Associate Professor Gerry Devlin

Clinical Cardiologist and Interventional Cardiologist

NZ Heart Foundation

Hamilton

Saturday, August 10, 2019 (Room 5)

8:30 - 9:25 WS #66: Heart Failure Management in Primary Care : Challenges and Opportunities?

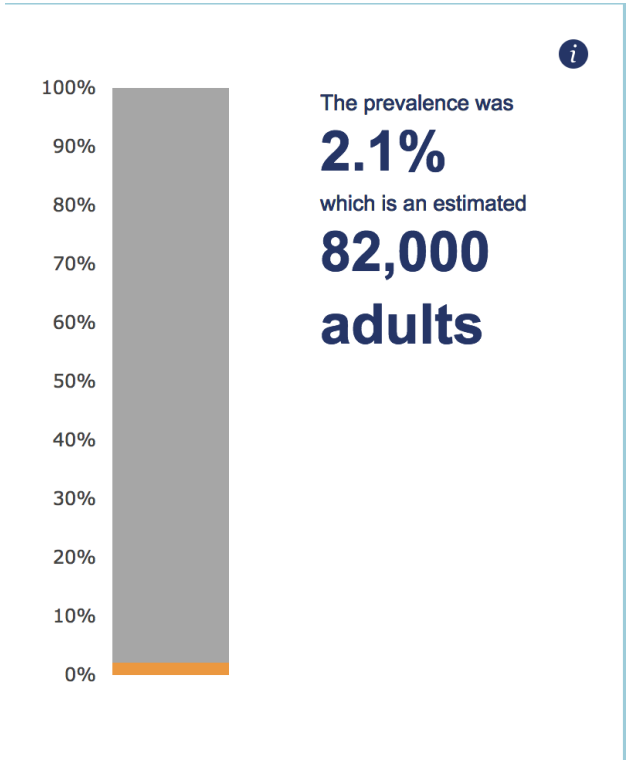
9:35 - 10:30 WS #76: Heart Failure Management in Primary Care : Challenges and Opportunitie? (Repeated)

Heart Failure Management in Primary Care : Challenges and Opportunities

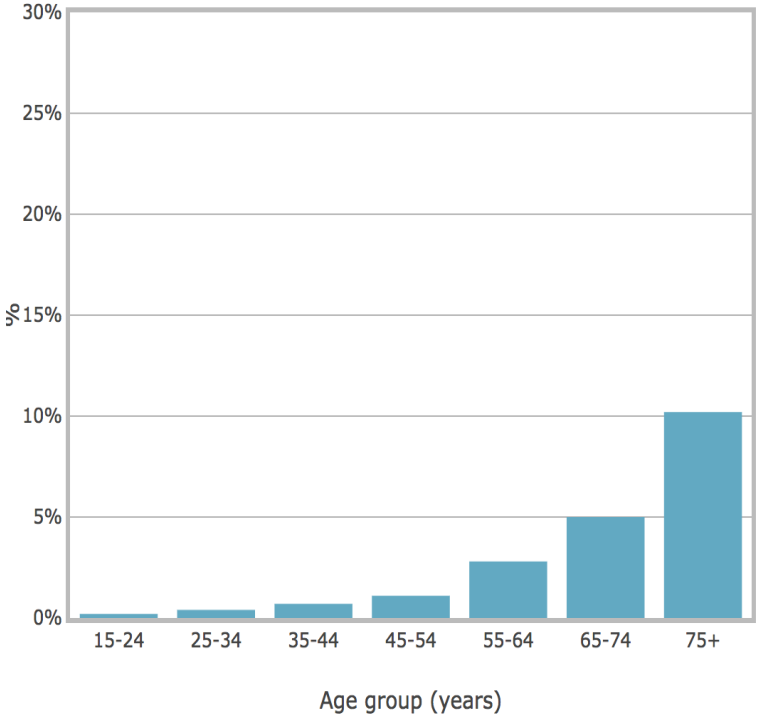
Gerry Devlin
Medical Director Heart Foundation
Clinical Leader Cardiac Network
Associate Professor in Medicine
University of Auckland
Cardiologist
Hauora Tairáwhiti

Whāia te Hauora i Roto i te Kotahitanga A Healthier Tairāwhiti by Working Together

Hauora
Tairāwhiti

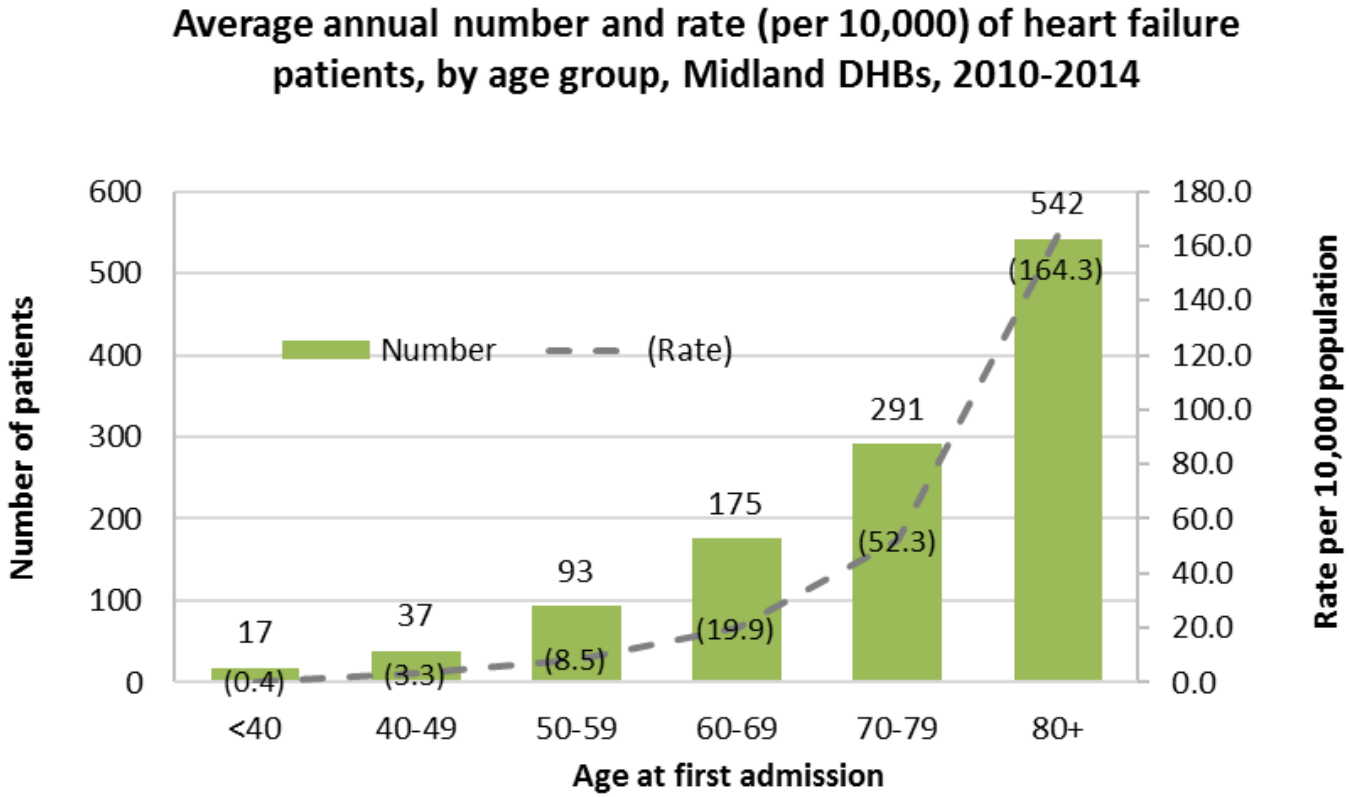


New Zealand Health Survey

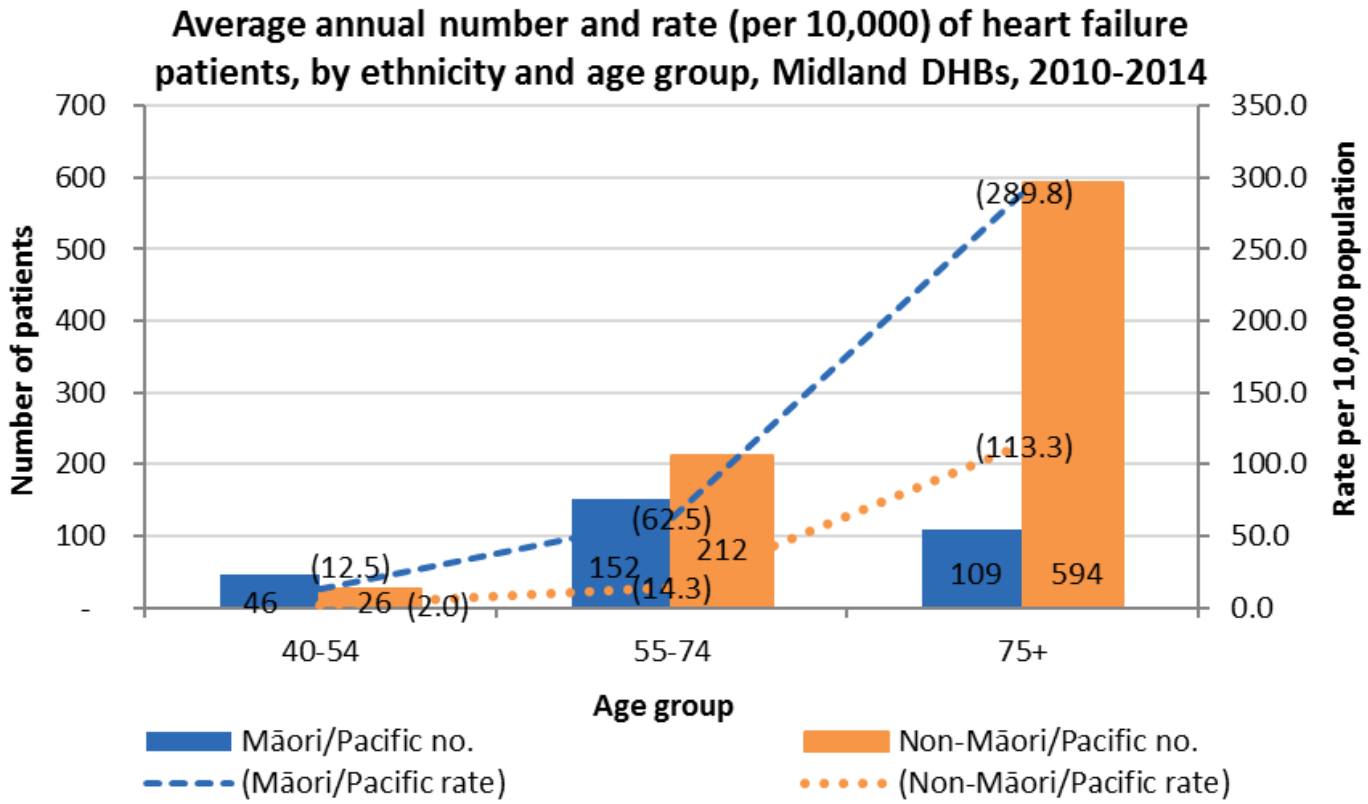


Heart Failure

Half of all HF admissions in people older than 80



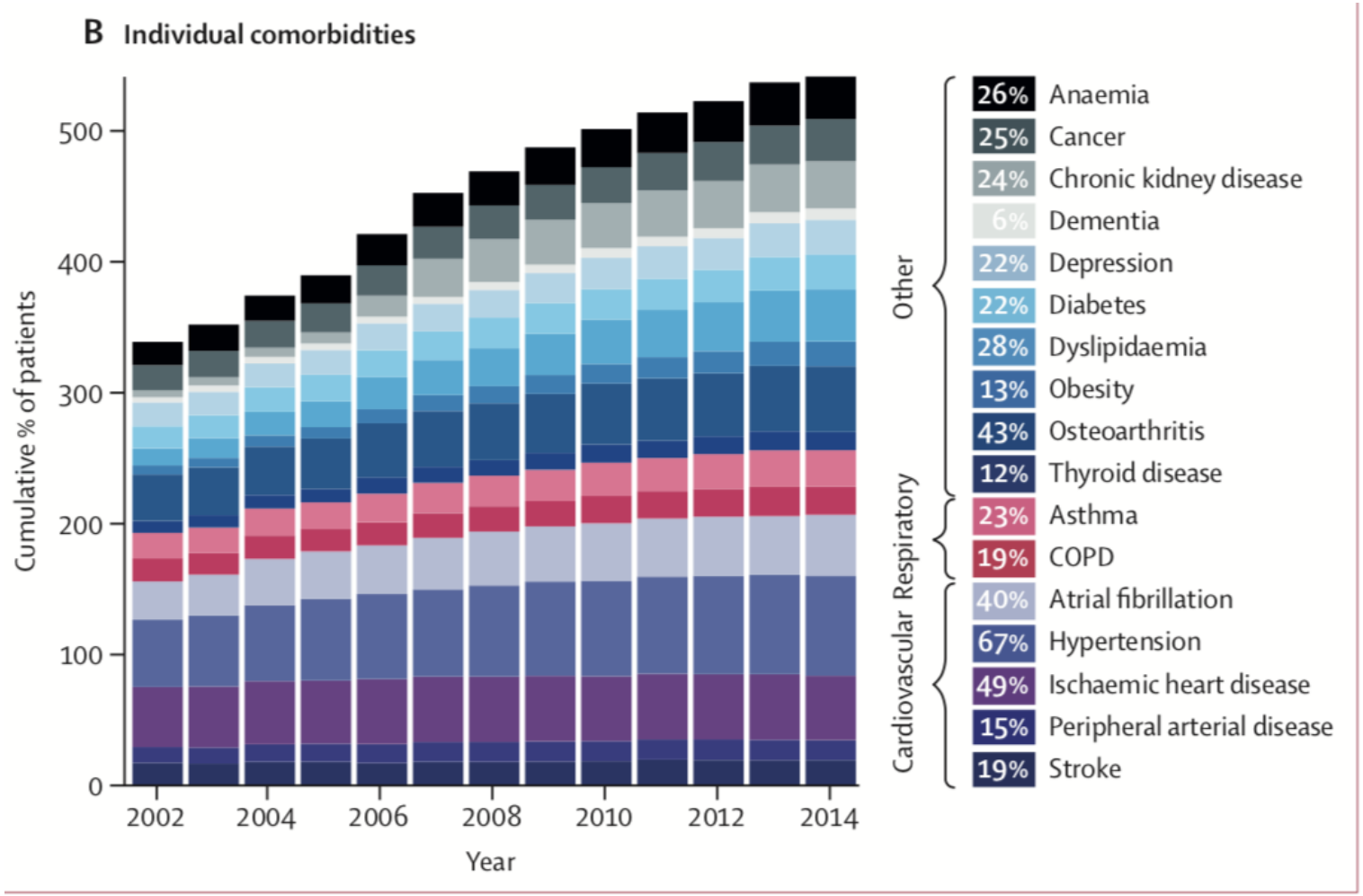
Maori and Pacific 5 times more likely to be admitted with HF < 75



