Implementing Management Strategies in Congestive Heart Failure Patients

Assoc.Prof G.A. Dan, MD, PhD, EC

Total Burden of CHF
Back to the future

- CHF is the only CV disease that is actually increasing in both incidence & prevalence because:
  - ∪ The population ages
  - ∪ There is an increased survival after MI
 - ∪ Keeping more people with CHF alive longer

Progression of Left Ventricular Dysfunction

Patients surviving (%)

100

Mechanism of death
Sudden death   40%
Worsening CHF 40%
Other   20%

Progression

Further damage
Excessive wall stress
Neurohormonal activation
Myocardial ischemia

Annual mortality

< 5%   10%   20 to 30%   30 to 80%

0

Asymptomatic   Mild   Moderate   Severe
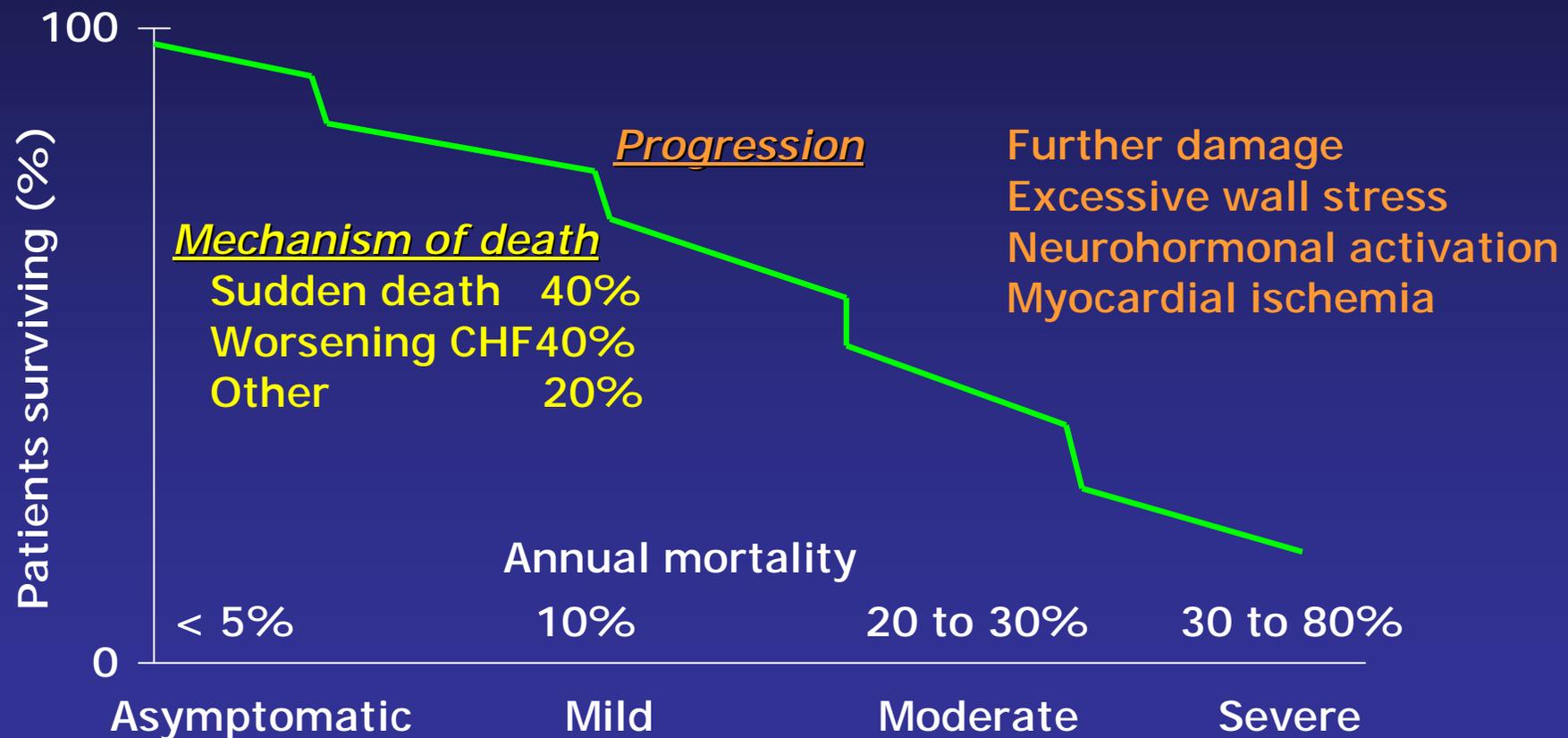
Impact of Aging Population

- Doubling of the population over 65 in the next 30 years

- HF prevalence doubles with each decade and approaches 10% after age 80

- HF is the leading cause of hospital admission after age 65

- 88% of deaths caused by HF are patients over 65

M.W.Rich, Cardiol Clin, 1999: 17
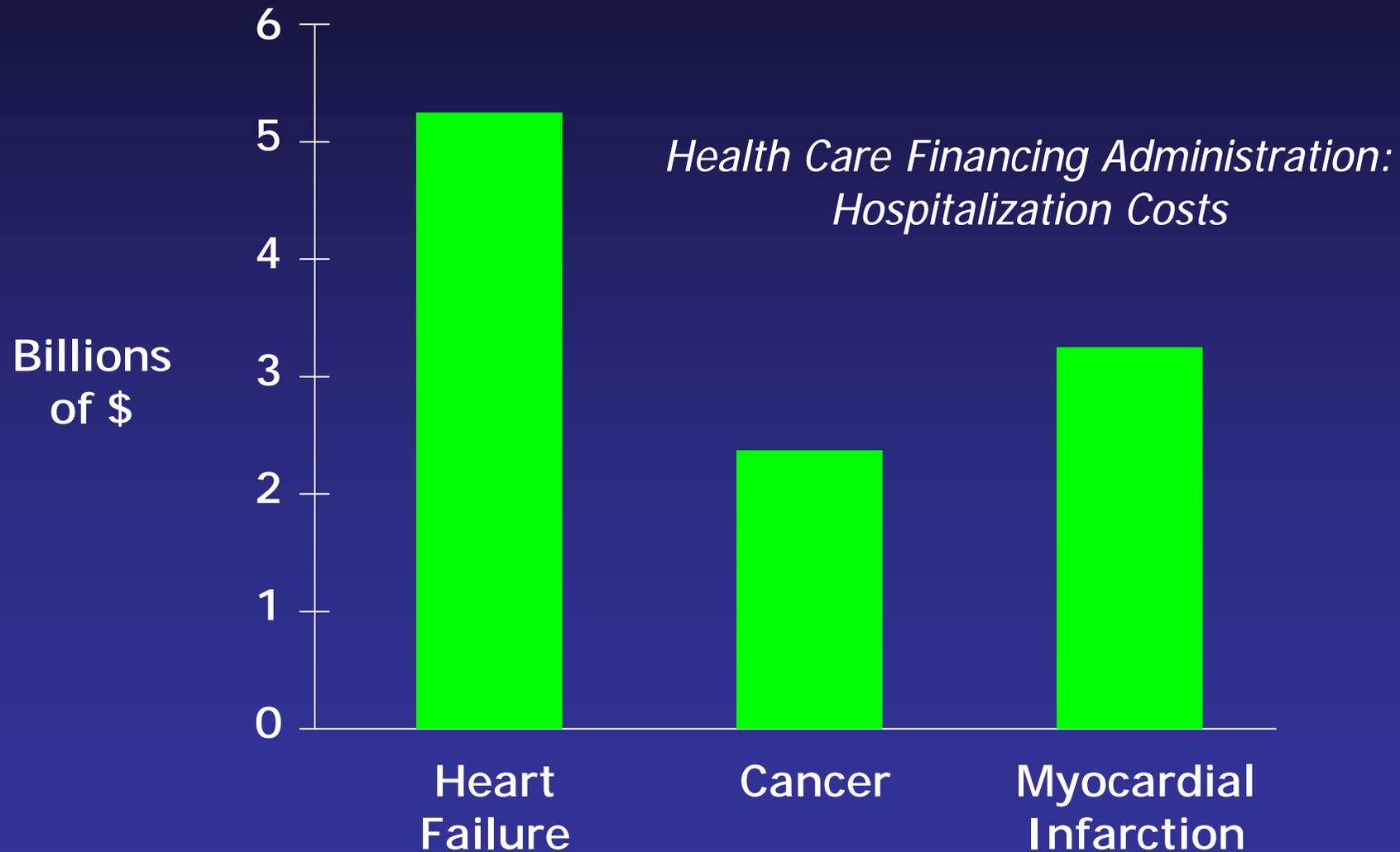
# Weight of Evidence in CHF

ACEI

- \> 7000 pts ev. in RCT
- ⁻ all-cause mortality by 20-25%
- ⁻ death & hospital. by 30-35%

BB

- \> 10 000 pts ev. in RCT
- ⁻ all-cause mortality by 30-35%
- ⁻ death & hospital. by 35-40%

SOLVD Treatment - Enalapril
Symptomatic HF Patients with LVD (EF $\leq$ 0.35) Mortality Due to Progressive Heart Failure

Enalapril* (n = 1285)

Placebo* (n = 1284)

