



האיגוד הישראלי לכירורגית לב וחזה  
THE ISRAEL SOCIETY OF CARDIOTHORACIC SURGERY

האיגוד הקרדיולוגי בישראל  
ISRAEL HEART SOCIETY



The 60<sup>th</sup> International Conference of the Israel Heart Society  
in association with the Israel Society of Cardiothoracic Surgery

22-23 April 2013, ICC International Convention Center, Jerusalem

# Clinical Characteristics and Outcomes of Elderly Patients Treated With ICD and CRTD in Real World Setting: Data From the Israeli ICD Registry

M. Suleiman, M. Haim, JE. Schliamser, M. Boulos, S. Viskin, M. Swissa, N. Gavriellov-Yusim, T. Fuchs, M. Ilan, I. Goldenberg<sup>6</sup>, and M. Glikson

April 23, 2013



# Background

- Elderly patients (eg, age  $\geq 75$  or 80 years) and patients with major co-morbidities were excluded from some of the major ICD/CRTD trials, and few patients over age 75 were enrolled in any of the trials
- It is not known, therefore, what survival benefit elderly patients derive from device-based therapy



# Purpose

**To evaluate, the outcomes of elderly patients who received device-based therapy (ICD or CRT-D) in a “real-world” scenario**



# Methods

- Israeli ICD Registry Database
- Period: Jul 2010-June 2012
- Total of 2807 patients
- Study end points
  - Death
  - Appropriate ICD therapies for VA
  - Readmission to hospital for HF
  - The combined endpoints of HF or death, VA or death
  - Need for device related surgical re-intervention.



# Baseline Characteristics

Variable	Age Group			p
	≤65(n=1378)	66-75(n=863)	>75(n=566)	
Percent of total population	49	31	20	
Female gender (%)	17	18	16	0.5
Ethnicity				
Jews	78	88	93	<0.001
Arabs	22	11	7	<0.001
<b>Medical History</b>				
Heart Failure (%)	78	84	82	0.001
NYHA I-II	56	51	49	
NYHA III	43	47	49	
NYHA IV	1	2	2	



## Baseline Characteristics (cont')

Variable (%)	Age Group			p
	≤65(n=1378)	66-75(n=863)	>75(n=566)	
Previous MI	58	72	75	<0.001
CABG	22	38	43	<0.001
PCI	51	60	61	0.003
Dilated non-ischemic CM	30	17	15	<0.001
Atrial fibrillation	16	26	29	<0.001
Cerebrovascular disease	6	11	11	<0.001
Diabetes	33	43	37	<0.001
Hypertension	55	71	72	<0.001
Dyslipidemia	50	60	60	<0.001
Chronic lung disease	10	13	12	0.2