Re-Admissions

- 15 days 7%
- 90 days 18% (increasing slightly)
- 1 year 25% (increasing slightly)
- Higher re-admission rate: older, males (1.3), higher deprivation
- NO ethnic difference in re-admission rates
- LOS doesn't correlate with re-admission

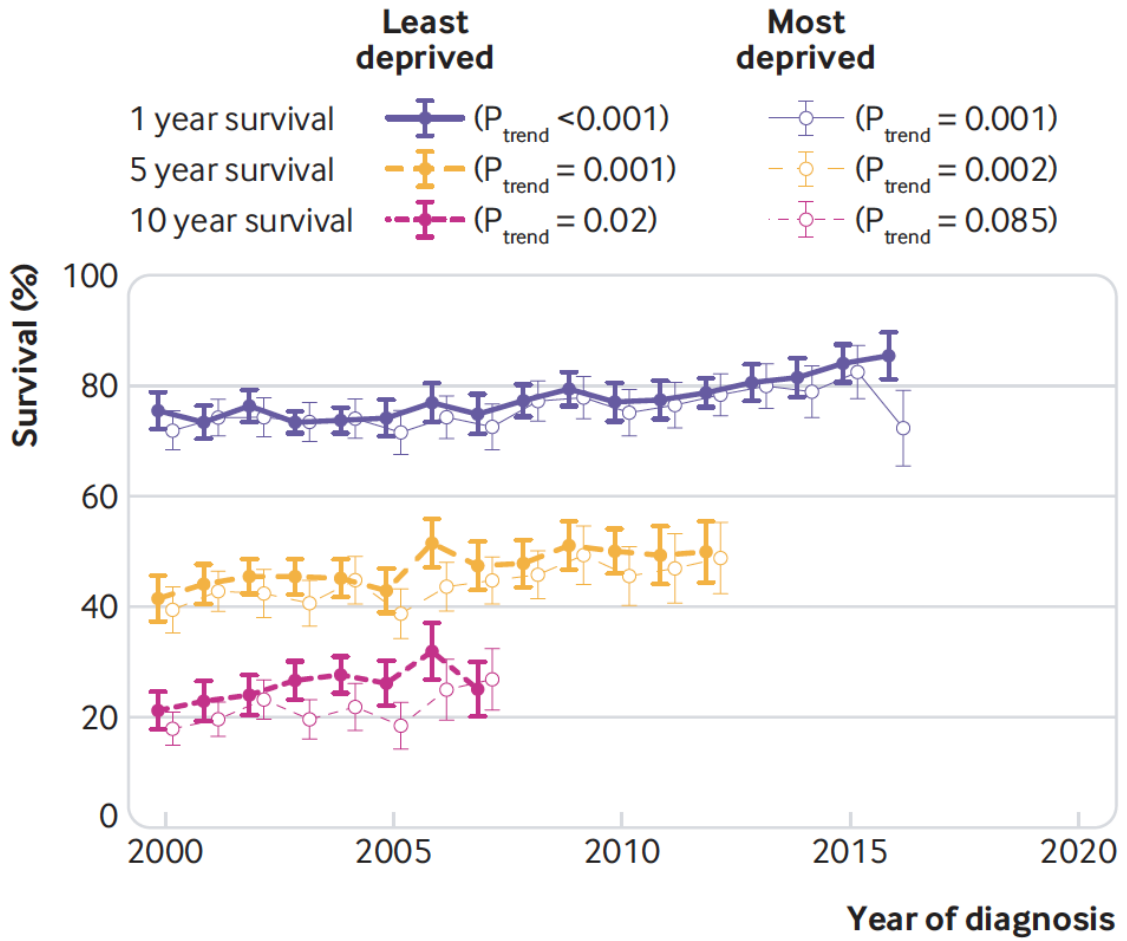
The Heart Failure patient is becoming more complex



Temporal trends and patterns in heart failure incidence: a population-based study of 4 million individuals
The Lancet **http://dx.doi.org/10.1016/S0140-6736(17)32520-51**

Improvement in survival since 2000 has been modest and socioeconomic inequalities persist

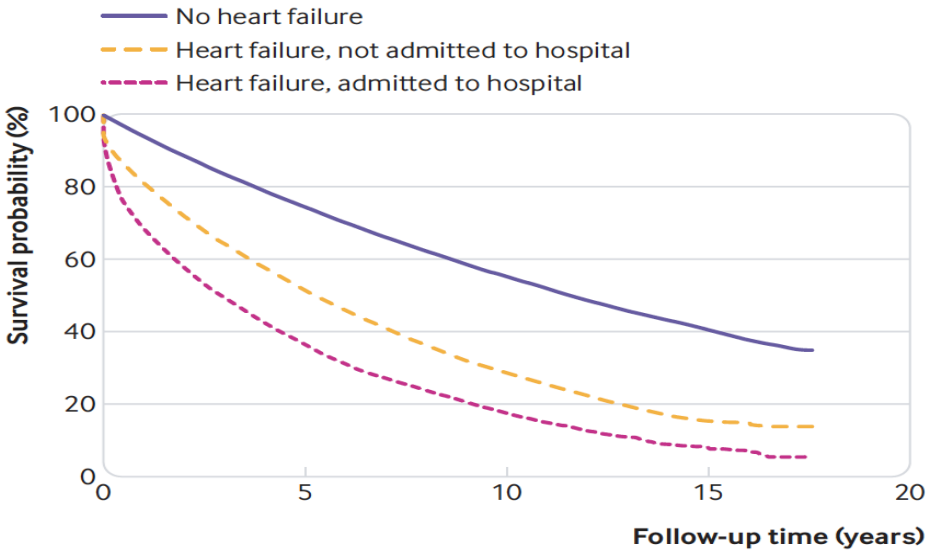
Trends in survival after a diagnosis of heart failure in the United Kingdom 2000-2017: population based cohort study



Taylor et al BMJ 2019;364:l223 | doi: 10.1136/bmj.l223

People who did not require hospital admission around the time of diagnosis lived longer, which could reflect detection at an earlier stage of disease

Trends in survival after a diagnosis of heart failure in the United Kingdom 2000-2017: population based cohort study

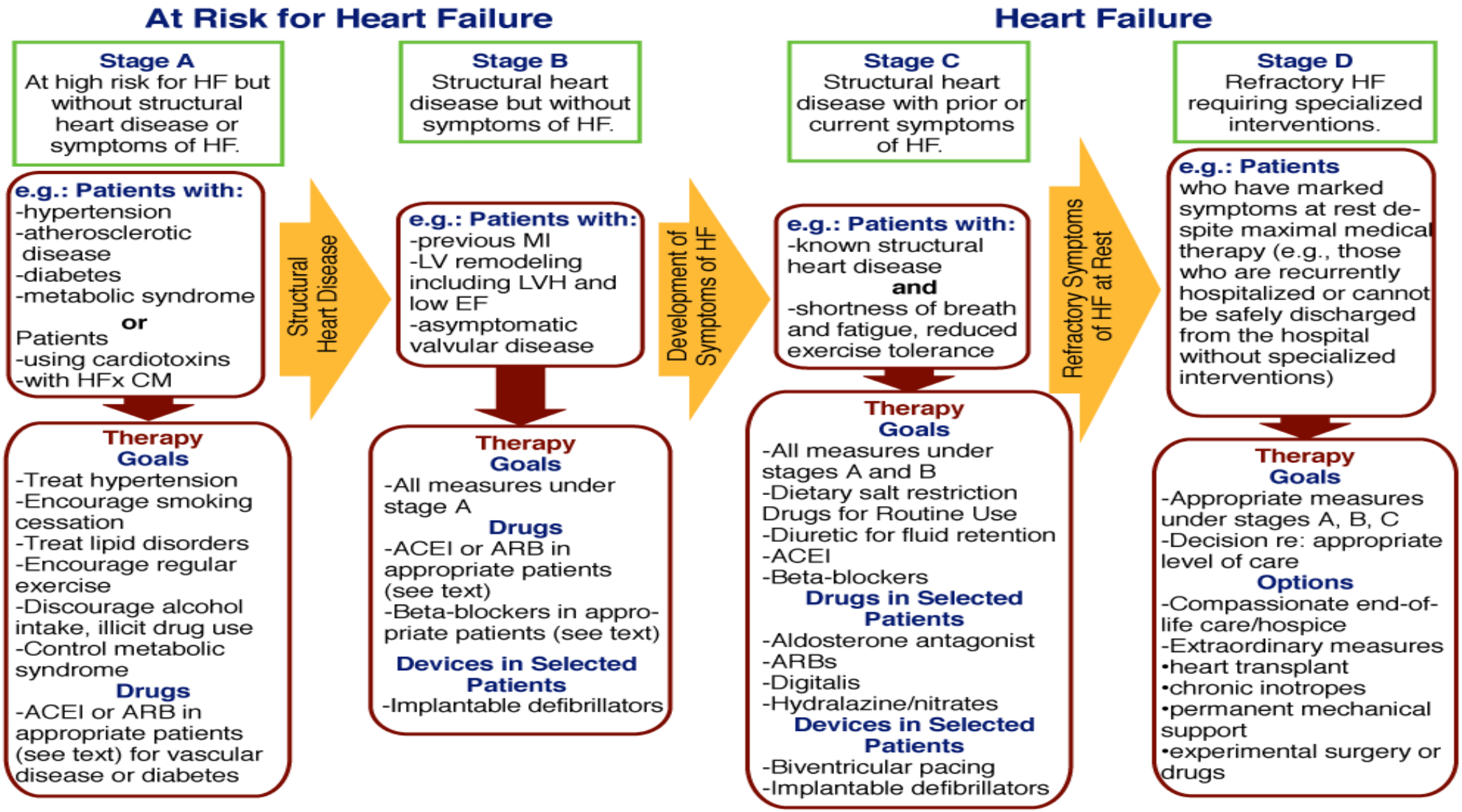


No at risk (number censored)

No heart failure	278 679 (0)	105 331 (120 343)	31 494 (175 326)	3130 (199 292)
Heart failure, not admitted to hospital	31 834 (0)	9641 (9298)	2457 (13 301)	185 (14 920)
Heart failure, admitted to hospital	24 125 (0)	4170 (7505)	729 (9457)	40 (9923)

Taylor et al BMJ 2019;364:l223 | doi: 10.1136/bmj.l223

Stages in the Development of Heart Failure



Stages of Heart Failure

At Risk for Heart Failure:

STAGE A **High risk for developing HF**

STAGE B **Asymptomatic LV dysfunction**

Heart Failure:

STAGE C **Past or current symptoms of HF**

STAGE D **End-stage HF**

Stages of Heart Failure

Designed to emphasize preventability of HF

Designed to recognize the progressive nature of LV dysfunction

54 year old lady

Smoker

Sedentary

FHx Prem CVD

TC 6.3mmol/

LDL Chol 4.3 mmol/l

HDL 1.1 mmol/l

Labile Hypertension (BP 150/90)

Weight 94 kg

- No current Rx

5 year CV risk > 15%

Cardiovascular disease risk prediction equations in 400 000 primary care patients in New Zealand: a derivation and validation study

Romana Pylypchuk, Sue Wells, Andrew Kerr, Katrina Poppe, Tania Riddell, Matire Harwood, Dan Exeter, Suneela Mehta, Corina Grey, Billy P Wu, Patricia Metcalf, Jim Warren, Jeff Harrison, Roger Marshall, Rod Jackson

Summary

Background Most cardiovascular disease risk prediction equations in use today were derived from cohorts established last century and with participants at higher risk but less socioeconomically and ethnically diverse than patients they are now applied to. We recruited a nationally representative cohort in New Zealand to develop equations relevant to patients in contemporary primary care and compared the performance of these new equations to equations that are recommended in the USA.

Methods The PREDICT study automatically recruits participants in routine primary care when general practitioners in New Zealand use PREDICT software to assess their patients' risk profiles for cardiovascular disease, which are prospectively linked to national ICD-coded hospitalisation and mortality databases. The study population included male and female patients in primary care with data for cardiovascular disease, diabetes, or congestive heart failure. New equations predicting total cardiovascular disease risk were developed using sex-specific regression models, which included clinical predictors plus an area-based deprivation index and self-identified ethnicity. Calibration and discrimination performance of the equations were assessed and compared with the 2013 American College of Cardiology/American Heart Association Pooled Cohort Equations (PCEs). Additional predictors included in new PREDICT equations were also applied to the PCEs to determine whether they were independent predictors in the equations from the USA.

Findings Outcome event variables were derived for 401 752 people aged 30–74 years at the time of their first PREDICT risk assessment between Aug 7, 2002, and Oct 12, 2015, representing about 90% of the eligible population. The mean follow-up was 2·7 years, and a third of participants were followed for 5 years or more. 15 386 (4%) people had cardiovascular disease events (1507 [10%] were fatal, and 8549 [56%] met the PCE criteria of hard atherosclerotic cardiovascular disease) during 1 105 121 person-years follow-up. The mean 5 year risk of total cardiovascular disease events predicted by the PCEs was 2·3% in women and 3·3% in men. Multivariable adjusted risk increased by about 10% per decile of socioeconomic deprivation. Māori, Pacific, and Indian patients were at 13–48% higher risk of cardiovascular disease than Europeans, and Chinese or other Asians were at 25–33% lower risk of cardiovascular disease than Europeans. The PCEs overestimated hard atherosclerotic cardiovascular disease by about 40% in men and by 60% in women, and the additional predictors in the new equations were also independent predictors in the PCEs. The new equations were significantly better than PCEs on all performance metrics.

Interpretation We constructed a large prospective cohort study representing typical patients in primary care in New Zealand who were recommended for cardiovascular disease risk assessment. Most patients are now at low risk of cardiovascular disease, which explains why the PCEs based mainly on old cohorts substantially overestimate risk. Although the PCEs and many other equations will need to be recalibrated to mitigate overtreatment of the healthy majority, they also need new predictors that include measures of socioeconomic deprivation and multiple ethnicities to identify vulnerable high-risk subpopulations that might otherwise be undertreated.

