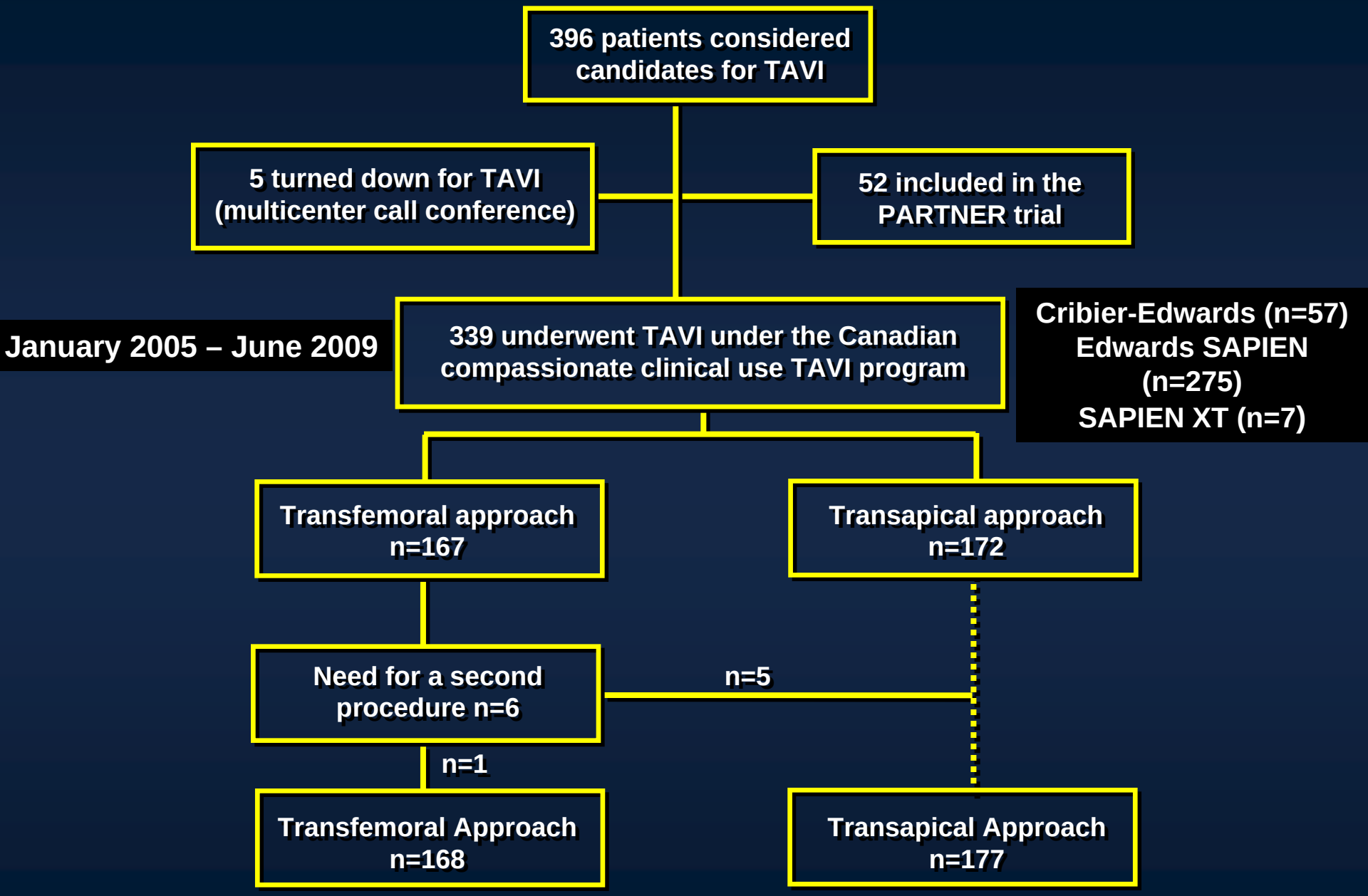
Update from the Canadian TAVR Registry

Josep Rodés-Cabau, MD

Quebec Heart & Lung Institute, Laval University

INSTITUT UNIVERSITAIRE
DE CARDIOLOGIE
ET DE PNEUMOLOGIE
DE QUÉBEC

UNIVERSITÉ LAVAL


396 patients considered candidates for TAVI
5 turned down for TAVI (multicenter call conference)
52 included in the PARTNER trial
January 2005 – June 2009
339 underwent TAVI under the Canadian compassionate clinical use TAVI program
Cribier-Edwards (n=57)
Edwards SAPIEN (n=275)
SAPIEN XT (n=7)
Transfemoral approach n=167
Transapical approach n=172
Need for a second procedure n=6
n=5
n=1
Transfemoral Approach n=168
Transapical Approach n=177