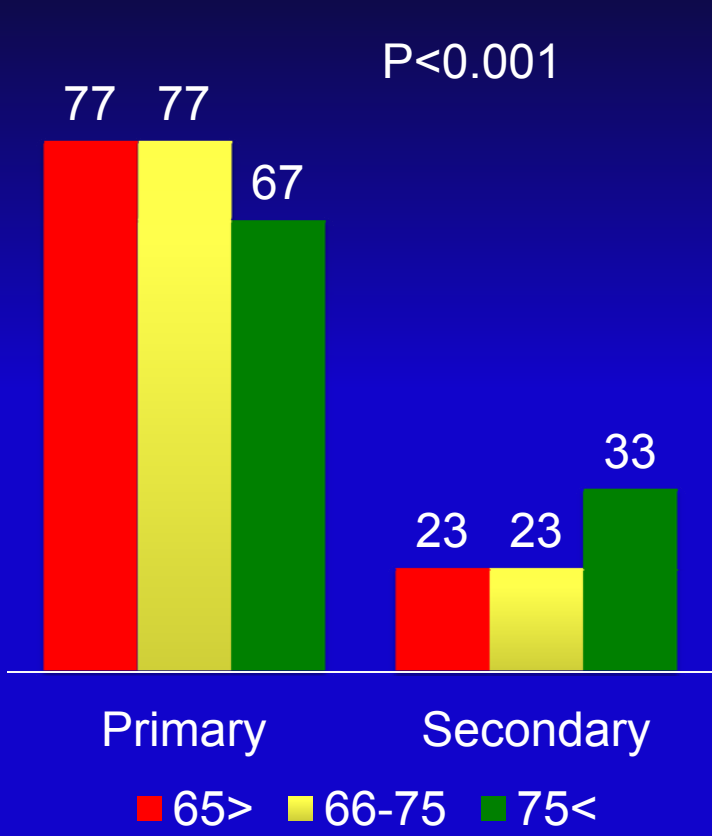


# Baseline Characteristics (cont')

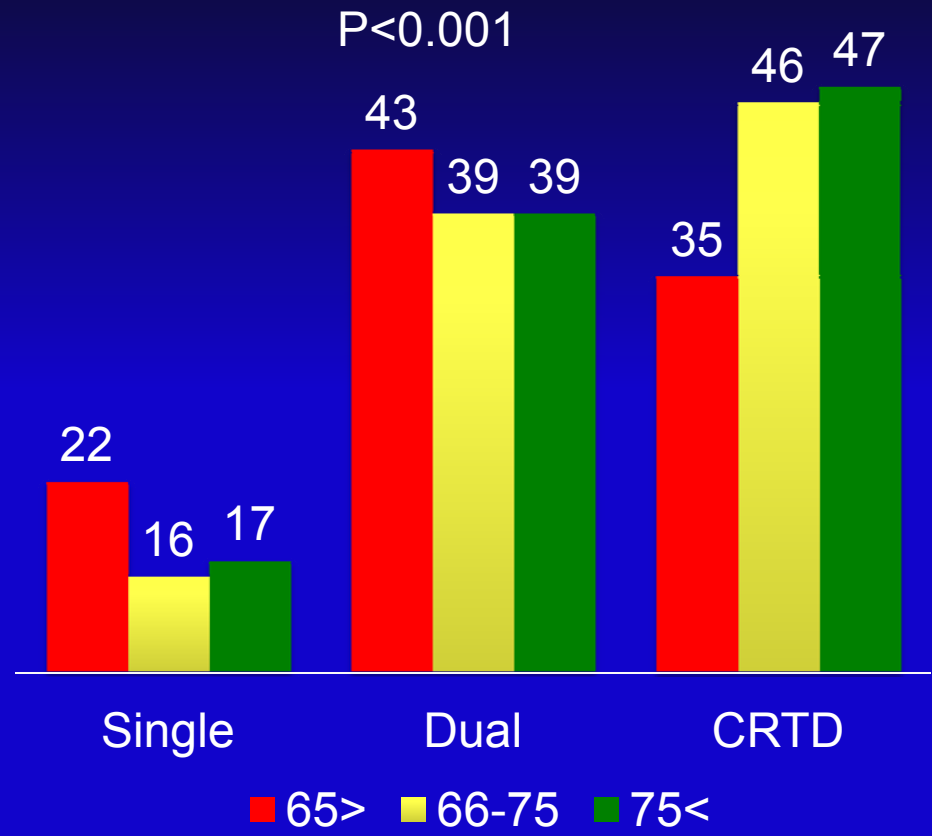
Variable (%)	Age Group			p
	≤65(n=1378)	66-75(n=863)	>75(n=566)	
Beta Blockers	83	81	79	0.2
ACE- I/ARB	74	81	75	0.48
Diuretics	67	75	77	<0.001
Anti-arrhythmic drugs	14	20	26	<0.001
Amiodaron	10	14	18	
<b>Diagnostic studies</b>				
LVEF<30%	54	55	57	
QRS duration, mean (ms)	114 ± 30	122 ± 30	125 ± 31	<0.001
QRS>120 ms	32	43	45	<0.001
Electrophysiologic study	15	18	19	0.06



