JNI
24es Journées Nationales d'Infectiologie

Grenoble
et la région Auvergne-Rhône-Alpes
ALPEXPO
du mercredi 7 au vendredi 9 juin 2023

Spilf
SOCIÉTÉ DE PATHOLOGIE INFECTIEUSE DE LANGUE FRANÇAISE

CMiT
Collège des universitaires de Maladies Infectieuses et Tropicales

Nouveaux visages cliniques de l'EI

Pr Elisabeth BOTELHO-NEVERS

Service d'Infectiologie, CHU de Saint-Etienne
Inserm CIC 1408- Axe Vaccinologie, I-Reivac, Covireivac
Team GIMAP, CIRI, Inserm, U1111, CNRS, UMR530
Chaire Prévention, Vaccination, Contrôle de l'Infection PRESAGE

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Déclaration de liens d'intérêt avec les industries de santé en rapport avec le thème de la présentation (loi du 04/03/2002) :

Intervenant : Elisabeth Botelho-Nevers

Titre : Nouveaux visages cliniques de l'EI

L'orateur ne souhaite pas répondre ☐

● Consultant ou membre d'un conseil scientifique: ☐ OUI ☑ NON

● Conférencier ou auteur/rédacteur rémunéré d'articles ou documents ☐ OUI ☑ NON

● Prise en charge de frais de voyage, d'hébergement ou d'inscription à des congrès ou autres manifestations ☐ OUI ☑ NON

● Investigateur principal d'une recherche ou d'une étude clinique: **non industrielle** ☑ OUI ☐ NON

Membre du bureau de l'AEPEI

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Le visage historique

March 7, 1885.]   THE BRITISH MEDICAL JOURNAL.

THE GULSTONIAN LECTURES,
ON
MALIGNANT ENDOCARDITIS.

Delivered at the Royal College of Physicians of London, March, 1885.
By WILLIAM OSLER, M.D.,
Professor of Clinical Medicine at the University of Pennsylvania, Philadelphia.

LECTURE I.

Sir William Osler presented a unifying theory in which susceptible patients developed 'mycotic' growths on their valves followed by "transference to distant parts of microorganisms"

Malignant endocarditis occurs under the following conditions : 1, as a primary disease of the lining membrane of the heart or its valves, either attacking persons in previous good health, or more often attacking the debilitated and dissipated, or those with old valve-lesions ; 2, as a secondary affection in connection with many diseases, particularly rheumatic fever, pneumonia, scarlet fever, diphtheria, ague, etc. ; 3, as an associated condition in septic processes, traumatic or puerperal.

- 1926, Age moyen EI= 30 ans
- Valvulopathie lié au rhumatisme articulaire aigu
- Valve mitrale

Diminution du RAA
Majoration des valves dégénératives liées à l'âge
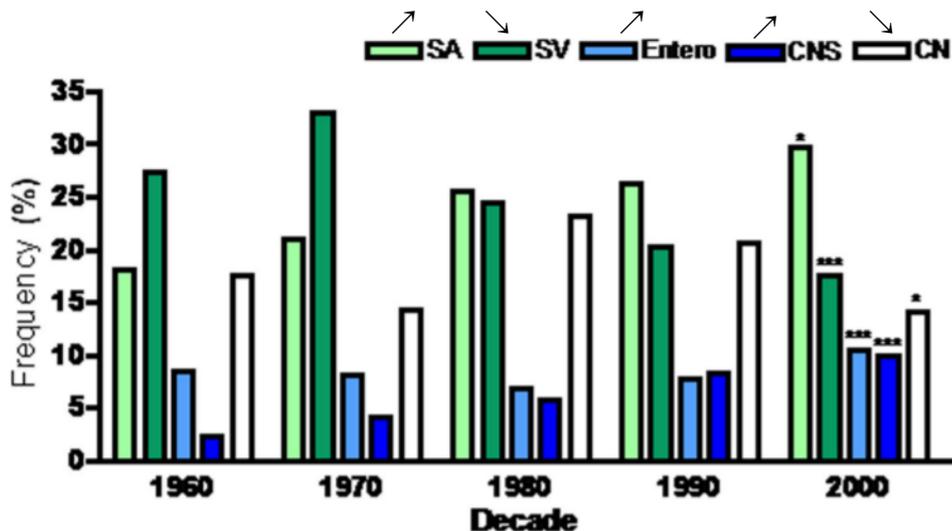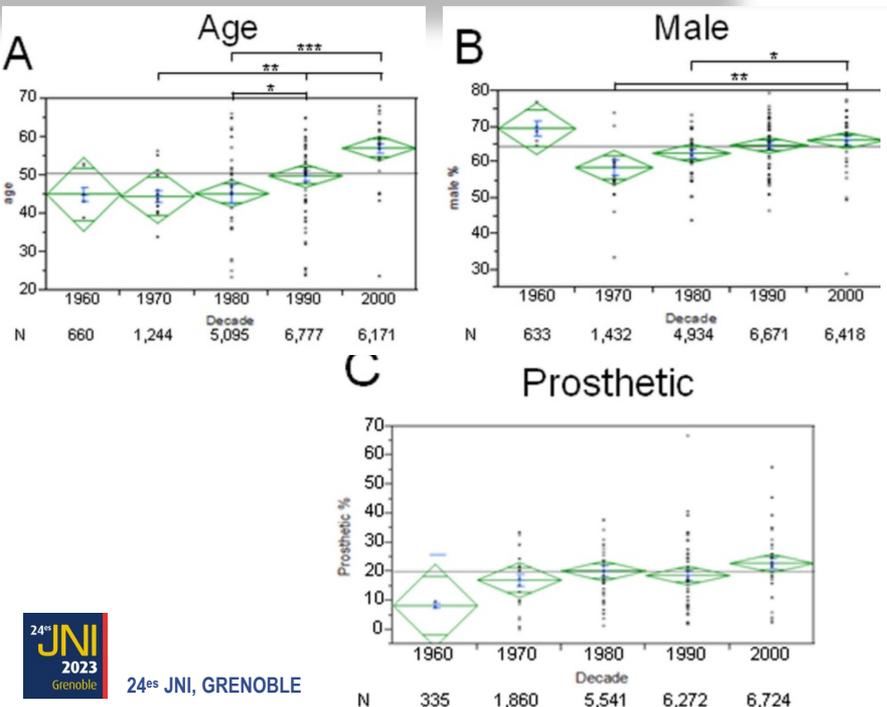**Procédures/ actes invasifs multiples**

Evolution au fil du temps

Infective Endocarditis Epidemiology Over Five Decades: A Systematic Review

> 27 000 patients

Le visage actuel

Clinical presentation, aetiology and outcome of infective endocarditis. Results of the ESC-EORP EURO-ENDO (European infective endocarditis) registry: a prospective cohort study

Gilbert Habib [1,2*], Paola Anna Erba [3,4], Bernard Iung [5], Erwan Donal [6], Bernard Cosyns [7], Cécile Laroche [8], Bogdan A. Popescu [9], Bernard Prendergast [10], Pilar Tornos [11], Anita Sadeghpour [12], Leopold Oliver [13], Jolanta-Justina Vaskelyte [14], Rouguiatou Sow [15], Olivier Axler [16], Aldo P. Maggioni [17], and Patrizio Lancellotti [18,19,20]; on behalf of the EURO-ENDO Investigators†

-1 January 2016 to 31 March 2018
-Definite IE (or possible IE considered and treated as IE)
-156 hospitals in 40 countries
-3116 adult patients (2470 **(79.3%) from Europe**, 646 **(20.7%) from non-ESC countries)**

