60° CONGRESSO NAZIONALE

NAPOLI 25-28 Novembre 2015

SOCIETÀ ITALIANA DI GERONTOLOGIA E GERIATRIA

Venerdì 27 Novembre 2015

Simposio

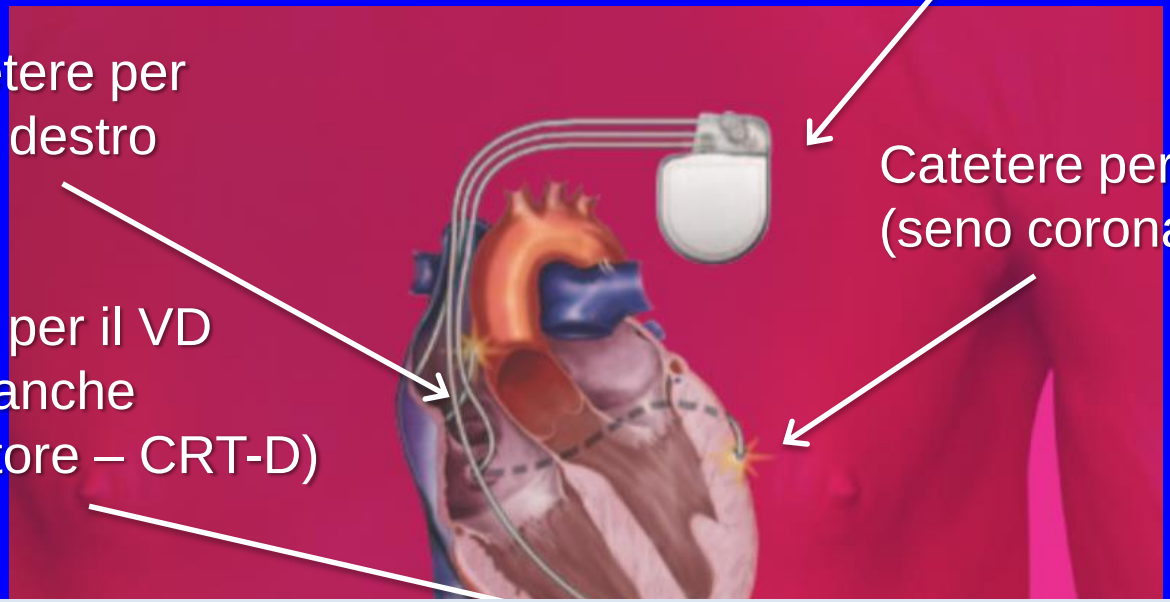
INSUFFICIENZA CARDIACA CRONICA NELL'ANZIANO

La terapia re-sincronizzante

Stefano Fumagalli

Cardiologia e Medicina Geriatrica, AOU Careggi e Università di Firenze

Terapia di resincronizzazione cardiaca - CRT

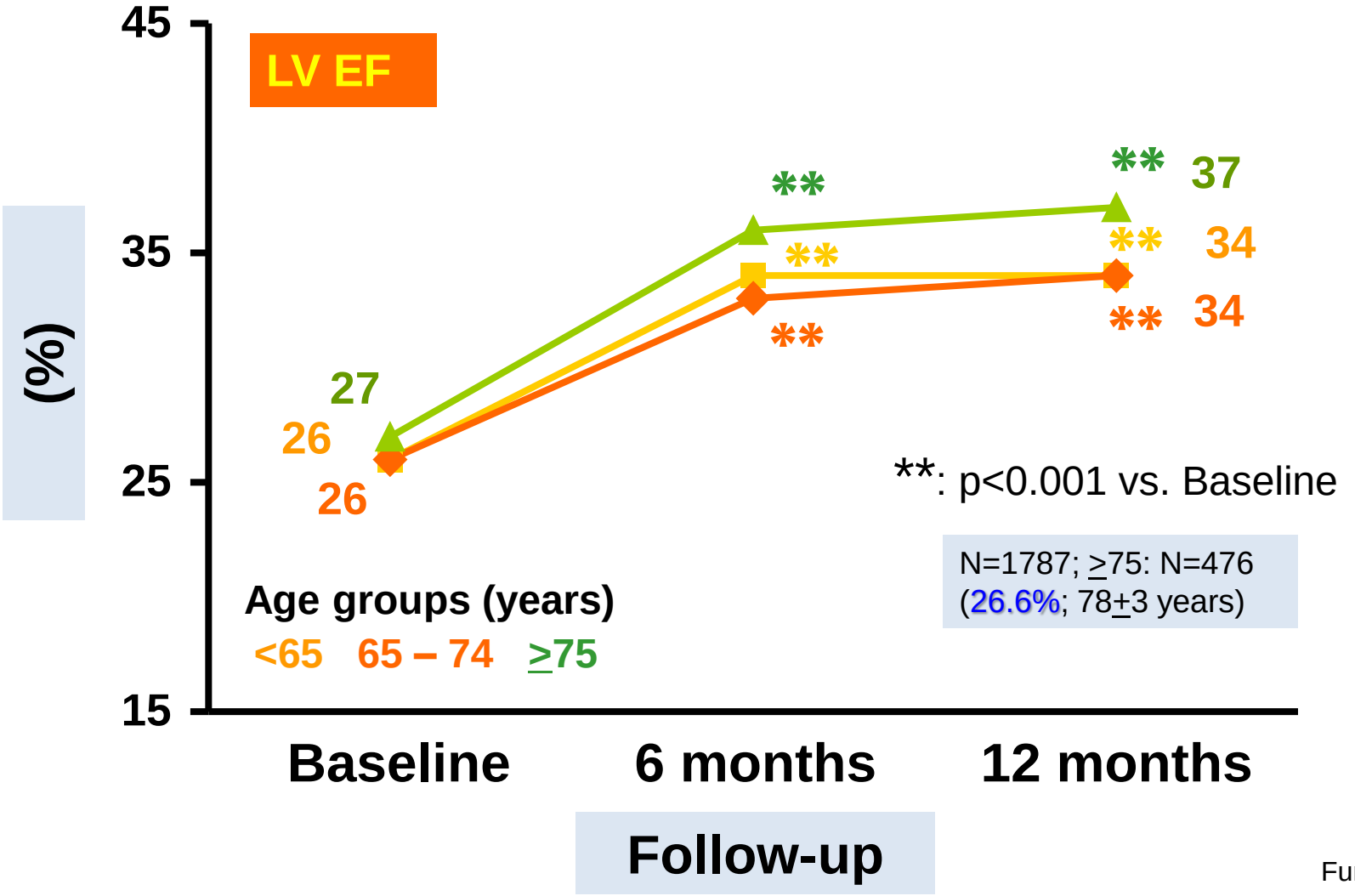


2013 ESC Guidelines on cardiac pacing and CRT

- ✓ There is strong evidence that CRT reduces mortality & hospitalizations and improves cardiac function /structure in patients with complete LBBB
- ✓ Further research is very unlikely to change our confidence in the estimate of the effect

Comparison of the Usefulness of Cardiac Resynchronization Therapy in Three Age-Groups (<65, 65-74 and ≥75 Years) (from the InSync/InSync ICD Italian Registry)

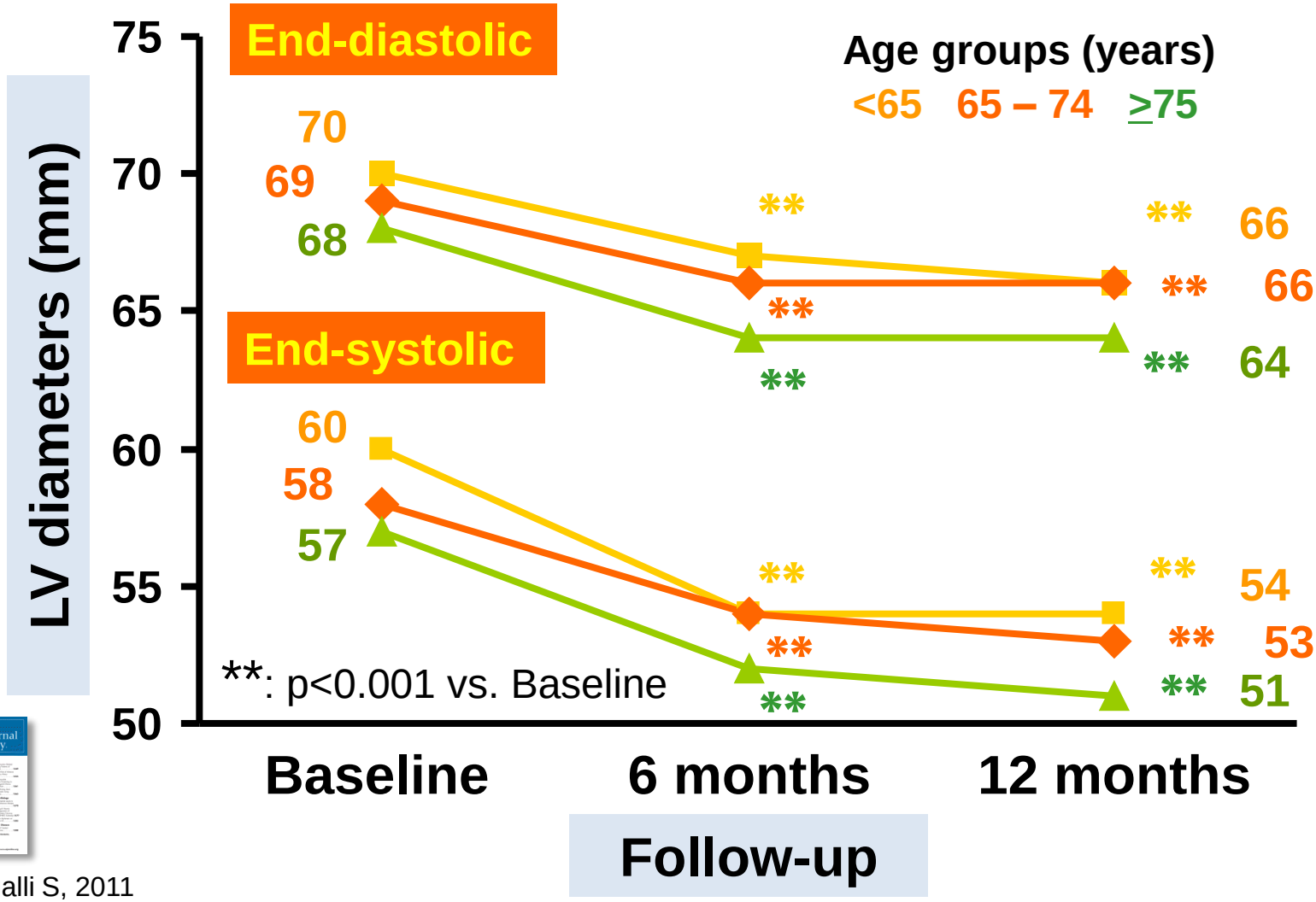
CRT-induced changes of LV EF during the follow-up, by age



