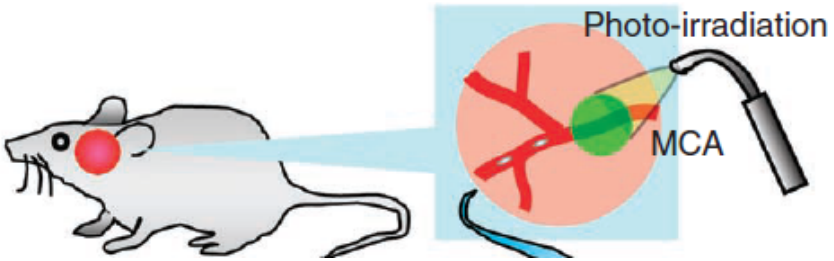
JNI 13es Journées Nationales d'Infectiologie
Tours et le GÉRICCO
Du mercredi 13 au vendredi 15 juin 2012
VINCI - Centre International de Congrès

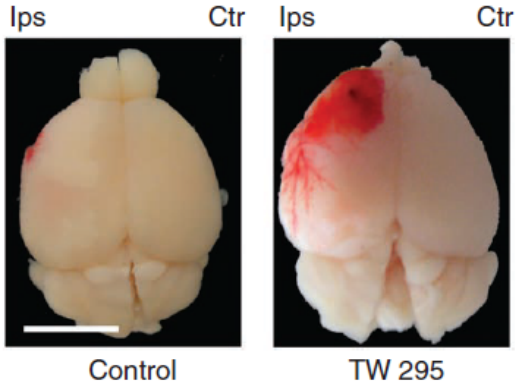
Infections cardiovasculaires

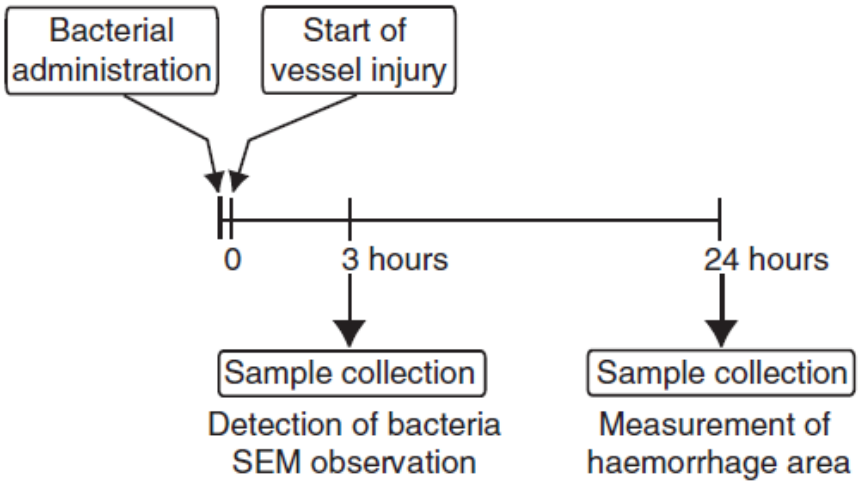
Actualité 2011 – 2012

Bruno Hoen
Université de Franche-Comté – CHU de Besançon
AEPEI

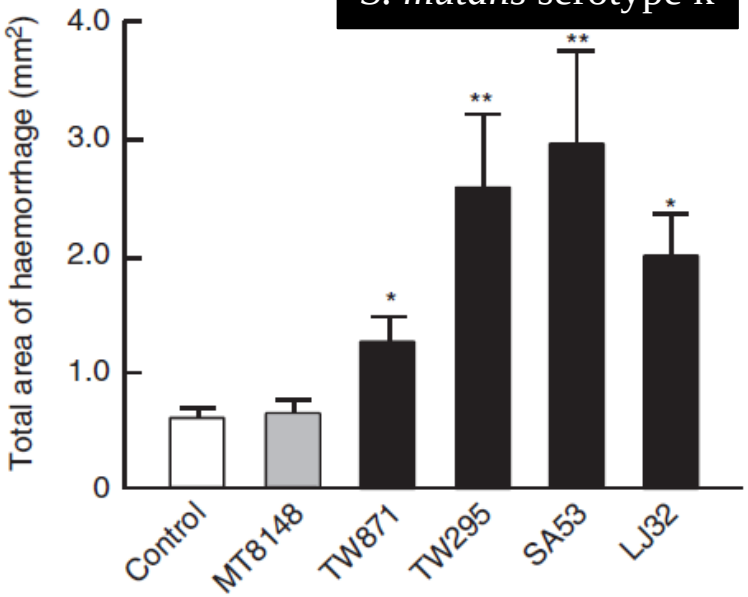
The collagen-binding protein of *Streptococcus mutans* is involved in haemorrhagic stroke







