
Heart Failure Management Update

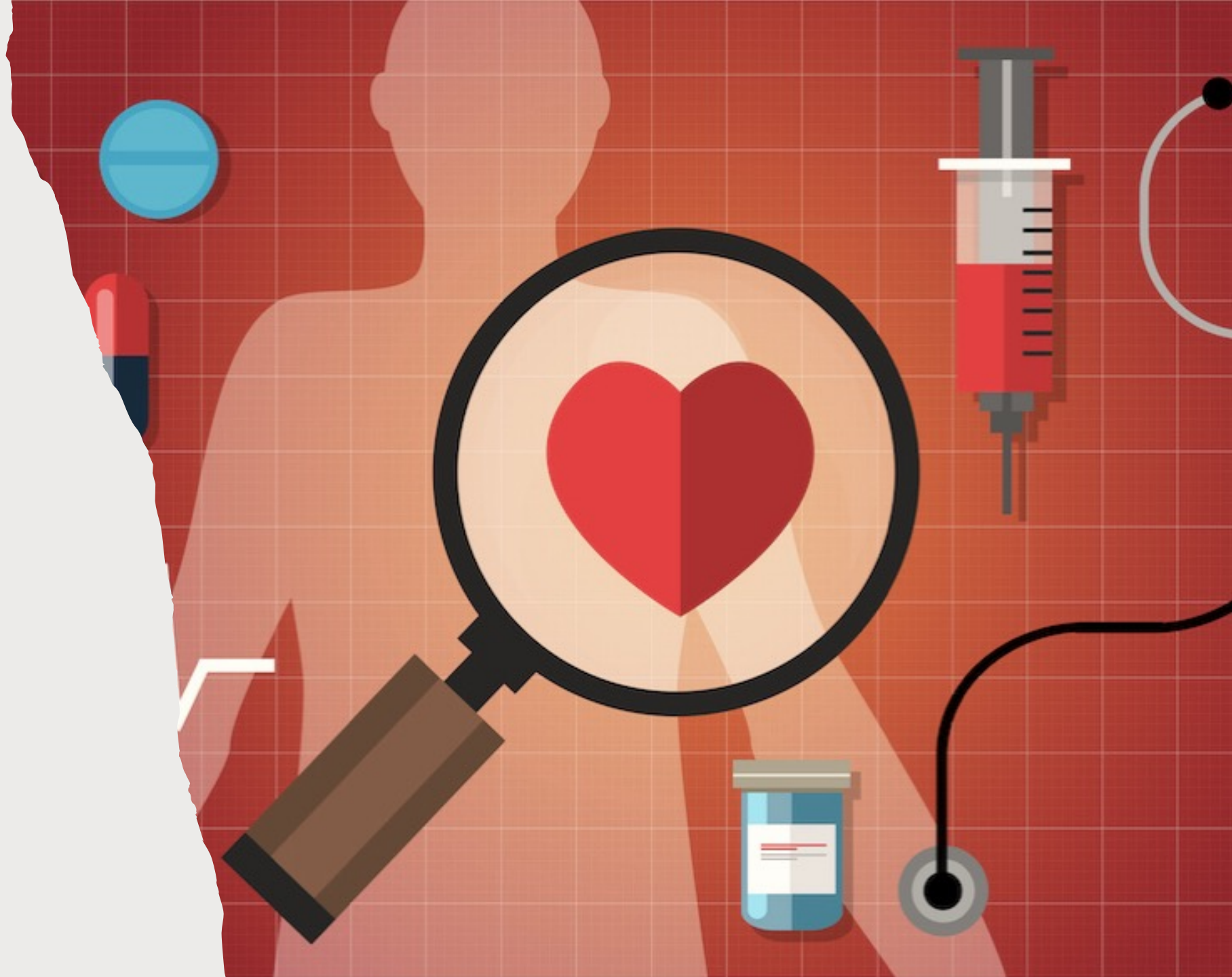
Dr Sue Piper

Consultant Cardiologist, HF Specialist

King's College Hospital

6th August 2024

WHY HEART FAILURE?





1 Million

Estimated number of people
currently living with heart
failure in the UK

400,000

number of people in UK living with
undetected HF

new diagnoses of heart failure
in the UK every year



The overall cost of heart failure to the **NHS** is currently

£2.3 billion annually.

Approximately
2%
of the total health
service budget. ^{viii, ix}

£ £ £

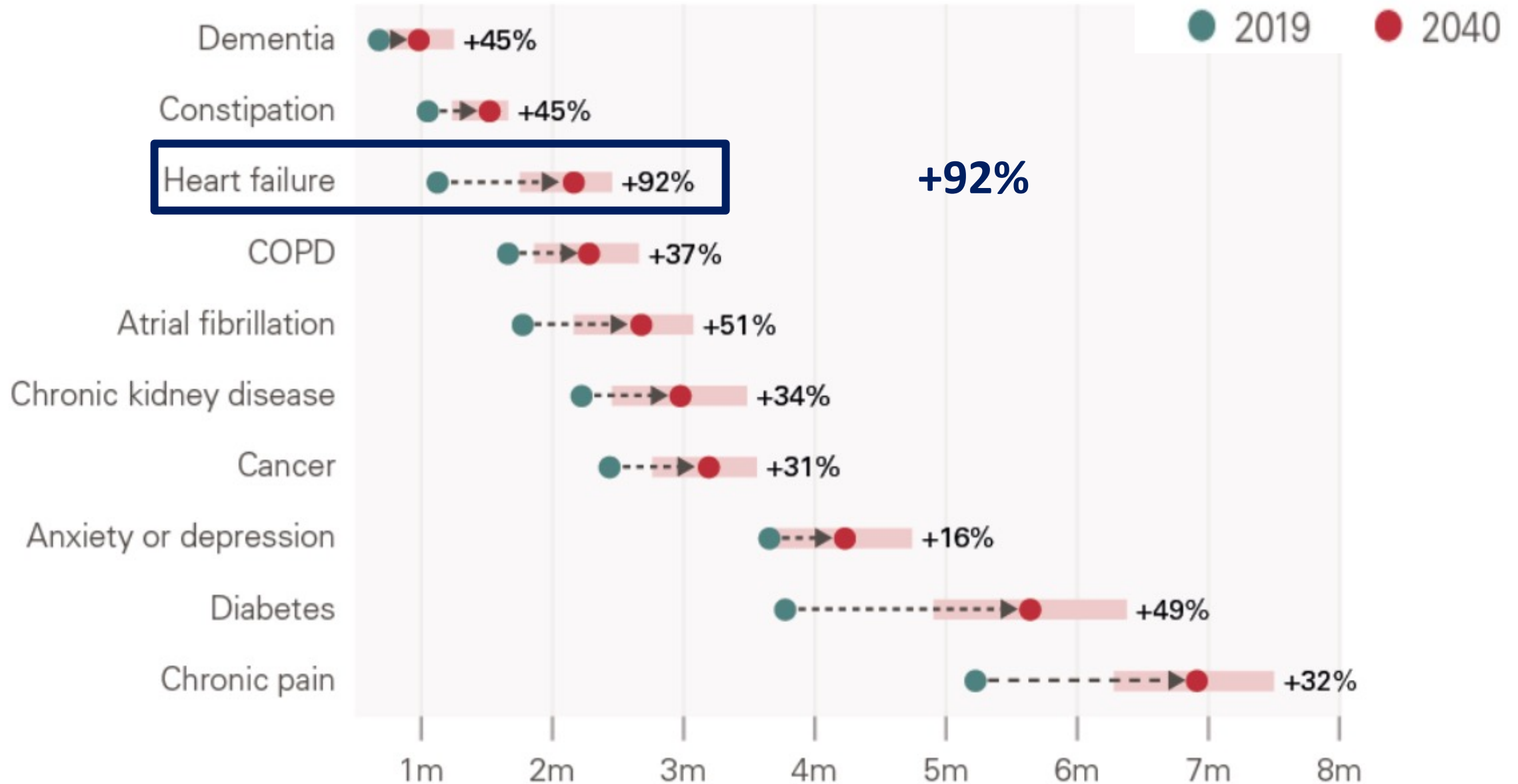
70%

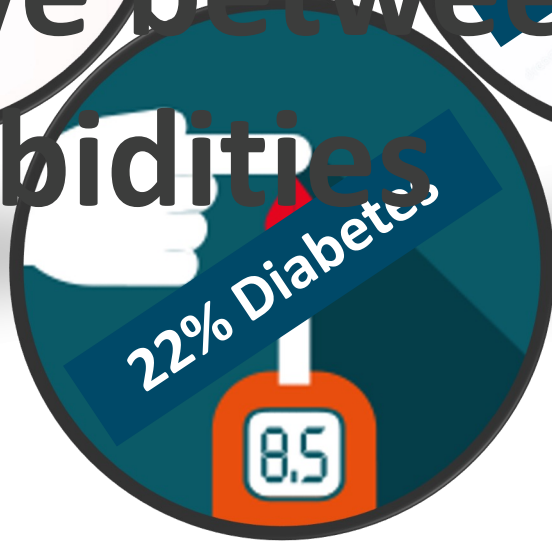
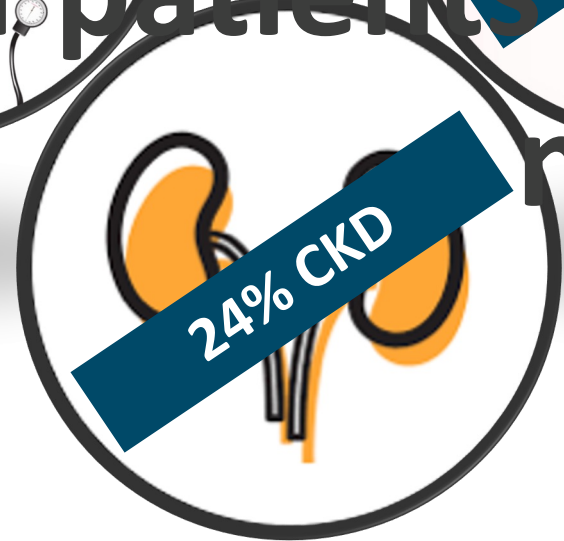
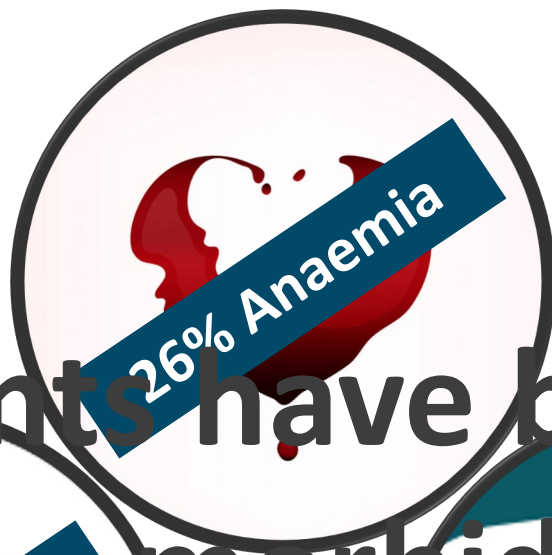
of the annual
cost of heart
failure is related to
hospitalisation.^x