Fumagalli S, 2011

Comparison of the Usefulness of Cardiac Resynchronization Therapy in Three Age-Groups (<65, 65-74 and ≥75 Years) (from the InSync/InSync ICD Italian Registry)

CRT-induced changes of LV diameters during the follow-up, by age

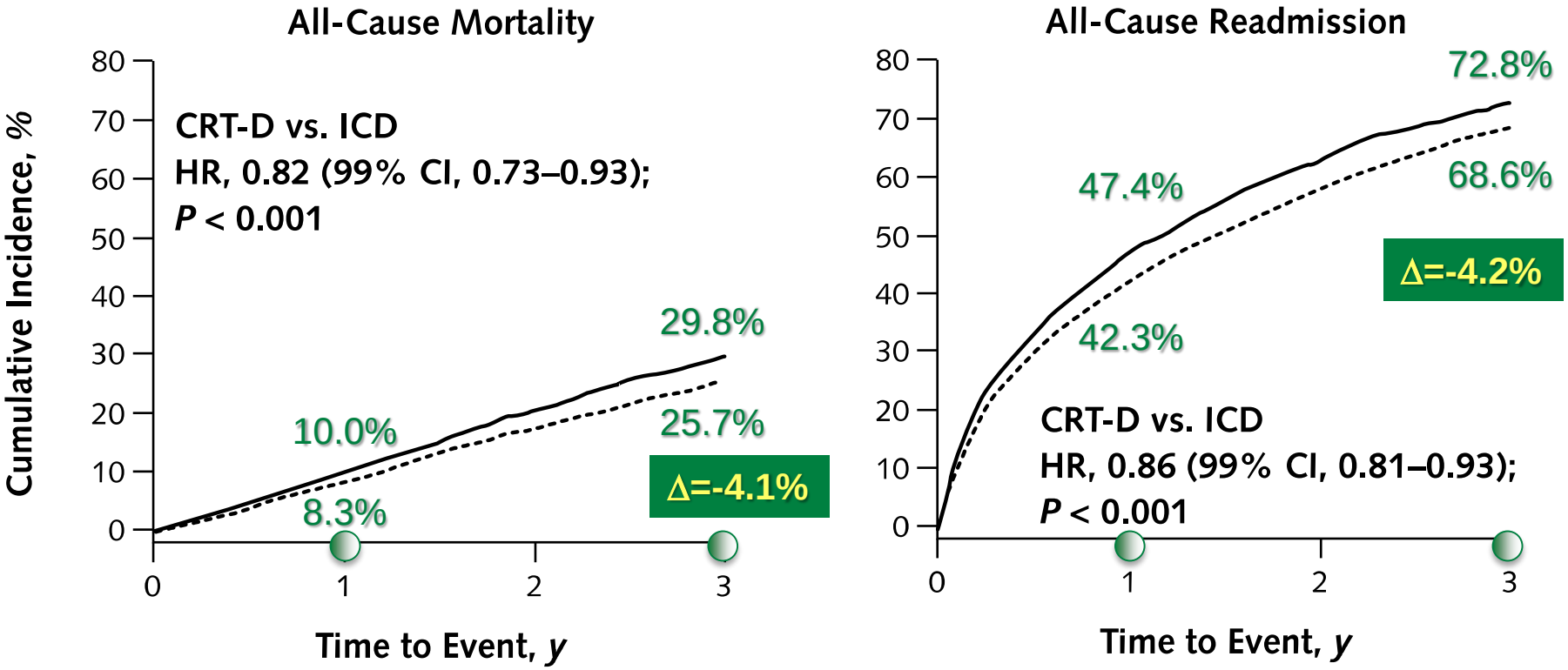


Fumagalli S, 2011

Annals of Internal Medicine

Comparative Effectiveness of Cardiac Resynchronization Therapy With an Implantable Cardioverter-Defibrillator Versus Defibrillator Therapy Alone

Events in the National Cardiovascular Data Registry's ICD Registry
(propensity-matched cohort; eligible - N=29777; 2006-9)



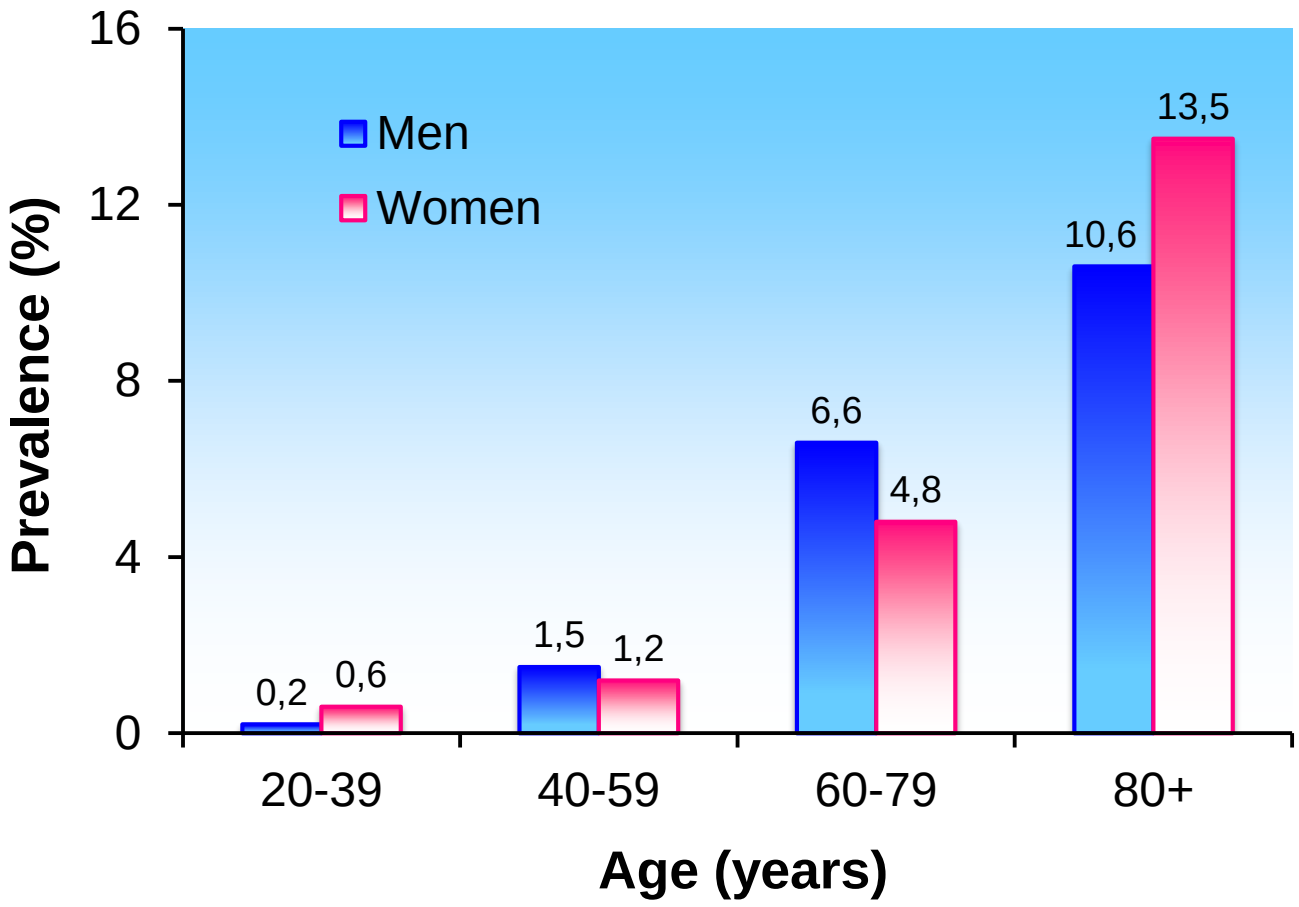
— **ICD (N=3545) –** Age: **74.9 y**, ≥80 y: 23.9%, EF: 25%
····· **CRT-D (N=3545) -** Age: **74.6 y**, ≥80 y: 22.9%, EF: 25%

Masoudi FA, 2014

Heart Disease and Stroke Statistics—2015 Update

A Report From the American Heart Association

Prevalence of heart failure by sex and age
(National Health and Nutrition Examination Survey: 2009–2012)



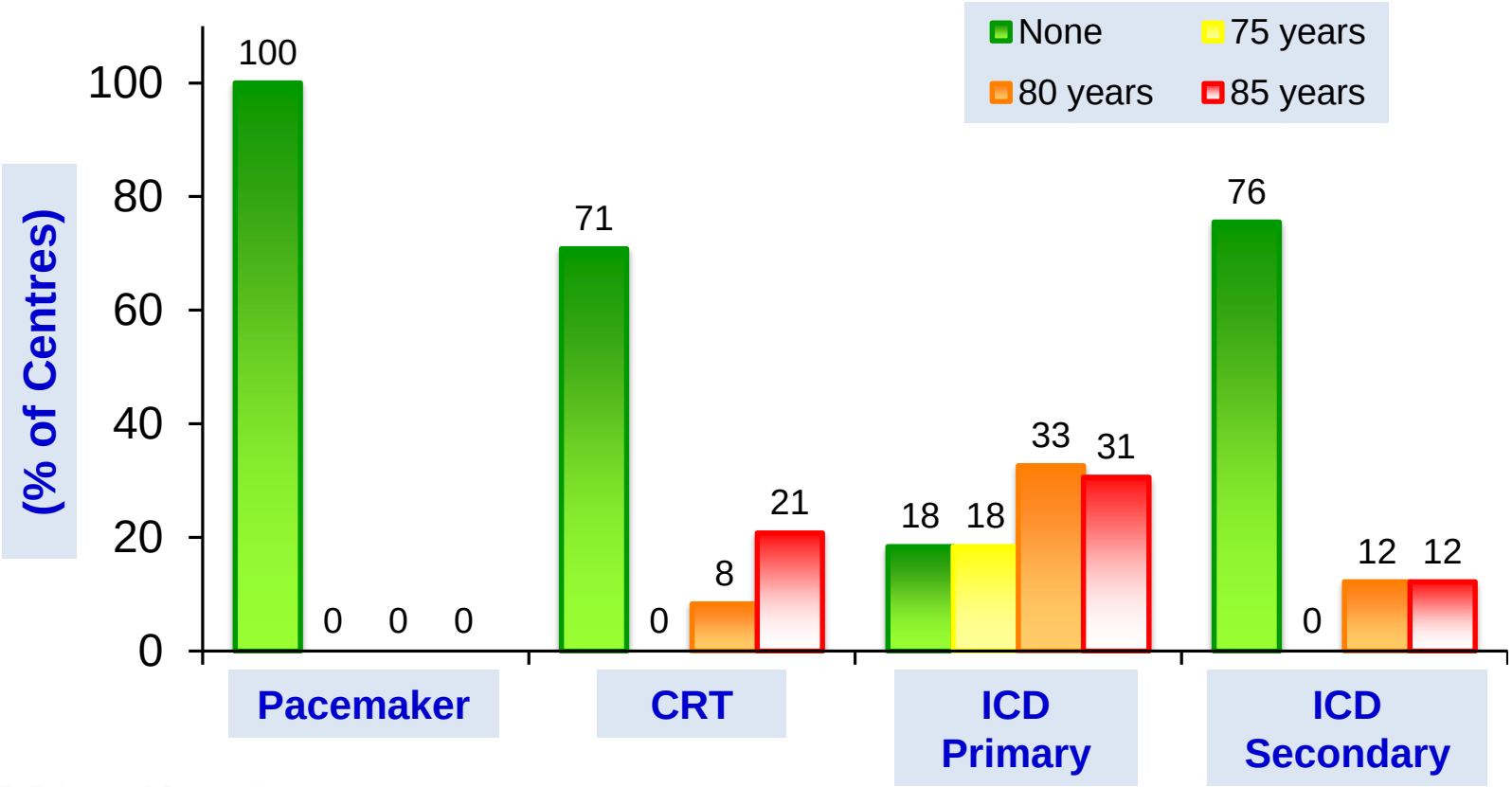
Mozaffarian D, 2015

American Heart Association

Clinical management of arrhythmias in elderly patients: results of the European Heart Rhythm Association survey