22% Risk Reduction
p = 0.0045

Percent Mortality

Months
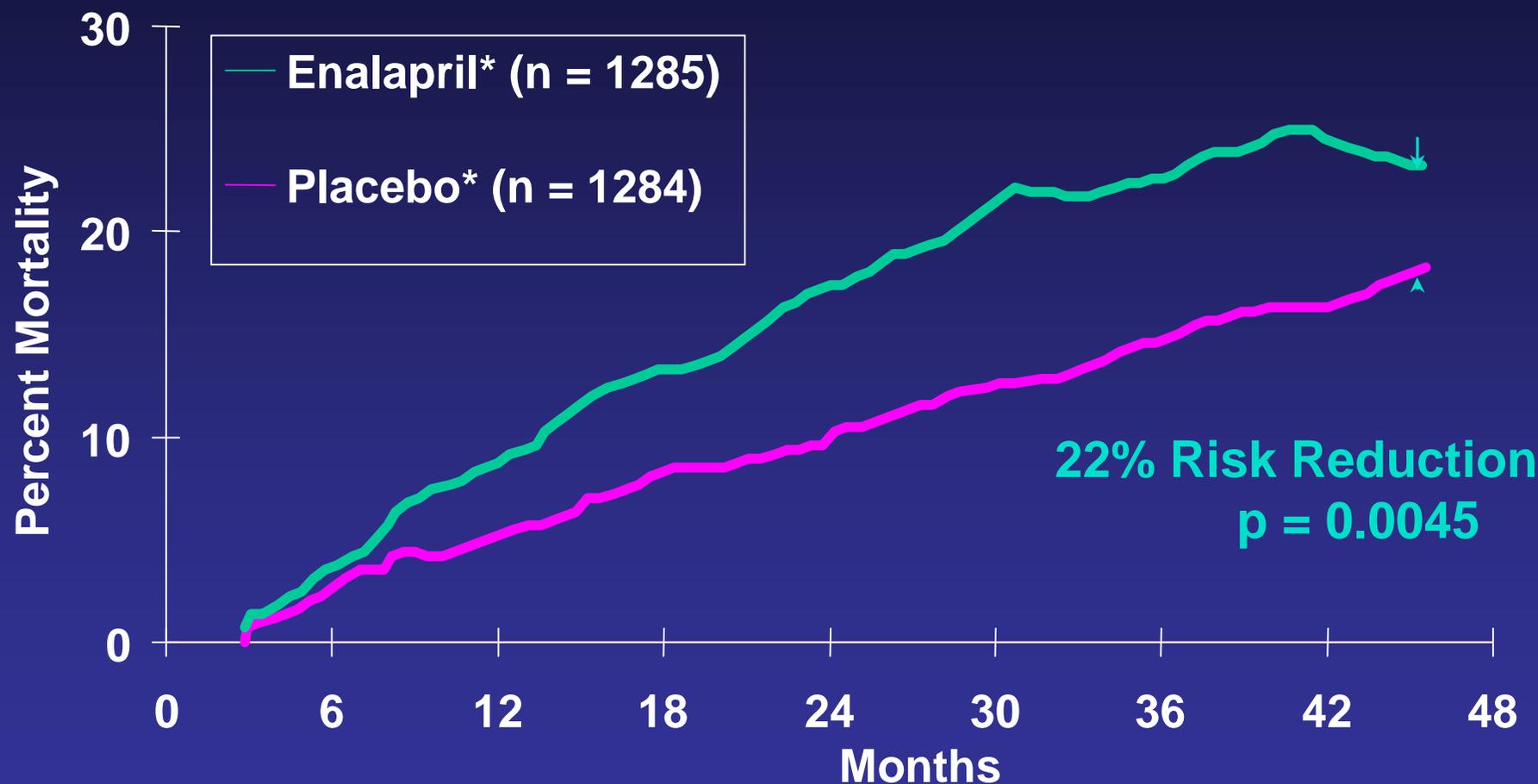
*In Conjunction with Conventional Therapy.

The SOLVD Investigators; N Engl J Med 1991
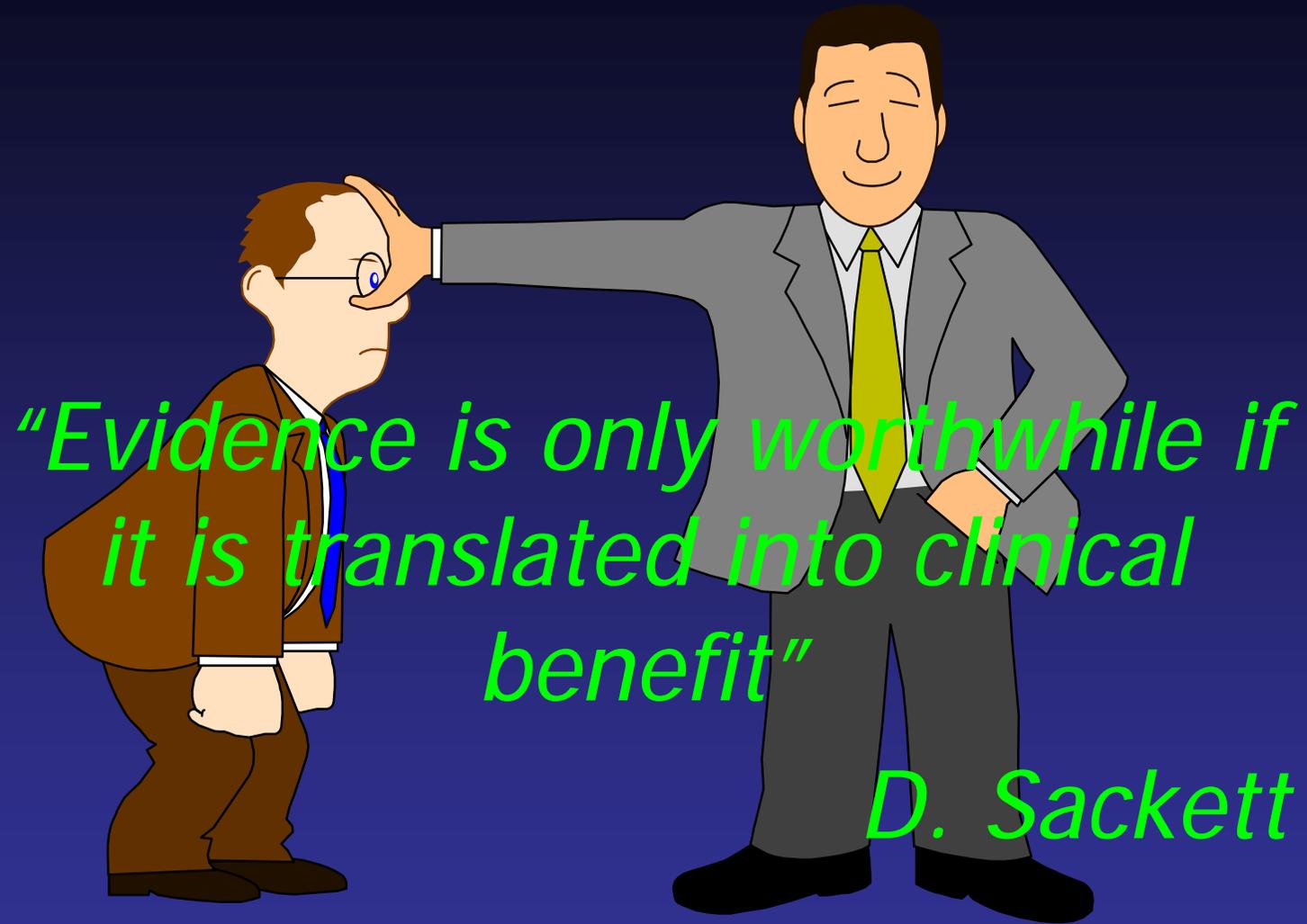
"*Evidence is only worthwhile if it is translated into clinical benefit*"

D. Sackett

Management of CHF
Guideline Recommendations

NYHA class	I	II	III	IV
Diuretic			→	
ACEI		→		
B.B.	?	→	→	
Digoxin	→	**AF** →	→	
Spironolactone	?	?	→	
Statines (LDL, CHD)		→		

EuroHF Study, 1998
(*primary care physicians perception*)

	UK (%)	Netherlands (%)	France (%)	Germany (%)	Italy (%)	Spain (%)
ECG	66	46	96	100	100	92
Chest Rx	95	95	86	83	93	100
Echocardio	27	7.5	64	63	73	39
% pt. reported on ACEI	54	52	61	62	62	47
% pt. actually on ACEI	43	-	38	41	26	25

(*CardioMonitor™ data*)