S. mutans sérotype k



Nakano, Nature Communication 2012, DOI: 10.1038/ncomms1491

The collagen-binding protein of *Streptococcus mutans* is involved in haemorrhagic stroke

- L'augmentation des phénomènes hémorragiques est liée à une accumulation de *Sm* au niveau de l'endothélium lésé, elle-même liée à l'équipement de *Sm* en une collagen-binding protein (Cnm)
- L'aggrégation plaquettaire au niveau de de l'endothélium lésé est inhibée en présence d'une souche de *Sm* de sérotype k
- Les patients présentant un accident vasculaire cérébral hémorragique sont plus souvent porteurs de *Sm* exprimant Cnm dans leur cavité buccale

	Control subjects	Cerebral haemorrhage patients	*P*-value (Fisher's exact probability test)	Odds ratio (95%CI)
Total number (Male:Female)	35 (15:20)	74 (47:27)		
Age (mean±s.d.)	65.9±6.7	68.4±4.0	NS	
S. mutans-isolated/total subjects (%)	20/35 (57.1%)	41/74 (55.4%)	NS	
cnm-positive *S. mutans*/total subjects (%)	3/35 (8.5%)	20/74 (27.0%)	*P*=0.0423	3.95 (1.09–14.35)
cnm-positive *S. mutans*/total *S. mutans*-isolated subjects (%)	3/20 (15.0%)	20/41 (48.8%)	*P*=0.0123	5.40 (1.37–21.27)

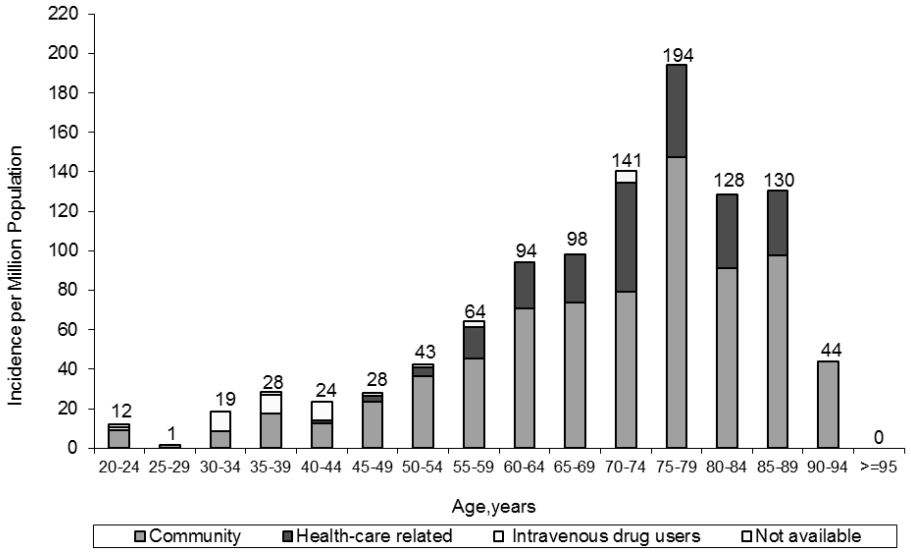
Nakano, Nature Communication 2012, DOI: 10.1038/ncomms1491

MAJOR ARTICLE

Preeminence of *Staphylococcus aureus* in Infective Endocarditis: A 1-Year Population-Based Survey

Christine Selton-Suty,[1] Marie Célard,[2] Vincent Le Moing,[3,4] Thanh Doco-Lecompte,[5] Catherine Chirouze,[6] Bernard Iung,[7,8] Christophe Strady,[9] Matthieu Revest,[10] François Vandenesch,[2] Anne Bouvet,[11] François Delahaye,[12,13] François Alla,[14] Xavier Duval,[8,15,16] Bruno Hoen,[6,17] and on behalf of the AEPEI Study Group[a]