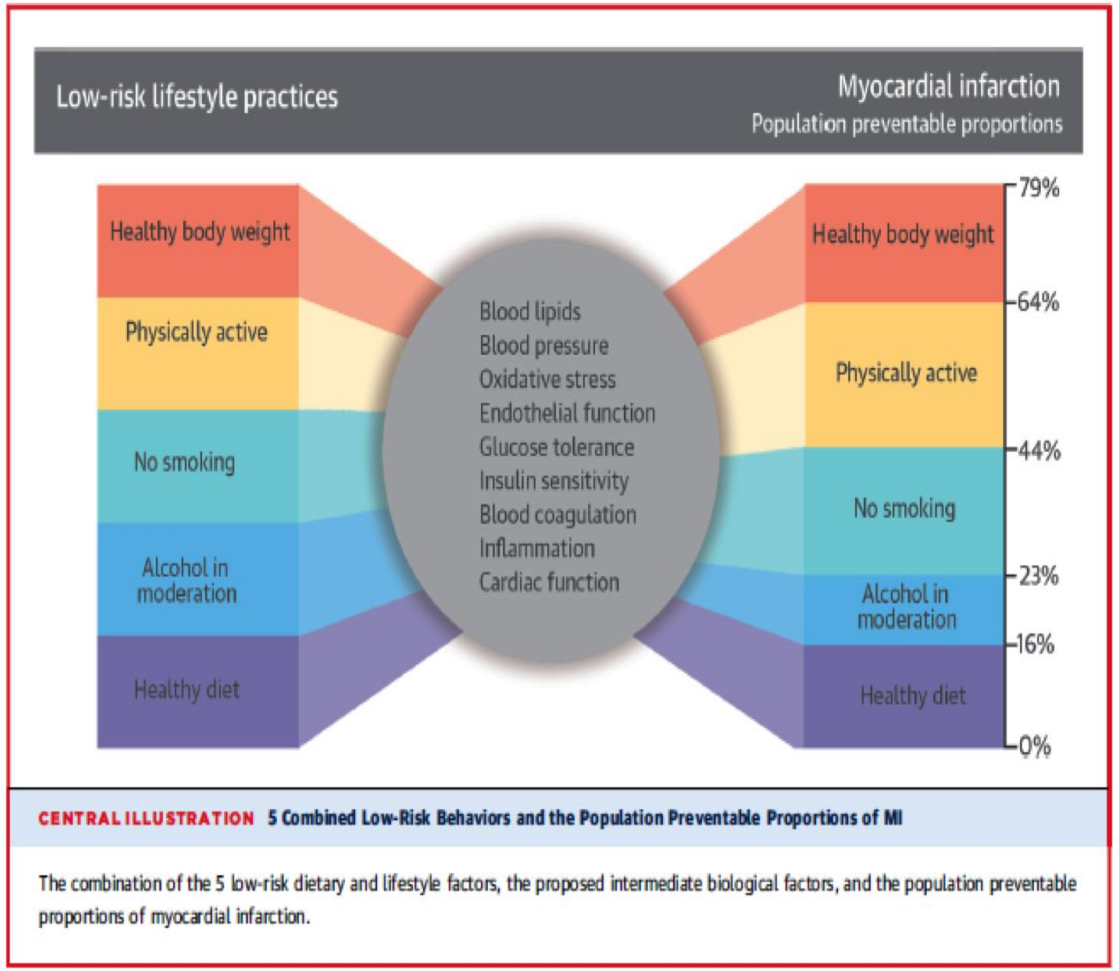
Funding Health Research Council of New Zealand, Heart Foundation of New Zealand, and Healthier Lives National Science Challenge.

Atrial fibrillation, ethnicity and dep status now included as variables

www.thelancet.com **Published online May 4, 2018 http://dx.doi.org/10.1016/S0140-6736(18)30664-0**

Our patient = High CVD Risk

- Lifestyle advice
- Advised to stop smoking
  (Quit Line)
- Accupril 10 mg/day
- Atorvastatin 40 mg/day
- Aspirin 100 mg/day



CENTRAL ILLUSTRATION **5 Combined Low-Risk Behaviors and the Population Preventable Proportions of MI**

The combination of the 5 low-risk dietary and lifestyle factors, the proposed intermediate biological factors, and the population preventable proportions of myocardial infarction.

Akesson JACC 64(13) Sept 14

Cardiovascular Disease Risk Assessment and Management for Primary Care

LDL target

Risk Level	LDL Target
>15%	LDL-C ≤ 1.8
5-15%	40% reduction in LDL

Treating Blood Pressure

Blood Pressure	
≥ 130/80 and 5yr CVD risk of ≥15%	Drug treatment recommended
≥ 140/90 and 5yr CVD risk of 5-15%	Drug treatment consider

64 year old man with Effort Intolerance

Late presentation

Anterior MI 2 years prior

No Reperfusion Rx

Angio (4 days later) SVD.
PCI Total Occlusion LAD

EF 40% pre discharge

64 year old man with Effort Intolerance

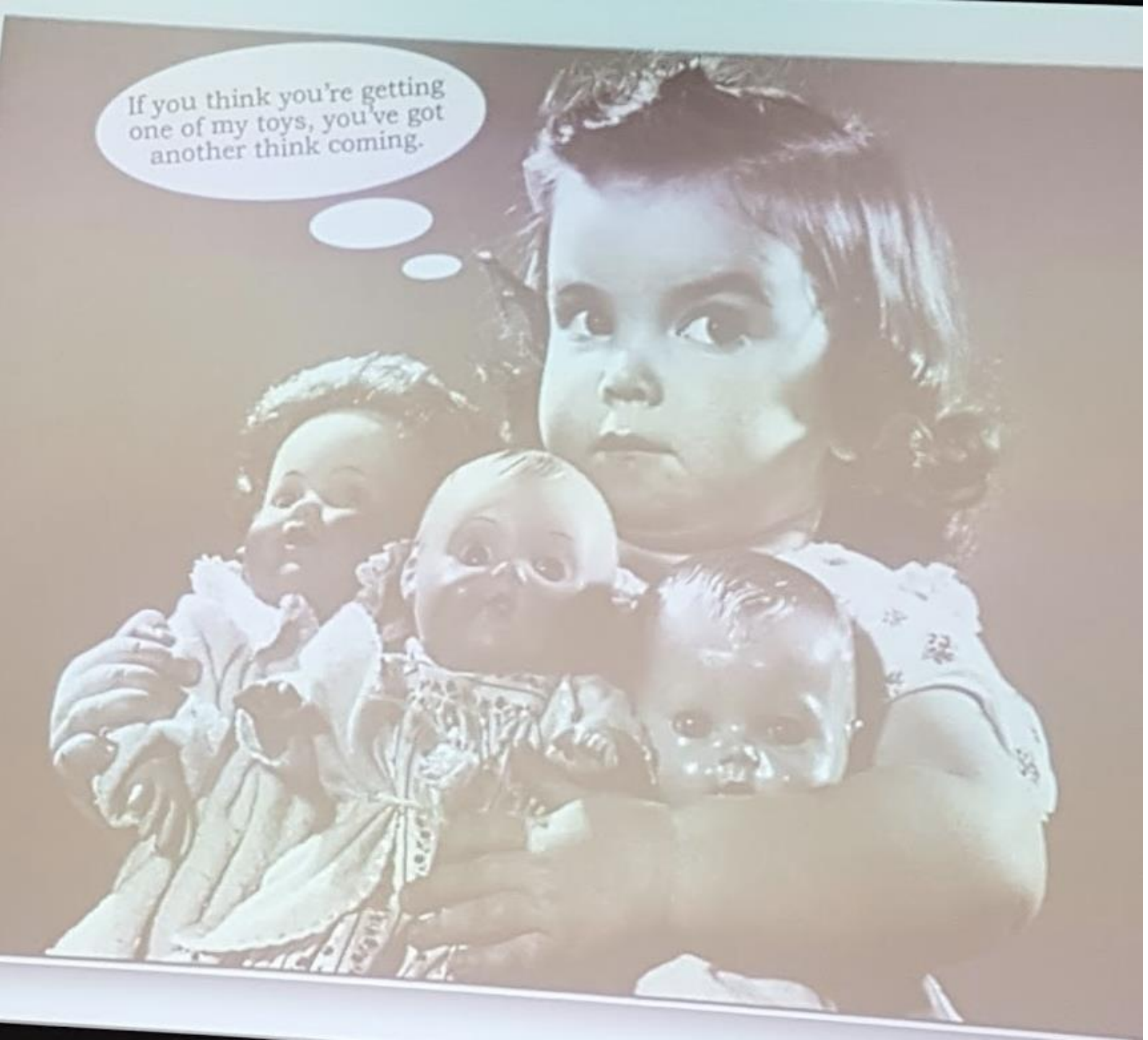
- Metoprolol CR 23.75 mg/day
- Cilazapril 0.5 mg/day
- Aspirin 100 mg/day
- Atorvostatin 20 mg/day
- BP 150/94
- HR 96 regular
- No Murmurs
- Occasional Crackles Bilat

64 year old man with Effort Intolerance

ECG: SR Q wave Ant MI

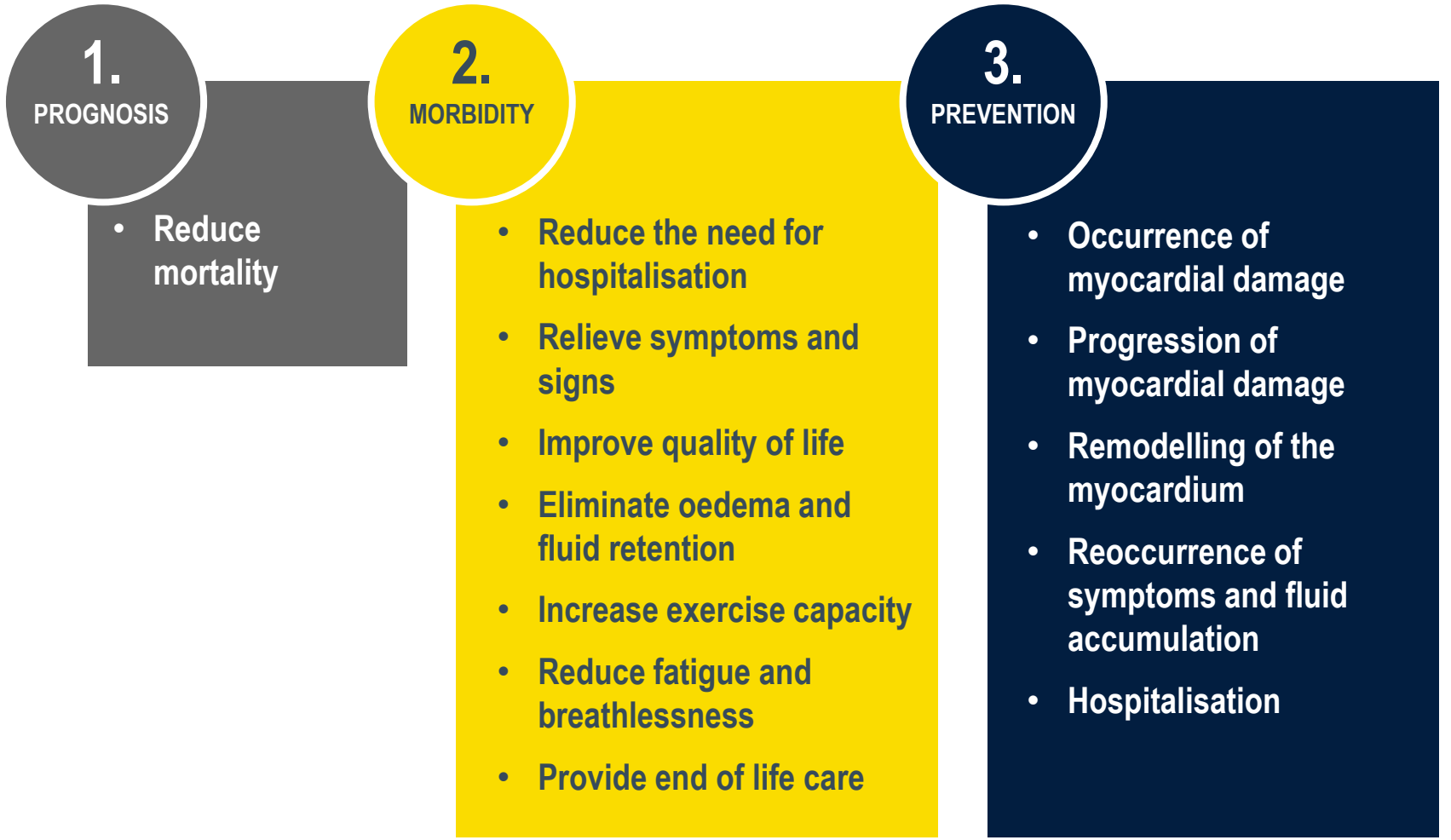
NT pro-BNP 654 pmol/L

EF 32% Ant Dyskinesis



Where Do We begin?

The treatment objectives with chronic HF



HF: heart failure.

Adapted from Dickstein et al. (2008).[1]

1. Dickstein K *et al*. *Eur Heart J* 2008;29:2388–442.

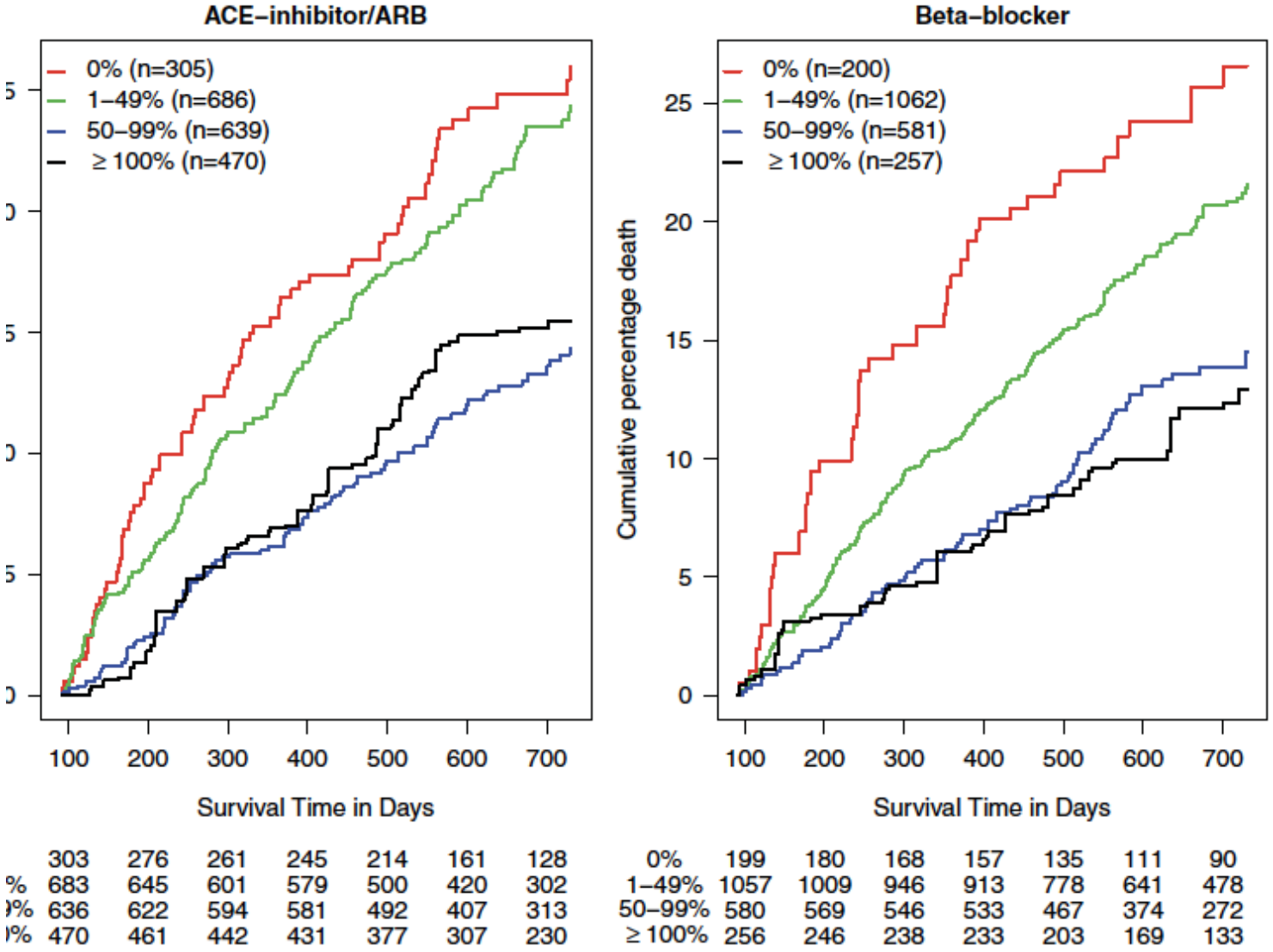
Heart Failure Reduced EF (Class II-IV)

