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Chronic heart failure

Update (2024) – Point of Care summary

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This is the English summary. The complete guideline is available in Dutch and French at https://www.worel.be/home.

Hyperlink to source guideline: www.worel.be:
Dutch: Chronisch hartfalen
French: Insuffisance cardiaque chronique

English translation by E-lango.com

1 General

1.1 Target

This guideline formulates recommendations regarding:

- the diagnosis and clarification of heart failure;
- the non-drug treatment of chronic heart failure (including self-management and self-care, education, exercise, etc.);
- the drug treatment of chronic heart failure;
- the multidisciplinary rehabilitation and follow-up of patients with chronic heart failure (including type of cardiac rehabilitation;
- the referral of patients with chronic heart failure and initiation of palliative care.

1.2 Target population

Adult patients (+18 years) with diagnosed chronic heart failure.

2 How is heart failure diagnosed and clarified?

2.1 In whom and with which risk factors does the general practitioner detect heart failure?

- Be alert for the occurrence of heart failure in patients with hypertension, diabetes, history of myocardial infarction and asymptomatic left ventricular systolic dysfunction (**GRADE 1A**).
- Other risk factors are also important in the occurrence of heart failure and may prompt the GP to look for heart failure (active case-finding) (**GRADE 1B**).
- Other risk factors include:
  - Coronary or peripheral vascular disease,
  - Congenital heart defects,
  - (Cardio)myopathy,
  - Heart valve disease,
  - Cardiac arrhythmias,
  - Pericardial disorders,
  - Diabetes medication (except metformin),
  - Acute rheumatism,
  - Exposure to cardiotoxic substances (alcohol, chemotherapy, cocaine, medications, e.g., glitazones),
  - 'High output failure' (excessive strain on the heart due to thyroid disease, anaemia, Paget's disease, beriberi, arteriovenous fistula, pheochromocytoma, which can provoke heart failure),
  - Hyperlipidaemia,
  - Mediastinal radiotherapy,
  - Obesity,
  - Smoking,
  - Sexually transmitted diseases (HIV, syphilis),
  - Sleep apnoea.

2.2 How can general practitioners recognize patients with heart failure?

- With symptoms such as exertional dyspnoea, fatigue/reduced exercise tolerance and peripheral oedema, consider the possibility of heart failure. If suspicion arises, ask about orthopnoea and paroxysmal nocturnal dyspnoea (**GRADE 1C**).
- Clinical diagnosis is more difficult (more false positives) in older patients, in women, in obese patients, in patients with symptoms of coronary ischemia and with pulmonary diseases such as COPD (symptoms of heart failure are also often present with these other conditions).

2.3 While taking the medical history, what does the family physician ask patients at risk of heart failure?

- Question symptoms and complaints in patients in whom heart failure is suspected (**GRADE 1C**).
- In the medical history assess for:
  - documented history of cardiovascular disease;
  - presence of cardiac symptoms (chest pain, palpitations);
  - medication use: drugs with negative-inotropic effect, causing salt and water retention;
  - other causative and aggravating conditions: hyper- or hypothyroidism, anaemia, myopathy, acute rheumatism, mediastinal irradiation, obstructive sleep apnoea syndrome.
- Pay attention to the risk factors (*see above*) in the occurrence of heart failure and check for evidence of COPD (**GRADE 1B**).
- Also take a family history (atherosclerotic diseases, sudden cardiac death, myopathy, conduction disorders (pacemaker necessary), tachyarrhythmia, cardiomyopathy ...).

2.4 What is the value of symptoms and signs in the diagnosis of heart failure?

- Symptoms usually described in patients suspected of chronic heart failure include: dyspnoea, exertional dyspnoea, orthopnoea, paroxysmal nocturnal dyspnoea, palpitations, fatigue. However, the specificity and sensitivity of each of these symptoms separately are insufficient to diagnose chronic heart failure (**GRADE 1C**).

- Without comorbidities (which can cause the same symptoms), the general practitioner can assess the severity of heart failure symptoms using the New York Heart Association (NYHA) classification (**GRADE 1C**).
- The signs of heart failure with the highest specificity (but with low sensitivity) are increased central venous pressure, lateral enhancement of the ictus cordis, presence of crepitations at the base of the lungs and peripheral oedema (**GRADE 1C**).
- No single symptom or sign by itself allows the diagnosis of heart failure to be made or ruled out. However, a suggestive history and typical symptoms make the diagnosis of heart failure more likely (**GRADE 1C**).