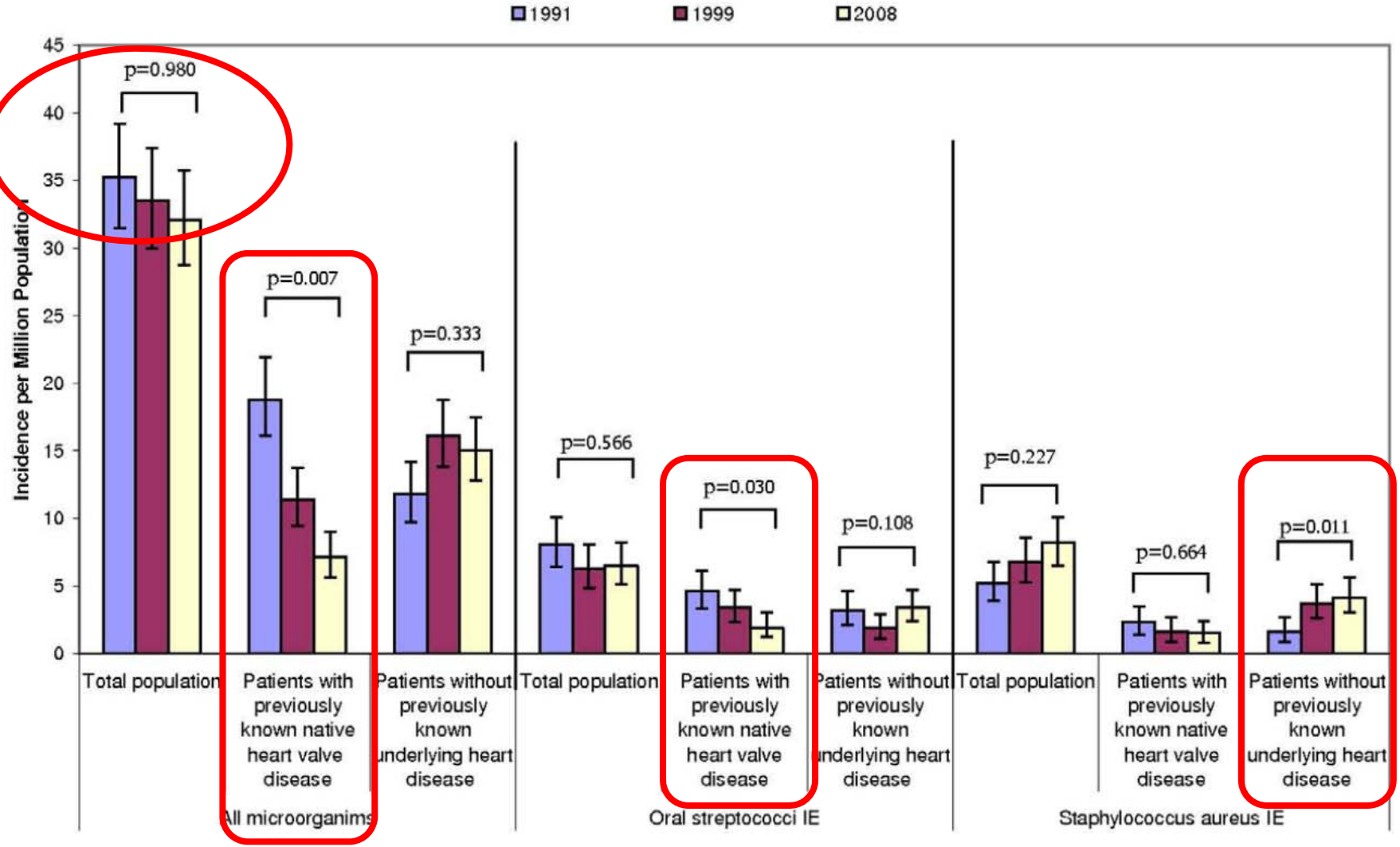
- No previously known valve disease 52.7%
- Staphylococci 36.2%
  - *S. aureus* 26.6%
  - CNS 9.7%
- HCA IE 26.7%
- *S. aureus*
  - Most important prognostic factor overall
  - Single prognostic factor in HCA IE



Remerciements aux participants à l'étude EI2008

Selton-Suty C, Clin Infect Dis 2012;54:1235

Temporal Trends in Infective Endocarditis in the Context of Prophylaxis Guideline Modifications: Three Successive Population-Based Surveys

