

HeartPlan Resource Booklet

Edition 1 - February 2019



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What is HeartPlan







What is HeartPlan?

HeartPlan is an education and support program to assist nurses and HCPs in general practice and primary care to identify and manage patients with heart failure (HF).

Objectives

HeartPlan has been developed to support general practice and primary care clinics to identify and manage patients with HF by providing:

- Information on how to recognise and assess a patient with heart failure
- Tools to conduct a nurse-led heart failure patient review and management plan
- Resources such as tips for effective patient recall and a GP Management Plan template
- Information to enhance knowledge on pharmacology for HF and support the quality use of medicines
- Education and counselling information on priority aspects of clinical care for patients and their carers

Benefits of HeartPlan

The benefits of HeartPlan to your practice or clinic in undertaking HeartPlan include:

- Educating nurses, GPs and the multidisciplinary care team in the current management of heart failure (HF)
- Supporting practices and clinics with tools to review and assess patients with heart failure
- Providing resources that reflect best practice to optimise the management of patients with HF

The benefits to your patients are:

- Enable your patients to actively participate in the management of their HF
- Individualised care
- Help improve quality of life1
- Help reduce hospitalisations¹
- Improve the quality of initiatives like GP Management Plans (GPMPs), Team Care Arrangements (TCAs) and Medicare-subsidised allied health visits

This booklet and copies of templates in this booklet are available for you to download on MedHub at www.medhub.com.au. Log on to MedHub (or register if required) and follow the quick link to HeartPlan for the most up to date resources

Questions

For any questions regarding HeartPlan please contact cardio.au@novartis.com

References:

1. National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand (Chronic Heart Failure Guidelines Expert Writing Panel). Guidelines for the prevention, detection and management of chronic heart failure in Australia. Updated October 2011.







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Overview of the heart





Cardiovascular Overview

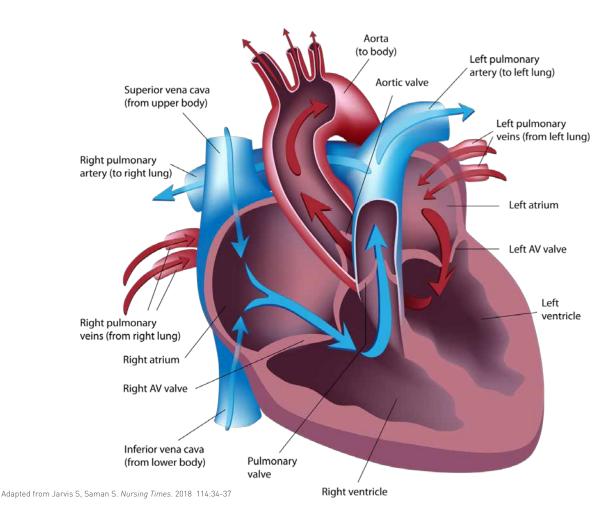
How the heart works^{1,2}

The human heart is an organ that pumps blood throughout the body via the circulatory system, supplying oxygen and nutrients to the tissues and removing carbon dioxide and other wastes¹

The heart acts as a double pump. The right-hand side pumps deoxygenated blood to the lungs for re-oxygenation while the left-hand side pumps oxygenated blood around the body.²

- De-oxygenated blood from the superior and inferior vena cava fills the right atrium of the heart, which then flows into the right ventricle. Contraction of the right ventricle forces the blood into the pulmonary artery, which takes it back to the lungs to be re-oxygenated.²
- The re-oxygenated blood is returned to the left atrium of the heart and flows into the left ventricle.

 Contraction of the left ventricle forces the blood into the aorta where it is pumped around the body.
- The atrioventricular valves (tricuspid value and mitral valves) between the atria and ventricles ensures that the blood flows only one way from atrium to ventricle.²
- The pulmonary valve in the pulmonary artery and the aortic value in the aorta ensures blood flows only from the ventricle into the artery.²



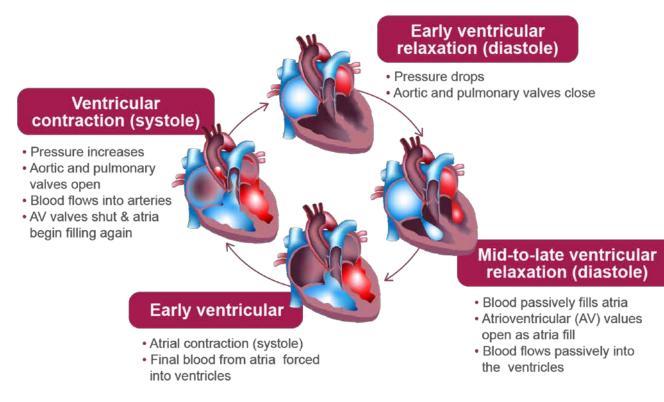
- 1. Heart Foundation. How your heart works. Available at https://www.heartfoundation.org.au/your-heart/how-your-heart-works (accessed Jan 2019)
- 2. Jarvis S, Saman S. Cardiac system 1: anatomy and physiology. Nursing Times 2018 [online]; 114:34-37 (accessed Nov 2018).
- 3. Image source: <a href="https://www.shutterstock.com/search?searchterm=Labelled+diagram+of+heart+anatomy&search_source=base_searchform&page=1&sort=popular&image_type=all&measurement=px&safe=true





Cardiac cycle¹

During the cardiac cycle, the pressure in the cardiac chambers increases or falls, affecting valve opening or closure, thereby regulating blood flow between the chambers. Pressures in the left side of the heart are around five times higher than in the right side, but the same volume of blood is pumped per cardiac beat.¹



The cardiac cycle can be broken down into a sequence of events based on the principle that any blood flow through the chambers depends on pressure changes, as blood will always flow from a high-pressure to a low-pressure area¹

- Systole refers to contraction of heart muscle around the atria or ventricles; diastole to when the heart muscle is not contracting 'relaxed'. 1
- The atria relax and contract together, and the ventricles contract and relax together. One cycle of this is called the cardiac cycle.¹
- Blood flows around the heart from a higher to a lower pressure area during a cardiac cycle (see diagram description).¹
- The left ventricle requires about five times the pressure to pump blood around the body compared to the right ventricle, which only has to pump blood to the lungs. For this reason, the left ventricle has a thicker muscle wall than the right ventricle.¹

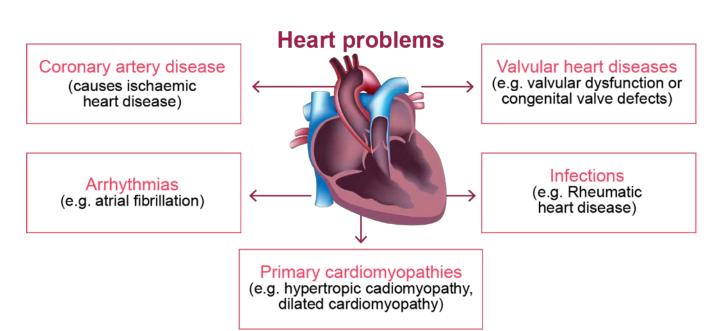


What can go wrong with the heart?

There are many things that can go wrong with the heart and some can lead to heart failure.

- Coronary artery disease occurs when the lumen of the coronary arteries, which supply the heart muscle with blood, become narrowed or occluded due to the build up of atherosclerotic plaques within the wall of the artery. These plaques can develop over a period of 10-15 years so it could be some years before it causes blood flow limitation severe enough to cause ischaemic heart disease (e.g. angina). Coronary heart disease, is the leading single cause of death in Australia.¹
- Arrhythmias result from problems with heart conduction. This disruption of heartbeat means the heart:²⁻⁴
 - can beat faster (tachycardia) e.g. atrial fibrillation, beat slower (bradycardia) or develop an extra (premature) beat atrial fibrillation is the most recurrent arrhythmia found in clinical practice²
- Valvular heart disease such as valvular dysfunction or congenital valve defects can be caused by congenital malformations, stenosis and regurgitation.³
- Primary cardiomyopathies are structural or functional abnormalities of the heart muscle (myocardium)
 where the cause is unknown or inherited.⁴ Common heredity examples are hypertrophic cardiomyopathy
 and dilated cardiomyopathy.⁵
- Infections can also lead to heart problems eg: rheumatic heart disease is endemic to the Indigenous population of Australia and so is of particular interest.³ It is caused by repeated episodes of acute rheumatic fever that causes damage to the valves of the heart.⁶





- 1. Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health series. Canberra: AIHW, 2016.
- 2. National Heart Foundation of Australia. What are arrhythmias? www.heartfoundation.org.au/your-heart/heart-conditions/arrhythmias [accessed Dec 2018].
- **3.** Goodacre S, Irons R. Br Med J 2003; 324:594-97.
- 4. NHFA CSANZ Atrial Fibrillation Guideline Working Group. Heart Lung Circ 2018; 27:1209-66.
- **5.** British heart Foundation: Cardiomyopathy (online). Accessed Nov 2018.
- 6. RHD Australia. What is rheumatic heart disease? (online). Accessed Nov 2018. www.rhdaustralia.org.au/what-rheumatic-heart-disease







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What is heart failure



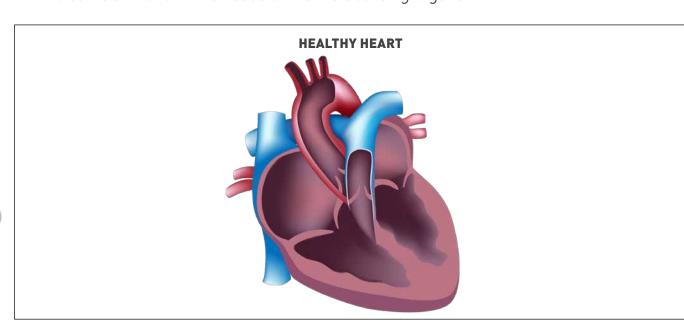


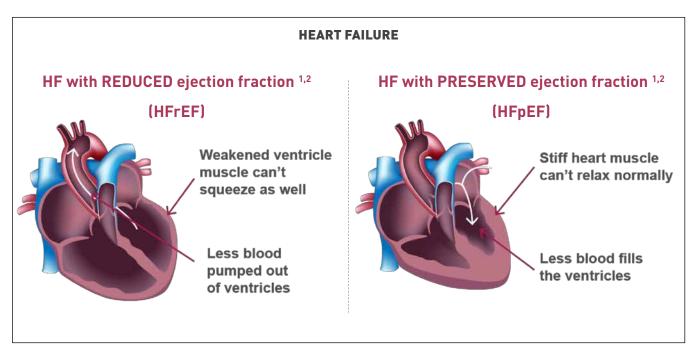


What is Heart Failure

Heart failure is a complex clinical syndrome with typical symptoms and signs that generally occur on exertion, but can also occur at rest (particularly when recumbent).¹

It is secondary to an abnormality of cardiac structure or function that impairs the ablity of the heart to fill with blood at normal pressure or eject blood sufficient to fulfil the needs of the metabolising organs'





- **1.** Atherton *J., et al.* National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart Lung Circ 2018; 27:1123–1208.
- 2. American Heart Association. Types of heart failure [online]. Accessed Dec 2018.



Typical course of HF^{1,2}

The course of heart failure is variable and difficult to predict. For some, it will be a gradual decline that can be helped with treatments, while others may present with acute symptoms at accident and emergency and even die at the first presentation.

Phases of HF

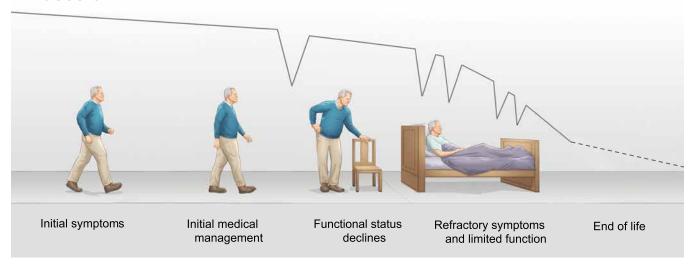


Figure adapted from the Journal of the American College of Cardiology, 54(5), Goodlin SJ, Palliative Care in Congestive Heart Failure, 386–396.

Diagram description

• Phase 1:

For some, symptoms onset will be gradual, while others may present with acute symptoms at A&E and even die at the first presentation.

• Phase 2:

Evidence-based treatments can produce a real improvement symptoms, which may last for several years.

• Phase 3:

Eventually, heart failure starts to deteriorate, leading to a recurrence of symptoms, requiring an optimisation of therapy and use of newer therapies, such as implantable cardiac devices to improve heart performance.

• Phase 4:

Refractory symptoms lead to a further decline in heart failure and physical capacity, which eventually lead to supportive and palliative care (phase 5).

^{2.} National Heart Foundation of Australia. A systematic approach to chronic heart failure care: a consensus statement. Melbourne: National Heart Foundation of Australia, 2013.



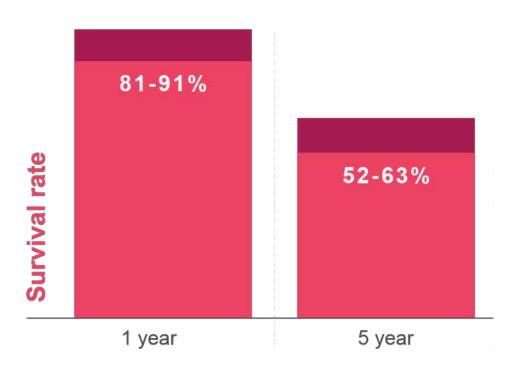
^{1.} Goodlin SJ. J Am Coll Cardiol 2009; 54(5):386-396.

Prognosis: survival rates for CHF1

Survival rates for chronic heart failure reflect those seen for non-haematological malignancies.¹

- The Heart Foundation has recognised that many individuals with HF are not diagnosed in a timely manner, often due to under-recognition of early symptoms²
- Treatment is often sub-optimal²
- 'Silent' worsening of heart failure often goes unrecognised sudden cardiac death occurs even in those with mild or moderate symptoms of heart failure who are considered 'clinically stable'³





Outlines survival rates in HF and highlights some of the gaps in patient care.

- 1. Atherton J et al. Heart Lung Circ 2018; 27:1123–1208.
- 2. National Heart Foundation of Australia. A systematic approach to chronic heart failure care: a consensus statement, 2013.
- 3. Sabbah HN. Eur Heart J 2016; 19:469-78.





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Heart failure in Australia



Heart Failure in Australia

HF Affects or kills many Australians every year¹



Reference

1. Chen L BS, Keates AK, Stewart S. Snapshot of heart failure in Australia. Mary MacKillop Institute for Health Research. 2017.

Despite improvements in care, the mortality rate for patients with HF remains high1-4

- 3-5x greater risk of all-cause mortality in patients with worsening heart failure symptoms (base on PARADIGM-HF).1
- Prognosis can be worse than many cancers, including breast and prostate cancer.²

HF- High mortality even with treatment

Within 1 year of diagnosis Within 5 years of diagnosis

1 in 5 people with HF will die³ 1 in 2 people with HF will die^{4,5}







HF continues to be a problem in Australia6

The journey of HF patients in Australia is complex, with patients seeing a variety of healthcare professionals multiple times over their treatment journey, as part of a multidisciplinary approach to care.6

In its consensus statement, the National Heart Foundation stressed that CHF continues to be a "pressing problem" in Australia due to factors including:

- Poor case detection
- · Discordant management
- · Recurrent hospital admissions
- Disconnected care

The NHF also reported continued increases in HF-related mortality and hospital readmissions, which is likely to increase further with the ageing of Australia's population.

Overall, the prognosis for patients with HF remains poor, primarily due to factors such as:

- · Late diagnosis
- Inadequate disease management
- Inadequate support.

- Okumura N et al. Circulation 2016:133[23]:2254-2262
- 2. Mamas MA et al. Eur J Heart Failure 2017; 19(9):1095-1104
- 3. Gerber Y et al. JAMA Intern Med 2015;175(6):996-1004
- 4. Roger VL et al. JAMA 2004;292:344-50.
- Atherton J et al. Heart Lung Circ 2018: 27:1123–1208.
- 6. Heart Foundation. A systematic approach to chronic heart failure care: a consensus statement. Available at https://www.heartfoundation.org.au/images/uploads/publications/HF CHF consensus web FINAL SP.pdf. Accessed 5 December 2018.





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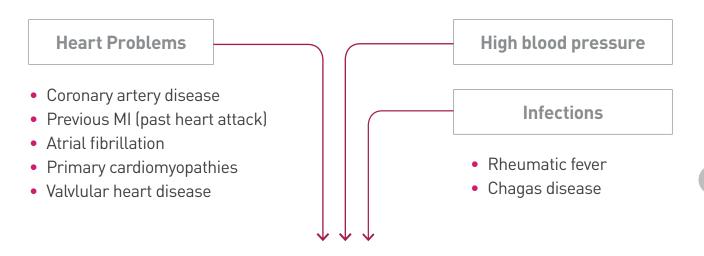
Heart failure - types, pathophysiology and causes



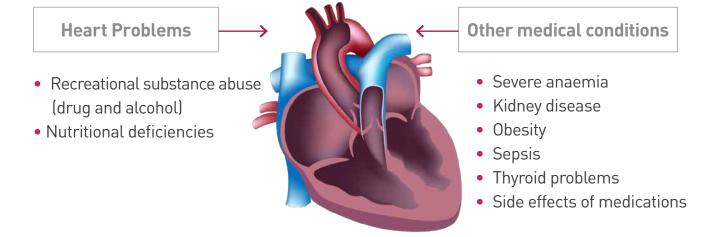




Many chronic diseases and conditions can contribute to heart failure¹



Heart failure

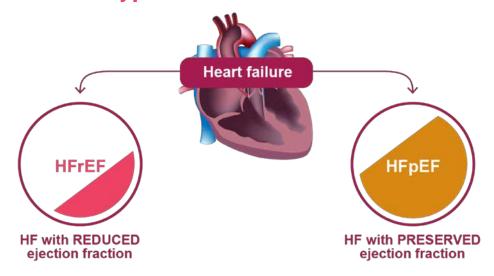


Reference

1. Atherton J, et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart Lung Circ 2018; 27:1123–1208.

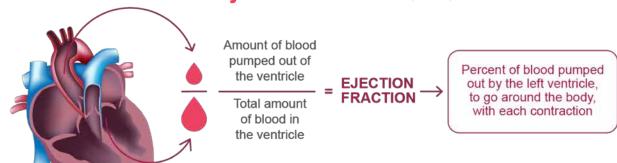


Two types of chronic heart failure¹

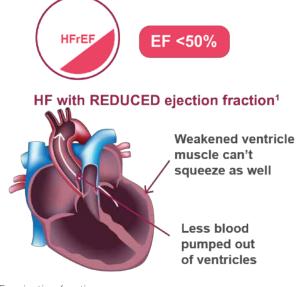


Heart failure with reduced ejection fraction: HFrEF; Heart failure with preserved ejection fraction :HFpEF

What is ejection fraction (EF)?1



HFrEF vs HFpEF²



EF = ejection fraction.

HFpEF EF ≥50% HF with PRESERVED ejection fraction¹ Stiff heart muscle can't relax normally

Less blood fills

the ventricles

- 1. Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208.
- 2. American Heart Association. Types of heart failure. https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/types-of-heart-failure. Accessed 22 November 2018.





HFrEF - causes

Very Common	Common	Less Common	Uncommon
 Coronary Artery Disease Prior myocardial infarction 	Hypertension	Non-ischaemic idiopathic dilated cardiomyopathy	 Valvular heart disease Alcohol-related cardiomyopathies Viral related infections Chronic arrhythmia Thyroid dysfunction Peripartum cardiomyopathies

HFrEF = Heart failure with reduced ejection fraction.

HFrEF

- About two-thirds of all HFrEF is caused by coronary artery disease or previous myocardial infarction. Hypertension is another common cause.¹ These conditions have a strong evidence base of treatments behind them, which can help alleviate the consequences of heart failure.²
- 5-10% of new cases are individuals with non-ischaemic idiopathic dilated cardiomyopathy. This is characterised by dilation and impaired contraction of one or both ventricles, the cause of which is unknown. About 30% are inherited and patients tend to be younger when diagnosed between 20 and 60 years. About 30% are inherited and patients tend to be younger when diagnosed between 20 and 60 years.

- 1. National Heart Foundation of Australia. Causes of heart failure. <a href="www.heartonline.org.au/articles/pathophysiology/pathophysiology-of-acute-coronary-syndrome-and-heart-failure#causes-of-he
- 2. Atherton J, et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart Lung Circ 2018; 27:1123–1208.
- 3. Weigner M, Morgan JP. Causes of dilated cardiomyopathy. UpToDate. www.uptodate.com/contents/causes-of-dilated-cardiomyopathy [accessed Dec 2018].





HFpEF – causes

Common	Uncommon	Uncommon
Coronary Artery DiseaseHypertensionDiabetes	Valvular disease	Hypertophic cardiomyopathyRestrictive cardiomyopathy

HFpEF = Heart failure with preserved ejection fraction.

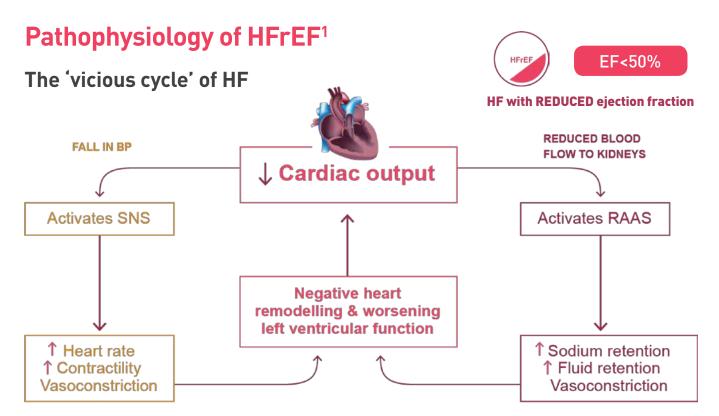
HFpEF



- Coronary artery disease is a common cause of HFpEF, along with hypertension and diabetes.¹
- HFpEF is more common in comorbid older women with hypertension, obesity, diabetes & atrial fibrilation.²
- Valvular disease is a less common cause. Aortic stenosis is the more common type of valvular disease associated with HFpEF.¹
- Unusual causes of HFpEF are the mostly inherited hypertropic cardiomyopathy, or even more uncommonly restrictive cardiomyopathy. Restrictive cardiomyopathy can have an unknown cause, or be the result of disorders that cause cellular infiltration of the heart muscle, such as amyloidosis. (Amyloidosis is the build up of amyloid, an abnormal protein produced in bone marrow, that can be deposited in any tissue or organ.)