Table 1   **Patient demographics and clinical characteristics**

	Total (n = 3116)	Prosthesis+Repair (n = 939)	Native (n = 1764)	PM/ICD (n = 308)	P-value
Demography					
Age (years)					
N	3116	939	1764	308	
Mean ± SD	59.25 ± 18.03	63.36 ± 16.81	55.61 ± 18.45	66.77 ± 14.11	<0.0001
Median (IQR)	63.0 (46.0–73.0)	67.0 (54.0–75.0)	58.0 (41.0–70.0)	69.0 (60.0–76.0)	<0.0001
Age ≥ 65 years	1443/3116 (46.3%)	538/939 (57.3%)	662/1764 (37.5%)	194/308 (63.0%)	<0.0001
Age ≥ 80 years	375/3116 (12.0%)	141/939 (15.0%)	163/1764 (9.2%)	56/308 (18.2%)	<0.0001
Females (%)	969/3116 (31.1%)	292/939 (31.1%)	553/1764 (31.3%)	86/308 (27.9%)	0.4901
History of cardiovascular diseases					
Heart failure	662/2840 (23.3%)	271/856 (31.7%)	238/1620 (14.7%)	123/270 (45.6%)	<0.0001
Congenital disease	365/3114 (11.7%)	130/938 (13.9%)	197/1763 (11.2%)	18/308 (5.8%)	0.0001
Ischaemic heart disease	622/2897 (21.5%)	266/881 (30.2%)	207/1637 (12.6%)	128/284 (45.1%)	<0.0001
Atrial fibrillation	767/2918 (26.3%)	365/891 (41.0%)	240/1634 (14.7%)	133/294 (45.2%)	<0.0001
Hypertrophic cardiomyopathy	63/2840 (2.2%)	20/856 (2.3%)	28/1620 (1.7%)	11/270 (4.1%)	0.0498
Known valve murmur	972/2840 (34.2%)	455/856 (53.2%)	427/1620 (26.4%)	55/270 (20.4%)	<0.0001
Previous endocarditis (%)	274/3116 (8.8%)	170/939 (18.1%)	67/1764 (3.8%)	17/308 (5.5%)	<0.0001
Device therapy					
Pacemaker	325/3116 (10.4%)	97/939 (10.3%)	53/1764 (3.0%)	161/308 (52.3%)	
ICD (defibrillator)	125/3116 (4.0%)	18/939 (1.9%)	15/1764 (0.9%)	89/308 (28.9%)	
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CRT-P (pacing only)	15/3116 (0.5%)	7/939 (0.7%)	1/1764 (0.1%)	6/308 (1.9%)	

Le visage actuel

ESC European Society of Cardiology

FASTTRACK CLINICAL RESEARCH
Valvular heart disease

Clinical presentation, aetiology and outcome of infective endocarditis. Results of the ESC-EORP EURO-ENDO (European infective endocarditis) registry: a prospective cohort study

Gilbert Habib [1,2]*, Paola Anna Erba [3,4], Bernard Iung [5], Erwan Donal[6], Bernard Cosyns [7], Cécile Laroche[8], Bogdan A. Popescu[9], Bernard Prendergast[10], Pilar Tornos[11], Anita Sadeghpour[12], Leopold Oliver[13], Jolanta-Justina Vaskelyte[14], Rouguiatou Sow [15], Olivier Axler[16], Aldo P. Maggioni[17], and Patrizio Lancellotti[18,19,20]; on behalf of the EURO-ENDO Investigators[†]

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(46.3% ≥ 65 years and 12.0% ≥ 80 years)
Europe vs non ESC countries (60.97± 17.36 vs. 52.66 ± 19.01, P< 0.0001)

Table I **Patient demographics and clinical characteristics**

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JNI 2023 Grenoble

Le visage actuel

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Le visage type de l'EI (Europe)

Homme ≈ 70%

≈60 ans ↑

Valve native 56,6%,
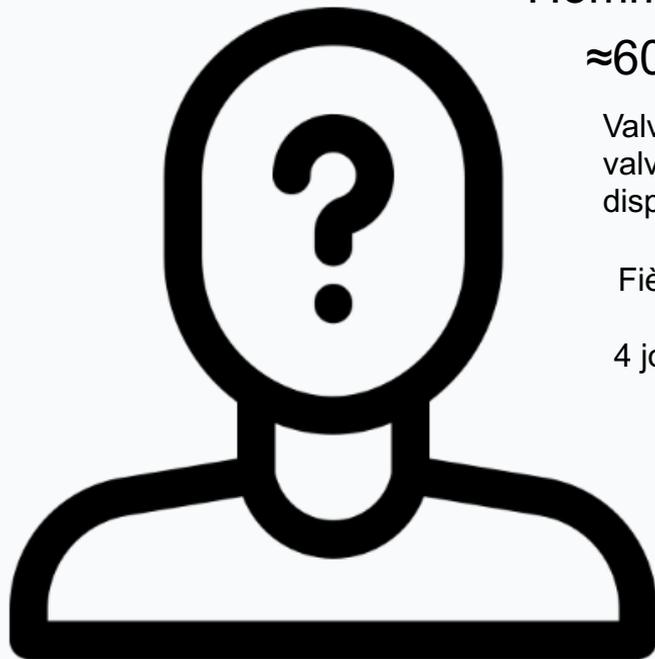valve prothétique 30,1% ↑   Valvulopathie connue dans 35%
dispositif intracardiaque dans 9.9%

Fièvre 77,7%, Ins cardiaque 27,2%

4 jours (0-15) après le début des symptômes, Valve prothétique < valve native

Hémocs positives dans 80%:
Staphylocoques (44.1%),
Entérocoques (15.8%), ↑
Streptocoques oraux (12.4%),
Streptococcus gallolyticus (6.6%)

Aortique dans 49,5%, mitrale dans 42%, tricuspide 11,4%,
pulmonaire 2,4%

EI communautaire ≈ 65%

Le visage type de l'EI (Europe)

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EI communautaire ≈ 65%

Quantifying infective endocarditis risk in patients with predisposing cardiac conditions

Martin H. Thornhill[1,2]*, Simon Jones[3,4], Bernard Prendergast[5], Larry M. Baddour[6], John B. Chambers[5], Peter B. Lockhart[2], and Mark J. Dayer[7]

Données anglaises
Suivi 5 ans

Table 2 Five-year risk of IE or dying during an admission with IE with different predisposing conditions, gender, and age

Predisposing condition	OR of developing IE in 5 years	95% CI	P-value	OR of dying during a hospital admission with IE	95% CI	P-value
High risk						
Previous IE	265.5	244.2–288.2	<0.0001	214.9	179.2–255.6	<0.0001
Prosthetic valve replacement	70.1	65.8–74.7	<0.0001	62.0	54.4–70.4	<0.0001
Valve repair with prosthetic material	76.7	68.3–85.8	<0.0001	59.5	45.6–76.1	<0.0001
Cyanotic CHC	55.4	45.6–66.6	<0.0001	133.6	68.8–231.7	<0.001
CHC repaired with prosthetic material	18.3	11.8–26.8	<0.0001	24.4	7.5–56.8	<0.001
CHC with palliative shunt or conduit	86.1	58.1–122.1	<0.0001	314.5	111.6–688.0	<0.001
Moderate risk						
Rheumatic fever	51.4	47.9–55.0	<0.0001	54.5	48.0–61.7	<0.0001
Non-rheumatic valve disease	41.5	39.6–43.6	<0.0001	35.9	32.6–39.5	<0.0001
Congenital valve anomalies	66.4	55.4–80.1	<0.0001	56.7	25.8–106.0	<0.001
Unknown risk						
Heart transplant	5.5	0.3–24.2	0.089	NC	NC	NC
Prosthetic heart/VAD	124.2	20.3–398.9	<0.0001	NC	NC	NC
Hypertrophic cardiomyopathy	32.8	23.3–44.6	<0.0001	4.0	0.2–17.5	0.17
Implanted pacemaker/cardioverter	9.7	9.0–10.6	<0.0001	10.1	8.6–11.7	<0.001
Reference group						
The population of England (2008)	1.0			1.0		
Sex						
Female (reference group)	1.00			1.00		
Male	2.15	2.08–2.23	<0.0001	1.65	1.53–1.77	<0.001
Age						
0–9 years	0.93	0.87–1.0	0.047	0.04	0.02–0.07	<0.001
10–19 years	0.24	0.21–0.27	<0.0001	0.01	0.00–0.03	<0.001
20–29 years	0.30	0.27–0.33	<0.0001	0.26	0.2–0.33	<0.001
30–39 years	0.68	0.63–0.73	<0.0001	0.55	0.46–0.66	<0.001
40–49 years	0.84	0.79–0.90	<0.0001	0.39	0.32–0.47	<0.001
50–59 years (reference group)	1.00			1.00		
60–69 years	1.55	1.46–1.64	<0.0001	1.8	1.56–2.06	<0.001
70–79 years	1.96	1.85–2.07	<0.0001	3.28	2.90–3.72	<0.001
80–89 years	1.61	1.51–1.73	<0.0001	2.95	2.57–3.39	<0.001
90+ years	0.71	0.58–0.86	<0.001	0.94	0.62–1.37	0.76