Recommendations	Class	Level
An ACE-I is recommended, in addition to a beta-blocker, for symptomatic patients with HFrEF to reduce the risk of HF hospitalization and death.	I	A
A beta-blocker is recommended, in addition an ACE-I, for patients with stable, symptomatic HFrEF to reduce the risk of HF hospitalization and death.	I	A

Dose Matters

- **BIOSTAT-CHF**
- 69 centres in 11 European Countries
- 2100 HFrEF patients (76% male; mean age 68 ±12),
- 22% achieved the recommended treatment dose for ACE-inhibitor/ARB and 12% of beta-blocker.
- marked differences between European countries.
- **Reaching <50% of the recommended ACE-inhibitor/ARB and beta-blocker dose was associated with an increased risk of death and/or heart failure hospitalization**.
- Patients reaching 50–99% of the recommended ACE-inhibitor/ARB and/or beta-blocker dose had comparable risk of death and/or heart failure hospitalization to those reaching >_100%.
- Patients not reaching recommended dose because of symptoms, side effects and non-cardiac organ dysfunction had the highest mortality rate (for ACE-inhibitor/ARB: HR 1.72; 95% CI 1.43–2.01; for beta-blocker: HR 1.70; 95% CI 1.36–2.05).

European Heart Journal (2017) 00, 1–10
doi:10.1093/eurheartj/ehx026



lity rate for patients receiving 0, 1–49, 50–99% or ≥ 100% of the recommended ACE-inhibitor/ARBs o
set sizes at each time point.

The Elderly Benefit from ACE-I

Endpoints	Hazard Ratio (95% CI)	
	Age >80 y	Age ≤80 y
All-cause mortality	0.78 (0.72 - 0.86); NNT = 9	0.81 (0.71 - 0.91);NNT = 17
All-cause mortality or HF hospitalization	0.86 (0.79 - 0.94); NNT = 12	0.85 (0.76 - 0.94);NNT = 14
NNT = number needed to treat to prevent 1 endpoint.		

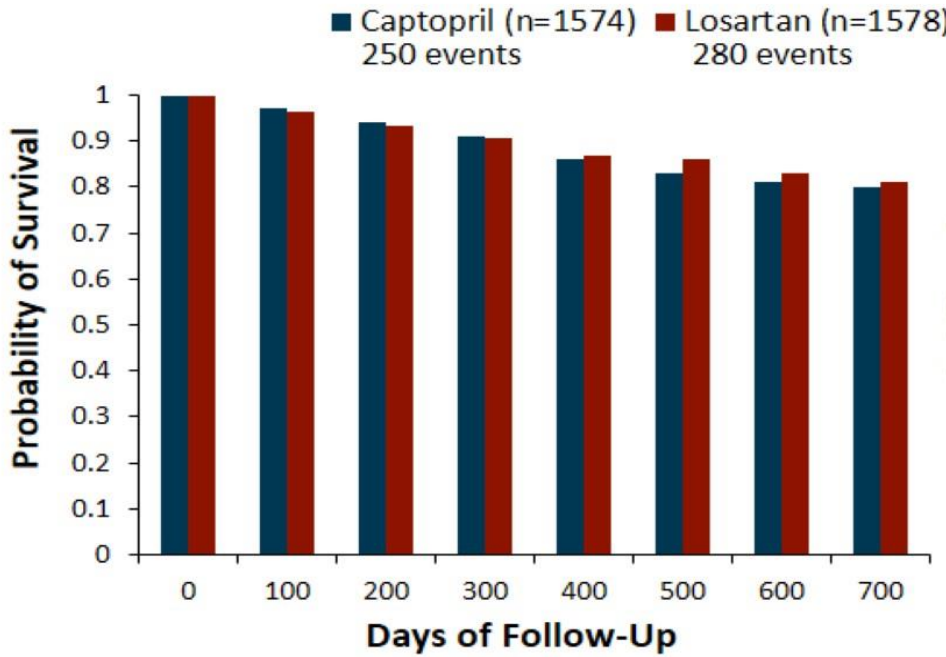
Outcomes in Patients With Systolic HF, ACE Inhibitors vs No ACE Inhibitors, by Age

Swede-HF Registry

ESC Heart Failure Meeting
May 2018

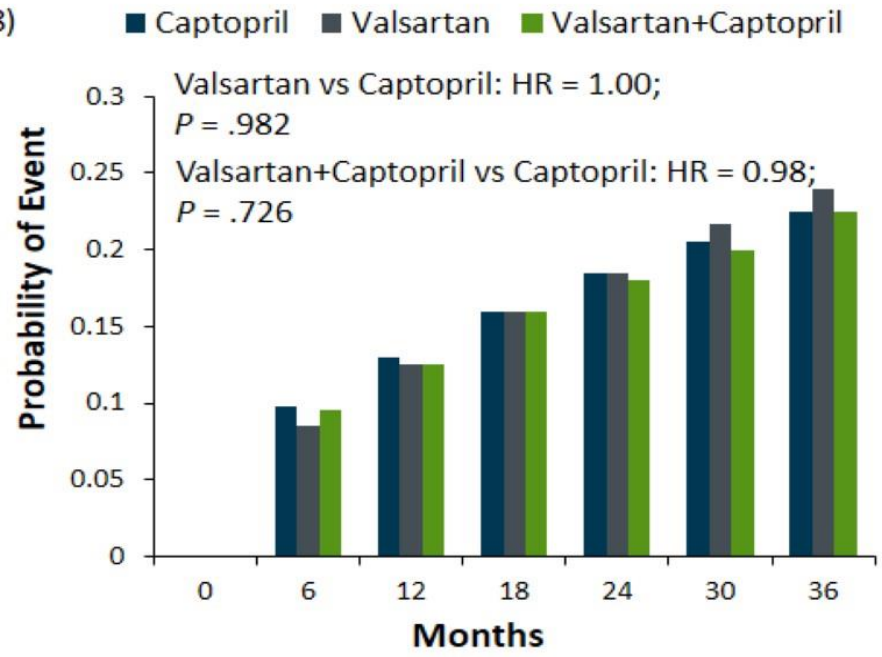
ARBs: No Better Than ACE Inhibitors but Probably AS GOOD AS

ELITE II



Lostartan/captopril HR (95% CI):
1.13 (0.95, 1.35) *P* = .16

VALIANT



Pitt B, et al. *Lancet*. 2000;355:1582-1587
Pfeffer MA, et al. *N Engl J Med*.2003;349:1893-1906

64 year old man with Effort Intolerance

Metoprolol CR 23.75 mg/day (HR 90 BPM SR)

Cilazapril 0.5 mg/day
(normal renal function)

Aspirin 100 mg/day

Atorvostatin 20 mg/day (LDL 2.8 mmol/l)

64 year old man with Effort Intolerance

- Up-titrate Metoprolol
- Up-titrate Cilazapril
- Addition Frusemide
- Atorvostatin 40 mg/d
- ICD implantation 3/12 later

6/12 later Ongoing NYHA II Symptoms

Metoprolol CR 190mg/day
(HR 66 SR)

Cilazapril 5 mg/day
(Creatinine 100 umol/l ,eGFR 58ml/min/m2

Frusemide 80 mg/day

Atorvastatin 80 mg/d

Aspirin 100 mg/day

Heart Failure Reduced EF (Class II-IV)

Recommendations	Class	Level
An ACE-I is recommended, in addition to a beta-blocker, for symptomatic patients with HFrEF to reduce the risk of HF hospitalization and death.	I	A
A beta-blocker is recommended, in addition an ACE-I, for patients with stable, symptomatic HFrEF to reduce the risk of HF hospitalization and death.	I	A
An MRA is recommended for patients with HFrEF, who remain symptomatic despite treatment with an ACE-I and a beta-blocker, to reduce the risk of HF hospitalization and death.	I	A

The combination of an angiotensin converting enzyme (ACE) inhibitor, beta-blocker and mineralocorticoid receptor antagonist (MRA) can decrease mortality over 1–3 years by 50–60%[5].

SPIRONOLACTONE - ADVICE TO PATIENT

-
- explain expected benefits
- treatment is given to improve symptoms, prevent worsening of heart failure and to increase survival
- symptom improvement occurs within a few weeks to a few months of starting treatment
- avoid NSAIDs not prescribed by a physician (self-purchased “over the counter” treatment eg. ibuprofen)
- **temporarily stop spironolactone if diarrhoea and/or vomiting occur and contact physician**

Eplerenone (Inspra)

Special authority (indefinite) by relevant practitioner

HF with EF < 40%

And either

Intolerant to optimal dosing of spironolactone (*judgement*)

Clinically significant adverse event on optimal spiro dose (*discretion*)

Table 4 Comparison of adverse events in spironolactone and eplerenone chronic heart failure with left ventricular systolic dysfunction trials

	Spironolactone	Eplerenone
Main trial	RALES	EMPHASIS-HF
Mean drug dose (mg)	26	39
Gynaecomastia (%)	9	0.5
Breast pain (%)	2	0.5
Adverse event (%)	82	72
Serious hyperkalaemia (K^+ >6 mmol)	1.2% in placebo and 1.7% in spironolactone group ($P < 0.001$)	1.9% in placebo and 2.5% in eplerenone group ($P = 0.3$)
Discontinuation due to adverse event	3% higher than placebo group	2.4% less than placebo group

6/12 later
NYHA II

- Metoprolol CR 190 mg/day
- Cilazapril 5 mg/day
- Frusemide 80 mg/day
- Aspirin 100mg/day
- Spironolactone 50 mg/day
- Atorvastatin 80 mg/day

NT pro-BNP 390 pmol/l

Creatinine 100umol/l

Severe LV Dilatation: EF 25%

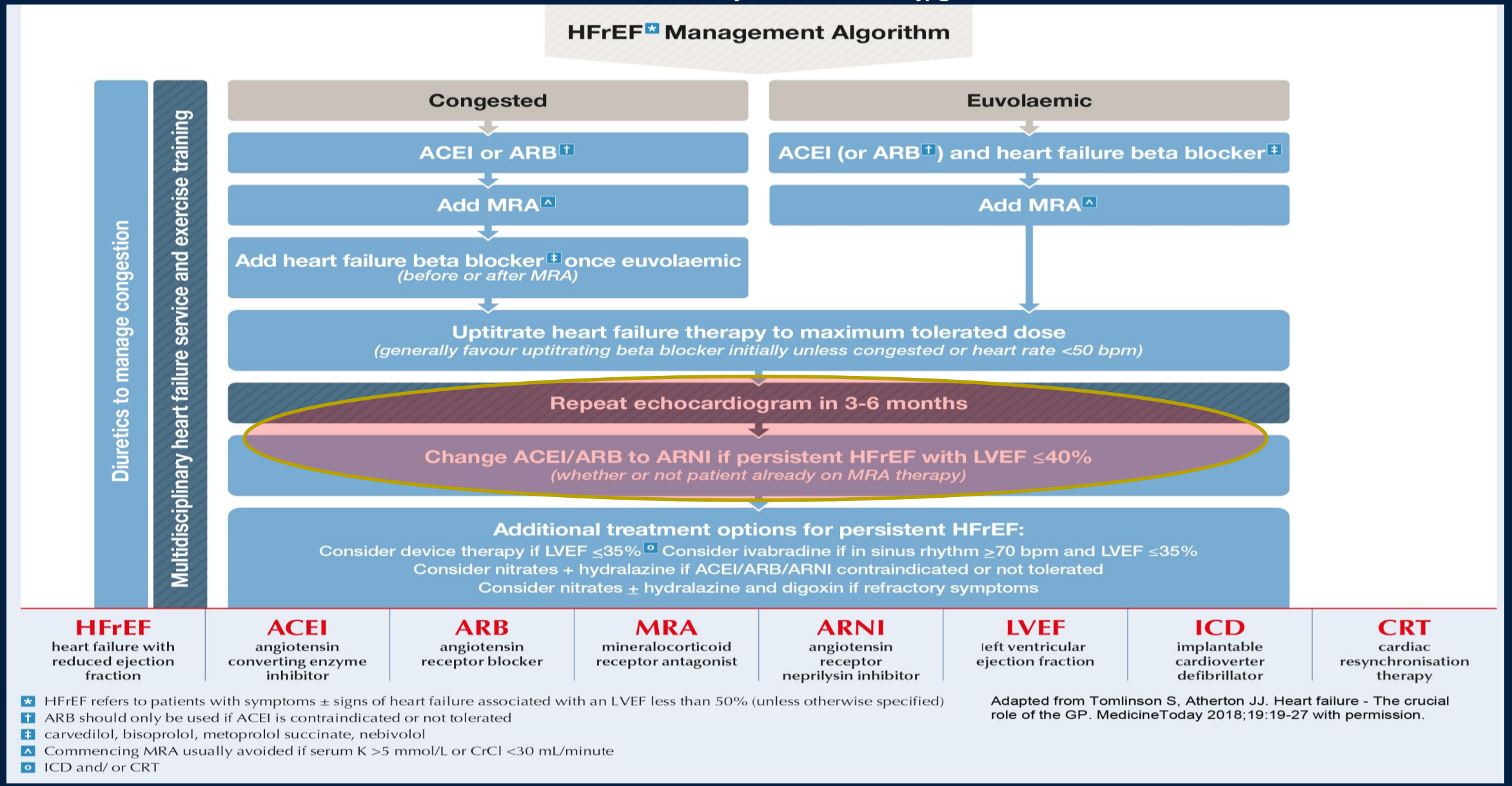
ECG: SR. Q wave Ant MI .Narrow QRS

64 year old man
NYHA II

What Now?