## Indication



## Device implanted





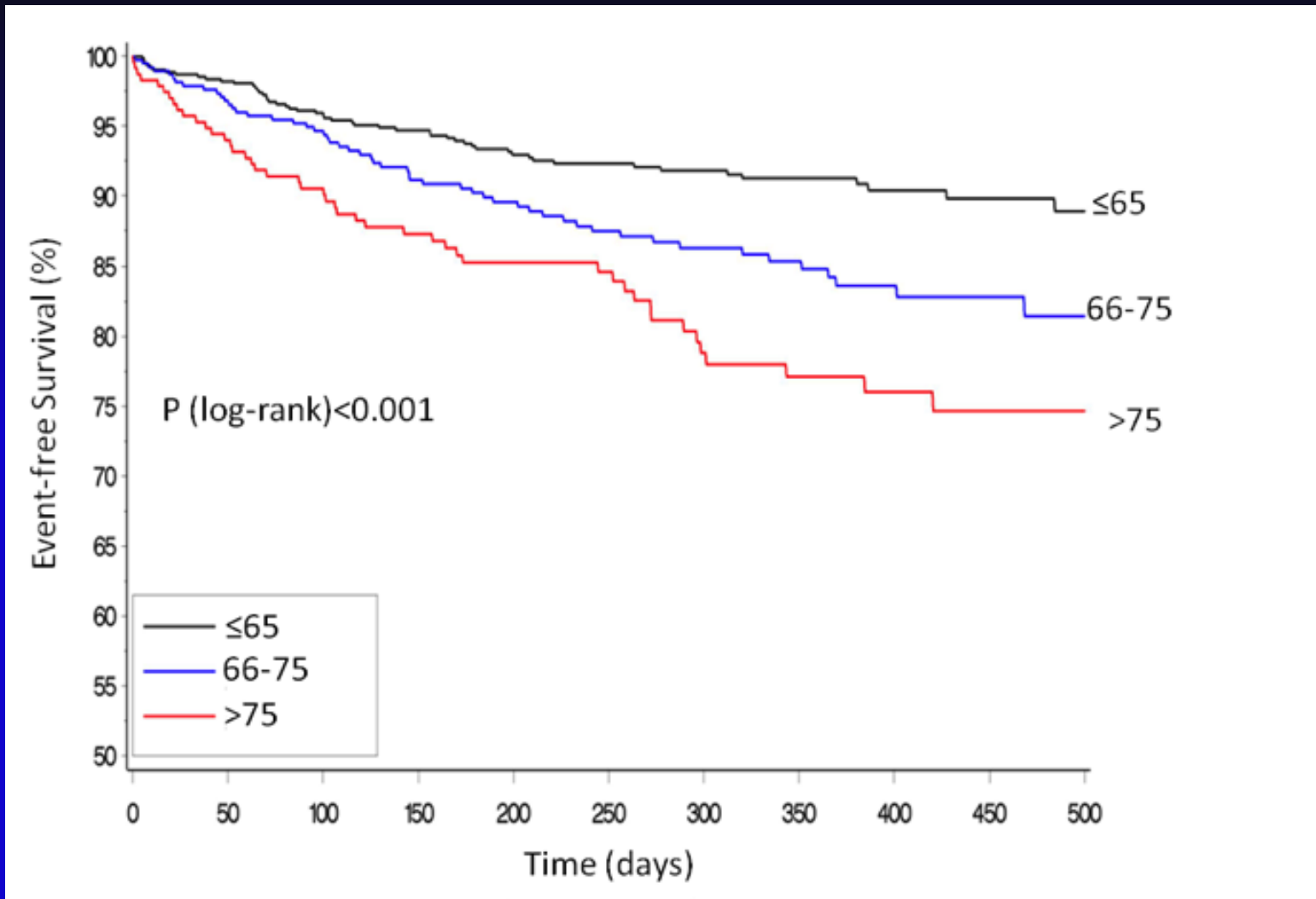


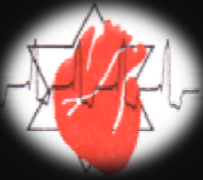
# Outcomes

- 1218 unselected registry patients were prospectively followed for the occurrence of clinical outcomes.