Age limits for different therapies in elderly patients

(centres – N=50, 20 countries)

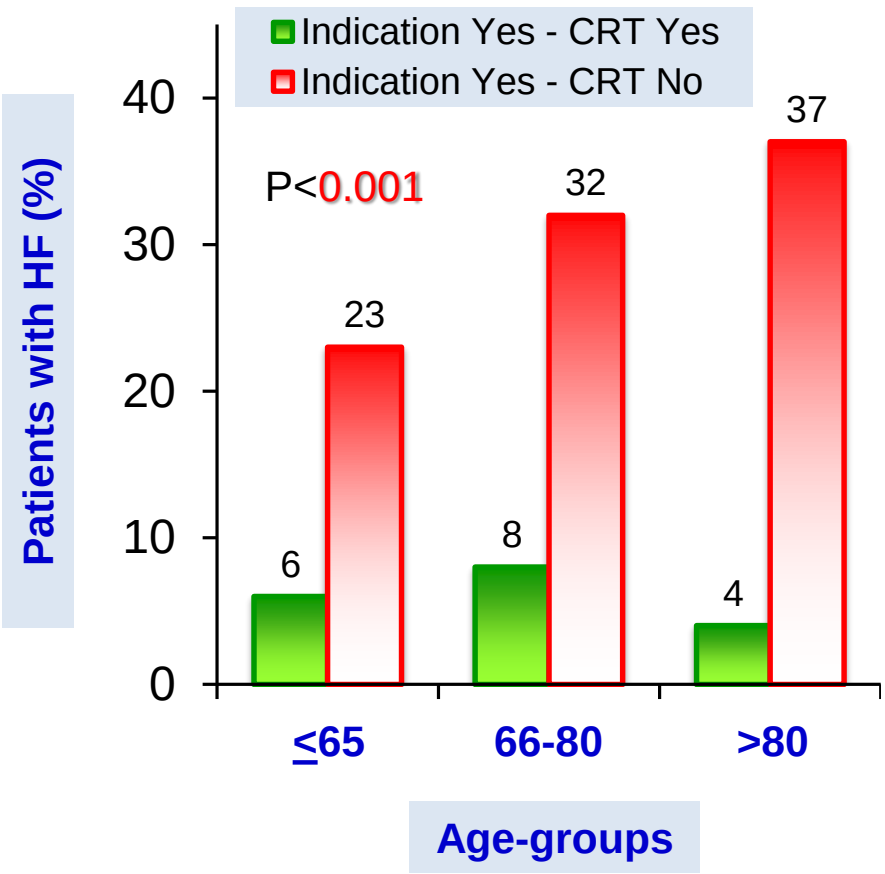


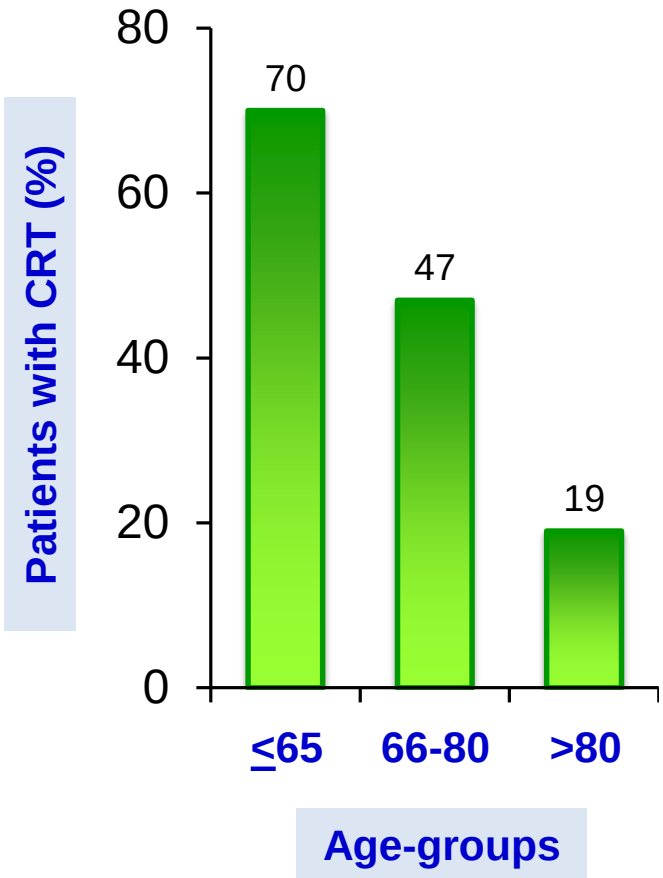
ICD Primary / Secondary –
ICD for primary / secondary prevention

Chen J, 2015

Age, prognostic impact of QRS prolongation and left bundle branch block, and utilization of cardiac resynchronization therapy: findings from 14 713 patients in the Swedish Heart Failure Registry

Distribution of 14713 patients according to age and CRT (left), and ICD use in CRT recipients by age (right) in the Swedish Heart Failure Registry (2000-2013)



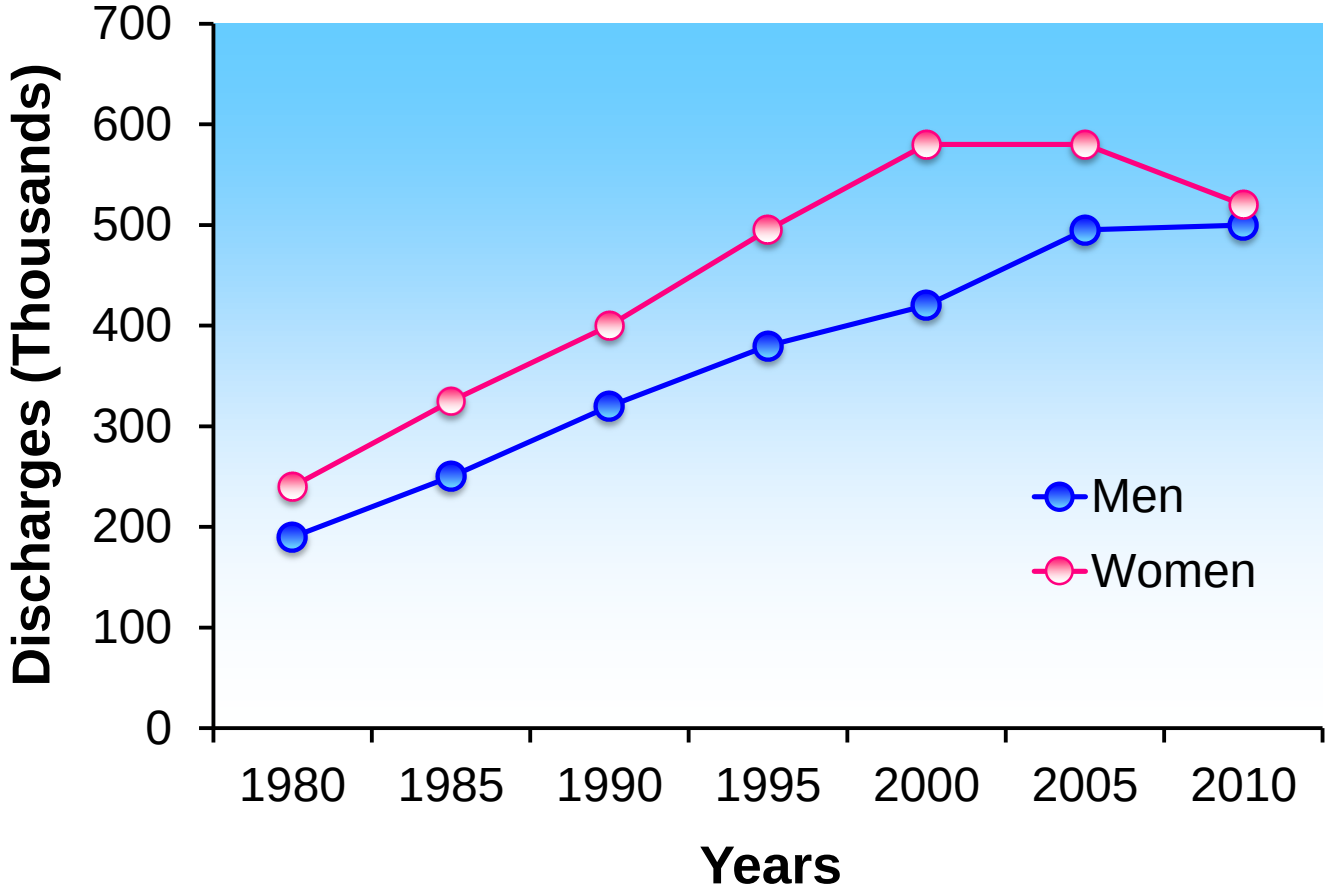


Lund LH, 2014

Heart Disease and Stroke Statistics—2015 Update

A Report From the American Heart Association

Hospital discharges for HF by sex (US: 1980–2010)
(Hospital discharges: people discharged alive, dead, status unknown)

