4

Supavit Chesdachai, MD,[a] Zerelda Esquer Garrigos, MD,[a,b] Christopher V. DeSimone, MD, PhD,[c] Daniel C. DeSimone, MD,[a,c] Larry M. Baddour, MD[a,c]

Risks of infected device extraction

- Periprocedural complications: bleeding due to major vessels tear, cardiac tamponade, tricuspid regurgitation
- Postprocedural complications
- Complications from lack of device therapy
- Complications from new device placement

Patient and family

1. Informed and educated about device extraction, complications and next management steps
2. Informed and educated about risks of device retention and chronic oral antimicrobial suppression
3. Patient-centered shared decision making weighing risks and benefits

Risks of infected device retention

- High short-term mortality risk
- Uncontrolled source of infection
- Longer course of antimicrobial therapy
- Adverse effects from chronic oral antimicrobial suppression
- Risk of relapsed infection
- Scant published data on long-term outcome

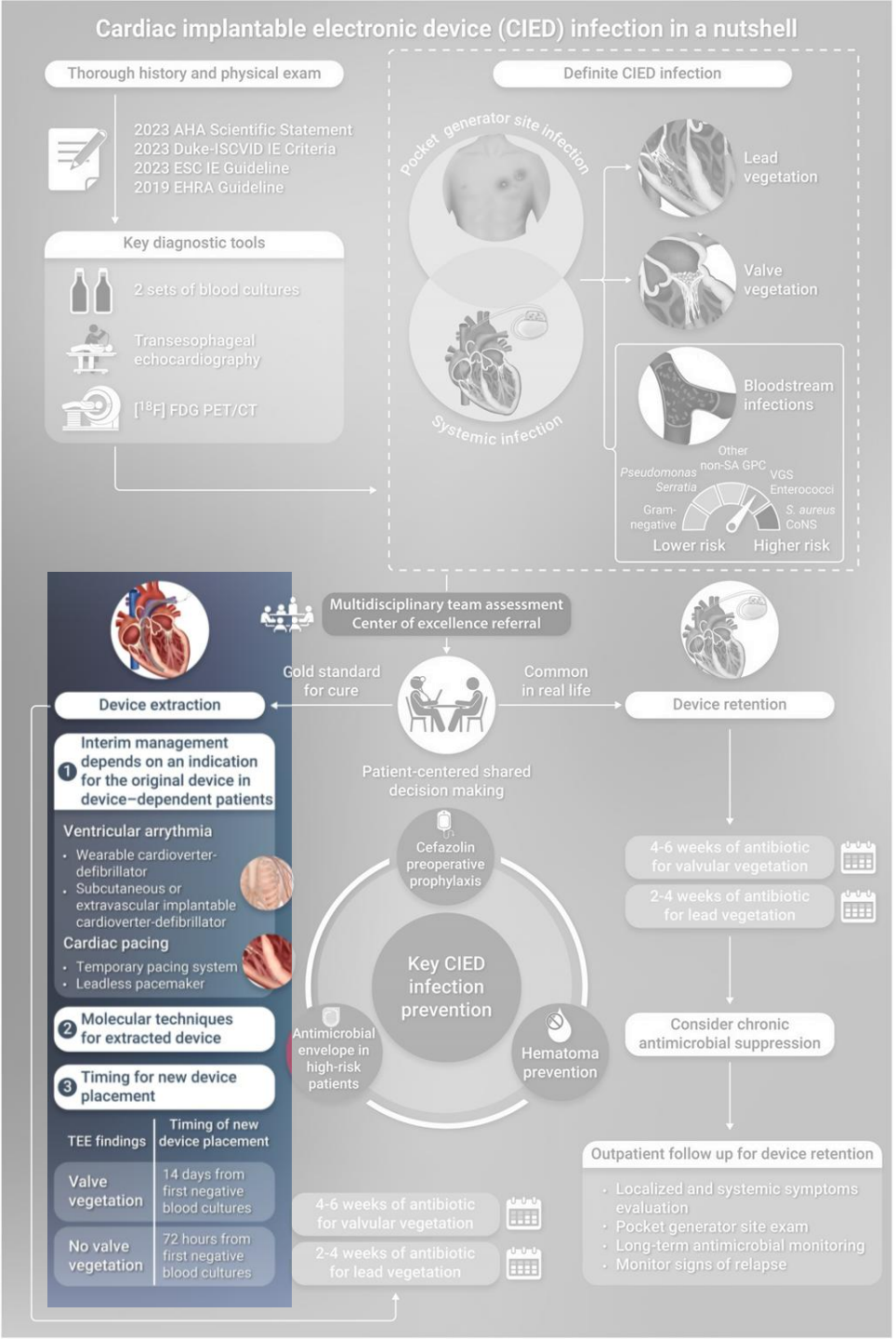
Multidisciplinary team