Le visage type de l'EI (Europe)

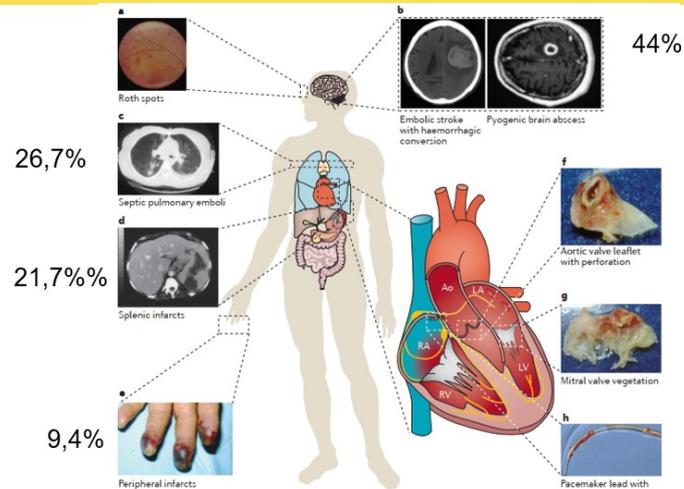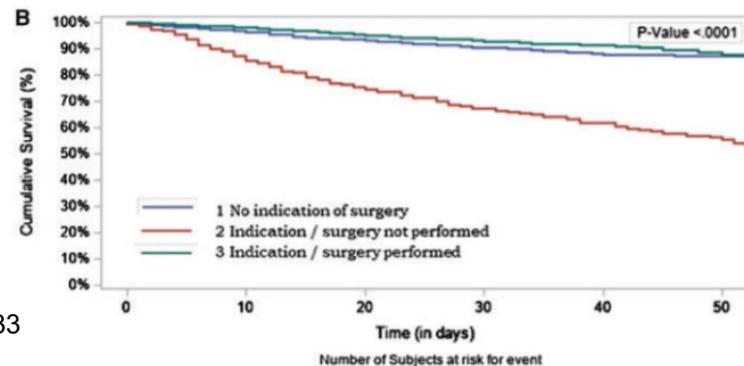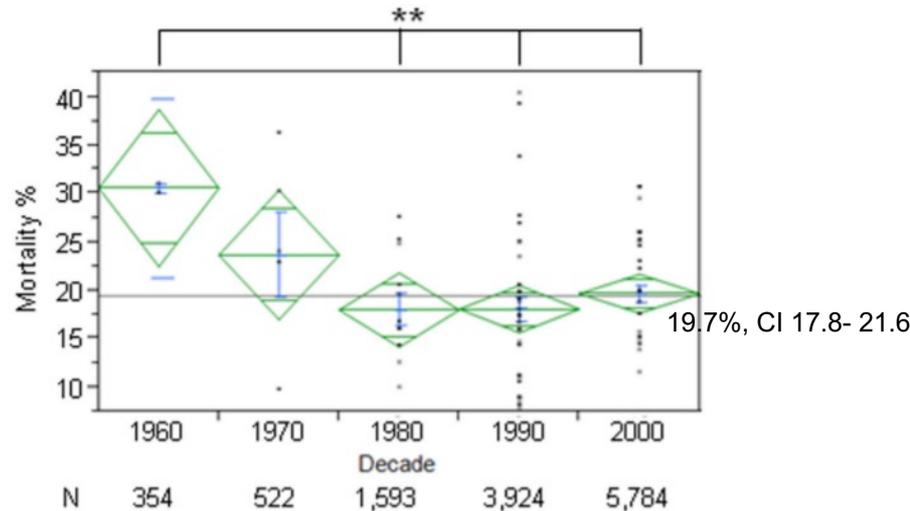- **Au cours de l'hospitalisation: embols dans 20,6%, IRA 17,7%**

44%

26,7%

21,7%%

9,4%

Figure 4 | End-organ manifestations of IE. a | Roth spots on funduscopic examination. b | CT scans of an embolic stroke

- **69,3% ont une indication théorique chirurgicale**

- **51,2% seront réellement opérés**

G. Habib et al., European Heart Journal (2019) 40, 3222–3233
doi:10.1038/nrdp.2016.59

Le visage type de l'EI

- **17,1% décèdent en hospitalisation**

19.7%, CI 17.8- 21.6

Table 4 **Multivariable Cox regression analysis for all causes of death at discharge (1-month period)**

	Hazard ratio	95% CI	P-value*
Charlson index	1.07	[1.04–1.11]	<0.0001
Creatinine >2 mg/dL	1.58	[1.19–2.11]	<0.0017
Congestive heart failure	2.09	[1.58–2.77]	<0.0001
Vegetation length > 10 mm	2.12	[1.64–2.73]	<0.0001
Cerebral complication	2.21	[1.61–3.04]	<0.0001
Abscess	1.50	[1.07–2.10]	0.0186
Indication—surgery not performed	2.84	[2.00–4.03]	<0.001
Indication—surgery performed	0.63	[0.43–0.92]	0.0169

Goodness of fit test: $P = 0.18$. Concordance = 0.77—Global Schoenfeld residual test $P = 0.12$.
*P-value corresponds to the results of Wald test. For indication—surgery performed or not, the reference is no indication.

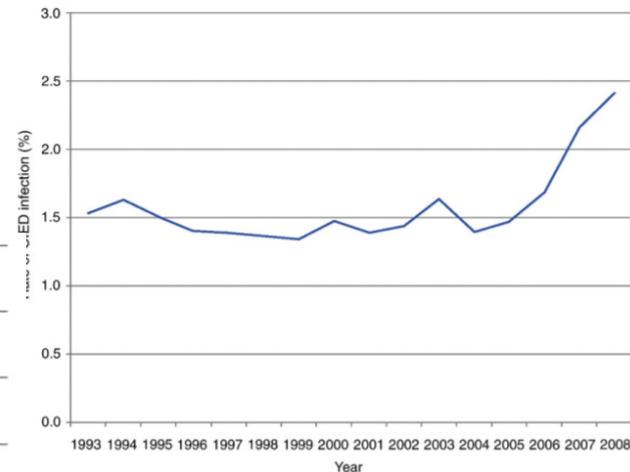# Les autres (nouveaux) visages de l'EI: EI sur matériel

