The National Heart Failure Audit 2010/2011

Project Steering Group;

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General Progress-April 2010-March 2011

85% NHS Trusts submitting data (133/156)

36,504 admissions

70% increase from last year
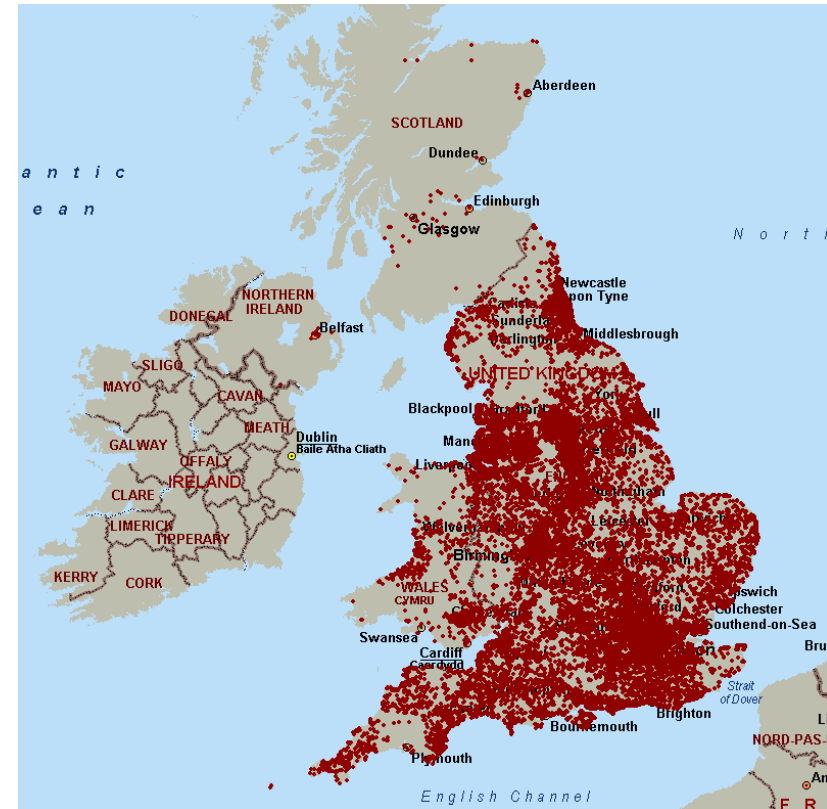
54% of HES discharges with HF in first position
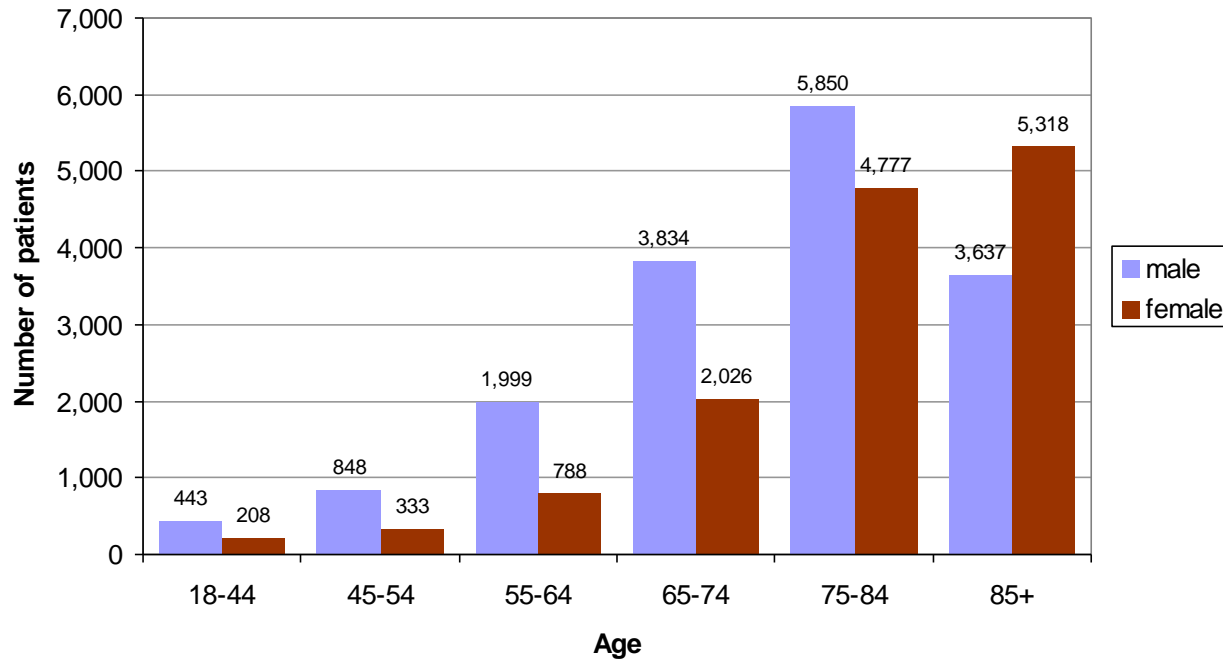   58% England
    8% Wales

Now >80,000 admissions recorded since 2006/7

36 mandatory fields
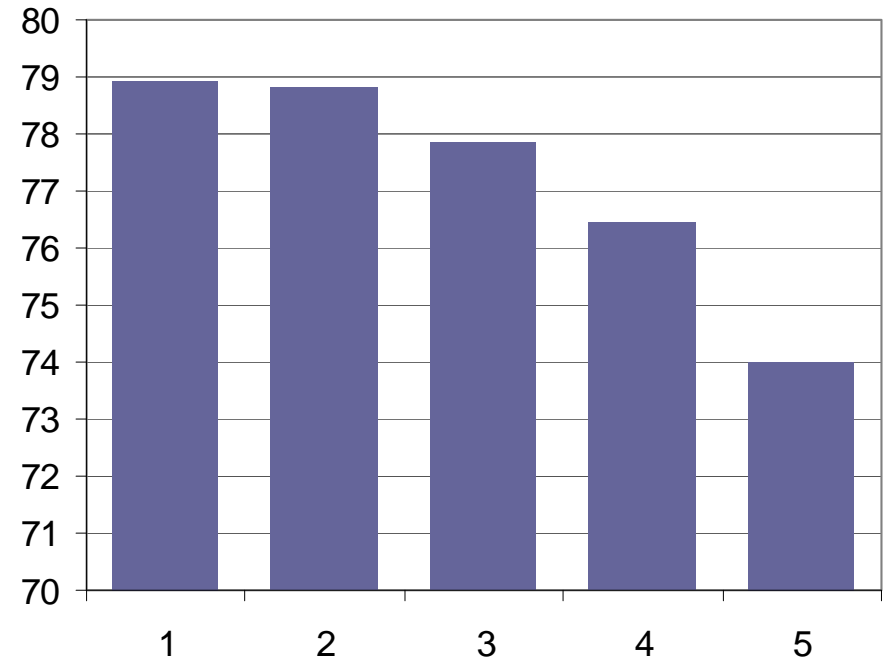
    Missing data<5% of diagnostic tests and treatments

Demographics 2010-11

Men admitted 5 years earlier than women, mean age for all 77.3, 74.9 (M)and 80.2 (F), p<0.001

Social Deprivation and HF Admission

Deprivation group	Mean age at first admission (years)
1 = most affluent	78.9
2	78.8
3	77.8
4	76.4
5 = most deprived	74.0

Diagnosis

82% of patients (n=24,753) had access gold standard diagnostic e.g echo

Cardiology -50%

General medical- 41%

Other wards -9%

56% (n= 16,872) had LVSD

    More men (64%) than women (37%) had LVSD

    More women had LV hypertrophy (54%), Valve disease (60%) and "diastolic dysfunction" (56%).