KING'S HEALTH PARTNERS CARDIOVASCULAR



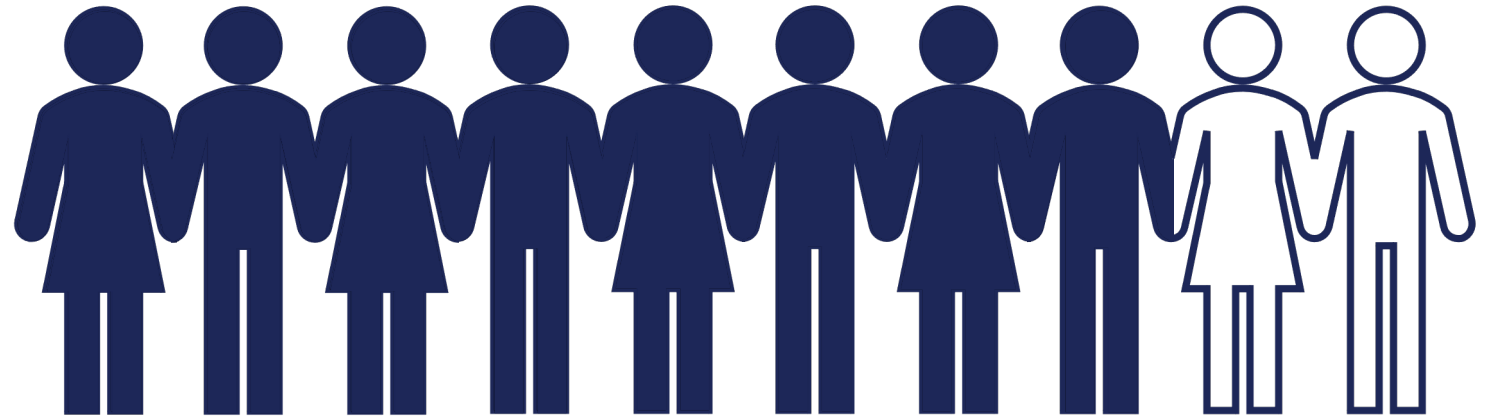


58% of patients have between 3 and 6 co-morbidities



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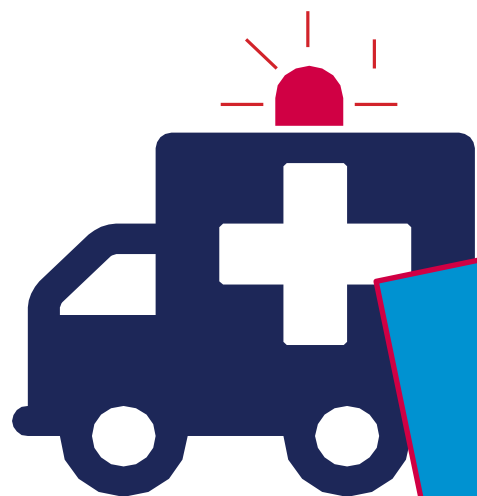
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48% of people with heart failure
that should have triggered
diagnosis as in hospital

