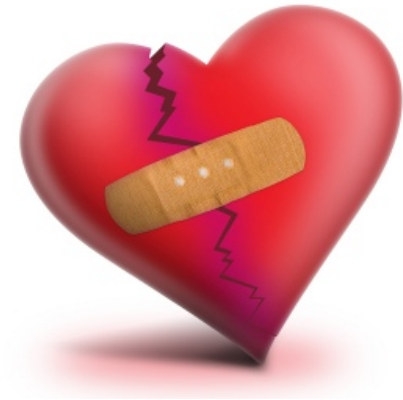

Heart Failure

A Disease for the Internist?



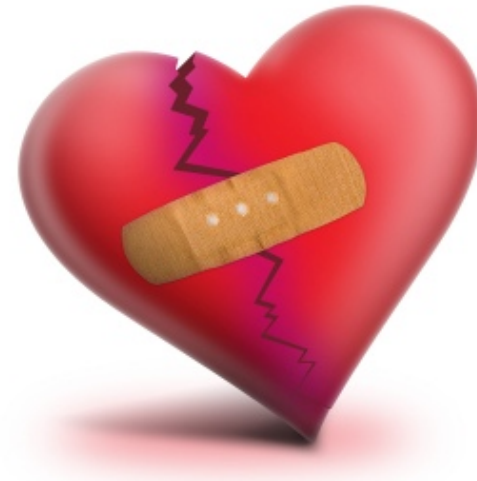
Dr Chris Davidson

Sussex Cardiac Centre

BRIGHTON UK

Hot Topics in Heart Failure

- Drug treatments
- Investigations
- Devices
 - Pacemakers/Defibrillators
 - LVAD
- Cardiac Surgery

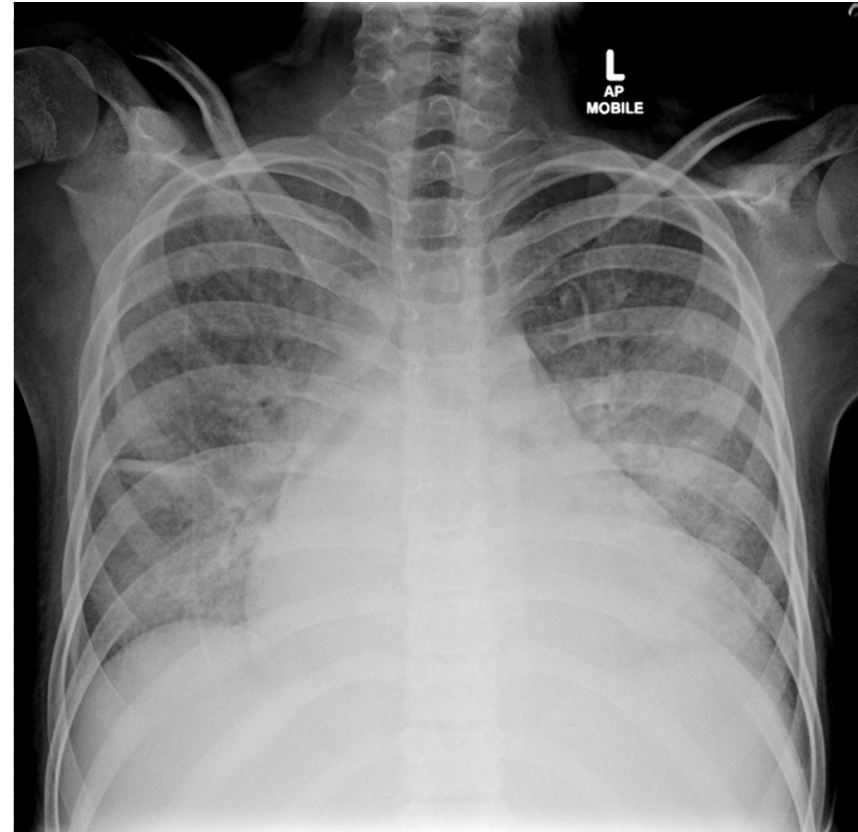


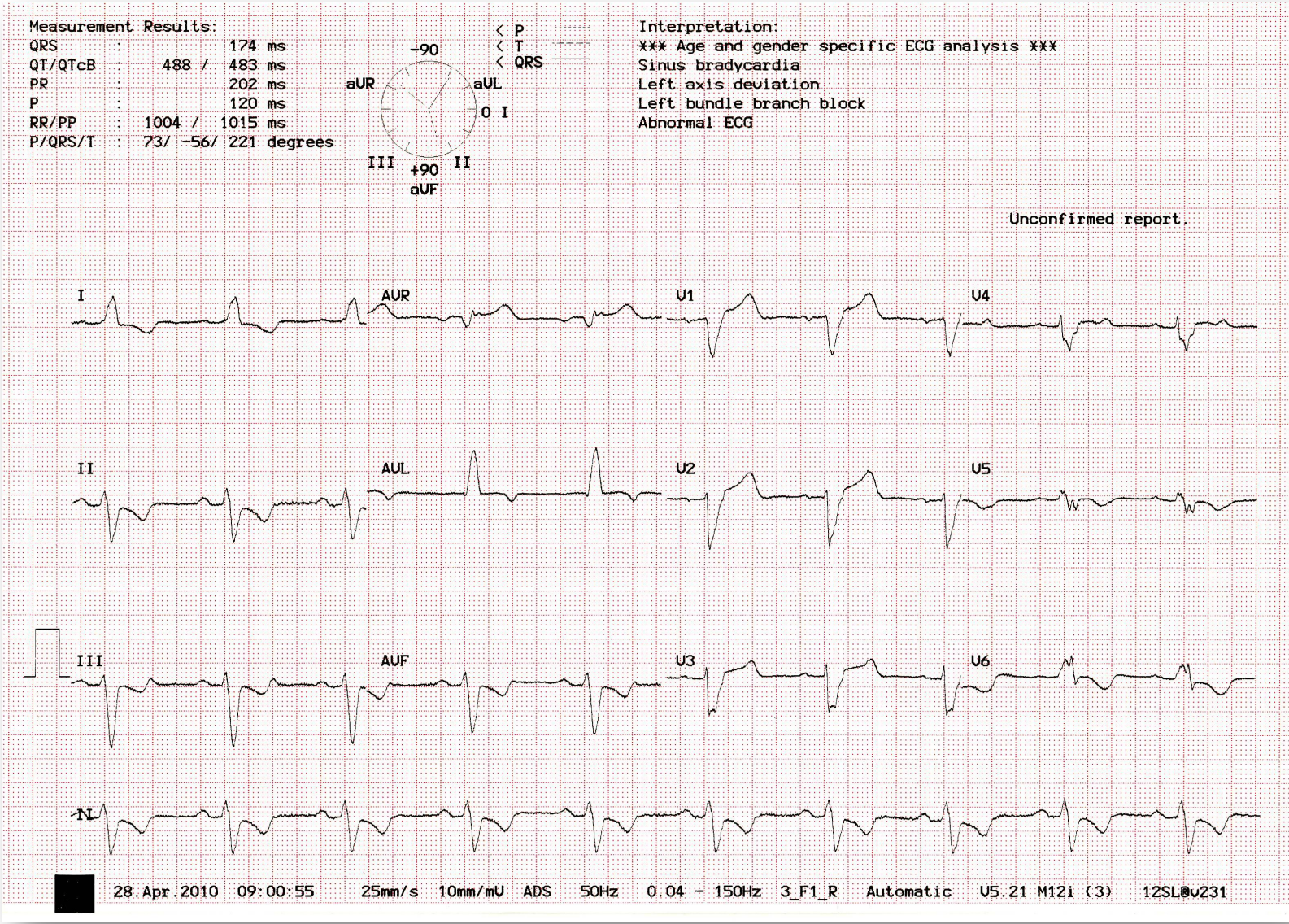
Heart Failure

Case 1

Medical Outpatients

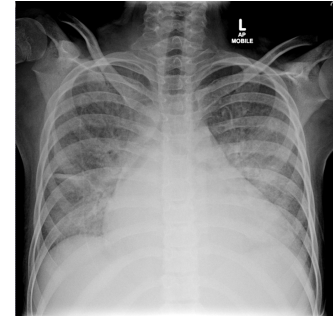
- 68 year old man: Dyspnoea 1month
- MI 10 years ago
- Rx:
 - atenolol, enalapril, simvastatin, aspirin
- On Examination:
 - JVP, lung crepitations, mild oedema, systolic murmur
- CXR:
 - cardiomegaly, pulmonary congestion
- ECG:
 - Sinus tachycardia (110/min), LBBB





Heart Failure

Case 1



Management Options?