Symptoms

Breathlessness at rest -29% of patients

Severely limited exercise capacity -39%

Moderate or severe oedema -43%

almost identical to the previous year's data.

On readmission

Breathlessness -33%

Severely limited exercise capacity -41%

Moderate or severe oedema -49%

Aetiology and Comorbidity

TABLE 2: PREVIOUS MEDICAL HISTORY AND LEFT VENTRICULAR SYSTOLIC DYSFUNCTION			
	LVSD (%)	no LVSD (%)	p
Ischaemic heart disease	52	38	p<0.001
Atrial fibrillation	36	40	p=0.001
Myocardial infarction	37	21	p<0.001
Valvular heart disease	18	11	p<0.001
Hypertension	51	56	p<0.001
Renal impairment	4	15	p<0.001
Diabetes	28	30	not significant

Place of Care

Cardiology wards (n= 13,454; 45%)

General medical wards (n=13,669; 45%)

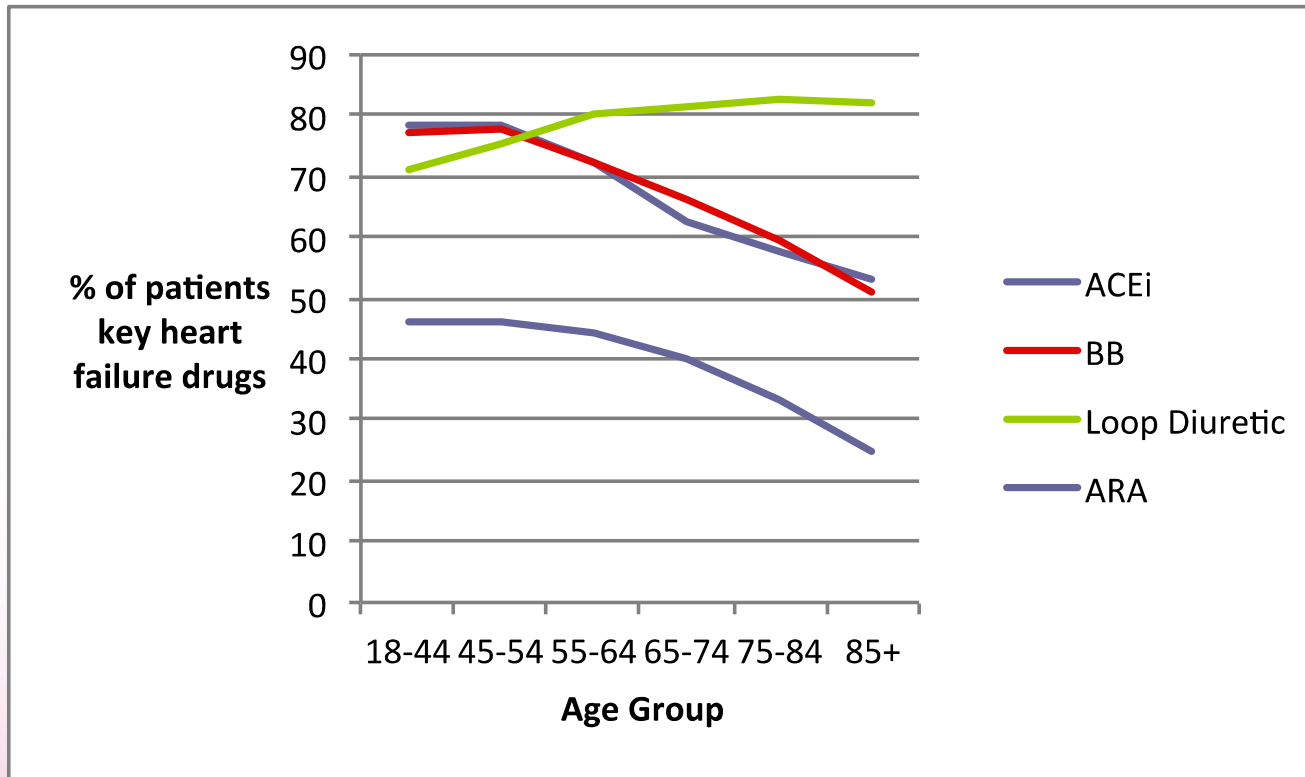**Cardiology were more often men (62%), younger age groups (74 and under)**

Consistent findings over the last three years.

Treatment

Drug	Total %	Cardiology	Gen Med
Loop	86		
ACEI	68	59	34
ARB	16		
ACE/ARB	81		
BB	65	62	31
ARA	36		
Thiazide	4.3	62	30

ACEI/BB/ARA more likely to be prescribed to men, and younger age ($p < 0.001$)

Treatment

Monitoring

47% -referred to HF specialist services (n=11670).

62% (n=7,243) men.

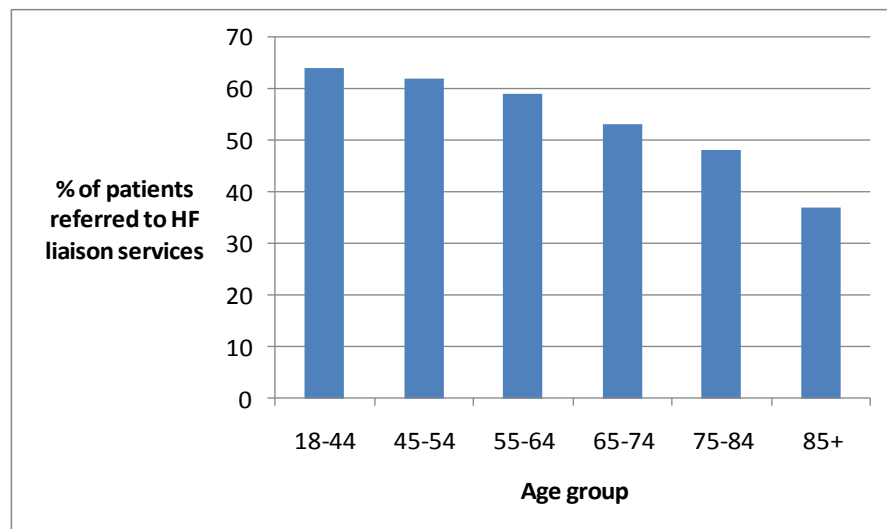**Cardiology wards -58%**

General Medicine-37%

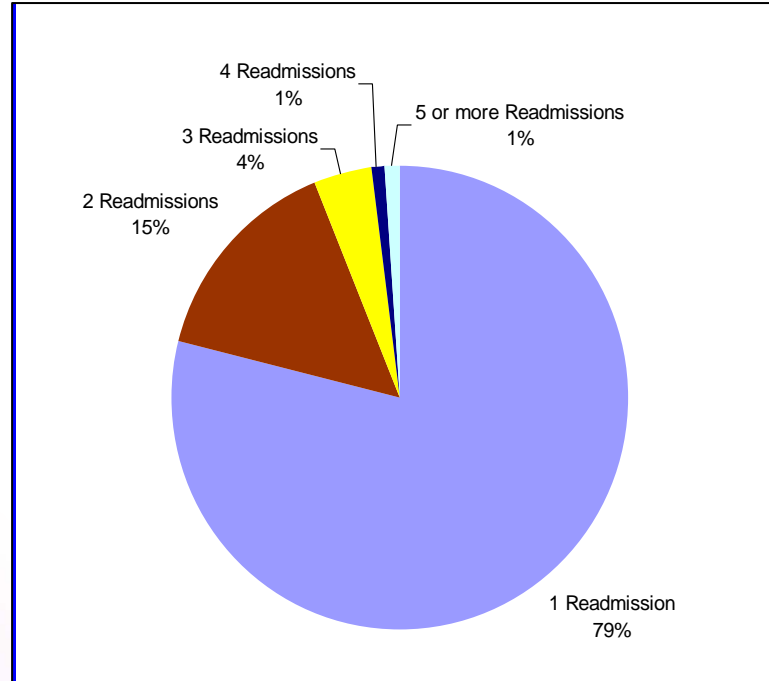**64% <45 -HF liaison services.**

37% > 85 age group

Pattern is similar to last year, access rates for older age groups have improved slightly.