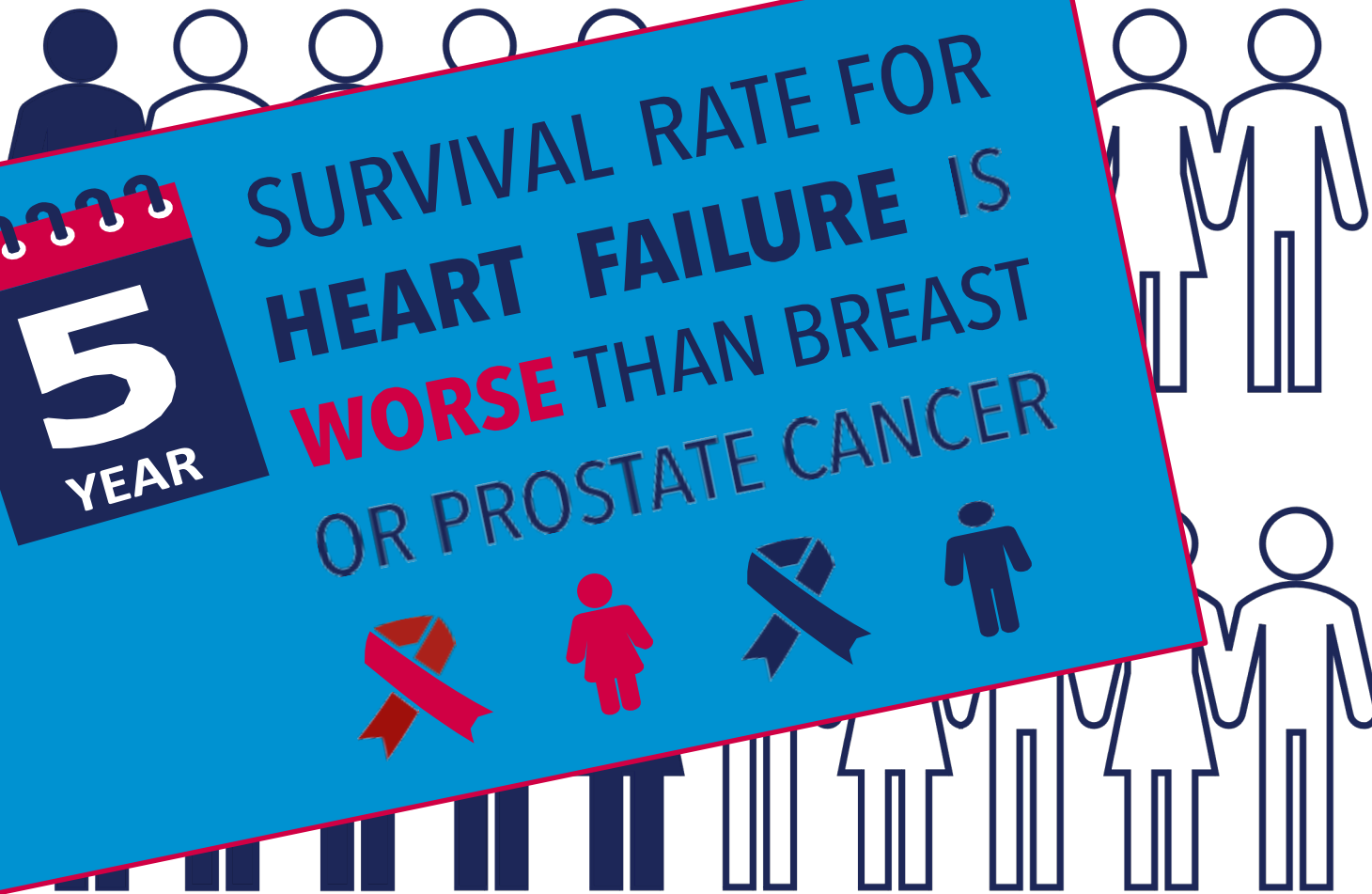


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5
YEAR

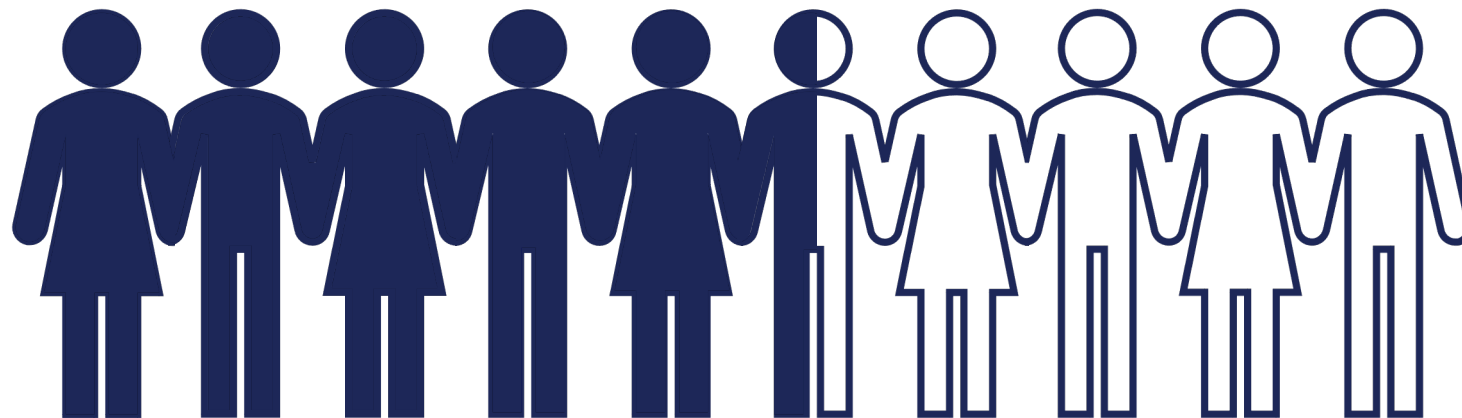
SURVIVAL RATE FOR
HEART FAILURE IS
WORSE THAN BREAST
OR PROSTATE CANCER



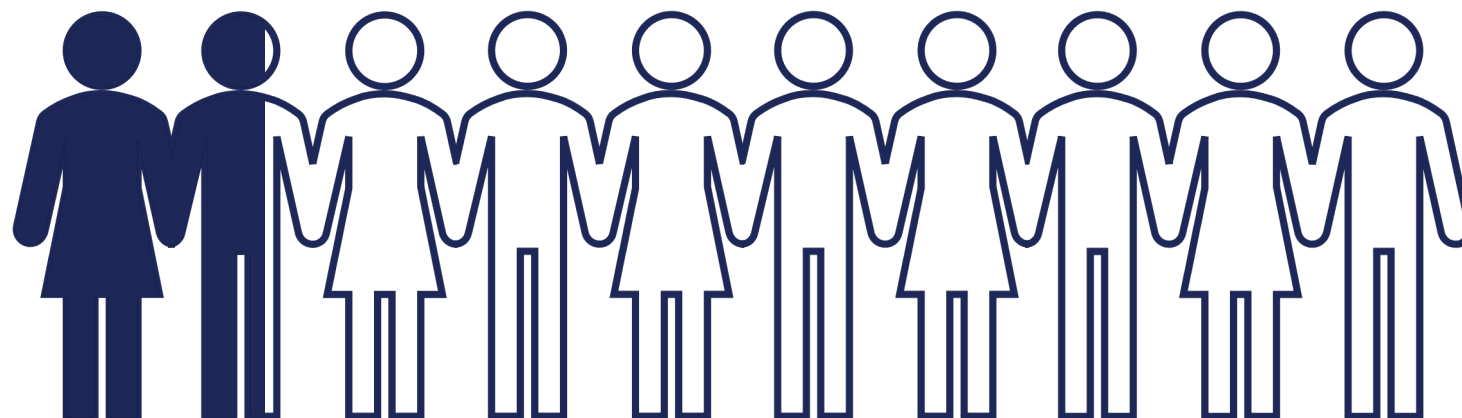


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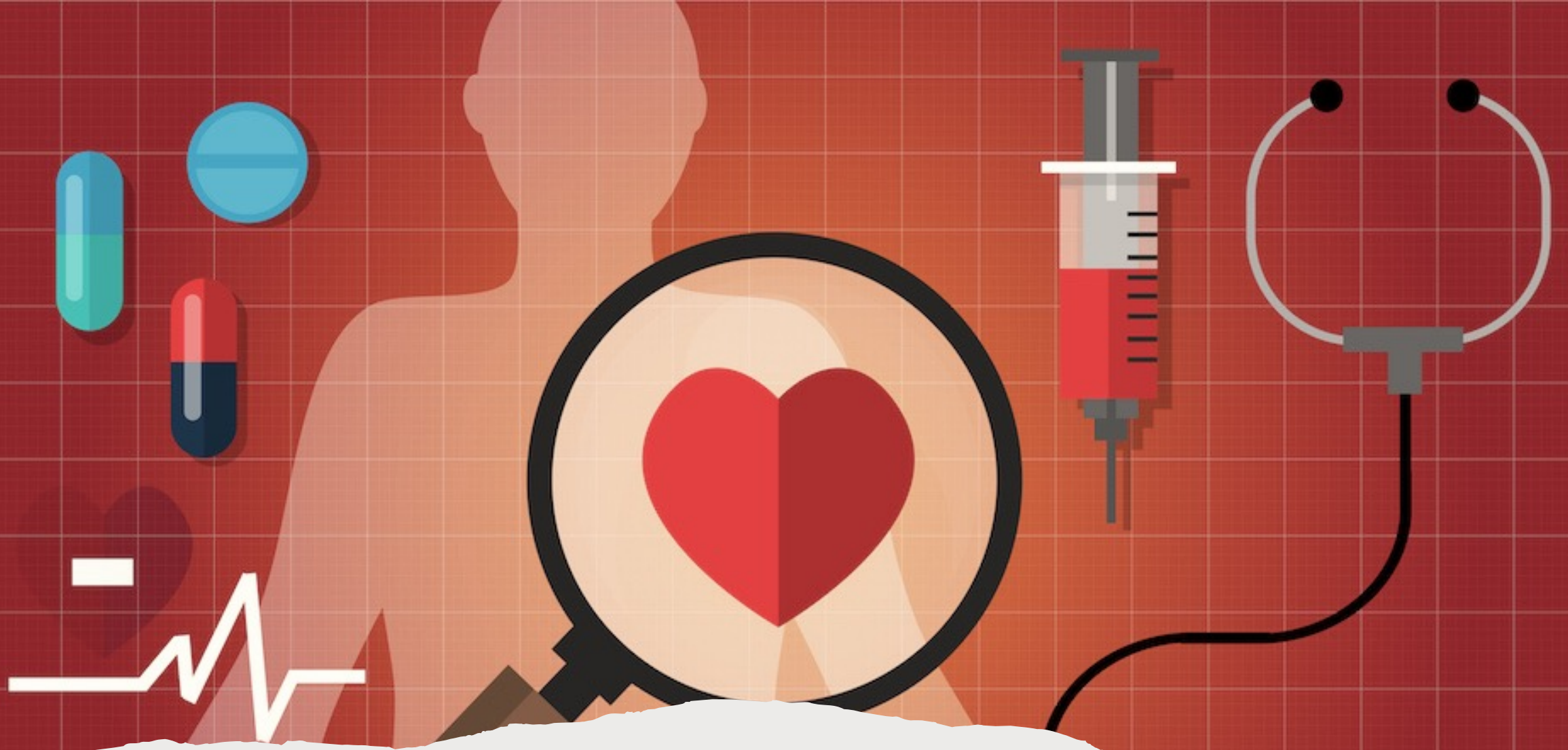
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55%



18%



DIAGNOSING HEART FAILURE

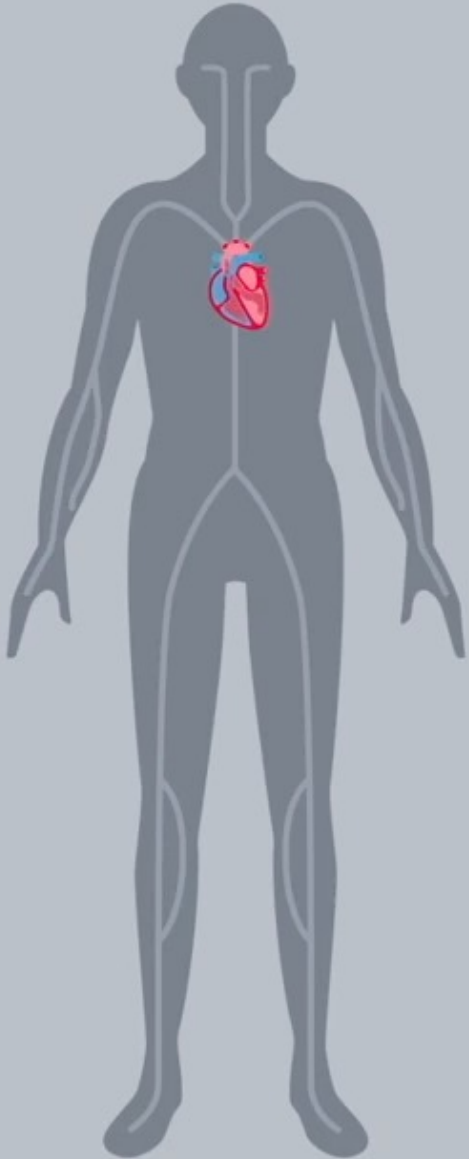
A clinical syndrome caused by a reduction in the heart's ability to pump blood around the body