■ Echo:

- EF 32%; mitral regurgitation, dilated LV

■ Drugs

- Diuretics
- Optimise BB ACEI
- Consider Ivabradine

■ Investigations

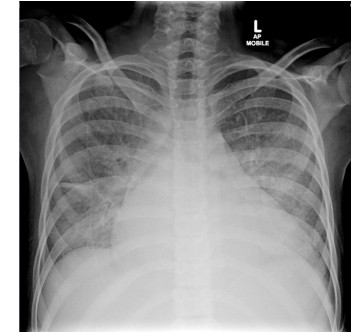
- Angiography?
- Myocardial viability?

■ Other Treatments:

- Exercise programme
- Cardiac Surgery?
- Biventricular Pacemaker/defibrillator?

Heart Failure

Case 1



■ *Q1: Who should look after this patient in Hospital?*

- A. Cardiologist*
- B. Internist*
- C. Both*

■ *Q2: Who should look after this patient after discharge?*

- A. Cardiologist*
- B. Internist*
- C. Both*

Heart Failure

Case 2

Emergency Room

- 43 yr old Banker
- Acute dyspnoea
- Past History: increasing stress at work, treated for panic attacks by counsellor
- On Examination:
 - Acute pulmonary oedema
 - Pulse 132/min; BP 150/100; basal creps; JVP not seen; no oedema
- Labs:
 - normal; pO₂ low, pCO₂ low



Bedside Echo: LV function and size normal (EF 65%); valves not clearly seen

Heart Failure

Case 2

Cardiology Ward

- Responds to intravenous opiates, nitrates and diuretics
- ECHO: LVEF 65%; no dyssynchrony; no valvular abnormality
- Catheterisation: normal coronary arteries; LVEDP 4mm Hg
- Patient anxious to go home

What is your advice about further investigations/treatment?

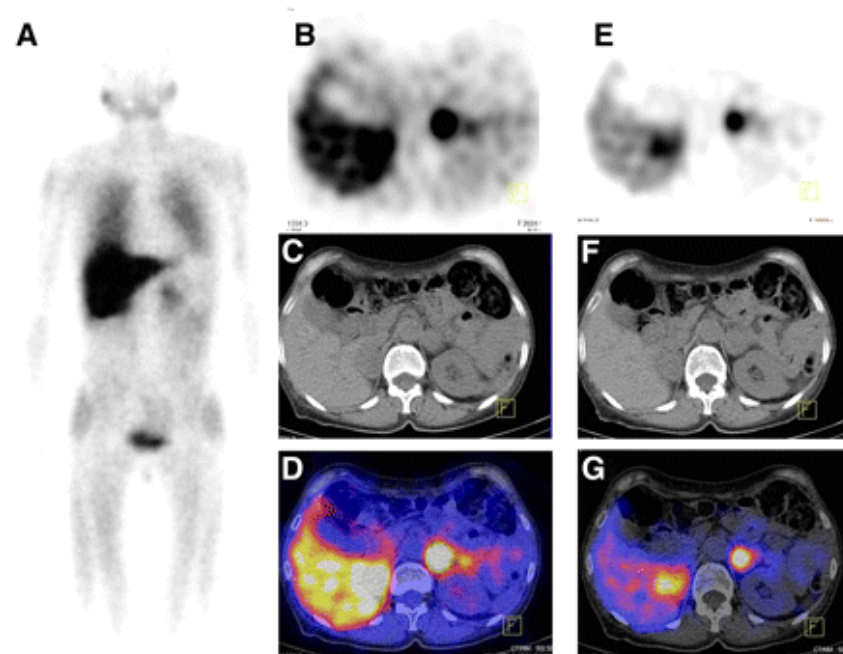


Heart Failure

Case 2

Diagnosis

- Phaeochromocytoma
 - Urinary/plasma catecholamines elevated
 - Adrenal Tumour on imaging
 - No evidence of MEN2
- Successful surgery



Heart Failure

Case 2



■ *Q1: Who should look after this patient in Hospital?*

- A. Cardiologist*
- B. Internist*
- C. Both*

■ *Q2: Who should look after this patient after discharge?*

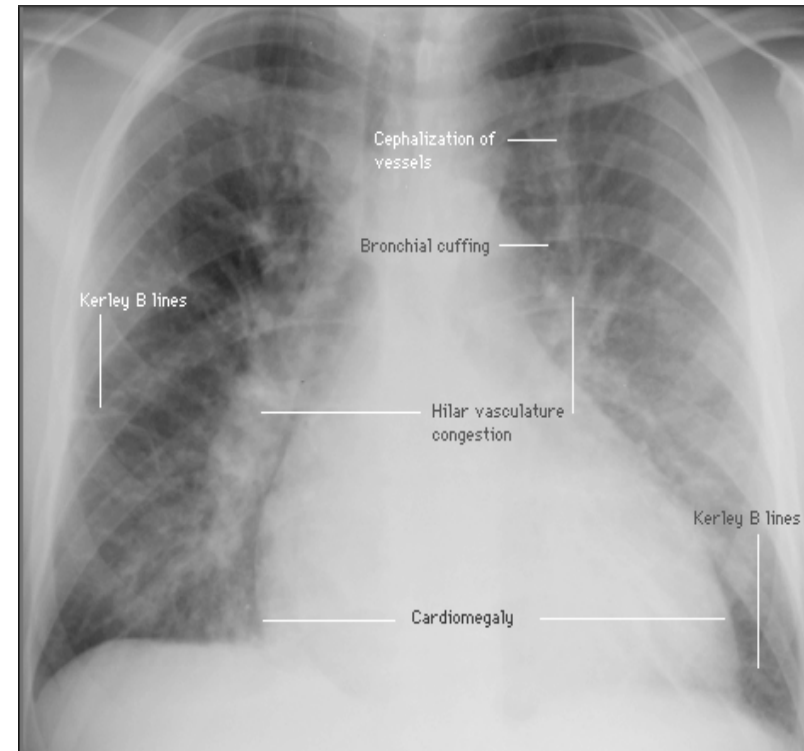
- A. Cardiologist*
- B. Internist*
- C. Both*

Heart Failure:

Case 3 - a more typical case?

Medical Assessment Unit

- 78 year old woman
- Hypertension ; type II Diabetes; osteoarthritis
- Rx: Atenolol, metformin, thiazide, indomethacin
- AF 110/min, 180/80, JVP+, oedema++
- CXR: cardiomegaly, pulmonary congestion
- ECG: Atrial Fibrillation

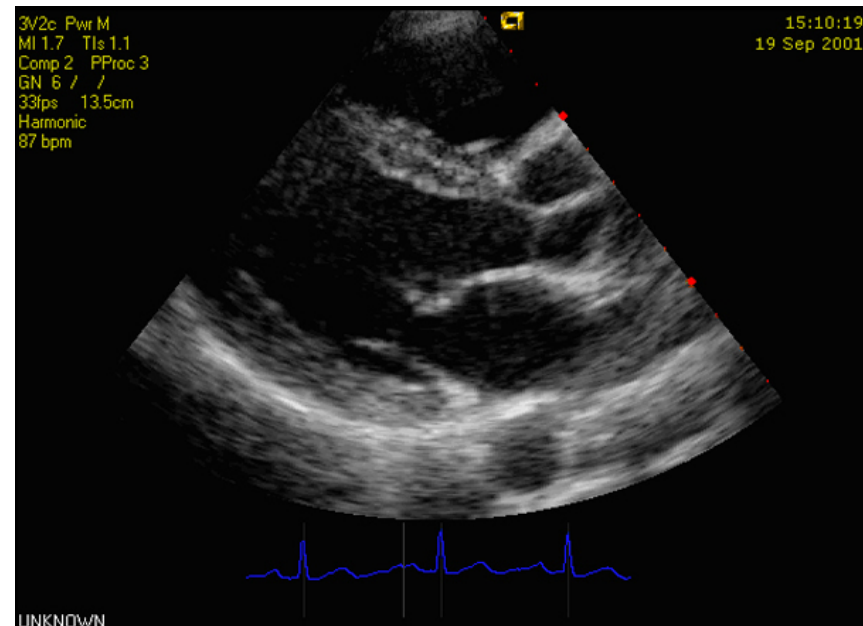


Given iv Frusemide 80mg with a 'good' diuresis and feels better today

Heart Failure:

Case 3 - a more typical case?