Hobbs FDR, Euro Heart J, 1998

ACEI Compliance and Dosing

Proportion of patients taking ACEI

1.2
1.0
.8
.6
.4
.2
0.0

.... switched
—·—·— lisinopril
——— captopril
—··—··— other
——— enalapril

0   50   150   200   250   300   350   400   450

Days since index prescription
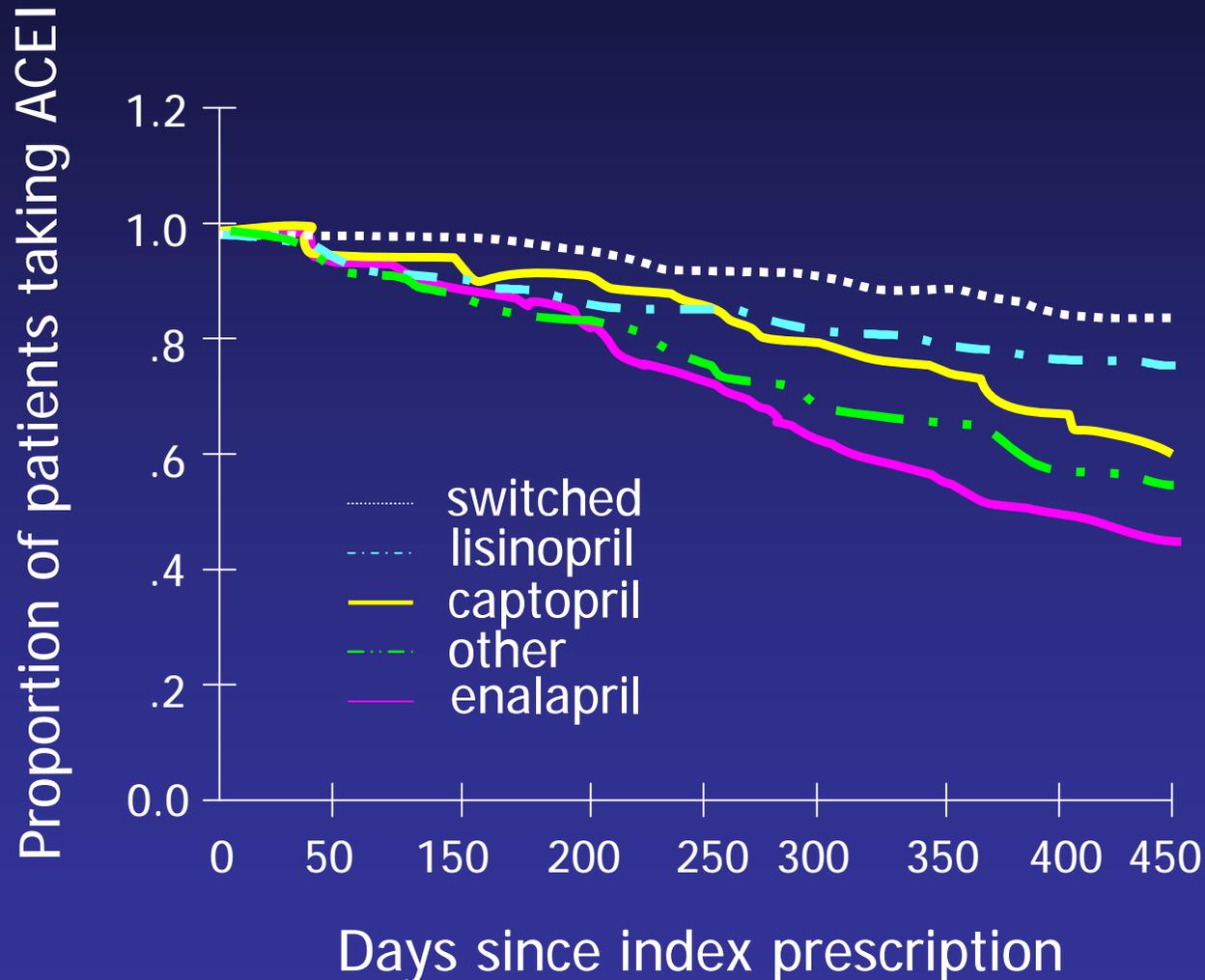
869 CHF hosp.pts.
f-u 17 months

Average :
79% of the adequate
daily dose

1/3 pts.- 100% on an
adequate daily dose

Roe C.A.- AmHeartJ 138/5:818,1999

FACTS Based Cardiology

D Only 73% of pts. most likely ~~~~~~~ rom and tolerate are prescribed ~~~~~~~ scharge

Large State Peer Rev. Org.Consor~~~~~

D Advanced age i~~~~~~~~~~~~~~~~~ ased prescription ~~~~~~~~~~~~~~~~ tes

D Only 10% ~~~~~~~~~~~~~~~~~~ follow appropri~~~~~~~~~~~~~ egimens when factors ~~~~~~~~~~~~~~ atient compliance and inaccu~~~~~~~~~~~~~~~ .B.O'Connell, Clin.Card. 2000:23

UNDERUTILIZATION OF TREATMENT !

Are the basics of heart failure management applied ?

¢ Failure of the cardiovascular community to effectively spread the message of efficacy of ACEI therapy

¢ Lack of willingness by community practitioners to accept that the results of studies apply to the routine patient

¢ Extremely poor level of patient understanding of their condition

Healing begins with knowledge

Causes of Undertreatment in HF

- Accuracy of HF Definition & Diagnosis
- Differences between "study" & "community" populations
- Failure to translate demonstrated advances into routine practice
- Differences in care by specialty of the attending physician

Causes of Undertreatment in HF

- **Accuracy of HF Definition & Diagnosis**
  - Differences between "study" & "community" populations
  - Failure to translate demonstrated advances into routine practice
  - Differences in care by specialty of the attending physician

Investigations correlate poorly with symptoms
Lack of a cut-off value

Abnormal cardiac structure or function

Subjective element present
Rigorous to apply

B

Response to treatment

A

Signs

Symptoms

C

Not uniform
Subjective and untestable
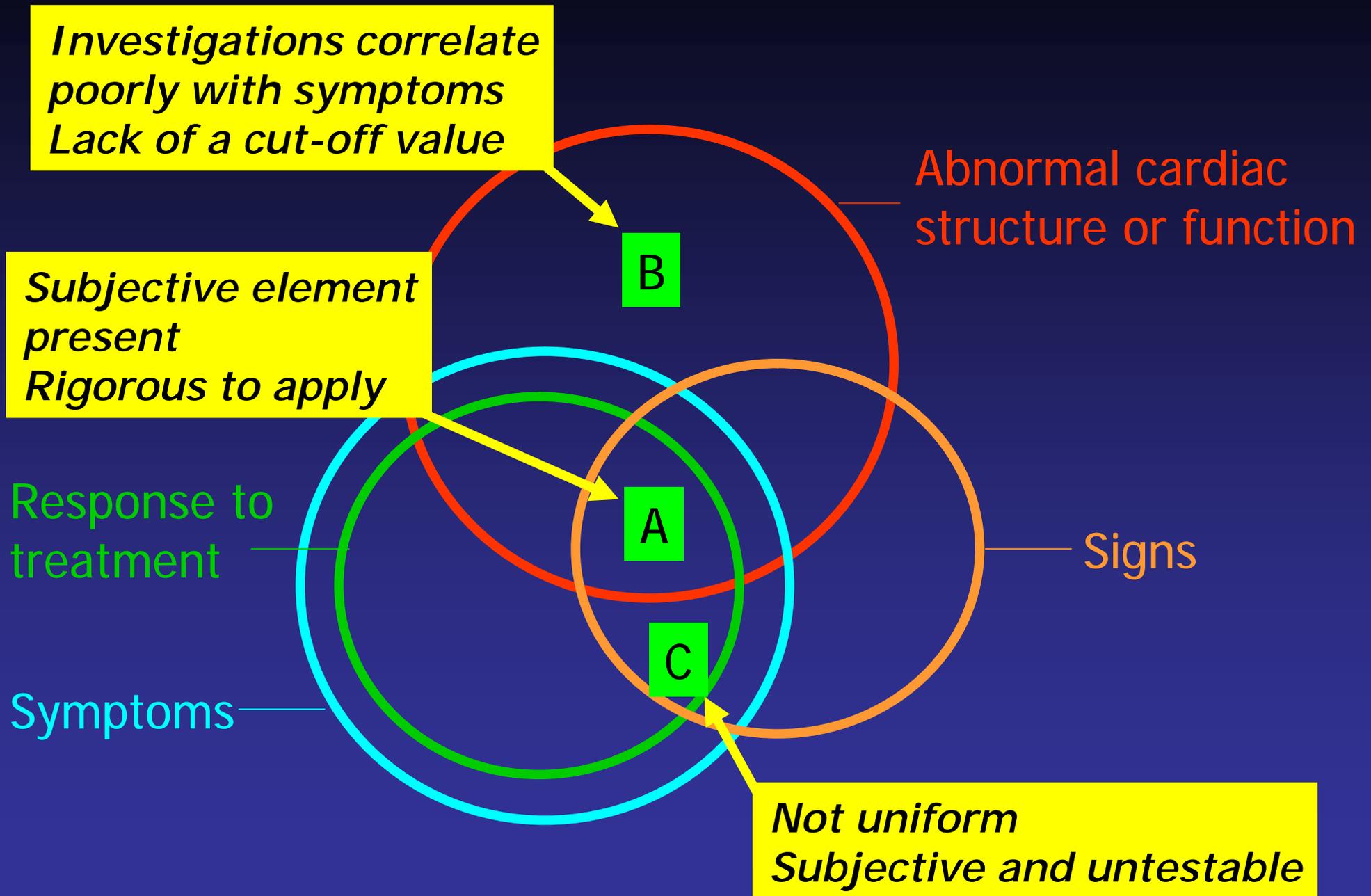
(Purcell IF, Poole-Wilson PA, 1999)

EF Puzzle

Not clear standards for EF documentation

Reduced EF: inclusion criterion for RCT

~ 50% of hospitalized patients lack EF documentation*

No RCT support EF as a marker to monitor or alter the therapy

Direct correlation between EF assessment and ACEI prescription*

Absence of direct link EF vs. clinical outcome

40% of HF pts. have "normal" EF

*Ghali JK, 1997

Causes of Undertreatment in HF

- Accuracy of HF Definition & Diagnosis
- **Differences between "study" & "community" populations**
- Failure to translate demonstrated advances into routine practice
- Differences in care by specialty of the attending physician