Symptoms and/or signs

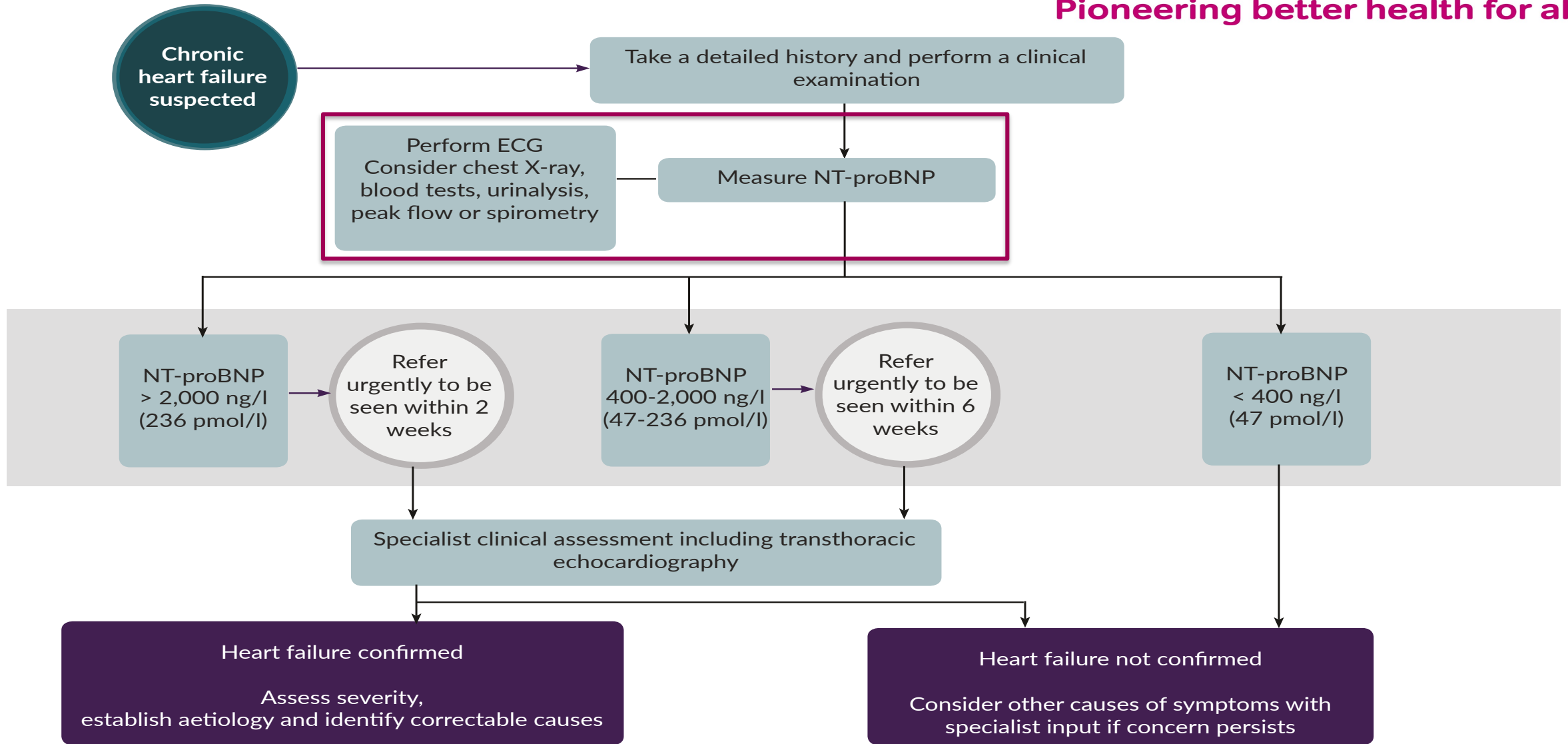
AND

Structural abnormalities on cardiac imaging

Heart Failure itself is not a diagnosis



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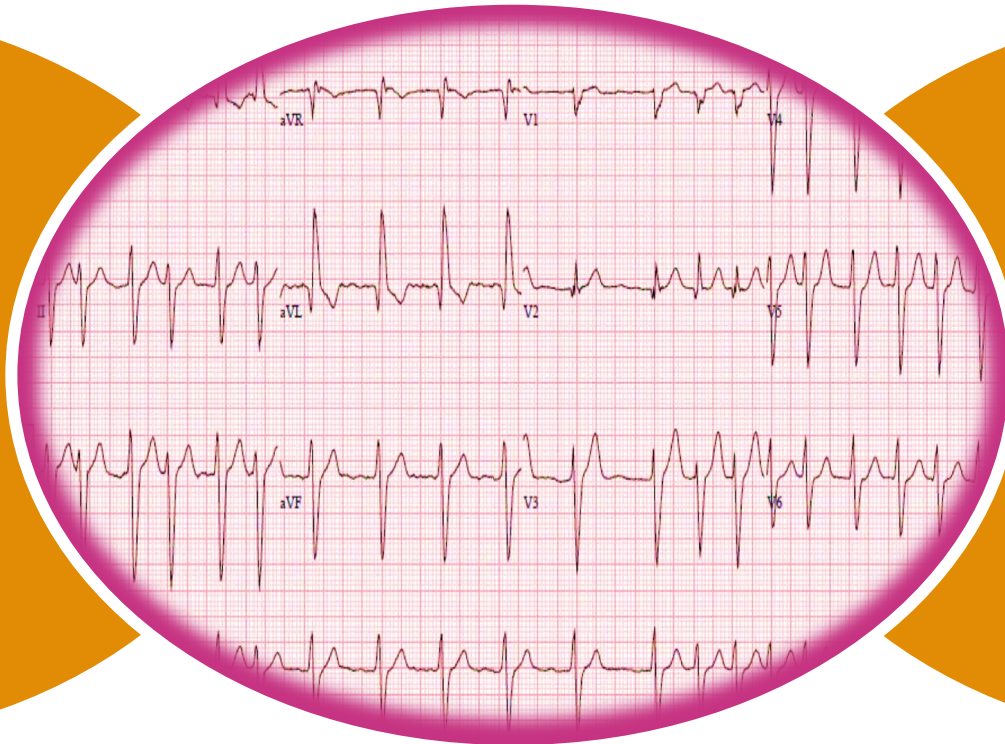




ECG

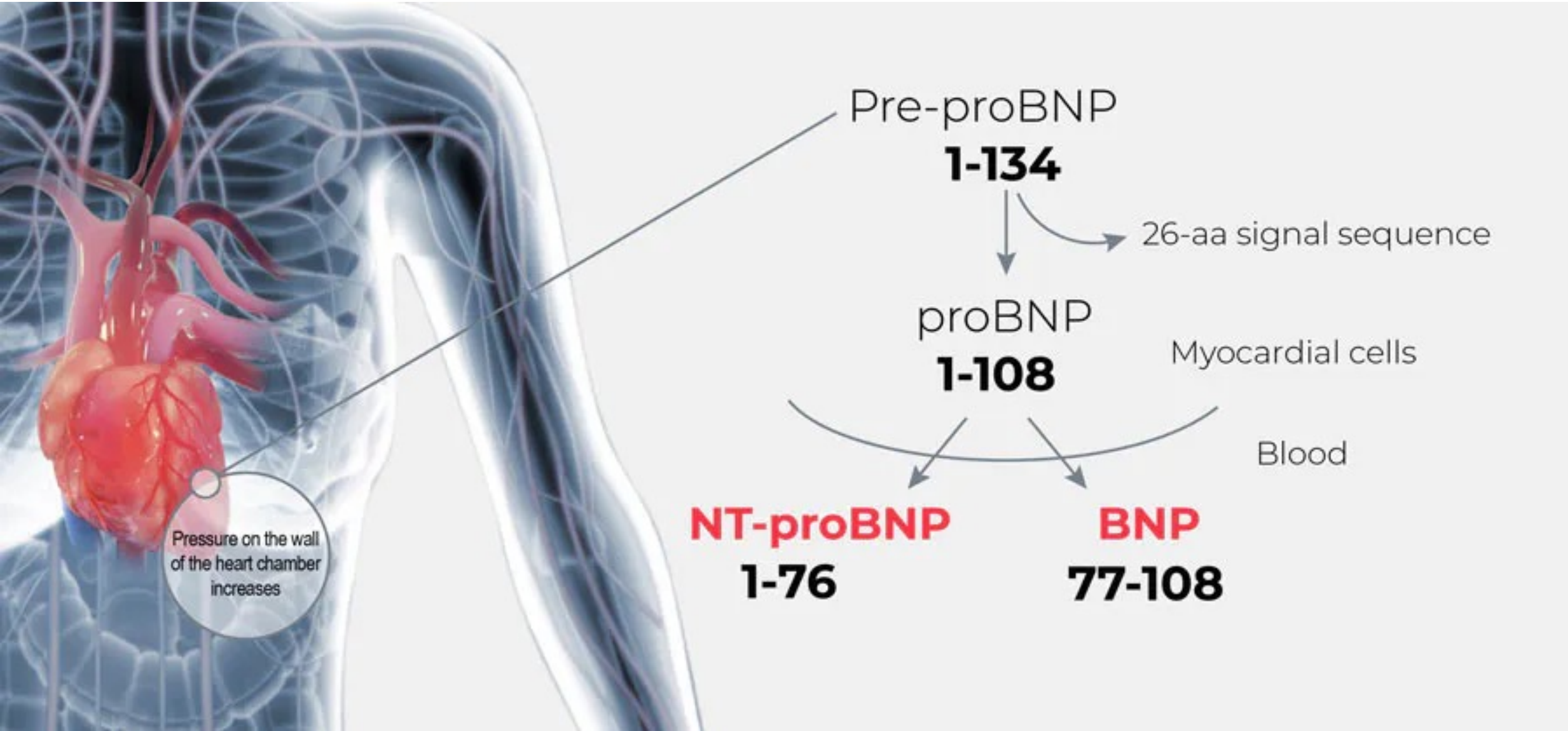
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**Rarely
Normal**



AF

Rate control
Anticoagulation

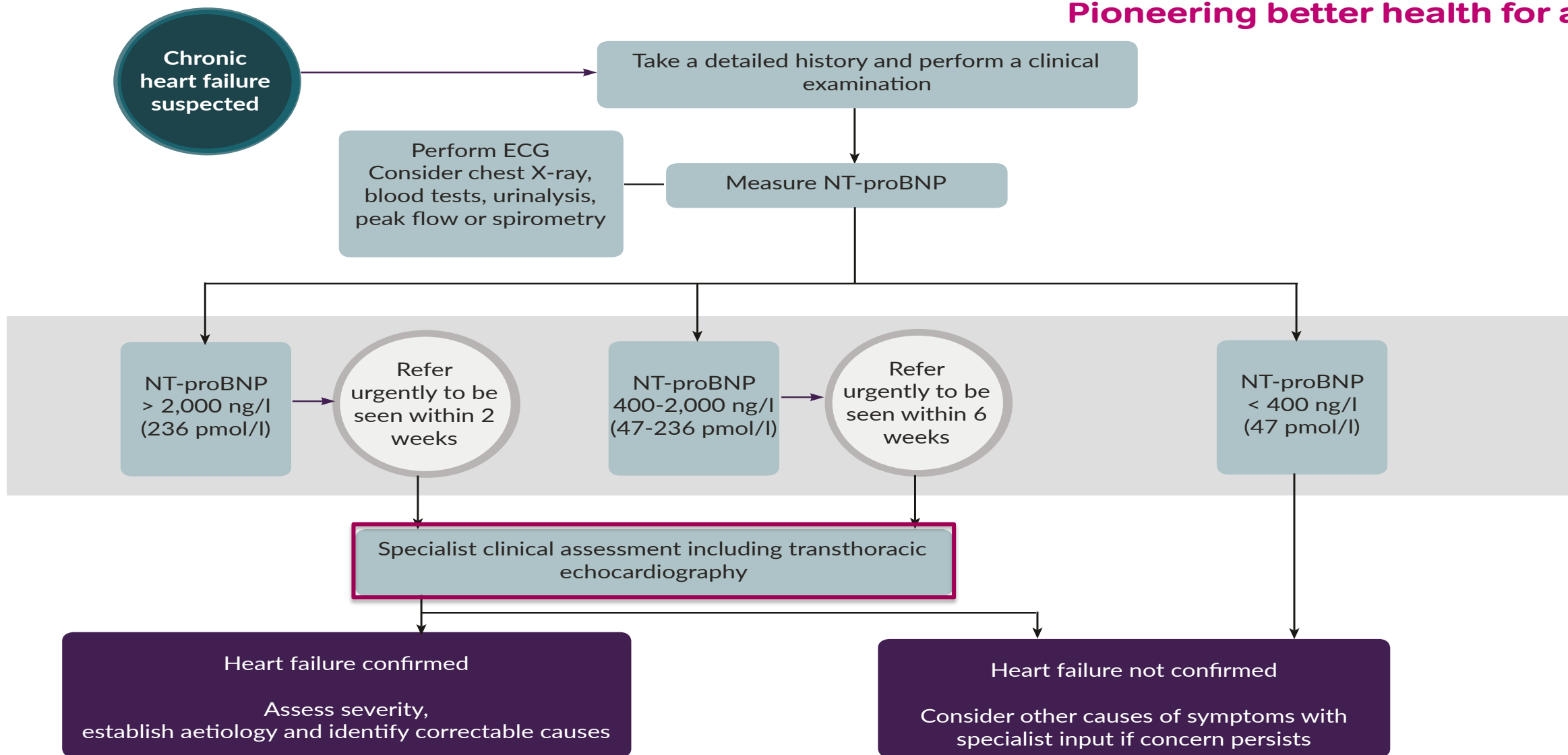




Raised natriuretic peptides.....