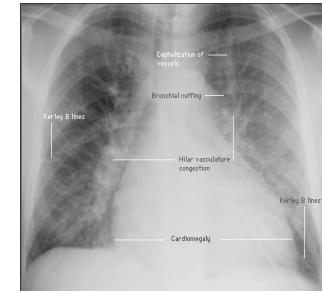
- Blood tests:
 - Hb: 9.6g/dl (>12)
 - Electrolytes: normal
 - Renal:
 - Creatinine: 215 micromol/l (<90)
 - eGFR 32ml/min (>90)
 - BS: 15.6mmol/l (<10)
 - B Gases: no acidosis



ECHO: LVH, Ejection Fraction 48%, diastolic dysfunction, valves normal

Heart Failure:

Case 3 - a more typical case?



Rx: Atenolol, metformin, thiazide, indomethacin

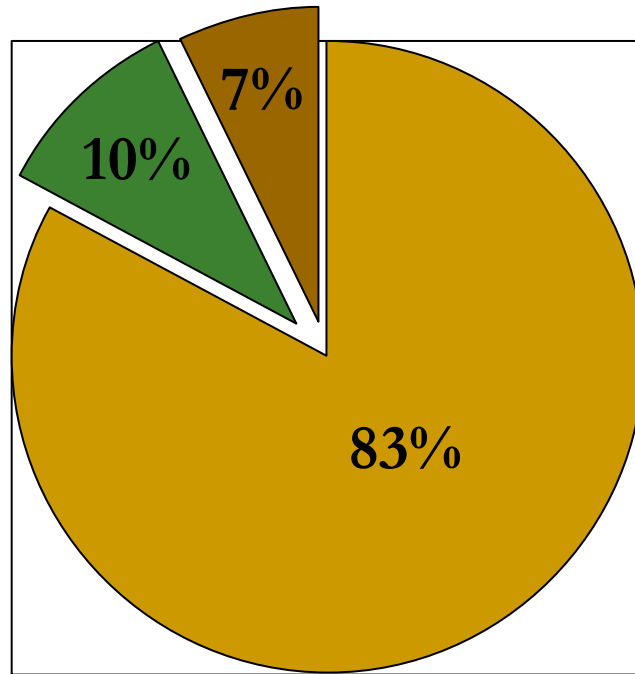
■ TREATMENT OPTIONS

- Diuretics?
- Beta-blockers?
- ACEI?
- Diabetes: metformin?
- NSAID?

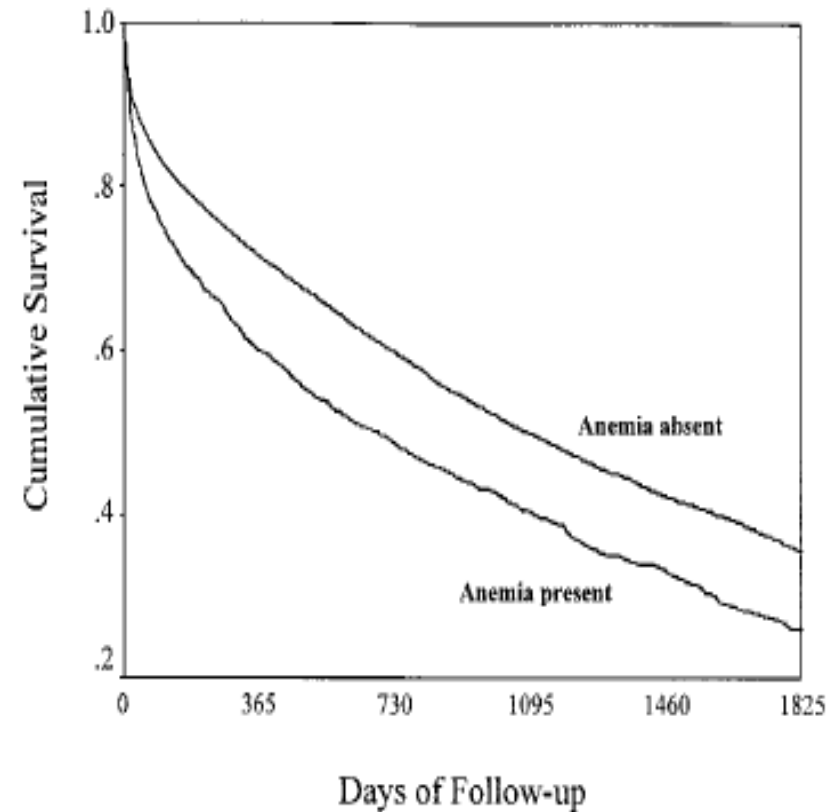
■ INVESTIGATIONS

- Anaemia?
- Renal function?
- Cardiac?

Anaemia in a cohort of 12,065 patients with new-onset heart failure.