2.5 Which investigations are recommended to confirm or rule out heart failure?

- Refer patients suspected of heart failure (especially with a cardiovascular history or risk factors) to the cardiologist for echocardiography to confirm heart failure (**GRADE 2C**). Echocardiography is necessary to distinguish the type of heart failure.
- If, based on the history and clinical examination, the diagnosis remains uncertain, test for natriuretic peptides (NP), possibly preceded by an electrocardiogram (ECG) to rule out heart failure (**GRADE 2C**).
- Chest x-ray cannot be used to rule out heart failure.
- As part of a more complete clarification, an initial laboratory examination of red and white blood cells, haemoglobin, haematocrit, glycaemia, creatinine, potassium, sodium and TSH (thyroid-stimulating hormone) is recommended (**GRADE 1C**).

2.6 What is the differential diagnosis for heart failure?

- It is important to rule out other diagnoses/causes that may suggest (certain aspects of) heart failure (**GRADE 1C**):
  - obesity,
  - chest disease (lung, diaphragm, thoracic wall),
  - venous vascular insufficiency of the lower extremities,
  - medication-induced oedema of the malleolus (including calcium inhibitor of the dihydropyridine group),
  - medication-induced water retention (including NSAID),
  - hypoalbuminaemia,
  - intrinsic kidney or liver disease,
  - pulmonary embolism,
  - COPD,
  - depressive and/or anxiety disorders,
  - severe anaemia or thyroid disorders.

3 What kind of self-management support and self-care support is recommended in patients with chronic heart failure?

3.1 Education

- Adequately support the patient with chronic heart failure in order to facilitate treatment and self-care, and if possible self-management, and ensure adequate patient education (**GPP**).
- Patient education should be tailored to each patient's individual needs and preferences (**GPP**). Repeat patient education over time.
- Discuss the following topics/aspects (not exhaustive) as part of adequate patient education (**GPP**):
  - Chronic heart failure (aetiology, pathophysiology, prognosis, including if necessary early care planning, etc.);
  - Non-drug regimen;
  - Drug regimen.
- If necessary, refer the patient to other health care providers (e.g., pharmacist, heart failure nurse, physiotherapist, psychologist, heart failure educator, etc.) (**GPP**).

3.2 Non-drug interventions

3.2.1 Exercise

- Encourage patients with heart failure to exercise within their capabilities (**GPP**).
- Recommend exercise to all patients with heart failure, regardless of which subgroup they belong to (**GPP**).
- Gentle build-up schedule and training frequency of 2-3 times per week (total of at least 150 minutes of moderate intensity exercise) for 12 weeks, followed by a maintenance programme.

3.2.2 Self-monitoring of weight changes

- Ask the patient to weigh themselves once a day at the same time and in case of weight gain of more than 2 kilos in 3 days contact the relevant health care provider (**GPP**).

- Provide adequate information and clear instructions about this.

3.2.3 Flexible diuretic regimen

- Only as part of self-management, provided the heart failure is adequately controlled and the patient (the informal caregiver or reference person) has adequate knowledge of the condition.
- Make sure the home care nurse, heart failure nurse and reference pharmacist are informed.
- Determine the target weight (or 'dry weight') with the patient and/or the person managing their treatment.
- When instituting a flexible diuretic regimen in therapy-tolerant and clinically stable patients (if this is what they want): instruct them to temporarily increase or decrease the dose of diuretics, according to an agreed schedule, according to symptoms and any known or predictable fluid balance problems (extra dose in case of rapid body weight gain (e.g., ≥ 2 kg in 3 days) or excessive salt intake; lower dose in case of diarrhoea, vomiting, fever, hot weather, etc.) (**GPP**).
- It is useful to record the flexible diuretic policy in the patient's diary.

3.2.4 Fluid restriction

- Recommend fluid restriction in case of (**GPP**):
  - excessive fluid consumption (>1.5 to 2 litres per day),
  - patients with severe symptoms of heart failure, especially with hyponatraemia due to fluid overload.
- When recommending fluid restriction in patients with severe symptoms or HFrEF and/or multi-organ disease (renal and hyponatraemia):
  - Remember that during hot or humid periods, or in case of vomiting/diarrhoea, fluid intake should be increased to avoid dehydration.

3.2.5 Salt restriction

- Advise the patient not to add salt when preparing meals and to limit intake of products high in salt (crisps, smoked foods, bread, cheese, convenience foods,...) (**GPP**).
- Do not recommend salt substitutes since salt is then replaced by potassium.
- If necessary, refer patients with heart failure to a dietitian for general advice regarding low-salt diets.