- Median age for HF in community is 70yrs. and in most trials 58 - 65yrs.
- Male / female ratio in community is 60/40 and in trials is 80/20
- Many community patients (elderly with renal impairment) are not 'ideal' candidates to therapy
- No data from RCT exist to definitively support the use of BB in patients with low EF, but no clinical HF

CHF in Elderly Patients - Comorbid Associations

Systematic Assessment of Geriatric Drug Use via Epidemiology (SAGE Database): 86 094 pts. - 26.5% men, 73.5% women
- mean age 84.9+/-8 yrs.
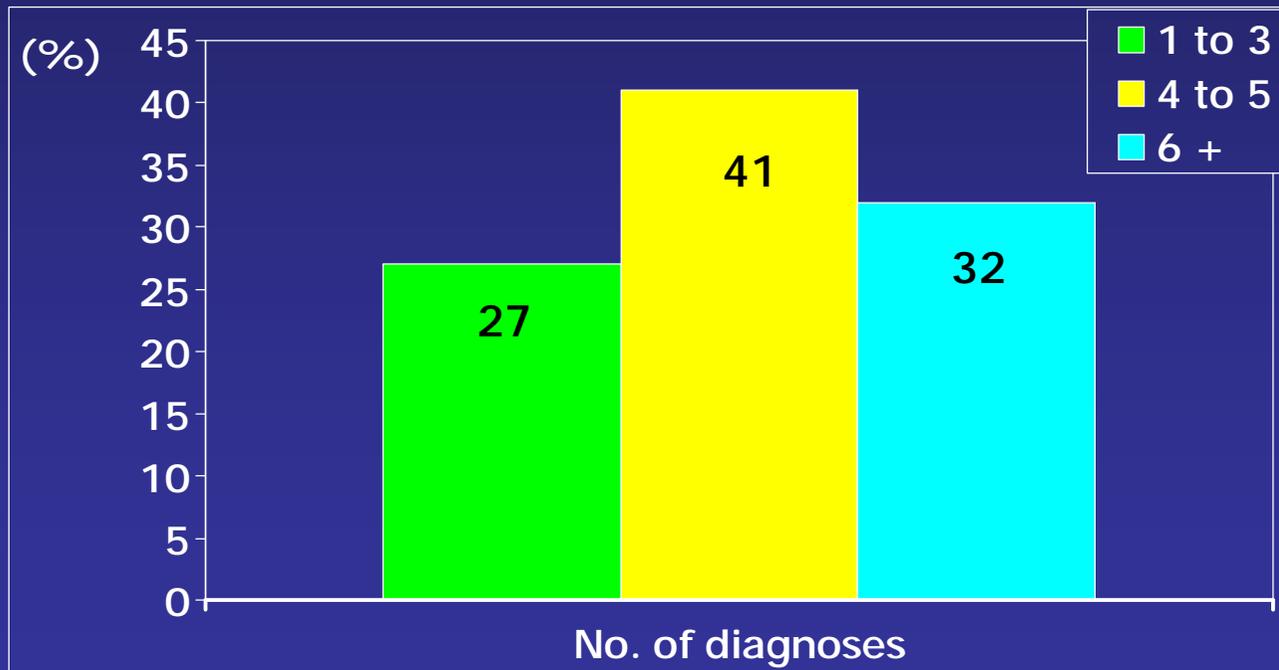
Pharmacologic Treatment of Elderly Patients with CHF

SAGE Database
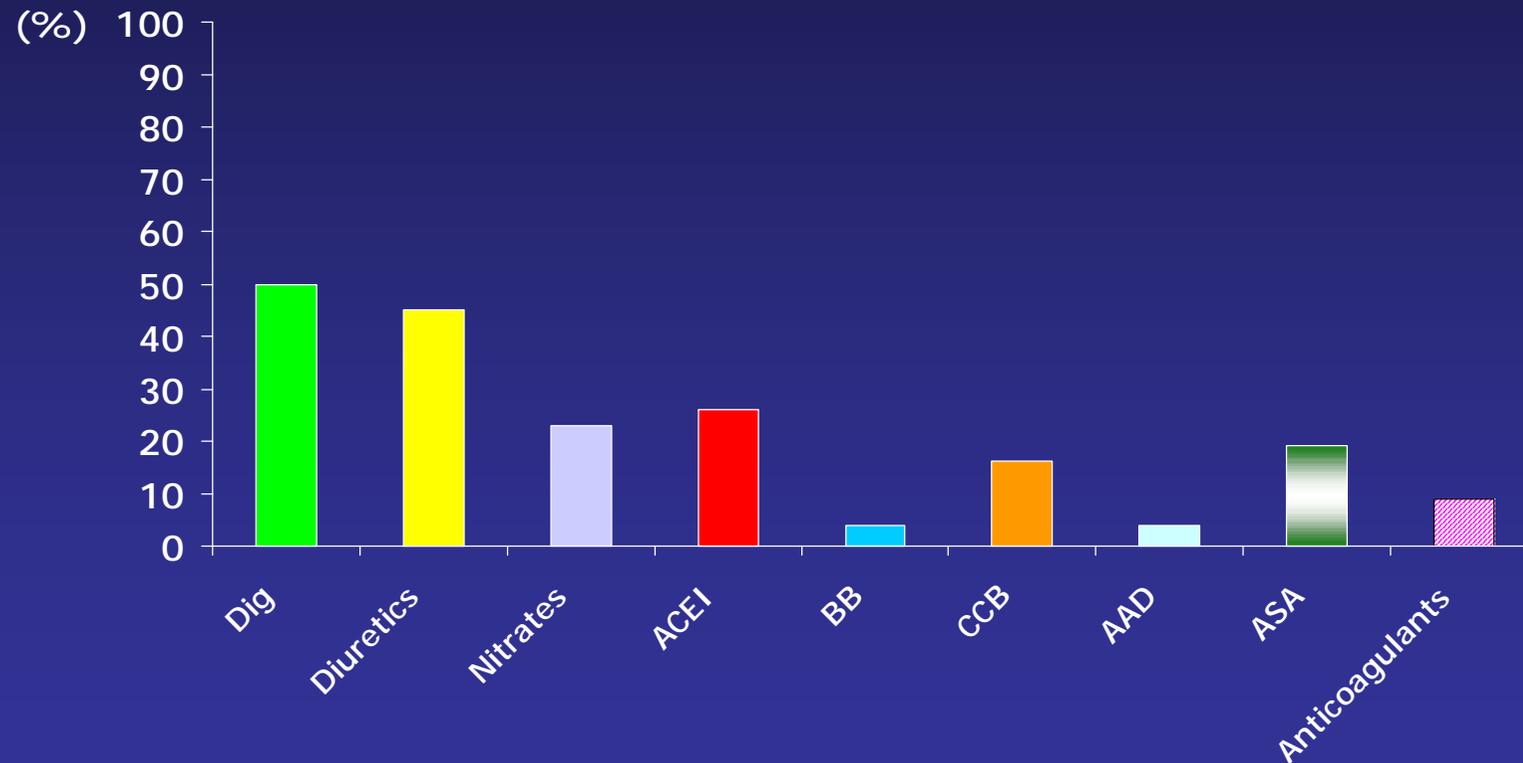
AmHeartJ 139/1, 2000

Causes of Undertreatment in HF

- Accuracy of HF Definition & Diagnosis
- Differences between "study" & "community" populations
- **Failure to translate demonstrated advances into routine practice**
- Differences in care by specialty of the attending physician

# Barriers to Physician Adherence

Sequence of
Behavior Change

Barriers to
Guideline
Adherence

Knowledge → Attitudes → Behavior

Lack of
Familiarity

Lack of
Awareness

Lack of Agreement
With Specific
Guidelines

Lack of Agreement
With Guidelines
in General

Lack of Outcome
Expectancy
Lack of Self-Efficacy
Lack of Motivation/
Inertia of Previous
Practice

External Bariers
Patient Factors
Guideline Factors
Environmental
Factors

(CabanaMD,JAMA 1999)