METHODS
Clinical Follow-Up

- ✓ Clinical visits and/or phone contact at 30-days, 1-year follow-up and annually thereafter
- ✓ Follow-up available in all but 3 patients (99% of the study population)
- ✓ Median follow-up: 42 ± 15 months

Baseline Characteristics (1)

Variable	All patients (n=339)	Transfemoral (n=162)	Transapical (n=177)	P value
Age (years)	81 ± 8	83 ± 8	80 ± 8	0.009
Male sex	152 (45)	91 (56)	61 (35)	<0.0001
Diabetes	79 (23)	37 (23)	42 (24)	0.89
Hypertension	252 (74)	102 (63)	150 (85)	<0.0001
NYHA Functional Class				
I-II	29 (9)	11 (7)	18 (10)	0.33
III-IV	308 (91)	150 (93)	158 (89)	
Chronic atrial fibrillation/flutter	115 (34)	66 (41)	49 (28)	0.01
Coronary artery disease	234 (69)	110 (68)	124 (70)	0.72
Previous myocardial infarction	173 (51)	82 (51)	91 (51)	0.91
Previous PCI	99 (29)	47 (29)	52 (30)	1.00
Prior coronary artery bypass grafting	116 (34)	49 (30)	67 (38)	0.17

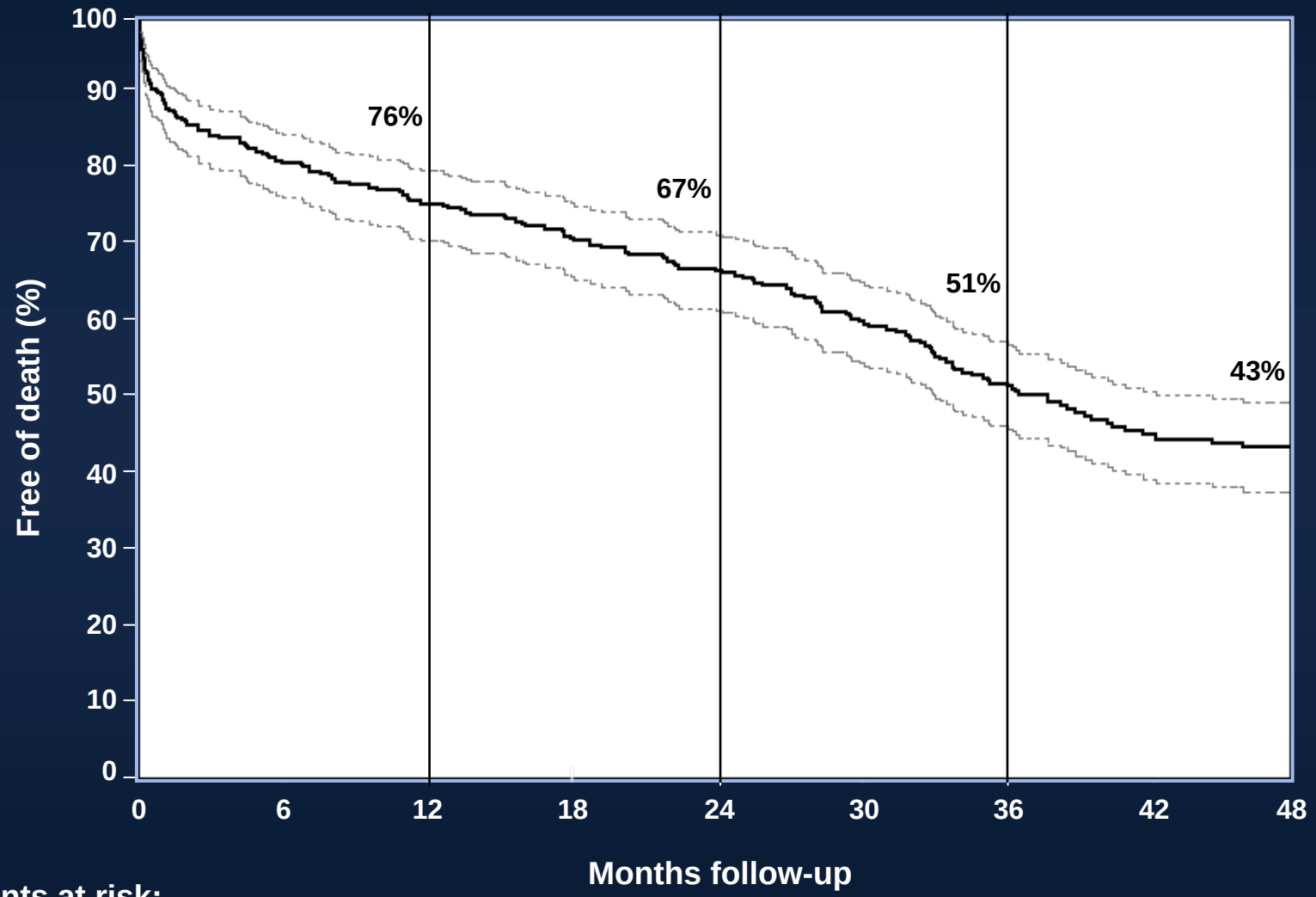
Baseline Characteristics (2)