Prothèses

incidence rate of IE following heart valve implantation/1000 person-years
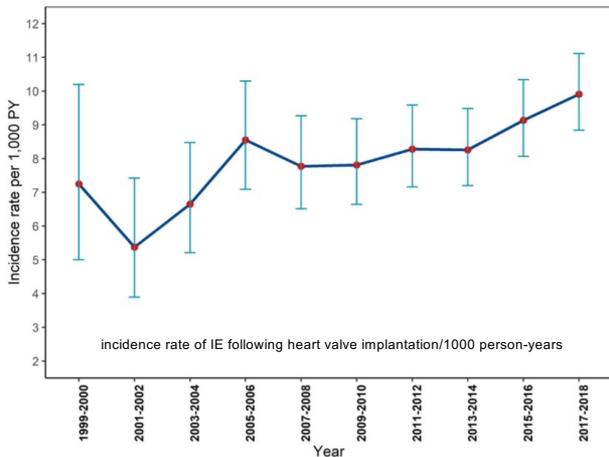
doi:10.1136/openhrt-2023-002269
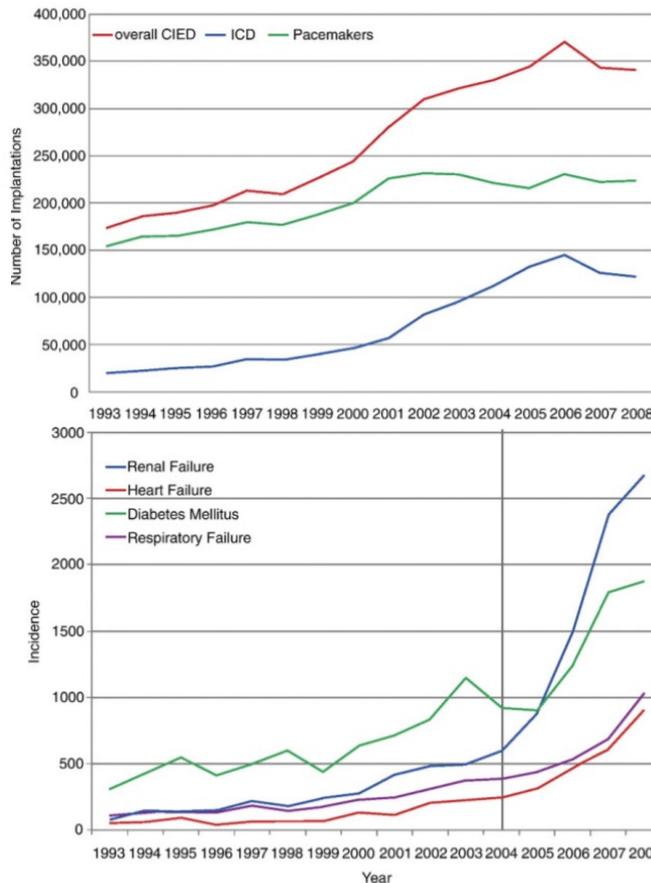
PM/DEF

doi:10.1016/j.jacc.2011.04.033

Les autres (nouveaux) visages de l'EI: EI sur matériel

Surgical results for prosthetic versus native valve endocarditis: A multicenter analysis

Carolyn Weber, MD,[a] Georgi Petrov, MD, MSc,[b] Maximilian Luehr, MD,[c] Hug Aubin, MD,[b] Sems-Malte Tugtekin, MD,[d] Michael A. Borger, MD, PhD,[e] Payam Akhyari, MD,[b] Thorsten Wahlers, MD,[a] Christian Hagl, MD,[c] Klaus Matschke, MD,[d] and Martin Misfeld, MD, PhD,[e] for the study group Clinical, Multicenter Project of Analysis of Infective Endocarditis in Germany

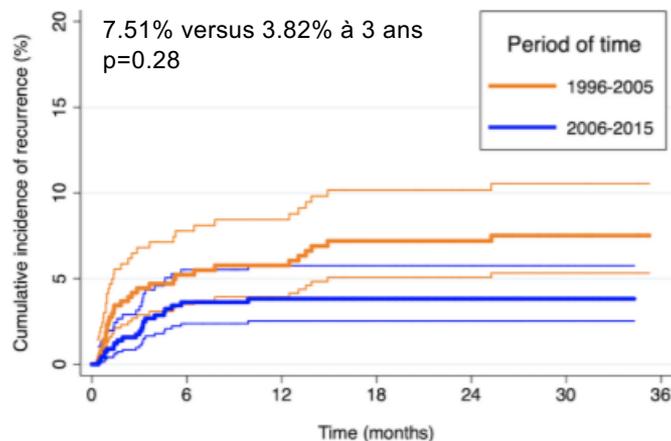- **Retrospective, 1994-2016,**
- **≈1/3 EI sur prothèse**

Significantly decreased long-term survival of patients with PVE compared with NVE.
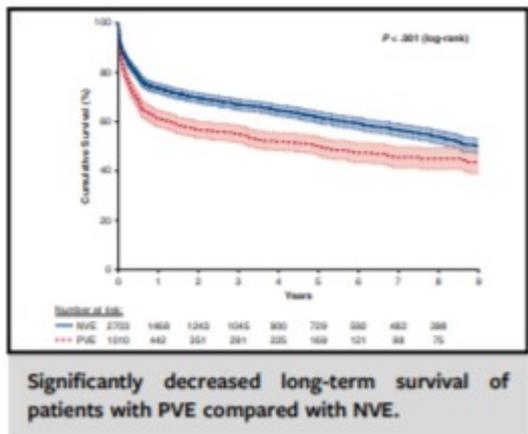
	All patients (n = 4300)	NVE (n = 3143)	PVE (n = 1157)	P value
Age, y	65 [54-73]	63 [52-72]	69 [60-75]	<.001
Sex				
Male	3100 (72%)	2274 (72%)	826 (71%)	.534
Female	1200 (28%)	869 (28%)	331 (29%)	.534
BSA	1.93 [1.79-2.07]	1.94 [1.79-2.08]	1.93 [1.80-2.06]	.241
Hypertension	2091 (49%)	1456 (46%)	635 (55%)	<.001
Diabetes	1113 (26%)	784 (25%)	329 (28%)	.020
Hyperlipidemia	924 (21%)	579 (18%)	345 (30%)	<.001
Smoking	829 (19%)	655 (21%)	174 (15%)	<.001
COPD	437 (10%)	308 (10%)	129 (11%)	.194
Peripheral artery disease	318 (7%)	221 (7%)	97 (8%)	.133
Pulmonary hypertension	724 (17%)	491 (16%)	233 (20%)	<.001
Preoperative AKI	1493 (35%)	1021 (32%)	472 (41%)	<.001
Hemodialysis	307 (7%)	223 (7%)	84 (7%)	.852
Preoperative stroke	898 (21%)	681 (22%)	217 (19%)	.037
Coronary artery disease	1076 (25%)	711 (23%)	365 (32%)	<.001
Myocardial infarction	212 (5%)	149 (5%)	63 (5%)	.344
LVEF				
≥50%	3122 (75%)	2334 (77%)	788 (70%)	<.001
≥30%-50%	883 (21%)	600 (20%)	283 (25%)	<.001
<30%	143 (3%)	85 (3%)	58 (5%)	<.001
Microbiology				
Positive blood culture	2682 (62)	1998 (64)	684 (59)	.008
Staphylococcus spp	998 (23)	731 (23)	267 (23)	.901
Streptococcus spp	656 (15)	572 (18)	84 (7)	<.001
Enterococcus spp	445 (10)	290 (9)	155 (13)	<.001

Contemporary epidemiology and outcomes in recurrent infective endocarditis

Afonso B Freitas-Ferraz [1], Gabriela Tirado-Conte,[1] Isidre Vilacosta,[1] Carmen Olmos,[1] Carmen Sáez,[2] Javier López,[3] Cristina Sarriá,[2] Carlos Nicolás Pérez-García [1], Daniel García-Arribas,[1] Marianela Ciudad,[2] Pablo Elpidio García-Granja [3], Raquel Ladrón,[3] Carlos Ferrera,[1] Salvatore Di Stefano,[3] Luis Maroto,[1] Manuel Carnero,[1] J Alberto San Román[3]

7.51% versus 3.82% à 3 ans
p=0.28

Period of time
1996-2005
2006-2015

Cumulative incidence of recurrence (%)

Time (months)

Pas de différence de mortalité

A

Dedicated database (n= 1271)
Episodes registered in our database (n= 1335)

Not included in our data base
Episodes not registered in our database, but identified during follow-up.