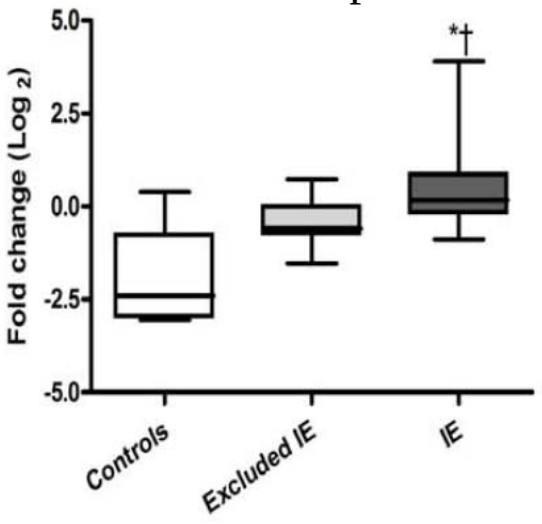


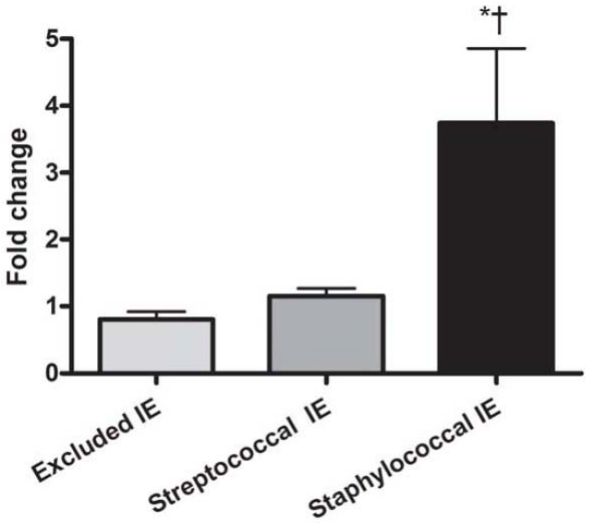
Duval, J Am Coll Cardiol 2102;59:1968

Vers un diagnostic transcriptionnel de l'EI

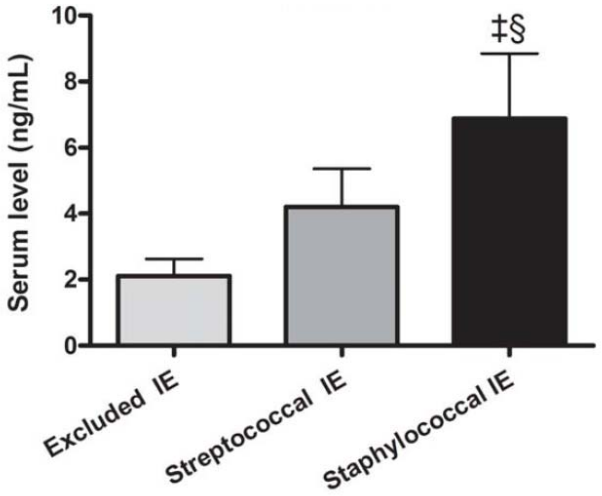
- Etude exploratoire du transcriptome sanguin chez
  - 39 patients avec EI sur VN (Duke definite)
  - 10 patients avec EI exclue après suspicion initiale
  - 10 témoins sains appariés sur l'âge
- Surexpression du gène codant la CPP S100 A11

Expression du gène *S100A11*





Protéine sérique S100A11



Thuny, PLoS ONE 2012

De la meilleure façon d'utiliser les aminosides dans l'EI à *E. faecalis*

- Modèle expérimental d'EI de lapin avec administration d'Ab simulant une PK humaine
  - Evaluation de l'efficacité bactéricide de 4 aminosides (J3)
  - Comparaison d'efficacité de 2 doses de gentamicine (J1 & J3)

Experimental groups	log CFU/g±95% CI (*n*)	
Controls	9.2±0.4 (8)	
	Treatment duration	
	24 h	3 days
Gentamicin once daily 3 mg/kg/d	8.2±0.5 (7)	3.7±0.7 (6)**
Gentamicin once daily 6 mg/kg/d	6.8±1.2* (7)	3.5±0.2 (6)**