Patient knowledge of CHF
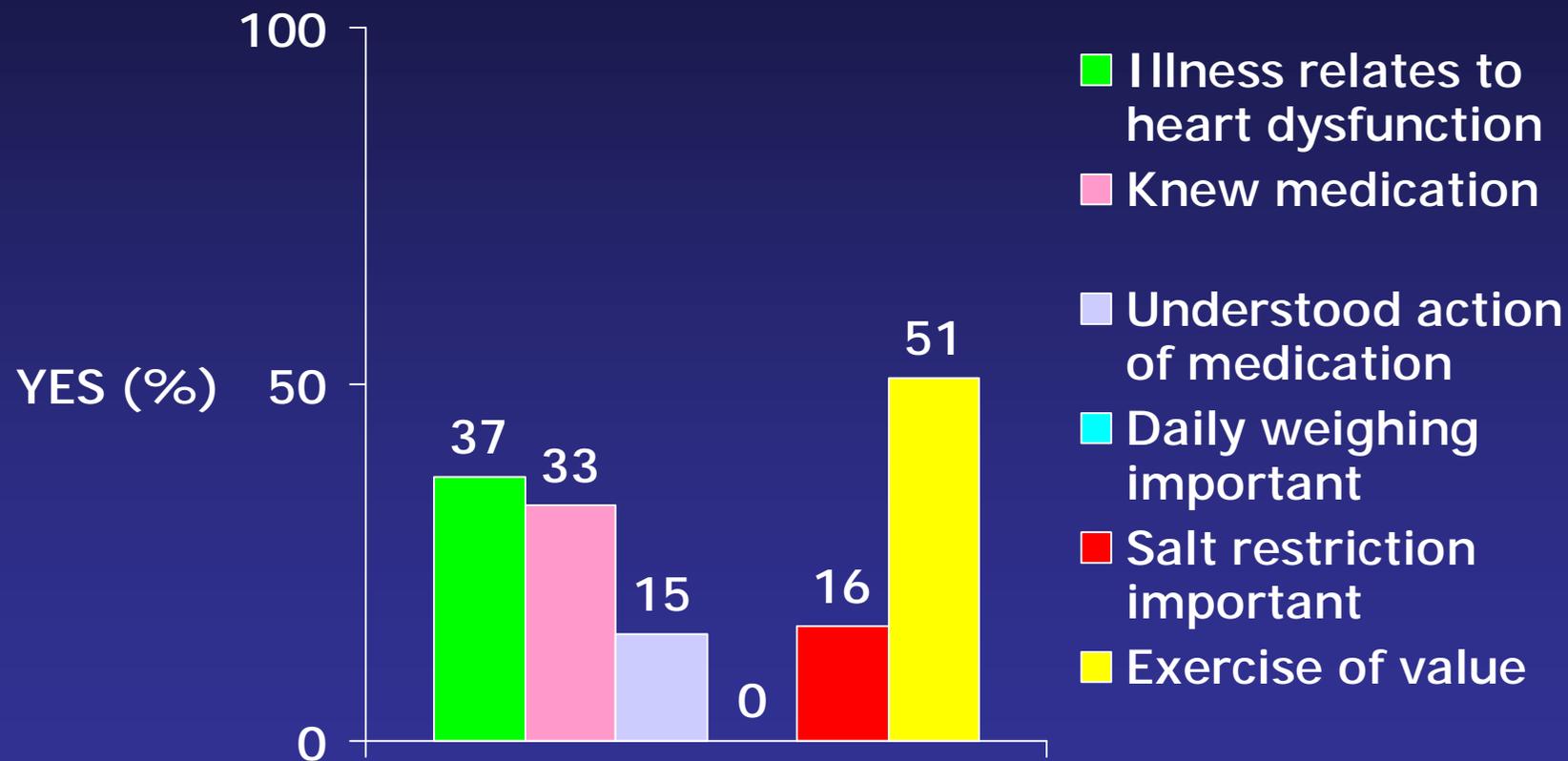
(Horam M., Europ.J of Heart Failure 2000,2:101)

Causes of Undertreatment in HF

- Accuracy of HF Definition & Diagnosis
- Differences between "study" & "community" populations
- Failure to translate demonstrated advances into routine practice
- **Differences in care by specialty of the attending physician**

Characteristics of physician survey respondents
## *(182 family physicians, 163 cardiologists)*
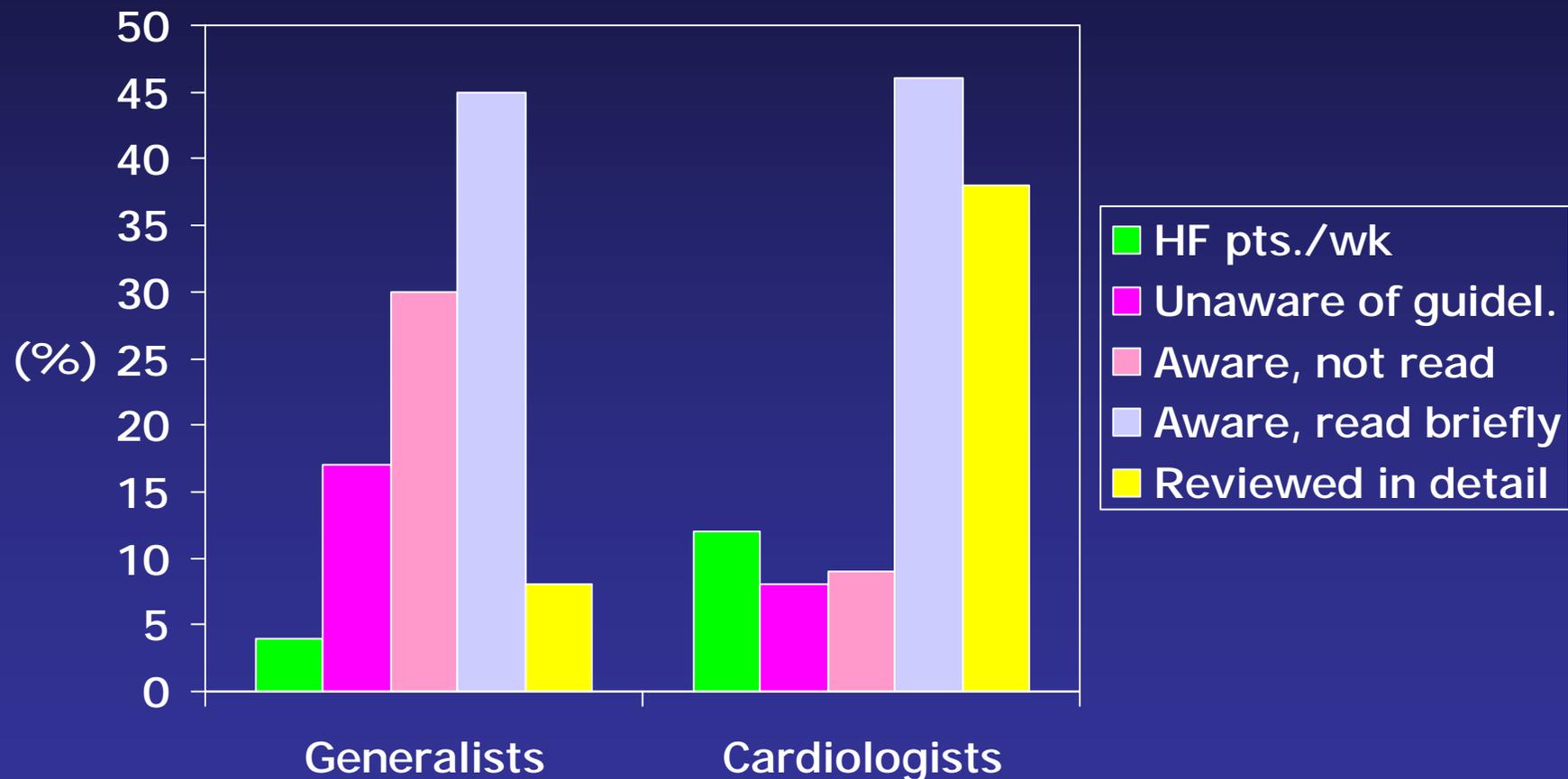
(Baker DW, AmHeartJ 138:826, 1999)

Practice patterns in moderate <u>left ventricular hypertrophy and normal EF</u>

Diagnostic tests ordered
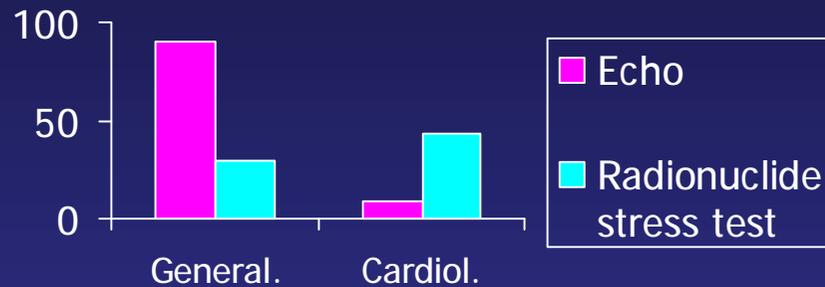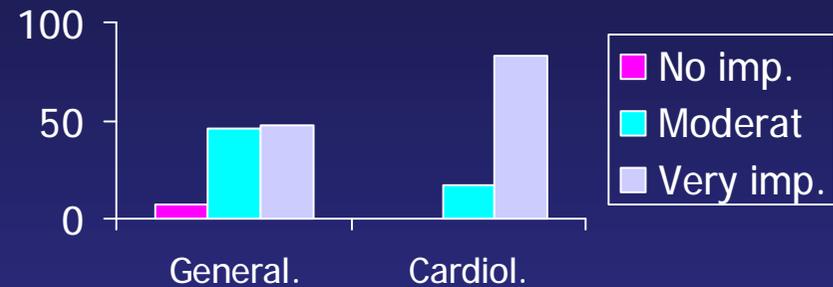
Legend:
- Echo
- Radionuclide stress test

Y-axis: 0, 50, 100
X-axis: General., Cardiol.

Importance of measuring EF

Legend:
- No imp.
- Moderat
- Very imp.

Y-axis: 0, 50, 100
X-axis: General., Cardiol.

Presumed cause of Symptoms

Legend:
- Syst. dysf.
- Diast. dysf.
- Syst + diast

Y-axis: 0, 50, 100
X-axis: General., Cardiol.