Updated CSANZ 2018 Guidelines

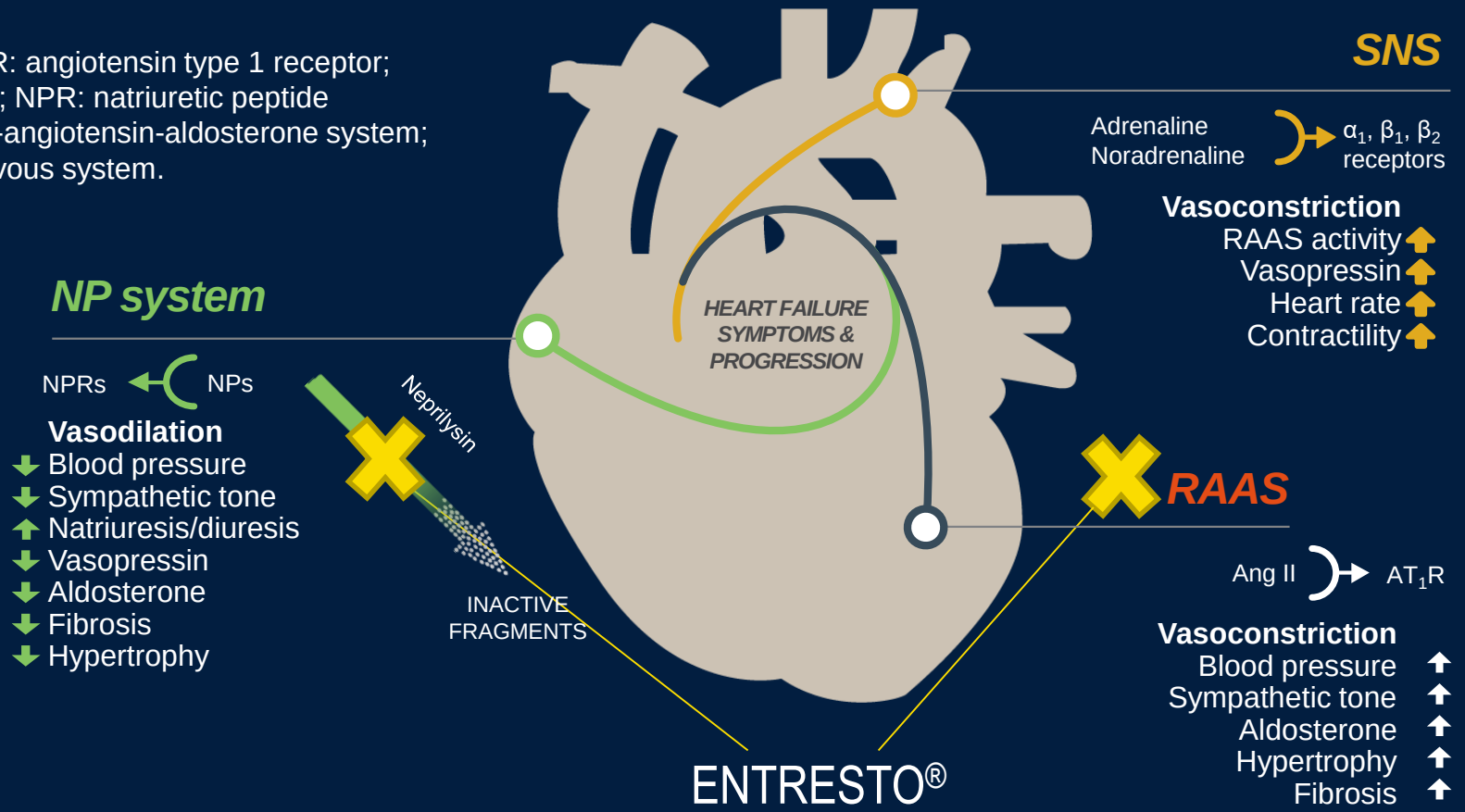
https://www.heartfoundation.org.au/images/uploads/publications/HF_Figure_3_Management_of_patients_with_heart_failure_and_reduced_ejection_fraction.jpg



ENTRESTO® simultaneously inhibits neprilysin and blocks AT_1Rs, and has the potential to restore the natural balance of the RAAS and NP system[1]

Ang: angiotensin; AT_1R: angiotensin type 1 receptor; NP: natriuretic peptide; NPR: natriuretic peptide receptor; RAAS: renin-angiotensin-aldosterone system; SNS: sympathetic nervous system.

ENTRESTO® potentiates the positive effects of natriuretic peptides via sacubitril



ENTRESTO® blocks the detrimental effects of the over-active RAAS via valsartan

1. Vardeny O *et al*. *JACC Heart Fail* 2014;2:663–70.

PARADIGM-HF

Trial design: Participants with NYHA class II-IV and LVEF ≤40% were randomized to **ENTRESTO** 200 mg twice daily (n = 4,187) vs. **enalapril** 10 mg twice daily (n = 4,212).

Largest trial ever HFrEF

Mean EF 30 %

60 % Ischaemic Cause

70% NYHA II

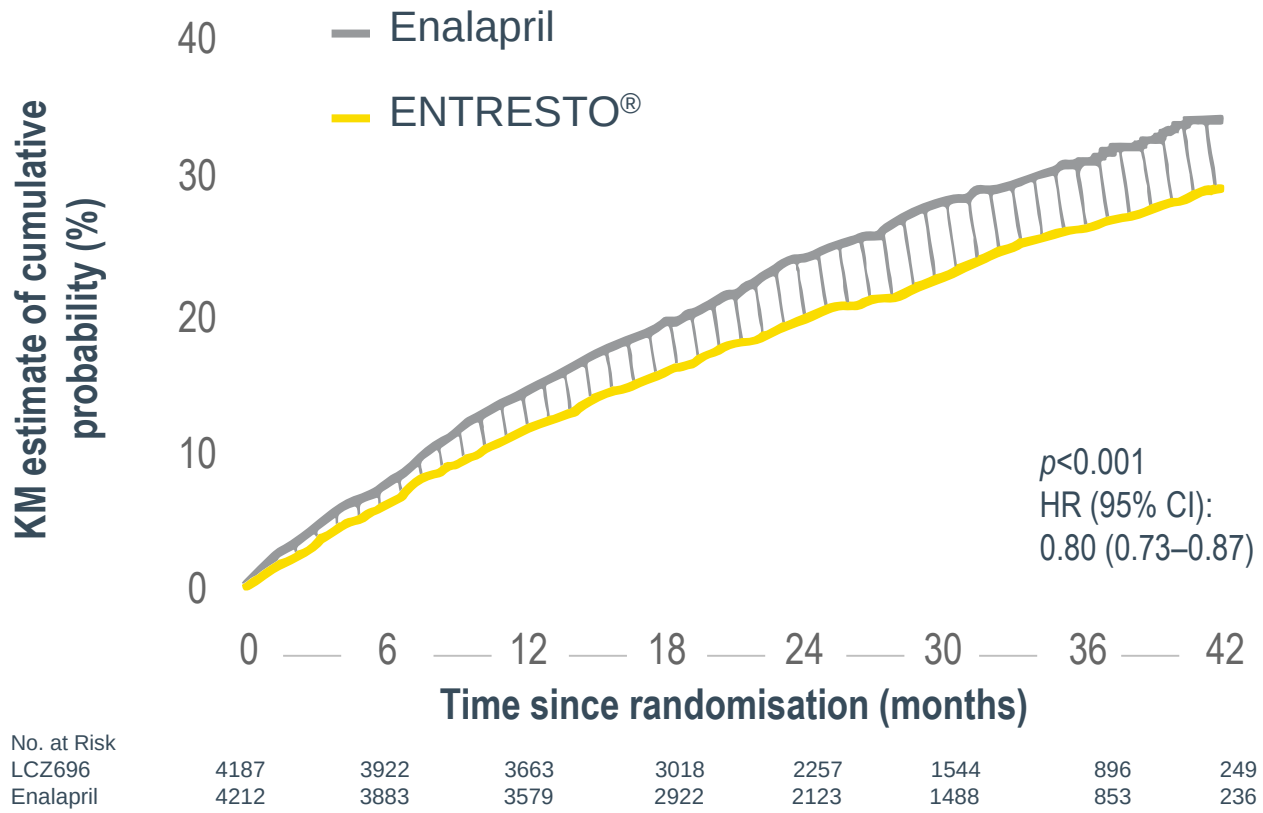
- Compared against enalapril, the most trialled ACEI in HFrEF[2]
- ***Stopped early due to the finding of both significantly reduced risk of CV death vs. enalapril (HR: 0.80, p<0.001) and the primary endpoint being met[1]***

ACE: angiotensin-converting enzyme; CV: cardiovascular; HF: heart failure; HF-rEF: heart failure with reduced ejection fraction; HR: hazard ratio; PARADIGM-HF: Prospective Comparison of ARNI with ACEI to Determine Impact on Global Mortality and Morbidity in Heart Failure.

1. McMurray JJ *et al. N Engl J Med* 2014;371(11):993–1004. 2. McMurray JJ *et al. Eur J Heart Fail* 2014;16(7):817–25.

ENTRESTO® reduced the risk of CV death or first HF hospitalisation (primary endpoint) by 20% vs enalapril[1]*

**HR: 0.80, p<0.001.[1]*



At a median duration of 27 months, death from CV causes or first HF hospitalisation occurred in **21.8%** of patients in the ENTRESTO® group and **26.5%** of patients in the enalapril group.[1]

20% RRR, *p*<0.001

4.7% ARR

NNT=21 over a median duration of 27 months[1]

Trial stopped early after median follow-up of 27 months.[1]

ARR: absolute risk reduction; CI: confidence interval; HR: hazard ratio; KM: Kaplan-Meier; NNT: number needed to treat; RRR: relative risk reduction.

1. McMurray JJ et al. N Engl J Med 2014;371(11):993–1004.

PARADIGM-HF: Summary of Findings

In heart failure with reduced ejection fraction, when compared with recommended doses of enalapril:

Entresto was *more effective* than enalapril in . . .

- Reducing the risk of CV death and HF hospitalization
- Reducing the risk of CV death by *incremental* 20%
- Reducing the risk of HF hospitalization by *incremental* 21%
- Reducing all-cause mortality by *incremental* 16%
- *Incrementally* improving symptoms and physical limitations

Entresto was *better tolerated* than enalapril . . .

- Less likely to cause cough, hyperkalemia or renal impairment
- Less likely to be discontinued due to an adverse event
- More hypotension, but no increase in discontinuations
- Not more likely to cause serious angioedema

ENTRESTO® Indication and Special Authority criteria

ENTRESTO® is indicated in adult patients for the treatment of chronic HF (NYHA Class II–IV) with reduced ejection fraction.[1]

Special Authority Criteria.[2]

Initial application from any relevant practitioner. Approvals valid for 12 months for applications meeting the following criteria:

All of the following

1. Patient has heart failure; and
2. Any of the following:
   - Patient is in NYHA/WHO functional class II; or
   - Patient is in NYHA/WHO functional class III; or
   - Patient is in NYHA/WHO functional class IV; and
3. Patient has a documented left ventricular ejection fraction (LVEF) of less than or equal to 35%; and
4. Patient is receiving concomitant optimal standard chronic heart failure treatments.

Renewals from any relevant practitioner. Approvals valid for 12 months for applications where treatment remains appropriate and the patient is benefiting from treatment.

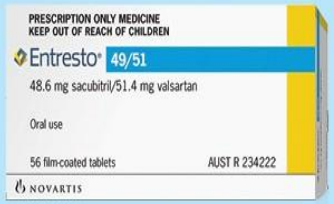
Note: Due to the angiotensin II receptor blocking activity of sacubitril with valsartan it should not be co-administered with an ACE inhibitor or ARB.

ACEI: angiotensin-converting enzyme inhibitor; ARB: angiotensin-receptor blocker; HF: heart failure; NYHA: New York Heart Association;.

1. ENTRESTO® New Zealand Data Sheet .
2. Special Authority Form SA 1751 – https://www.pharmac.govt.nz/2018/10/01/SA1751.pdf

ENTRESTO® Recommended dosing for patients with HF-rEF

For patients currently on an ACEI;
36 – hour washout period is required



one tablet twice daily
Recommended starting dose
49 mg/51 mg

one tablet twice daily
Target dose
97 mg/103 mg

- *Step up after 2-4 weeks*
- *Check blood pressure and consider dose adjustment of diuretics and concomitant therapies*

ENTRESTO® New Zealand Data Sheet

ENTRESTO® Recommended dosing for patients with HF-rEF

For the following types of patients;

SBP 100-110, ≥75 years, severe renal impairment, moderate hepatic impairment, prior treatment with a low dose ACEI or ARB, or ACEI or ARB naive

a lower starting dose is recommended

ENTRESTO® New Zealand Data Sheet

Our Patient

Cilazapril

stopped for 2 days

Commenced Entresto (24mg/26mg) I BD (BP110/70)