Dubé, Eur J Clin Microbiol Infect Dis 2012

High-Dose Daptomycin for Cardiac Implantable Electronic Device–Related IE

- Etude observationnelle non comparative
  - Dose daptomycine : médiane 8,3 mg/kg/j (6,4 – 10,7)
  - Extraction matériel endovasculaire : 88%

		Treatment Outcome (%)	
	No. (%)	Clinical Success	Microbiological Response
All patients	25 (100)	80	92
Blood cultures +/Hardware cultures +	16 (64)		
Blood cultures +/Hardware cultures −	5 (20)		
Blood cultures −/Hardware cultures +	4 (16)		
Pathogen			
Staphylococcus epidermidis	14 (56)	71	92
Staphylococcus aureus	7 (28)	86	86
Other coagulase-negative staphylococci	4 (16)	100	100
Methicillin-resistant strains	15 (60)	80	100
Strains with vancomycin MIC of 2 mg/L	11 (44%)	73	91
MIC_{90} (mg/L)			
Daptomycin	0.625		
Vancomycin	2		
Teicoplanin	6.4		
Linezolid	4		

  - 3 décès, aucun imputable à Daptomycine
  - Elevation CPK (< 3N) chez 5 patients, sans arrêt de traitement

Durante-Mangoni, Clin Infect Dis 2012

The timing of surgery influences mortality and morbidity in adults with severe complicated IE:

a propensity analysis

	≤1st week surgery group (*n* = 95)	>1st week surgery group (*n* = 196)	*P*-value
6-month mortality	14 (15)	23 (12)	0.47
Relapses and postoperative valvular dysfunction	15 (16)	7 (4)	0.0005
Relapses	8 (8)	4 (2)	0.02
Postoperative valvular dysfunction	7 (7)	3 (2)	0.02

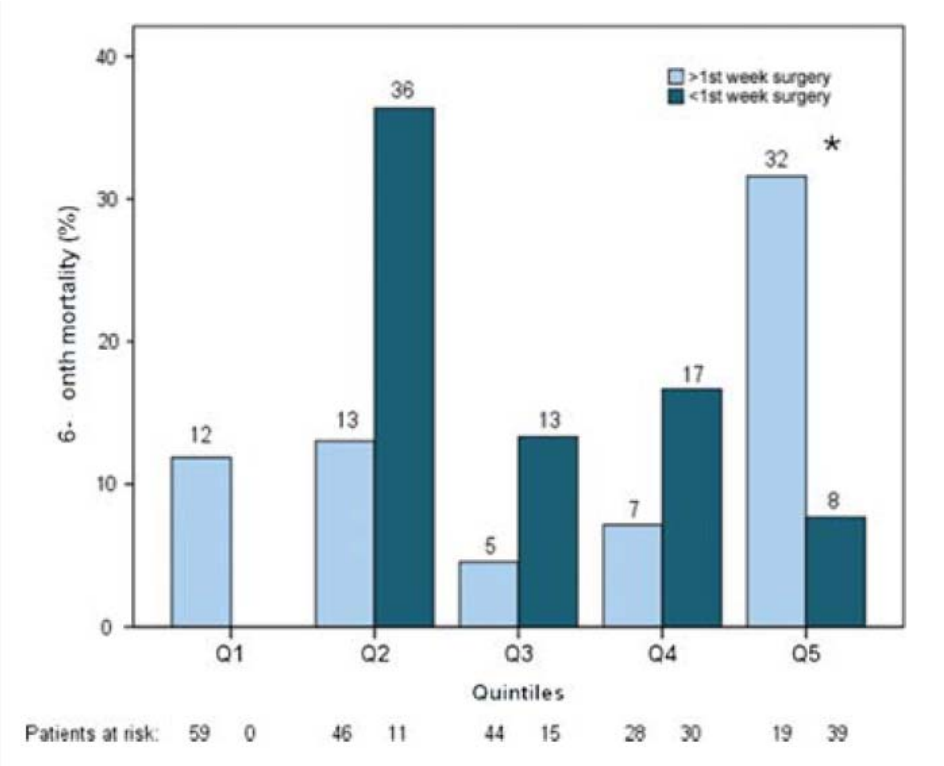
Thuny, Eur Heart J 2011;32:2027

The timing of surgery influences mortality and morbidity in adults with severe complicated IE:

a propensity analysis

- In Q5, 1st week surgery was associated with reduced 6-month mortality:
  - OR 0.18, [0.04–0.83]
- Patients in Q5
  - were younger
  - were more likely to have
    - Sa IE
    - CHF
    - larger vegetations