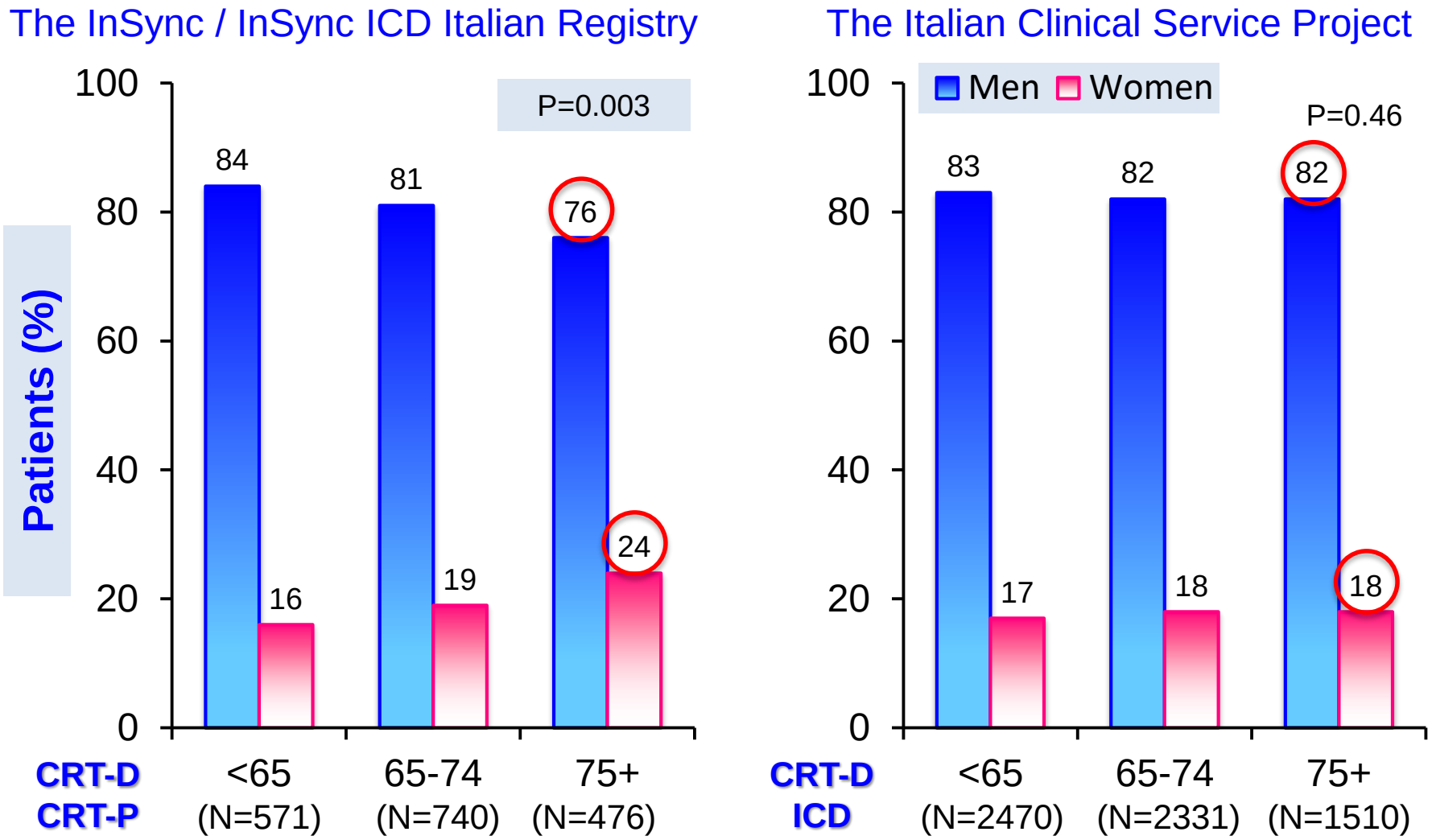


Mozaffarian D, 2015

American Heart Association

Women and ICD: The Influence of Age and Clinical Characteristics on Survival; the Experience of the Italian ClinicalService Multicenter Observational Project

Gender distribution by age in patients receiving CRT devices and ICD

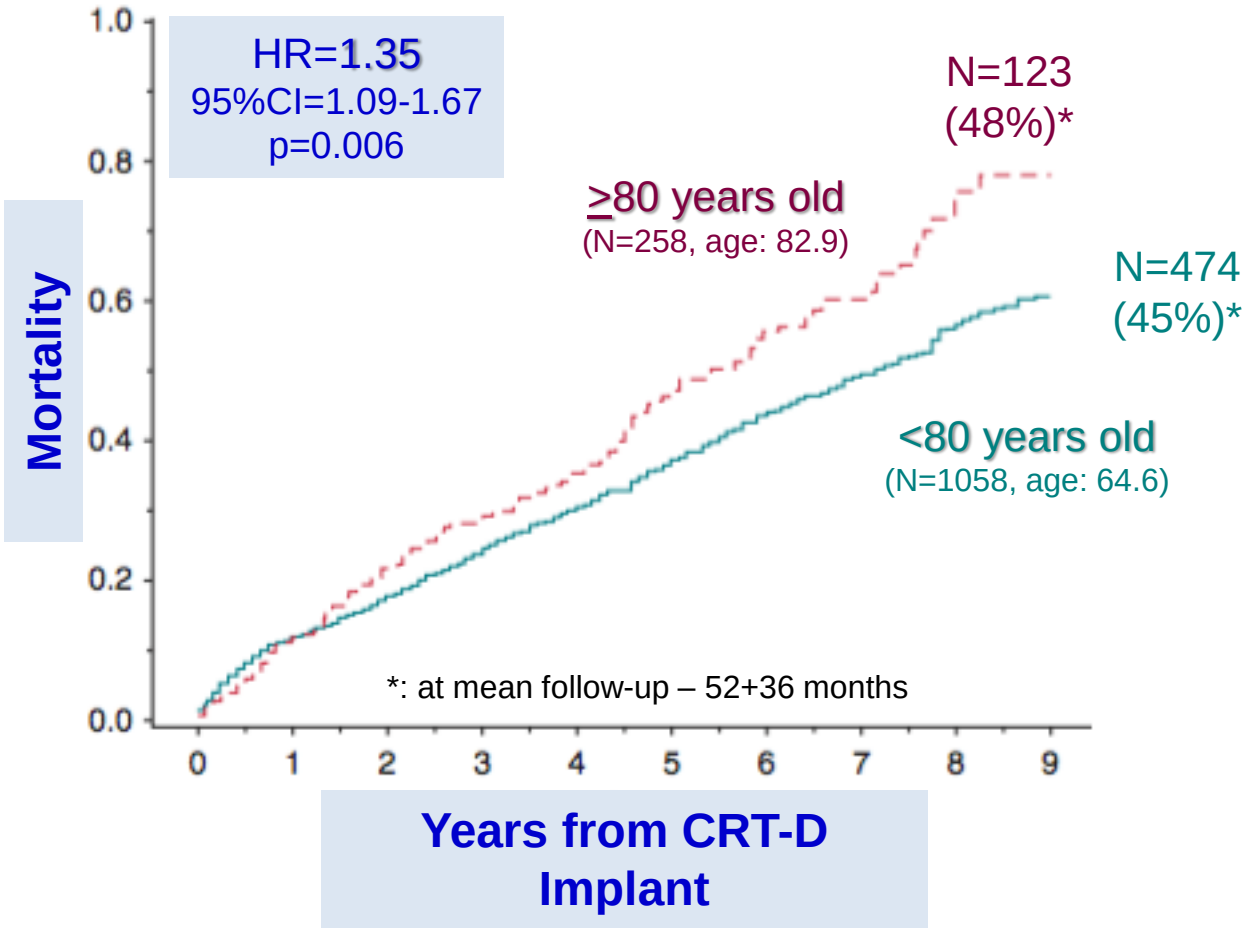


Age (years)

Fumagalli S, Padeletti L, Marchionni N, 2015

Clinical outcomes in cardiac resynchronization therapy-defibrillator recipients 80 years of age and older

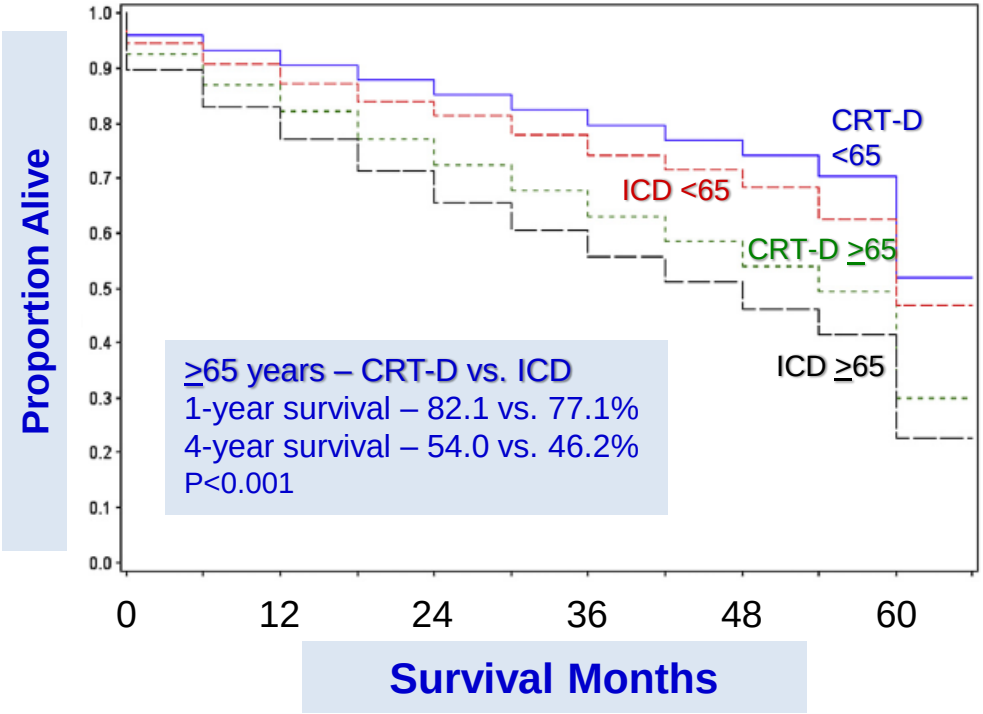
Overall mortality among patients ≥80 years old and patients <80 years old with CRT-Ds *(University of Pittsburgh Medical Center, 1999-2015)*

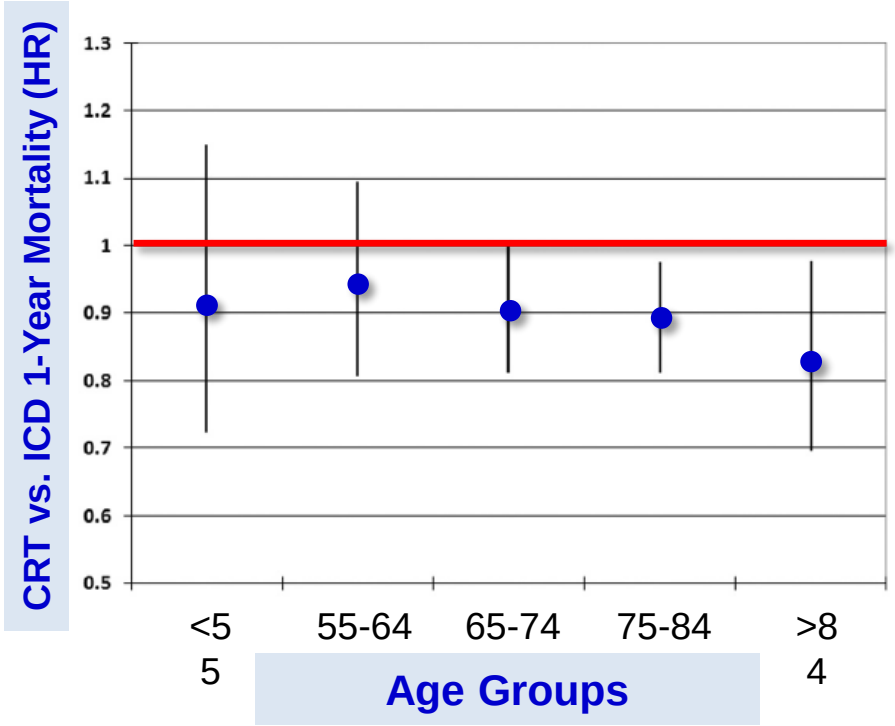


AdelsteinEC, 2015

Does Age Influence Cardiac Resynchronization Therapy Use and Outcome?