- 1. National Heart Foundation of Australia. Causes of heart failure. <a href="www.heartonline.org.au/articles/pathophysiology/pathophysiology-of-acute-coronary-syndrome-and-heart-failure/causes-of-he
- 2. Atherton J, et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart Lung Circ 2018; 27:1123–1208.
- 3. Wells R. Acquired diseases of the heart and pericardium. In: Diagnostic imaging of infants and children. McGraw Hill Companies, 2013. https://accesspediatrics.mhmedical.com/content.aspx?bookid=1429§ionid=84704354 [accessed Dec 2018].
- 4. Mayo Clinic. Amyloidosis [online]. www.mayoclinic.org/diseases-conditions/amyloidosis/symptoms-causes/syc-20353178 [accessed Dec 2018].

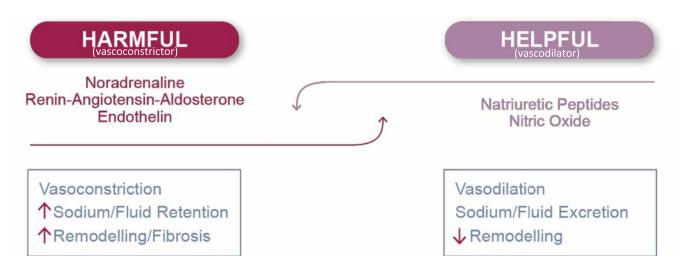




Adapted from Jarvis S, Saman S. Nursing Times [online]; 2017;113: 49–53.

BP = blood pressure; HFrEF = heart failure with reduced ejection fraction; RAAS = renin-angiotensin-aldosterone system; SNS = sympathetic nervous system

Opposing neurohormonal forces in HF¹⁻⁴

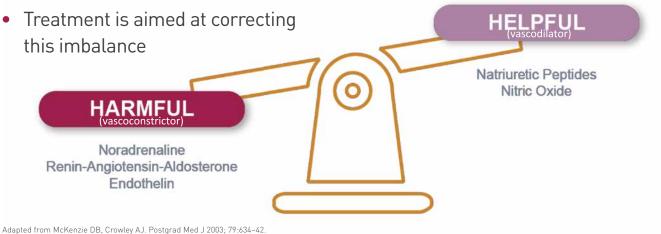


- **1.** Jarvis S, Saman S. *Nursing Times* [online]; 2017;113: 49–53.
- 2. von Leuder T, et al. Card Fail Rev 2017; 3:19-24.
- 3. Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208.
- 4. Buglioni A, Burnett JC. Clin Chim Acta 2015;443:3–8.



Disrupted neurohormonal balance¹

 In HF, the neurohormonal vasoconstrictors overpower neurohormonal vasodilators

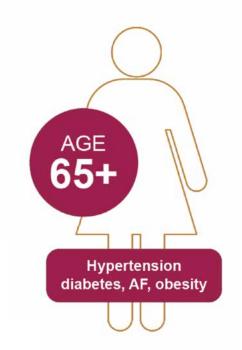




Pathophysiology of HFpEF²

- Uncertain pathophysiology
 - May be related to comorbidities
- Individuals with HFpEF typically
 - have comorbidities
 - are older women





AF = atrial fibrillation; HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction.

- 1. McKenzie DB, Crowley AJ. Postgrad Med J 2003; 79:634-42.
- **2.** Atherton J, et al. Heart Lung Circ 2018; 27:1123–1208





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How to diagnose heart failure



Signs and symptoms of HF

The 'more typical symptoms and signs' of heart failure (HF) exhibited by patients support the diagnosis of heart failure but are not conclusive as they are common to other conditions. This is especially true when occurring in older people.¹

However, the symptoms and signs of HF shown here can alert you to the possibility of HF in patients. A cluster of symptoms and signs that you notice or learn about during a consultation could be suggestive of heart failure, especially if they are the 'more typical' ones for HF. Look out for symptoms and signs in people who have common risk factors for HF – namely coronary artery disease, hypertension and diabetes.²



More typical Symptoms¹

- Dyspnoea (shortness of breath)
 usually with exertion
- Orthoppoea (difficulty bro
- Orthopnoea (difficulty breathing when lying down)
- Paroxysmal nocturnal dyspnoea (sudden shortness of breath during sleep)
- Fatigue



Less typical Symptoms¹

- Nocturnal cough
- Wheeze
- Abdominal bloating
- Anorexia
- Confusion (elderly)
- Dizziness
- Depression
- Syncope
- Palpitations
- Bendopnoea (shortness of breath when leaning forward)



More specific Signs¹

- Elevated jugular venous pressure
- · Hepatojugular reflux
- · Third heart sound
- Laterally displaced apex beat

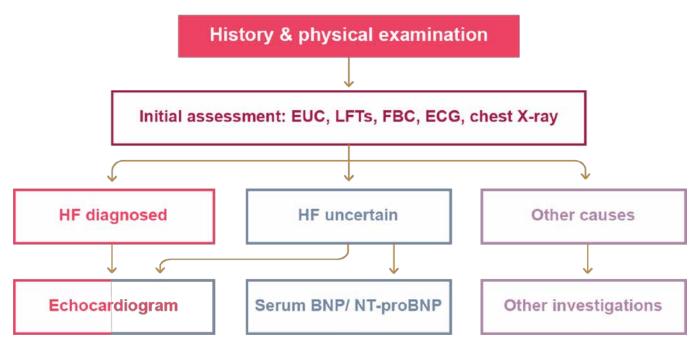


Less specific Signs¹

- Pulmonary crackles
- Tachycardia
- Pleural effusions
- Tachypnoea
- Cardiac murmur
- Ascites
- Weight gain (>2kg/wk)
- Weight loss (in advance heart failure)
- Peripheral oedema (ankle, sacrum)
- Cheyne-Stokes respiration

- 1. Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208.
- 2. National Heart Foundation of Australia. Causes of heart failure. <a href="www.heartonline.org.au/articles/pathophysiology/pathophysiology-of-acute-coronary-syndrome-and-heart-failure#classification-of-heart-failure#clas

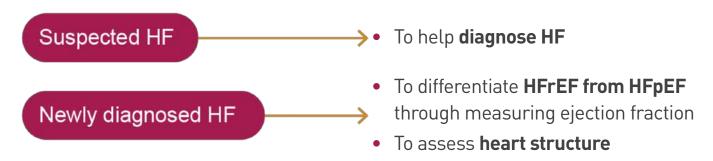
Diagnostic workup in suspected HF1



Adapted from Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208

BNP = brain natriuretic peptide; EUC = electrolytes/urea/creatinine; ECG = electrocardiogram; FBC = full blood count; LFTs = liver function tests; NT = N-terminal.

Why is echo important?1



Echo should also be re-ordered if there is acute deterioration of symptoms in individuals with diagnosed HF

HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction.

Reference

1. Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208.



What are the diagnostic criteria for HFrEF vs HFpEF?¹



- Signs ± symptoms of HF
- LVEF <50%



- Signs ± symptoms of HF LVEF ≥50%
- Evidence of relevant structural heart disease

AND/OR

 Signs of diastolic dysfunction with high filling pressure*

LVEF = left ventricular ejection fraction; HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction.



New York Heart Association Class^{1,2}



NYHA I

No symptoms even during exercise



NYHAII

No symptoms at rest

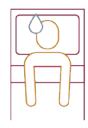
Ordinary physical activity slightly limited (e.g. symptoms on climbing stairs)



NYHA III

No symptoms at rest

Ordinary physical activity markedly limited (e.g. symptoms while dressing, moving around)



NYHA IV

Symptoms with any physical activity
Symptoms at rest

- 1. Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208.
- 2. AMBOSS. Congestive heart failure (online). Accessed Nov 2018.



^{*}Demonstrated by any of the following: echocardiography, elevated biomarker, exercise (invasive or echocardiography) or invasive means (cardiac catheterisation).



7

How to treat heart failure



Principles of care in HF¹



Comorbidities are present in most individuals with HF.¹ Australian guidelines recommend a **multidisciplinary**, team-based approach to care of individuals with HF to reduce hospitalisation and mortality.¹ A multidisciplinary HF team may include a GP, cardiologist or HF specialist, a HF nurse, pharmacist, and other relevant allied health professionals such as a physiotherapist, dietitian and psychologist.¹

Care should also be person-centred, i.e. respecting the individual's values, preferences and goals.1

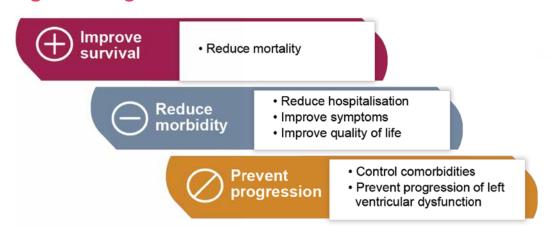
Active self-management is essential in HF to reduce hospitalisation and mortality, and increase quality of life. Therefore, individuals with HF and their carers require empowerment and ongoing education to manage their condition.¹



For instance, individuals with HF and carers need to:1

- Understand HF
- Recognise worsening signs and symptoms
- · Manage their medications there are usually a lot of medications to take
- Manage their diet, fluid intake, and exercise.

Management goals in Heart Failure^{1,2}

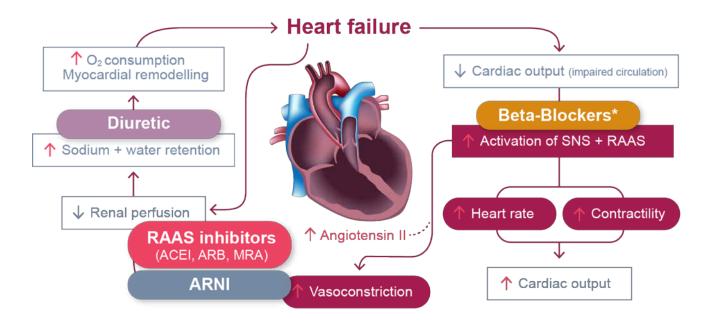


The management goals in HF are to improve survival, reduce morbidity and prevent progression of heart damage/dysfunction.^{1,2}

- **1.** Atherton J, et al. Heart Lung Circ 2018; 27:1123–1208.
- **2.** Hopper I, Easton K. Aust Prescr 2017;40:128–36

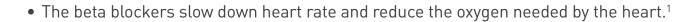


Pharmacological Management of Heart Failure with Reduced Ejection Fraction 1





*Bisoprolol, carvedilol, controlled-release or extended-release metoprolol, or nebivolol.



- The angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor antagonists (ARBs), mineralocorticoid receptor antagonists (MRAs), and ARNIs reduce vasoconstriction (i.e. they relax blood vessels and reduce strain on the heart), reduce water and sodium retention, and decrease fibrosis.1
- ARNIs also block the breakdown of the beneficial natriuretic peptides, which increases excretion of sodium and water, and lowers blood pressure.1
- Diuretics do not work on neurohormonal systems but they increase sodium and fluid excretion.2



Summary of mechanisms of action^{1,2}

M	edication class	Where it acts	What it does
Ве	ta-Blockers*	Blocks sympathetic nervous system	Reduces HR and oxygen needed by the heart
	AS inhibitors CEI, ARB, MRA)	① Blocks RAAS	Reduces vasoconstriction Reduces sodium and fluid retention Decreases fibrosis
	ARNI	Blocks breakdown of natriuretic peptides system + Blocks RAAS	Reduces vasoconstriction Reduces sodium and fluid retention Decreases fibrosis
	Diuretic	Acts in the kidney to block sodium co-transporter, which plays a part in sodium reabsorption	Increases sodium and fluid excretion

^{*}Bisoprolol, carvedilol, controlled-release or extended-release metoprolol, or nebivolol.

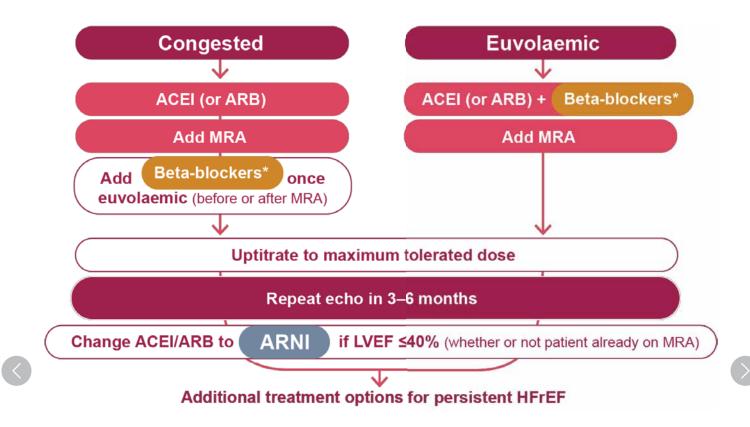




- 1. von Leuder T, et al. Card Fail Rev 2017; 3:19-24.
- 2. Hopper I, Easton K. Aust Prescr 2017;40:128-36.



Treatment Algorithm for HFrEF¹

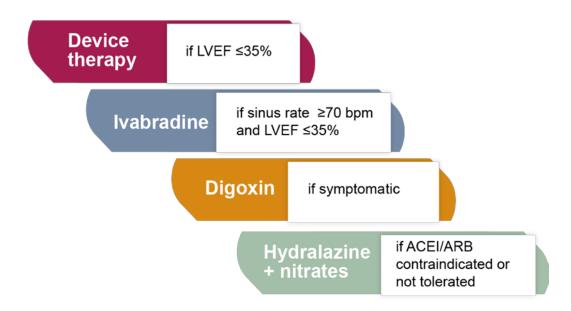


Throughout: Diuretics to manage congestion; multidisciplinary care and exercise training.

ACEI = angiotensin converting enzyme inhibitors; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor neprilysin inhibitor; MRA = mineralocorticoid receptor antagonist.

*Bisoprolol, carvedilol, controlled-release or extended-release metoprolol, or nebivolol.

Additional treatment options¹



Benefits of medications in HFrEF1

	Symptoms	Mortality	Morbidity
ACEI	Yes	Yes	Yes
ARB	Yes	Yes	Yes
ARNI	Yes	Yes	Yes
Beta blockers*	Yes	Yes	Yes
MRA	Yes	Yes	Yes
Diuretics	Yes	Minimal	Minimal
Digoxin	Yes	No	Minimal
Ivabradine	Yes	Yes	Yes
Hydralazine + nitrates	Yes	Yes	Minimal

^{*}Bisoprolol, carvedilol, controlled-release or extended-release metoprolol, or nebivolol.

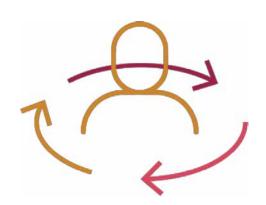
ACEI = angiotensin converting enzyme inhibitors; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor neprilysin inhibitor; MRA = mineralocorticoid receptor antagonist.

Reference

1. Atherton J, et al. Heart Lung Circ 2018; 27:1123-1208.

Self management¹

- Medication adherence
- Weight monitoring
- Sodium intake
- Exercise
- Alcohol
- Monitoring symptoms



Medication adherence and support^{1,2}

- Enable self-management and promote adherence
- Home Medicines Review
- Medication organisers
 - Webster-paks
 - Dosette box
- Medication list



^{2.} NPS Medicinewise. Managing your medicines. Available from www.nps.org.au/medical-info/consumer-info/managing-your-medicines?c=keeping-a-medicines-list-506489c8. Accessed November 2018.



^{1.} Atherton J, et al. Heart Lung Circ 2018; 27:1123–1208.

Weight monitoring



Wake up

Wee

Weigh

Write

- Daily weighing is important for managing fluid and avoid fluid build-up (congestion).¹ Individuals with HF need to understand why they should weigh themselves daily. Encourage a daily weighing routine: e.g. 'Wake up, Wee, Weigh, Write':
 - Wake up in the morning
 - Go to the toilet
 - · Weigh yourself
 - Write the weight down.
- Educate the individual on what they need to do with the weight results, e.g. to contact the GP if their weight increases by 1.5–2 kg over 2 days, as this may be a sign of fluid build-up.¹
- Note that individuals with congestion may need to restrict their fluid intake but there is no evidence of benefits in restricting fluids for individuals with no signs/symptoms of congestion.¹



Sodium intake



- Guidelines recommend a low sodium diet of <2 g/day (less than 1 teaspoon of salt)^{1,2}
- Educate patients on reading food labels
 - Aim for <120mg sodium per 100 g of food²
- Australian guidelines recommend sodium intake <2 g/day. This equals to or <5 g/day of salt or less than 1 teaspoon of salt a day^{1,2} www.heartfoundation.org.au/healthy-eating/food-and-nutrition/salt/sodium-and-salt-converter
- A high sodium intake can promote fluid retention and worsen congestion; therefore individuals with HF need to watch their sodium intake.²
- The general advice is to avoid salt in packaged foods by choosing 'no salt' or 'reduced salt' options (aim for <120 mg sodium per 100 g).²

- 1. Atherton J, et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart Lung Circ 2018; 27:1123–1208.
- 2. Heart Foundation. Salt. https://www.heartfoundation.org.au/healthy-eating/food-and-nutrition/salt. Accessed 25 November 2018.



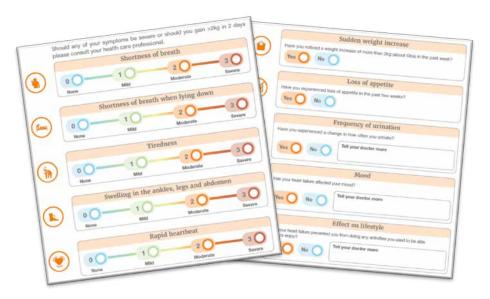
Excercise



- Regular exercise of up to moderate intensity is recommended in stable HF
- Moderate intensity = breathe faster but can hold conversation
- Start as soon as practical in stable HF; initial supervision period may be needed
- There is good evidence that exercise can benefit individuals with stable HF by improving physical functioning and quality of life and reduce hospitalisation.¹
- Australian guidelines recommend moderate continuous endurance exercise (when the individual breathes faster but can still hold a conversation).¹ Individuals with clinically stable HF can start exercising as soon as practical.¹

Self monitoring

Individuals with HF should be educated on monitoring their own condition and what to do if certain symptoms occur



Self monitoring leaflets available at www.medhub.com.au

Reference

1. Atherton J, et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart Lung Circ 2018; 27:1123–1208.





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8

Patient review and assessment



Patient Assessment Form Patient Details



F	ULL NAME								
Treat	ting Clinician D	etails							
F	ULL NAME								
Curre	ACEI ARB ARNI	Brand/m	olecule						
	Beta blocker Diuretic MRA Digoxin Other								
	the following in cardiogram	vestigati NO	on been o		cted within the la			orrect answer)	%
В	LOOD PRESSU	1	SYSTOLI		RESPIRATOR RATE	mmHg	DIASTOLIC	WEIGHT	mmHg Kg
	:h / print /revie				oort				
Has t	•		nospitalis Reason	ation?	(Circle the correc	t answer)	NO	YES	
			-		v heart failure is a ring the assessm		-		
1. H	l ave you had ch If yes, please			st wee	k?		NO	YES	
2. H	No pillows	ws do you	ou se to s l One pillow	eep a	t night? Two pillows		Three pillows	More than	



How much swelling have you had in your ankles, feet, legs, stomach or back over the past fortnight? (peripheral oedema)				
None at all	Mild	(have to si	derate t with feet up ularly)	Severe unable to mobilise)
	\bigcirc			
. Has the doctor asked to	o restrict your fluids?		NO	YES
If yes, How have you	u been managing on the res	triction of fluids?)	
-	sed over the past 2 days (f	rom baseline we	ight)? NO	YES
<i>If yes</i> , how much	<1kg	1-	-2kg	>2kg
. How many times do you (paroxysmal nocturnal	u wake up in the middle of	the night gasping	g for breath? eg. di	ifficulty breathing
None	Once	Twice per night	Three times per night	More than 3 times a night
. Has heart failure affect	ted your daily activities?			
None	Symptoms with more-than-ordinary activity		oms with ry activity	Symptoms with less-than-ordinary activity
 Are you still able to jog or walk quickly like you used to? Are you experiencing any symptoms such as shortness of breath? 	 Do you get tired easily when you climb a flight of stairs? Do you feel discomfor in your feet while walking? 	energy wh household t • Do you fee	nen you do d chores? el out of en you walk •	Is doing physical activity like gardening or household chores uncomfortable for you? Are you having any difficulty sleeping?





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9

GP Management Plan (Chronic Disease Management Plan)





GP Management Plan (Chronic Disease Management Plan)



GP services on the Medicare Benefits Schedule (MBS) enable GPs to plan and coordinate the health care of patients with chronic or terminal medical conditions, including patients with these conditions who require multidisciplinary, team-based care from a GP and at least two other health or care providers. The Chronic Disease Management (CDM) items are designed for patients who require a structured approach, including those requiring ongoing care from a multidisciplinary team.¹

Whether a patient is eligible for CDM services is a clinical judgement for the GP, taking into account the patient's medical condition and care needs, as well as the general guidance set out in the MBS.¹ Patients who have a chronic medical condition and complex care needs and are being managed by their GP under a GP Management Plan (item 721) and Team Care Arrangements (item 723) are eligible for Medicare rebates for certain allied health services on referral from their GP. ¹

Eligibility checklist:2

Is the patient's 'usual GP' at our practice (who either provided majority of services over the previous 12 months or who will provide majority of services over the next 12 months)?

YES NO → Patient is not eligible for GP Management Plan at our practice

Has the patient had an item 721 or 723 in the previous 12 months?

YES NO → Create the GP Management plan

Has the patient had an item 732 in the previous 3 months?

YES NO → Perform a review of the GP Management plan

The patient is to be seen under regular GP consultation items: e.g. 23, 36, 44



Medicare Item Number Reference Sheet (Valid February, 2019)3

You can check if a patient is eligible for a particular item by calling the Medicare Provider line: 13 21 50 or by checking online via the **Health Professionals Online Services (HPOS) platform.**

The table below provides the relevant Medicare Item Numbers. For information about the requirements of each item visit www.mbsonline.gov.au

<u>Item</u>	Rebate*	Description	Requirements	Frequency
10997	\$12.00	Practice Nurse monitoring and support of a client with a chronic condition	For patients with a GP Management Plan, Team Care Arrangements or Multidisciplinary Care Plan.	Max 5 time per patient per calendar year
721	\$144.25	GP Management Plan (GPMP)	Patient with a chronic or terminal condition expected to last 6+ months or is terminal.	1–2 years
723	\$114.30	Team Care Arrangement (TCA)	Must involve at least 2 other health providers in addition to the GP.	1-2 years
732	\$72.05	GP Management Plan Review (GPMP Review) and/or Team Care Arrangement Review (TCA Review)	There must be a 721 in place and/or a 723 in place.	3–6 months
729	\$70.40	Contribution to a Multidisciplinary Care Plan	Will not be paid within 12 months of a claim by the same practitioner for item 721 or 723 or within three months of a claim for item 729, 731 or 732.	3–6 months
731	\$70.40	Contribution to a Multidisciplinary Care Plan for a patient in a Residential Aged Care Facility	This items allows access to Allied Health Services under Medicare.	3 months
11700	\$31.25	Twelve-lead ECG, tracing and report	This must include both training and reporting/interpretation of findings.	No limits
11702	\$15.55	Twelve-lead ECG, tracing only	This includes occasions where the tracing is sent to another provider for interpretation and report.	No limits

This list is intended as a quick reference for Item names and their related MBS numbers. It is not intended as a standalone training tool or reference guide for client eligibility. *Subject to change.