Medications initiated

Legend:
- Dig
- ACEI
- BB
- CCB

Y-axis: 0, 50, 100
X-axis: General., Cardiol.
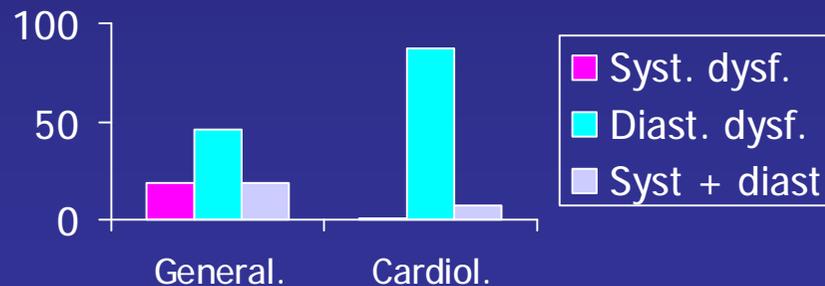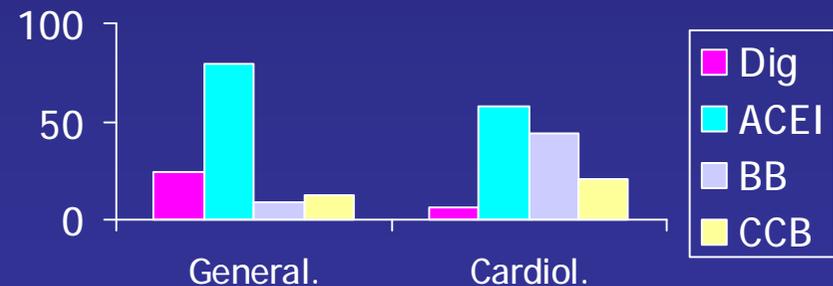
(Baker DW, AmHeartJ 138:826, 1999)

Practice patterns in <u>systolic dysfunction</u>

Diagnostic tests ordered
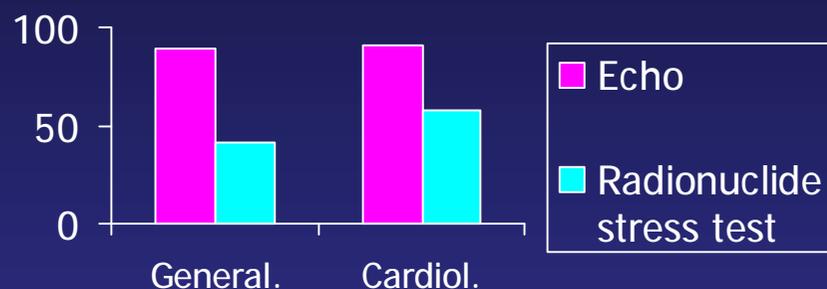
Legend:
- Echo
- Radionuclide stress test

X-axis: General., Cardiol.
Y-axis: 0, 50, 100

Importance of measuring EF

Legend:
- No imp.
- Moderat
- Very imp.

X-axis: General., Cardiol.
Y-axis: 0, 50, 100

Presumed cause of Symptoms

Legend:
- Syst. dysf.
- Diast. dysf.
- Syst + diast

X-axis: General., Cardiol.
Y-axis: 0, 40, 80

Medications initiated

Legend:
- Dig
- ACEI
- BB
- CCB

X-axis: General., Cardiol.
Y-axis: 0, 50, 100
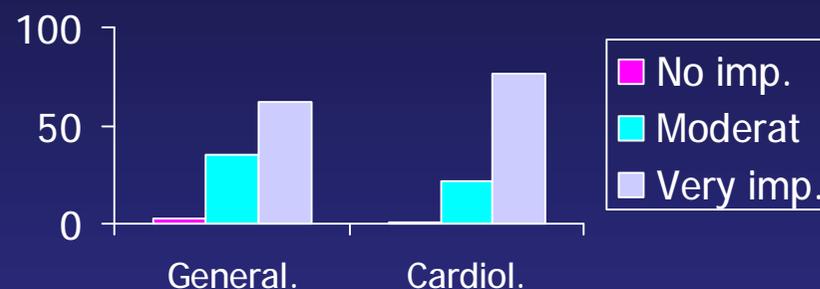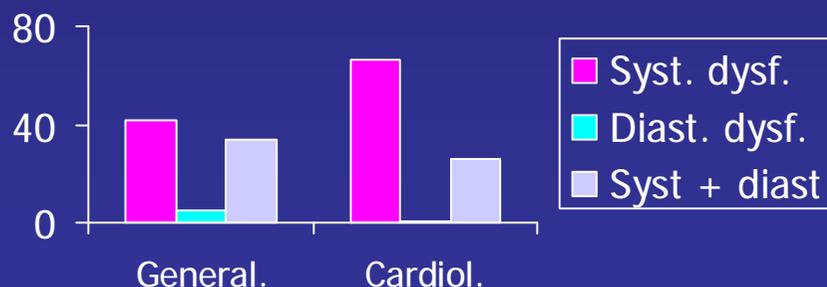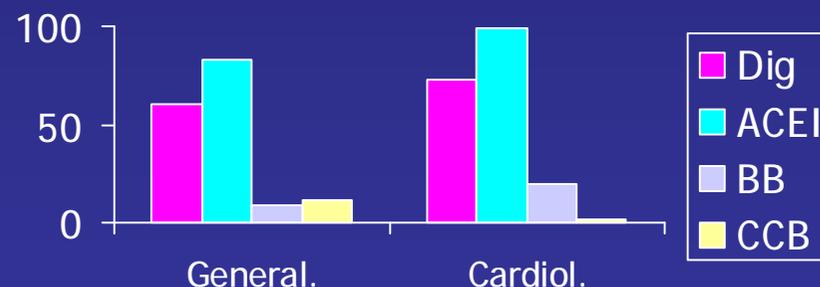
(Baker DW, AmHeartJ 138:826, 1999)

Perceived risks and benefits for using ACEI in low BP and moderately renal insufficiency

Safety of using ACEI

Benefits vs. risks
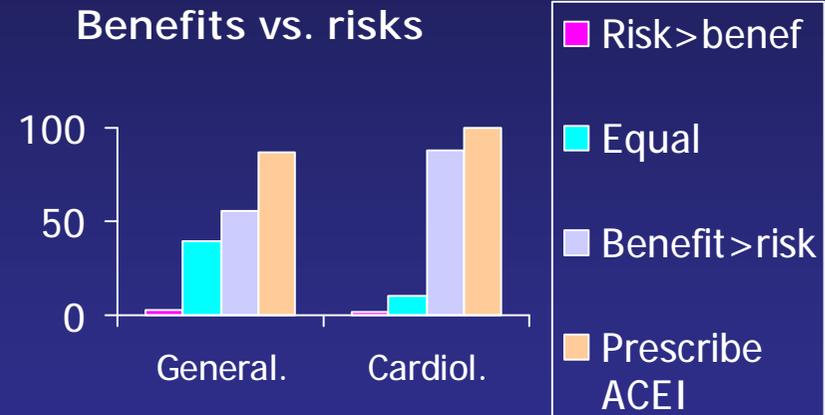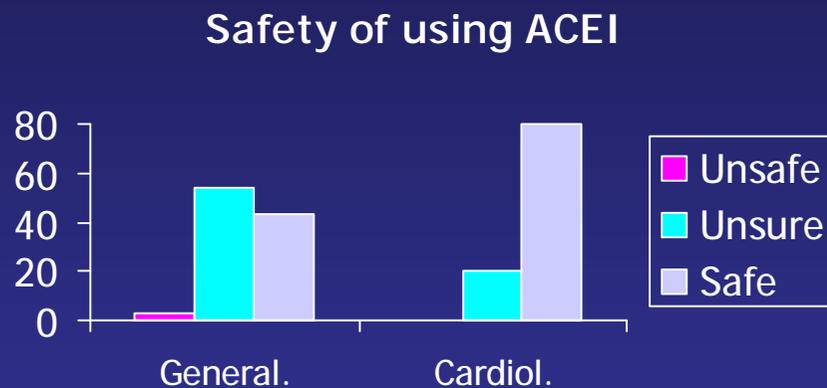
(Baker DW, AmHeartJ 138:826, 1999)