Up-titrated Heart Failure Nurse 2/52 later (49mg/51mg) I BD

July 2019

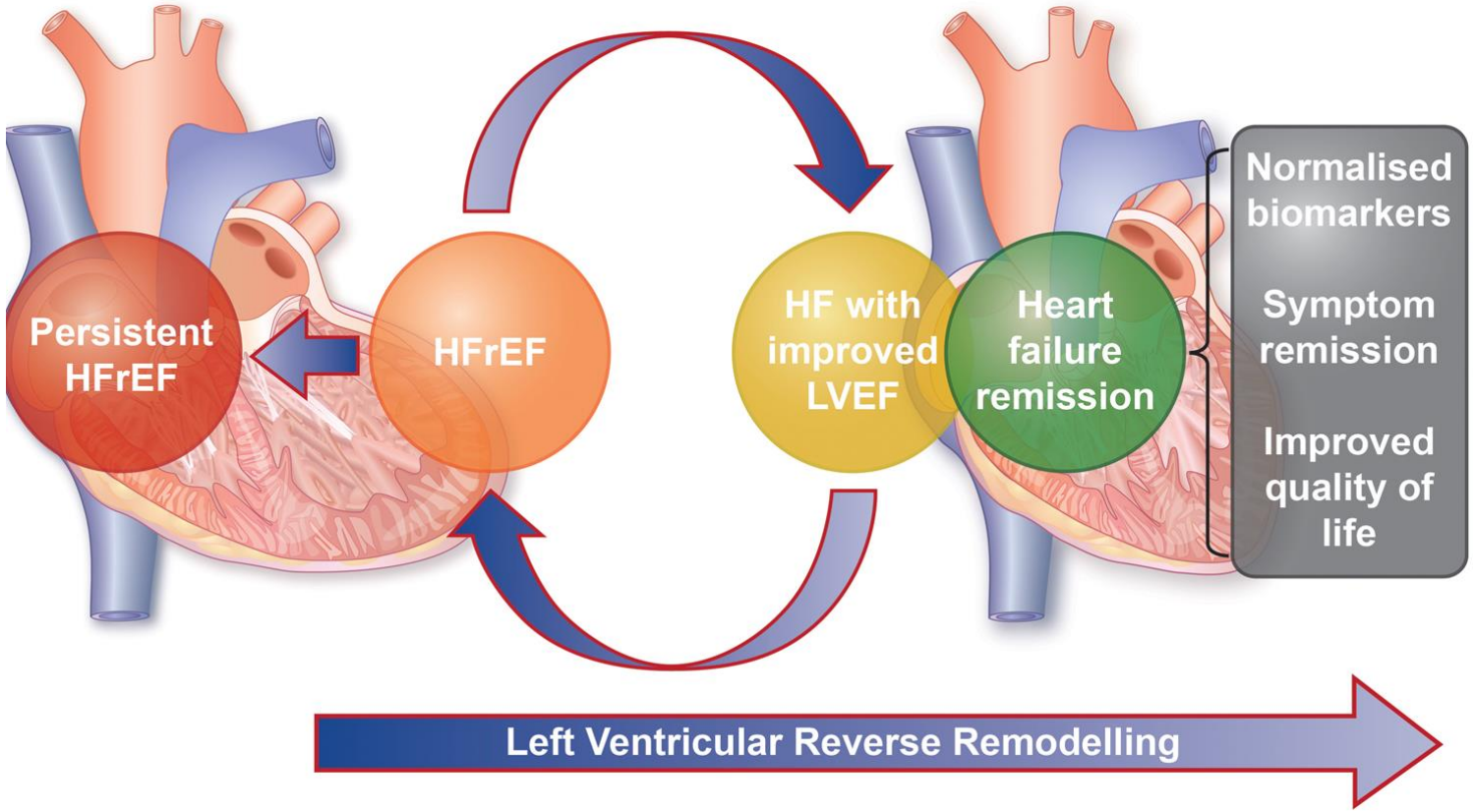
NYHA I Symptoms

Entresto
97mg/103mg I BD

Spironolactone
reduced 25 mg/day

Frusemide reduced
40 mg /day

BNP 160 pmol/l



Reverse remodeling can occur

Practice Tips

Double doses of Heart Failure Meds one at a time ,every 2 weeks or as tolerated until maximum tolerated dose achieved

Do not uptitrate one drug at the exclusion of **starting other drugs** which reduce mortality

The goal with **diuretics** is symptom relief without over-dieuresis .Do not prioritise over treatments which reduce mortality and hospitilisations

Monitoring should occur following intitiation and uptitration and should include clinical review,BP,renal function,K+ and heart rate

Trouble-shooting

Symptomatic Hypotension

Assess volume status

Review the need for other drugs not shown to improve outcomes in HF that lower blood pressure (e.g., diuretics, calcium channel blockers and nitrates)

If the above strategies are unsuccessful, ACEI/ARB, ARNI, MRA, or beta-blocker may need to be decreased (or ceased) and specialist advice sought.

Reduced renal function (eGFR decrease by more than 30%) Or hyperkalaemia (serum [K] >5.5 mmol/L)

If small change in renal function (e.g. eGFR decreases by ≤30%): continue therapy

Assess volume status.

Review the need for other drugs not shown to improve outcomes in HF that impact renal function or serum potassium (e.g. nonsteroidal anti-inflammatory drugs [NSAIDs], diuretics and potassium supplements)

If the above strategies are unsuccessful, ACEI/ARB, ARNI or MRA may need to be decreased (or ceased) and specialist advice sought.

• **Serum [K] increase > 6.0 mmol/L**: cease MRA, seek specialist advice

Symptomatic bradycardia (<50BPM)

Document rhythm with ECG.

Review the need for other drugs not shown to improve outcomes in heart failure that lower heart rate (e.g. digoxin, amiodarone).

If the above strategies are unsuccessful, the beta-blocker dose may need to be decreased and specialist advice sought

Increasing Congestion

Increase diuretic.

Consider additional diuretic

Consider a reduction in beta-blocker dose. Temporary withdrawal of the beta-blocker may occasionally be required, especially if recently commenced

Iron Therapy in Heart Failure

The treatment for other co-morbidities in patients with heart failure

Recommendations	Class	Level
Iron deficiency		
Intravenous FCM should be considered in symptomatic patients with HFrEF and iron deficiency (serum ferritin <100 µg/L, or ferritin between 100–299 µg/L and transferrin saturation <20%) in order to alleviate HF symptoms, and improve exercise capacity and quality of life.	IIa	A

JAMA | Original Investigation

Effect of Oral Iron Repletion on Exercise Capacity in Patients With Heart Failure With Reduced Ejection Fraction and Iron Deficiency

The IRONOUT HF Randomized Clinical Trial

Gregory D. Lewis, MD; Rajeev Malhotra, MD; Adrian F. Hernandez, MD, MHS; Steven E. McNulty, MS; Andrew Smith, MD; G. Michael Felker, MD, MHS; W. H. Wilson Tang, MD; Shane J. LaRue, MD; Margaret M. Redfield, MD; Marc J. Semigran, MD; Michael M. Givertz, MD; Peter Van Buren, MD; David Whellan, MD; Kevin J. Anstrom, PhD; Monica R. Shah, MD, MHS; Patrice Desvigne-Nickens, MD; Javed Butler, MD; Eugene Braunwald, MD; for the NHLBI Heart Failure Clinical Research Network

CONCLUSIONS AND RELEVANCE Among participants with HFrEF with iron deficiency, high-dose oral iron did not improve exercise capacity over 16 weeks. These results do not support use of oral iron supplementation in patients with HFrEF.

What about Oral Iron?

HEART-FID

Objective

- To investigate the efficacy and safety of IV FCM as treatment for patients with CHF and ID

Design

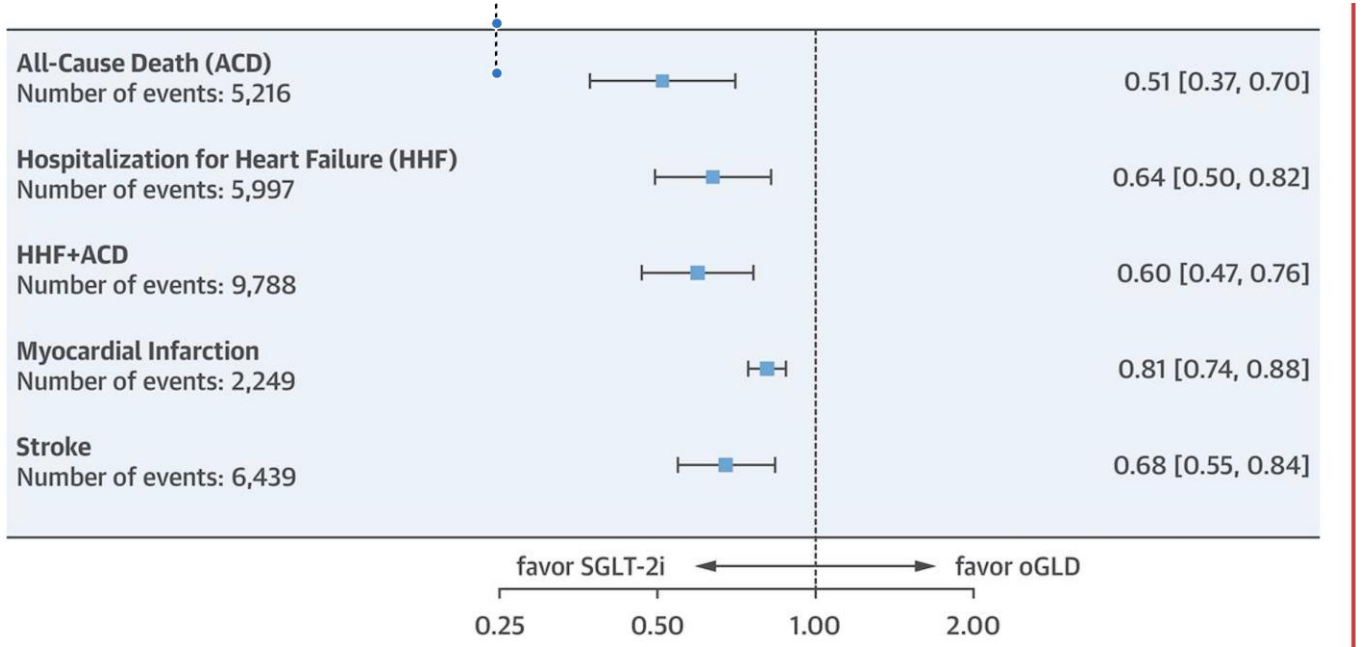
- Randomized, double-blind, placebo-controlled phase 3 trial
- 3014 patients with stable HF and ID*
- Receiving IV FCM or saline

Primary Outcome Measures

- Incidence of death (1 year)
- Incidence of hospitalization for HF (1 year)
- Change in 6MWT distance (6 months)

SGL-T2 Inhibitors CVD-REAL

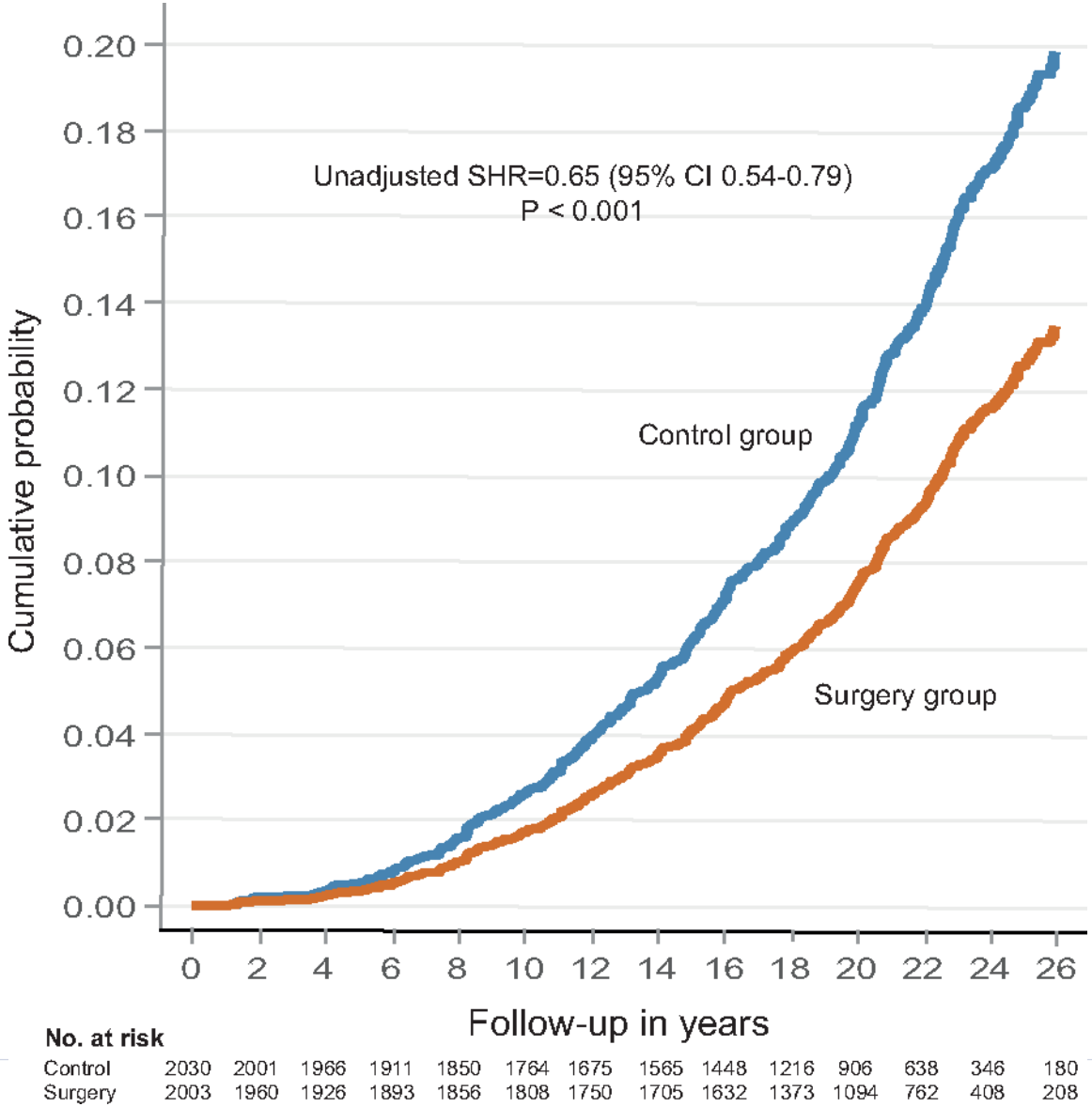
Lower CV Risk associated with SGL-T2-I use in Real World Practice



Kosiborod, M. et al. J Am Coll Cardiol. 2018;71(23):2628-39.

Surgical obesity treatment and the risk of heart failure

- Swedish Obese Study
- Prospective match cohort study
- 2003 bariatric surgery v 2030 usual care
- median follow-up 22 years
- The risk of heart failure appeared to decline in parallel with a greater degree of weight loss



European Heart Journal, Volume 40, Issue 26, 7 July 2019, Pages 2131–2138,
https://doi.org/10.1093/eurheartj/ehz295

Aortic Stenosis

affects approximately 5% of individuals >65 years old, with ~3% of people >75 years having moderate to severe disease.

prevalence is projected to double over the next 2 decades.

Once symptoms develop prognosis is poor, with about ~ 25% of symptomatic patients dying each year if untreated.