Frequently Asked Questions4-6

Is Heart Failure a valid condition for the purposes of developing a GP Management Plan?

Yes, according to Medicare to be eligible for any of the CDM items, a patient must have a chronic or terminal medical condition. This is one that has been or is likely to be present for six months or longer including cardiovascular illness.

Can the practice nurse be one of the providers for a Team Care Arrangement?

Only if they are providing <u>independent services</u> which are not as part of the general practice medical services provided by the GP; not under the supervision of the GP; and different to the ongoing care provided by the other members of the team.

Can I include the cardiologist as a member of the Team Care Arrangement?

Yes, but only one specialist or consultant physician can be counted towards the minimum of two contributing team members who, with the coordinating GP, make up the core TCA team.

How often should the GP Management Plan be reviewed?

A GP Management Plan or Team Care Arrangement can be reviewed every 3 months or earlier if clinically required (item 732).

A new plan can be prepared every year (item 721) to assess the patient, agree management goals with the patient, identify actions to be taken by the patient, identify treatment and ongoing services to be provided, documenting these and including a review date in the GPMP. The coordination of the preparation of a TCA is similar to preparation of a GP Management Plan (item 723).

Note: It is the responsibility of a claiming GP to ensure all Medicare requirements are met before a service is claimed.



If you have a query relating to interpretation of the Medicare Schedule, you can email DHS at **askMBS@humanservices.gov.au** or call on 13 21 50.

HeartPlan Chronic Disease Management Plan

A GP Chronic Disease Management Plan template can be found on the following page.

References:

- 1. Australian Government Department of Health. Chronic Disease Management (formerly Enhanced Primary Care or EPC) GP services. http://www.health.gov.au/internet/main/publishing.nsf/content/mbsprimarycare-chronicdiseasemanagement Accessed December 2018.
- 2. Australian Government Department of Human Services. Education Guide Chronic disease GP Management Plans and Team Care Arrangements. https://www.humanservices.gov.au/ organisations/health-professionals/enablers/education-guide-chronic-disease-gp-management-plans-and-team-care-arrangements Last updated August 2017. Accessed March 2018.
- 3. Australian Government Department of Health. Medicare Benefits Schedule Online. http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/Home Last updated February 2019. Accessed February 2019.
- 4. Australian Government Department of Health. Medicare Benefits Schedule Online. Fact Sheets: Medicare Health Assessments: MBS Items 701-707 and 715. http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/Factsheet-MedicareHealthAssessments Last updated October 2014. Accessed March 2018.
- 5. Australian Government Department of Health. Fact Sheet: Chronic Disease Management Provider Information. http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-factsheet-chronicdisease.htm Last updated February 2016. Accessed March 2018.
- 6. Australian Government Department of Health. Questions and Answers on the Chronic Disease Management (CDM) items. http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement-qanda Last updated March 2014. Accessed March 2018.





CHRONIC DISEASE MANAGEMENT COMBINED

PREPARATION OF A GP MANAGEMENT PLAN (GPMP) (MBS ITEM NO. 721) & COORDINATION OF TEAM CARE ARRANGEMENTS (MBS ITEM NO. 723)

SAMPLE FORMS

Date these services were provided:				
Patient's name and address:				
Date of Birth:				
Contact Details:				
Medicare No.				
Private health insurance details, if applicable:				
Details of patient's usual GP:		Details of patient's carer (if applicable):		
Details of patient's usual Gr.		Details of patient's caref (if applicable).		
If the patient has a previous or existing care	nlan whon was it pr	anarod and what were the outcomes:		
in the patient has a previous of existing care	pian, when was it pi	epared and what were the outcomes.		
Other was to a superior and a superior to the superior	#: #/			
Other notes or comments relevant to the pa	atient's care planning	į.		
AA II d				
Medications:				
Allergies:				

Available at: Australian Government Department of Health. Chronic Disease Management (formerly Enhanced Primary Care or EPC) — GP services. http://www.health.gov.au/internet/main/publishing.nsf/content/mbsprimarycare-chronicdiseasemanagement.



Patient's Name:

I have explained the steps and costs involved, and the patient has agreed to proceed with the service				
		(GP's signature and	d date)	
PREPARA	TION OF A GP MAI	NAGEMENT PLAN (ITEM 721)	
Patient's health problems/ health needs / relevant conditions	Management goals with which the patient agrees	Treatment and services required, including actions to be taken by the patient	Arrangements for providing treatment/services (when, who, contact details)	
Copy of GPMP offered to patient? YES / NO				
Copy / relevant parts of the GPMP supplied to other providers? YES / NO / NOT REQUIRED GPMP added to the patient's records? YES / NO				
Review date for this plan: dd / mm / yy				
The referral form issued by the Department can be found at www.health.gov.au/mbsprimarycareitems or a form can be used that contains all of the components of the Department's form.				

Available at: Australian Government Department of Health. Chronic Disease Management (formerly Enhanced Primary Care or EPC) — GP services. http://www.health.gov.au/internet/main/publishing.nsf/content/mbsprimarycare-chronicdiseasemanagement.



Patient's Name:

I have explained the steps and costs involved	ved, and the patient has agreed to proceed	with the service		
	(GP's s	ignature and date)		
COORDINATION		TATALTO (ITTAL TOO)		
	OF TEAM CARE ARRANGE			
Treatment and service goals for the patient / changes to be achieved	Treatment and services that collaborating providers will provide to the patient	Actions to be taken by the patient		
Copy of TCAs offered to patient? YES		□ NOT DECLUDED		
TCAs added to the patient's records?	d to other providers? YES / NO /	NOT KEQUIKED		
Referral forms for Medicare allied health s				
Review date for this plan: dd / mm / yy				
	nt can be found at www.health.gov.au/mb of the Department's form.	sprimarycareitems or a form can be		

Available at: Australian Government Department of Health. Chronic Disease Management (formerly Enhanced Primary Care or EPC) — GP services. http://www.health.gov.au/internet/main/publishing.nsf/content/mbsprimarycare-chronicdiseasemanagement.



CHRONIC DISEASE MANAGEMENT PREPARATION OF A GP MANAGEMENT PLAN (GPMP) (MBS ITEM NO. 721) SAMPLE FORM

Date these services were provided:					
Patient's name and address:					
Date of Birth:					
Contact Details:					
Medicare No.					
Private health insurance details, if applicable:					
Details of patient's usual GP:		Details of patient's carer (if applicable):			
If the patient has a previous or existing care plan, when was it prepared and what were the outcomes:					
Other notes or comments relevant to the pa	atient's care planning	:			
Medications:					
Allergies:					

Available at: Australian Government Department of Health. Chronic Disease Management (formerly Enhanced Primary Care or EPC) — GP services. http://www.health.gov.au/internet/main/publishing.nsf/content/mbsprimarycare-chronicdiseasemanagement



Patient's Name:

I have explained the steps and costs involved, and the patient has agreed to proceed with the service				
		(GP's signature and	d date)	
PREPARA	TION OF A GP MAI	NAGEMENT PLAN (TEM 721)	
Patient's health problems/ health needs / relevant conditions	Management goals with which the patient agrees	Treatment and services required, including actions to be taken by the patient	Arrangements for providing treatment/services (when, who, contact details)	
Copy of GPMP offered to patient? YES / NO				
Copy / relevant parts of the GPMP supplied to other providers? YES / NO / NOT REQUIRED				
GPMP added to the patient's records?				
Review date for this plan: dd / mm / yy				
The referral form issued by the Department can be found at www.health.gov.au/mbsprimarycareitems or a form can be used that contains all of the components of the Department's form.				

Available at: Australian Government Department of Health. Chronic Disease Management (formerly Enhanced Primary Care or EPC) — GP services. http://www.health.gov.au/internet/main/publishing.nsf/content/mbsprimarycare-chronicdiseasemanagement





10

Tips on discussing heart failure with your patient





Tips on having a heart failure conversation with your patient



Take a multidisciplinary team (MDT) approach

- Management of HF ideally involves a multidisciplinary team (MDT)¹
- Liaise with other clinicians where available to enable patient education and self management (document in the care plan)



Dietitians

Exercise physiologists

Occupational therapists

Pharmacists

Psychologists

*Not an exhaustive list

Possible topics to cover*

What is HF?

Signs and symptoms

Fluid balance

The HF Emergency Action Plan

Function of their medicine and dose titration

The importance of adhering to therapy

Beneficial lifestyle changes

Reference

1. Atherton J, et al. Heart Lung Circ 2018; 27:1123–1208.







Explaining HF

Find out what the individual already knows¹

"I understand you were in hospital 2 weeks ago. Can you tell me why?"

"Can you please describe the things you can do to help identify if your heart failure is getting worse?"

Find out what they want and need to learn¹

"The specialist said you have heart failure? Would you like me to explain this more?"

"What are your main concerns?"

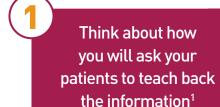
Reference

1. Boyde M, Peters R. Curr Heart Fail Rep 2014; 11(3):314–20.





Use 'teach-back'



"I want to be sure I explained correctly.

Can you please describe the things you agreed to do to help identify if your heart failure is getting worse?"







discuss information in small segments and have your patient teach it back¹



'Clarify' – If teach-back shows a misunderstanding, explain things again in a different way, and then re-check¹

Other teaching strategies

- Engage individuals with HF and their family/carers²
- Provide clear, written information to take home²
- Use multimedia resources if available²
- Reinforce information in subsequent consults

References

- 1. Agency for Healthcare Research and Quality. Use the Teach-Back Method: Tool #5. https://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/literacy-toolkit/healthlittoolkit2-tool5.html Accessed 12 December 2018.
- 2. Nursing Times. How to educate patients. www.nursingtimes.net/roles/nurse-educators/how-to-educate-patients/5030180.article. Accessed 14 January 2019.



Explaining HF

How the heart normally works

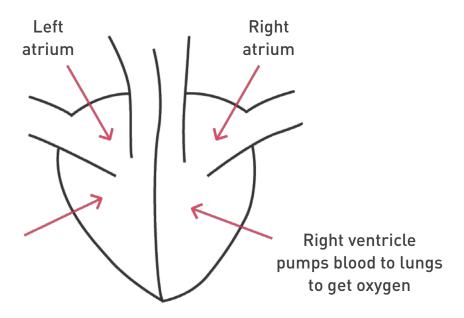
"Your heart works as a pump. The right side pumps blood to the lungs. The left side pumps blood with oxygen around the body."

What happens in HF

"In heart failure, your heart muscle is damaged or becomes weak and doesn't pump as well as it should"²

Related messages

"Heart failure is lifelong so it's important to take care of your heart to help it work better" (Consider explaining symptoms)



Left ventricle pumps blood around body

References

- **1.** Jarvis S, Saman S. Nursing Times 2018; 114:34–37.
- 2. Heart Foundation. Living well with heart failure information to make you feel better. www.heartfoundation.org.au/support/information-in-your-language#livingwith.

 Accessed 9 December 2018



Explaining symptoms



Shortness of breath

"In HF, the heart isn't able to pump blood efficiently around the body. This leads to fluid building up in the lungs. This in turn causes the lungs to not be able to work properly (get oxygen), which makes you experience shortness of breath during everyday activities."





"You may feel breathless when lying down – sometimes even during your sleep. This is because when you lie down, you have more blood flowing from your legs to your lungs compared with when you're standing/sitting. This doesn't trouble a person with a healthy heart but a person with heart failure might find it more difficult to breathe."

Cough at night

"In HF, the heart isn't able to pump blood efficiently around the body. This leads to fluid building up in the lungs. This fluid can cause coughing, especially at night."

(Note: Be aware of the possibility of an ACEI-related cough)

Swelling in the ankles, legs & abdomen



"In HF, the fluid can leak out of blood vessels into the tissues of the body. The fluid tends to accumulate in the areas of the body furthestfrom the heart like your ankles, but can also extend into your legs and abdomen. If this happens, you may notice your shoes or pants getting tighter."

References

Heart Foundation. Living well with chronic heart failure. https://www.heartfoundation.org.au/images/uploads/publications/CON-035.v5 LWWCHF-2015-web v2.pdf.pdf. Accessed 9 December 2018.





Palpitations

"You may feel your heart beating faster than usual. The heart sometimes starts to speed up to compensate for its reduced ability to pump blood around the body."



Tiredness

"In HF, less oxygen-rich blood is circulating the body. Because your muscles and tissues need oxygen for energy, this means you can get easily tired doing everyday activities."²



Dizziness

"Your heart failure may cause dizziness."
Some medicines can also cause dizziness."



Depression

"Many people with HF can feel sad or worried about their HF and having symptoms that get in the way of life. If you feel that way and it bothers you or you have little interest in doing things, talk to someone or your healthcare team, so that we can help."

References

- 1. American Heart Association. Warning signs of heart failure. www.heart.org/en/health-topics/heart-failure/warning-signs-of-heart-failure. Accessed 9 December 2018.
- 2. Heart Foundation. Living well with chronic heart failure. https://www.heartfoundation.org.au/images/uploads/publications/CON-035.v5_LWWCHF-2015-web_v2.pdf.pdf.

 Accessed 9 December 2018
- 3. Heart Foundation. Living well with heart failure information to make you feel better. https://www.heartfoundation.org.au/support/information-in-your-language#livingwith.

 Accessed 9 December 2018.



Explaining why fluid builds up

Why fluid builds up

Impact of fluid build-up

"When your heart starts to fail, the amount of blood to your kidneys starts to fall. Your kidneys try to compensate by activating hormones that lead to fluid and salt build-up to try to increase your blood volume.¹

Your weakened heart struggles to keep up with the additional volume and this makes your heart worse over time.¹

The blood backs up in the blood vessels and fluid leaks out from blood vessels and builds up in other parts of the body, such as your lungs and ankles. This is called 'congestion' and it causes the main symptoms of HF." ¹

Explaining why and how to monitor fluid balance

How to monitor fluid balance

"The best way of monitoring your fluid balance is by weighing yourself every morning.

"Remember the four **W**'s: **W**ake up, **W**ee, **W**eigh, **W**rite.

Tomas Season Seasons S

Weight and symptom diary

HEART OF

...

- Wake up in the morning
- Go to the toilet to wee
- Weigh yourself
- Write the weight down.

If you have put on weight quickly, this is likely to be fluid build-up rather than body mass. So if you put on 2 kg or more in 2 days, contact your healthcare team."

Reference

1. Pellicori P, et al. Card Fail Rev 2015; 1(2): 90-95

Educating about fluid restriction

How to manage fluid intake



"Use a measuring jug to measure out your allowed volume of water. Use this water in your kettle and to drink from so that you keep to this limit for the day."

Count fluid from foods

"Remember that fluid is not just water but includes other drinks, such as tea and coffee. Fluid is also present in certain foods such as soups, porridge and fruit with a high water content."

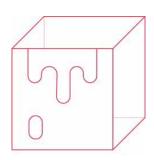








Strategies to deal with thirst



- "If you get thirsty, you can suck on a small amount of ice but remember to include this small volume of fluid as part of your daily fluid allowance¹
- Avoid salty foods as salt makes you thirsty¹
- If your mouth feels dry, you can fill a small spray bottle with water and spray the inside of your mouth but again remember to include the volume in your daily allowance¹
- Discuss dry mouth with your healthcare team or pharmacist"

References

1. Heart Foundation. Living well with chronic heart failure. https://www.heartfoundation.org.au/images/uploads/publications/CON-035.v5 LWWCHF-2015-web v2.pdf.pdf. Accessed 9 December 2018.



Educating about medication management

Importance of adhering to therapy

"It is important to take your medicines as prescribed to get their benefits. These medicines do not cure heart failure with reduced ejection fraction but they can help you live longer, stay out of hospital or improve how you feel. There are a few medicines to take but they work in a different way so it is important to take them all as prescribed."

Assess support required for adherence¹

"What do you take this medicine for?

When do you take this medicine?

Can you show/tell me how much you take each time?"



Types of medication ¹	How they work ¹
ACEIs/ARBs/ARNI	Help reduce fluid build-up and widen blood vessels
Beta blockers	Help your heart work better by pumping slower (slower heart rate) and stronger
MRA	Help your body get rid of excess fluid and lower blood pressure
Diuretics	Help your body get rid of excess fluid through urination

Medications are usually started at low doses and the doses are increased gradually over time to suit the indivivdual¹

References

^{1.} Heart Foundation. Living well with chronic heart failure. https://www.heartfoundation.org.au/images/uploads/publications/CON-035.v5 LWWCHF-2015-web v2.pdf.pdf. Accessed 9 December 2018.







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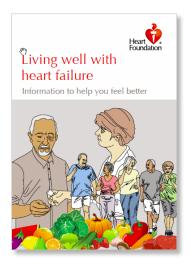
Patient and Clinic resources

available at: www.medhub.com.au



https://www.heartfoundation.org.au/

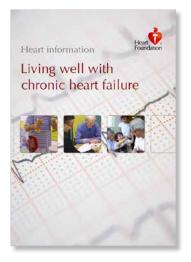
Booklets



Living Well With Chronic Heart Failure Booklet -

easy to read version

https://www.medhub.com.au/system/files/ heart_fondation_living_well_with_heart_failure_information_20190

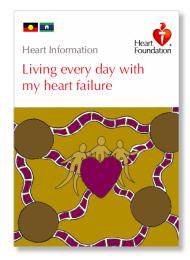


Heart Foundation resources for patients and carers

Living Well With Chronic Heart Failure Booklet -

regular version

https://www.medhub.com.au/system/files/ heart_fondation_living_well_with_chronic_hf_20190319.pdf



Living Well With Chronic Heart Failure Booklet -

Aboriginal and Torres Strait Islander peoples version

https://www.medhub.com.au/system/files/ heart_fondation_living_well_with_heart_failure_information_20190319.pdf



Other helpful patient information available on the website



Heart Failure - The Facts

 $\underline{\text{https://www.heartfoundation.org.au/your-heart/heart-conditions/heart-failure}}$



Salt

https://www.heartfoundation.org.au/healthy-eating/food-andnutrition/salt

Publications and resources

To order a printed copy of Heart Foundation publications, please call the Heart Foundation Helpline on 13 11 12 (patients can request a copy at no cost)

Information and support service Get free, personalised information and support from the Heart Foundation Helpline. Translating and interpreting service also available.

Call 13 11 12 or email health@heartfoundation.org.au



Fact sheets (some fact sheets available in multiple languages)



Living Well With Heart Failure 2 page handout

 $\frac{\text{https://www.heartfoundation.org.au/support/information-in-your-language\#heartfailure}}{\text{your-language\#heartfailure}}$



Living With Heart Failure -Information to Make You Feel Better

 $\frac{\text{https://www.heartfoundation.org.au/support/information-in-your-language\#livingwith}}{\text{your-language\#livingwith}}$



Heart Lifestyle -Healthy Heart Habits

2 page handout

 $\frac{\mbox{https://www.heartfoundation.org.au/support/information-in-your-language\#healthyeating}}{\mbox{your-language\#healthyeating}}$





Heart Lifestyle – Healthy Heart Tips

2 page handout

 $\frac{\text{https://www.heartfoundation.org.au/support/information-in-your-language\#healthyeating}}{\text{your-language\#healthyeating}}$



Smoking And Your Heart

2 page handout

 $\frac{\text{https://www.heartfoundation.org.au/support/information-in-your-language\#smoking}}{\text{your-language\#smoking}}$



My Medicines Plan

 $\frac{\text{https://www.heartfoundation.org.au/images/uploads/main/}}{\text{AusPAnet/My_medicines_plan_1.PDF}}$



My Fluid Plan

 $\frac{\text{https://www.heartfoundation.org.au/images/uploads/main/}}{\text{AusPAnet/My_fluid_plan.PDF}}$



Heart Foundation resources for healthcare professionals

https://www.heartfoundation.org.au/



Heart Failure

https://www.heartfoundation.org.au/for-professionals/clinical-information/heart-failure



The Heart Failure Toolkit -A Targeted Approach to Reducing Heart Failure Readmissions

 $\underline{\text{https://www.heartfoundation.org.au/programs/the-heartfailure-toolkit}}$



Guidelines and Tools

https://www.heartfoundation.org.au/for-professionals/clinical-information/heart-failure#HFquidelinesandtools





National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the prevention, detection and management of heart failure in Australia 2018: Executive summary

https://www.mja.com.au/journal/2018/209/8/national-heartfoundation-australia-and-cardiac-society-australia-and-new-0



National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the prevention, detection and management of heart failure in Australia 2018

https://www.sciencedirect.com/science/article/pii/S1443950618317773?via%3Dihub

MedHub

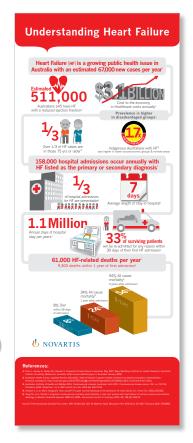
A list of Heart Foundation materials, including URLs is available in MedHub. Check MedHub for other patient and HCP resources at www.medhub.com.au





Novartis resources

www.medhub.com.au



Understanding Heart Failure Infographic Poster

 $\underline{https://www.medhub.com.au/system/files/CARDIO_understand-\\ \underline{hf-infog\ 20190213.pdf}$



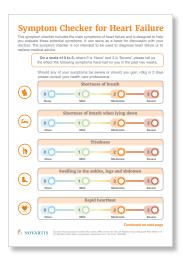
Portion Control Plate & Healthy Eating Tips

 $\label{likelihood} $$ $ \frac{https://www.medhub.com.au/therapeutic-area/cardio-metabolic/novartis-cardio-metabolic/patient-resources/article/portion $$ $ \frac{https://www.medhub.com.au/therapeutic-area/cardio-metabolic/patient-resources/article/portion $$ $ \frac{https://www.medhub.com.au/therapeutic-area/cardio-metabolic/portion $$ $ \frac{https://www.medhub.com.au/therape$



Guide to the 8 Key Symptoms of Heart Failure

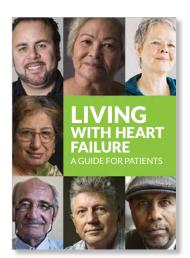
https://www.medhub.com.au/system/files/ CARDIO_symptom-checker_20190213.pdf