# Physician practice in systolic dysfunction
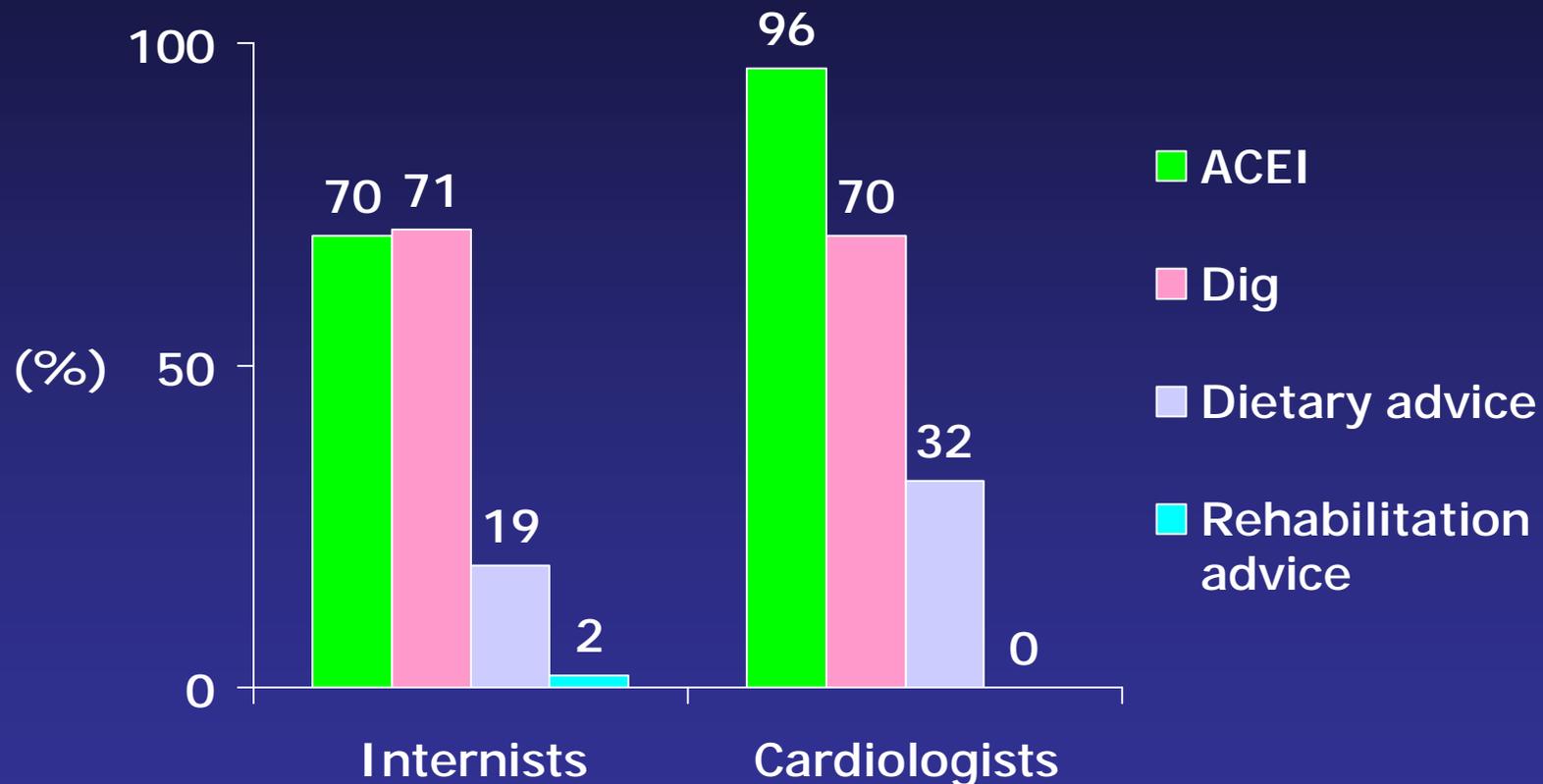
80 pts. admitted with CHF; 2/3 systolic dysf.

*(Horan.M, Europ.J of Heart Failure 2000,2:101)*

Length of stay

44 926 pts. with HF receiving care from cardiologists (23%), internists (63%), family practitioners (11%), other physicians (3%)
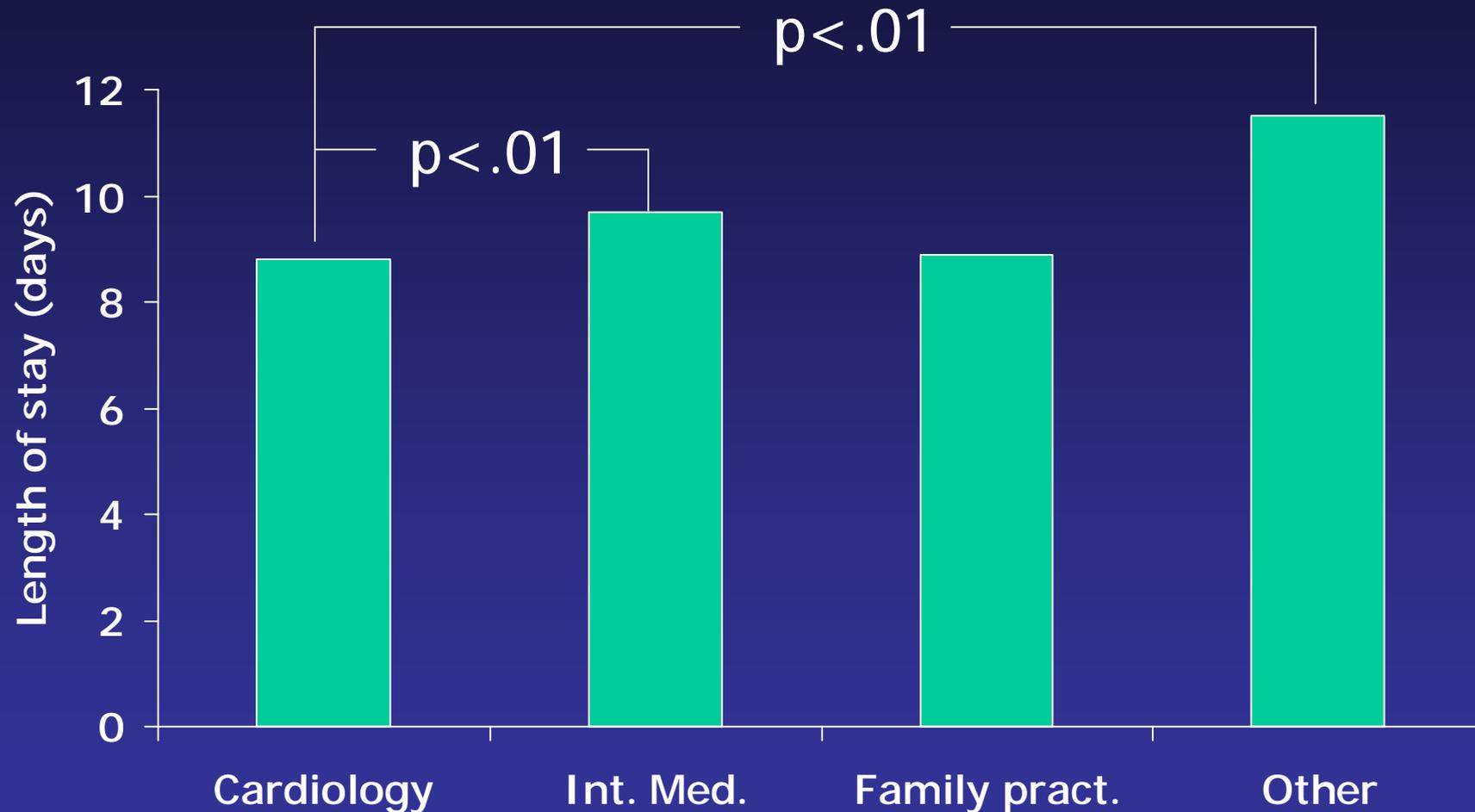

Philbin EF,"Analysis of a large, statewide database" AmHeartJ 139:491-496, 2000

Hospital Charges
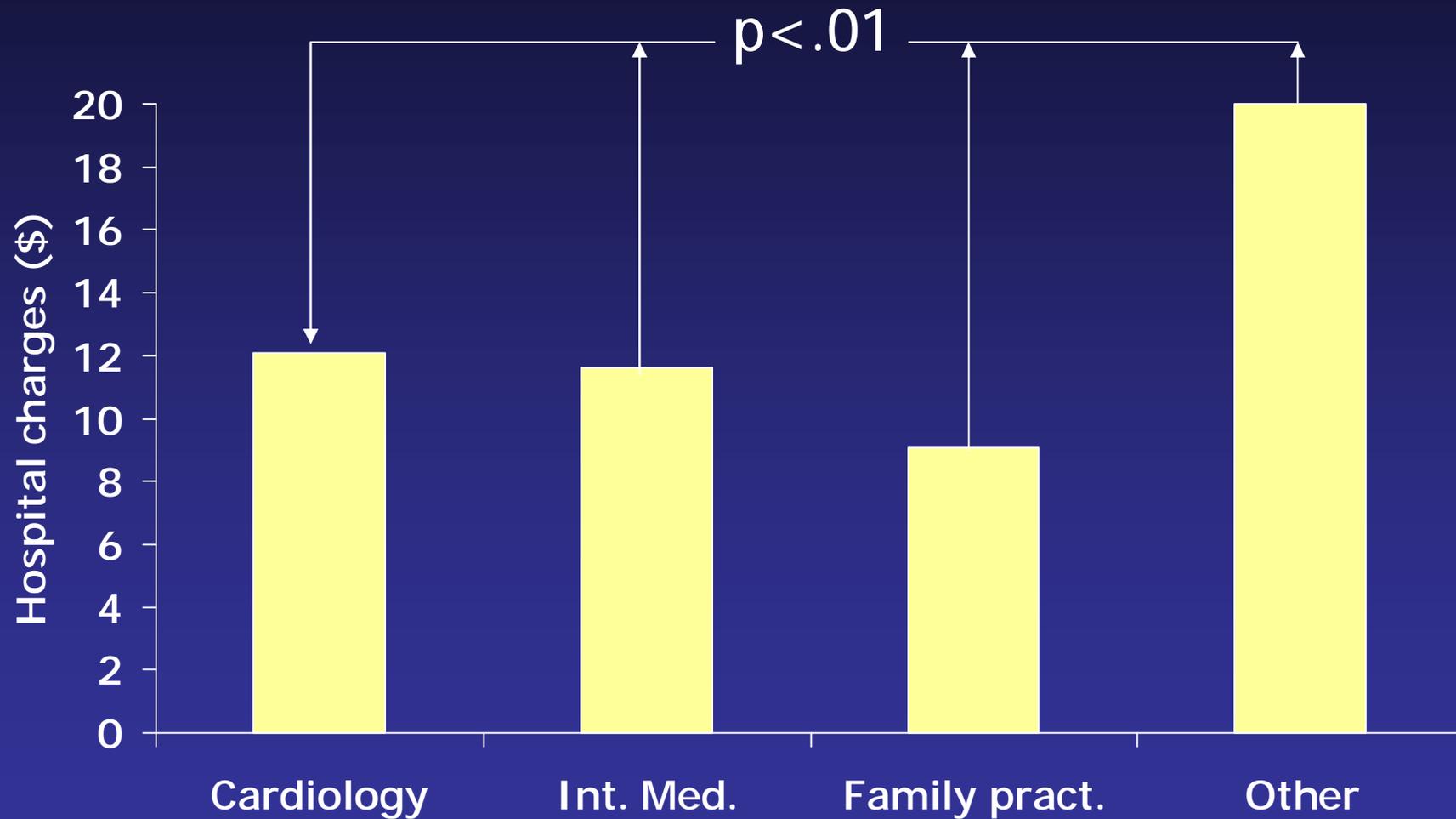
"Analysis of a large, statewide database" AmHeartJ 139:491-496, 2000