# Death o HF in the General Population

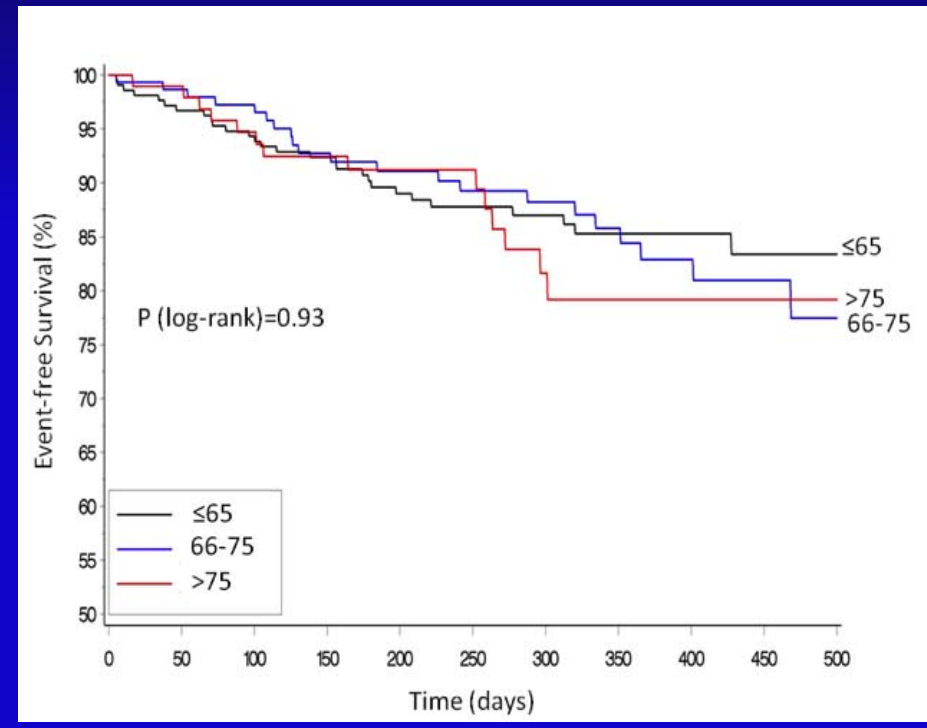
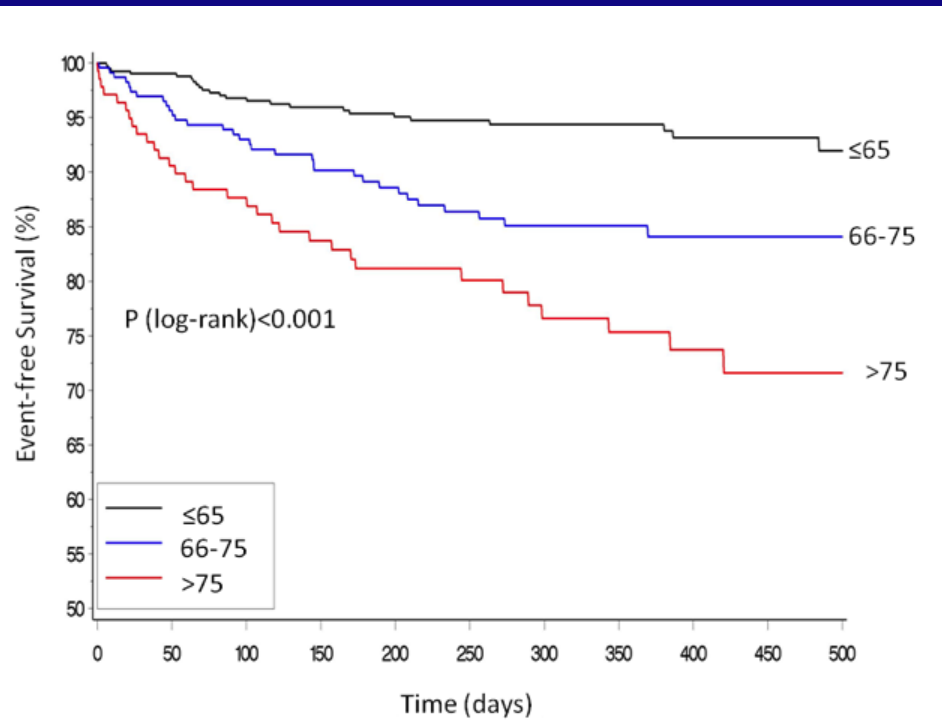