Symptom Checker for Heart Failure

https://www.medhub.com.au/therapeutic-area/cardiometabolic/novartis-cardio-metabolic/patient-resources/article/ heart-failure





Guide to Living with Heart Failure

(patient booklet)

 $\underline{ https://www.medhub.com.au/system/files/CARDIO_living-with- \underline{HF_20190213.pdf} }$



Guide to Caring for Someone with Heart Failure

(carer's guide)

https://www.medhub.com.au/system/files/CARDIO_carersguide_20190213.pdf



HeartPlan resources

www.medhub.com.au



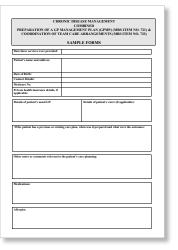
HF Assessment Form

https://www.medhub.com.au/system/files/heartplan-assessmentform-20190319.pdf



HF GP Management Plan (combined) template

http://www.health.gov.au/internet/main/publishing.nsf/ content/95003EE464F100E2CA257BF0001F9F60/\$File/ PDF%20printable%20version%20of%20CDM%20GPMP%20 [721]%20and%20TCA%20[723]%20Combined%20 Sample%20Form.pdf



HF GP Management Plan

SAMPLE FORM

(individual) template

http://www.health.gov.au/internet/main/publishing.nsf/content/95003EE464F100E2CA257BF0001F9F60/\$File/ PDF%20printable%20version%20of%20CDM%20GPMP%20 Sample%20Form%20for%20MBS%20Item%20721.pdf





HF Patient Recall SMS Reminders

template

https://www.medhub.com.au/system/files/heartplan-patientrecall-sms-reminders-20190319.docx



HF Patient Recall Telephone Script

template

https://www.medhub.com.au/system/files/heartplan-patient-recalltelephone-20190319.docx



HF Patient Recall Letter

template

 $\underline{https://www.medhub.com.au/system/files/heartplan-patient$ recall-letter_20190319.docx



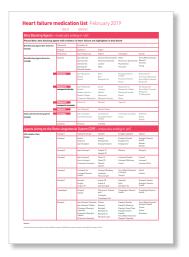
HeartPlan resources

www.medhub.com.au



HeartPlan Resource Booklet

 $\frac{\text{https://www.medhub.com.au/therapeutic-area/cardio-metabolic/heartplan-resources/heartplan-booklet/}{\text{metabolic/heartplan-resources/heartplan-booklet/}}$



Heart Failure Medication List

 $\underline{https://www.medhub.com.au/system/files/heartplan-list-of-heart-} \\ \underline{failure-medications-20190319.pdf}$



HeartPlan resources

www.medhub.com.au



Medical Director Software Instructions

 $\frac{https://www.medhub.com.au/system/files/heartplan-medical-director-software-instructions \ 20190319.pdf}{}$



Best Practice Software Instructions

 $\underline{\text{https://www.medhub.com.au/system/files/heartplan-2.0-best-practice-software-instructions}\underline{\text{20190319.pdf}}$



ZedMed Software Instructions

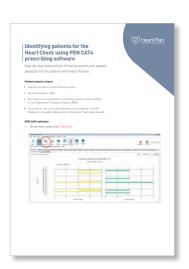
 $\underline{\text{https://www.medhub.com.au/system/files/heartplan-2.0-zedmed-software-instructions-20190319.pdf}$





POLAR GP Software Instructions

 $\underline{https://www.medhub.com.au/system/files/heartplan-2.0-polargpsoftware-instructions_20190319.pdf}$



PEN CAT4 Software Instructions

 $\underline{https://www.medhub.com.au/system/files/heartplan-2.0-pencat4-software-instructions_20190319.pdf}$







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12

Tips to recall patients





Patient Recall

Recall strategies and tips

The most common notification methods used by practices to recall patients are telephone, letter and text. Examples of the different notification methods are included below and can be downloaded from MedHub www.medhub.com.au

It is a good idea to inform all practice staff including the receptionist about the initiative, so they know how to address common patient questions about the HeartPlan program (heart health check /promotion) at your clinic or where to direct the patient for more information.

Phone call

Telephone the patients and invite them to book an appointment for their heart check review with the nurse.

Advantages:

This approach is usually the most successful as many patients will benefit from a conversation where they can better understand how participating in the program to visit the nurse will help with their condition and offer an opportunity to ask further questions. It can also be a good way to follow up with patients who have not responded to other notification methods.

Disadvantages:

Phone calls can be time consuming for your staff. Using this approach means the nurse or clinic staff will have to dedicate time to call and follow up patients. It may be difficult to reach the patients by phone, requiring multiple attempts.



(('') Phone call example

"Hi Mr/Mrs /Ms (patient surname). My name is [name] and I'm the [insert role] at [insert clinic name]. How are you today?

(Wait for answer and continue)

The reason for this call is to let you know that our practice is running a heart health check.

Dr [name of doctor] asked me to contact you because he/she recommends that you visit the clinic for a heart check.

This appointment will be with the nurse where she/he will ask you a few questions about your health and medications.

Your Doctor may then request to see you after your review with the nurse.

How does that sound? Would you like to see the nurse on [date]?

[Book the patient for their HeartPlan assessment appointment and answer any additional questions they may have about the program]

[optional] We will send you a letter/email/SMS confirming X date at X time."





SMS/Mobile message

If you have a large number of patients to contact, you may consider sending patients an SMS to introduce the program. The SMS can let your patients know their doctor recommends they participate in the program and invite them to contact the clinic to discuss details with the nurse or to make an appointment. An SMS can be followed with a phone call a few days later to patients who don't respond.

Advantages:

SMS' can be quite cost effective and reaches patients immediately. This means, your practice is able to determine engagement and patient interest within 48 hours of sending.

Disadvantages:

The success of this relies on your practice having captured mobile phone numbers for patients. As an SMS is a short message, there is limited information which can be included in an SMS. Response to an SMS may be influenced by the demographics of your patients



SMS/Mobile message examples

Dear [the patient's name],

Our practice is running a healthy heart check program and your doctor recommends you attend. Please phone [phone number] to book an appointment or discuss with the nurse. To opt-out [insert opt-out instructions here e.g. reply STOP to let the practice know].



Dear [the patient's name],

This is to confirm your heart check appointment at [practice name] on [date] with [nurse name]. Please phone [phone number] with any questions or to change your appointment. To opt-out [opt-out instructions here e.g. reply STOP to let the practice know].

Dear [the patient's name],

This is a friendly reminder to attend your heart check appointment at [practice name] on [date] with [nurse name]. Please phone [phone number] with any questions or to change your appointment. To opt-out [opt-out instructions here e.g. reply STOP to let the practice know].

Dear (the patient's name),

Thank you for attending your heart check appointment today at (practice name). Please phone (phone number) with any questions for your nurse or doctor. To opt-out (opt-out instructions here e.g. reply STOP or let the practice know).

Note on SMS:

Due to length, these may incur 2 SMS credits under most providers. Do not send to patients who have opted out of SMS' or reminders.

Invitation letter

Some patients or practices prefer contact using a letter rather than telephone call. If sending a letter, it should be followed up with a phone call a week or so later to improve responses and provide an opportunity for patients to ask questions.

Advantages:

An effective way to reach a larger number of patients without requiring too much time of the nurse or receptionist.

Many patients may prefer to read information and discuss it with relatives or carers before making a decision. A copy of the letter can be saved in the patient file.

Disadvantages:

A letter sent via standard post can take up to 6 business days to reach your patients. In addition to this, the cost of stamps, paper, and printing may be a consideration.



Invitation letter example

(PRACTICE LETTERHEAD)

[Date]
[Patient Full Name]
[Patient Address]

Dear [insert patient name],

We are conducting a healthy heart check [insert name of program used by your clinic] at our clinic/practice [choose preferred term]. Dr [insert name] has recommended you visit our clinic/practice [choose preferred term] nurse for a check of your heart. The nurse will ask you a few easy questions about your health and medications and you can ask the nurse questions too.

Could you please telephone the practice/clinic on (insert phone number) to make an appointment with the nurse.

Yours sincerely,

[Practice Name]

Confirmation letter example

[Patient Name + Surname]

[Address]

[Suburb] [Postcode]

[State]

Dear [Patient Name]

Re: Healthy Heart Check [insert preferred name of program/promotion]

Below are the details confirming your appointment:

Appointment Date [Day-Month-Year]

Appointment Time [Time 00:00am/pm]

Clinic Address

[Address]

[Suburb] [Postcode]

[State]

Your appointment will take approximately 30 minutes. Please bring the following item with you to your appointment:

- A list of your current medications. You can prepare a list your medications using one of the following options:
 - i) Write the name of your medications on the back of this letter
 - ii) Write a list of your medications on a piece of paper that you have at home
 - iii) Bring photographs the bottles or packs containing your medications

Please contact us on [Practice Phone] if you are unable to attend this appointment or if you have any questions.

Yours sincerely,

[insert name and role]





13

How to identify patients with heart failure in your practice







Prescribing software instructions

This section provides a step by step guide to generate a list of patients with heart failure at your practice. Instructions are provided for these prescribing and clinical audit software programs:

- Medical Director
- Best Practice
- 7edMed
- PenCat
- Polar GP

To help you identify patients for the HeartPlan heart check promotion/program at your clinic, several search options are listed below. The search criteria has been developed based on the software functionality and the common fields populated by clinic staff. This is the suggested order to generate patient lists with the first list identifying those patients with a recorded diagnosis of heart failure through to the last search where the criteria used to generate the list is based on the typical combination of medications used to treat patients with heart failure. Please note that these searches may identify patients who do not have heart failure.

Patient cohorts - software search criteria

Query ACondition/diagnosis of Heart Failure

A recorded diagnosis of Heart Failure (as per drop-down list)

Query BCondition/diagnosis of Myocardial infarction plus beta blocker

A recorded diagnosis of Myocardial infarction (as per drop-down list)

Plus ACEi or ARB + Bisoprolol (these beta blockers have evidence in heart failure)

- Repeat the above and replace red text with Carvedilol
- Repeat the above and replace red text with Metoprolol
- Repeat the above and replace red text with Nebivolol

Query CMedications – anti-hypertensive plus beta blocker plus Furosemide (preferred diuretic for heart failure)

ACEi or ARB + Bisoprolol + Furosemide (Frusemide, Lasix, Urex)

- Repeat the above and replace red text with Carvedilol
- Repeat the above and replace red text with Metoprolol
- Repeat the above and replace red text with Nebivolol

Query DMedications - anti-hypertensive plus beta blocker - note, this include will relist all patients from option 3

ACEi or ARB + Bisoprolol

- Repeat the above and replace red text with Carvedilol
- Repeat the above and replace red text with Metoprolol
- Repeat the above and replace red text with Nebivolol







Query A:

How to identify patients with a diagnosis of Heart Failure using Medical Director prescribing software

Search query provides step-by-step instructions on how to generate a list of patients with Heart Failure.

The same search criteria can be used to find patients with a diagnosis of Myocardial Infarction. In step 3, diagnosis, replace 'heart failure' with 'myocardial infarction'.

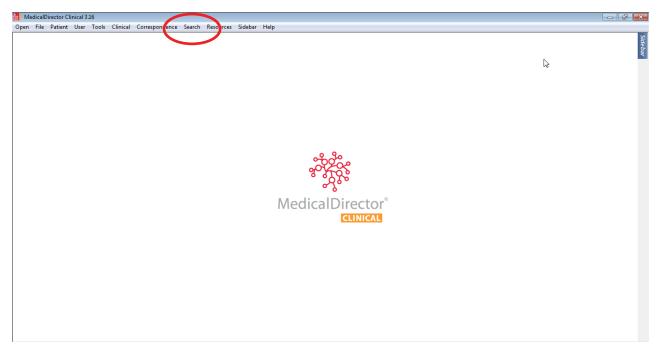
Patient search criteria

• A recorded diagnosis of Heart Failure (as per drop-down list)



Medical Director prescribing software

1. On the main menu page of Medical Director, click on 'Search'.





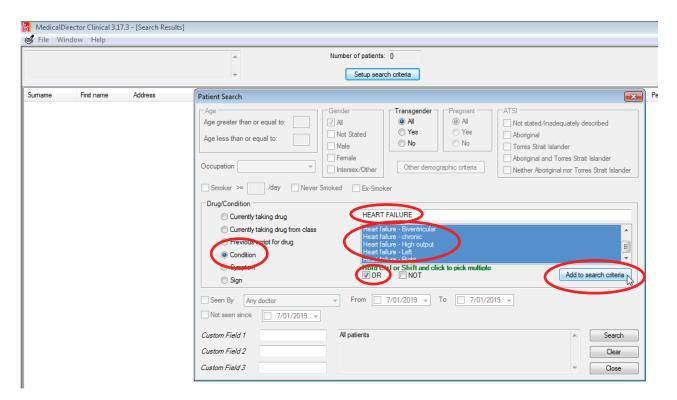


2. Select 'Patient'.



3. Add the diagnosis

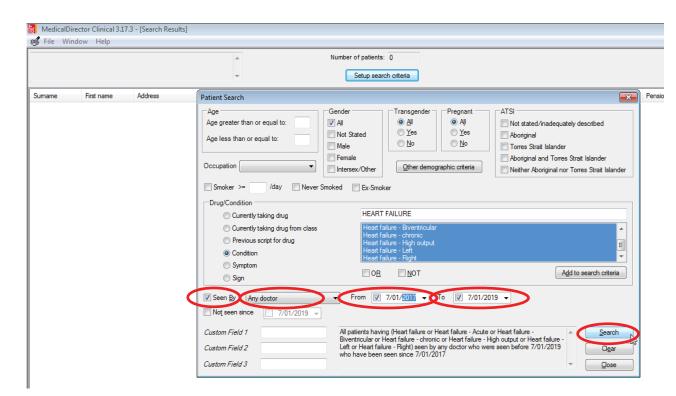
- Click on 'Condition'
- Tick the 'OR' box
- Type 'heart failure'. To select all heart failure diagnoses, select the first (top) 'Heart failure' item from the list, then scroll down to the bottom of the list, hold the "Shift" key on your keyboard and click on the last item 'Heart failure Right'. This should select the entire list
- Click on 'Add to search criteria'





4. Final search screen

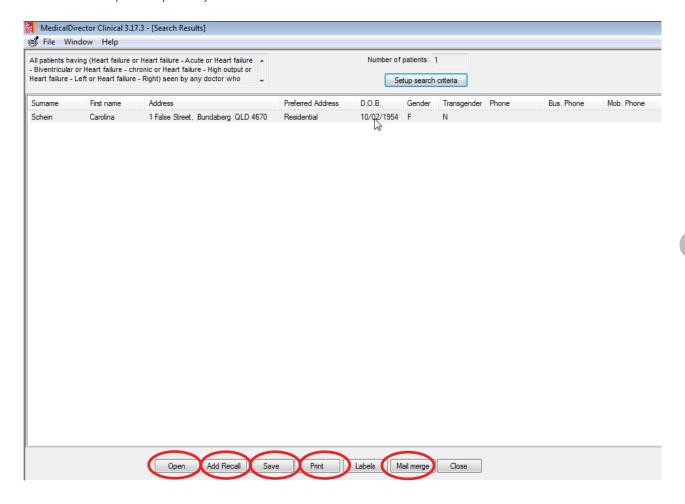
- Tick the 'Seen by' box.
- If you only want to generate a patient list for a specific doctor, then select that doctor from the dropdown list
- Tick the 'From' box and enter a start date two years (24 months) ago
- Click on 'Search' to perform the query





Once the list of patients with a diagnosis of Heart Failure is generated, there are several options:

- 'Open' the list to view the list of patients on your computer screen
- 'Save' a copy of your patient list
- 'Print' a hard copy of the patient list
- 'Add recall' to place a 'recall flag' on the patients record
- 'Mail merge' to merge the patient list with an invitation letter template (need to set up and save the template separately)



6. <u>If</u> you generated a list of patients for a specific doctor, you can now repeat the steps to generate a new list for another doctor in the practice.





Query B / Query D:

How to identify patients with a diagnosis of Myocardial Infarction using Medical Director prescribing software

Query B - sets out the steps to generate a list of patients with both a recorded diagnosis of Myocardial Infarction and a combination of medications used to treat heart failure.

Query D is the same as Query B except that the criteria is based on based on medications only ie the condition, Myocardial Infarction, is not part of the search criteria. To generate the list based on medications only, skip step 6. This search will result in a broader patient list.

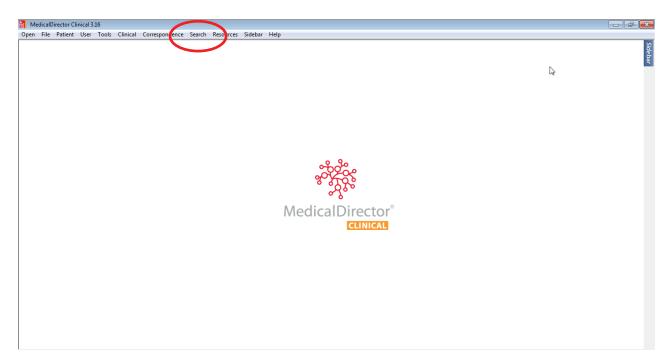
Patient search criteria

- A recorded diagnosis of Myocardial infarction (as per drop-down list)
- ACEi or ARB + beta blockers which have evidence in heart failure



Medical Director prescribing software

1. On the main menu page of Medical Director, click on 'Search'.



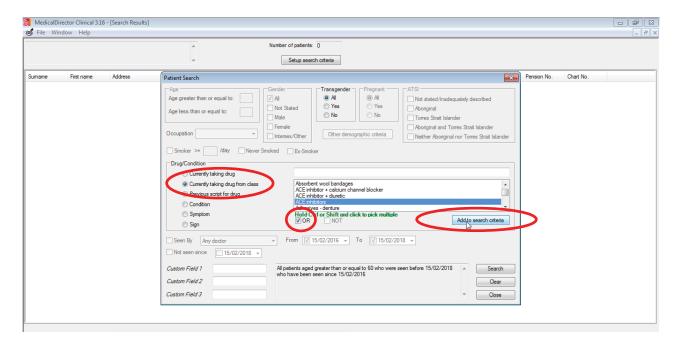


2. Select 'Patient'.



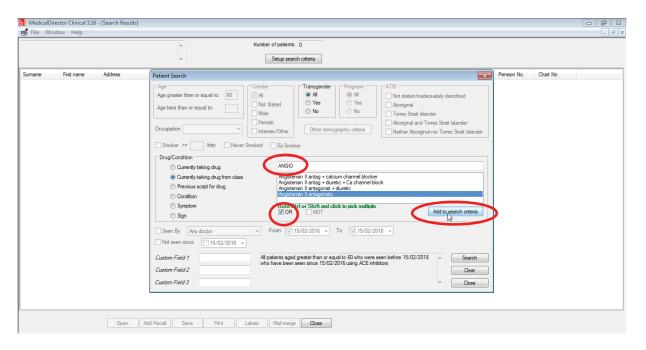
3. Add the ACE inhibitor class:

- Click on 'Condition'
- In the 'Drug/Condition' section, select the option for 'Currently taking drug from class'
- Tick the 'OR' checkbox.
- Select 'ACE Inhibitors' from the list
- Click on 'Add to search criteria'

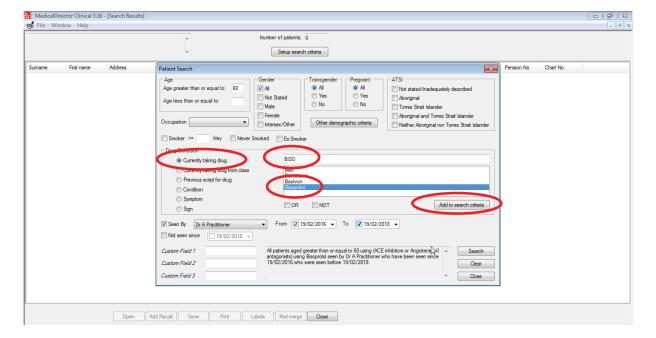




- 4. Add the ARB (AIIA) class:
 - Tick the 'OR' box again and start typing 'Angio' in the filter section
 - Select 'Angiotensin II antagonists'
 - Click on 'Add to search criteria'

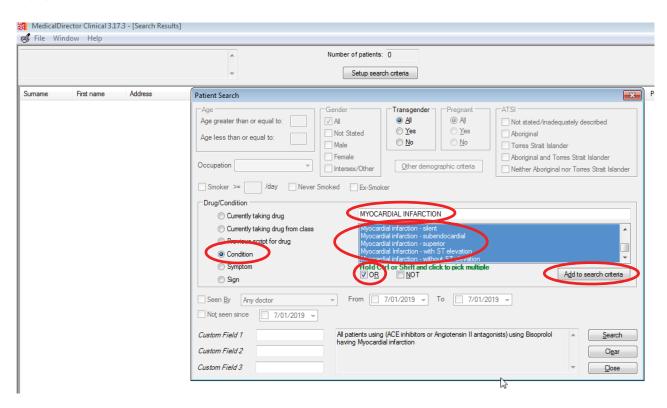


- 5. Add the beta blocker (individual product, not whole class):
 - Click the 'Currently taking drug' button on the left
 - Type 'Biso' in the filter section, select 'Bisoprolol' from the list and click on 'Add to search criteria'



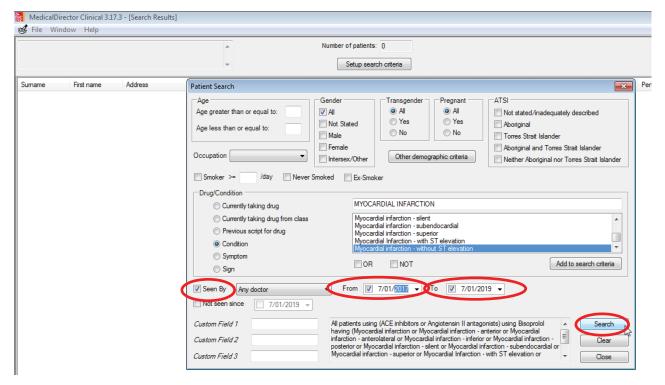


- 6. Add the diagnosis 'Myocardial Infarction':
 - Click on 'Condition'
 - Tick the 'OR' box
 - Type 'Myocardial Infarction'. Select the first (top) item 'Myocardial Infarction' from the list, then scroll down to the bottom of the list, hold the "Shift" key on the keyboard and click on the last item 'Myocardial infarction without ST elevation'. This will select the entire list
 - Click on 'Add to search criteria'





- Tick the 'Seen by' box, select a participating doctor from the dropdown list
- Tick the 'From' box and enter a start date two years (24 months) ago
- Click on 'Search' to perform the query

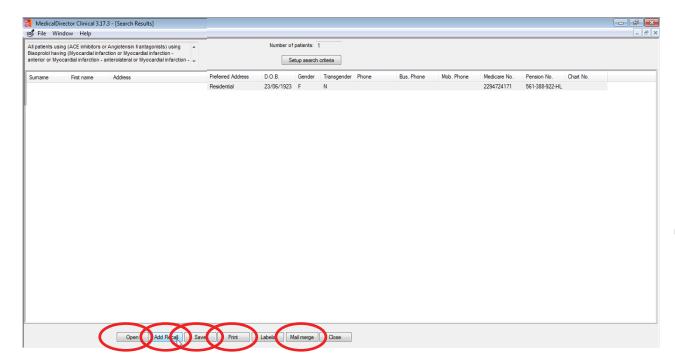




8. The list of patients

Once the list of patients with a diagnosis of Heart Failure is generated, there are several options:

- 'open' the list to view the list of patients on your computer screen
- 'Save' a copy of your patient list
- 'Print' a hard copy of the patient list
- 'Add recall' to place a 'recall flag' on the patients record
- 'Mail merge' to merge the patient list with an invitation letter template (need to set up and save the template separately)



- **9.** Repeat this search/query for the other beta blockers, each time replacing **Step 5** with one of the other beta blockers: Carvedilol, Metoprolol and Nebivolol.
- **10.** <u>If</u> you generated a list of patients for a specific doctor, you can now repeat the steps to generate a new list for another doctor in the practice.