1227 patients — First IE episode.

57 patients — 1º Recurrence.
7 patients — 2º Recurrence.
5 patients — 3º Recurrence.

19 patients — 1º Recurrence.

First IE episode. Not registered in our database

44 patients — Recurrence. First registered episode in our database

2 patients — 2º Recurrence.

Group I: First IE episode N= 1227

Group II: Recurrence IE N=108

No data to distinguish between relapse and reinfection. N= 6

Group IIa: Reinfection N=87

Group IIb: Relapse N= 15

B

Independent predictors of reinfection	Hazard ratio (95% CI)
Intravenous drug users	3.92 (1.86-8.28)

Independent predictors of relapse	Hazard ratio (95% CI)
Prosthetic valve endocarditis	3.19 (1.13 – 9.00)
Staphylococcus aureus	3.14 (1.11 – 8.86)

Les autres (nouveaux) visages de l'EI: rechute/récidive

Clinical Factors Associated with Reinfection versus Relapse in Infective Endocarditis: Prospective Cohort Study

Jorge Calderón-Parra [1,†], Martha Kestler [2,†], Antonio Ramos-Martínez [1,*], Emilio Bouza [2,3], Maricela Valerio [2], Arístides de Alarcón [4], Rafael Luque [4], Miguel Ángel Goenaga [5], Tomás Echeverría [6], Mª Carmen Fariñas [7], Juan M. Pericàs [8], Guillermo Ojeda-Burgos [9], Ana Fernández-Cruz [1], Antonio Plata [10], David Vinuesa [11], Patricia Muñoz [2,3] and on behalf of the GAMES Investigators [‡]

- **Entre 2002-2018, prospectif, 130 patients (5,7%) ont un récurrence**
- **Rechutes: associées à EI nosocomiales OR 2,67; Entérocoque OR 3,05; bactériémie persistante OR 2,37. La chirurgie est protective (OD 0,23)**
- **Réinfections: maladie hépatique chronique (OR 3,1) et Prothèse OR 1,71**

Les autres (nouveaux) visages de l'EI: rechute/récidive

- **Variable 33% à 8%**

- **EURO ENDO= 267 patients avec un nouvel épisode d'EI: (212 (80%) récidive, 55 (20%) rechute)**

- **Plus fréquent si**
  - ATCD chirurgie valve (prothèse)
  - Dialyse
  - UDIV+++
  - Cathéter long terme

- **Entérocoque+++**

- **Pas plus de mortalité**
  - Sauf UDIV et patients avec rechute



Table I Patient demographics and clinical characteristics

	Total (n = 3116)	Prosthesis+Repair (n = 939)	Native (n = 1764)	PM/ICD (n = 308)	P-value
Demography					
Age (years)					
N	3116	939	1764	308	
Mean ± SD	59.25 ± 18.03	63.36 ± 16.81	55.61 ± 18.45	66.77 ± 14.11	<0.0001
Median (IQR)	63.0 (46.0–73.0)	67.0 (54.0–75.0)	58.0 (41.0–70.0)	69.0 (60.0–76.0)	<0.0001
Age ≥ 65 years	1443/3116 (46.3%)	538/939 (57.3%)	662/1764 (37.5%)	194/308 (63.0%)	<0.0001
Age ≥ 80 years	375/3116 (12.0%)	141/939 (15.0%)	163/1764 (9.2%)	56/308 (18.2%)	<0.0001
Females (%)	969/3116 (31.1%)	292/939 (31.1%)	553/1764 (31.3%)	86/308 (27.9%)	0.4901
History of cardiovascular diseases					
Heart failure	662/2840 (23.3%)	271/856 (31.7%)	238/1620 (14.7%)	123/270 (45.6%)	<0.0001
Congenital disease	365/3114 (11.7%)	130/938 (13.9%)	197/1763 (11.2%)	18/308 (5.8%)	0.0001
Ischaemic heart disease	622/2897 (21.5%)	266/881 (30.2%)	207/1637 (12.6%)	128/284 (45.1%)	<0.0001
Atrial fibrillation	767/2918 (26.3%)	365/891 (41.0%)	240/1634 (14.7%)	133/294 (45.2%)	<0.0001
Hypertrophic cardiomyopathy	63/2840 (2.2%)	20/856 (2.3%)	28/1620 (1.7%)	11/270 (4.1%)	0.0498
Known valve murmur	937/2840 (34.?%)	455/856 (53.2%)	427/1620 (26.4%)	55/270 (20.4%)	<0.0001
Previous endocarditis (%)	274/3116 (8.8%)	170/939 (18.1%)	67/1764 (3.8%)	17/308 (5.5%)	<0.0001
Device therapy					
Pacemaker	325/3116 (10.4%)	97/939 (10.3%)	53/1764 (3.0%)	161/308 (52.3%)	
ICD (defibrillator)	125/3116 (4.0%)	18/939 (1.9%)	15/1764 (0.9%)	89/308 (28.9%)	
CRT-D (with ICD)	72/3116 (2.3%)	13/939 (1.4%)	3/1764 (0.2%)	47/308 (15.3%)	
CRT-P (pacing only)	15/3116 (0.5%)	7/939 (0.7%)	1/1764 (0.1%)	6/308 (1.9%)	

Les autres (nouveaux?) visages de l'EI: UDIV
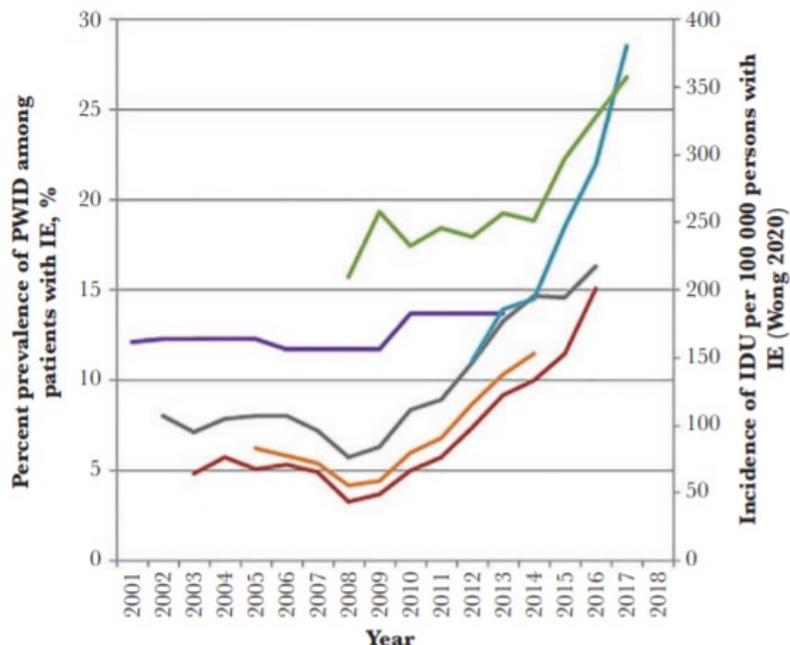
-Augmentation des EI chez les 18-29 ans+++
-Patients précaires, pas de PEC assurantielles
-Explosion couts pour certains hôpitaux
-Pas d'augmentation de l'incidence « globale » aux USA
-hétérogénéité géographique

Légende graphique:
- Toyoda 2017 USA
- Alkhouli 2020 USA
- Kadri 2019 USA
- McCarthy 2020 USA[a]
- Mori 2020 USA
- Wong 2020 USA
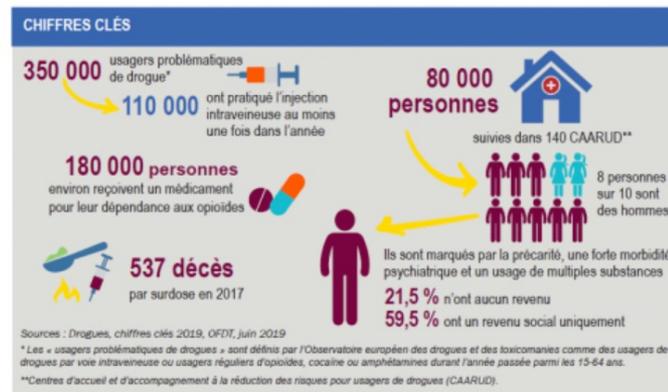
6.9%(212) patients dans EURO ENDO.