- Hospitalist
- Electrophysiologist
- Echocardiographer
- Infectious diseases
- Nuclear medicine expert
- Cardiothoracic surgeon
- Plastic surgeon
- Vascular surgeon
- Microbiologist
- Pharmacist
- OPAT team
- Nursing team

Shared decision making in CIEDI management

Center of excellence

- TEE and ^{18}F-FDG PET/CT access
- Expertise in device extraction
- Access to a comprehensive intensive care unit for postprocedure care
- Vascular, cardiothoracic and plastic surgery team back-up
- OPAT program



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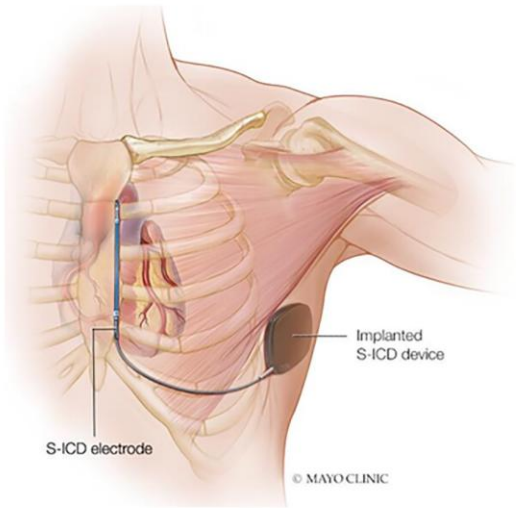
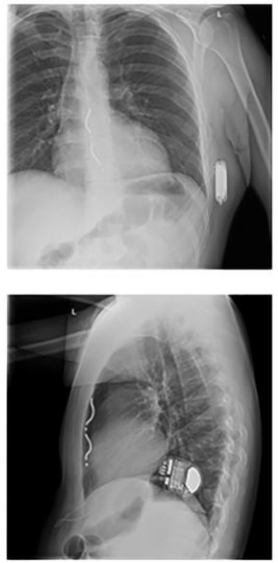
Indications for devices	Management options
Ventricular arrythmia	• Wearable cardioverter-defibrillator • Subcutaneous or extravascular implantable cardioverter-defibrillator (S-ICD or EV-ICD) system (A and B)
Cardiac pacing	• Temporary pacing system with active fixation lead and externalized pulse generator • Leadless pacemaker (C)

A



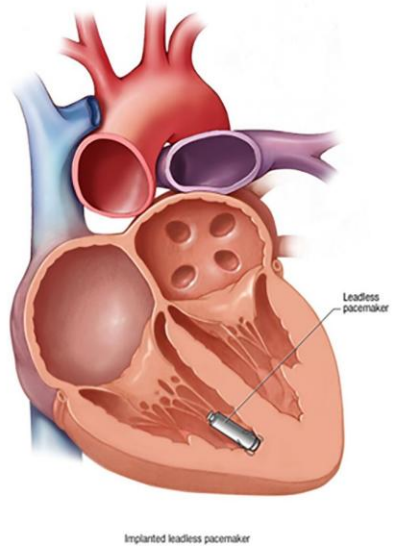
(A)