# Death or HF According to Device Type

In ICD recipients

In RCTD recipients



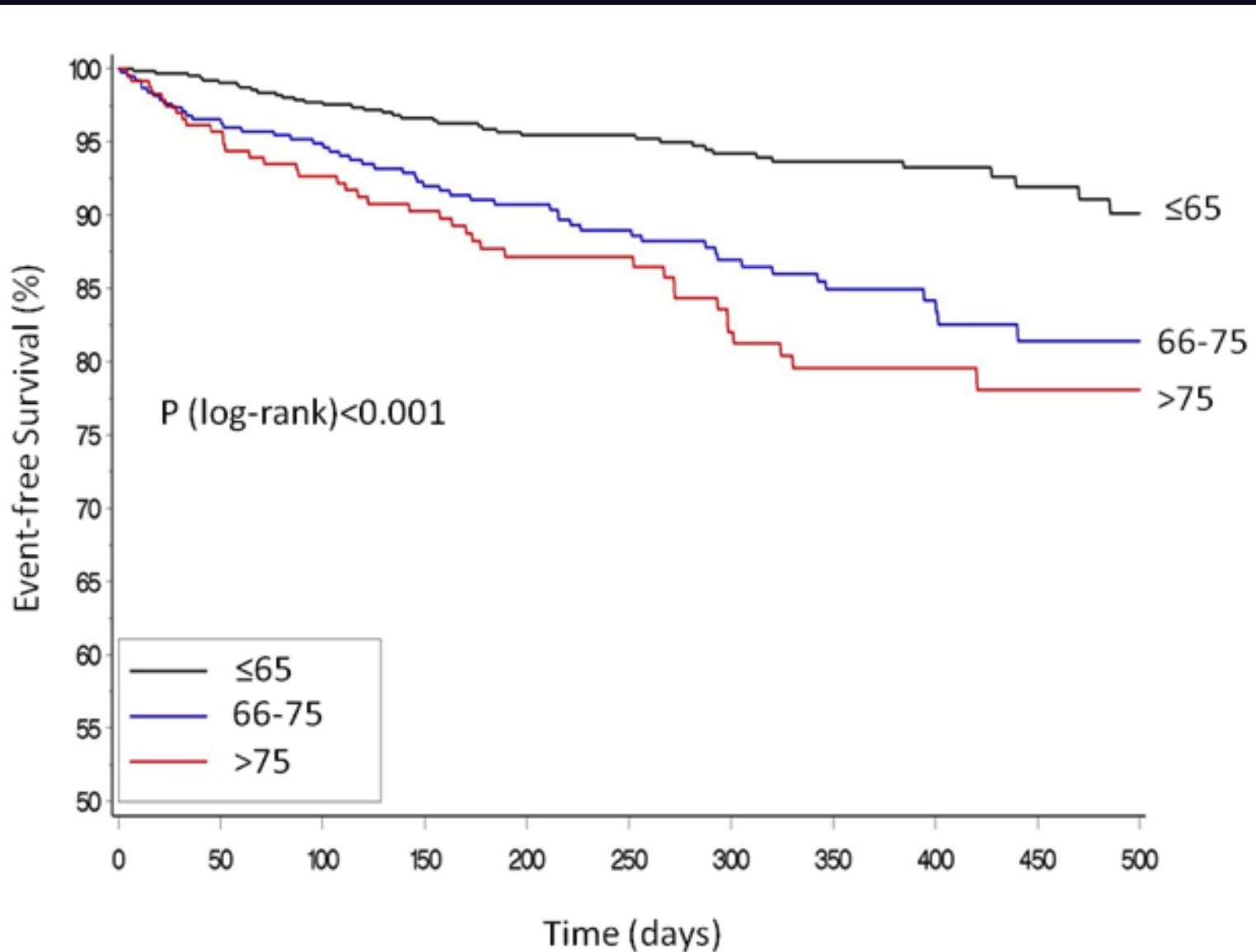


# Multivariate analysis: Risk of HF/Death by age category (reference group =age<65)

Endpoint	Total Population		ICD Recipients		CRTD Recipients	
	HR	p	HR	P	HR	p
<b>HF or death</b>						
Age 66-75	1.66	0.01	2.58	<0.001	1.01	0.99