Unadjusted Survival for Patient Groups Based on Age (≥ or <65 Years) and Use of CRT (left), and Survival Hazard Ratios for CRT vs. ICD Use for Different Age Groups (right)
(the NCDR ICD registry: 2006-2009, N=70854, Age: 69 years, Men: 69%)

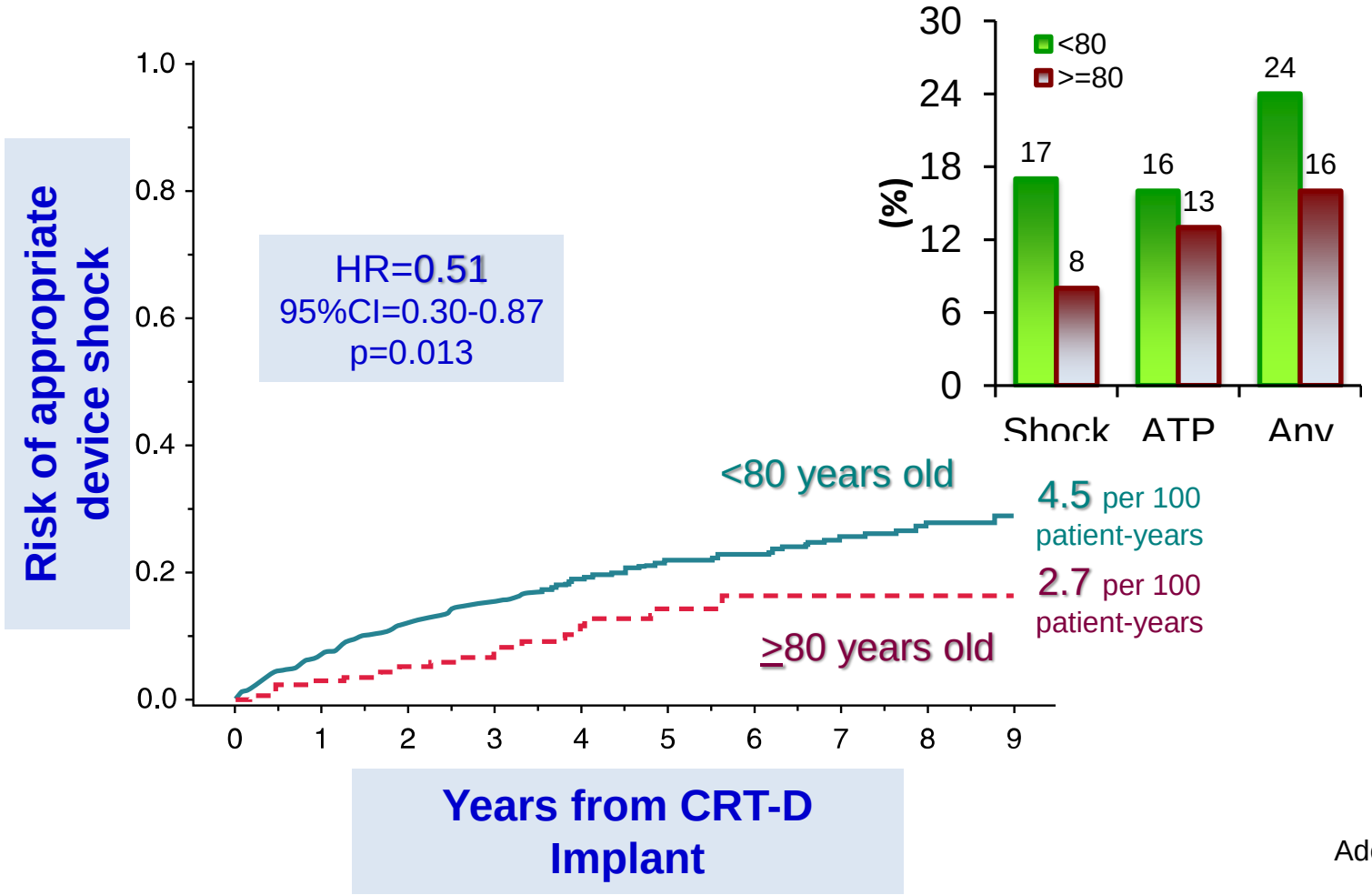




Heidenreich PA, 2015

Clinical outcomes in cardiac resynchronization therapy-defibrillator recipients 80 years of age and older

Time to first device shock in CRT-D patients ≥80 and <80 years old



AdelsteinEC, 2015

Cardiac Resynchronization Therapy in the Autumn of Life*

Sana M. Al-Khatib, MD, MHS

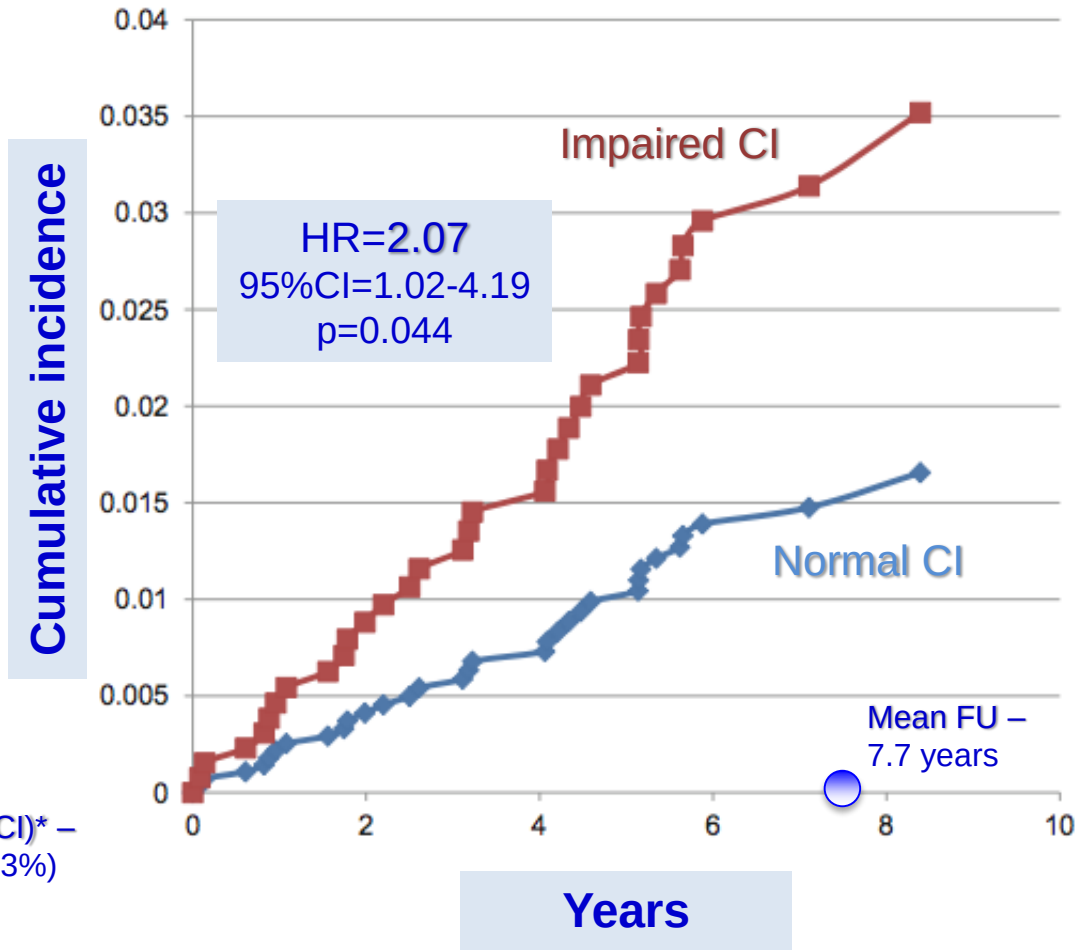
- ➔ *To implant or not to implant* a primary prevention ICD in older patients is a question that has challenged clinicians for years
- ➔ The ICD is a highly effective therapy ... On the other hand, there are no definitive data regarding the benefit of the ICD in older patients
- ➔ When the ICD is coupled with CRT, there is potential for improved HRQL and reduced HF hospitalizations, two important goals …
- ➔ In the main randomized clinical trials of CRT, the relatively young age of patients is noticeable (range: 64 - 68 years)
- ➔ What about other important endpoints like … complications, appropriate / inappropriate ICD shocks; and most important, patient-centered outcomes (i.e., functional status and HRQL)?