3.2.6 Alcohol use/smoking/drugs

- Provide education regarding alcohol consumption and its risks.

- Motivate the patient with heart failure caused by excessive alcohol consumption to stop drinking alcohol (**GRADE 1C**). If complete alcohol cessation is necessary, the patient should receive adequate support.
- Encourage the patient with heart failure to quit smoking and recommend smoking cessation counselling (**GPP**).
- Advise, if necessary, against the use of drugs (**GPP**) and suggest counselling, if necessary, to stop drug use.

3.2.7 Compliance

- If necessary, motivate the patient to improve compliance (**GPP**).
    - Motivational conversations can be part of strategies to promote compliance.
    - Take into consideration the patient and involve informal caregivers/family and/or other health care providers (e.g., home pharmacist) as appropriate.
    - If compliance is poor, referral to a psychologist may be appropriate.
    - Assess the extent to which the patient or caregiver is able to manage medication (incl. ingestion) and whether support/supervision/assistance is needed.
- It is possible to activate home care based on the nursing diagnosis of 'risk of poor compliance'.

3.2.8 Weight loss

- Motivate the patient with heart failure and overweight or obesity to lose weight (**GPP**).
- Weight loss is achieved through the combination of a healthy diet combined with exercise.
- The patient may benefit from dietary follow-up and an exercise programme.

3.2.9 Sexual activities

- Sexual activities are allowed, taking into account exercise capacity. Provide education and counselling for sexual problems, also for the partner (GPP).
- Cave: risk of hypotension when sildenafil is used in combination with nitrates, vericiguat and antihypertensives.

3.2.10Vaccinations

- Recommend that patients be vaccinated against influenza every year (starting in mid-October) (GRADE 1B**)**.. Suggest a 'cocoon' vaccination strategy (family and friends of the patient).
- Recommend that the patient be vaccinated against pneumococcus (**GPP**).
- Recommend that the patient with heart failure be vaccinated against COVID-19, preferably at the same time as the influenza vaccination (**GPP**).
- Simultaneous vaccination:
    - Simultaneous vaccination against influenza and COVID-19 (in the contralateral arms) is safe and effective.
    - The COVID-19 vaccine can be administered simultaneously with the influenza vaccine and pneumococcal vaccine. If they are not given on the same day, for optimal immune response, respect an interval of at least 1 month between 2 different vaccines.
- Consult the National Health Council (HHR) or the Belgian Centre for Pharmacotherapeutic Information (BCFI/CBIP) for possible changes in vaccination schedules and reimbursement conditions.

4 Which drug treatment is (not) recommended in patients with chronic heart failure?

4.1 General

- If heart failure is suspected or already known without clarity about the type of heart failure, referral to the cardiologist is needed for further diagnosis (as treatment depends on it) (**GPP**).
- The cardiologist generally starts the medication (**GPP**). The role of the general practitioner is to follow up on the drug treatment, including up-titration of the dose and monitoring the patient's clinical condition in consultation with the cardiologist.
- When heart failure is strongly suspected, if referred, the general practitioner can start the medication (especially loop diuretics) ahead of time or adjust the medication themself if the patient cannot or does not want to see the cardiologist (**GPP**).

4.2 Starting heart failure medication

4.2.1 For all types of heart failure (HFrEF - HFmrEF - HFpEF)

- Start diuretics (preferably loop diuretics, or thiazide diuretics in case of undesirable diuresis peak) in the patient with fluid build-up, regardless of ejection fraction, until clinical improvement in fluid retention (GRADE 1C).
- The maximum dose is the lowest possible active dose that creates a euvolaemic state. Patient weight is a good indicator.

Product	Starting dose	Maximum dose
Loop diuretics		
Furosemide	20-40 mg	40-240 mg
Bumetanide	0.5-1.0 mg	8 mg
Torasemide	10 mg	20 mg
Thiazide diuretics		
Hydrochlorothiazide*	25 mg	12.5-100 mg
Chlortalidone	25 mg	12.5-100 mg

** Hydrochlorothiazide is available only in association with bisoprolol, nebivolol, cilazapril, lisinopril, ramipril, zofenopril or enalapril. These fixed associations complicate titration, with the risk of overdosing on the other component when the target or maintenance dose is reached. Hydrochlorothiazide can also be prepared by your pharmacist on prescription.*