Outcome by specialty
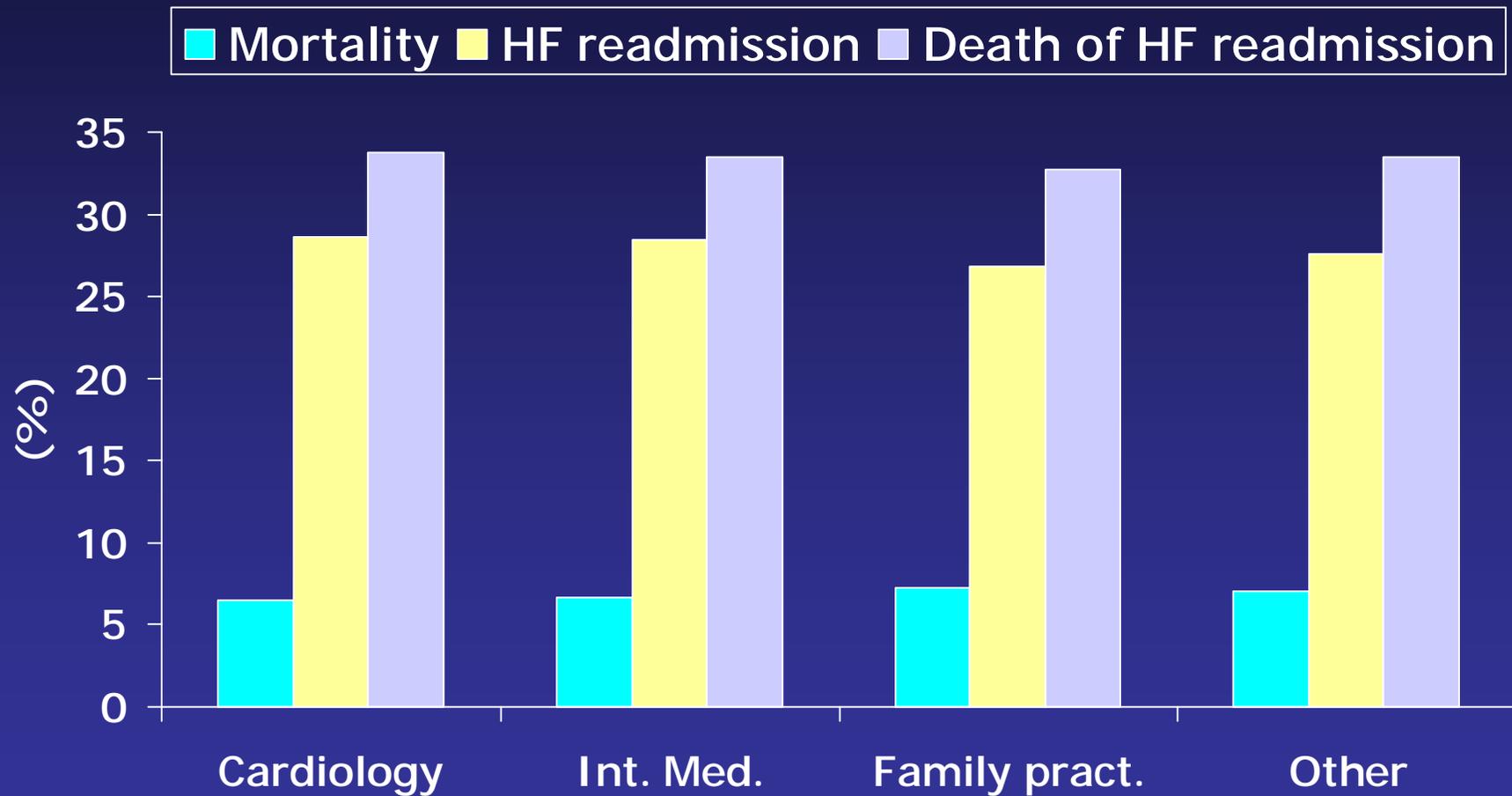
"Analysis of a large, statewide database" AmHeartJ 139:491-496, 2000

SUPPORT : Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments
(a prospective cohort study; 1298 pts.)

Survival among CHF pts. cared by cardiologists ···· or by generalists ——
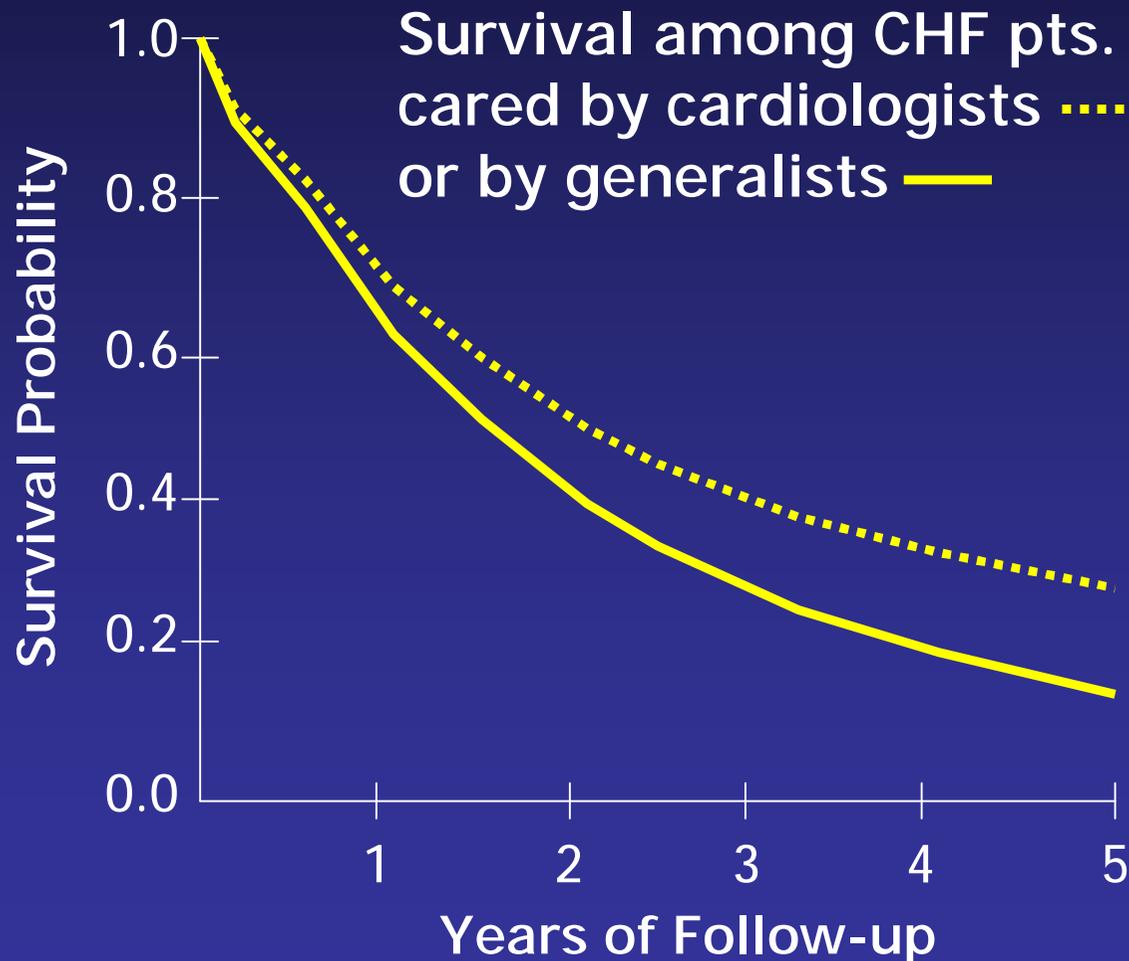
Pts. at risk	Cardiol.	Gener.
Year 0	743	555
Year 1	454	339
Year 2	263	185
Year 3	162	99
Year 4	105	64
End FU	34	30

(Auerbach AD, Ann.Internal Medicine 2000;132/3:190)

Strategies for improving CHF management

ý Individual instruction

ý Feedback of performance

+

- evaluation of the quality of care

    (process of care > outcome)

- reminders

- academic detailing

- involvement of opinion leaders

- collaboration of family physicians and cardiologists

Are there 'magic bullets' ?

A review of 75 studies of implementations strategies in primary care ⇒ <u>most effective strategies</u> :

ý Individual instruction

ý Feedback of performance accompanied by a peer review

Wensing M, Grol R: IntJHealthCare 1994;6:115

Management of HF :
A Common Task

Investigators	⟶	Inovation
Founding associations	⟶	Support
Industry	⟶	Tools
Clinicians	⟶	Application
Public / Media	⟶	Awareness / Action