PARTNER 3 : RCT:1000 Low-Risk AS Pts
BE-TAVR v Surgical AVR

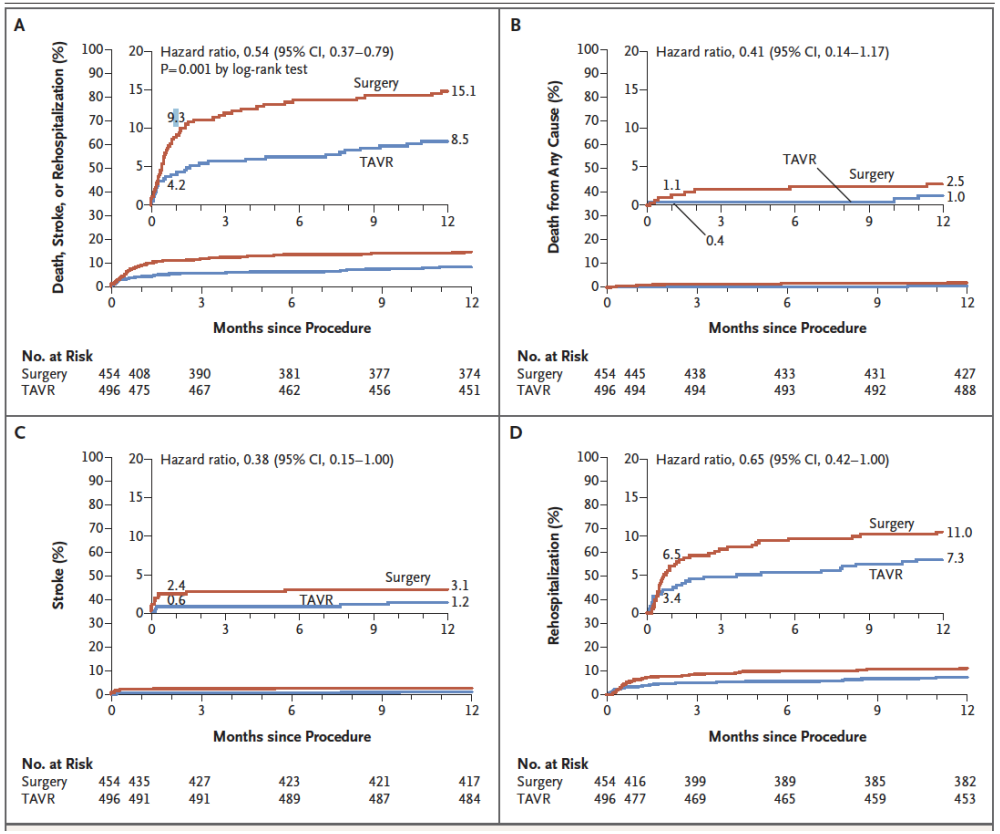
Primary composite end point of death, stroke, or rehospitalization at 1 year

1: TAVR was superior to Surgical AVR

2: TAVR was associated with a significantly lower rate of new-onset atrial fibrillation at 30 days, a shorter index hospitalization, and a lower risk of a poor treatment outcome at 30 days than surgery.

3: Patients who underwent TAVR had more rapid improvements in QOL

4: No significant difference in major vascular comps, new permanent pacemaker insertions, or moderate or severe paravalvular regurgitation

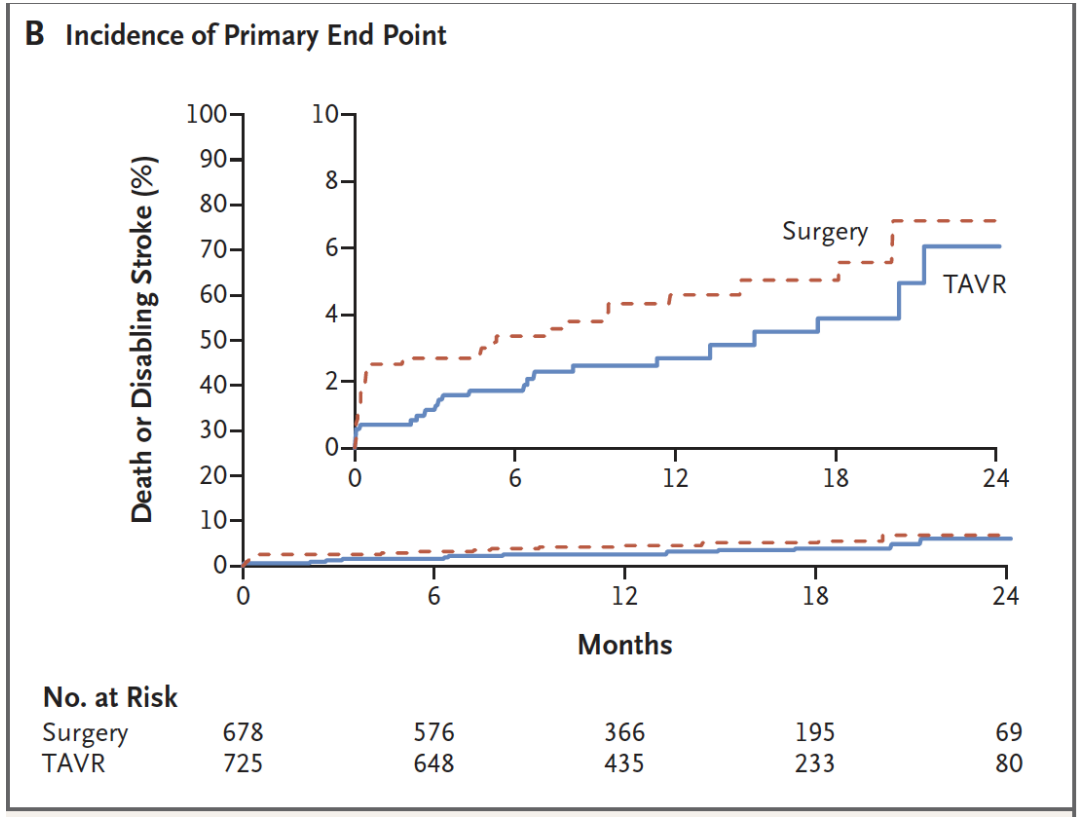


March 16, 2019DOI: 10.1056/NEJMoa1814052

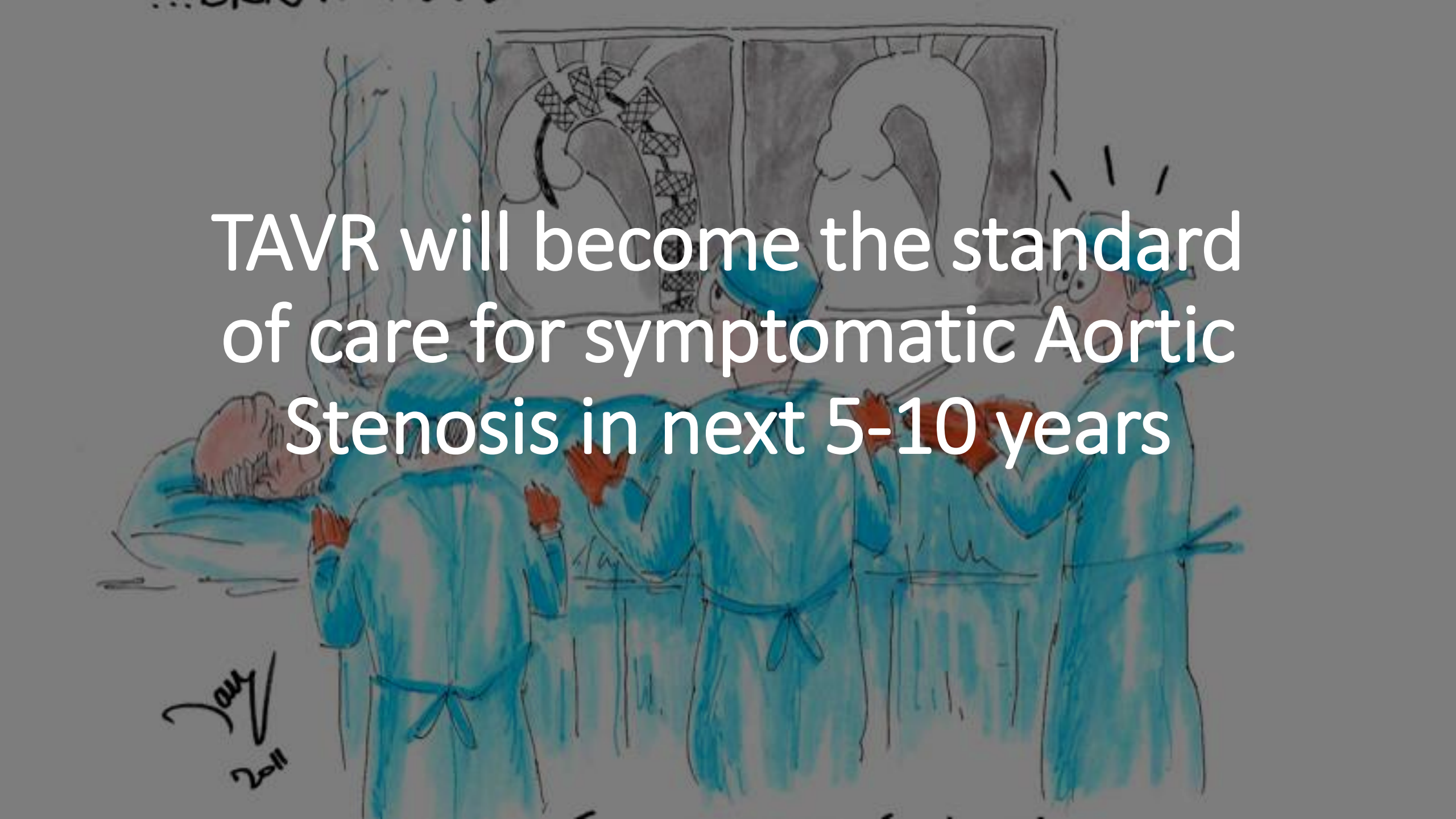
TAVR with a Self-Expanding Valve in Low-Risk Patients : RCT 1468 pts with low risk AS (Evolut TAVR v Surgical AVR)

Primary composite end point of death, stroke, at 2 years
(Non-Inferior design)

- TAVR was non inferior to Surgery at 24 months for the composite endpoint of death or disabling stroke at 24 months (5.3% v 6.7% probability of noninferiority >0.999)
- At 30 days TAVR, had a lower incidence of disabling stroke (0.5% vs. 1.7%), bleeding complications (2.4% vs. 7.5%),acute kidney injury (0.9% vs. 2.8%), and atrial fibrillation (7.7% vs. 35.4%)
- At 30 days TAVR had higher incidence of moderate or severe aortic regurgitation (3.5% vs. 0.5%) and pacemaker implantation (17.4% vs. 6.1%).



March 16, 2019. DOI: 10.1056/NEJMoa1816885


TAVR will become the standard of care for symptomatic Aortic Stenosis in next 5-10 years

68 year old lady

SOBOE x 2-3 yrs
more pronounced last 3/12
recent admission with “Heart-Failure”

Background:

- NIDDM
- Hypertension x 20 yrs
- Hyperlipidemia
- Multiple Varicose Vein Ops
- GORD

Meds

Accupril 10 mg/day

Atorvostatin 40 mg/day

Losec 20 mg nocte

Frusemide 40 mg/day

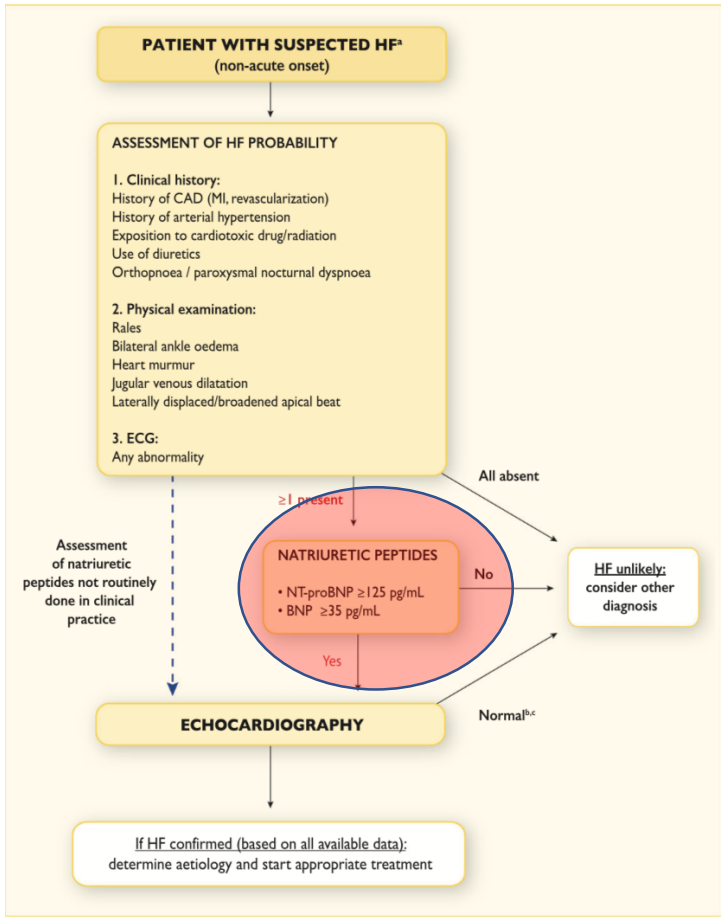
Bricanyl MDI prn

Examination

- BP 160/96
- HR 94 / regular
- JVP 4 cm
- Bilateral pitting ankle oedema
- No sacral oedema
- Soft ESM ,S4 ,No S 3
- Occasional basal crackles

Investigations

- Serum creatine 0.14 mmol/l
- Glucose 8.4 mmol/l
- FBC Hb 130 g/l
- Total cholesterol 6.0 mmol/l
- Tfts normal
- Lfts normal
- **nt-pro BNP 200pmol/l**



Prof Mark Richards
Heart Foundation Chair of CV Studies
CHI. University of Otago

ESC Heart Failure Guidelines 2016

ECHO

Normal LV size and contractility

Moderate LVH

Dilated LA and Aortic root

Impaired relaxation

Aortic Sclerosis

Lam et al. Euro Heart J 2018

	HFpEF (LVEF ≥ 50%)	HFmrEF (LVEF 40-49%)	HFrEF (LVEF < 40%)
N	574 (28%)	256 (13%)	1209 (59%)
Age	71.5 (11.8)	65.8 (12.7)	62.1 (13.2)
Women	**274 (47.7%)**	77 (30.1%)	200 (16.5%)
Ethnicity			
NZ European	259 (45%)	91 (36%)	310 (26%)
Maori	37 (6%)	22 (9%)	103 (9%)
Pacific	20 (3%)	16 (6%)	47 (4%)
Chinese	157 (27%)	74 (29%)	446 (37%)
Malay	67 12%)	35 (14%)	194 (16%)
Indian	28 (5%)	13 (5%)	100 (8%)