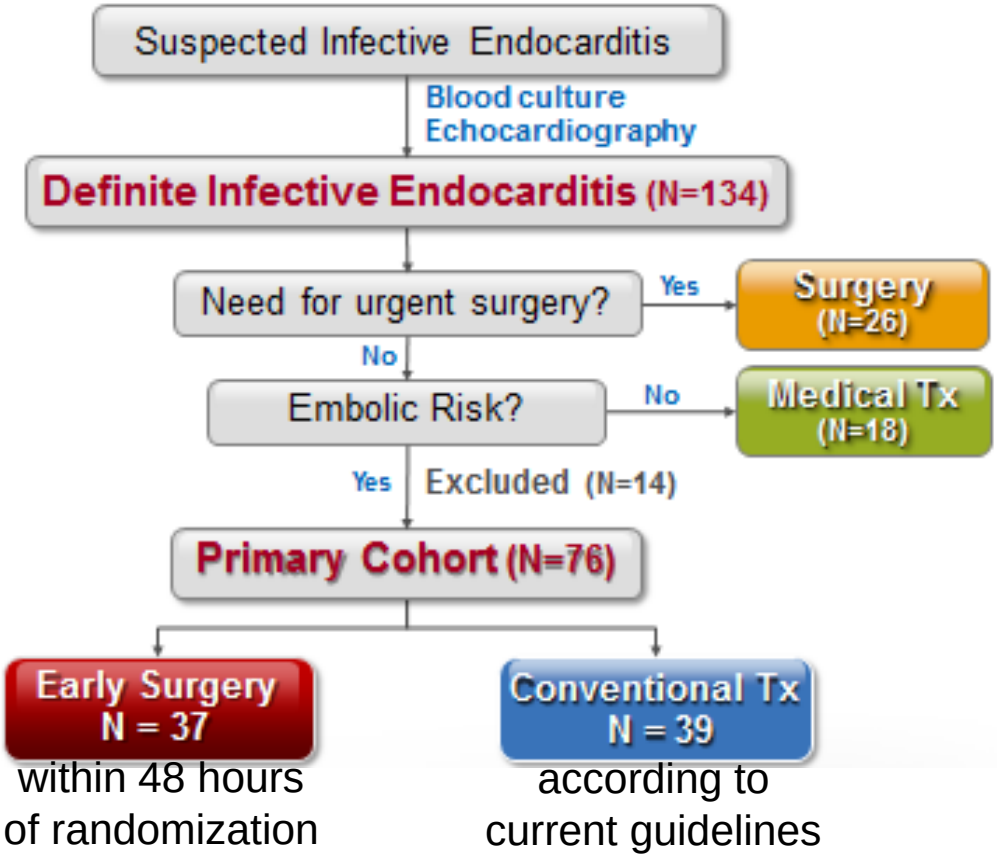
Six-month mortality according to propensity subgroups



Thuny, Eur Heart J 2011;32:2027

Randomized Trial of Early Surgery Versus Conventional Treatment for Infective Endocarditis

- Open-label randomized trial to evaluate the effect of early surgery on embolic events in IE patients with high risk of embolism



Primary end point

in-hopital death and clinical embolic events at 6 weeks

Duk-Hyun Kang, AHA 2011

Randomized Trial of Early Surgery Versus Conventional Treatment for Infective Endocarditis

End Point	CONV Tx (n=39)	Early Surgery (n=37)	p-value
Primary end point	***9 (23%)***	***1 (3%)***	***0.014***
In-hospital death	1 (3%)	1 (3%)	1.000
Embolic event at 6 wks	8 (21%)	0 (0%)	0.005
Cerebral	5	0	
Coronary	1	0	
Popliteal	1	0	
Spleen	1	0	
Secondary end point at M6	***11 (28%)***	***1 (3%)***	***0.003***
Mortality	2 (5%)	1 (3%)	1.000
Embolic event	8 (21%)	0 (0%)	0.005
Relapse of IE	1 (3%)	0 (0%)	1.000