Heart muscle disease	Atrial fibrillation	Valvular heart disease	Advancing age (>70)	Anaemia	Diabetes
Left ventricular hypertrophy	Acute coronary syndrome	Right ventricular strain	COPD	Lung Cancer	Obstructive sleep apnoea
Pericardial disease	Cardiac surgery	Cardioversion	Pulmonary hypertension	Pulmonary embolus	Hypoxia
			Sepsis	Liver failure	CKD

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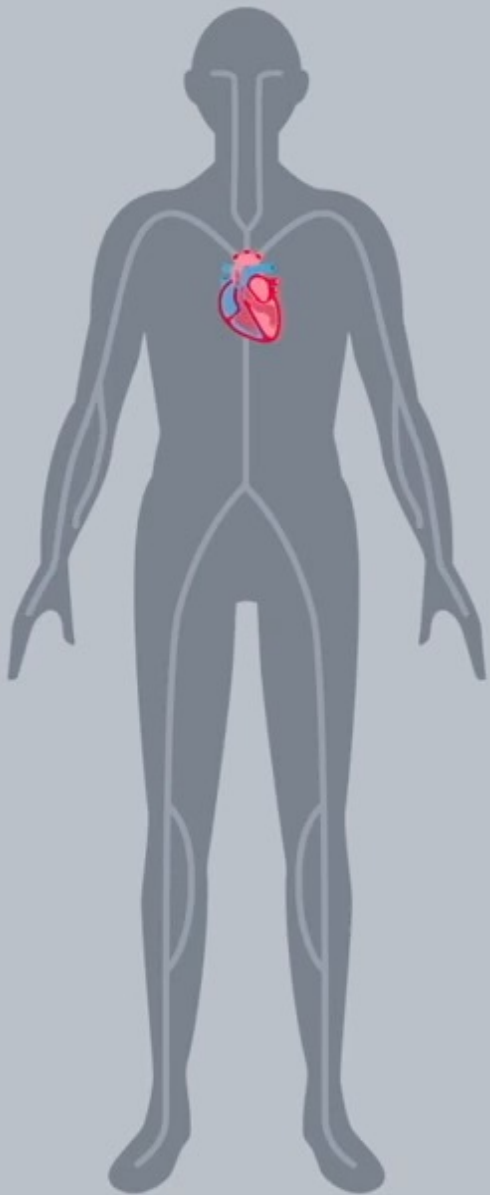


Specialist Nursing Services

- Do not provide a diagnostic service
- Work within strict parameters (NMC guidance)
 - Education
 - Prognostic therapies optimisation (when appropriate)
 - Diuretic therapy adjustment
 - Monitoring of blood tests/vital signs
 - Advanced care planning
- Variable number of non-medical prescribers/level of experience
- **Huge Nationwide Shortage**
- **Only see patients according to GP location**
- **Many do not accept HFpEF**

Cardiac Imaging





HFrEF

Reduced

Signs and symptoms of HF
EF \leq 40%

Raised NTproBNP

Numerous aetiologies that can be associated with prognosis

Lots of guidelines. 'Four pillars' approach advocated

Specific device therapy indicated

HFmrEF

Mildly Reduced

Signs and symptoms of HF
EF 41-49%

Raised NTproBNP

Growing evidence but currently no dedicated RCT for this group

Current ESC guidance suggest HFrEF drugs may be considered

No specific device therapy

HFpEF

Preserved

Signs and symptoms of HF
EF $>$ 50% + structural changes

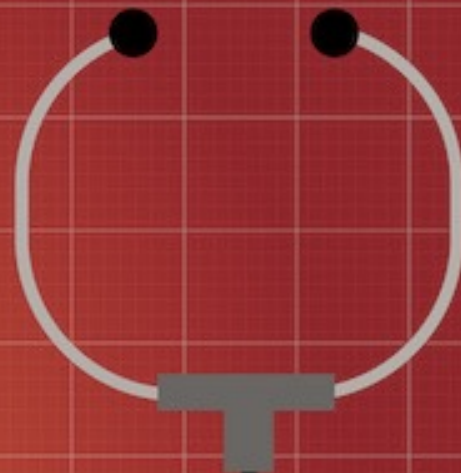
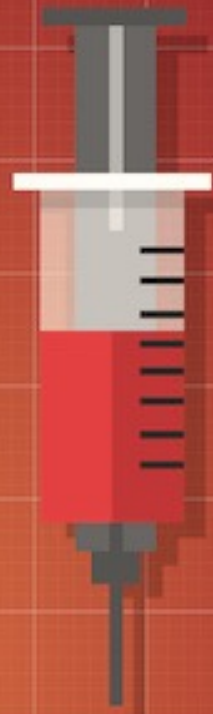
Raised NTproBNP