2015

Low Cardiac Index Is Associated With Incident Dementia and Alzheimer Disease

The Framingham Heart Study

Incidence of dementia between individuals with normal and impaired cardiac index *(The Framingham Offspring Study, 1998-2001; Age: 69±6; N=32/1039)*

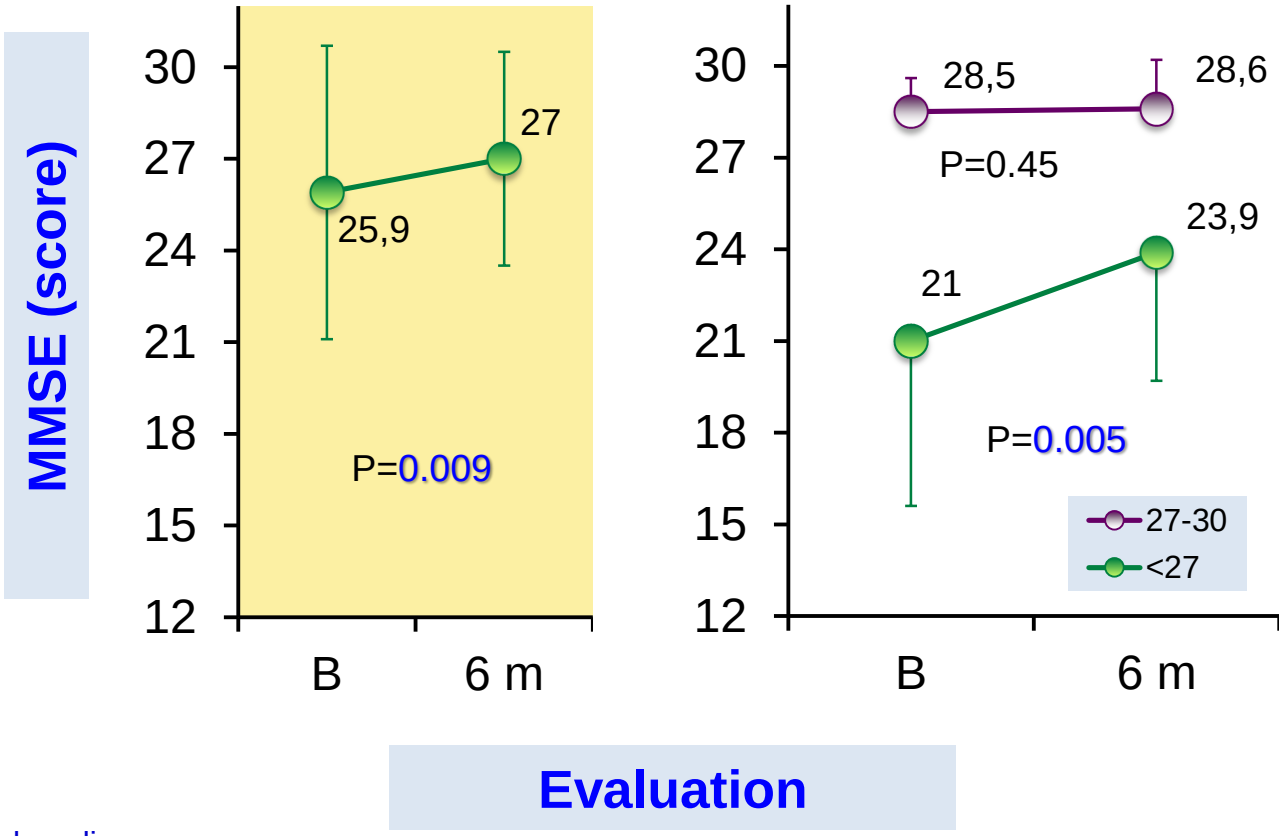


Impaired cardiac index (CI)* – <2.5 L/min/m^2; N=341 (33%)
* Cardiac MRI

Jefferson AL, 2015

Changes of Mini-Mental State Examination (MMSE) between baseline and the 6-month evaluation after CRT implantation

N=50; mean age: 67±10 years; LVEF: 28±5%
(participating centers: Firenze, Bergamo, Caserta)

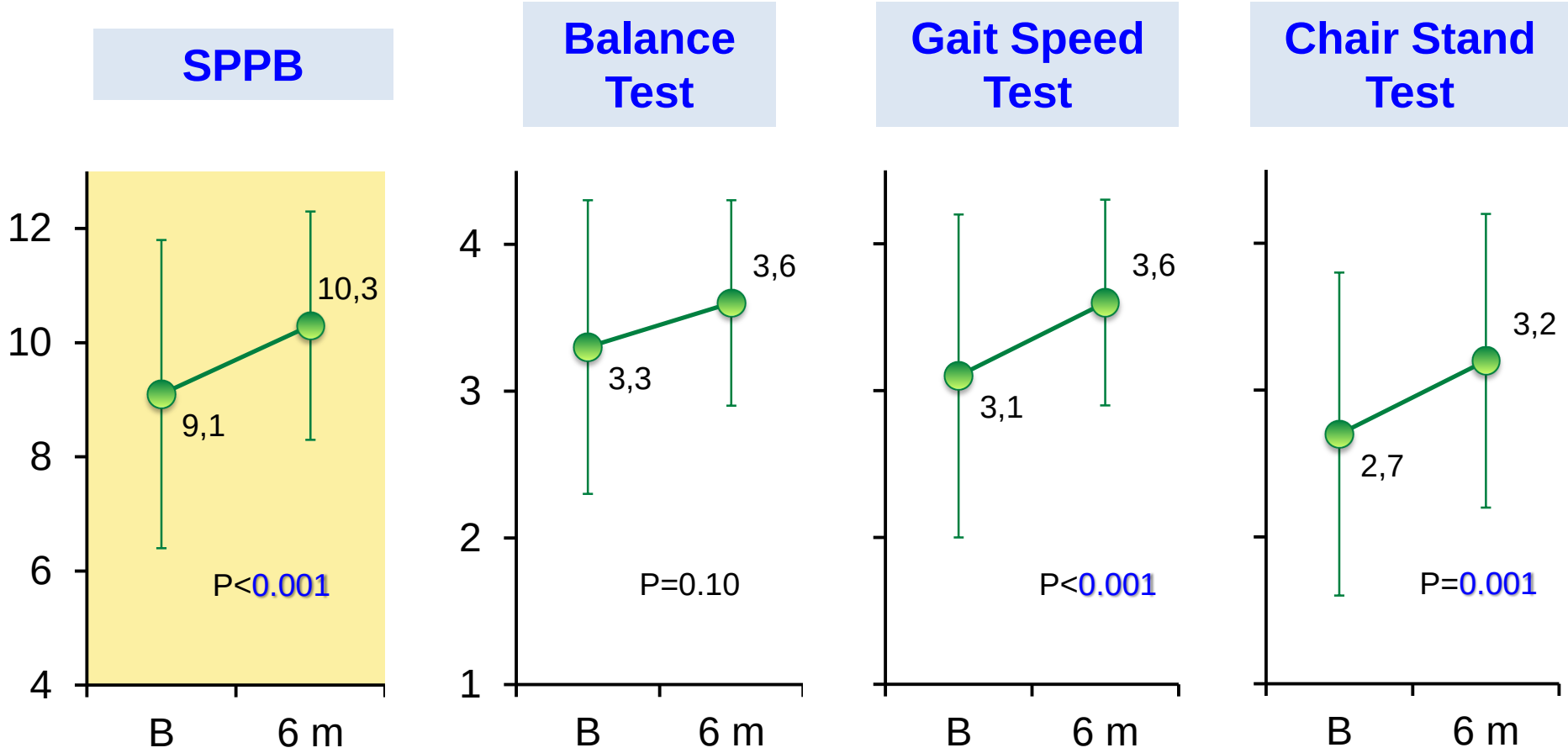


B – baseline
6 m – six months

Beltrami M, Fumagalli S, 2015

Changes of Short Physical Performance Battery (SPPB) between baseline and the 6-month evaluation after CRT implantation

N=50; mean age: 67±10 years; LVEF: 28±5%
(participating centers: Firenze, Bergamo, Caserta)



B – baseline
6 m – six months

Beltrami M, Fumagalli S, 2015

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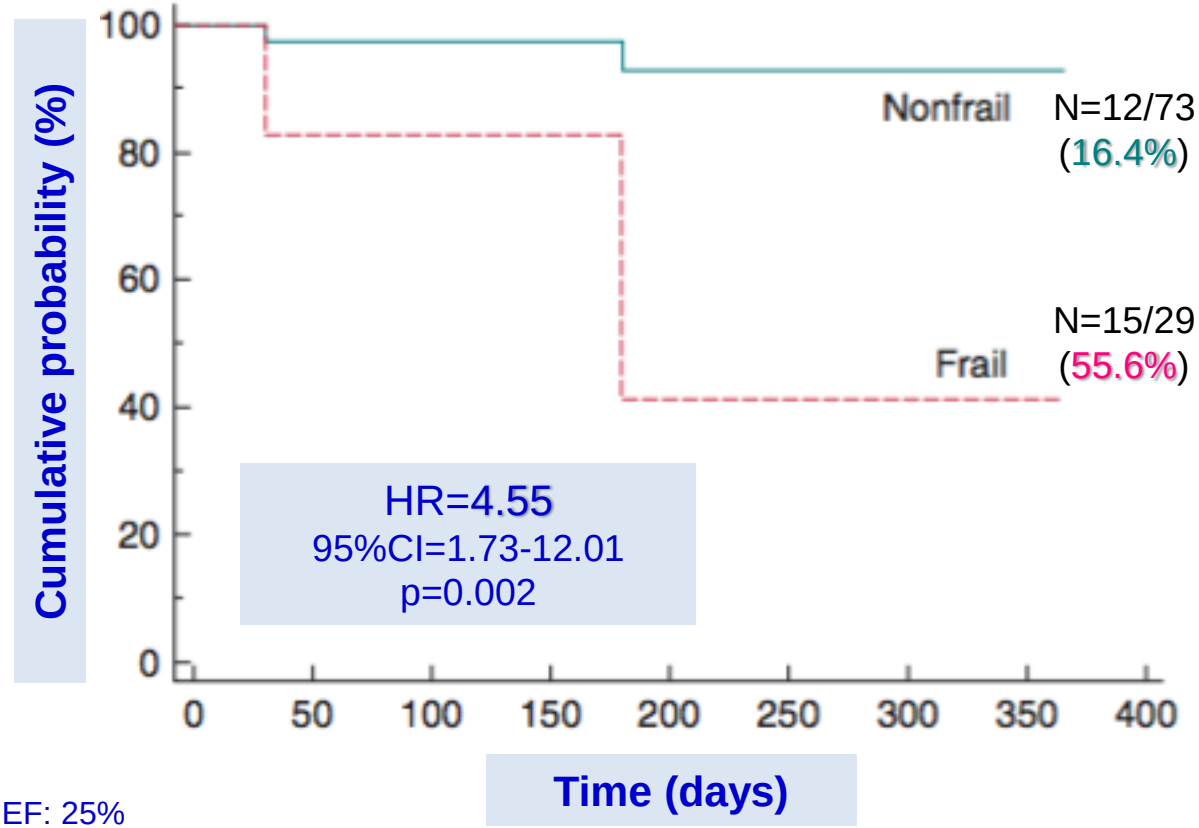
Conclusioni

- ✓ La CRT migliora geometria e funzione sistolica del VS e riduce mortalità e ricoveri anche nei pazienti di età avanzata
- ✓ Dati del "mondo reale" evidenziano tuttavia un importante *undertreatment* correlato ad età e genere
- ✓ La miglior performance sistolica del VS potrebbe spiegare come siano evidenti - dopo soltanto 6 mesi di trattamento – risposte significative in area cognitiva e funzionale
- ✓ Il ridotto "*burden*" aritmico nei pazienti anziani scompensati potrebbe indirizzare a valutare l'efficacia della sola CRT (vs. CRT-D) in soggetti di età avanzata

The impact of frailty in older patients with non-ischaemic cardiomyopathy after implantation of cardiac resynchronization therapy defibrillator

12-months decompensated HF in patients with non-ischaemic cardiomyopathy by frailty condition after CRT-D device implantation