Readmissions

6802 (20%) readmitted during the year.

Median number =1, up to 13

Length of Stay

Mean LOS-11 days

Median LOS- 9 days

   Both comparable with HES.

The mean LOS was similar in cardiology and other wards and for both men and women.
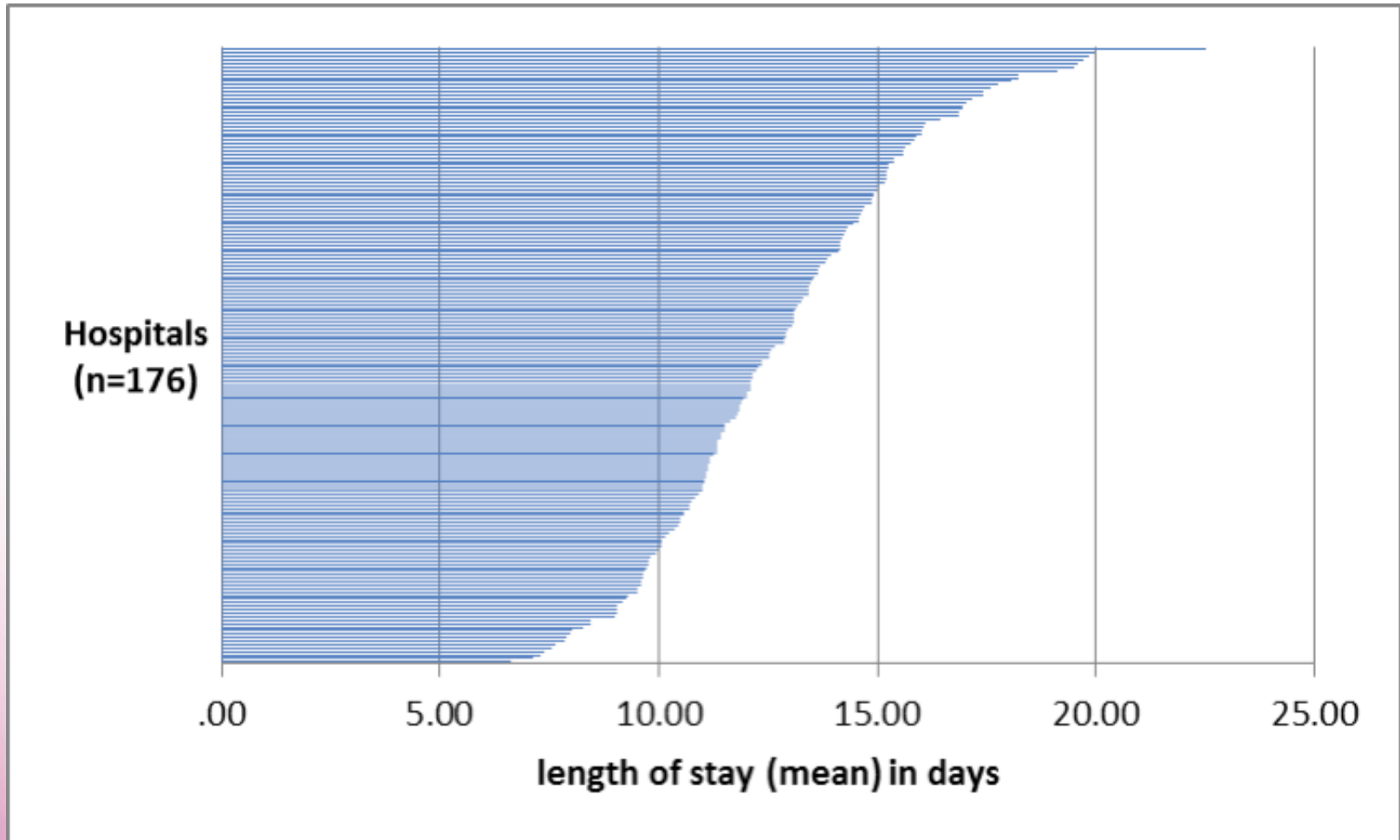
Difference between age groups.
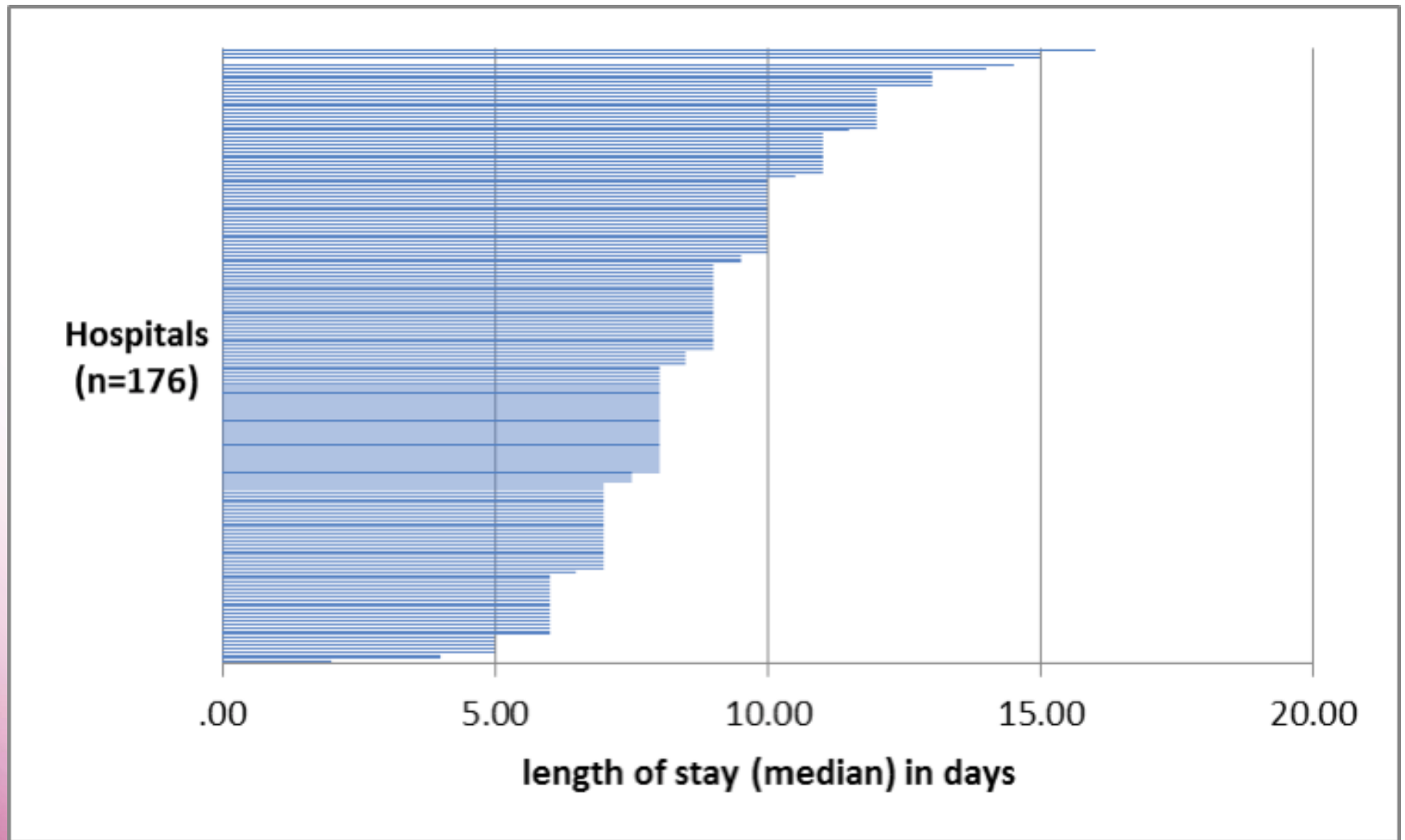
Readmission :