Duk-Hyun Kang, AHA 2011

Development and validation of a time-dependent risk model for predicting mortality in IE

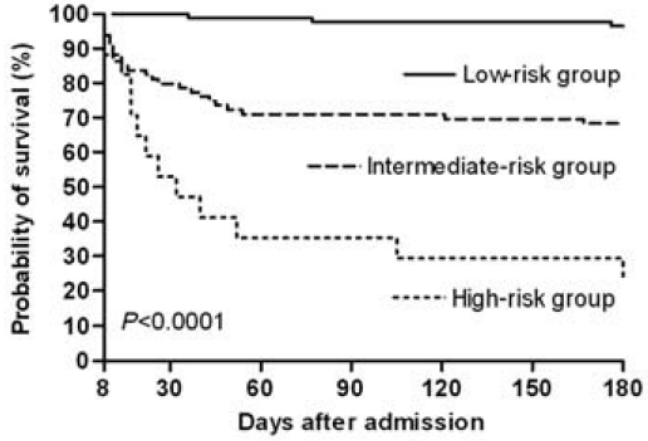
- Modèles prédictifs de la mortalité à 6 mois sur 273 patients
  - à J1, J8 et J15 de la prise en charge, avec variables dépendant du temps

Risk factor[a]	Hazard ratio (95% CI)	*P*-value	β regression coefficient	Points assigned[b]
Day 1 risk model				
Age ≥65	2.14 (1.09–4.23)	0.029	0.76	2
Charlson score ≥3	2.43 (1.25–4.71)	0.009	0.89	2
Pulse rate ≥120 b.p.m.	2.85 (1.48–5.49)	0.002	1.05	3
Congestive heart failure	2.47 (1.34–4.56)	0.004	0.91	2
Platelet count <150 × 10^9/L	2.13 (1.12–4.05)	0.021	0.76	2
Creatinine ≥120 μmol/L	3.71 (2.01–6.84)	<0.001	1.31	4
Day 8 risk model				
Charlson score ≥3	2.26 (1.10–4.66)	0.027	0.82	2
Congestive heart failure	2.79 (1.41–5.52)	0.003	1.03	3
Platelet count <150 × 10^9/L	2.45 (1.24–4.83)	0.010	0.90	2
Creatinine ≥120 μmol/L	2.70 (1.43–5.09)	0.002	0.99	2
Severe embolic event	2.61 (1.33–5.12)	0.005	0.96	2
Day 15 risk model				
Charlson score ≥3	2.98 (1.21–7.36)	0.018	1.09	2
Congestive heart failure	6.19 (2.72–14.07)	<0.001	1.82	3
Platelet count <150 × 10^9/L	4.14 (1.57–10.96)	0.004	1.42	3

Sy, Eur Heart J 2011;32:2016

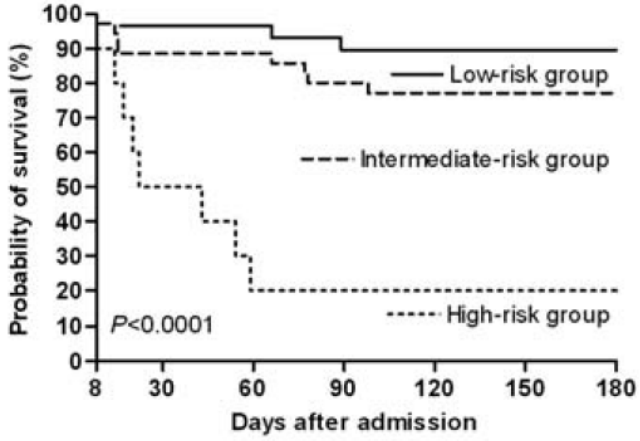
Development and validation of a time-dependent risk model for predicting mortality in IE

C. Day 8 - Derivation cohort



Number at risk							
Low-risk group	90	88	84	83	81	81	80
Intermdiate-risk group	80	63	55	55	55	54	53
High-risk group	17	9	6	6	5	5	5

D. Day 8 - Validation cohort



Number at risk							
Low-risk group	29	28	28	26	26	26	26
Intermediate-risk group	35	31	31	28	27	27	27
High-risk group	10	5	2	2	2	2	2

- Pas d'impact pronostique de la chirurgie, dans aucun des modèles, à aucune des dates d'évaluation

Sy, Eur Heart J 2011;32:2016