Query C:

How to identify patients on diuretic medication using Medical Director prescribing software

Note: This query sets out the steps to generate a list of patients on a combination of medications used to treat heart failure including the diuretic Furosemide.

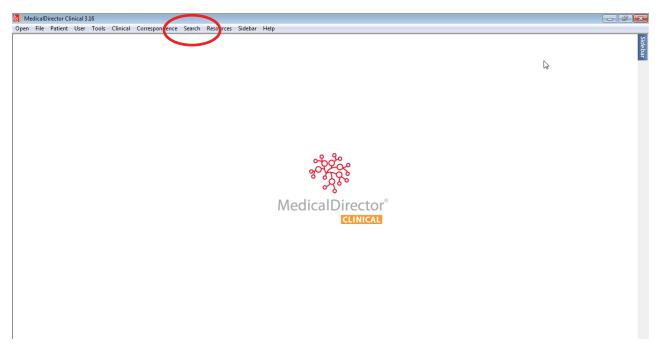
Patient search criteria

- Currently on an angiotensin-converting-enzyme inhibitor (ACEi) or an Angiotensin II receptor blocker (ARB).
- Currently on one of four beta blockers with evidence in HFrEF (Nebivolol, Carvedilol, Bisoprolol or Metoprolol extended release).
- Currently on diuretic Furosemide (Frusemide, Lasix, Urex)



Medical Director prescribing software

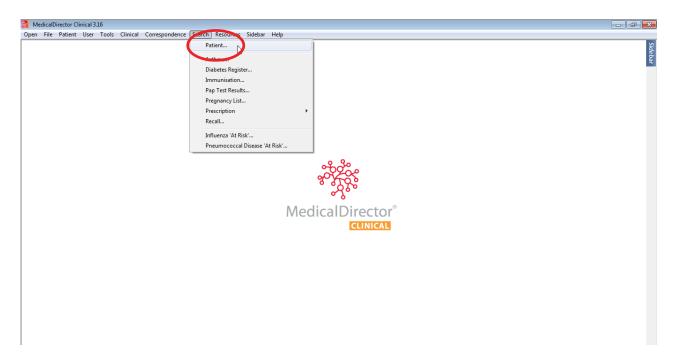
1. On the main menu page of Medical Director, click on 'Search'







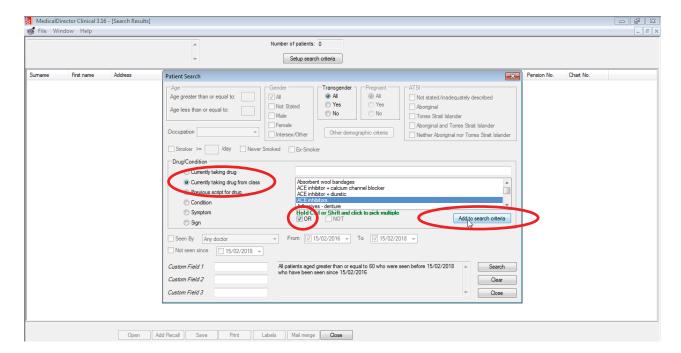
2. Select 'Patient'.





3. Add the ACE inhibitor class:

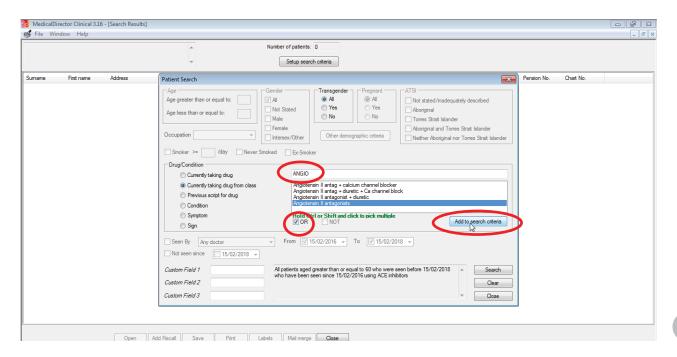
- In the 'Drug/Condition' section, select the option for 'Currently taking drug from class'
- Tick the 'OR' checkbox.
- Select 'ACE Inhibitors' from the list
- Click on 'Add to search criteria'



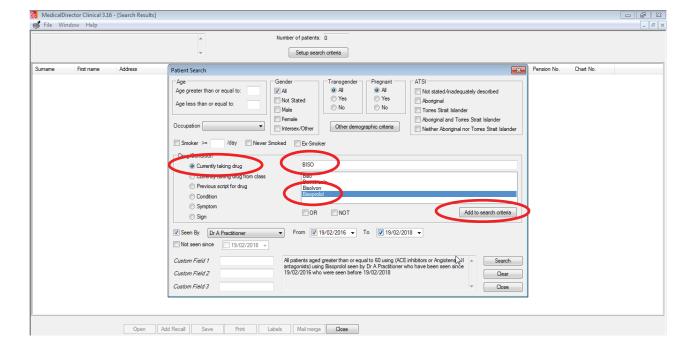




- Tick the 'OR' box again and start typing 'Angio' in the filter section
- Select 'Angiotensin II antagonists'
- Click on 'Add to search criteria'



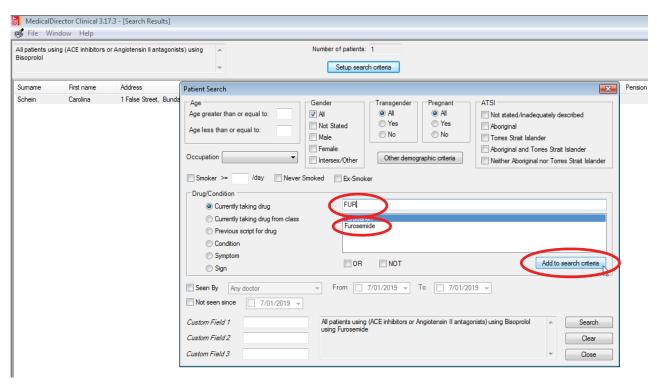
- 5. Add the beta blocker (individual product, not whole class):
 - Click the 'Currently taking drug' button on the left
 - Type 'Biso' in the filter section, select 'Bisoprolol' from the list and click on 'Add to search criteria'





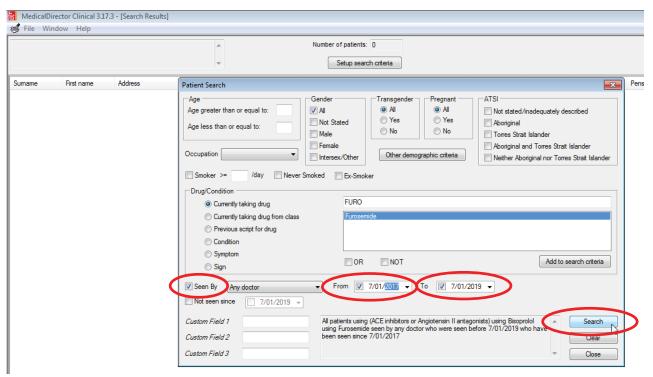
6. Add the Diuretic Furosemide:

• Type 'Fur' in the filter section, select 'Furosemide' from the list and click on 'Add to search criteria'



7. Last search screen

- Tick the 'Seen by' box, select a participating doctor from the dropdown list
- Tick the 'From' box and enter a start date two years (24 months) ago
- Click on 'Search' to perform the query

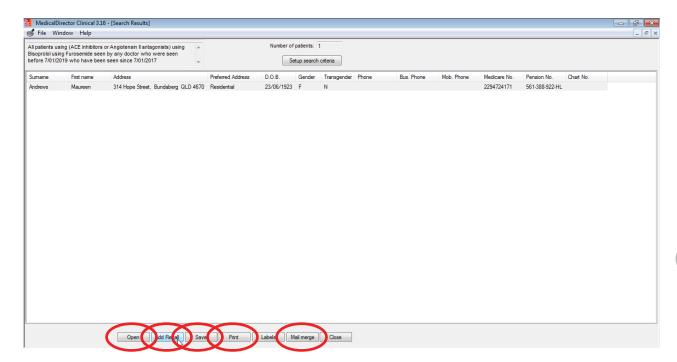




8. The list of patients

Once the list of patients is generated, there are several options:

- 'Save' a copy of your patient list
- 'Print' a hard copy of the patient list
- 'Add recall' to place a 'recall flag' on the patients record
- 'Mail merge' to merge the patient list with an invitation letter template (need to set up and save the template separately)



- **9.** Repeat this search/query for the other beta blockers, each time replacing **Step 5** with one of the other beta blockers: Carvedilol, Metoprolol and Nebivolol.
- **10.** <u>If</u> you generated a list of patients for a specific doctor, you can now repeat the steps to generate a new list for another doctor in the practice.





Query A:

How to identify patients with a diagnosis of Heart Failure using Best Practice prescribing software

This search query provides step by step instructions on how to generate a list of patients with Heart Failure.

Patient search criteria

• patient has a recorded diagnosis of heart failure



Best Practice prescribing software

1. On the main Best Practice screen select 'Utilities' and 'Search'.



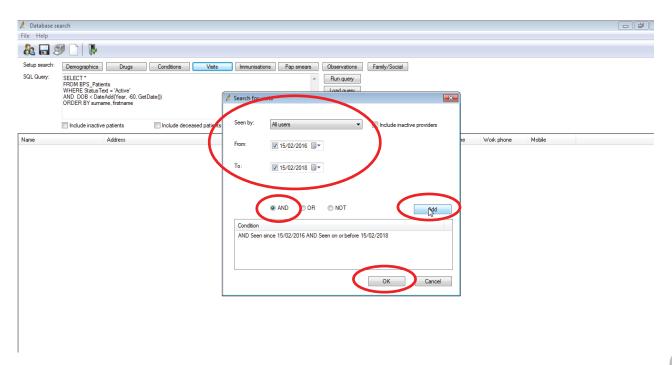






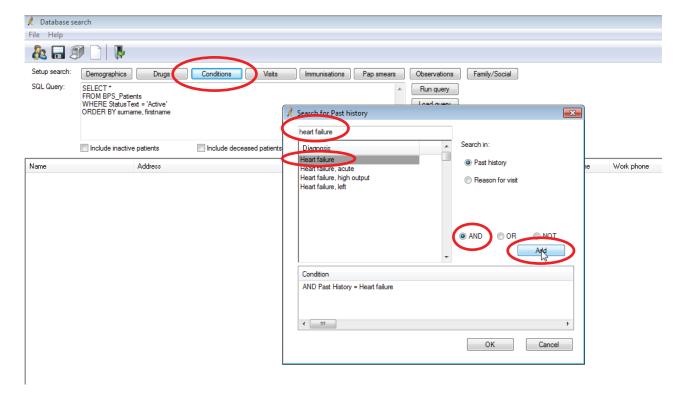
2. Filter to recent attendance:

- Click on 'Visits' and select a participating doctor from the 'Seen by' dropdown list.
- Tick both the 'From' and 'to' boxes and enter a date going back two years (24 months).
- Select the 'AND' button and click on 'Add' and 'OK'





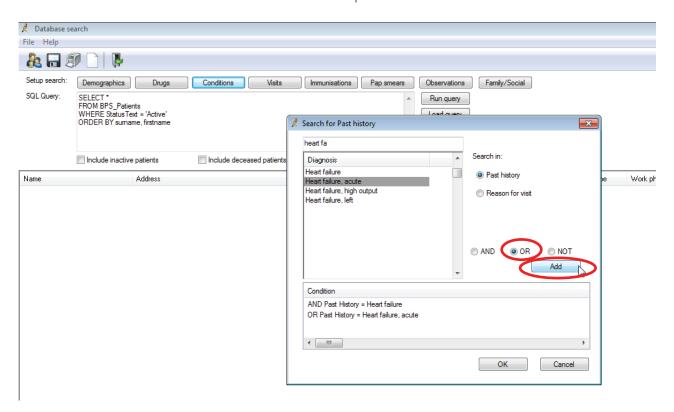
- 3. Add the diagnosis 'Heart Failure':
 - Click on 'Conditions' and type 'heart failure'.
 - Select 'Heart failure' from the list.
 - Click the 'AND' button and then click on 'Add'



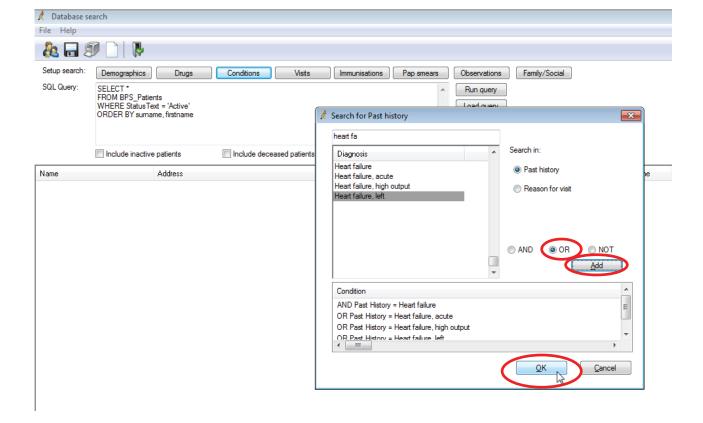




• Click the 'OR' button and select the next Heart failure option on the list and then click on 'Add'.



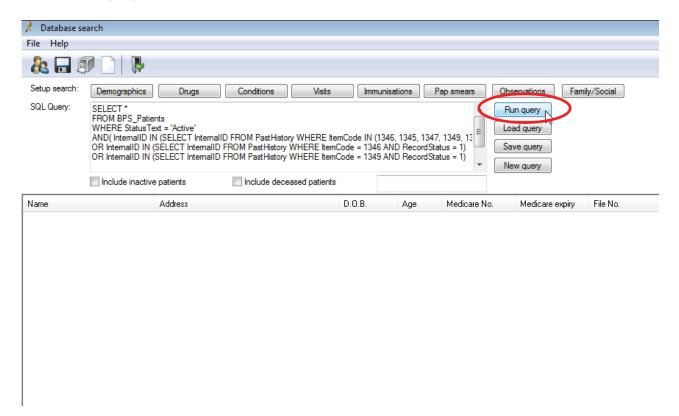
- Click the 'OR' button and select the next Heart failure option on the list and then click on 'Add'.
- With the 'OR' button selected, select each individual variation on 'Heart failure' from the list, clicking 'Add' between each one.
- Then select 'Heart failure, left' and click on 'Add' and 'OK'







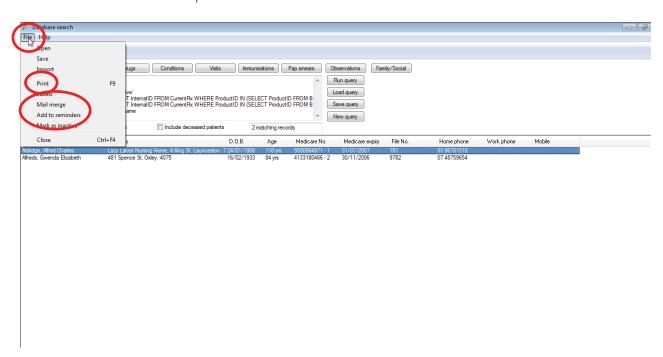
4. Click on 'Run query'



5. The patient list

Once the list of patients is generated, there are several options under the 'File' menu:

- 'Print' a hard copy of the patient list
- 'Mail merge' to merge the patient list with an invitation letter template (need to set up and save the template separately)
- 'Add reminder' to the files of patients from the list



6. <u>If</u> you generated a list of patients for a specific doctor, you can now repeat the steps to generate a new list for another doctor in the practice.





Query B / Query D:

How to identify patients with a diagnosis of Myocardial Infarction AND/OR Heart Failure medications using Best Practice prescribing software

Query B - sets out the steps to generate a list of patients with both a recorded diagnosis of Myocardial Infarction and a combination of medications used to treat heart failure.

Query D - can also be run based on medications only ie the condition, Myocardial Infarction, is not part of the search criteria. To generate the list based on medications only, skip step 3. This search will result in a broader patient list.

Patient search criteria

- Patient has a recorded diagnosis of 'myocardial infarction'
- Currently on an angiotensin-converting-enzyme inhibitor (ACEi)
 or an Angiotensin II receptor blocker (ARB).



Currently on one of four beta blockers with evidence in HFrEF
(Nebivolol, Carvedilol, Bisoprolol or Metoprolol). If you are able to select Metoprolol extended release
instead of Metoprolol alone, then please select the extended release option.

Best Practice prescribing software

1. On the main Best Practice screen select 'Utilities' and 'Search'.



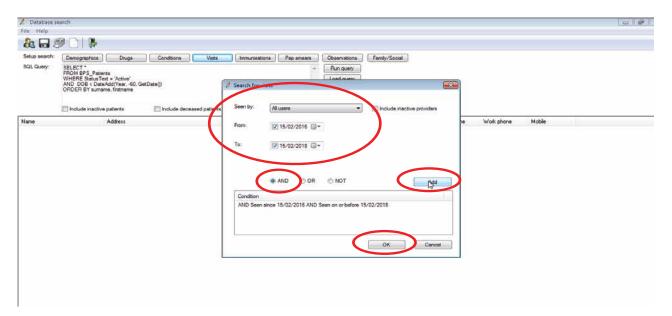






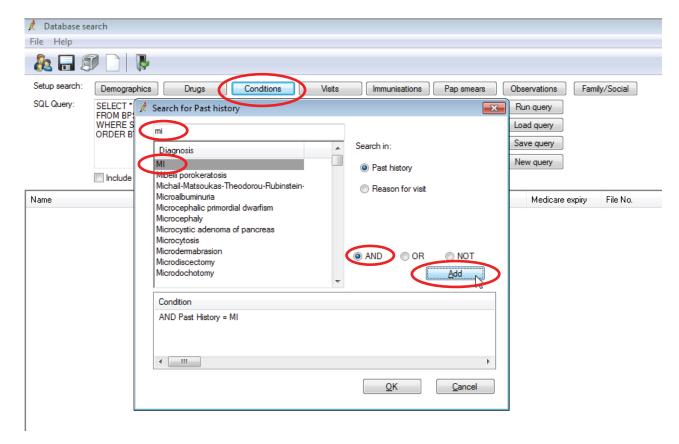
2. Filter for recent attendance:

- Click on 'Visits' and select a participating doctor from the 'Seen by' dropdown list.
- Tick both the 'From' and 'to' boxes and enter a date going back two years (24 months).
- Select the 'AND' button and click on 'Add' and 'OK'



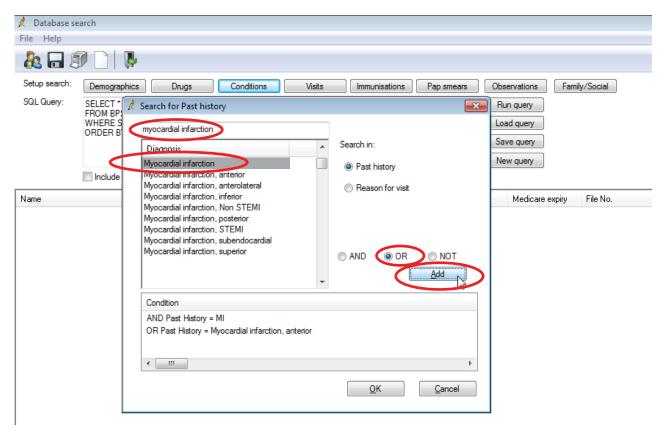


- **3.** Add the diagnosis 'Myocardial Infarction':
 - Click on 'Conditions' and type 'mi'. Select 'MI' from the list.
 - Make sure the 'AND' button is selected, and then click on 'Add'.