Les autres (nouveaux?) visages de l'EI: UDIV

High-Risk Features of DUA-IE

Factors at presentation:
- ▶ Younger age
- ▶ More common tricuspid valve involvement
- ▶ High incidence of septic emboli
- ▶ Frequent comorbid infections (HIV, HCV) and sites of metastatic infection
- ▶ Withdrawal symptoms and pain management needs

Long-term concerns:
- ▶ High readmission rates   Réinfection+++
- ▶ Concern for recurrent infection of prosthetic valves
- ▶ Poor long-term outcomes

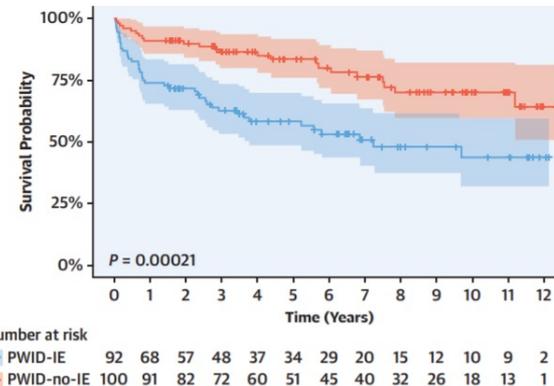### Diagnosis and Management of Infective Endocarditis in People Who Inject Drugs

JACC State-of-the-Art Review

Evin Yucel, MD,[a] Benjamin Bearnot, MD, MPH,[b] Molly L. Paras, MD,[c] Emily K. Zern, MD,[a] David M. Dudzinski, MD,[a] Chen-Pang Soong, MD,[a] Arminder S. Jassar, MBBS,[d] Kenneth Rosenfield, MD,[a] Jaclynne Lira, LCSW,[e] Eugene Lambert, MD,[b] Sarah E. Wakeman, MD,[b] Thoralf Sundt, MD[d]

TABLE 1 Comparative Microbiologic Etiology of DUA-IE and Non-DUA-IE

Pathogen	DUA-IE	Non-DUA-IE Worldwide	Non-DUA-IE North America	Right-sided Non-DUA-IE
Staphylococcus aureus	43-69	28	22-43	70
Viridans group streptococci	5-10	21	9	5-30
Streptococcus bovis	0-1	7	2	5-30
Other streptococci	2	7	6	5-30
Coagulase-negative staphylococci	1-3.7	9	12	
Enterococci	5-8	11	13	2-5
Culture negative	5-6	9	7	
Polymicrobial	3-7	1	1	<1
HACEK	0	2	0.3	
Fungal (candida)	1-5.7	1	1.5-3	<1
Other	2-3	4	4	

Values are %. Data from Goodman-Meza et al,[61] Kadri et al,[102] and Murdoch et al.[103]

DUA-IE = drug use-associated infective endocarditis; HACEK = *Haemophilus aphrophilus*, *Aggregatibacter actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens*, and *Kingella kingae*.

P = 0.00021

Number at risk	0	1	2	3	4	5	6	7	8	9	10	11	12
PWID-IE	92	68	57	48	37	34	29	20	15	12	10	9	2
PWID-no-IE	100	91	82	72	60	51	45	40	32	26	18	13	1

Les autres (nouveaux?) visages de l'EI: UDIV

- **Données de 2 databases prospectives ICE** (International Collaboration on Endocarditis)

- **2000 to 2006 and 2008 to 2012**

- **Attention, 313 (53%) épisodes touchent des valves du Coeur G et 204 (34.5%) sont uniquement des EI du coeur G.**

TABLE 1 Characteristics and Outcomes of Patients With Infective Endocarditis in PWID and Non-PWID Populations

	PWID (n = 591)	Non-PWID (n = 7,025)	p Value
Age, yrs	37.0 (29.5-44.2)	63.3 (49.3-74.0)	<0.001
Male	428 (72.5)	4,723 (67.4)	0.007
Comorbidities			
Diabetes mellitus	18/585 (3.1)	1,400/6,917 (20.2)	<0.001
Human immunodeficiency virus	79/582 (13.6)	53/6,833 (0.8)	<0.001
Neoplasm	7/583 (1.2)	769/6,900 (11.1)	<0.001
Chronic pulmonary disease	19/328 (5.8)	512/4,037 (12.7)	<0.001
Ischemic heart disease	4/330 (1.2)	332/3,969 (8.4)	<0.001
Congestive heart failure	15/332 (4.5)	817/4,014 (20.4)	<0.001
Peripheral vascular disease	5/329 (1.5)	296/4,011 (7.4)	<0.001
Moderate/severe kidney disease	14/346 (4.0)	758/4,366 (17.4)	<0.001
Moderate/severe liver disease	29/325 (8.9)	157/4,103 (3.8)	0.002
Cerebrovascular disease	5/331 (1.5)	367/4,042 (9.1)	<0.001
Predisposing risk factors			
Previous episode of IE	115/584 (19.7)	655/6,978 (9.4)	<0.001
Congenital heart disease	28/573 (4.9)	700/6,844 (10.2)	<0.001
Hemodialysis	10/510 (2.0)	519/5,749 (9.0)	<0.001
Place of acquisition and presentation	572	6,539	
Community	547 (95.6)	4,656 (71.1)	<0.001
Type of endocarditis			
Native valve	533 (90.2)	4,521 (64.4)	<0.001
Prosthetic valve	55 (9.3)	1,900 (27.0)	<0.001
CIED	3 (0.5)	604 (8.6)	
Valve involvement*			
Aortic	123 (20.8)	2,398 (34.1)	<0.001
Mitral	147 (24.9)	2,098 (29.9)	0.007
Aortic + mitral	43 (7.3)	1,100 (15.7)	<0.001
Tricuspid	332 (56.2)	1,286 (18.3)	<0.001
Pulmonic	15 (2.5)	110 (1.6)	0.143

J M Pericàs et al, JACC VOL. 77, NO. 5, 2021:544 – 5 5

Les autres (nouveaux?) visages de l'EI: UDIV

- **Données de 2 databases prospectives ICE** (International Collaboration on Endocarditis)