Variable	All patients (n=339)	Transfemoral (n=162)	Transapical (n=177)	P value
Cerebrovascular disease	77 (23)	27 (17)	50 (29)	0.01
Peripheral vascular disease	120 (36)	31 (19)	89 (50)	<0.001
COPD	100 (30)	45 (28)	55 (31)	0.55
Creatinine (umol/l)	119 ± 83	124 ± 85	113 ± 81	0.23
eGFR<60ml/min	191 (56)	86 (53)	104 (59)	0.33
STS score (%)	9.8 ± 6.4	9.0 ± 5.8	10.5 ± 6.9	0.03
Porcelain aorta	61 (18)	28 (17)	33 (19)	0.78
Frailty	85 (25)	42 (26)	43 (24)	0.80
Pulmonary hypertension	84 (25)	35 (22)	49 (28)	0.26
Severe Mitral Regurgitation	27 (8)	18 (11)	9 (5)	0.04
Mean Aortic Gradient (mmHg)	46 ± 17	48 ± 18	44 ± 17	0.08
Aortic Valve Area (cm^2)	0.63±0.17	0.63 ± 0.16	0.63±0.18	0.93
LVEF (%)	55 ± 14	55 ± 14	56 ± 14	0.72
LVEF<40	54 (16)	26 (16)	28 (16)	1.00

Procedural and 30-Day Outcomes

Variable	All Procedures (n=345)	Transfemoral (n=168)	Transapical (n=177)	P value
Procedural variables				
Succesful procedure	322 (93.3)	152 (90.5)	170 (96.0)	0.051
Procedural death	6 (1.7)	3 (1.8)	3 (1.7)	1.00
Valve embolization	7 (2.0)	5 (3.0)	2 (1.1)	0.27
Need for a second valve	9 (2.6)	4 (2.4)	5 (2.8)	1.00
Conversion to open heart surgery	6 (1.7)	2 (1.2)	4 (2.3)	0.69
Need for hemodynamic support	14 (4.1)	7(4.2)	7 (4.0)	1.00
Major access site complications	45 (13.0)	22 (13.1)	23 (13.0)	1.00
Life threatening arrythmias	28 (8.1)	12 (7.1)	16 (9.0)	0.56
30-day outcomes				
Myocardial infarction	4 (1.2)	1 (0.6)	3 (1.7)	0.62
Stroke	8 (2.3)	5 (3.0)	3 (1.7)	0.49
Sepsis	10 (2.9)	5 (3.0)	5 (2.8)	1.00
Need for hemodialysis	9 (2.6)	3 (1.8)	6 (3.4)	0.50
Need for pacemaker	17 (4.9)	6 (3.6)	11 (6.2)	0.32
30-day mortality	36 (10.4)	16 (9.5)	20 (11.3)	0.73