Commonly associated with AF, obesity, female gender, hypertension

Evidence for use of SGLT2i +/- MRA + diuretics + co-morbidities

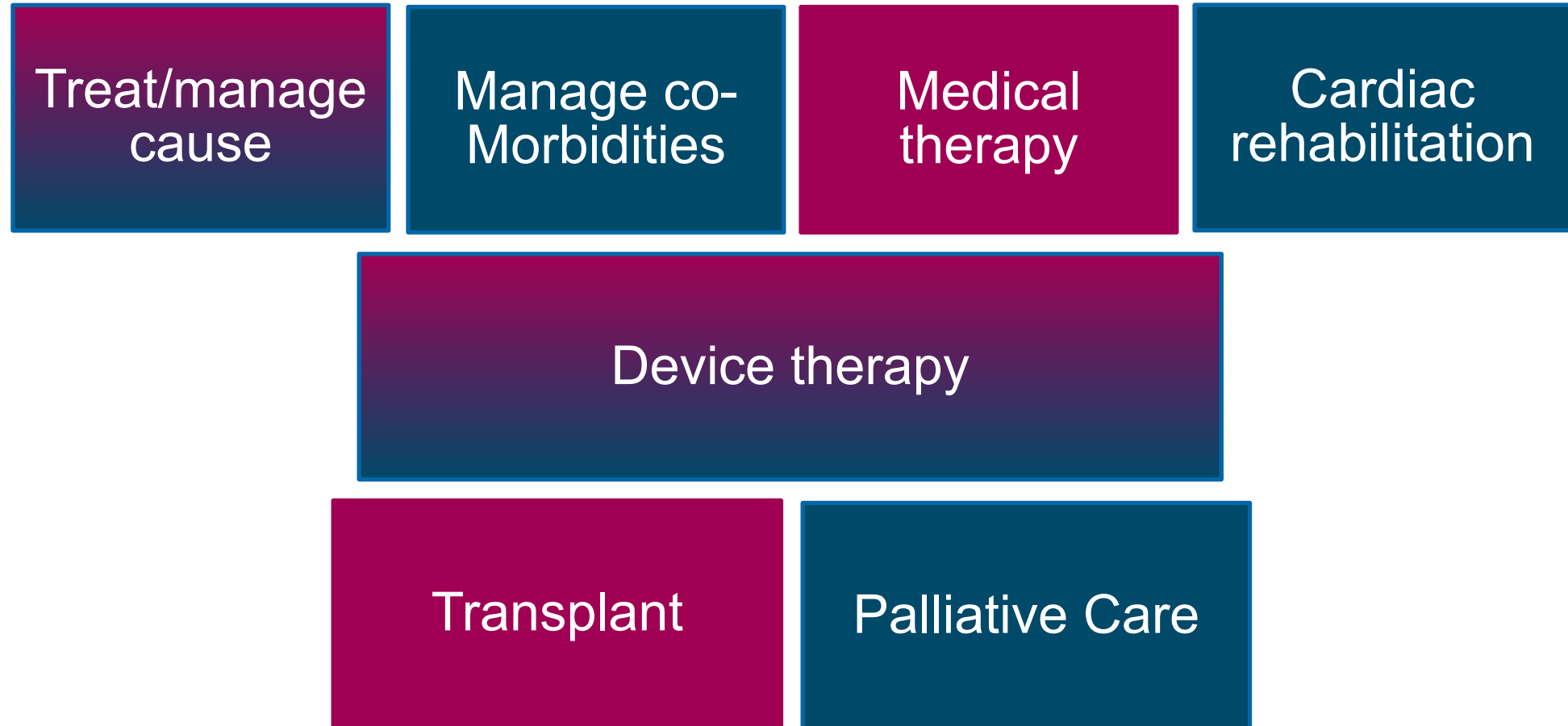
No specific device therapy

**HEART
FAILURE
MANAGEMENT**

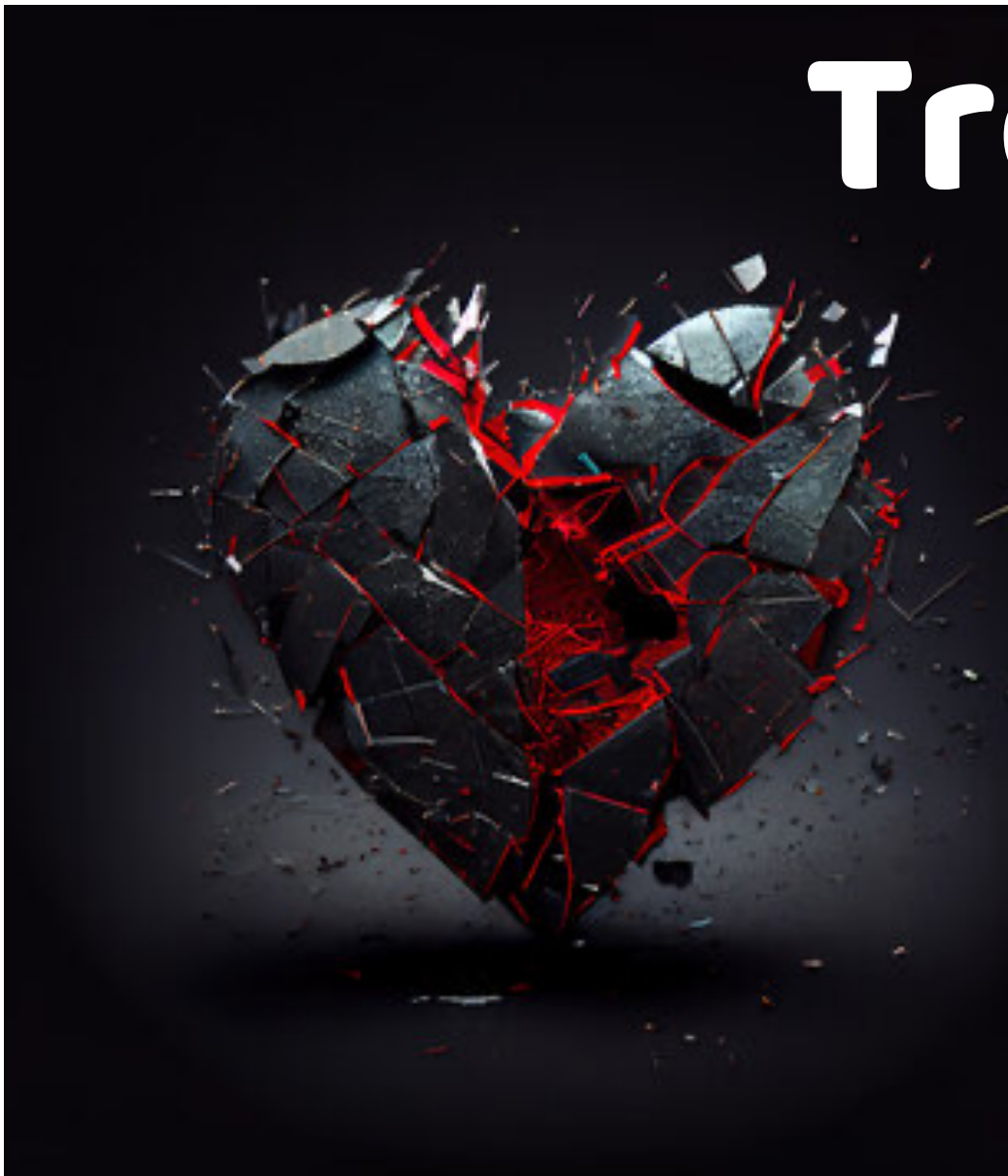




Treatment Options



Treatment Aims

- 
- ✓ Relieve signs and symptoms
 - ✓ Prevent hospital admission
 - ✓ Improve survival
 - ✓ Improve quality of life
 - ✓ Prevent disease progression



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HFrEF

Reduced

Signs and symptoms of HF

EF \leq 40%

Raised NTproBNP

Numerous aetiologies that can be associated with prognosis

Lots of guidelines. 'Four pillars' approach advocated

Specific device therapy indicated

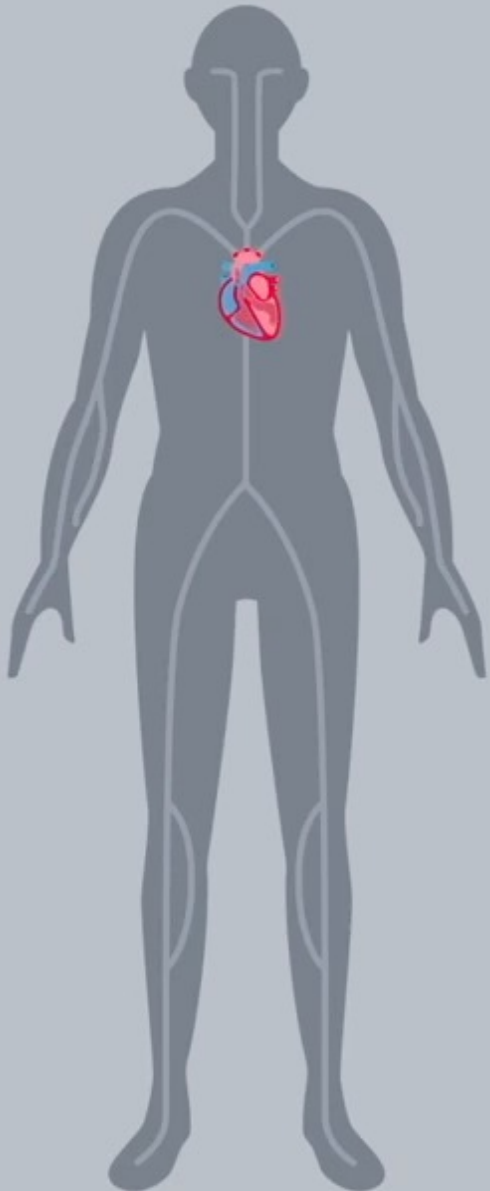
**Multi-mechanistic
HFrEF therapy to
reduce mortality**

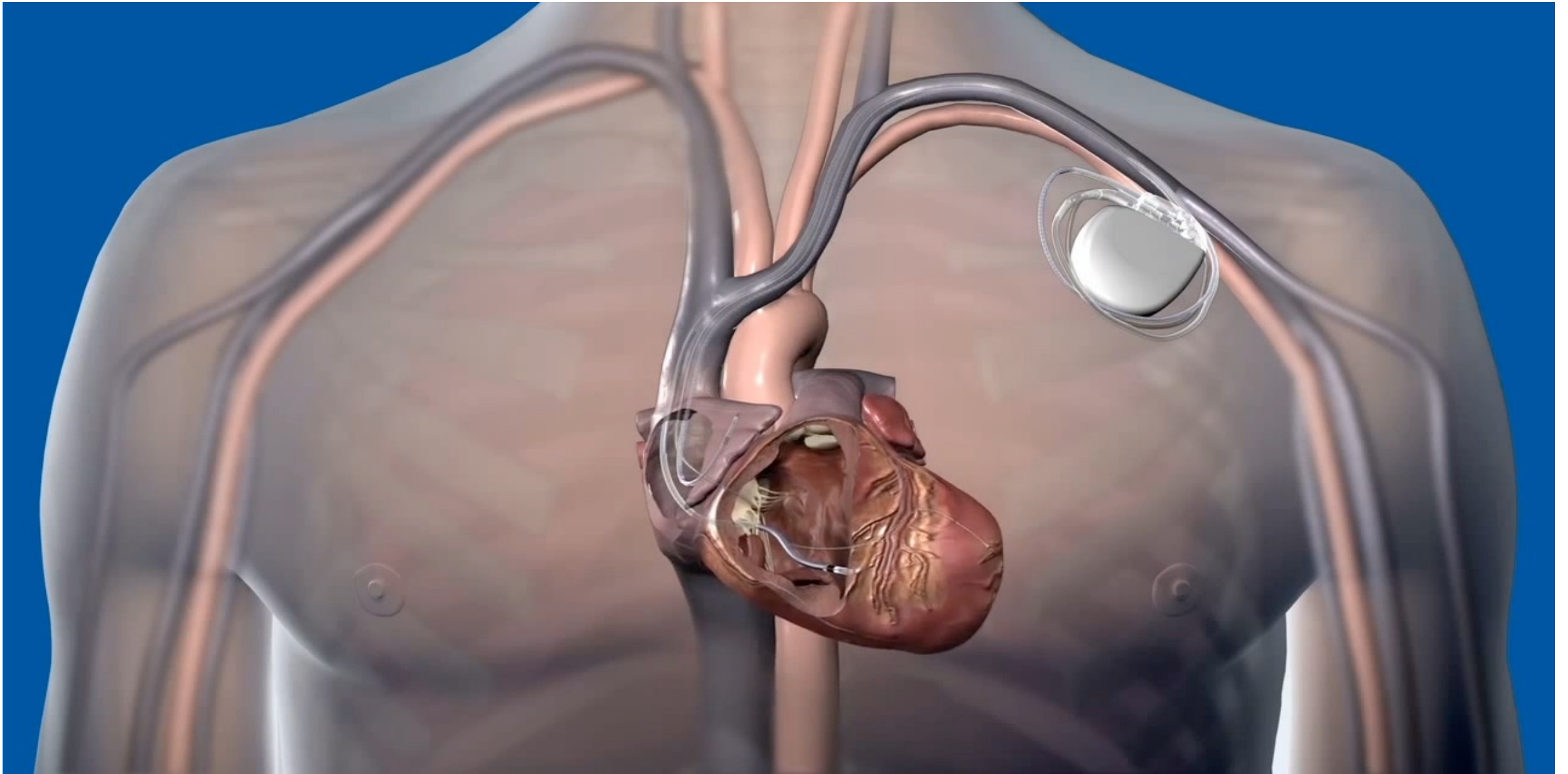
**ACE or
ARNI**

MRA

**β
blocker**

**SGLT2i
(with or
without
T2DM)**







ICD (implantable cardioverter defibrillator)

- Identify and treat ventricular arrhythmias
- Reduce the risk of **sudden death** and **all-cause mortality** in patients with heart failure^{1,2}

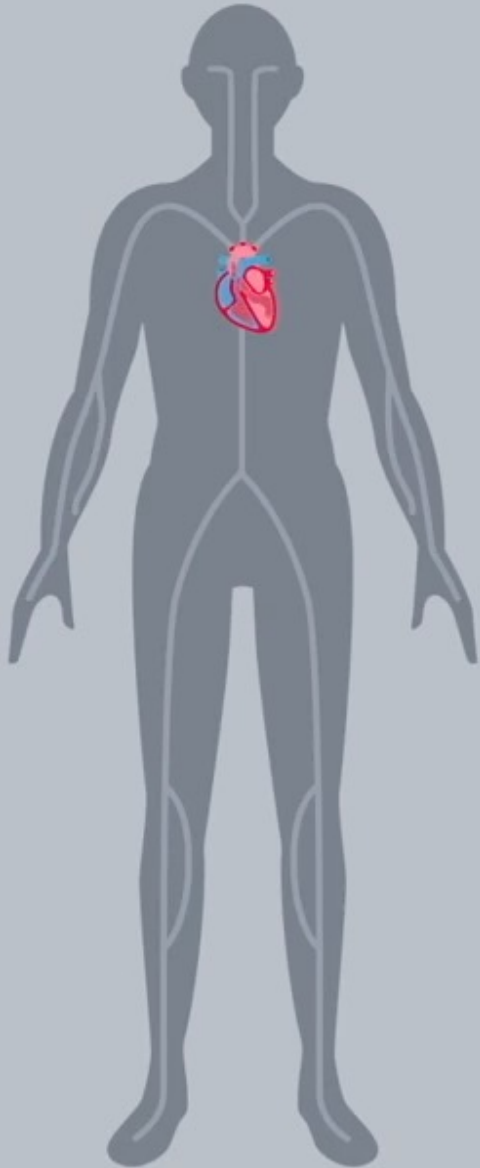
CRT-P and CRT-D (cardiac resynchronisation therapy pacemaker / defibrillator)

- Improve **symptoms** and **quality of life**^{1,2}
- **Reduce mortality** in patients with heart failure³

1. National Institute for Health and Care Excellence. Implantable cardioverter defibrillators and cardiac resynchronisation therapy for arrhythmias and heart failure. TA314. 2014. Available at: <https://www.nice.org.uk/guidance/ta314/chapter/3-The-technologies>. Accessed August 2018;