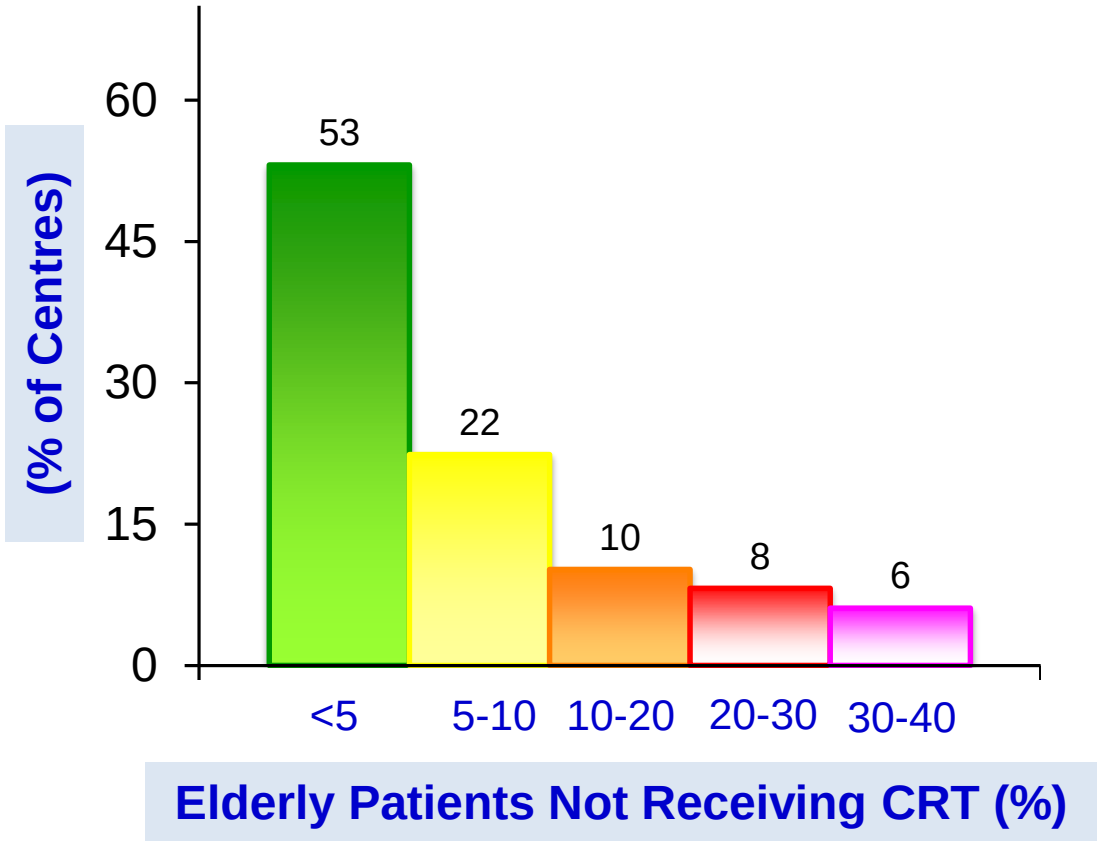


Frail* – Age: 74 y; EF: 25%
Non Frail – Age: 73 y; EF: 24%
* ≥3/5 Fried and Walston criteria

Dominguez-Rodriguez A, 2015

Clinical management of arrhythmias in elderly patients: results of the European Heart Rhythm Association survey

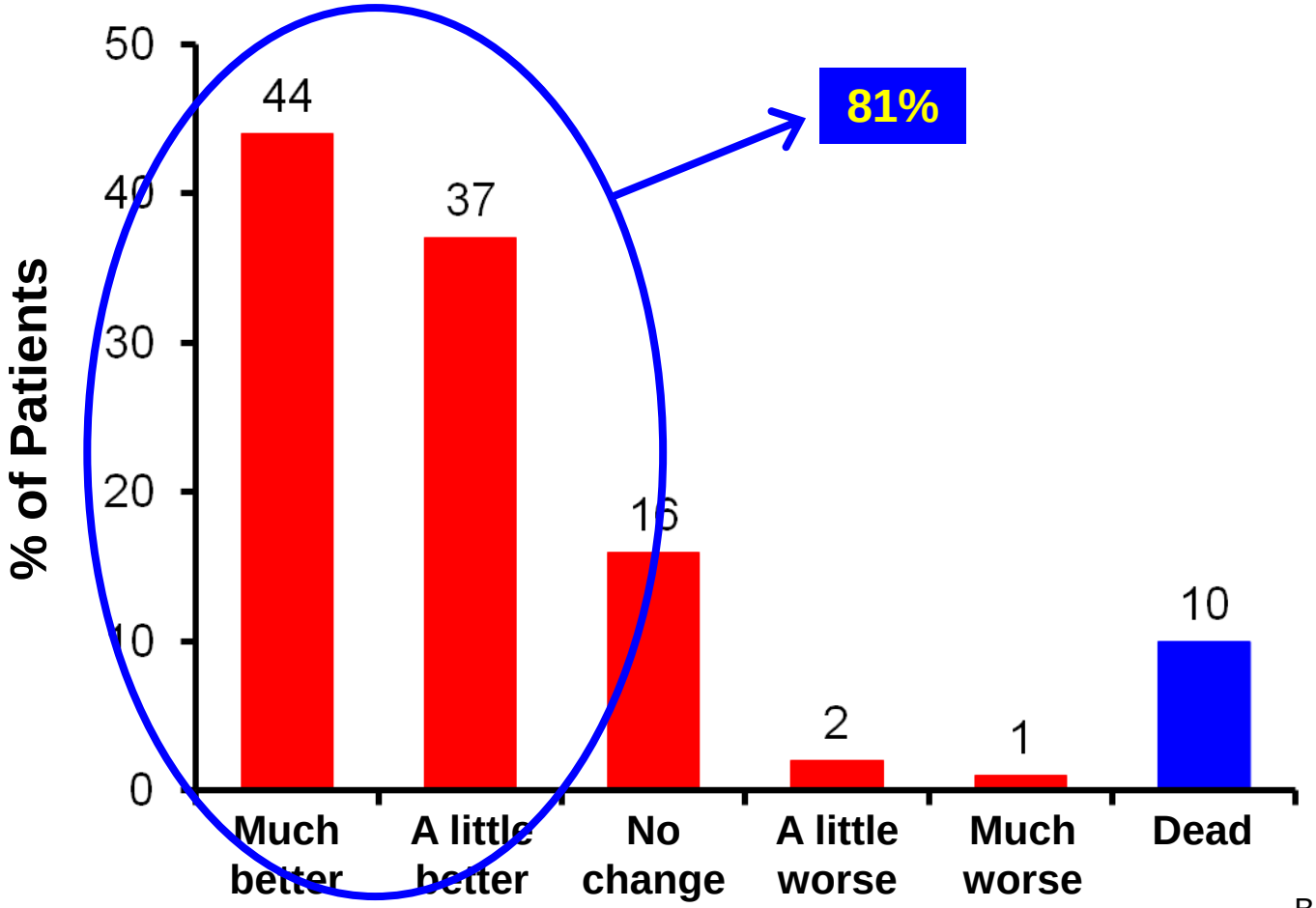
Proportions of elderly patients not receiving the indicated CRT device



Chen J, 2015

The European CRT Survey: 1 year (9–15 months) follow-up results

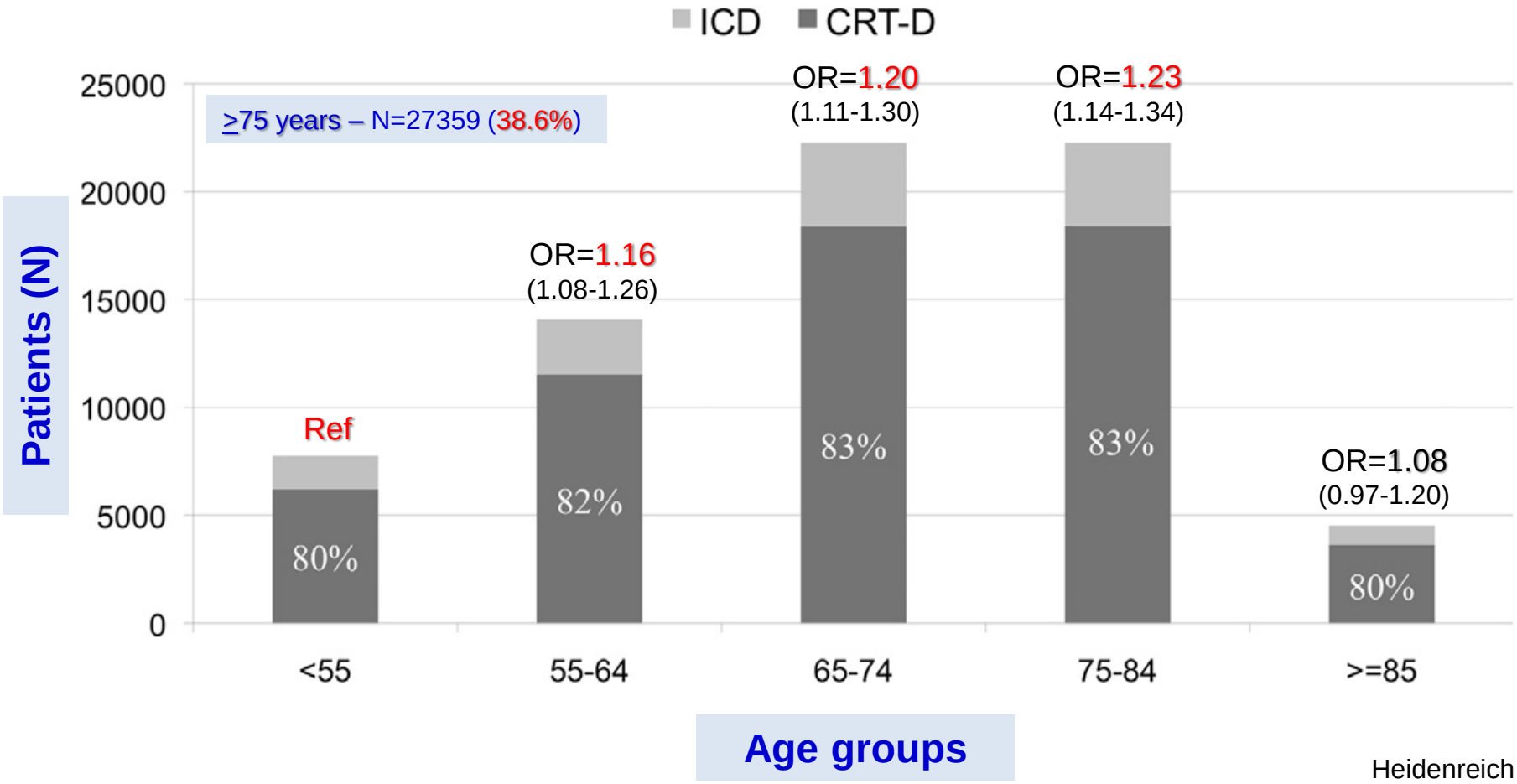
Patient self-reported global assessment and rate of death during follow-up



Bogale N et al., 2012

Does Age Influence Cardiac Resynchronization Therapy Use and Outcome?