Mean LOS-13 days

- Cardiology (14 days) and general medicine wards (12 days) and other wards (13 days).
- No difference between men and women but longer LOS for older age groups

Mean Length of Stay

Median LOS by Hospital

Mortality

Validated life status -27, 850 (2010/11 audit time period)

33.1% (9,223) patients died during or after a hospitalisation

32.0 % for men and 34.4% for women)

The median follow up time was 237 days for all, and 306 for survivors

Mortality or readmission=51%

In Hospital Mortality

11.6 % (10.6 % for men and 12.8 % for women: p<0.001)

Significantly lower for those admitted:

Cardiology ward (8%)

General medical (14%)

Other ward (17%)

p<0.001

Post Discharge Survival
Cox Proportional Hazards Model

Predictor	Hazard Ratio (HR)	Range of HR	Significance
Previous MI	1.3	1.2-1.3	p<0.0001
Age at admission			p<0.0001
Male sex	1.2	1.1-1.3	p<0.001
NYHA class III or IV	1.4	1.1-1.6	p<0.001
No ACEI therapy	1.4	1.3-1.6	p<0.0001
No beta blocker therapy	1.5	1.3-1.6	p<0.001
Loop diuretic therapy	1.2	1.0-1.3	p<0.04
No cardiology follow-up	1.5	1.4-1.6	p<0.001

In Hospital Death
Multiple Logistic Regression Model

Predictor	Hazard Ratio (HR)	Significance
Previous MI	1.3	p=0.006
Age at admission		p<0.001
Moderate oedema	2.1	p<0.001
NYHA class III or IV	1.6	p=0.03
No ACEI therapy	1.6	p<0.001
No beta blocker therapy	2.8	p<0.001
LV Systolic Dysfunction	1.3	p=0.02
Not admitted to a Cardiology ward	1.3	p=0.006

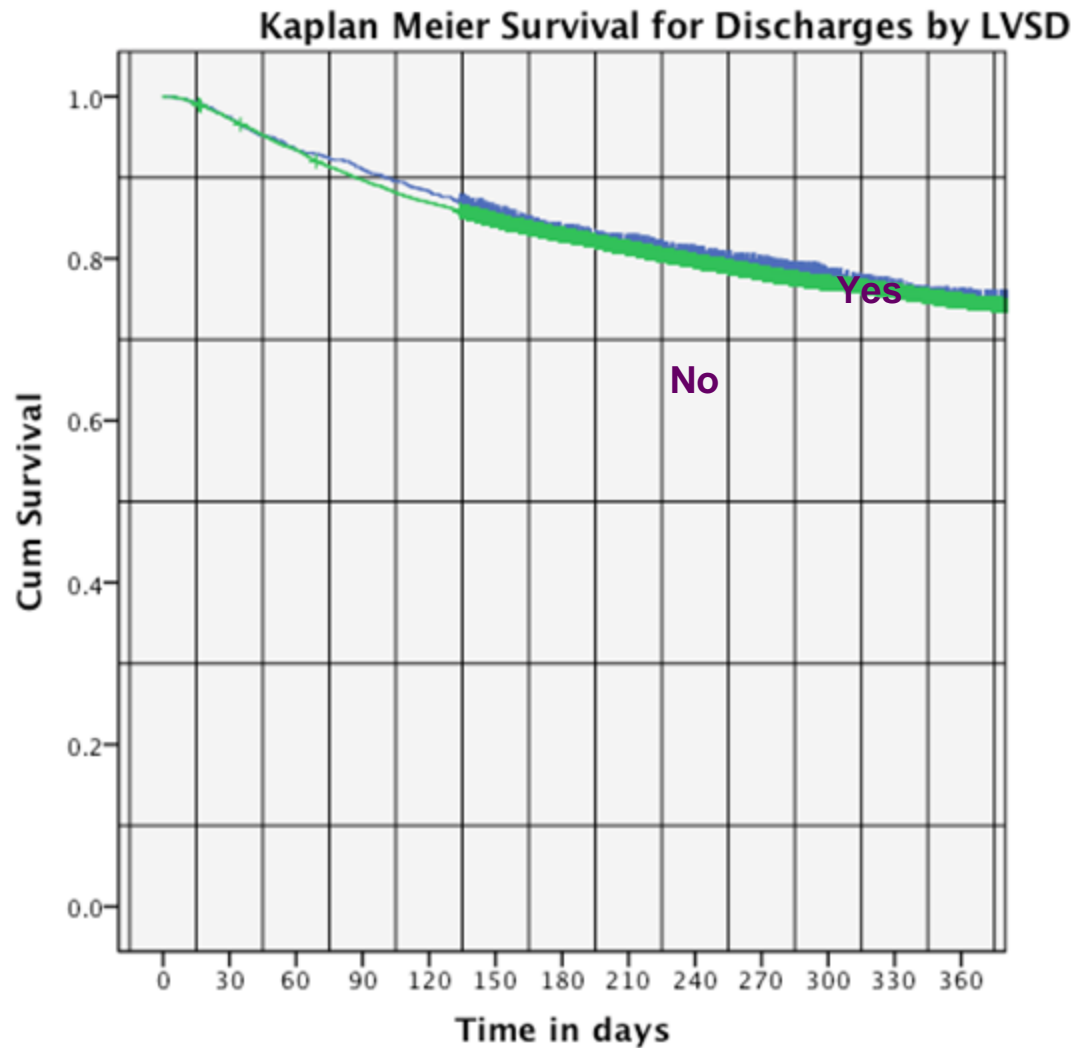# Mortality post discharge-Kaplan Meier by Age and Sex

Kaplan Meier Survival for All Discharges by Age Cut Point of 70 Years
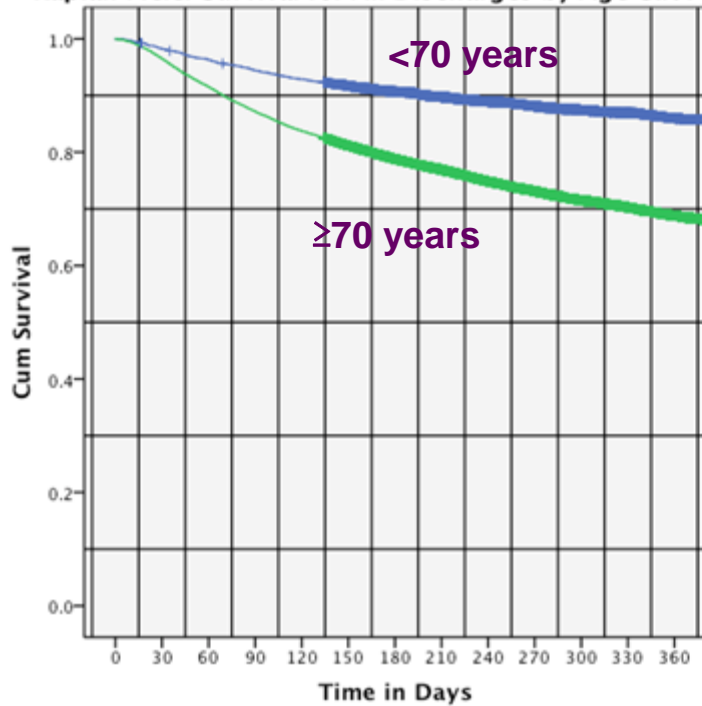
<70 years

≥70 years

Kaplan Meier Survival for all Discharges with Heart Failure by Sex

Female

Male

LVSD or not..