HF-PSF and reduced EF heart failure

Similarities

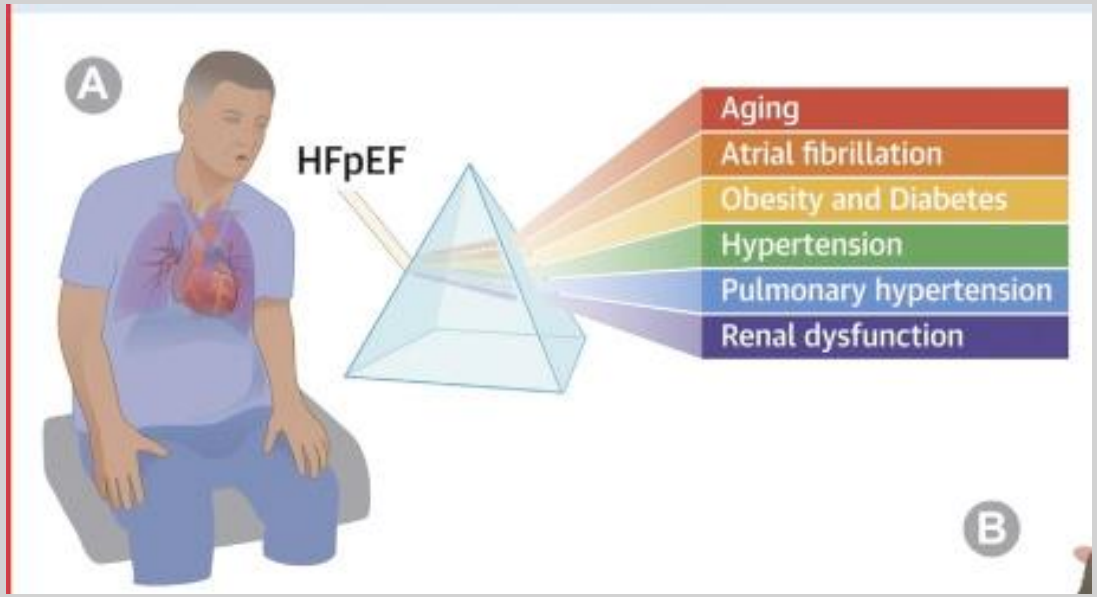
- Diabetes
- Smoking
- Lipids
- Weight
- AF

Differences

- Older
- More women
- Less IHD
- More hypertension
- Smaller thicker LV

HFpEF

- Nothing new
  - DIURETICS WORK
- But think …
  - VALVE DISEASE
  - AF
  - HYPERTENSION
  - RHF



Management

- Perfusion Imaging : Unremarkable
- Spirometry : Mild airflow limitation
- Target BP 130/80 Accupril increased
- Statin commenced Target LDL 1.8 mmol/l
- Holter requested

Management

- Perfusion Imaging : Unremarkable
- Spirometry : Mild airflow limitation
- Target BP 130/80 Accupril increased
- Statin commenced Target LDL 1.8 mmol/l
- Holter **PAF (10% Burden)**

Management of AF

Thromboembolic Risk

Symptoms

Exercise and Heart failure

- Continuous endurance training increases physical functioning and exercise capacity, and improves systolic and diastolic function in patients with HFrEF.
- Contemporary endurance training studies in patients with HFpEF have shown improved exercise capacity and diastolic function.
- Supervised exercise training programs are not associated with adverse outcomes in excess of standard care
- ***Regular performance of up to moderate intensity (i.e. breathe faster but hold conversation) continuous exercise is recommended in people with stable chronic heart failure, particularly in those with reduced LVEF, to improve physical functioning and quality of life, and to reduce admissions to hospital.***

Heart failure management programmes

Class of recommendation I
Level of evidence A

recommended for patients with HF recently hospitalized and for other high-risk patients.

Meta-Analysis on >8000 pts

16-21% decreased hospitalisation

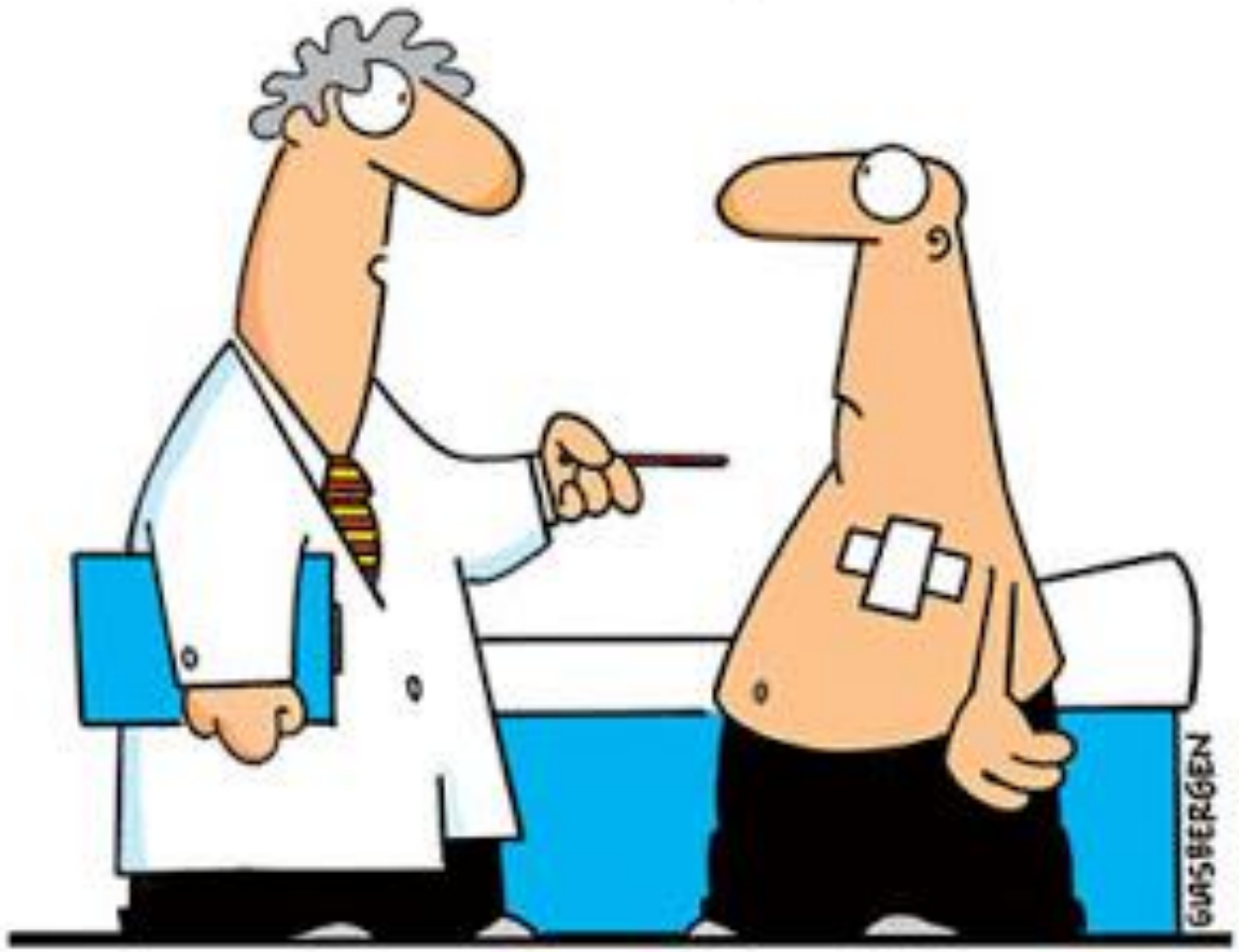
Decreased mortality

All different designs

- Hospital-based intervention
- Home based intervention
- Integrated management with secondary, primary care, patient
- Self Management and educational support
- Telemonitoring or telephone support

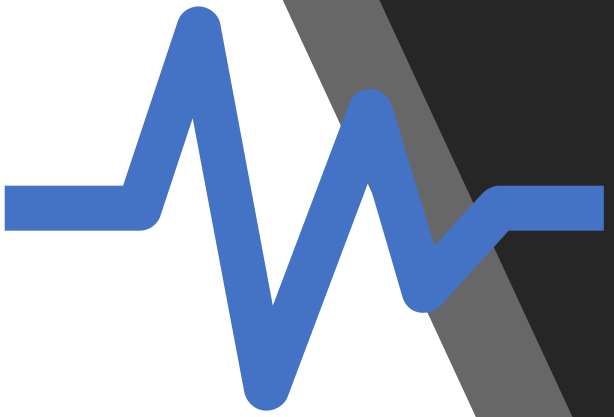
Management of heart failure Structured approach (IA)

Device Therapy for HF



"It's a pacemaker for your heart. Plus, you can download apps for your liver, kidneys, lungs, and pancreas!"

ICD Indications for Primary Prevention



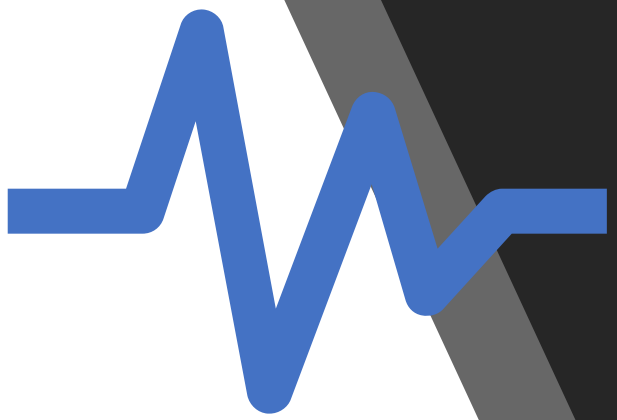
NYHA Class II and III heart failure, and LV EF $\leq$ 35%

NYHA Class I (ischaemic) and LV EF<30%

Patients who meet all current requirements for a cardiac resynchronization therapy (CRT) device and have NYHA Class IV heart failure

Careful selection with severe/older/co-morbid HF patients

Cardiac Resynchronization Therapy (CRT)



- **Indications**
  - Moderate to severe CHF (NYHA 2-4) who have EF<35%
  - Despite optimal medical therapy
  - Evidence of electrical conduction delay (LBBB)
- Timing of Referral Important
  - Patients often not on optimal Medical Rx
  - Patients referred too late- Not a Bail Out
- AF can be considered for trial

Empowering Patients

Empathy, self-rated health and self-care in heart failure: rationale and design of the MENSCH-NZ study

S. Inkrot[1], D. Chappell[1], G. Gamble[2], M. Davis[1], R. Fisher[1], G. Devlin[1], V. Pera[1], V. Gibbons[3], H. Clark[4], HD. Dungen[5], T. Jaarsma[6]

[1]Department of Cardiology, Waikato District Health Board, Hamilton, New Zealand. [2]Department of Medicine, University of Auckland, Auckland, New Zealand. [3]Waikato Hospital, Department of Clinical Effectiveness, Quality and Patient Safety, Hamilton, New Zealand. [4]Waikato District Health Board, Clinical Education and Training Unit, Hamilton, New Zealand. [5]Charite – Campus Virchow-Klinikum, Department of Internal Medicine-Cardiology, Berlin, Germany. [6]Linköping University, Department of Social and Wellfare Studies, Linköping, Sweden

Heart Foundation™

Background

In heart failure, the aims of self-care are to prevent re-hospitalisations, achieve symptom stability and improve self-rated health and quality of life. In the endeavour to improve self-care, we need to investigate further whether there is congruency in patient-reported self-care and clinician assessed self-care, both on an overall skill level, as well as individual item level, using established self-care questionnaires. In addition, little is known about the potential impact of patient-perceived clinician factors such as empathy on self-care and self-rated health.

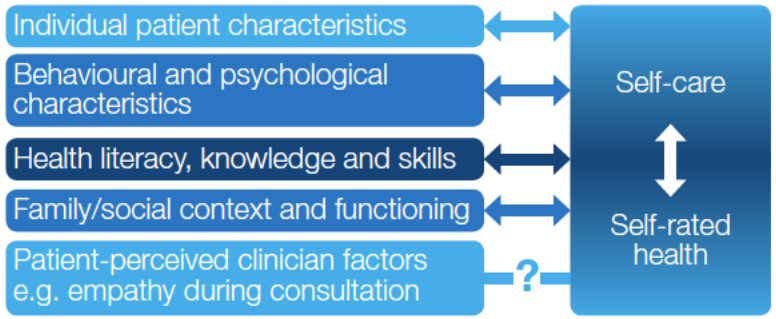


Figure 1. Conceptual framework

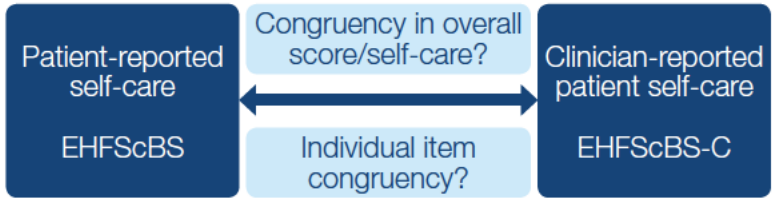


Figure 2. Assessment of congruency

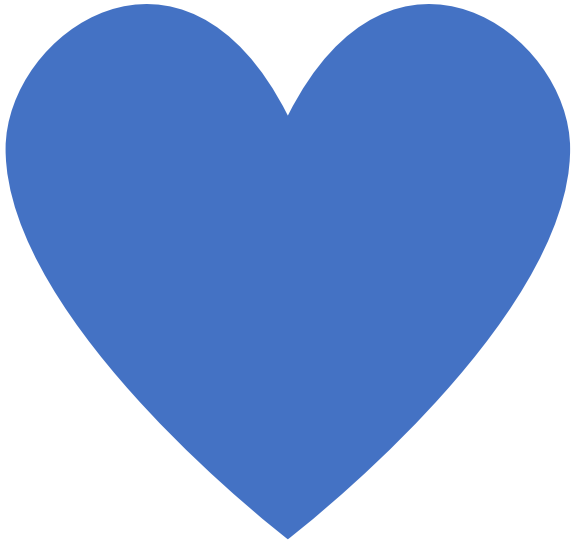
Purpose

The aim of this observational cross-sectional study is therefore to assess heart failure self-care, self-rated health and patients' perception of empathy during consultation with clinicians in a nurse-led heart failure service that focusses on patient empowerment to self-care. We also investigate clinicians' assessment of patients' self-care skills and overall general health.

Palliative Care and the Heart Failure patient

Referral to palliative care should be considered in patients with advanced heart failure to alleviate end-stage symptoms, improve quality of life and reduce rehospitalisations.

Involvement of palliative care should be considered early in the trajectory towards end-stage heart failure.



Ideally, referrals should be implemented early in patients with advanced heart failure.

The palliative care service should work collaboratively with the patient's heart failure team and GP.

This could also be extended to joint home visits by a heart failure nurse and palliative care nurse until the patient develops a strong collaborative relationship with the palliative care team, after which time the heart failure nurse may reduce their visits.

It is important that the collaborative care plan is patient and family centred.

In patients with an ICD, discussions concerning deactivation should occur between the patient and family and their cardiologist.

Patients with heart failure should be encouraged to have an advanced care plan, regardless of clinical status and soon after diagnosis.

Practical Advice on Referrals to Palliative Care

One of the Best Devices for Monitoring Heart Failure