- **2000 to 2006 and 2008 to 2012**

CENTRAL ILLUSTRATION Geographical Distribution of Cardiac Surgery and In-Hospital Mortality Rates
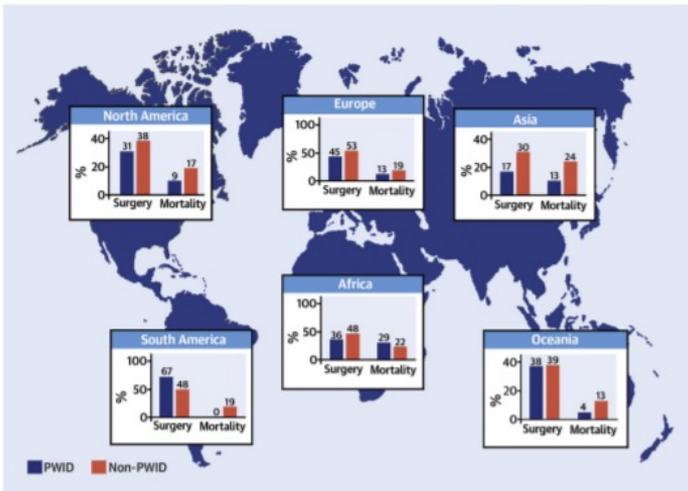
	PWID (n = 591)	Non-PWID (n = 7,025)	p Value
Causative microorganisms	566	6,792	
Staphylococcus aureus	373 (65.9)	1,736 (25.6)	<0.001
MRSA	48/331 (14.5)	408/1,408 (29.0)	<0.001
Coagulase-negative staphylococci	21 (3.7)	810 (11.9)	<0.001
Viridans group streptococci	54 (9.5)	1,262 (18.6)	<0.001
Enterococci	29 (5.1)	812 (12.0)	<0.001
Streptococcus gallolyticus	4 (0.7)	477 (7.0)	<0.001
Other streptococci	21 (3.7)	423 (6.2)	0.001
HACEK	3 (0.5)	98 (1.4)	0.007
Non-HACEK gram negative	8 (1.4)	246 (3.6)	<0.001
Fungi/yeast	11 (1.9)	134 (2.0)	0.961
Polymicrobial	15 (2.7)	106 (1.6)	0.115
Blood culture negative	19 (3.4)	509 (7.5)	<0.001
Other	8 (1.4)	179 (2.6)	0.022
Complications†			
Stroke	87 (14.7)	1,207 (17.2)	0.107
Systemic embolization (nonstroke)	296 (50.1)	1,551 (22.1)	<0.001
Pulmonary emboli	177 (30.6)	292 (4.2)	<0.001
Congestive heart failure	140 (23.7)	2,184 (31.1)	<0.001
Persistent bacteremia	83 (14.0)	619 (8.8)	<0.001
Duration of bacteremia in days	7 (4–13)	5 (4–14)	0.563
Outcomes			
In-hospital mortality	64 (10.8)	1,280 (18.2)	<0.001
6-month mortality	85 (14.4)	1,561 (22.2)	<0.001
Relapses in survivors	28/295 (9.5)	98/3,548 (2.8)	<0.001
Surgery after discharge up to 6 months	14/405 (3.5)	131/4,821 (2.7)	0.430

J M Pericàs et al, JACC VOL. 77, NO. 5, 2021:544 – 5 5

Les autres (nouveaux?) visages de l'EI: UDIV

Long-term Outcomes Are Poor in Intravenous Drug Users
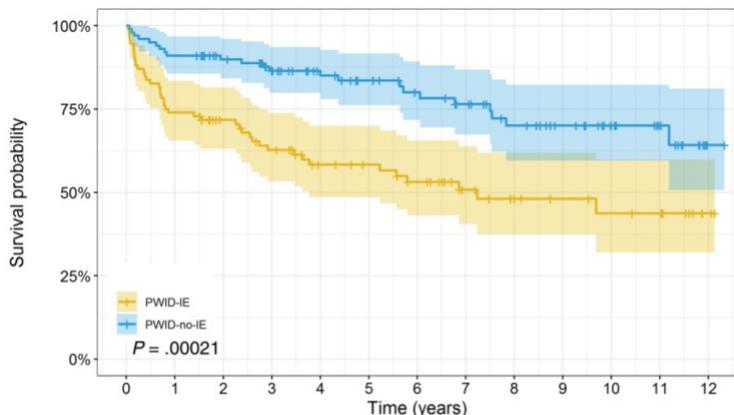Following Infective Endocarditis, Even After Surgery

Sam Straw,[1] M. Wazir Baig,[1] Richard Gillott,[2] Jianhua Wu,[2] Klaus K. Witte,[1,3] David J. O'Regan,[4] and Jonathan A. T. Sandoe[2,5]

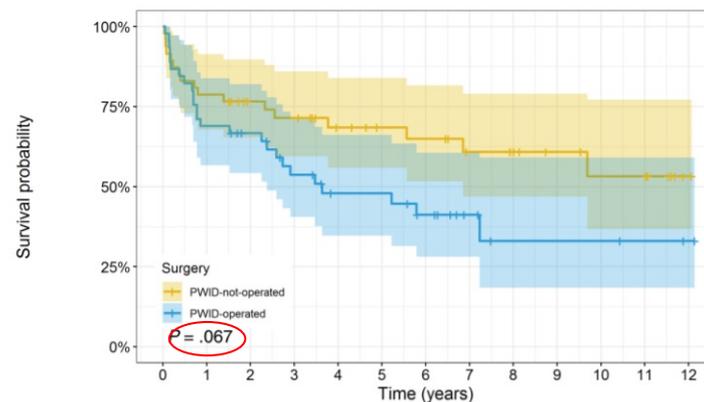Clinical Infectious Diseases®   2020;71(3):564–71

- Etude prospective,
- Angleterre,
- Tertiary care
- 1 Janvier 2006 au 31 Decembre 2016

Table 4.   Overall Survival and Survival in Patients, Stratified by Surgery

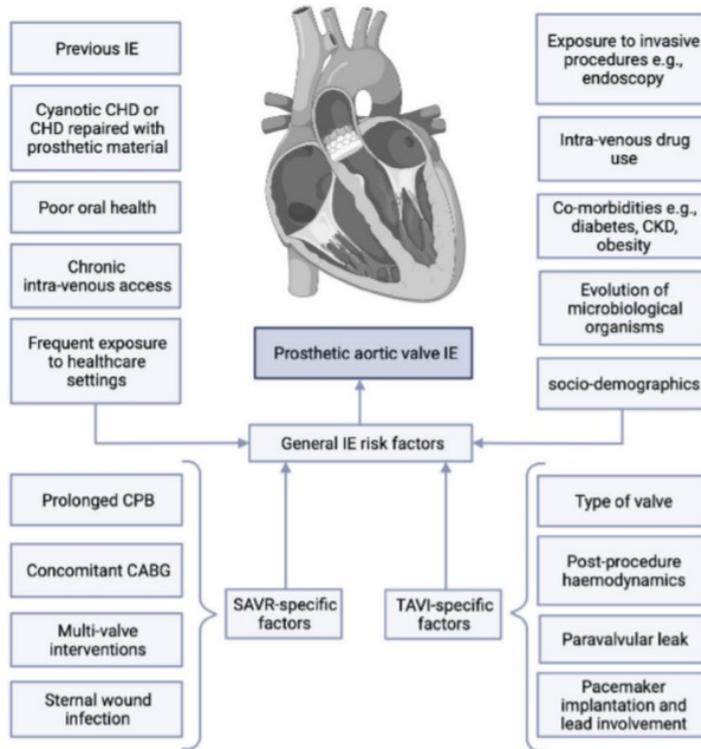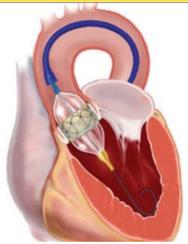| Survival	Kaplan-Meier Survival Rate (95% CI)			
	Endocarditis	Endocarditis, Operated	Endocarditis, Not Operated	Controls
1 y	73.9 (65.5–83.5)	68.9 (56.6–83.8)	78.7 (67.9–91.3)	91.0 (85.6–96.8)
3 y	62.7 (53.3–73.8)	53.7 (40.5–71.1)	71.5 (59.4–86.0)	86.4 (79.8–93.6)
5 y	58.3 (48.6–70.0)	47.9 (34.7–66.1)	68.5 (55.9–83.9)	83.5 (76.1–91.6)
10 y	43.8 (32.0–59.9)	33.0 (18.4–59.1)	53.2 (36.8–77.1)	70.0 (59.6–82.3)

Databases UK

Incidence pour 1000 personne/an=
SAVR: 4.81 (95% CI 4.61 to 5.03)
TAVI: 3.57 (95% CI 3.00 to 4.21)

No at risk				
TAVI	14195	9695	7184	5495
SAVR	91962	77064	67517	58436

(2.4% (95% CI 2.3 to 2.5) versus 1.5% (95% CI 1.3 to 1.8), HR 1.60, p<0.001)