Kaplan Meier Survival for Discharges by LVSD
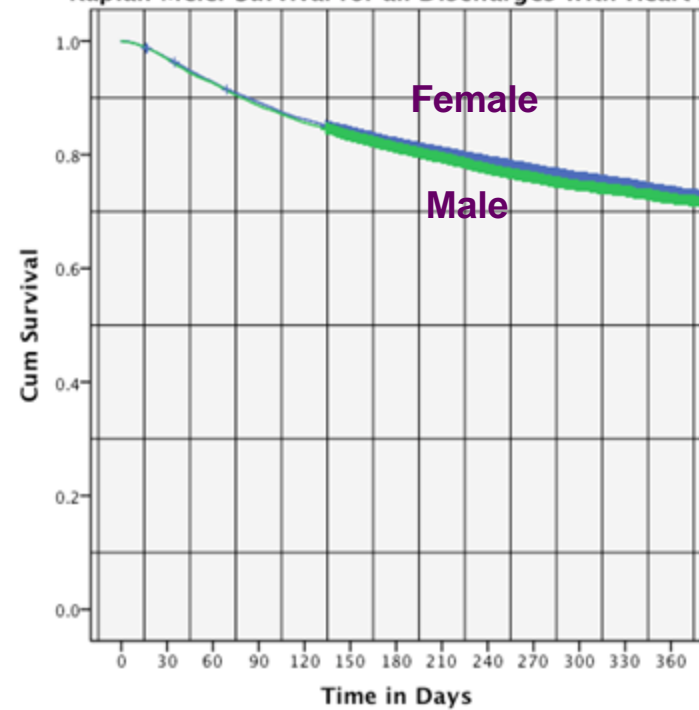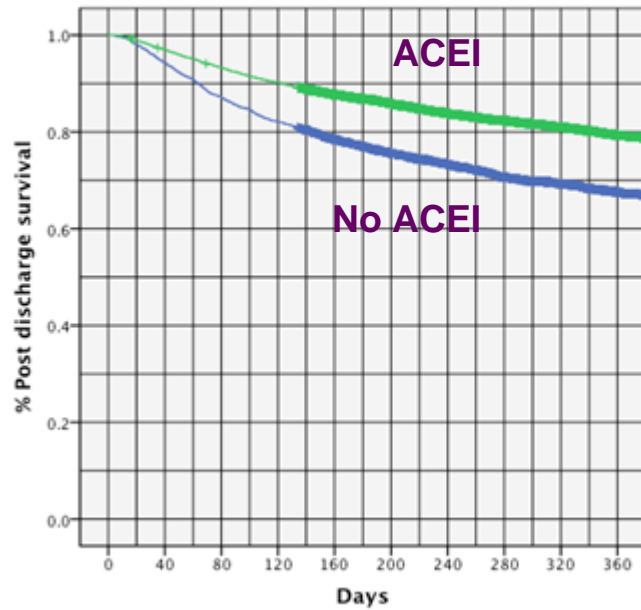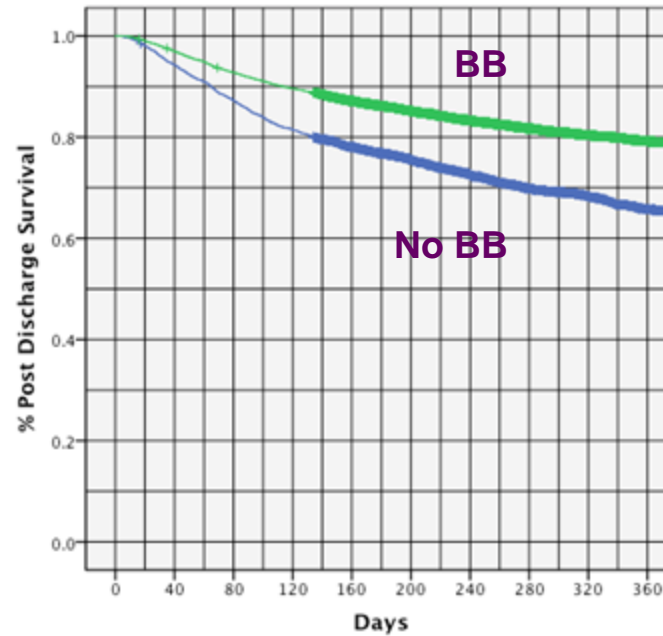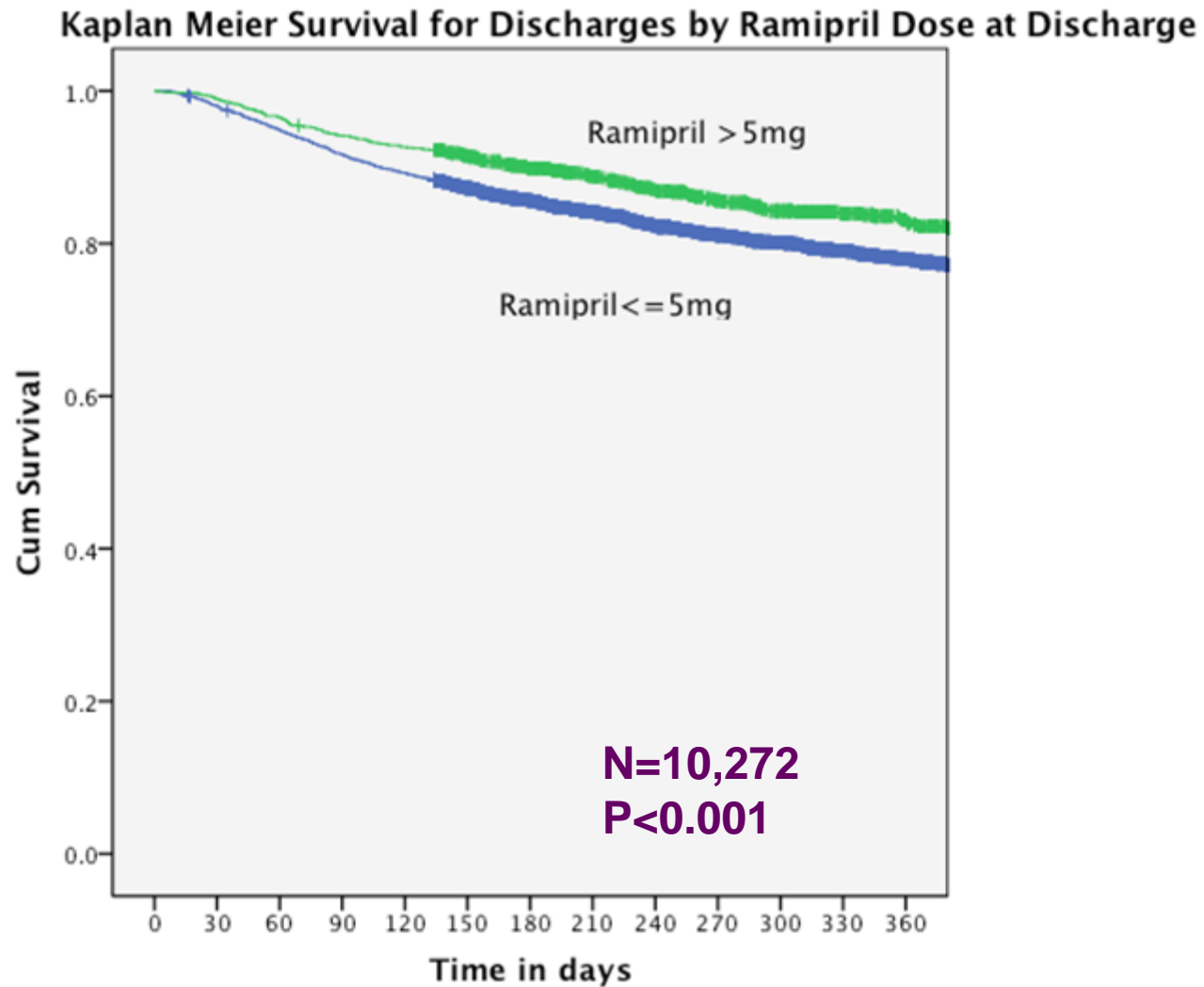
Drugs, Drugs, Drugs……