B

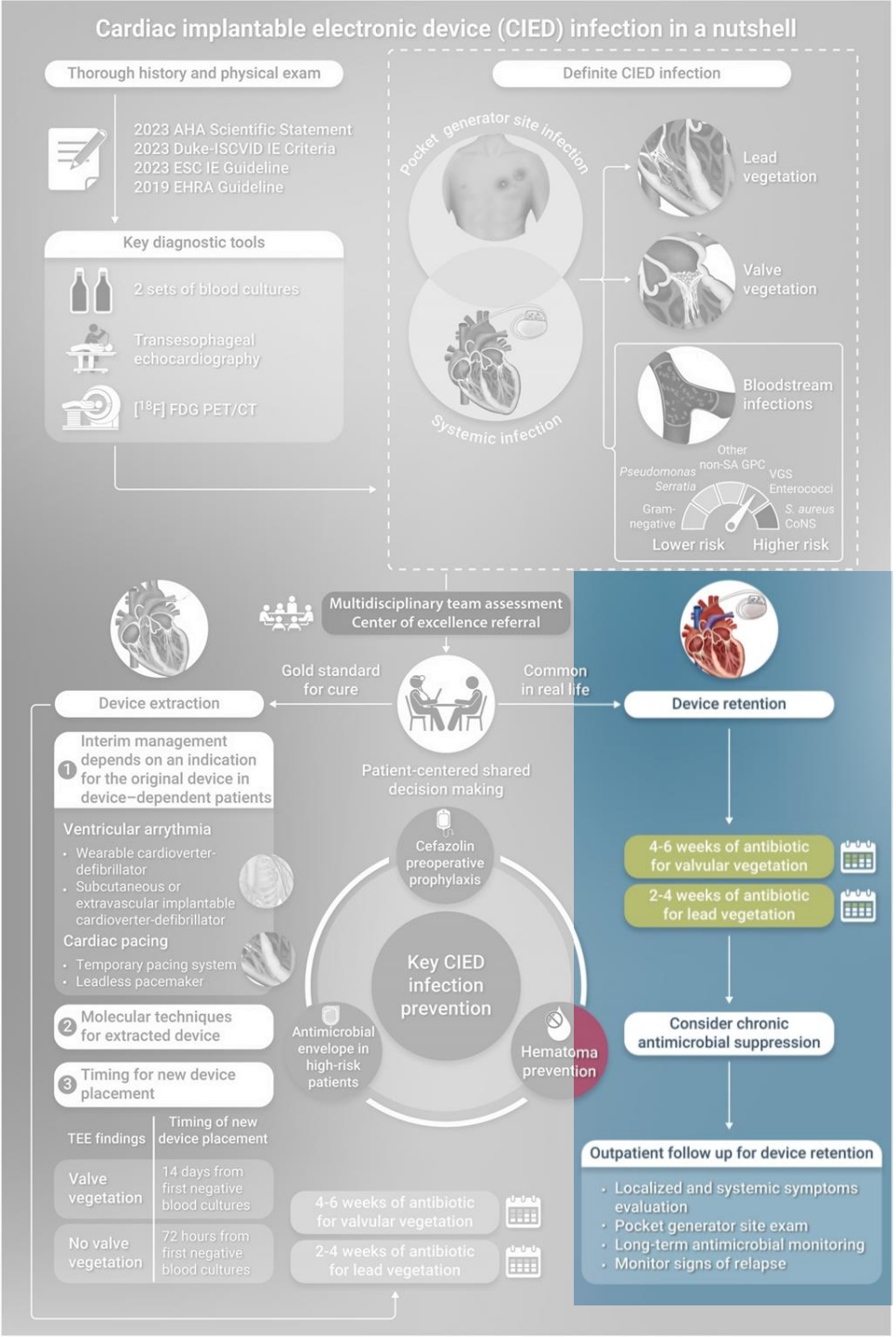


(B)

C



(C)



Clinical Infectious Diseases
STATE-OF-THE-ART REVIEW
IDSA Infectious Diseases Society of America
hivma hiv medicine association
OXFORD

State-of-the-Art Review: Complexities in Cardiac Implantable Electronic Device Infections: A Contemporary Practical Approach

Supavit Chesdachai,[1] Larry M. Baddour,[1,2] Hussam Tabaja,[1] Malini Madhavan,[2] Nandan Anavekar,[2] Brittany A. Zwischenberger,[3] Paola Anna Erba,[4] and Daniel C. DeSimone[1,2]