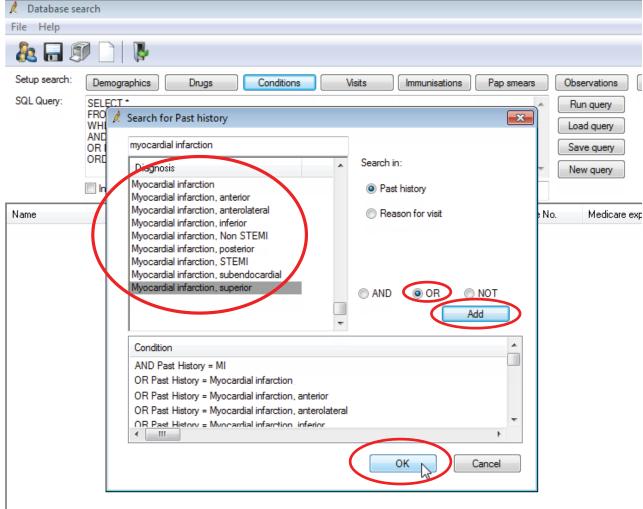




Click the 'OR' button and replace 'mi' with 'Myocardial infarction'.
 Select 'Myocardial infarction' from the list and then click on 'Add'



 One by one, select the other options on the list and click 'Add' for each one ensuring the 'OR' button remains selected



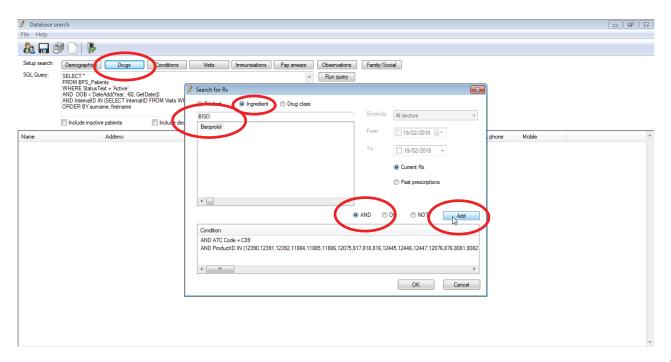




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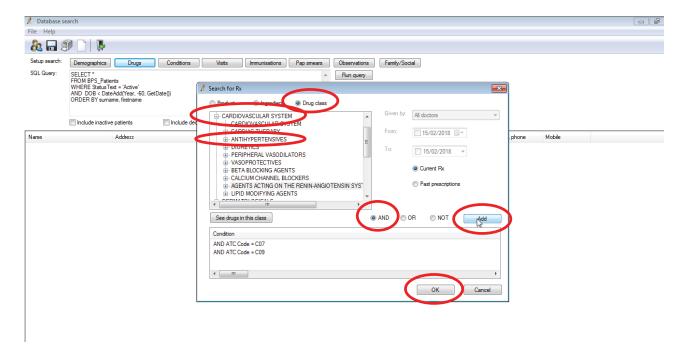
4. Add the beta blocker:

- Click on 'Drugs' and select the 'Ingredient' button at the top
- Start typing 'Bisoprolol' until you are able to select it from the list.
- Click on the 'AND' button and then click on 'Add'



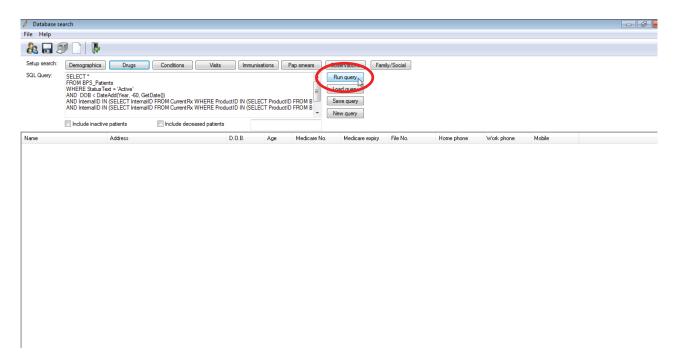
5. Add the ACEi and ARB:

- Click on 'Drug Class' and under 'Cardiovascular system' select 'antihypertensives'
- Click on the 'AND' button and then click 'Add'





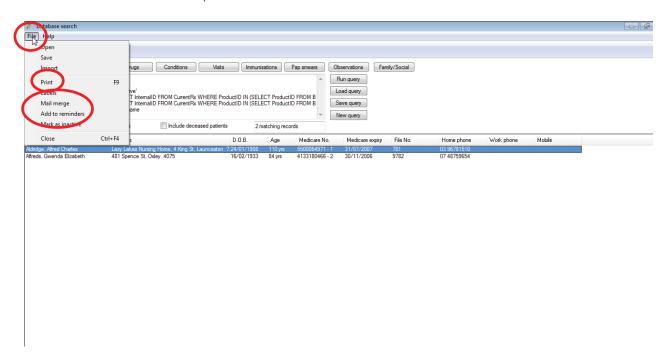
6. Click on 'Run query'



7. The patient list

Once the list of patients is generated, there are several options under the 'File' menu:

- 'Print' a hard copy of the patient list
- 'Mail merge' to merge the patient list with an invitation letter template (need to set up and save the template separately)
- · 'Add reminder' to the files of patients from the list



- **8.** Repeat this search/query for the other beta blockers, each time replacing **Step 4** with one of the other beta blockers: Carvedilol, Metoprolol and Nebivolol.
- 9. <u>If</u> you generated a list of patients for a specific doctor, you can now repeat the steps to generate a new list for another doctor in the practice.







Query C:

How to identify patients on diuretic medication using Best Practice prescribing software

Note: This query sets out the steps to generate a list of patients on a combination of medications used to treat heart failure including the diuretic Furosemide.

Patient search criteria

- Currently on an angiotensin-converting-enzyme inhibitor (ACEi) or an Angiotensin II receptor blocker (ARB)
- Currently on one of four beta blockers with evidence in HFrEF (Nebivolol, Carvedilol, Bisoprolol or Metoprolol). If you are able to select Metoprolol extended release instead of Metoprolol alone, then please select the extended release option.
- Currently on diuretic Furosemide (Frusemide, Lasix, Urex)

Identifying patients using Best Practice prescribing software

1. On the main Best Practice screen select 'Utilities' and 'Search'.



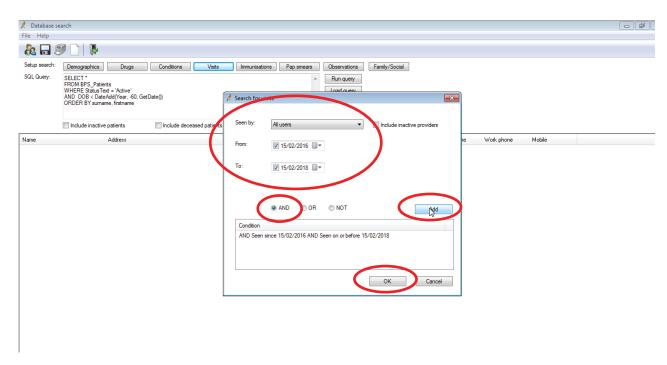






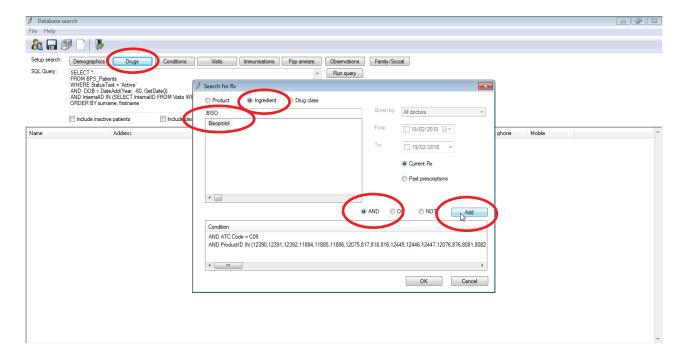
2. Filter to recent attendance:

- Click on 'Visits' and select a participating doctor from the 'Seen by' dropdown list.
- Tick both the 'From' and 'to' boxes and enter a date going back two years (24 months).
- Select the 'AND' button and click on 'Add' and 'OK'



3. Add the beta blocker:

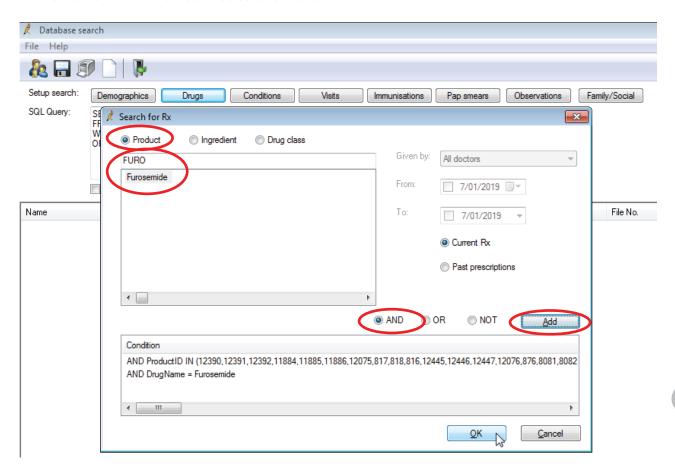
- Click on 'Drugs' and select the 'Ingredient' button at the top
- Start typing 'Bisoprolol' until you are able to select it from the list.
- Click on the 'AND' button and then click on 'Add'





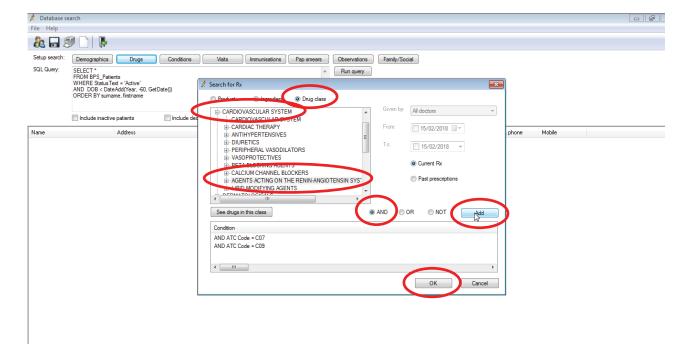
4. Add the Diuretic Furosemide:

- Click on 'Product' at the top and start typing 'furosemide', then select it from the list.
- Ensure the 'AND' button is still selected and click on 'Add'



5. Add the ACEi and ARB:

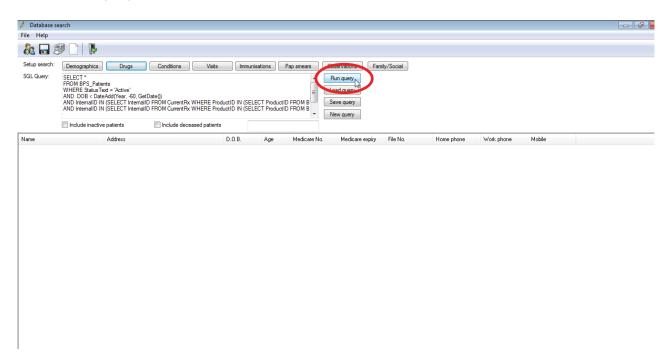
- Click on 'Drug Class' and under 'Cardiovascular system' select 'antihypertensives'
- Click on the 'AND' button and then click 'Add'







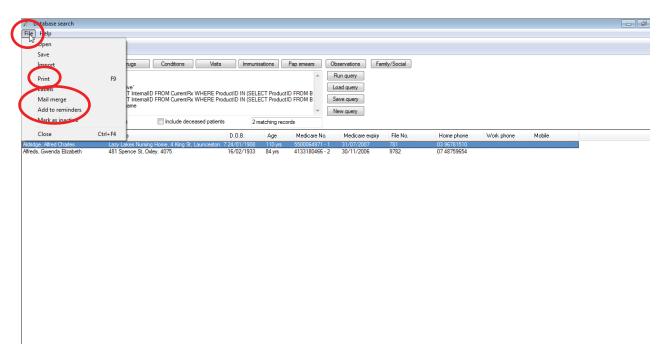
6. Click on 'Run query'



7. The patient list

Once the list of patients is generated, there are several options under the 'File' menu:

- 'Print' a hard copy of the patient list
- 'Mail merge' to merge the patient list with an invitation letter template (need to set up and save the template separately)
- 'Add reminder' to the files of patients from the list



- **8.** Repeat this search/query for the other beta blockers, each time replacing **Step 3** with one of the other beta blockers: Carvedilol, Metoprolol and Nebivolol.
- 9. <u>If</u> you generated a list of patients for a specific doctor, you can now repeat the steps to generate a new list for another doctor in the practice.







Query A:

How to identify patients with a diagnosis of Heart Failure using Zedmed prescribing software

This search query provides step by step instructions on how to generate a list of patients with Heart Failure.

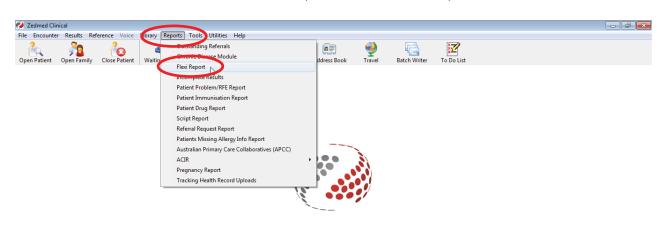
Patient search criteria

- Seen by the doctor within the last 2 years.
- 60 years of age or older.
- Patient has a recorded diagnosis of heart 'failure'



Zedmed prescribing software

1. From the main Zedmed Clinical screen select 'Reports' and then 'Flexi Report'

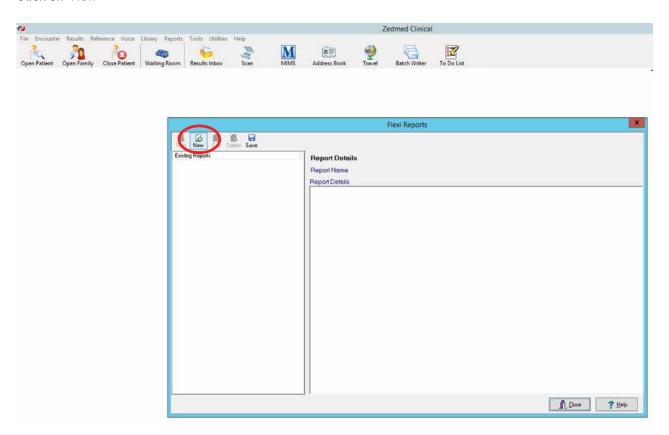






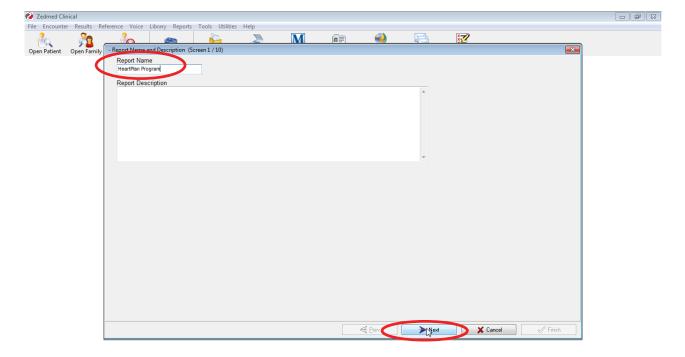


2. Click on 'New'





3. Enter a name for the report e.g. 'HeartPlan Program' and click 'Next'

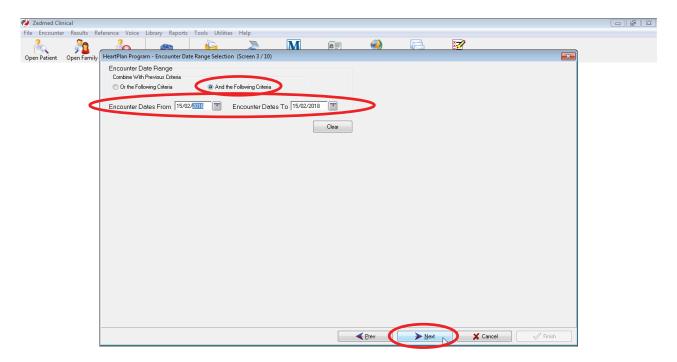






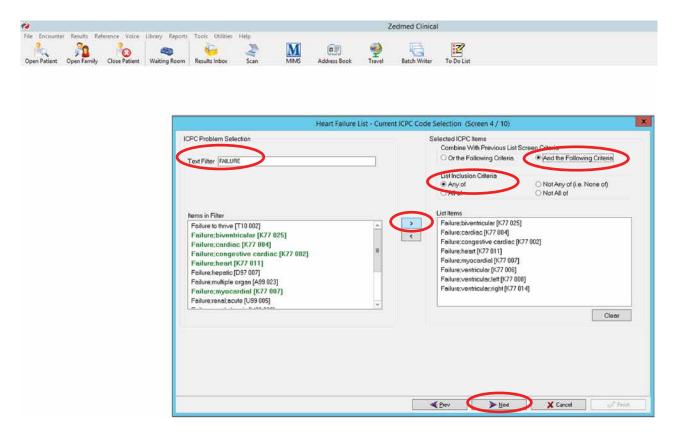
4. Filter by recency of patient visit:

• Select the button 'And the Following Criteria' and under 'Encounter Dates From' enter a date range from 2 years ago today to today's date. Then click 'Next'



5. Add the diagnosis:

- <
- Under ICPC Problem selection, select the buttons 'And the Following Criteria' and 'Any of' in the 'List Inclusion Criteria', and then type 'failure' in the 'Text Filter' bar.
- From the list, select 'Failure, cardiac' and click on the '>' button to add to the search criteria. Scroll down
 the list and also include: 'Failure, biventricular', 'Failure Cardiac', 'Failure, congestive cardiac',
 'Failure, heart', 'Failure, myocardial', 'Failure, ventricular', 'Failure, ventricular, left', 'Failure, ventricular, right'
 and click on 'Next'.





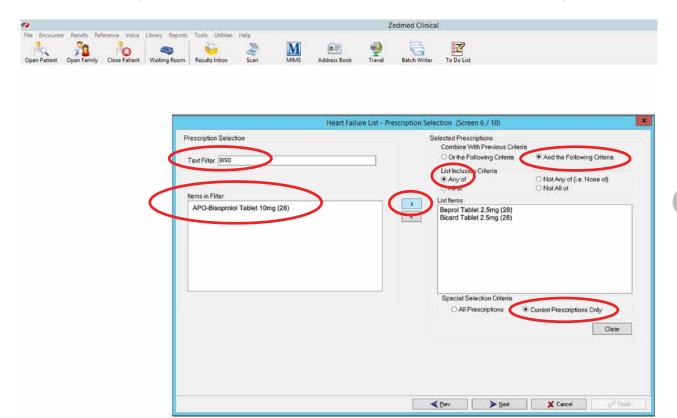


Add Medication:

- From the 'Prescription Selection' screen tick the buttons 'And the following criteria', 'Any of' and 'Current Prescriptions Only'.
- Search for 'Bisoprolol' and add to the list on the right using the '>' button.
 Additional brand names include Beprol, Bicard and Bicor.

Search and include these as well.

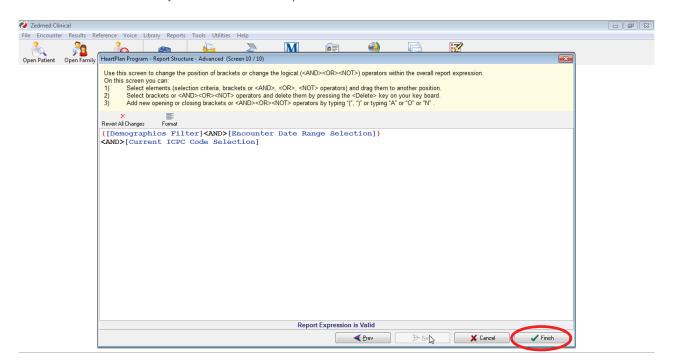
- Search for 'Carvedilol' and add to the list. Include brand names Vedilol and Volirop.
- Search for 'Nebivolol' and add brand name Nebilet.
- Search for 'Metoprolol' and add to the list. Include brand names Metrol-XL, Minax-XL, Toprol-XL.'





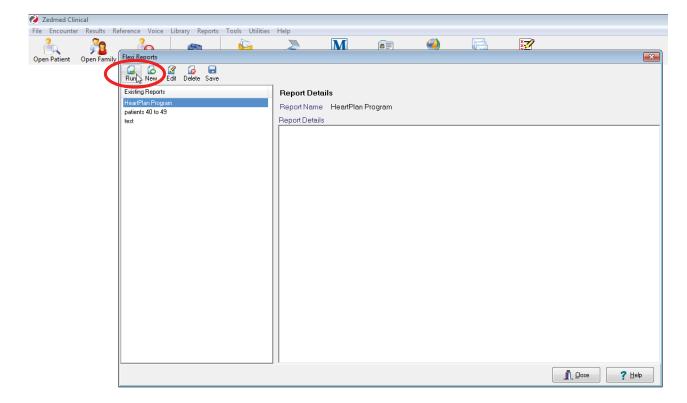


7. Then click on 'Next' until you reach the final report screen and click on 'Finish'



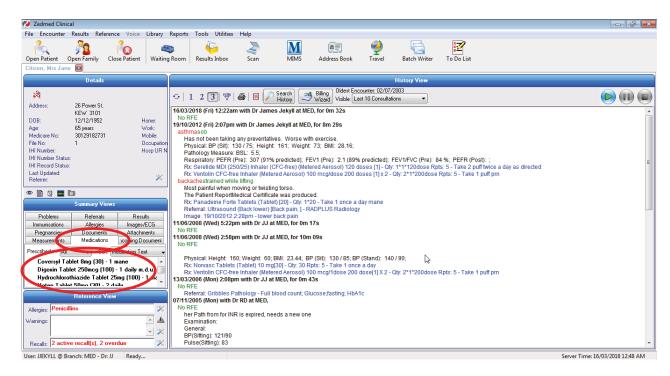


8. To run the query, select it from the saved list and click on 'Run'





- Check each patient file to confirm:
 - Their usual doctor is participating in this initiative.
 - They are currently on an ACE inhibitor (ACEi) or Angiotensin II Receptor Blocker (ARB)







Identifying patients for the Heart Check using POLAR GP prescribing software

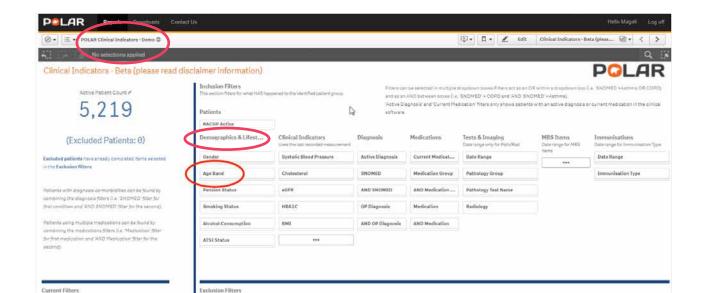
Step-by-step instructions of how to search your patient database for for patients with Heart Failure.

Patient search criteria:

- Seen by the doctor within the last 2 years.
- 60 years of age or older.
- Currently on an angiotensin-converting-enzyme inhibitor (ACEi) or an Angiotensin II receptor blocker (ARB).
- Currently on one of four beta blockers with evidence in HFrEF (Nebivolol, Carvedilol, Bisoprolol or Metoprolol* extended release).

POLAR GP software

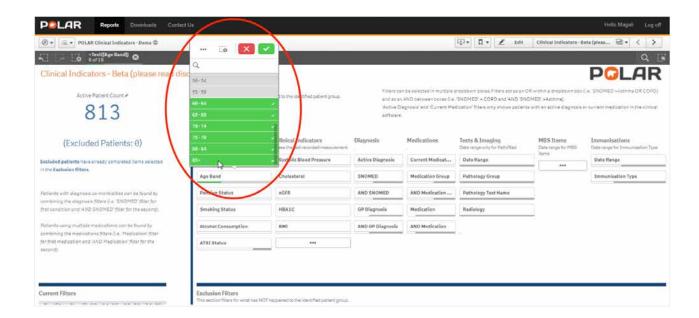
1. On the main screen of the 'Clinical Indicators' module, under the 'Demographics & Lifestyle' column, click 'Age Band'.



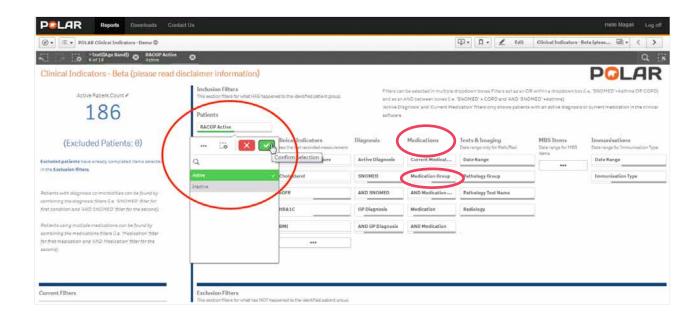




3. Select all ages ≥ 60 years so that they highlight green. Click the green tick button at the top of the dropdown list to confirm the selection.