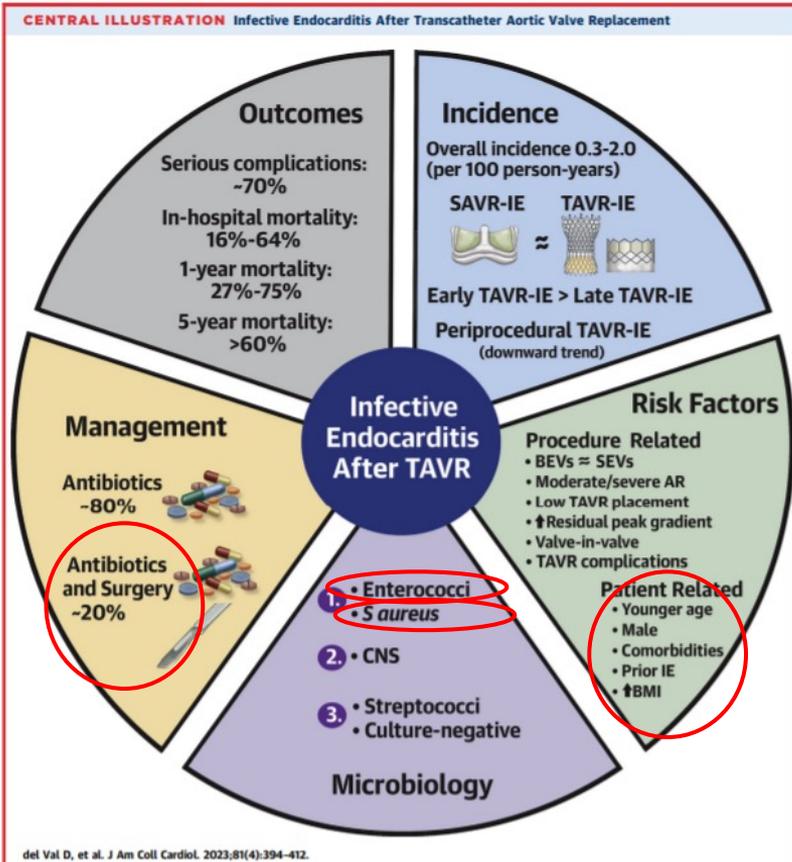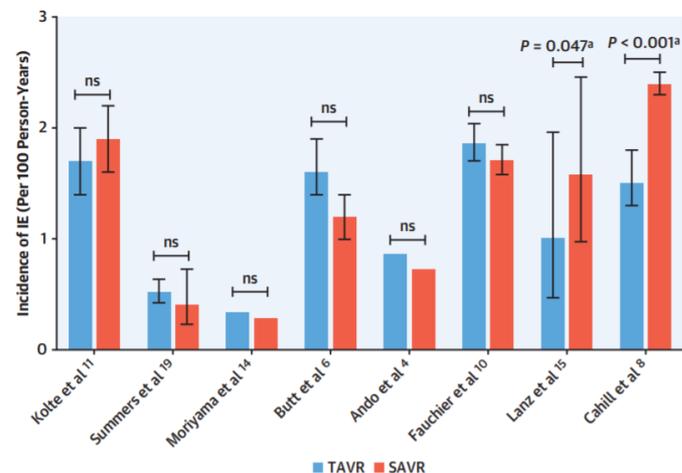# Les autres (nouveaux) visages de l'EI: TAVI
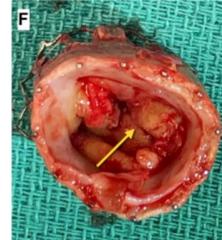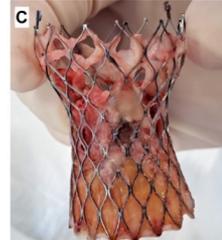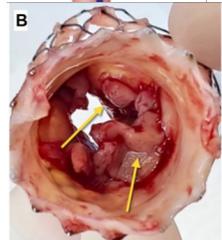
Infective Endocarditis After Transcatheter Aortic Valve Replacement

JACC State-of-the-Art Review

David del Val, MD, PhD,[a,b,c] Vassili Panagides, MD,[c] Carlos A. Mestres, MD, PhD,[d] José M. Miró, MD, PhD,[e,f] Josep Rodés-Cabau, MD, PhD[c,g]

Moins de risque? Risque quand même

Les autres (nouveaux) visages de l'EI: TAVI

- **Présentation clinique parfois plus frustre (selon la population)**
- **50% EI associées aux soins**
- **Diagnostic échographique plus complexe**
- **Besoin d'autres imageries pour confirmer**
- **Prise en charge chirurgicale rarement proposée**
- **Mais changement de population TAVI**

FIGURE 9 Top Research Priorities on IE After TAVR

- Antibiotic prophylaxis protocols
- Device iterations and development of antibacterial and biofilm therapies
- More accurate diagnostic criteria
- IE after TAVR
- Standardized indications and timing of surgical treatment
- Specific risk scores
- Role of novel imaging techniques

FIGURE 3 Location of Vegetations According to Different TAV Designs

SEVs   BEVs

Data from the Infectious Endocarditis after TAVR International Registry.
BEV = balloon-expandable valve; L = leaflets; SEV = self-expanding valve; SF = stent frame; TAVR = transcatheter aortic valve replacement.
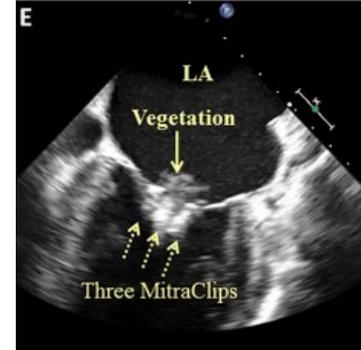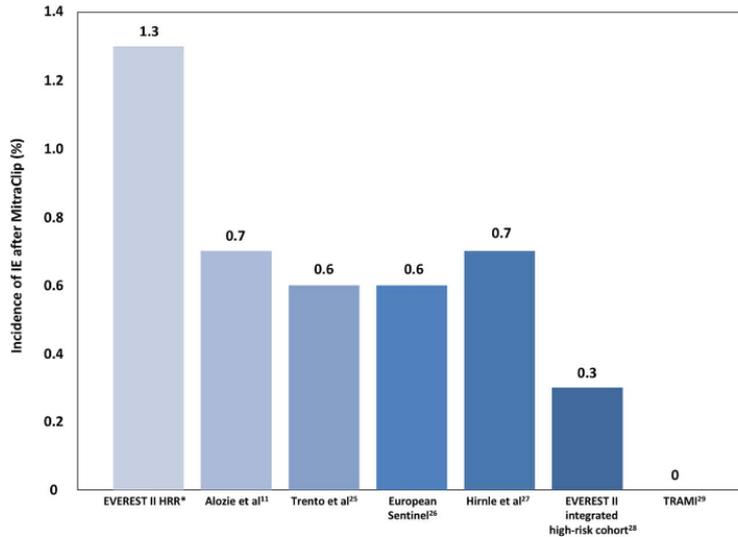
Del Val D, et al., J Am Coll Cardiol. 2023 Jan 31;81(4):394-412.

Les autres (nouveaux) visages de l'EI: mitraclip
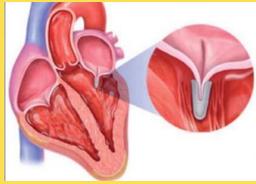
- **Peu de cas décrits, <30 cas**
- **Possiblement lié à une moindre localisation mitrale des EI sur prothèse**
- **Moins de matériel**

S. aureus
Age médian 76 ans
45% femmes

Asmarats L, et al., Catheter Cardiovasc Interv. 2018 Sep 1;92(3):583-591

Au total,

- **Changement des visages de l'EI: UDIV, matériel, > 1 épisode**

- **Impact sociétal**

- **Nouvelles entités**

- **Pronostic toujours aussi sombre**

- **Besoin de collaborer pour mieux comprendre cette infection: AEPEI**