Post Discharge Survival by ACE inhibitor use in those with LVSD

ACEI

No ACEI

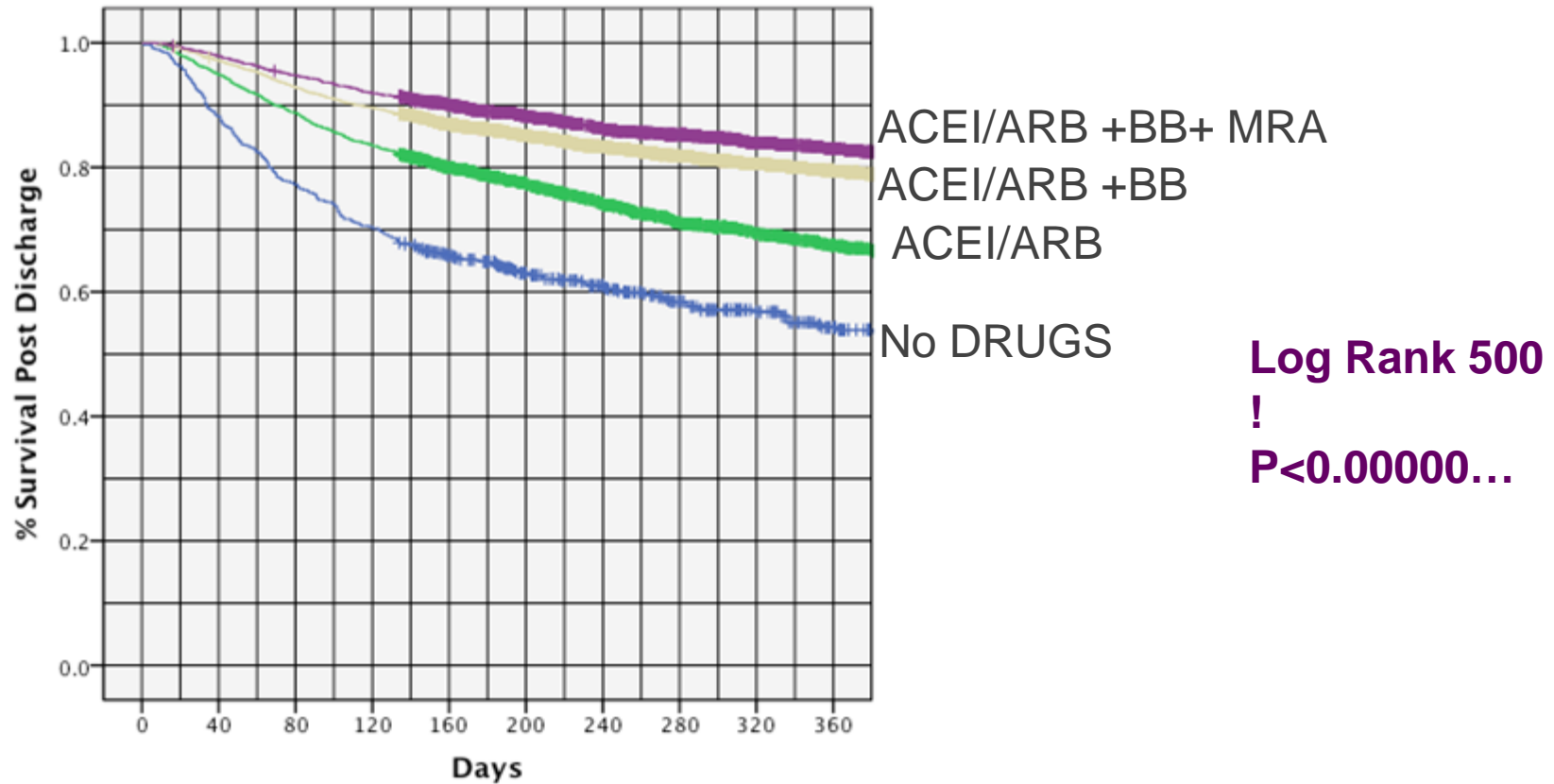Post Discharge Survival by Beta-Blocker Use for those with LVSD

BB

No BB

Dose Matters…

Kaplan Meier Survival for Discharges by Ramipril Dose at Discharge

Ramipril >5mg

Ramipril<=5mg

N=10,272
P<0.001

Cum Survival

Time in days

For Beta Blockers as well…

Kaplan Meier Survival from Discharge by Bisoprolol Dose

Bisprolol>=5mg

Bisprolol<5mg

11,682
P<0.001
Log rank 33
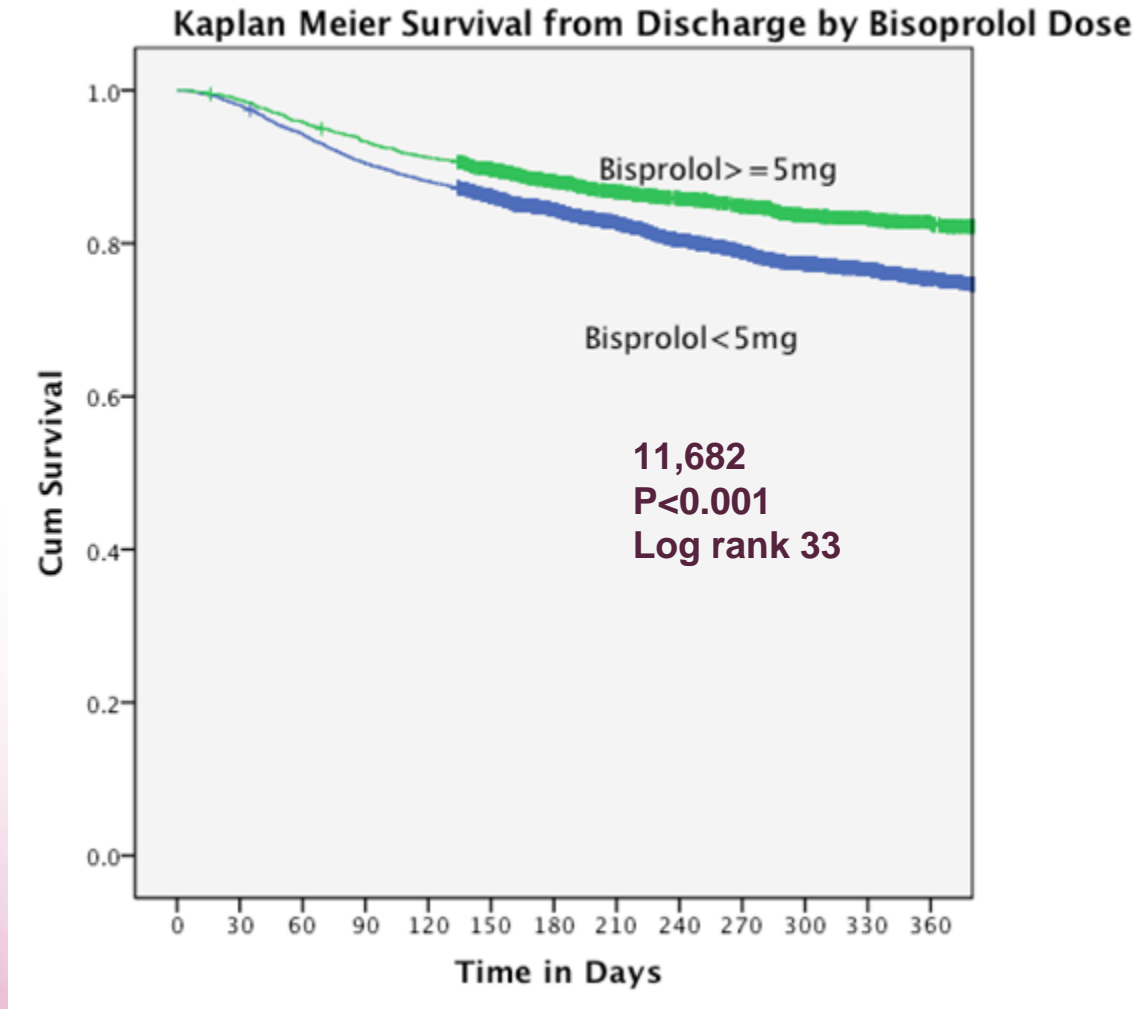
More is less..