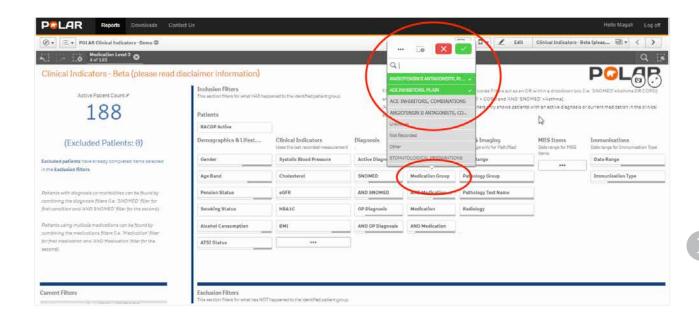
- 4. On the main screen, under the 'Patients' section, click 'RACGP Active' and select 'Active' so that it highlights green. Click the green tick button at the top of the dropdown list to confirm the selection.
 - On the main screen, under the 'Medications' column, click on 'Medication Group'







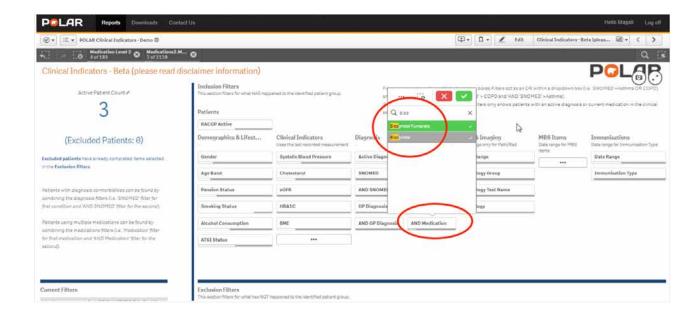
- 5. Add the diagnosis
 - Start typing: "angio" in the search box to filter results.
 - Select 'Angiotensin II Antagonists Plain' and so that it highlights green.
 - In the same section, return to the search box and start typing: "Ace".
 - Select 'Ace Inhibitors, Plain' so that it highlights green.
 - Click the green tick button at the top of the drop-down list to confirm the selection.



6. On the main screen, under the 'Medications' column, click on 'AND Medication'.

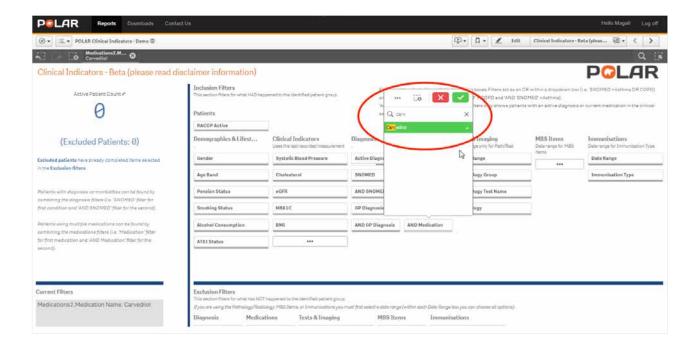
Start typing: "biso" in the search box to filter results.

Select 'Bisoprolol Fumirate' and 'Bisoprolol' so that they highlight green.



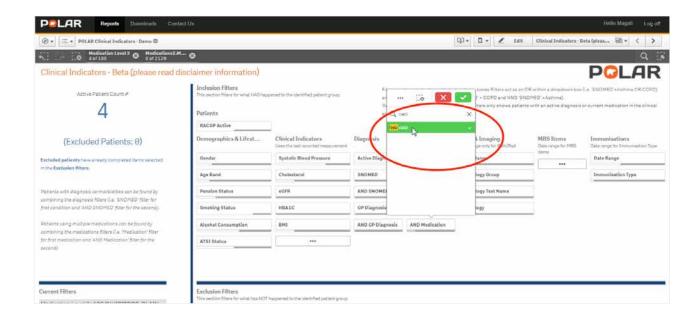


7. In the same section, return to the search box and start typing: "Carvedilol". Select it from the dropdown list so that it highlights green.





8. In the same section, return to the search box and start typing: "Nebivolol". Select it from the dropdown list so that it highlights green.





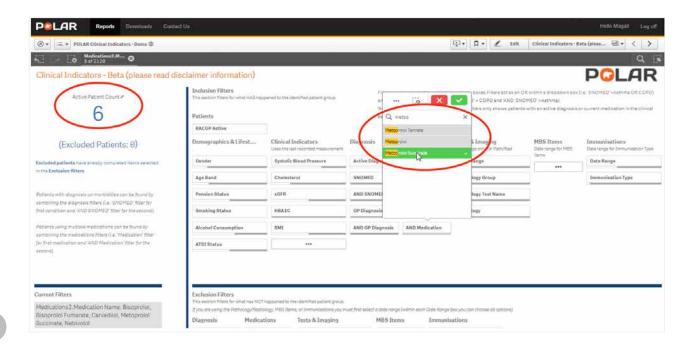


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9. Final search screen

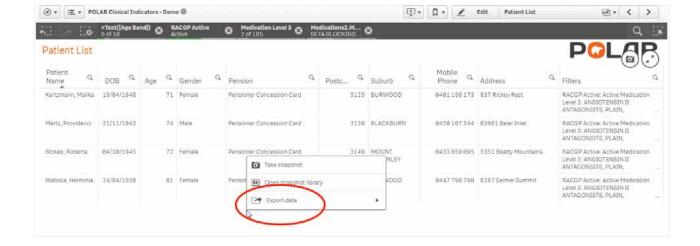
In the same section, return to the search box and start typing: "Metoprolol". Select 'Metoprolol Succinate' from the dropdown list so that it highlights green.

• Double click the 'Active Patient Count' number to generate the list of patients.



10. The list of patients

In the Patient List section, right-click the mouse to 'Export data' to save and print.







Identifying patients for the Heart Check using PEN CAT4 prescribing software

Step-by-step instructions of how to search your patient database for for patients with Heart Failure.

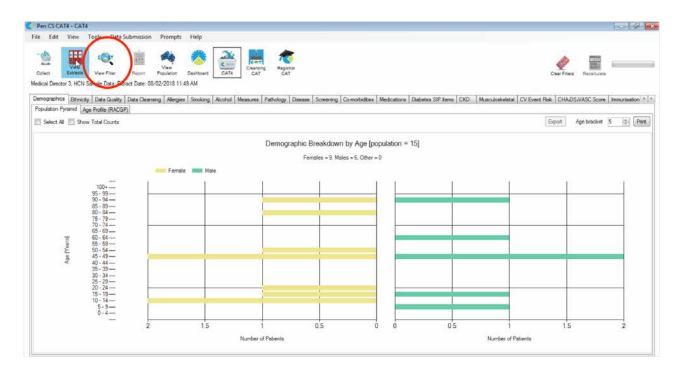
Patient search criteria

- Seen by the doctor within the last 2 years.
- 60 years of age or older.
- Currently on an angiotensin-converting-enzyme inhibitor (ACEi) or an Angiotensin II receptor blocker (ARB).
- Currently on one of four beta blockers with evidence in HFrEF (Nebivolol, Carvedilol, Bisoprolol or Metoprolol* extended release).

PEN CAT4 software

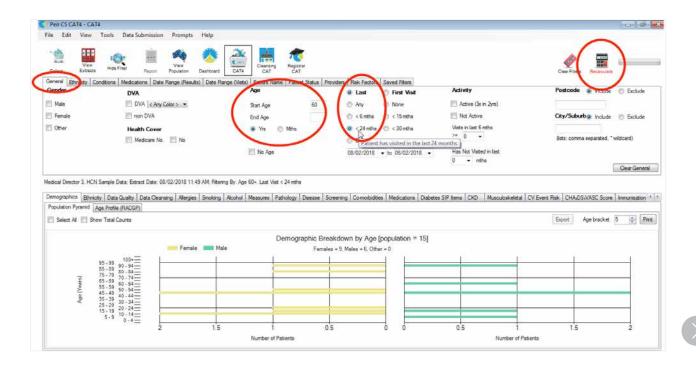
1. On the main screen click 'View Filter'.



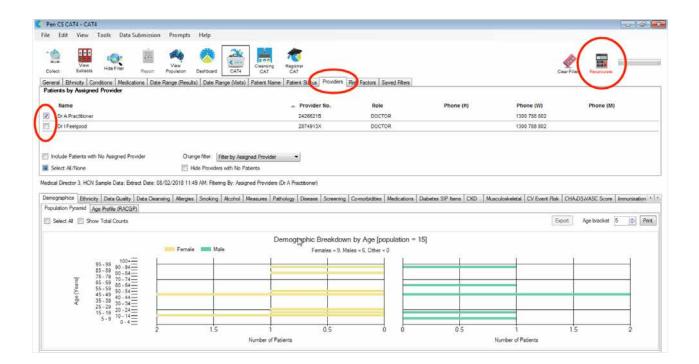




- 3. Within the 'General' tab, in the 'Age' section,
 - under the 'Start Age' type: "60".
 - In the 'Last' section, select the '<24 mnths' option.
 - Click 'Recalculate', found in top right corner of the page



4. Within the 'Providers' tab, tick the boxes to select all participating doctors and click 'Recalculate'.



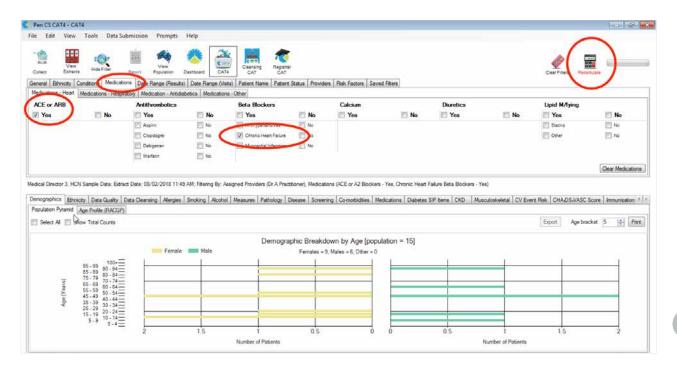




5. Final search screen

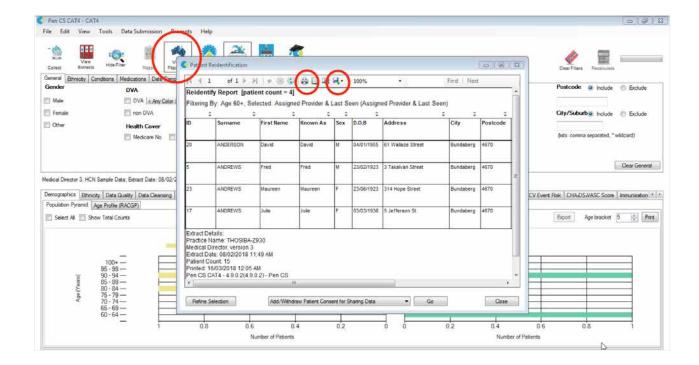
Within the 'Medications' tab,

- in the 'Medication Heart' section under 'ACE or ARB', tick the 'Yes' box.
- under 'beta blockers', tick the 'Chronic Heart Failure' box.
- Click 'Recalculate'.





- To view the list of patients, click 'View Population' at the top of the main screen.
- Select the appropriate icon to 'Print' or 'Export' the patient list.









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Heart failure medication list





Heart failure medication list February 2019

DRUG RRAND

Beta Blocking Agents	- molecules enui	ing in otot			
Please Note: beta blocking a	gents with evidence	n heart failure are h	ighlighted in bold b	elow	
Beta Blocking Agents Non Selective	Oxprenolol	Corbeton 40			
(C07AA)	Pindolol	Barbloc 5	Visken		
	Propranolol	Apo-Propranolol	Inderal	Hemangiol	Deralin
Beta Blocking Agents Selective (CO7AB)	Atenolol	Apo-Atenolol Atenolol-Aft Atenolol-Ga Atenolol Gh Atenolol Sandoz	Atenolol Generichealth Chemmart Atenolol Lotenol Nator	Noten Pharmacor Atenolol 50 Pip-Atenolol Tenormin	Terry White Chemists Atenolol Tenolten Tensig
	Bisoprolol	Apo-Bisoprolol Beprol Bicard	Bicor Biso Bisoprolol An	Bisoprolol Generi- chealth Bisoprolol Sandoz Bispro	Bisoprolol Gh Chemmart Bisoprolol Terry White Chemists Bisoprolol
	Metoprolol metoprolol tartrate	Apo-Metoprolol Betaloc Betaloc Injection Betaloc Tablets Chemmart Metoprolol	Etocar Lopresor Metolol Metoprolol Metoprolol Actavis	Metoprolol An Metoprolol Iv Mylan Metoprolol Sandoz Metrol Minax	Pip-Metoprolol Terry White Chemists Metoprolol Tn-Metoprolol
	Metoprolol metoprolol succinate	Metrol-Xl	Minax Xl	Toprol-Xl	
	Nebivelol	Apo-Nebivolol	Nebilet Tablets		
Alpha and beta blocking agents (C07AG)	Carvedilol	Apo-Carvedilol Carvedilol Sandoz	Carvedilol An Carvedilol Generi- chealth	Chemmart Carvedilol Dicarz	Dilatrend Vedilol Volirop
	Labetolol	Presolol	Trandate		
Agents Acting on the F	Renin-Angiotensi	n System (C09) -	- molecules end	ling in 'pril'	
ACE Inhibitor Plain	Captopril	Captopril Sandoz	Capoten	Douglas Captopril	Zedace
(COOA)					

ACE Inhibitor Plain	Captopril	Captopril Sandoz	Capoten	Douglas Captopril	Zedace
(C09A)	Enalapril	Acetec Amprace Apo-Enalapril	Auspril Enalapril-Ga Enalapril Actavis	Enalapril Sandoz Enalapril-Ga Enalapril An	Enalapril Generic Health Malean Renitec
	Fosinopril	Apo-Fosinopril	Fosipril 10 Fosipril 20	Monace	Monopril
	Lisinopril	Apo-Lisinopril Auro-Lisinopril Chemmart Lisinopril	Fibsol 10 Fibsol 20 Fibsol 5 Liprace	Lisinopril Sandoz Lisinopril Winthrop Lisoril	Linopril Lisinopril Lisinopril-Drla
	Lisinopril	Lisinopril An Lisinopril Generic Health	Lisinopril Ranbaxy Lisodrate Pip-Lisinopril	Terry White Chemists Lisinopril Zinopril	Zestril Lisodur
	Quinapril	Accupril Acquin Acquin 10	Acquin 20 Acquin 5 Apo-Quinapril	Aquinafil Qpril Quinapril-Ga	Quinapril Sandoz Quinapril Generic Health
	Trandolapril	Dolapril Gopten	Pharmacor Trandol- april Tranalpha Trandolapril-Ga	Trandolapril-Generic Health	Trandolapril Generic Health
	Ramipril	Apo-Ramipril Capsules Apo-Ramipril Tablets	Prilace Ramace	Ramipril Sandoz Ramipril Winthrop	Terry White Chemists Ramipril Tablets



Ramipril Generi-

chealth

Ramipril Caps Pfizer

Terry White Chemists Ramipril Capsules

Tritace

Tryzan

Vascalace

Chemmart Ramipril

Chemmart Ramipril

Pharmacor Ramipril

Capsules

Tablets

Ramibell

Ramipril An

Ramipril Ch

Ramipril Lupin

^{1.} Australian Pharmaceutical Index (API), December 2018. 2. Australian Hospital Index (AHI), December 2018.

DRUG BRAND

	DRUG	BRAND			
ACE Inhibitor Plain (C09A)	Perindopril	Apo-Perindopril Blooms The Chemist Perindopril Chemmart Perindopril Idaprex Idaprex	Indopril 2 Indopril 4 Indopril 8 Indosyl Mono Perindo	Perindopril Generi- chealth Perindopril Generi- chealth Perindopril An Perindopril Ch	Perindopril Ch Tablets Terry White Chemists Perindopril Apo-Perindopril Arginine Coversyl Prexum
ACE Inhibitor Combination (C09A)	Fosinopril	Zan-Extra Enalapril/Hct Sandoz Renitec Plus	Apo-Fosinopril Hctz Apo-Fosinopril Hctz 20/12.5 Apo-Fosinopril Hctz	Fosinopril/Hct Actavis 20/12.5	Genrx Fosinopril Hctz Hyforil Terry White Chemists Fosinopril Hctz
	Quinapril	Accuretic			
	Trandolapril	Tarka			
	Ramipril	Triasyn			
	Perindopril	Coveram Reaptan Apo-Perindopril Arginine-Amlodipine Chemmart Perindo- pril/Indapamide Idaprex Combi 4/1.25 Coversyl Plus	Prexum Combi Indopril Combi Perindo Combi Perindopril And Indapamide-Bw Perindopril And Indapamide-Gh	Perindopril And Indapamide An 4/1.25 Terry White Chemists Perindopril/ Indapamide Genrx Perindopril / Indapamide Indosyl Combi 4/1.25	Perindopril And Indapamide Ch 4/1.25 Perindopril And Indapamide Generi- chealth Perindopril And Indapamide-Gh Perindopril And Indapamide Ch 4/1.25
Angiotensin II antagonis	sts C09C) (C09D)	– molecules er	nding in 'sartan'		
Angiotensin II antagonists, plain (C09C)	Candesartan	Adesan Apo-Candesartan Atacand Blooms The Chemist Candesartan	Candesan Candesartan An Candesartan Sandoz	Candesartan Gh Chemmart Candesar- tan	Ctan Terry White Chemists Candesartan
	Irbesartan	Abisart Apo-Irbesartan Avapro Avsartan Blooms The Chemist Irbesartan	Chemmart Irbesartan Dr Reddy'S Irbesartan Irberak Mlabs Irbesartan Actavis	Irbesartan Amneal Irbesartan Gh Tablets Irbesartan Mlabs Irbesartan Sandoz	Irbesartan Sanofi Irbesartan Winthrop Irbestraz Mlabs Irprestan Irbesartan An
Angiotensin II antagonists, plain (C09C)	Irbesartan	Irbesartan Rbx Irboz	Karbesat Karvea	Terry White Chemists Irbesartan	Vorpek
	Losartan	Cozaar	Cozavan		
	Olmesartan	Akm-Olmesartan Apo-Olmesartan Apo-Olmesartan	Olmesartan - My Olmesartan Sandoz	Olmetec Olmertan	Olmesartan Sandoz Pharmacor Olmesar- tan
	Telmisartan	Alkem Telmisartan Apo-Telmisartan Apo-Telmisartan	Micardis Mizart (New) Pharmacor Telmis- artan	Teltartan Telmigen Telmisartan An Telmisartan Gh	Telmisartan Mylan Telmisartan Sandoz Telmisartan-Drla Telmisartan Gh
	Valsartan	Apo-Valsartan	Dilart	Diovan	
Angiotensin II antagonists, Combinations (C09D)	Candesartan	Adesan Hct Asartan Hct Candesartan Hct Gh Stada Candesartan	Apo-Candesartan Hctz Atacand Plus Blooms The Chemist Candesartan Hctz	Candesan Combi Candesartan Hctz An Candesartan Hctz Rbx Candesartan/Hct Sandoz	Candesartan Hctz Rbx Chemmart Candesar- tan Hctz Terry White Chemists Candesartan Hctz



	DRUG	BRAND			
Angiotensin II antagonists, Combinations (C09D)	Eprosartan	Teveten	Teveten Plus		
	Irbesartan	Abisart Hct Avsartan Hct Blooms The Chemist Irbesartan Hctz Chemmart Irbesartan Hctz Irbesartan Hct Winthrop Irbesartan Hctz Amneal	Irbesartan Hctz Mlabs Irbesartan/Hct Sandoz Irbesartan/Hctz-Ga Karvezide Stada Irbesartan Hct	Apo-Irbesartan Hctz Avapro Hct Irberak Hctz Mlabs Irbesartan Hct Gh Irbesartan Hct Gh Tablets Irbesartan Hct Sanofi	Irbestraz Hctz Mlabs Irbesartan Hctz An Ksart Hct Sigma Irbesartan Hct Terry White Chemists Irbesartan Hctz
	Olmesartan	Akm-Olmesartan Hctz Alkem Olmesartan Hctz Olmesartan/ Amlodipine - Myl	Olmesartan/ Amlodip- ine Hct - Myl Sevikar Sevikar Hct	Apo-Olmesartan Hctz Apo-Olmesartan Hctz Olmesartan/Hct Olmertan Combi	Pharmacor Olmesar- tan Hctz Olmesartan Hct - Myl Olmesartan/Hct Sandoz Olmetec Plus
	Telmisartan	Pritor/Amlodipine Twynsta Micardis Plus Mizart Hct (New) Telmisartan/Hct Sandoz Teltartan Hct	Telmisartan Hctz An Apo-Telmisartan/ Amlodipine Telmisartan/ Amlodipine Genpar Apo-Telmisartan Hctz	Pritor Plus Tablets Telmigen Hct Telmisartan Hct Gh	Telmisartan Hct Mylan 40/12.5 Mg Telmisartan Hct Mylan 80/12.5 Mg Telmisartan Hct Mylan 80/25 Mg
	Valsartan	Exforge Hct Valsartan / Amlodipine / Hct Novartis	Co-Diovan Entresto Exforge	Valsartan / Amlodipine Novartis	Apo-Valsartan Hctz Dilart Hct
Diuretics					
Low-Ceiling Diuretics (Thiazides) (C03A)	Hydrochlorthiazide	Dithiazide Amizide Olmesartan/ Amlodip- ine Hct - Myl Exforge Hct	Enalapril/Hct Sandoz Renitec Plus Apo-Fosinopril Hctz Apo-Fosinopril Hctz 20/12.5	Pharmacor Olmesar- tan Hctz Accuretic Mizart Hct (New) Irbesartan Hct Winthrop	Olmesartan Hct - Myl Olmesartan/Hct Sandoz Olmetec Plus Apo-Telmisartan Hctz