Use of CRT-D and ICD by Age Group Among Candidates for CRT-D
(the NCDR ICD registry: 2006-2009, N=70854, Age: 69 years, Men: 69%)

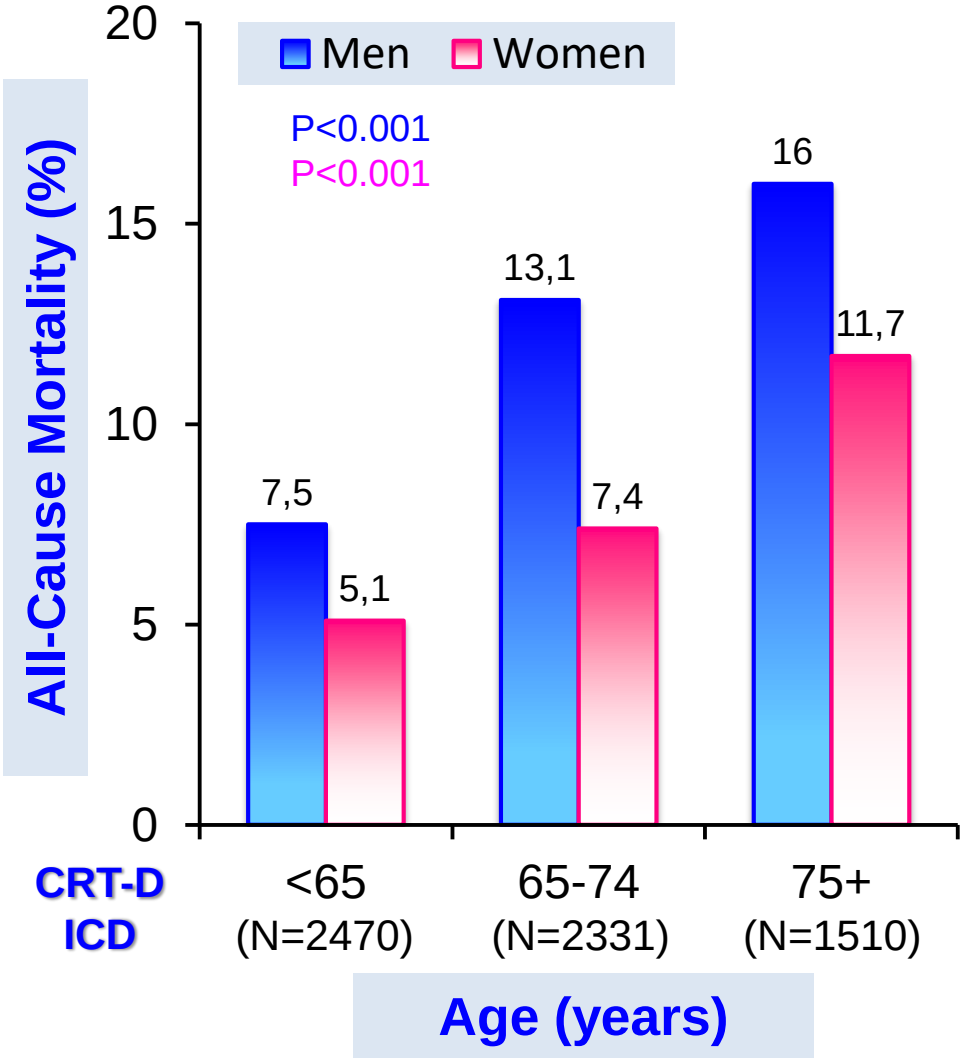


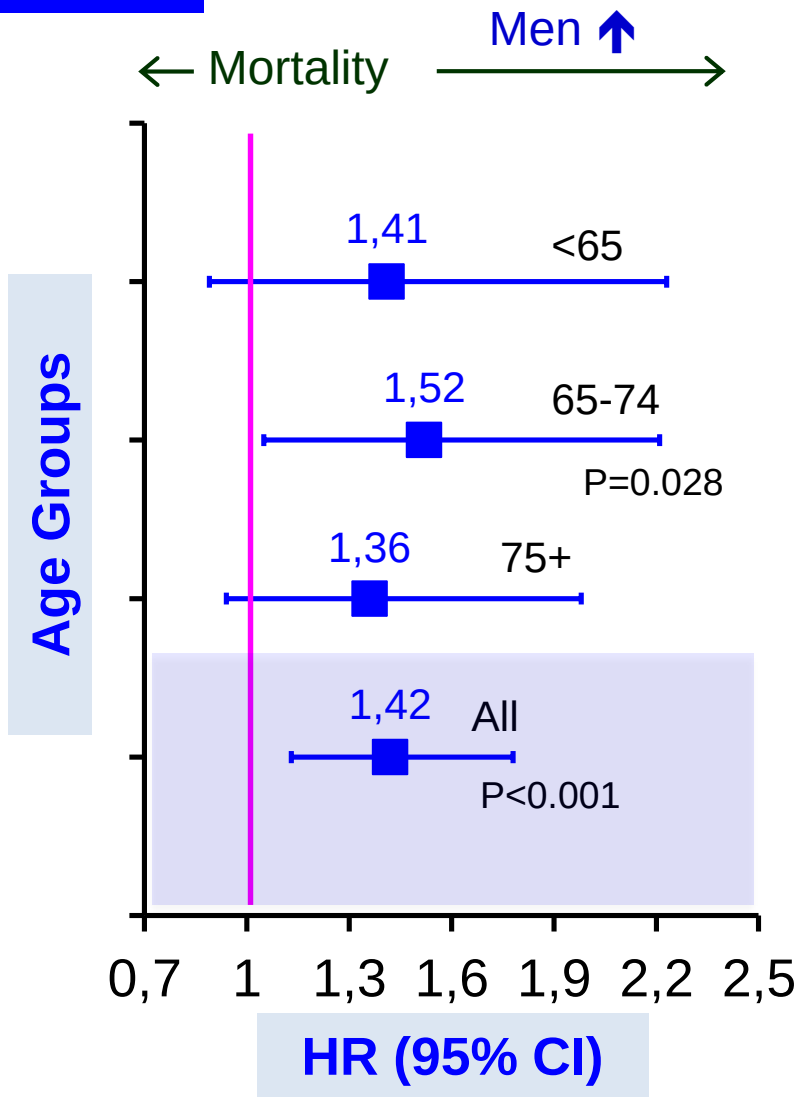
Heidenreich PA, 2015

Determinants of All-Cause Mortality in Different Age Groups in Patients With Severe Systolic Left Ventricular Dysfunction Receiving an Implantable Cardioverter Defibrillator (from the Italian ClinicalService Multicenter Observational Project)

Fumagalli S, Padeletti L, 2014

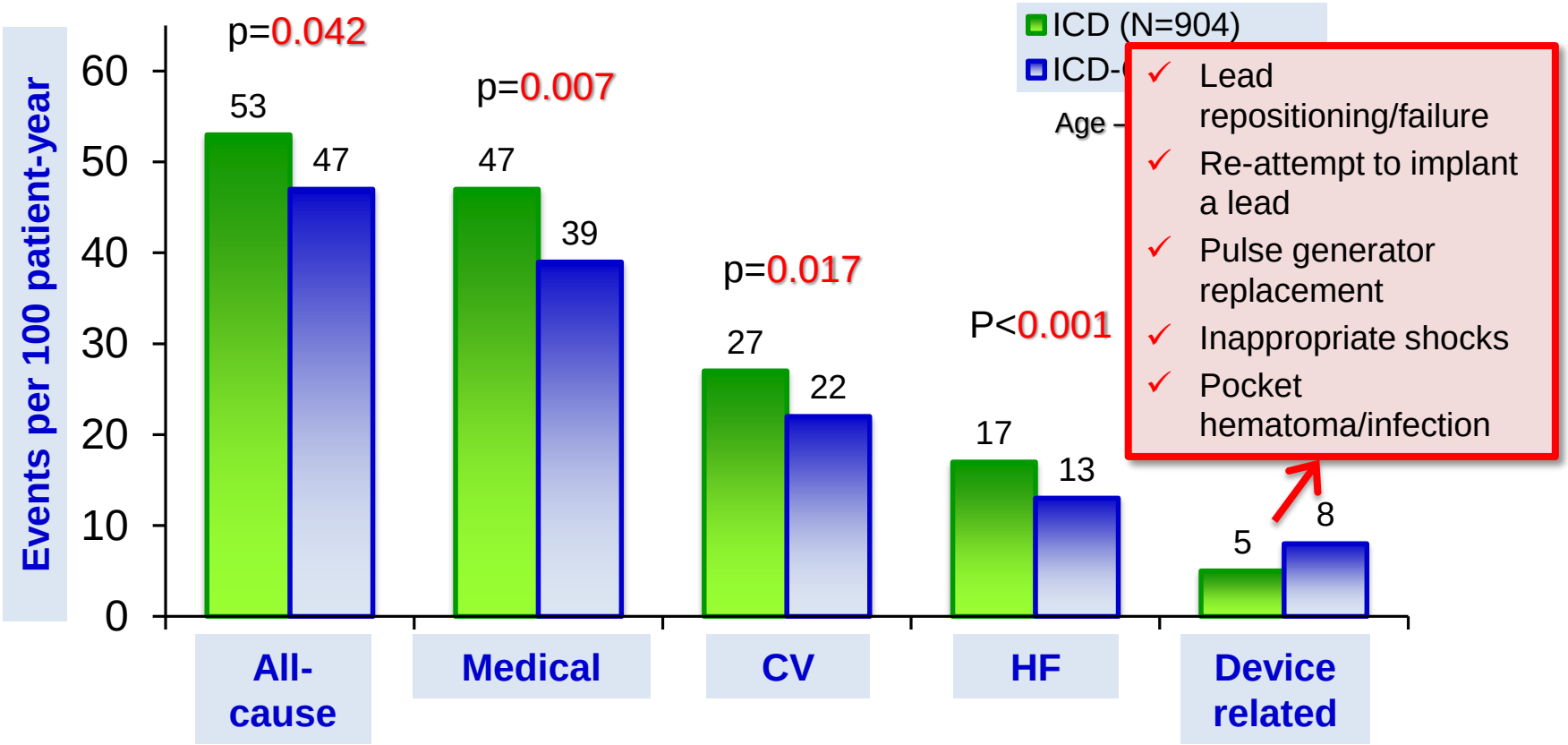
All-cause mortality by age and gender





Impact of Cardiac Resynchronization Therapy on Hospitalizations in the Resynchronization-Defibrillation for Ambulatory Heart Failure Trial

Hospitalizations within 18 months of randomization by treatment assignment to ICD or ICD–CRT in the Resynchronization-Defibrillation for Ambulatory Heart Failure Trial (RAFT)



CV – cardiovascular
HF – heart failure

Gillis AM, 2014