Post Discharge Survival by Number of Disease Modifying Drugs for Those with LVSD

ACEI/ARB +BB+ MRA
ACEI/ARB +BB
ACEI/ARB
No DRUGS

Log Rank 500 !
P<0.00000…

Less Loop….

Kaplan Meier Survival for Discharges by Loop Diuretic Rx
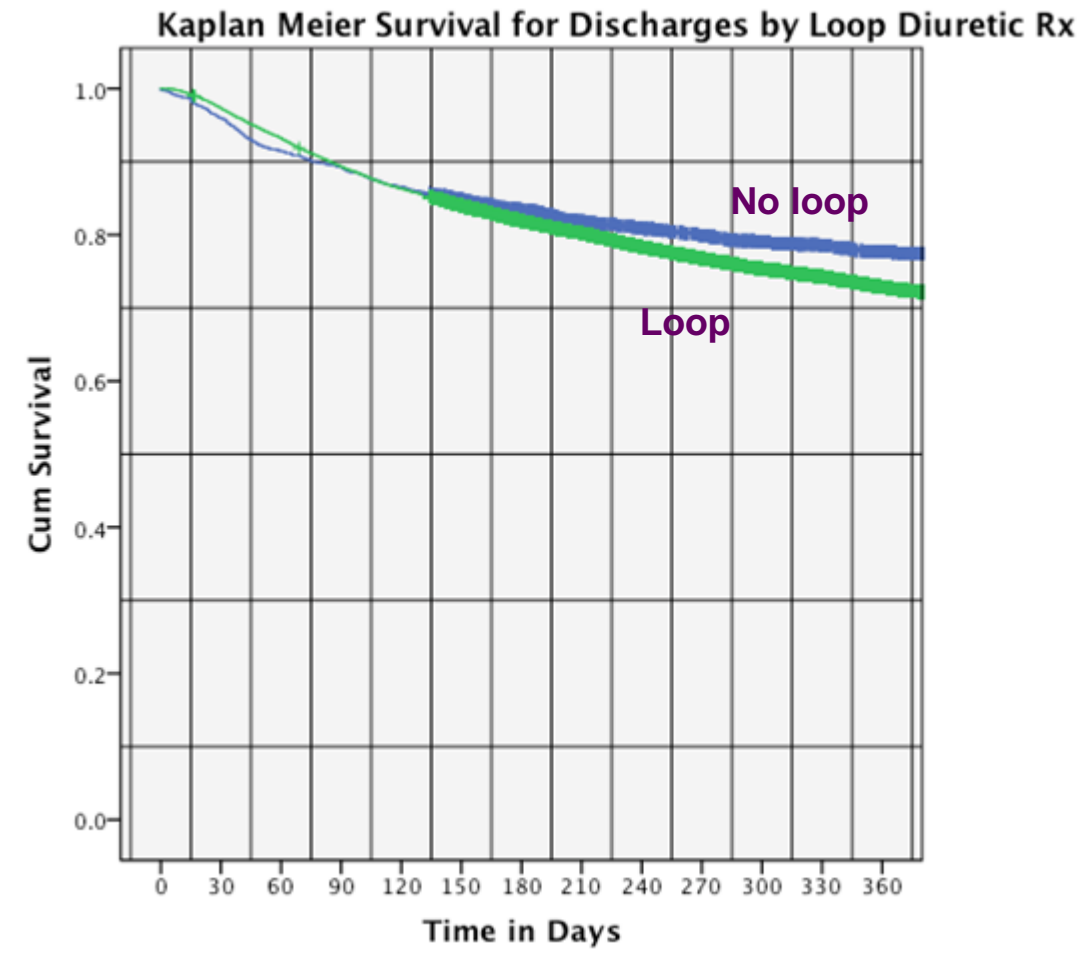
Post Discharge Mortality