- No Anaemia
- Anaemia Chronic Disease
- Anaemia other causes

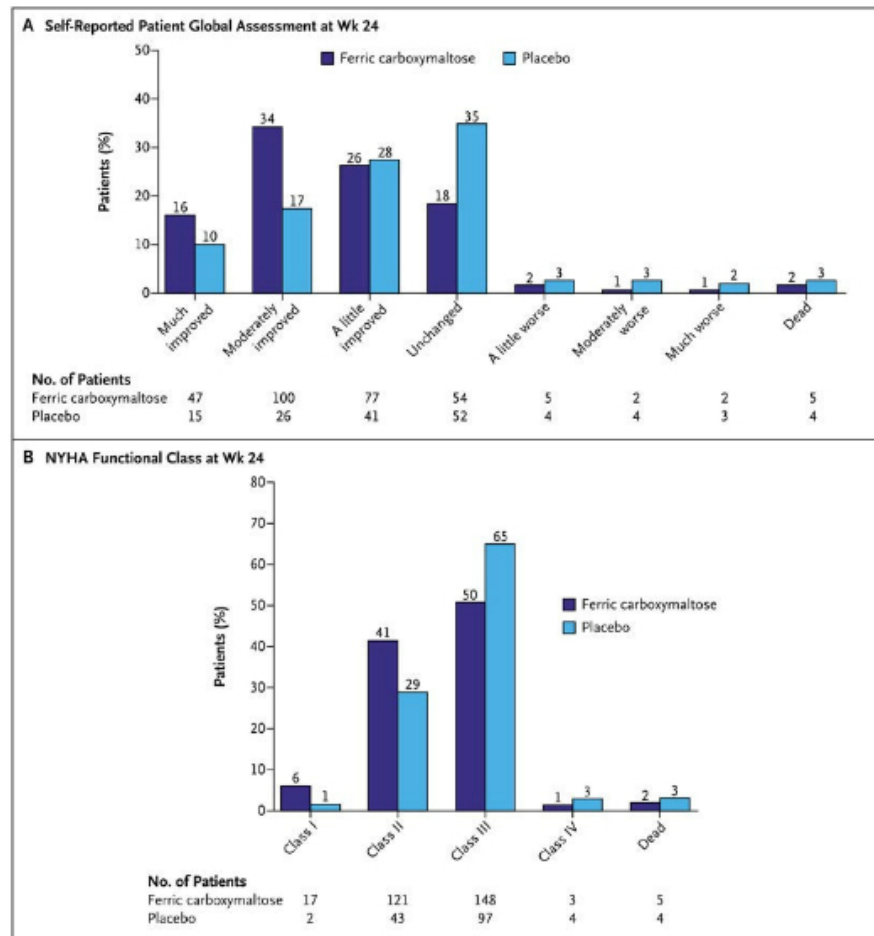


Circulation 2003;107;223-225

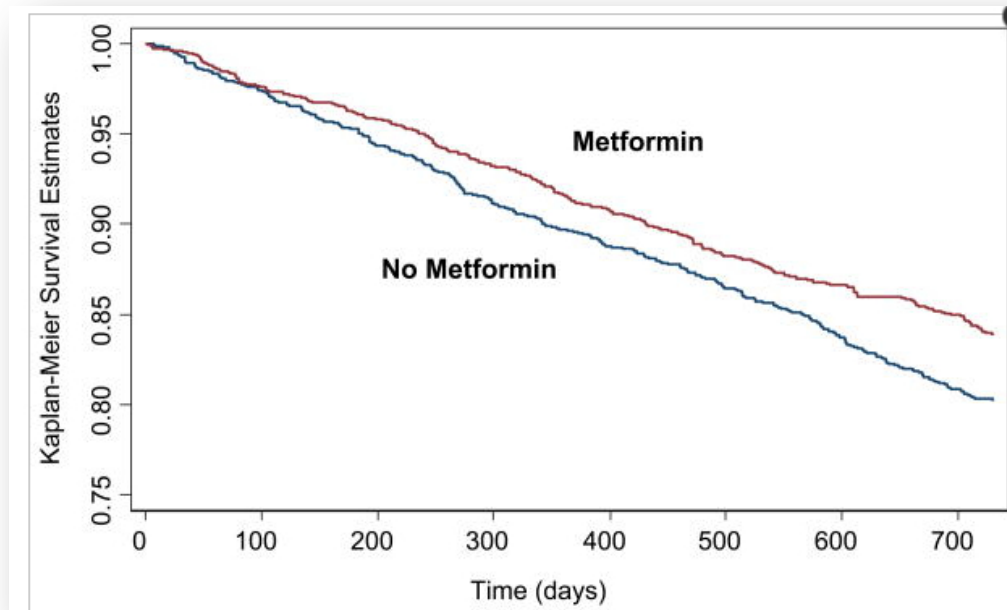
Anaemia in Heart Failure

- FAIR-HF study:
NEJM 2009; 361, 2436
 - Intravenous iron
 - 459 pts EF <40%; Hb <12g/dl
 - FU: 24 weeks

- RED-HF study
NEJM 2013; 368, 1210
 - Darbepoietin
 - 459 pts EF <40%; Hb <12g/dl
 - Death or hospitalisation
 - RESULT: no significant difference



Metformin in Heart Failure



- *Metformin Use and Mortality in Ambulatory Patients with Diabetes and Heart Failure*
 - Aguilar D et al, Circ. Heart Failure 2011; 4, 53
 - 6185 pts with diabetes and HF for 2 years
 - Improved mortality in patients taking Metformin (HR 0.76, p<0.01)

Heart Failure

Case 3



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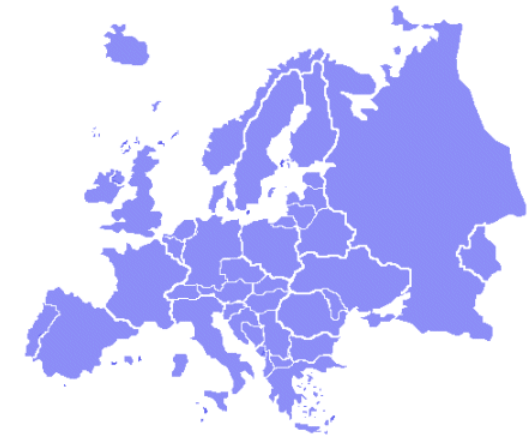
Heart Failure

A Disease for the Internist

- *Who looks after patients with Heart Failure?*
- *Use of Evidence-based Treatments*
- *The problem of Heart Failure with ‘Preserved’ LV function*
- *Co-Morbidity in Heart Failure*
- *How do we prevent early relapse?*

EuroHeart Failure Survey

Registry of 46,786 consecutive admissions to general medicine and cardiology wards in 24 European countries over a 6 week period 2001-2

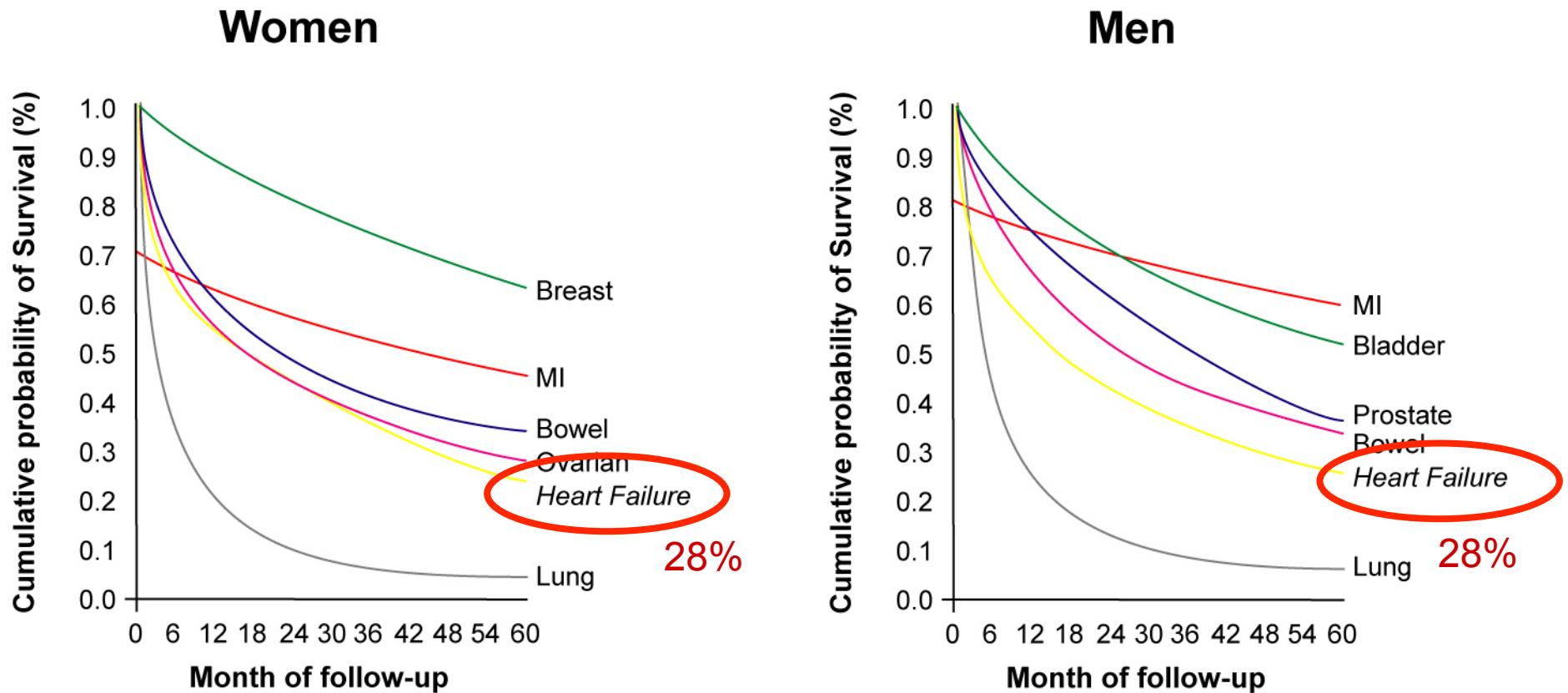


- 11,327 diagnosis HF
- Mean age 71 years; 47% women
- GIM / geriatrics 55%, cardiology 45%
- CHD 66%, Valve disease 29%, DCM 5%
- HF principle reason for admission in 40%
- LVSD in 46%: male > female

European Heart Journal (2003) 24, 442–463

MORE MALIGNANT THAN CANCER?

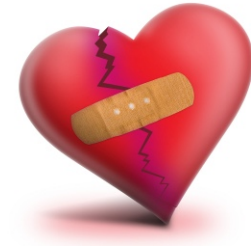
Stewart S et al. Eur. J Heart Failure (2001) 3 315-322