Age>75	2.25	<0.001	3.74	<0.001	1.30	0.38
<b>HF</b>						
Age 66-75	1.65	0.04	2.26	0.01	1.23	0.56
Age>75	1.61	0.07	2.43	0.01	0.96	0.92



# Death or VA in the General Population

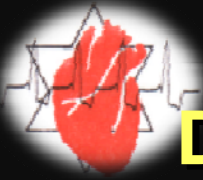




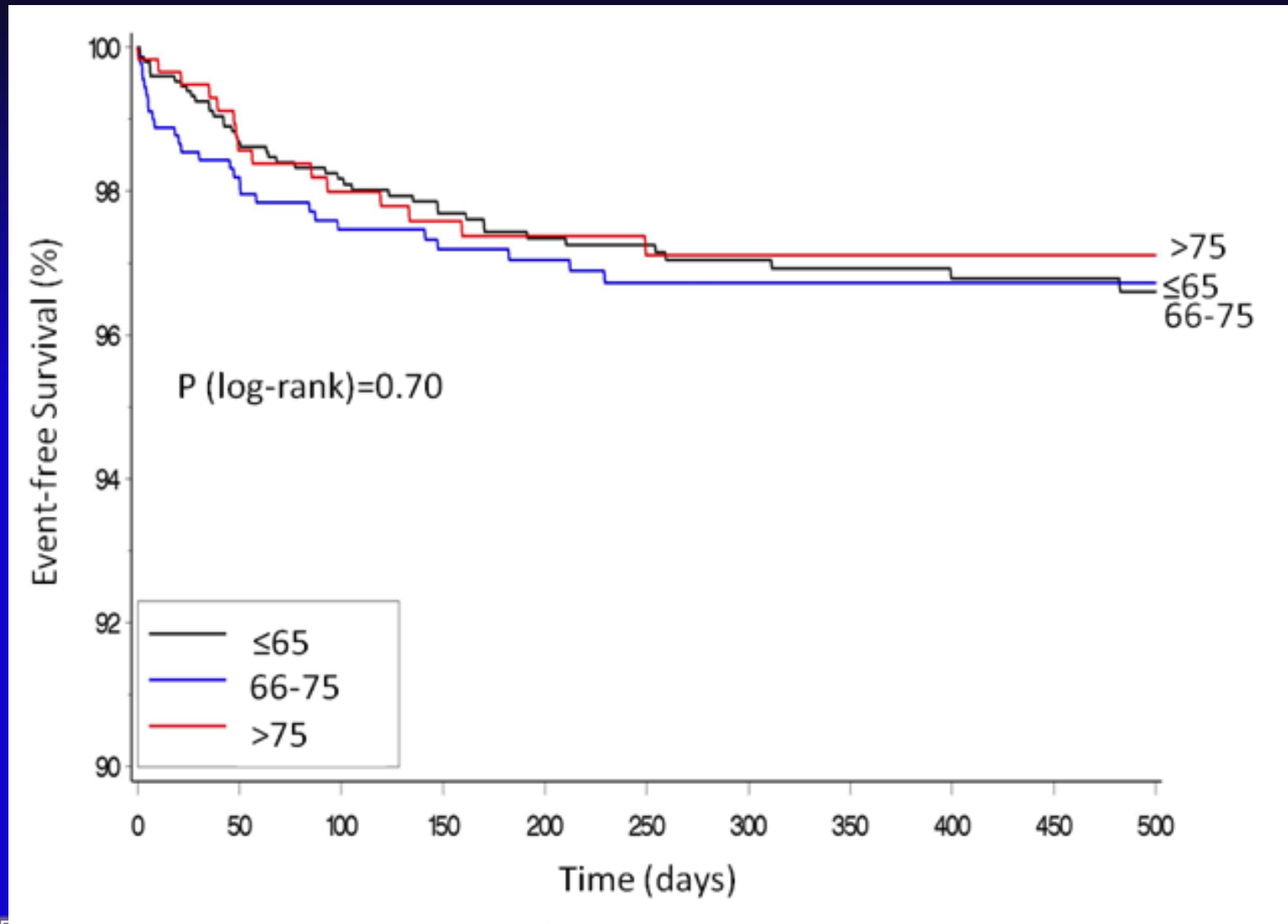
## Multivariate analysis: Risk of VA/Death by age category (reference group =age<65)