JACC FOCUS SEMINAR

Infective Endocarditis Involving Implanted Cardiac Electronic Devices

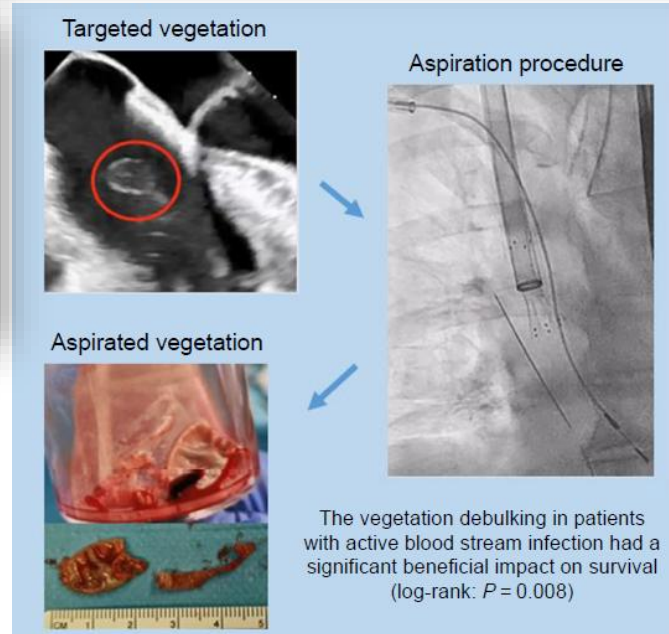
JACC Focus Seminar 1/4

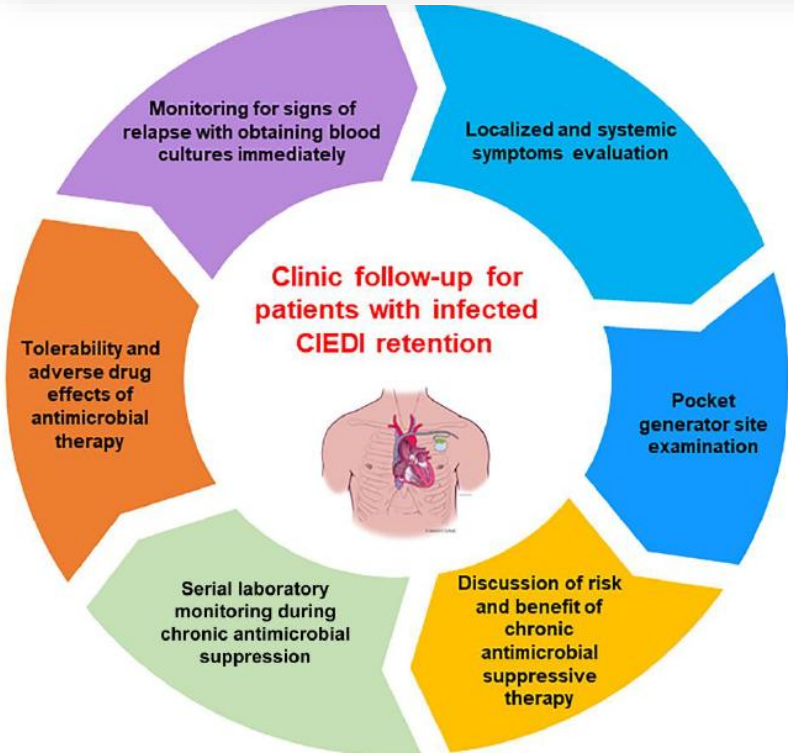
Supavit Chesdachai, MD,[a] Zerelda Esquer Garrigos, MD,[a,b] Christopher V. DeSimone, MD, PhD,[c] Daniel C. DeSimone, MD,[a,c] Larry M. Baddour, MD[a,c]

ESC European Society of Cardiology
Europace (2024) **26**, euae151
https://doi.org/10.1093/europace/euae151
CLINICAL RESEARCH

Infectious mass debulking in lead-associated endocarditis with a percutaneous aspiration system

Roland Heck [1,2], Leonard Pitts [1,2], Julius Kaemmel [1,2], Leonhard Wert [1,2], Volkmar Falk [1,2,3], Gerhard Hindricks [2,4], and Christoph Starck [1,2,5]*





Merci pour votre attention

pierre.danneels@chu-angers.fr