Diuretics					
Low-Ceiling Diuretics (Thiazides) (C03A)	Hydrochlorthiazide	Dithiazide Amizide Olmesartan/ Amlodipine Hct - Myl Exforge Hct Adesan Hct Asartan Hct Candesartan Hct Gh Stada Candesartan Teveten Plus Fosinopril/Hct Actavis 20/12.5 Moduretic (Aspen) Sevikar Hct Valsartan / Amlodipine / Hct Novartis Apo-Candesartan Hctz Atacand Plus Blooms The Chemist Candesartan Hctz Candesartan Hctz Candesartan Hctz Candesartan Hctz An Candesartan Hctz An Candesartan Hctz Rbx Candesartan Hctz Rbx Candesartan Hctz Rbx Chemmart Candesartan Hctz Terry White Chemist Candesartan Hctz	Enalapril/Hct Sandoz Renitec Plus Apo-Fosinopril Hctz 20/12.5 Apo-Fosinopril Hctz Genrx Fosinopril Hctz Hyforil Terry White Chemists Fosinopril Hctz Apo-Irbesartan Hctz Avapro Hct Irberak Hctz Mlabs Irbesartan Hct Gh Irbesartan Hct Gh Irbesartan Hct Sanofi Irbestraz Hctz Mlabs Irbesartan Hct Sanofi Irbestraz Hctz Mlabs Irbesartan Hct Chemists Irbesartan Hct Olimesartan Hct Sigma Irbesartan Hct Terry White Chemists Irbesartan Hct Olmesartan/Hct Olmertan Combi	Pharmacor Olmesartan Hctz Accuretic Mizart Hct (New) Irbesartan Hct Winthrop Irbesartan Hctz Amneal Irbesartan Hctz Mlabs Irbesartan Hctz Sandoz Irbesartan/Hct Sandoz Irbesartan/Hct Sandoz Teltartan Hct Sandoz Teltartan Hct Telmisartan Hctz An Co-Diovan Abisart Hct Avsartan Hct Blooms The Chemist Irbesartan Hctz Chemmart Irbesartan Hctz Karvezide Stada Irbesartan Hct Akm-Olmesartan Hctz Apo-Olmesartan Hctz Apo-Olmesartan Hctz	Olmesartan Hct - Myl Olmesartan/Hct Sandoz Olmetec Plus Apo-Telmisartan Hctz Micardis Plus Pritor Plus Tablets Telmigen Hct Telmisartan Hct Mylan 40/12.5 Mg Telmisartan Hct Mylan 80/12.5 Mg Telmisartan Hct Mylan 80/25 Mg Hydrene Apo-Valsartan Hctz Dilart Hct



DRUG BRAND

Low-Ceiling Diuretics, Excl. Thiazides (C03B)	Chlortalidone	Hygroton 25			
	Indapamide mono	Apo-Indapamide Sr Chemmart Indapamide Sr Dapa-Tabs Indapamide-Ga Indapamide An Sr	Indapamide Sandoz Insig Indapamide An Indapamide Sandoz Insi	Napamide Natrilix Natrilix Sr Odaplix Sr Odaplix Sr 1.5 Mg	Terry White Chemists Indapamide Sr Tenaxil Sr Tenaxil Sr 1.5Mg
	Indapamide Combo	Chemmart Perindo- pril/Indapamide	Coversyl Plus	Genrx Perindopril / Indapamide	
Low-Ceiling Diuretics, Excl. Thiazides (C03B)	Indapamide Combo	Idaprex Combi 4/1.25 Indopril Combi Indosyl Combi 4/1.25 Perindo Combi Perindopril And Indapamide-Bw	Perindopril And Indapamide-Gh Perindopril And Indapamide Ch 4/1.25 Perindopril And Indapamide Generi- chealth	Perindopril And Indapamide-Gh Perindopril And Indapamide An 4/1.25 Perindopril And Indapamide Ch 4/1.25	Prexum Combi Terry White Chemists Perindopril/ Indapamide
High-Ceiling Diuretics (Sulfonamide Plain) (C03C)	Furosemide (Frusemide)	Frusemide-Claris	Frusemide Sandoz Frusemide Sandoz Injection	Frusemide Winthrop Frusemide Winthrop High Dose	Furosemide An Urex
	Etacrynic Acid	Edecryn			
Potassium-Sparing Agents	Eplerenone	Eplerenone An	Espler	Inpler	Inspra
(Aldosterone Antagonists) (CO3D)	Spironolactone	Aldactone	Spiractin		
Diuretics and potassium-sparing agents In combination (C03E)	Amiloride + Hydrochlo- rothiazide	Amizide	Kaluril	Moduretic (Aspen)	
Low-ceiling diuretics and potassium- sparing agents (C03EA)	Hydrochlorothiazide + Triamterene	Hydrene			



Angiotensin Receptor Neprilysin Inhibitor (ARNi)

Angiotensin Receptor Neprilysin Inhibitor (ARNi) Angiotensin Receptor Neprilysin Inhibitor (ARNi) Entresto
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15

Glossary



Glossary

Α

Absolute risk reduction (ARR): An epidemiological measure for the change in risk of a given activity or treatment in relation to a control activity or treatment. It is the inverse of the number needed to treat (NNT).

ACE inhibitor (Angiotensin converting enzyme Inhibitor):A medication primarily used to treat hypertension (high blood pressure).

Acute coronary syndrome: Group of symptoms attributed to obstruction of the coronary arteries.

Angioedema: The rapid swelling (edema) of the dermis, subcutaneous tissue, mucosa and submucosal tissues.

Anaemia: A condition in which the blood contains a decreased amount of healthy red blood cells/haemoglobin to carry oxygen to the body's tissues, leading to tiredness and weakness.

Angiotensin II receptor blocker(ARB): A type of medication that modulates the renin-angiotensin-aldosterone system and is used primarily for the treatment of hypertension (high blood pressure) in patients intolerant to ACE inhibitors. They are also used in diabetic nephropathy (kidney damage due to diabetes) and chronic heart failure.

Angina: Known as angina pectoris when related to the heart; chest pain due to ischaemia of the heart muscle, generally due to obstruction or spasm of the coronary arteries.

Angiography: Radiographic visualisation of blood vessels following the introduction of contrast material into the vessels.

Anticoagulant: A class of drug that reduces the ability of the blood to clot

Arrhythmia: Abnormal electrical activity in the heart causing an irregular heartbeat.

Arthritis: A form of joint disorder that involves inflammation of one or more joints. There are over 100 different forms of arthritis. The most common form, osteoarthritis (degenerative joint disease), is a result of trauma to the joint, infection of the joint, or age. Other arthritis forms are rheumatoid arthritis, psoriatic arthritis, and related autoimmune diseases. Septic arthritis is caused by joint infection.

Aspirin: Also known as acetylsalicylic acid, aspirin is often used as an analgesic to relieve minor aches and pains, as an antipyretic to reduce fever, and as an anti-inflammatory medication. Aspirin has an antiplatelet effect by inhibiting the production of thromboxane, which under normal circumstances binds platelet molecules together to create a patch over damaged walls of blood vessels. Because the platelet patch can become too large and block blood flow, locally and downstream, aspirin is also used long-term, at low doses, to help prevent heart attacks, strokes, and blood clot formation in people at high risk of developing blood clots. Also, low doses of aspirin may be given immediately after a heart attack to reduce the risk of another heart attack or the death of cardiac tirculo.

Atherosclerosis: The gradual 'furring up' in the lining of the blood vessels due to the build-up of fatty plaques and clotted blood.

Atrial fibrillation: The most common type of abnormal heart rhythm. It involves irregular conduction of ventricular impulses that generate the heartbeat and causes symptoms that include palpitations, fainting, and chest pain.

Atrioventricular delay: The physiological delay in transmission of an impulse generated in the sinoatrial node. Allows the atria time to empty their contents (blood) into the ventricles before ventricular contraction begins.

В

Beta blocker: Beta blockers block the action of endogenous catecholaminesepinephrine (adrenaline) and norepinephrine (noradrenaline) —in particular on adrenergic beta receptors, of the sympathetic nervous system. They target the beta receptor found on the cells of heart muscles, smooth muscles, airways, arteries, kidneys and other tissues, which are part of the sympathetic nervous system, used for managing hypertension and arrhythmias.

Biomarker: An indicator of a biological state. A biomarker is objectively measured and evaluated as an indicator of a normal biological process, a pathogenic process, or a pharmacological response to a therapeutic intervention.

Bradycardia: In the context of adult medicine, this is a resting heart rate of under 60 beats per minute (BPM), although it is seldom symptomatic until the rate drops below 50 BPM. It sometimes results in fatigue, weakness, dizziness, and at very low rates fainting. A waking heart rate below 40 BPM is considered absolute bradycardia.

Brain natriuretic peptide (BNP): This molecule is secreted by the ventricles in response to excessive stretching/mechanical stress of heart muscle cells (cardiomyocytes), leading to a decrease in systemic vascular resistance and central venous pressure, as well as an increase in renal excretion of sodium (natriuresis).

C

Cardiac catheterisation: Insertion of a catheter into a chamber or vessel of the heart.

Cardiomyopathy: General term reflecting disease of the myocardium.

Cerebrum: The parts of the brain containing the cerebral cortex, as well as several subcortical structures, including the hippocampus, basal ganglia, and olfactory bulb.

Chronic kidney disease (CKD): Also known as chronic renal disease (CRD) is a progressive loss in renal function over a period of months or years. Chronic kidney disease is identified by a blood test for creatinine (serum creatinine level of >133 mmol/L or a creatinine clearance rate of 60 mL/min). Higher levels of creatinine indicate a lower glomerular filtration rate and as a result a decreased capability of the kidneys to excrete waste products.

Chronic obstructive pulmonary disease: A type of obstructive lung disease characterised by chronically poor airflow. It typically worsens over time. The main symptoms include shortness of breath, cough, and sputum production.

Cochrane review: A systematic review of primary research in an area of human healthcare or health policy. Internationally recognised as the highest standard in evidence-based healthcare.

Colour Doppler: Based on the principles of pulsed Doppler. Multiple sample volumes are evaluated along each sampling line. By combining them, a 2D image of intracardiac flow is generated. Velocities are displayed using a colour scale: flow toward the transducer displayed in orange/red, flow away from the transducer displayed as blue.

Computed tomography: Medical imaging procedure that utilises computer-processed X-rays to produce tomographic images or 'slices' of specific areas of the body; used for diagnostic and therapeutic purposes.

Continuous wave Doppler: This form of Doppler employs two dedicated ultrasound crystals, one for continuous transmission and a second for continuous reception, which permits measurement of very high frequency Doppler shifts or velocities.

Control event rate (CER): In epidemiology and biostatistics, the CER is a measure of how often a particular statistical event (such as response to a drug, adverse event or death) occurs within the scientific control group of an experiment.

Coronary artery disease: Hardening and narrowing of the coronary arteries as a result of atherosclerosis.

COX-2 selective inhibitors: A form of non-steroidal anti-inflammatory drug (NSAID) that directly targets cyclooxygenase-2, COX-2, an enzyme responsible for inflammation and pain.

Creatinine: A breakdown product of creatinephosphate in muscle that is usually produced at a fairly constant rate by the body (depending on muscle mass).

D

Defibrillate: Delivery of a therapeutic dose of electrical energy to the heart to depolarise the heart muscle, terminate dysrhythmia, and allow normal sinus rhythm to be re-established by the sinoatrial node.

Diabetes mellitus: A group of metabolic diseases in which a person has high blood sugar levels.

D





igitoxin: Has a similar structure and effects to digoxin (although the effects are longer-lasting). Unlike digoxin (which is eliminated from the body via the kidneys), it is eliminated via the liver, so could be used in patients with poor or erratic kidney function. However, it is now rarely used in current Western medical practice.

Digoxin: A purified cardiac glycoside extracted from the foxglove plant, Digitalis lanata. Used in the treatment of various heart conditions (atrial fibrillation, atrial flutter, and sometimes heart failure).

Diuretic: A substance that promotes the production of urine and increases the excretion of water and sodium from the body.

Dyspnea: Shortness of breath or breathlessness.

Ε

Echocardiogram (ECHO): An ultrasound of the heart.

Edema: See Oedema.

Electrocardiogram (ECG): Records the heart's rhythm, frequency of beats, and electrical conduction.

Electrolytes: These are compounds that ionise when dissolved in a suitable ionising solvent such as water, and include most soluble salts, acids, and bases (i.e. Na+, K+, H+Cl-).

Empirical [knowledge]: Knowledge gained by means of direct and indirect observation or experience.

Euvolemia: The state of normal body fluid volume.

F

Fractional flow reserve: A guide-wire-based procedure that can accurately measure blood pressure and flow through a specific part of a coronary artery.

G

Gated SPECT (myocardial): SPECT triggered by electrocardiogram to obtain differential information about the heart during various parts of its cycle. Can be used to obtain quantitative information about myocardial perfusion, thickness, and contractility of the myocardium, and also to allow calculation of left ventricular ejection fraction, stroke volume, and cardiac output.

Н

Heart failure with preserved ejection fraction (HFpEF): Heart failure with 'preserved' ejection fraction is commonly understood to be a manifestation of signs and symptoms of heart failure with a ventricular ejection fraction greater than 50% (i.e. without a major reduction in systolic function).

Heart failure with reduced ejection fraction (HFrEF): Reduced contraction and emptying of the left ventricle (LV) <50% i.e. with a reduction in systolic function.

Hematocrit: Also known as packed cell volume (PCV) or erythrocyte volume fraction (EVF), is the volume percentage (%) of red blood cells in blood. It is normally 45% for men and 40% for women. It is considered an integral part of a person's complete blood count results, along with hemoglobinconcentration, white blood cell count, and platelet count.

Haemodynamic: The physical aspect of blood circulation, including cardiac function and peripheral vascular physiologic characteristics.

Hydralazine: A short-term, direct-acting smooth muscle relaxant used to treat hypertension by acting as a vasodilator primarily in arteries and arterioles.

Hyperkalaemia: An abnormally high potassium concentration in the bloodstream.

Hypertension: High blood pressure (a systolic blood pressure of >140mmHa).

Hypertrophy: Excessive development of an organ or tissue due to the enlargement of its component cells. When related to the heart, it is the enlargement of myocardial cells leading to thickening of the muscle fibres.

Hypotension: Low blood pressure (a systolic blood pressure of <90mmHa).

Hypoxemia: An abnormally low level of oxygen in the blood.

ı

Inotropic: Affecting the force of muscle contraction (i.e. of the heart).

Ischaemia: Deficiency of blood supply to the heart muscle, due to obstruction or constriction of the coronary arteries.

Isosorbidedinitrate (ISDN): A nitrate used pharmacologically as a vasodilator, e.g. in angina pectoris.

Insulin resistance: a pathophysiological condition in which the cells of the body fail to respond to the normal actions of the hormone insulin, leading to hyperglycemia.

П

Leucocytes: Also called white blood cells (WBCs), are the cells of the immune system that are involved in defending the body against both infectious disease and foreign invaders. All leukocytes are produced and derived from a multipotent cell in the bone marrow known as a hematopoieticstem cell. Leucocytes are found throughout the body, including the blood and lymphatic system.

M

Magnetic resonance imaging: Medical imaging technique used in radiology to visualise internal structures of the body in detail.

Mineralocorticoid receptor antagonist (MRA): A class of drug that blocks receptors that bind aldosterone and other corticosteroids. In chronic heart failure, they are used in addition to other drugs for additive diuretic effect, which reduces edema and the cardiac workload.

Mitral regurgitation: This is where blood leaks back through the mitral valve in the heart as the valve does not close properly. This increases the pressure in the left atrium and in the blood vessels coming from the lungs. This may lead to various problems and symptoms, depending on the severity of the leak. Medication can help to ease symptoms. Surgery to repair or replace the valve may be needed

Mitral stenosis: Narrowing of the mitral valve of the heart.

M-Mode echocardiography: Among the earliest forms of cardiac ultrasound. The very high temporal resolution by M-Mode imaging permits: identification of subtle abnormalities such as fluttering of the anterior mitral leaflet due to aortic insufficiency or movement of vegetation, and so that dimensional measurements or changes, such as chamber size and endocardial thickening, can be readily appreciated.

Myocyte: The type of cell found in muscle tissue. Myocytes are long, tubular cells that develop from myoblasts to form muscles in a process known as myogenesis. There are various specialised forms of myocytes: cardiac, skeletal, and smooth muscle cells, with various properties. Cardiacmyocytes are responsible for generating the electrical impulses that control the heart rate. Skeletal muscle fibres tend to have peripheral nuclei while cardiac muscle fibres are centronucleated.

N

Na+/K+-ATPase: An enzyme 'pump' in the plasma membrane of all animals cells which pumps sodium out of cells while pumping potassium into the cell.

Necrosis: Accidental cell death.

Non-steroidal anti-inflammatory drugs (NSAIDs): A class of drugs that provides analgesic (pain-killing) and antipyretic (fever-reducing) effects, and, in higher doses, anti-inflammatory effects. The most prominent members of this group of drugs are aspirin, ibuprofen and naproxen. Paracetamol (acetaminophen) is generally not considered an NSAID because it has little anti-inflammatory activity.

NT-proBNP: N-terminal BNP (brain natriuretic peptide).

0

Oedema: The swelling of tissues, normally in the lower limbs, due to the accumulation of fluid.

Oxygen saturation (SpO2): In medicine, oxygen saturation (SpO2), commonly referred to as "sats", measures the percentage of hemoglobin binding sites in the bloodstream occupied by oxygen.





P

Paroxysmal nocturnal dyspnoea: difficulty breathing at night.

Percutaneous: A medical procedure in which access to inner organs or other tissue is performed via needle puncture of the skin, rather than by using an "open" approach in which inner organs or tissue are exposed.

Peripheral oedema: swelling of the ankles, feet or legs.

Positron emission tomography (PET): A nuclear medicine, functional imaging technique that produces a three-dimensional image of functional processes in the body. The system detects pairs of gamma rays emitted indirectly by a positron-emitting radionuclide (tracer), which is introduced into the body on a biologically active molecule. Three-dimensional images of tracer concentration within the body are then constructed by computer analysis. In modern PET-CT scanners, three-dimensional imaging is often accomplished with the aid of a CT X-ray scan performed on the patient during the same session, in the same machine.

Preload: The end diastolic pressure that stretches the right or left ventricle to its greatest geometric dimensions under variable physiologic demand (i.e. the initial stretching of the cardiomyocytesprior to contraction).

Proarrhythmic: Having a new or more frequent occurrence of preexisting arrhythmias.

Prostaglandin: Messenger molecules that have a pivotal role in vascular tone.

Prothrombin: The precursor of thrombin which is proteolytically cleaved to form thrombin in the coagulation cascade, which ultimately results in the reduction of blood loss through clotting.

Pulsed Doppler: This form of Doppler permits sampling of blood flow velocities from a specific region, in contrast to continuous wave Doppler, which records signals along the entire length of the ultrasound beam. It is always performed with 2D guidance to determine the sample volume position.

R

Raynaud's phenomenon: Occurs when the extremities of the body, usually the fingers and toes, change colour and may become painful. It is due to a narrowing (constriction) of the small blood vessels on exposure to the cold, or to a change in temperature, or to emotional stress. In most cases, the cause is not known. In some cases, it is a symptom of an underlying condition such as scleroderma, lupus, or rheumatoid arthritis. The main treatment is to keep warm. Medicines to open up the blood vessels are used in some cases.

Relative risk reduction (RRR): A measure in epidemiology, which is calculated by dividing the absolute risk reduction (ARR) by the control event rate (CER). Like many other epidemiological measures, the same equations can be used to measure a benefit or a harm (although the signs may need to be adjusted, depending upon how the data was collected).

Renin-angiotensin-aldosterone system (RAAS): The reninangiotensin-aldosterone system is a hormone system that regulates blood pressure and fluid balance.

Revascularisation: A surgical procedure for the provision of new, additional or augmented blood supply to a body part or organ.

Reverse cardiac remodeling: In cardiology this term implies an improvement in ventricular mechanics and function following a remote injury or pathologic process.

S

Single-photon emission computed tomography (SPECT): A nuclear medicine tomographic imaging technique using gamma rays. It is very similar to conventional nuclear medicine planar imaging using a gamma camera. However, it is able to provide true 3D information. This information is typically presented as cross-sectional slices through the patient, but can be freely reformatted or manipulated as required

Sinus rhythm: The normal beating of the heart, as measured by an electrocardiogram (ECG).

Spirometry: A lung function test that measures the amount (volume) and/or speed (flow) of air that can be inhaled and exhaled.

Statin: A class of drugs used to lower cholesterol levels by inhibiting the enzyme HMG-CoA reductase, which plays a central role in the production of cholesterol in the liver (which produces about 70% of total cholesterol in the body).

Stent: A thin wire-mesh structure that acts as a permanent prosthetic lining to keep an artery inflated and to maintain its patency.

Stroke volume: The volume of blood pumped from one ventricle of the heart with each beat.

Sudden death: Unexpected death that is instantaneous or occurs within minutes or hours from any cause other than violence. Usually from cardiac causes, preceded by abrupt loss of consciousness within one hour of the onset of acute symptoms. Other forms of sudden death may be non-cardiac in origin. Examples include respiratory arrest (such as airway obstruction in cases of choking or asphyxiation), toxicity or poisoning, anaphylaxis, or trauma.

т

Thromboembolic stroke: An ischaemic stroke, caused by blockage of a blood vessel via thrombosis or arterial embolism.

Thyroid-stimulating hormone: (also known as thyrotropin, TSH, or hTSH for human TSH). Thyroid-stimulating hormone regulates the endocrine function of the thyroid gland.

Tissue Doppler imaging (TDI): The principles of Doppler echocardiography are used to quantify the higher-amplitude, lower-velocity signals of myocardial tissue motion. TDI can be performed in pulsed-wave and colour modes.

Transesophagealechocardiography (TOE): A specialised probe containing an ultrasound transducer at its tip is passed into the patient's esophagus. This allows image and Doppler evaluation from a location directly behind the heart.

Troponin: A complex of three regulatory proteins (troponin C, troponin I, and troponin T) that is integral to muscle contraction in skeletal muscle and cardiac muscle, but not smooth muscle.

V

Vasodilator: A drug that causes widening of blood vessels due to relaxation of smooth muscle cells within the vessel walls.

Venodilator: A drug that causes widening of the veins due to relaxation of the vascular smooth muscle in the walls of veins.

Ventricular arrhythmia: A life-threatening arrhythmia that occurs in the ventricles of the heart and involves an abnormal rate or rhythm of the heartbeat.

W

Warfarin: An anticoagulant normally used in the prevention of thrombosis and thromboembolism, that is the formation of blood clots in the blood vessels and their migration elsewhere in the body, respectively. Warfarin is commonly but incorrectly referred to as a blood thinner.

#

2D echocardiography: A 2D image is generated from data obtained mechanically (mechanical transducer) or electronically (phased-array transducer). The signal received undergoes a complex manipulation to form the final image displayed on the monitor including signal amplification, time-gain compensation, filtering, compression and rectification.

3D echocardiography: Similar in principle to 2D echocardiography, but it enables detailed anatomical assessment of cardiac pathology, particularly valvular defects, and cardiomyopathies.









For questions regarding HeartPlan or to order materials please contact cardio.au@novartis.com