Kaplan Meier Survival by Admission Ward
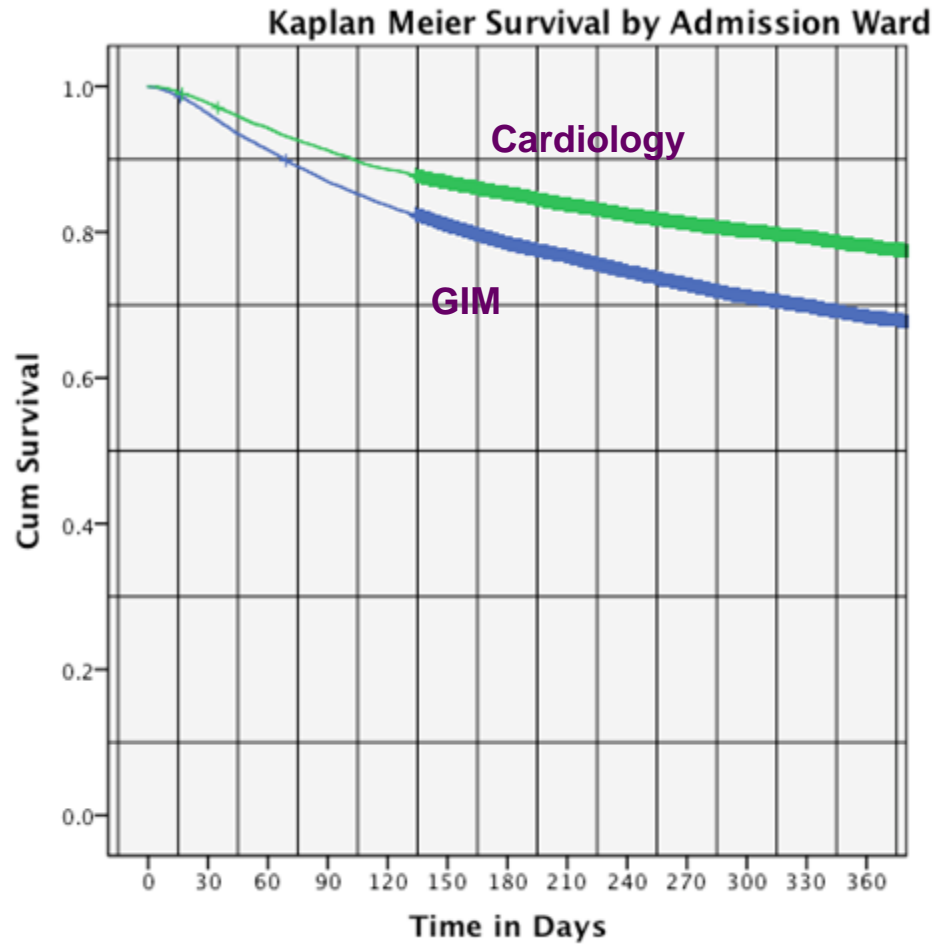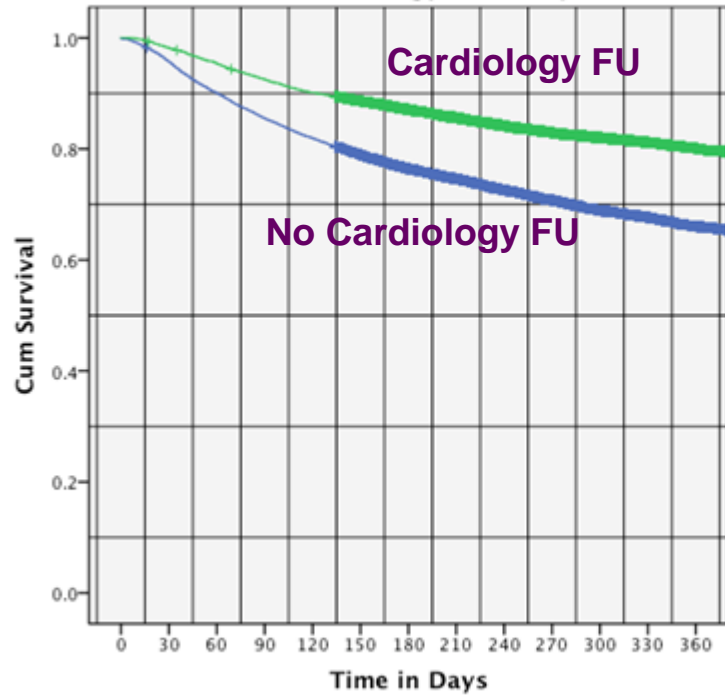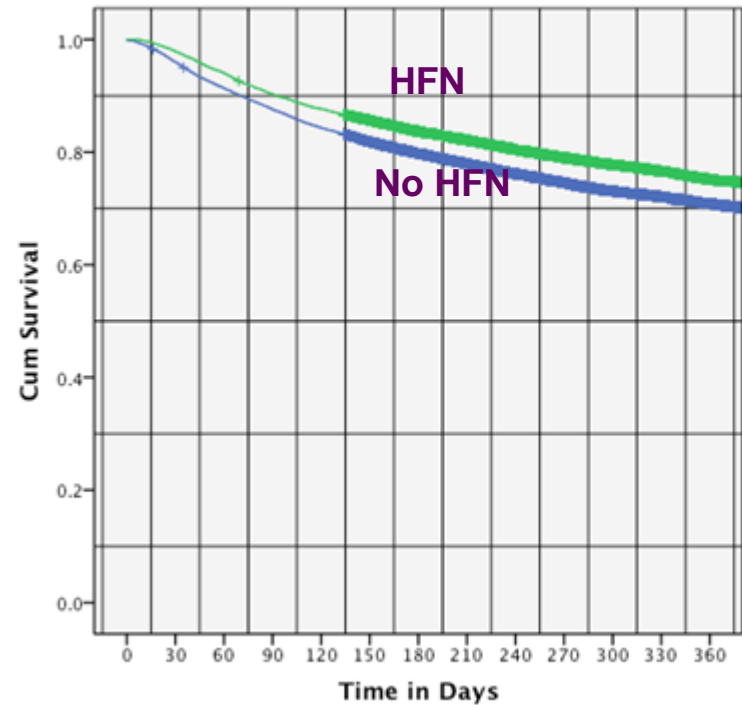
Survival and Follow Up

Kaplan Meier Survival for All Discharges With Heart Failure According Cardiology Follow Up Status

Cardiology FU

No Cardiology FU

Cum Survival

Time in Days

Kaplan Meier Survival for all Discharges With Heart Failure According to Heart Failure Nurse Follow UP

HFN

No HFN

Cum Survival

Time in Days

In Hospital Mortality (%)
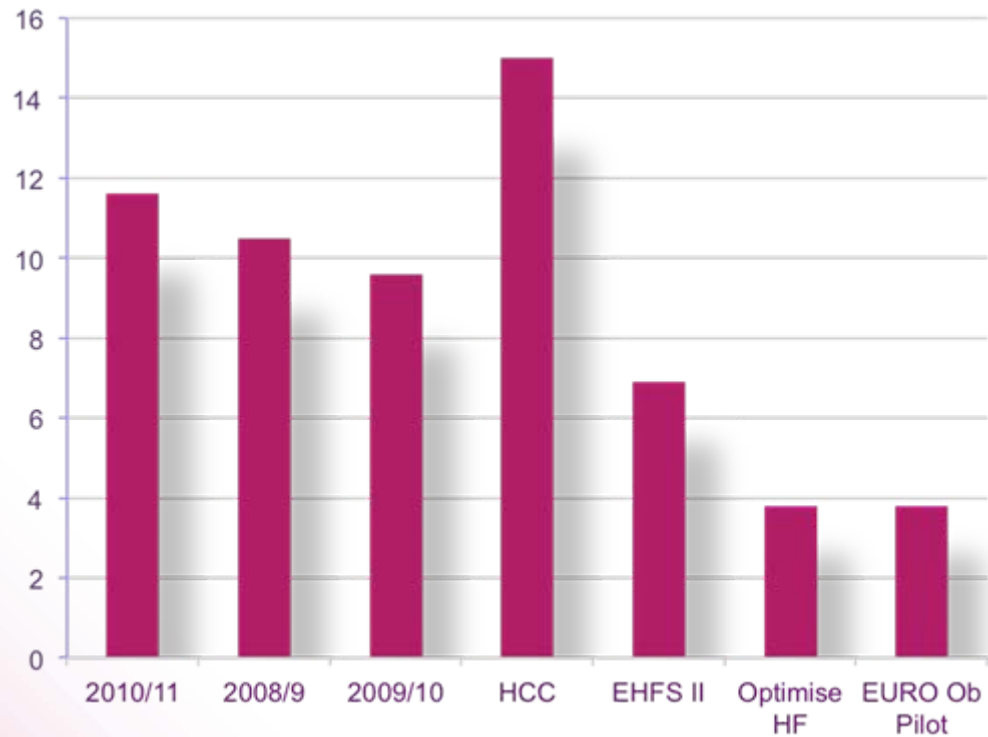
National HF Audit

No change in mortality

Very robust data

Larger than earlier comparators

    HCC (9398), EHFSII (3580), OPTIMISE-HF (48, 612)

Access to specialist cardiology care improves outcomes

    The rest follows, drugs, specialist FU etc

BCS progress

    Cardiac Care units

Use the time in hospital well

    ACEI, BB, MRAs…..

The future for the audit..

- aim for >90% participation by 2012.

- aim to acquire data on >70% of all patients with a primary discharge diagnosis of HF.

- modest expansion of the minimal dataset so that use of key interventions (e.g. CRT devices) and attainment of key targets (e.g. heart rate) can be assessed.

- better risk stratification, so that outcomes across institutions can be more easily compared. Also, this would allow NICE quality standards to be more readily assessed.

NICOR

HF Audit and Research

   Academic group

   Encourage Applications for use of data

   Developing an interactive guidelines tool to improve outcomes

Thank You…..

All participants

Implementation Group
J Austin, J Grange, H Pryse-Hawkins and G Baldock-Apps

NHS IC-Tracy Whittaker, Nadeem Fazal, Marion Standing, Lynne Walker

HQIP, Helen Laing

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National Heart Failure Audit 2008/09

National Heart Failure Audit 2010

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KING'S HEALTH PARTNERS