Five year Survival of Patients admitted to Hospital in Scotland 1991

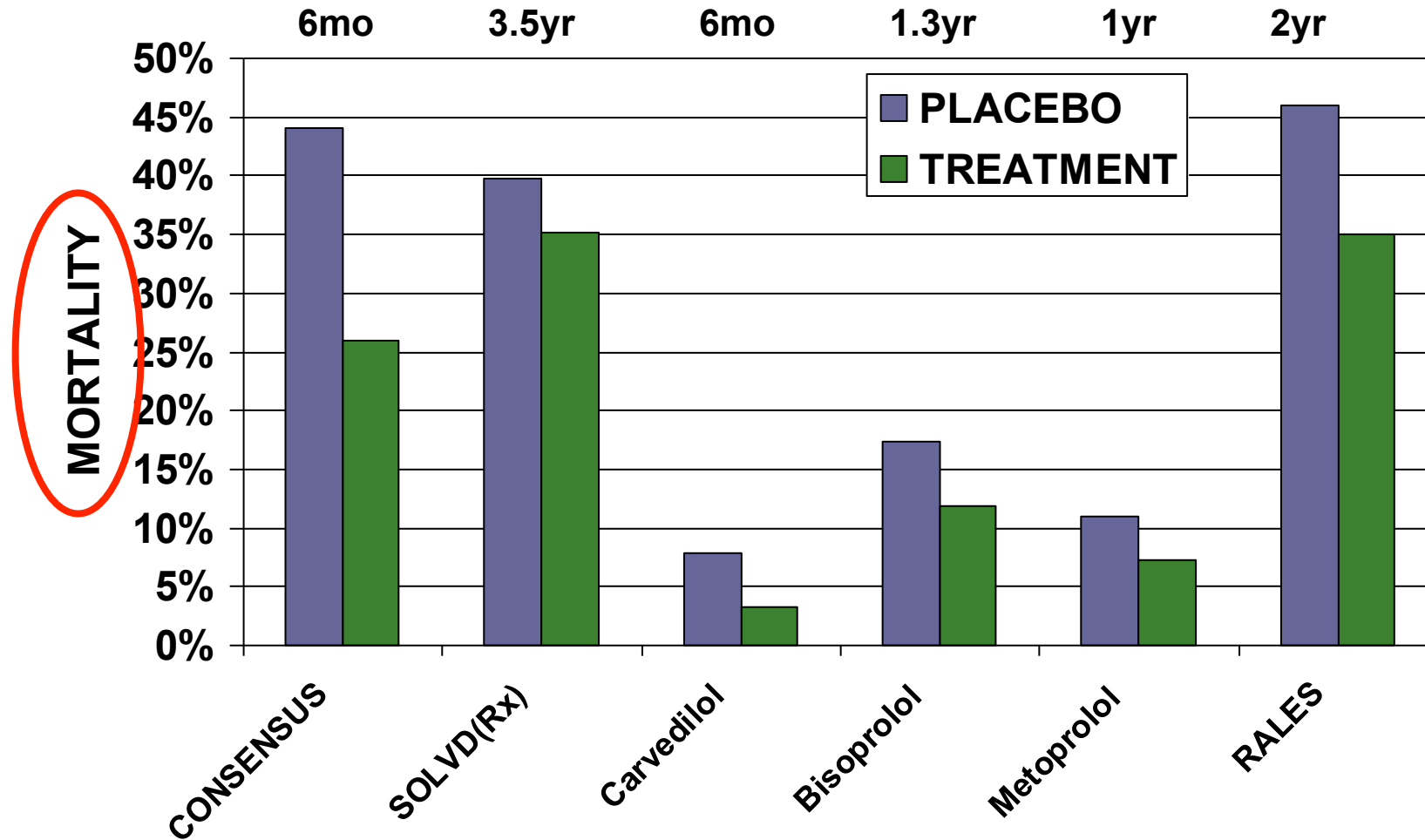
Reference: Stewart et al. Eur J Heart Failure 2001

HF – Trial Evidence



- ACE inhibitors
- Vasodilators:
Hydrallazine/Nitrate
- Beta-Blockers
- Spironolactone
- Angiotensin Receptor
Blockers
- Exercise Training
- Biventricular Pacing /
Defibrillators
- Cardiac Transplantation

Mortality Benefit of Treatments in Heart Failure



Guidelines for the Treatment of Heart Failure

- American Heart Ass. / American College of Cardiology 2013
 - *Guideline for the management of Heart Failure*
Circulation 2013; 128(16):e240-e327
- European Society of Cardiology 2012
 - *Acute and Chronic Heart Failure EHJ 2012; 33:1787-1847*

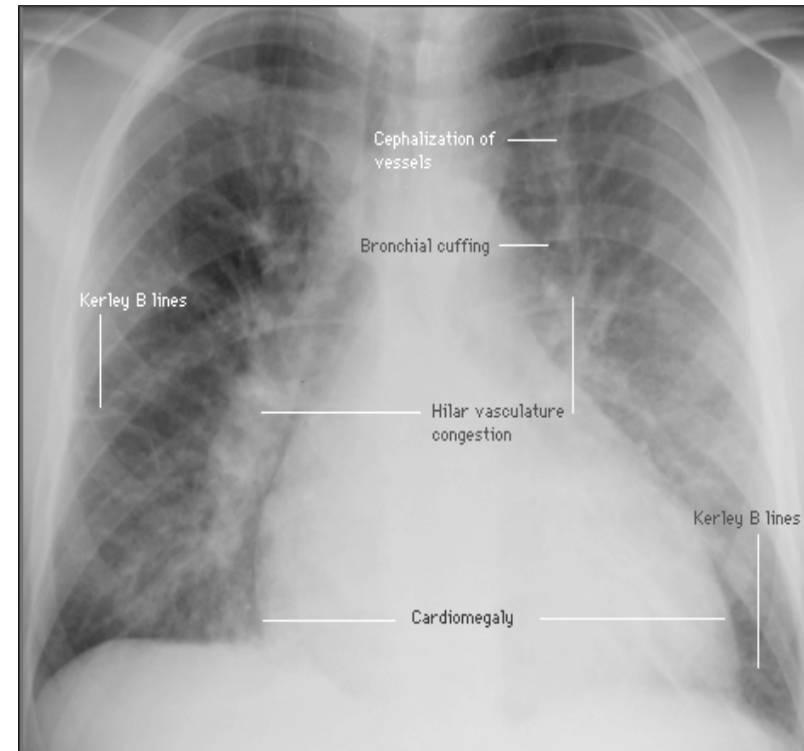
ALL THERAPEUTIC GUIDELINES RELATE TO SYSTOLIC DYSFUNCTION

Heart Failure:

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Medical Assessment Unit

- 78 year old woman
- Hypertension ; type II Diabetes; osteoarthritis
- Rx: Atenolol, metformin, thiazide, indomethacin
- AF 110/min, 180/80, JVP+, oedema++
- CXR: cardiomegaly, pulmonary congestion
- ECG: Atrial Fibrillation



Echocardiography : LVH, Ejection Fraction 48%

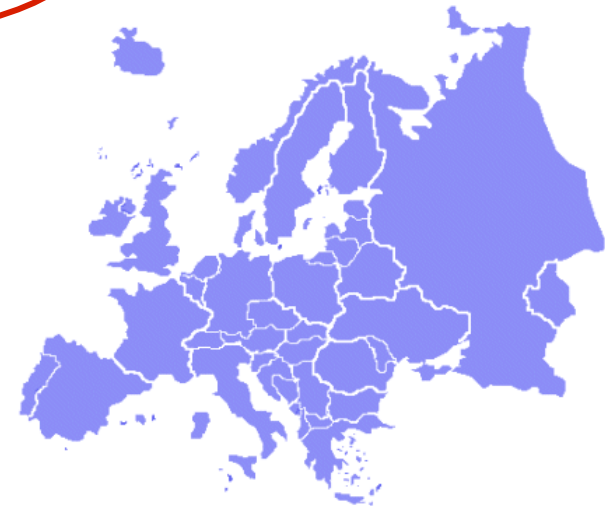
HEART FAILURE

**Systolic vs. Diastolic
Dysfunction**

EuroHeart Failure Study:

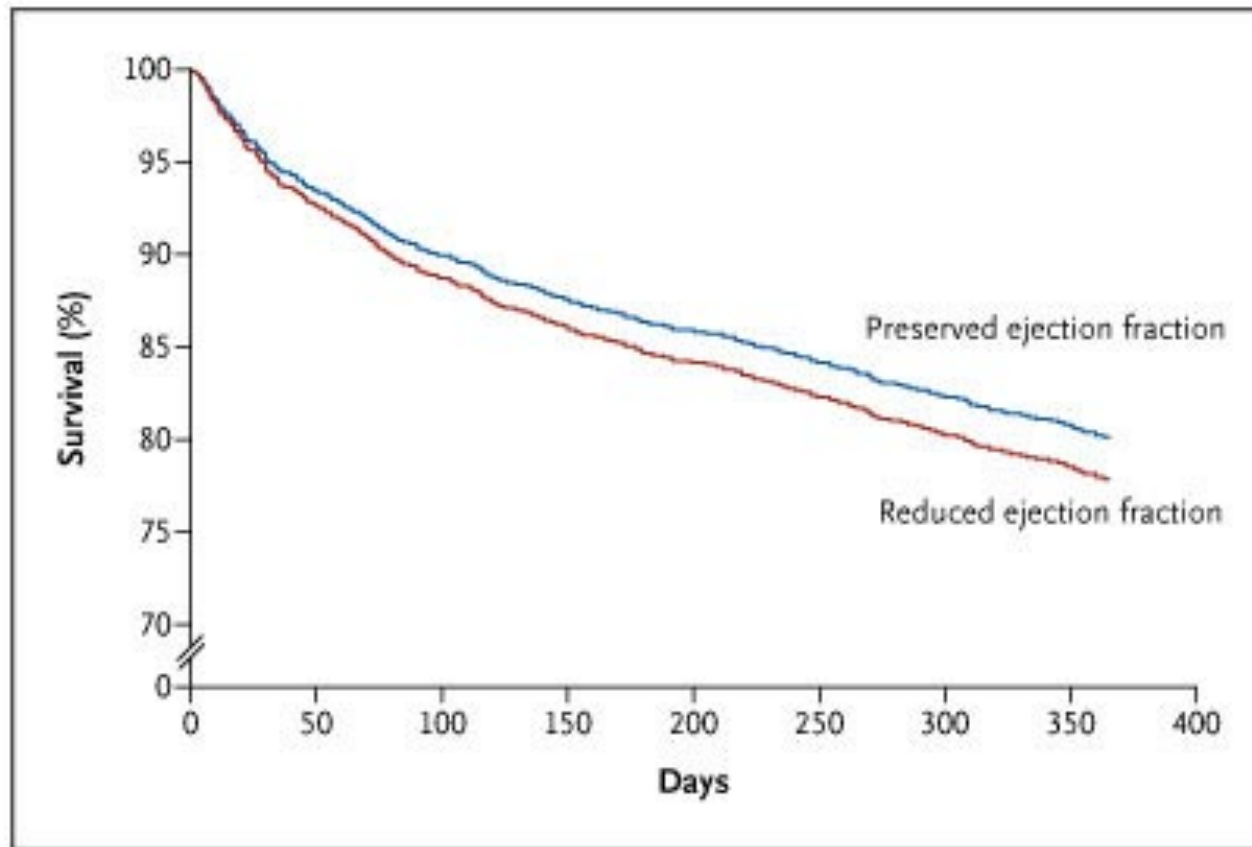
Preserved vs Impaired LV Function (EF < 40%)

- Patients with echo assessment:
 - n = 6806
 - 54% impaired LV · 46% 'preserved' LV
- 'Preserved' LV function
 - women > men
 - 4 years older
 - Hypertension more common



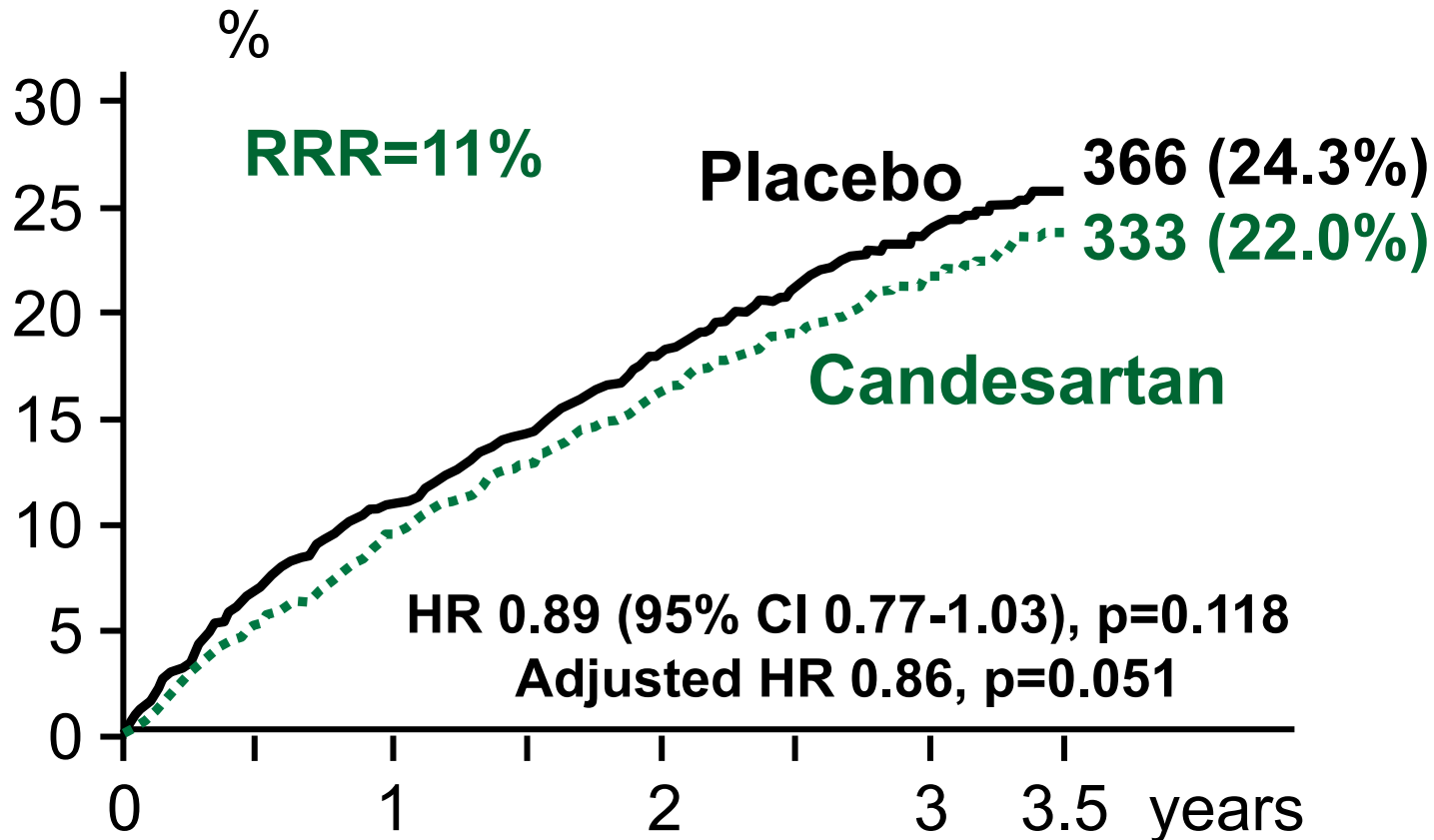
European Heart Journal (2004) 25, 1214–1220

Adjusted Survival Curves for Patients with Heart Failure with Reduced or Preserved Ejection Fraction over the Year after the First Hospital Admission



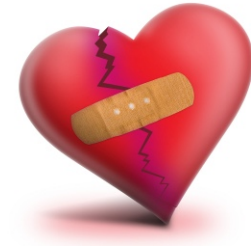
Bhatia R et al. N Engl J Med 2006;355:260-269

CHARM-Preserved: Primary outcome CV death or CHF hospitalisation



Lancet. 2003;362:759-766.

HF – Trial Evidence



- ACE inhibitors
- Vasodilators:
Hydrallazine/Nitrate
- Beta-Blockers
- Spironolactone
- Angiotensin Receptor
Blockers
- Exercise Training
- Biventricular Pacing /
Defibrillators
- Cardiac Transplantation

Most patients with HF and Diastolic dysfunction have HT and require BB/ACEI anyway