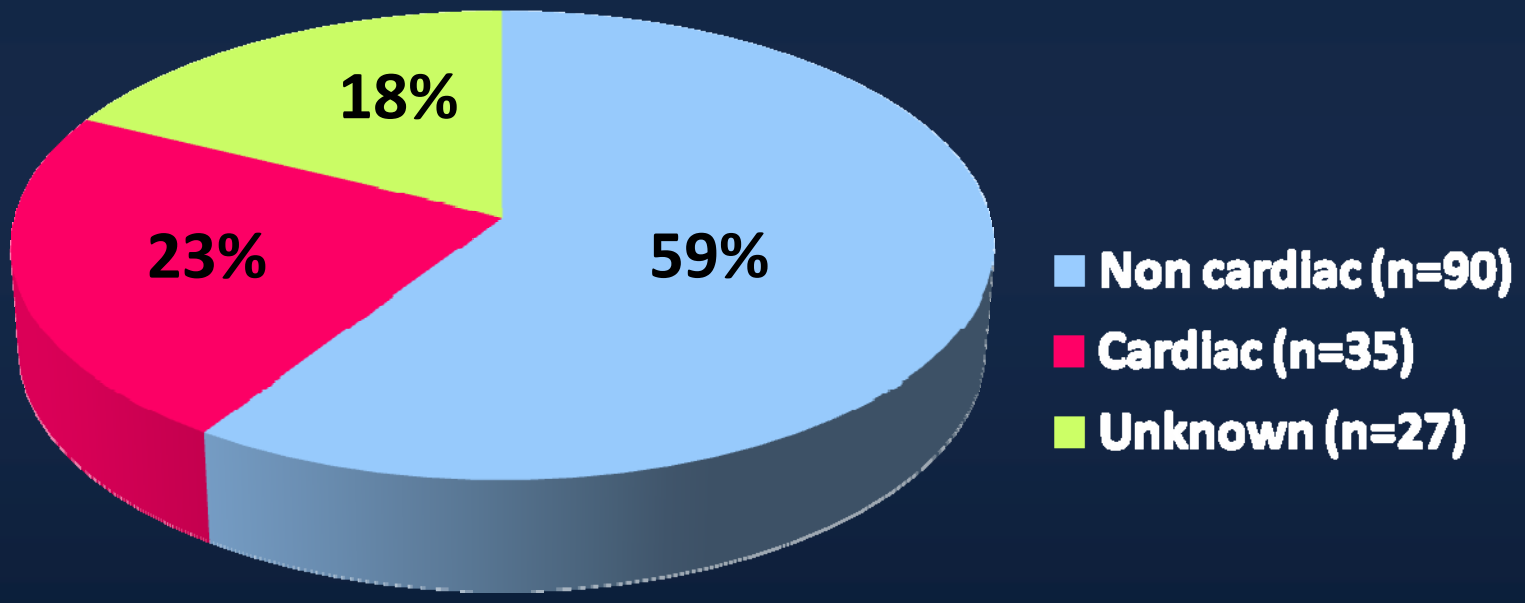
48-month Follow-Up Survival Curves
Canadian Multicenter Experience



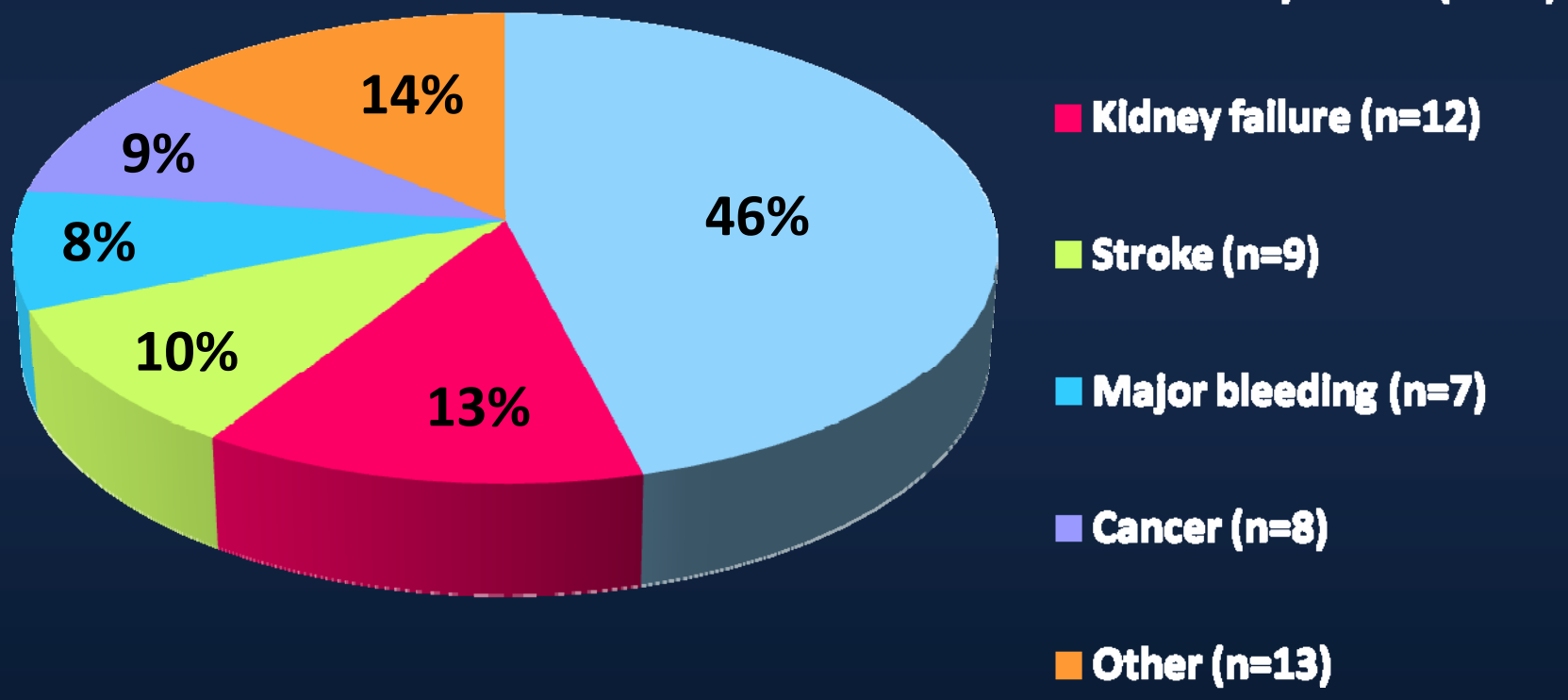
Patients at risk:

339	271	253	230	213	169	130	85	68

CAUSES OF DEATH AT FOLLOW-UP
Multicenter Canadian Experience



CAUSES OF NON-CARDIAC DEATH AT FOLLOW-UP
Multicenter Canadian Experience

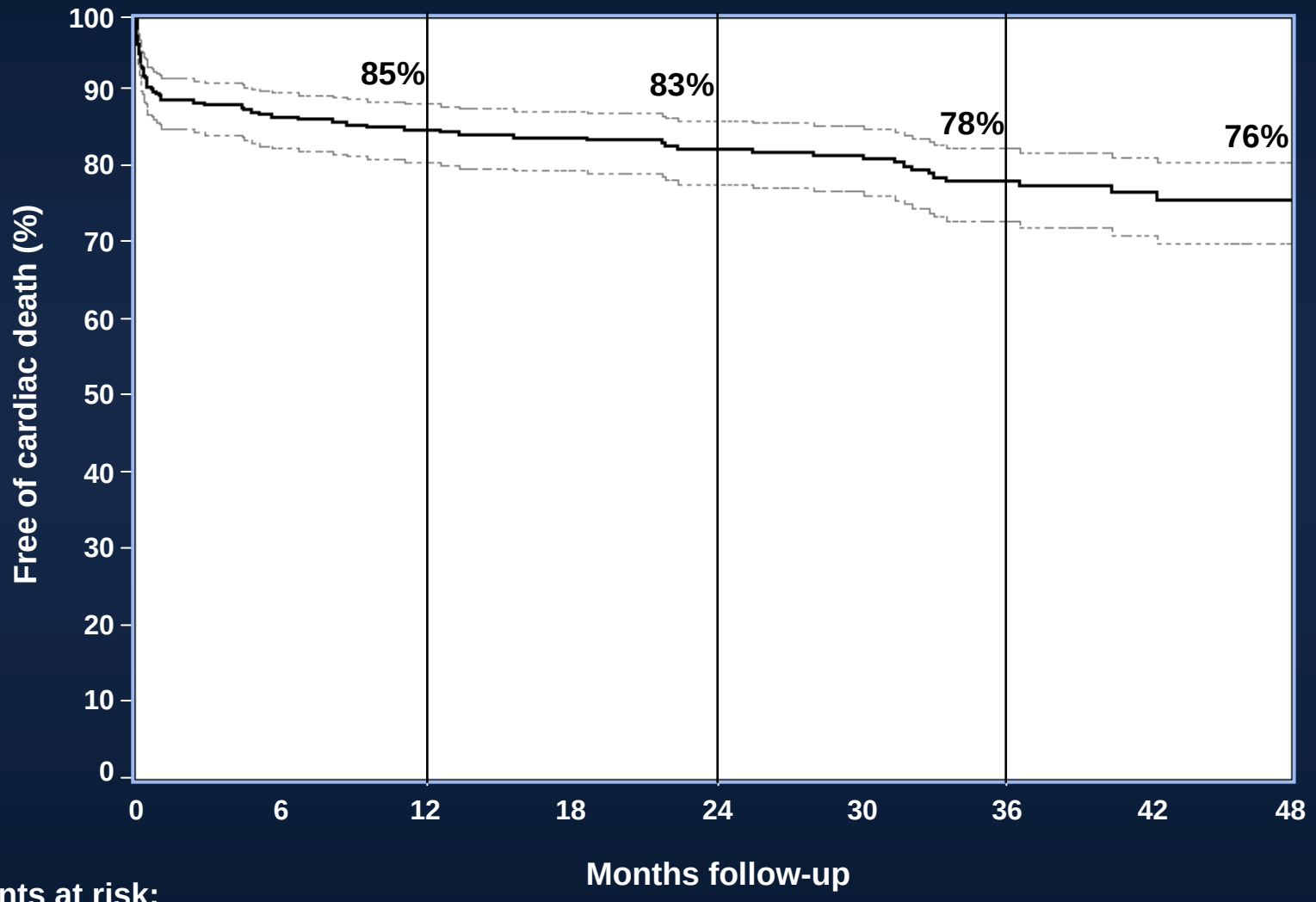


Predictive Factors of Late (>30 days) Mortality

	Univariate		Multivariate Model	
	HR (95% CI)	p value	HR (95% CI)	p value
Age (years)	1.02 (1.00-1.05)	0.048	-	-
Chronic atrial fibrillation	1.64 (1.19-2.28)	0.003	1.44 (1.02-2.03)	0.044
COPD	1.86 (1.33-2.61)	0.0003	2.18 (1.53-3.11)	<0.001
eGFR	1.08 (1.01-1.18)*	0.033	1.08 (1.01-1.19)*	0.009
Frailty	1.58 (1.12-2.23)	0.009	1.52 (1.07-2.17)	0.021