2. Ponikowski P et al. Eur Heart J 2016;37:2129–2200; 3.

3. Bristow MR et al. N Engl J Med 2004;350:2140–2150.



HFmrEF

Mildly Reduced

Signs and symptoms of HF

EF 41-49%

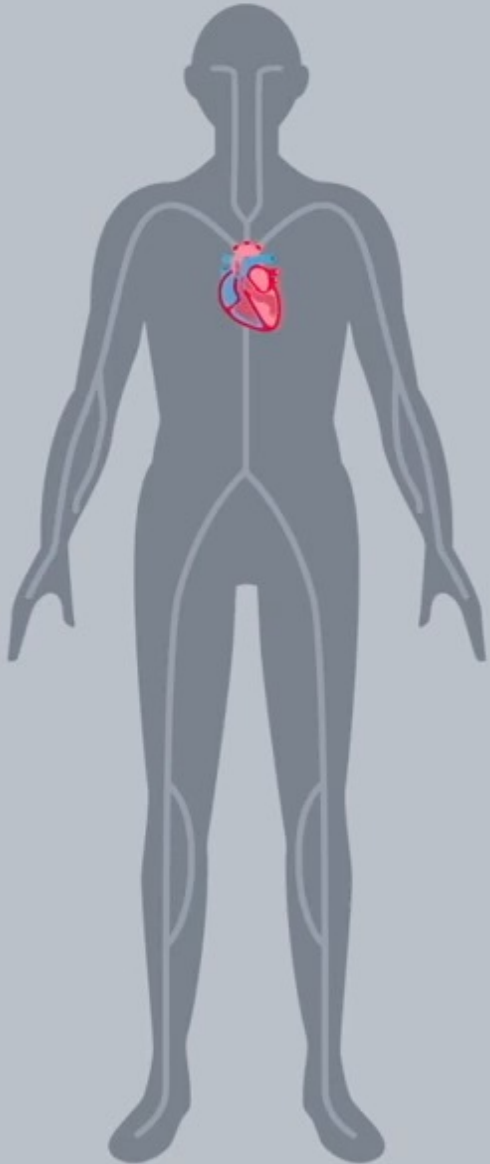
Raised NTproBNP

Growing evidence but
currently no dedicated RCT
for this group

Current ESC guidance suggest
HFrfEF drugs may be
considered

No specific device therapy

- Requires specialist management plan
- May benefit from a 'four pillars' approach
- Important to remember measurement error
- Valve disease



HFpEF

Preserved

Signs and symptoms of HF

EF>50% + structural changes

Raised NTproBNP

Commonly associated with AF,
obesity, female gender,
hypertension

Evidence for use of SGLT2i +/-
MRA + diuretics + co-
morbidity

No specific device therapy

- Specific structural changes
 - dilated left atrium
 - increased LV wall thickness
 - raised filing pressures (E/E')
- Should not be confused with cardiomyopathies or valve disease with normal LVEF
- Medications:
 - Diuretics
 - SGLT2i
 - MRA
- Management of co-morbidity

COMMUNITY HEART FAILURE MANAGEMENT





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Decompensation



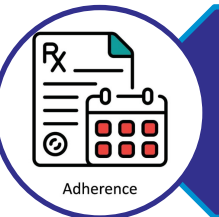
Polypharmacy



Co-morbidities



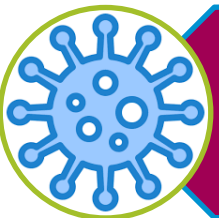
Self-Management



Adherence



Annual Review



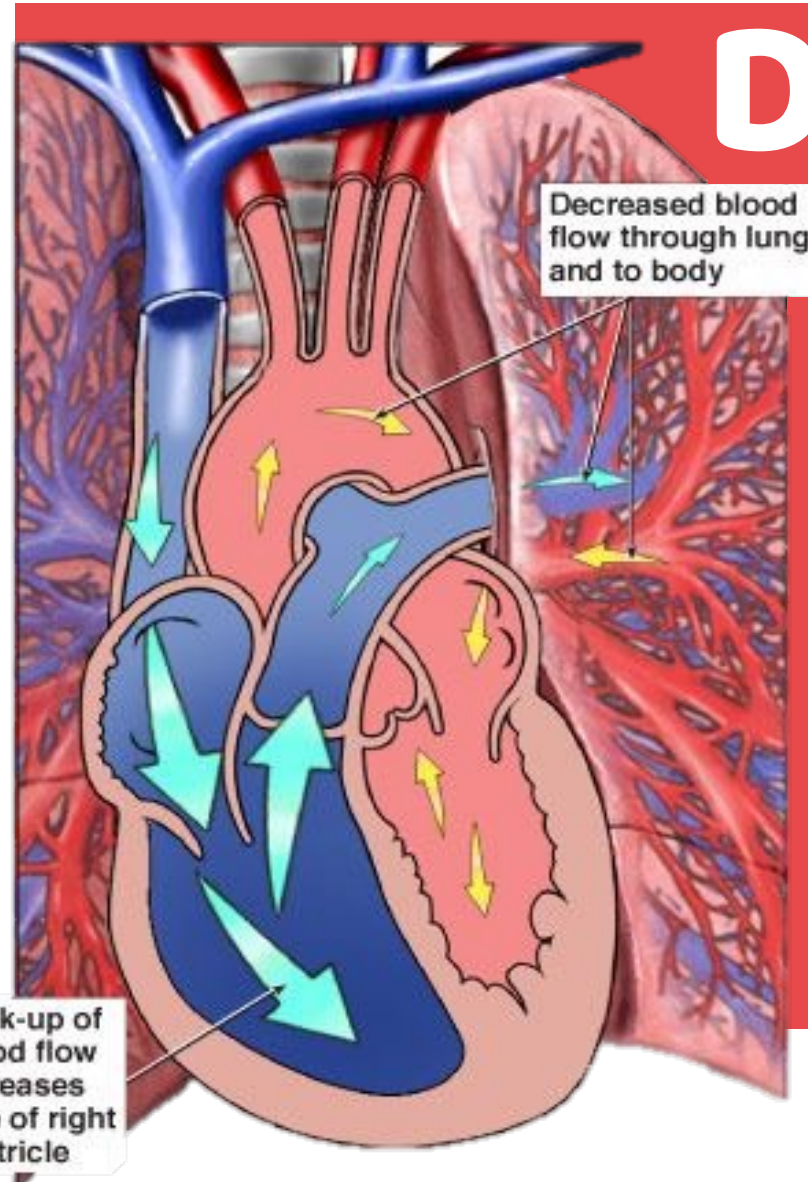
Sick Day Rules



Advanced Care Planning/Palliative Care

Decompensation

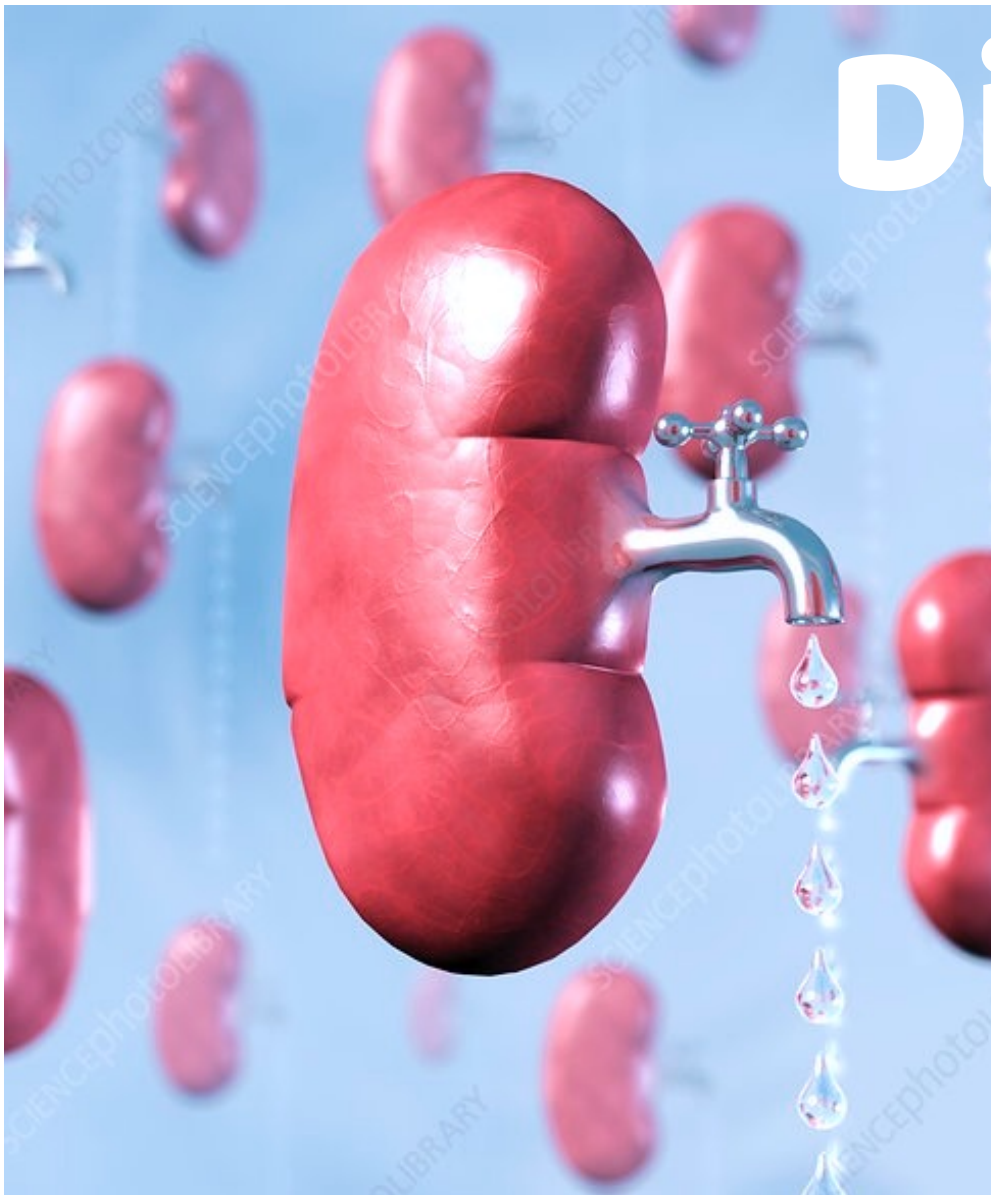
THINK.....