Endpoint	Total Population		ICD Recipients		CRTD Recipients	
	HR	p	HR	P	HR	p
<b>VT/VF or death</b>						
Age 66-75	1.95	0.003	2.62	0.001	1.01	0.82
Age>75	2.78	<0.001	3.61	<0.001	2.07	0.04
<b>VT/VF</b>						
Age 66-75	2.08	0.01	2.17	0.02	1.72	0.33
Age>75	2.07	0.02	2.25	0.02	1.75	0.35

p-values for age-by-device-type interactions for the 2 endpoints <0.05



# Device-Related Complications Associated with Surgical Re-interventions





# Main Findings

- Of new ICDs and CRTDs implanted in Israel, >50% are in patients >65 yo and >20% in patients >75 yo
- Elderly patients
  - have higher risk profile
  - more likely to receive CRTD device
  - > secondary prevention indication





# Main Findings

- Our data add to and support the existing evidence from previous studies that the association between advanced age and adverse clinical outcomes is attenuated in elderly patients implanted with CRT-D devices
  - Elderly patients + ICDs=  $\uparrow$ VA+ Death and  $\uparrow$ HF or death
  - Elderly patients + CRTDs=  $\downarrow$ VA+ Death and  $\downarrow$  HF or death



האיגוד הישראלי לכירורגית לב וחזה  
THE ISRAEL SOCIETY OF CARDIOTHORACIC SURGERY

האיגוד הקרדיולוגי בישראל  
ISRAEL HEART SOCIETY



The 60<sup>th</sup> International Conference of the Israel Heart Society  
in association with the Israel Society of Cardiothoracic Surgery

22-23 April 2013, ICC International Convention Center, Jerusalem

# Clinical Characteristics and Outcomes of Elderly Patients Treated With ICD and CRTD in Real World Setting: Data From the Israeli ICD Registry

M. Suleiman, M. Haim, JE. Schliamser, M. Boulos, S. Viskin, M. Swissa, N.  
Gavrielov-Yusim, T. Fuchs, M. Ilan, I. Goldenberg<sup>6</sup>, and M. Glikson

April 23, 2013