*For each decrease of 10 ml/min.
COPD: chronic obstructive pulmonary disease
eGFR: estimated glomerular filtration rate

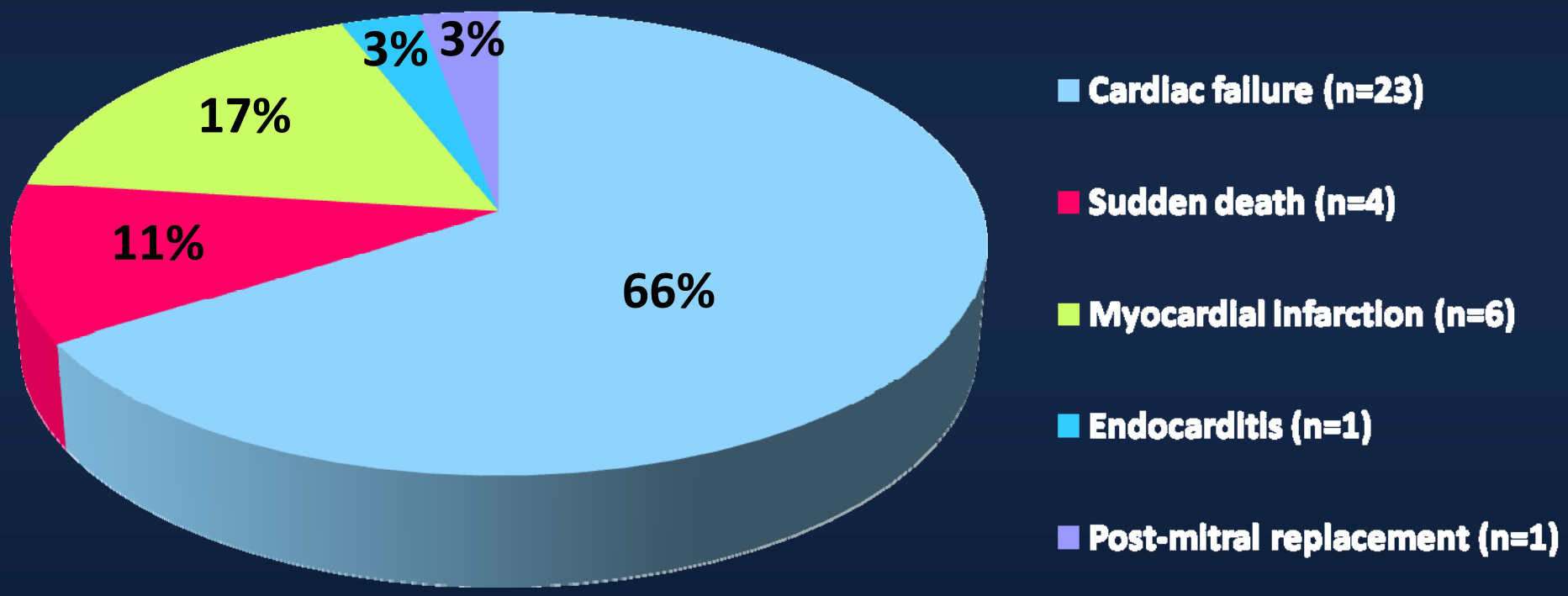
48-month Follow-Up Survival Curves / Freedom from Cardiac Death
Canadian Multicenter Experience



Patients at risk:

339	271	253	230	212	169	130	85	68

CAUSES OF CARDIAC DEATH AT FOLLOW-UP
Multicenter Canadian Experience



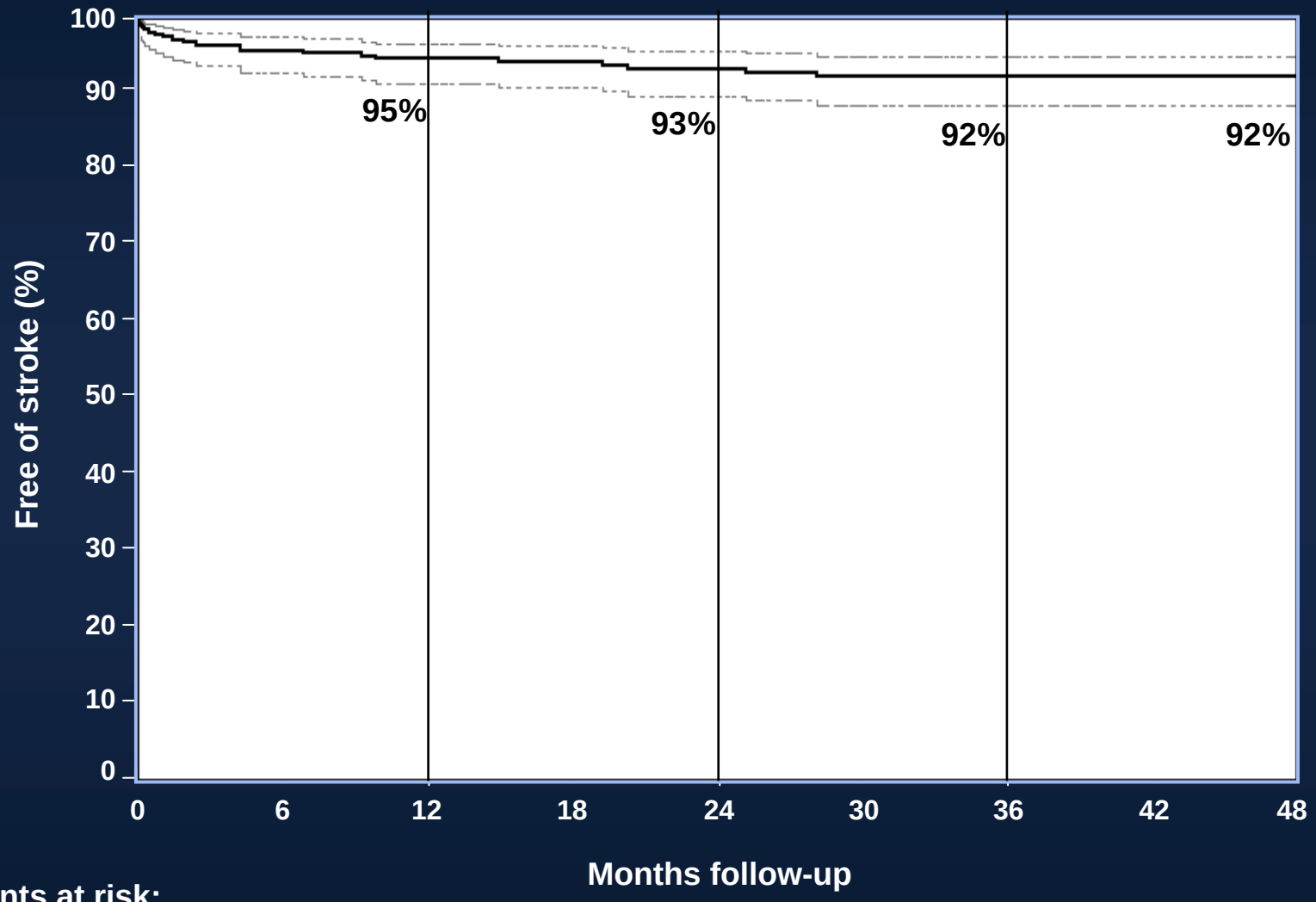
No cases of structural valve failure during the follow-up period

Predictive factors of cumulative cardiac mortality at follow-up

	Univariate		Multivariate Model	
	HR (95% CI)	p value	HR (95% CI)	p value
Cerebrovascular disease	1.57 (0.94-2.62)	0.084	-	-
Pulmonary hypertension	2.04 (1.26-3.32)	0.004	1.98 (1.19-3.27)	0.008
eGFR<60 ml/min	1.15 (1.02-1.29)*	0.019	1.17 (1.05-1.33)*	0.040
STS-PROM score (%)	1.04 (1.01-1.07)	0.013	-	-

*For each decrease of 10 ml/min.
eGFR: estimated glomerular filtration rate
STS-PROM: Society of Thoracic Surgeons Predicted Risk Of Mortality