- Encourage patients to contact their HFNS if known/previously known
- Medication adherence
- Poor co-morbidity control/progression (DM, HTN, CKD, AF)
- Diuretics key for symptoms of fluid overload
- Diuretic therapy/fluid intake
- Support self-management
- Intercurrent illness
- Progression of HF

Diuretics

- Loop diuretic most commonly prescribed HF medication
- Lowest dose required to maintain euvolaemia
- Increasing doses required due to tolerance/CKD
- Decompensation = minimum of 2 x maintenance dose
- Sequential nephron blockade (consider at dose higher than 80mg bd or equivalent)
- Thiazides/Thiazide like diuretics
 - BFZ if eGFR >30
 - Metolazone if eGFR <30





EITHER Furosemide

Current TOTAL dose:

40mg/day

80mg/day

120mg/day

Increase to:

80mg/day

120mg/day (split dose)

160mg/day (split dose)*

OR Bumetanide

Current TOTAL dose:

1mg/day

2mg/day

3mg/day

Increase to:

2mg/day

3mg/day (split dose)

4mg/day (split dose)*

*if not responding to high dose loop diuretic consider addition of thiazide with advice from community HF Team/secondary care team and/or referral to acute services (e.g. @home team) for intravenous (IV) diuretics

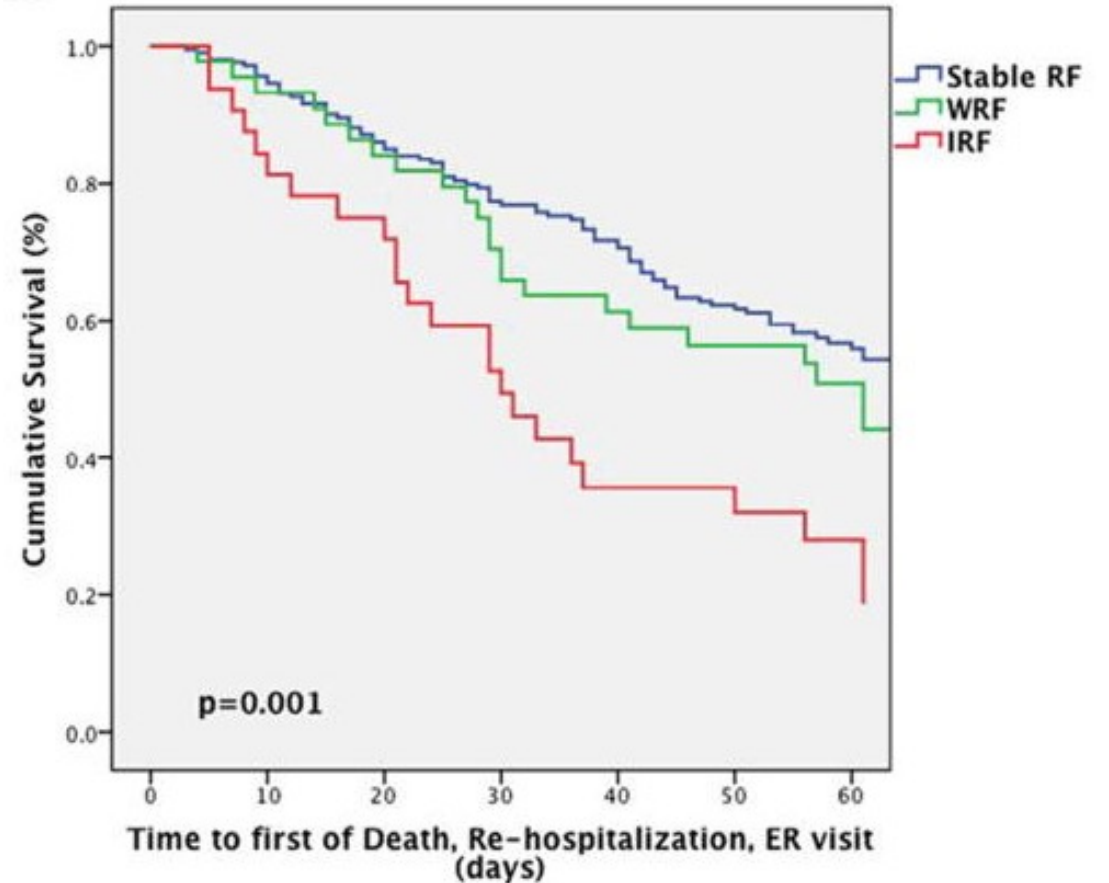
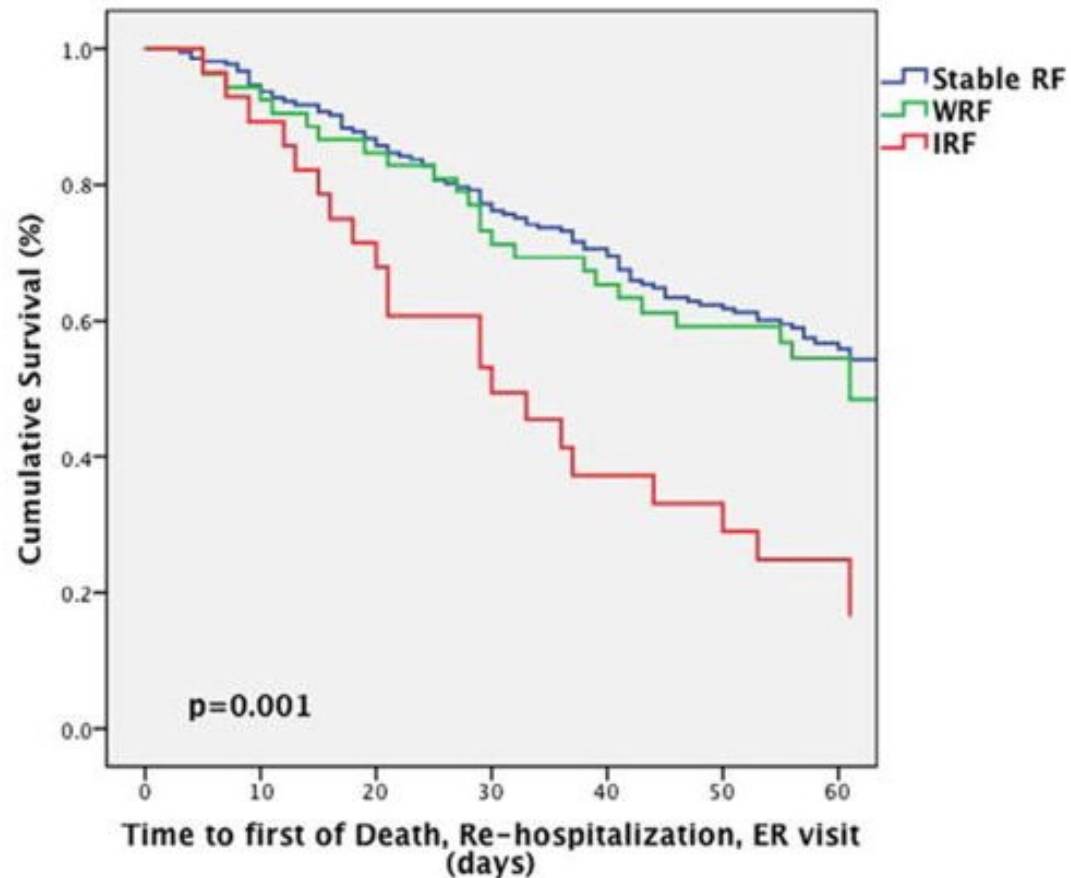
Renal Function



- HF medication is NOT nephrotoxic
- RAAS inhibition can be safely started in patients with **creatinine < 200 micromol/l** and/or **K+ < 5 mmol/l**
- Some rise in urea, creatinine and potassium **is to be expected**
- If an increase is small and asymptomatic no action is necessary.
- An increase in creatinine of **up to 50% above baseline**, or **266 micromol/l**, whichever is the smaller, is acceptable.
- A **doubling of creatinine** at RAASi initiation should be investigated for possible RAS



Changes in serum creatinine during decongestion



Sick Day Rules: (e.g. vomiting, diarrhoea, fever, sweats)

Heart Failure Medications	
ACE inhibitors	Medicines ending in -pril e.g. Ramipril, Enalapril, Lisinopril
ARBs	Medicines ending in -sartan e.g. Candesartan, Losartan, Irbesartan
ARNI	e.g. Sacubitril Valsartan
SGLT2i	Medicines ending in -flozin e.g. Dapagliflozin, empagliflozin, canagliflozin
MRAs	Medicines ending in -one e.g. Spironolactone, Eplerenone
Diuretics	Commonly known as 'water tablets' e.g. Furosemide, Bumetanide, Bendroflumethiazide, Amiloride, Metolazone
Other medication you may be prescribed/taking	
NSAIDs	Anti-inflammatory pain killers e.g. ibuprofen, naproxen, diclofenac
Metformin	For diabetes

Temporarily stop the medicines listed.

Increase the number of times you check your blood sugar levels.

Restart medicines as soon as well and eating normally.

Potassium


- Accept potassium up to 5.5 for most HF patients
- Potassium < 6 can be repeated prior to altering meds ?haemolysis
- Diet – lo salt, coconut water
- Can consider potassium binders if limiting HF optimisation
- Low potassium – consider MRA/amiloride




Blood Pressure

- Often low in HF patients
- Changing medication often depends on symptoms
- Always consider 'baseline' BP
- BP > 80 mmHg acceptable in patients with no symptoms
- If possible, reduce loop diuretics first
- Contact HF MDT if concerns/medication reduction required
- Marker of prognosis

Heart Rate

- 
- Target HR <75 bpm in sinus rhythm
 - 70-80bpm in AF
 - Manual pulse and ECG if concerns re: tachy/brady
 - Sinus tachycardia is never cardiac in origin
 - New AF should always be anticoagulated unless undue bleeding risks

Medicines to Avoid

- 
- Doxazosin
 - NSAIDs/Cox-2 inhibitors
 - Diltiazem
 - Verapamil
 - Flecainide
 - Nifedipine
 - Tricyclic antidepressants
 - Tamsulosin



HF - Key Points

- HF is a life limiting condition, with poor prognosis if untreated
- NTproBNP is useful biomarker to help increase clinical suspicion of possible HF but does not make a diagnosis (narrative for patient)
- Cardiac imaging and specialist review is required for a diagnosis of HF and its subtype
- Diuretics should be offered for all suspected patients with evidence of fluid overload
- A decline in renal function is expected after initiation of RAAS inhibition/diuretics/SGLT2i – they are not nephrotoxic and long term outcomes outweigh the risk.
- Be aware of changing ‘four pillars’ practice
- Communication/integration is key – A&G / HF contacts