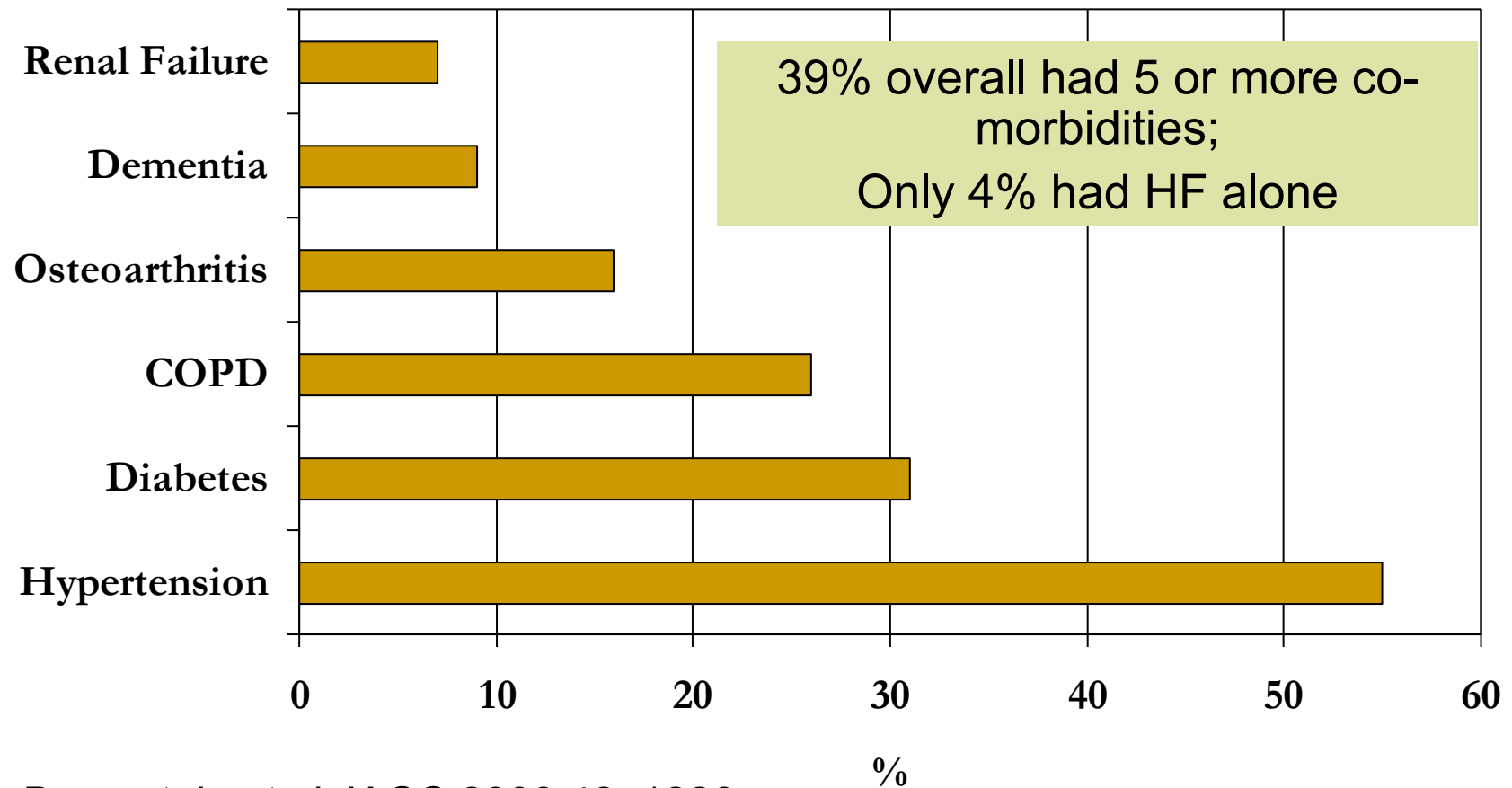
Heart Failure

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- *How do we prevent early relapse?*

Co-Morbidity in Heart Failure

Survey of 122,630 patients in US Healthcare System

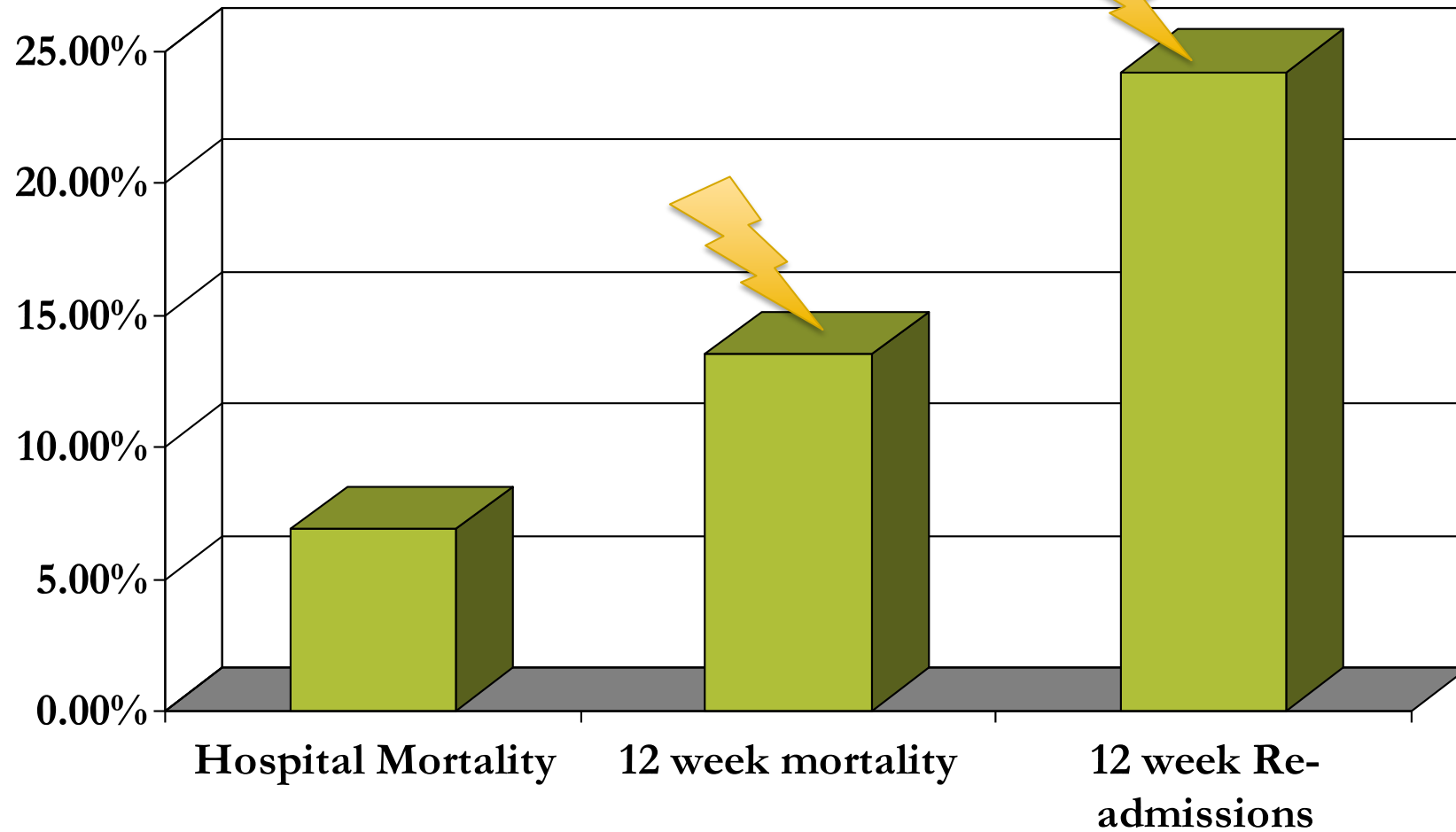


Braunstein et al JACC 2003 42; 1226

HEART FAILURE:

*How can we best manage
this chronic disease?*

EuroHeart Failure Study



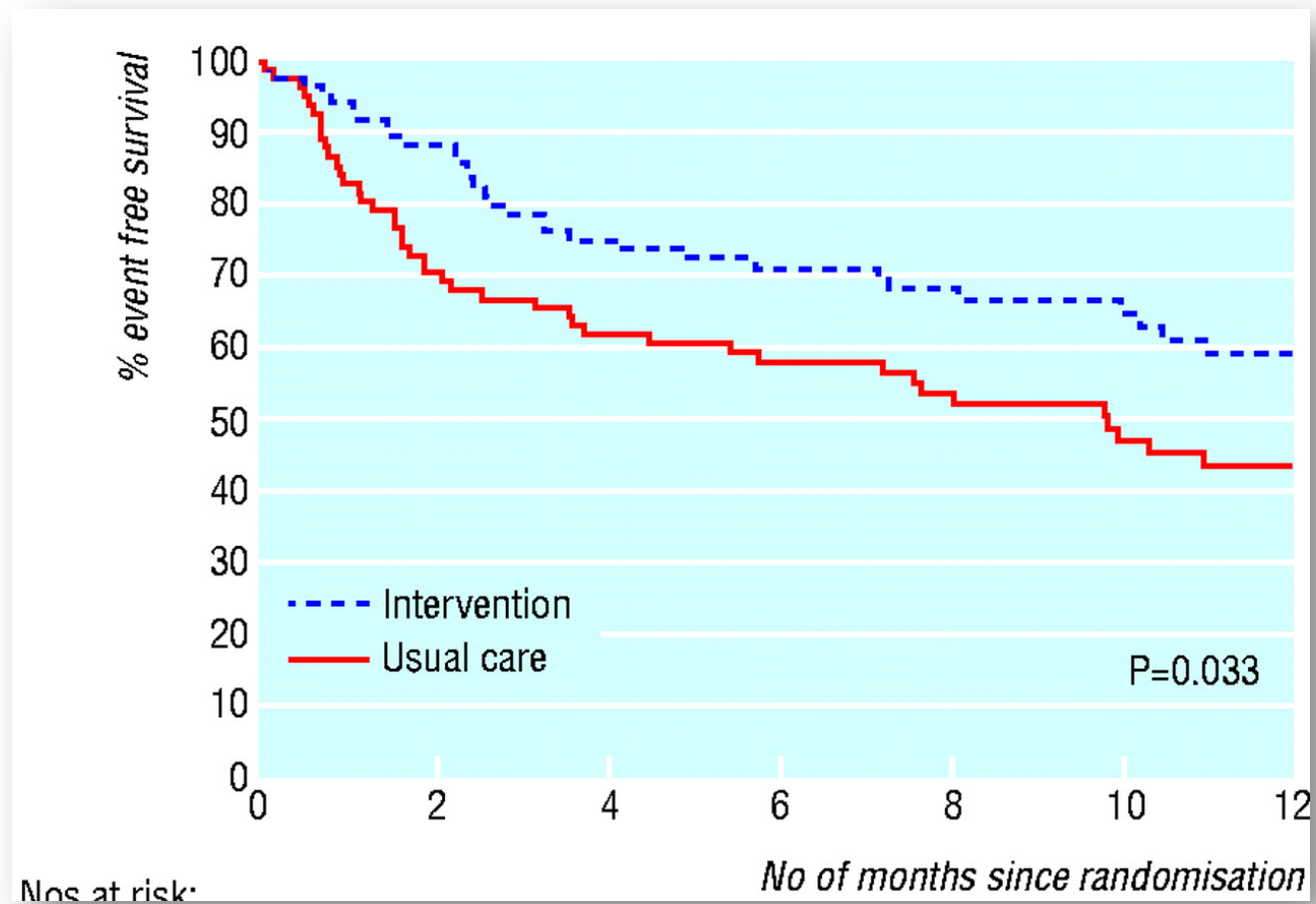
Recovery from Heart Failure



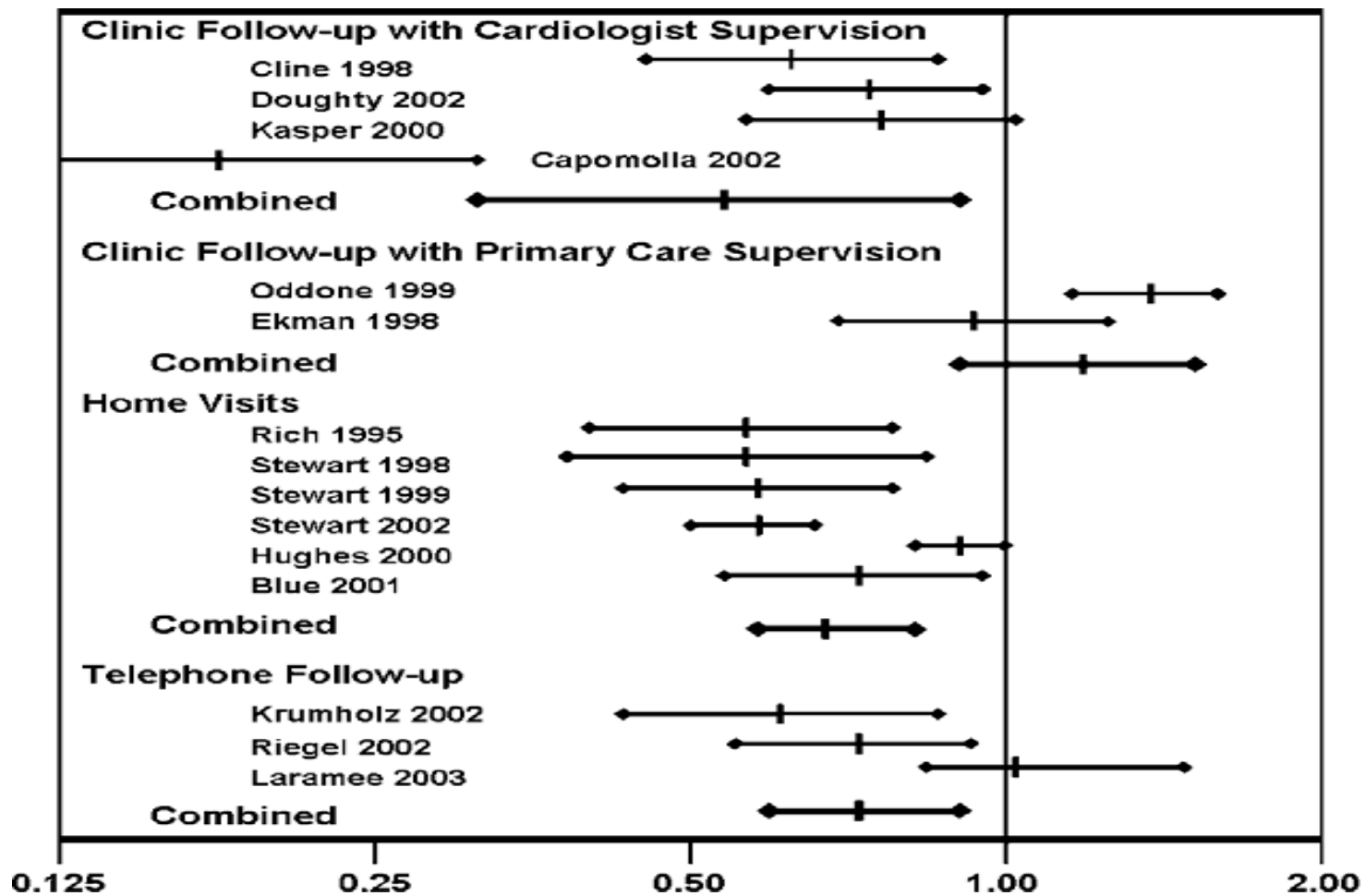
25% Re-admissions due to poor compliance with Medication

Randomised controlled trial of specialist nurse intervention in heart failure

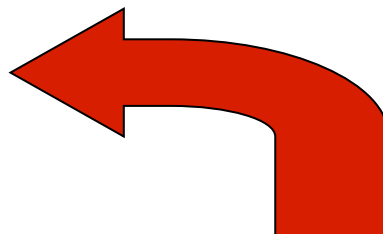
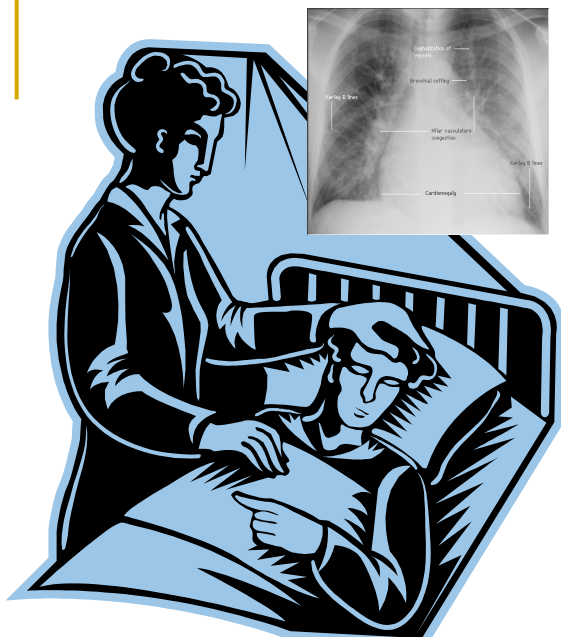
Blue, L. et al. BMJ 2001;323:715-718



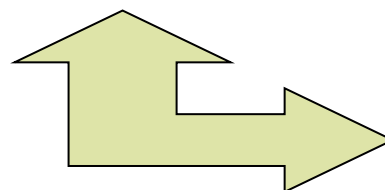
Heart Failure Disease Management Trials: Meta-analysis



Recovery from Heart Failure



INTERNIST



Heart Failure

A Disease for the Internist?

Yes!