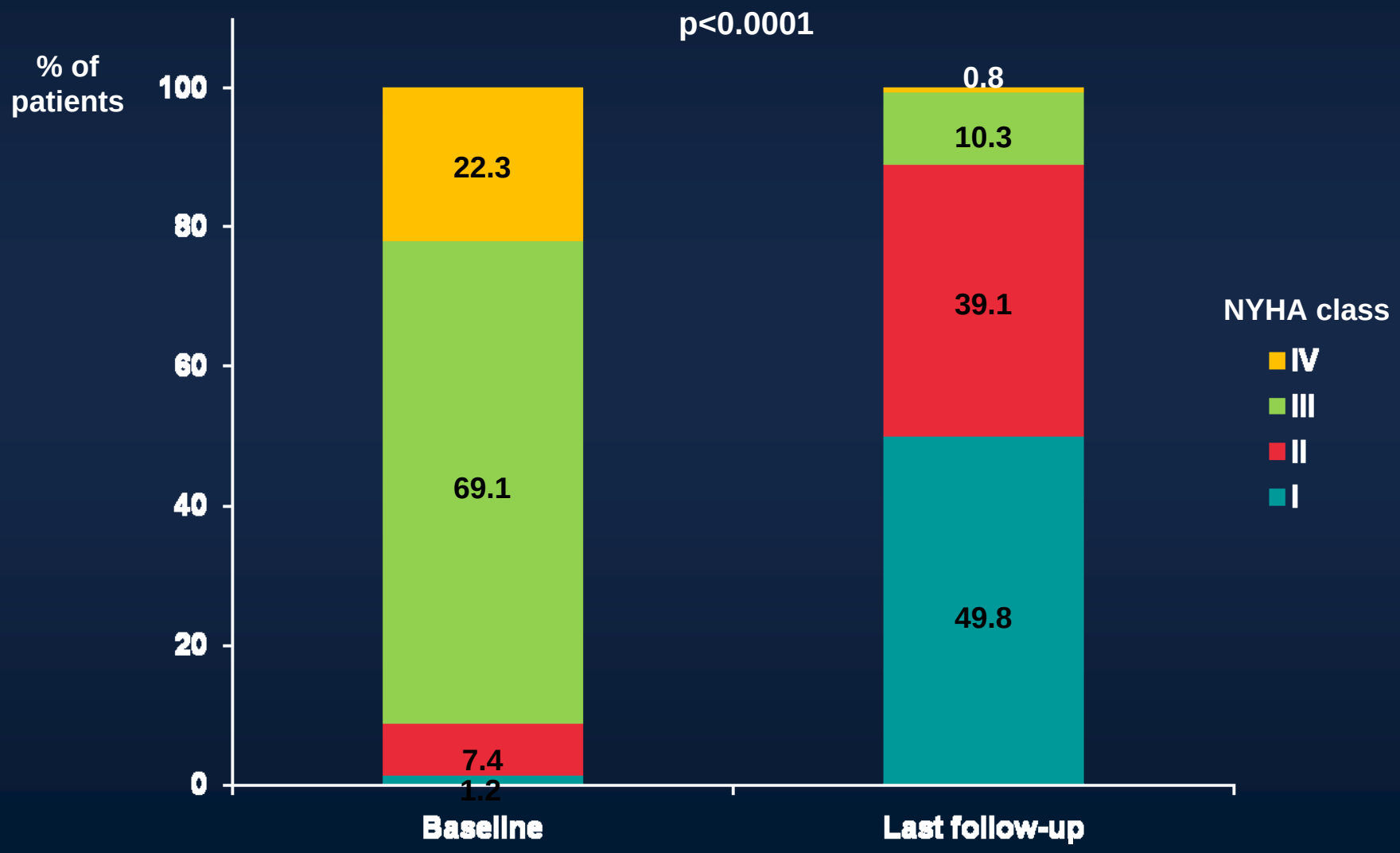
48-month Follow-Up Survival Curves / Freedom from Stroke
Canadian Multicenter Experience



Patients at risk:

339	262	243	221	204	161	124	80	63

Functional status / NYHA CLASS



Journal of the American College of Cardiology
Vol. xx, No. x, 2012
© 2012 by the American College of Cardiology Foundation
ISSN 0735-1097/$36.00
Published by Elsevier Inc.
http://dx.doi.org/10.1016/j.jacc.2012.08.960

Long-Term Outcomes After Transcatheter Aortic Valve Implantation

Insights on Prognostic Factors and Valve Durability From the Canadian Multicenter Experience

Josep Rodés-Cabau, MD,* John G. Webb, MD,† Anson Cheung, MD,† Jian Ye, MD,† Eric Dumont, MD,* Mark Osten, MD,‡ Christopher M. Feindel, MD,‡ Madhu K. Natarajan, MD,§ James L. Velianou, MD,§ Giussepe Martucci, MD,‖ Benoît DeVarennes, MD,‖ Robert Chisholm, MD,¶ Mark Peterson, MD,¶ Christopher R. Thompson, MD,† David Wood, MD,† Stefan Toggweiler, MD,† Ronen Gurvitch, MD,† Samuel V. Lichtenstein, MD,† Daniel Doyle, MD,* Robert DeLarochellière, MD,* Kevin Teoh, MD,§ Victor Chu, MD,§ Kevin Bainey, MD,§ Kevin Lachapelle, MD,‖ Asim Cheema, MD,¶ David Latter, MD,¶ Jean G. Dumesnil, MD,* Philippe Pibarot, PHD,† Eric Horlick, MD‡

Quebec City and Montreal, Quebec; Vancouver, British Columbia; and Toronto and Hamilton, Ontario; Canada