4.2.2 For patients with HFrEF (EF<40%)

- Start-up of an ACE inhibitor (or sartan in case of intolerance) (**GRADE 1A**) or an ARNi (**GRADE 1B**), a beta blocker (**GRADE 1A**), an aldosterone antagonist (**GRADE 1C**) and an SGLT-2 inhibitor (**GRADE 1B**) is in principle done in secondary care (see www.bcfi.be and RIZIV for reimbursement conditions).
- When secondary care explicitly asks to help support the initiation of this medication, it should be clear:
  - how specifically this medication should be started and up-titrated;
  - when it should be interrupted or modified (in case of adverse effects).
- ACE inhibitors:

Product	Starting dose	Target dose
Enalapril	2.5 mg/day	20 mg/day (1 to 2 doses).
Ramipril	1.25 mg/day	10 mg/day
Captopril	6.25 mg/day (1 to 3 doses)	3 x 50 mg/day
Lisinopril	1.25 mg/day (1 dose)	20 mg/day (1 dose)
Perindopril	2 mg/day (1 dose)	4 mg/day (1 dose)

- Sartans – to replace ACE inhibitors in case of tickly cough.

- ARNis: specific reimbursement conditions – application by physician-specialist.
- Beta blockers:

Product	Starting dose	Up-titration	Maximum dose
Metoprolol SR/XL	25 mg 1x/day (NYHA II)	x2 every 2-4 weeks	200 mg 1x/day
	12.5 mg 1x/day (NYHA III-IV)	x2 every 2-4 weeks	
Bisoprolol	1.25 mg 1x/day	Week 2 : + 1.25/day -> 2.5 mg Week 3 : + 1.25/day -> 3.75 mg Week 4 : + 1.25/day -> 5 mg Week 5-8 : + 2.5/day -> 7.5 mg Week 9 : + 2.5/day -> 10 mg	10 mg 1x/day
Carvedilol	3.125 mg 2x/day	X2 every 2 weeks -> 25-50 mg	50 mg 2x/day
Nebivolol	1.25 mg 1x/day		10 mg 1x/day or 5 mg 2x/day

- Aldosterone antagonists: for gynaecomastia due to spironolactone, opt for eplerenone:

Product	Starting dose	Maximum dose
Spironolactone	12.5 mg/day	50 mg/day in 1 dose
Eplerenone	25 mg/day	50 mg/day

- SGLT-2 inhibitors: empagliflozin or dapagliflozin 10 mg/day – specific reimbursement conditions – request by physician-specialist.

4.2.3 For patients with EF>=40% (HFmrEF/HFpEF)

Consider initiation of an SGLT-2 inhibitor in patients with an EF>=40 via the cardiologist (**GRADE 2B**).

4.3 Digoxin

In the treatment of chronic heart failure, the use of digoxin (because of near therapeutic-toxic margin, risk of adverse reactions, availability of other options) is no longer recommended (**GPP**).

4.4 Contraindicated medication in heart failure

Avoid drugs with known adverse effects on heart failure, such as NSAIDs, COX-2 inhibitors, glitazones, class 1A and 1C antiarrhythmics, verapamil, diltiazem, moxonidine, itraconazole, salbutamol and TNF-alpha blockers (**GPP**).

5 What kind of follow-up is recommended in patients with chronic heart failure after starting medication?

5.1 Clinical follow-up

- At every consultation of a patient with chronic heart failure, ask about the following (**GPP**):
    - Ask the patient about symptom control (e.g., exercise tolerance), compliance, and possible adverse reactions to treatment;
    - Check blood pressure, pulse, weight and symptoms/clinical signs of fluid overload. Based on this, medication can be further increased or decreased (flexible diuretic policy, up-titration of started medication).
- Hypotension and bradycardia are acceptable if the patient tolerates the medication well.
    - If systolic blood pressure <90 mmHg or frequent falls due to hypotension: consider medication adjustment.
    - With new bradycardia or heart rhythm <50 min, further follow-up is required (ECG) to rule out significant AV block.

5.2 Follow-up of medication via the lab

- Monitor renal function (eGFR, creatinine), serum sodium and potassium before start and 1 to 2 weeks after start of medication or in case of dose increase of diuretics, RAAS inhibitors (ACE inhibitor, sartan), aldosterone antagonists or ARNi (**GPP**).
- Once the target dose or maximum tolerated dose is reached and the patient is stable (**GPP**):
    - Follow up treatment by monitoring renal function (eGFR, creatinine) and serum sodium and potassium at 3 months, at 6 months during the first year and annually thereafter as long as the patient remains stable.
    - Increase the frequency of follow-up as appropriate, i.e.
        - if the patient is unstable;
        - if renal function is severely impaired (eGFR<30 ml/min./1.73 m²);
        - in frail elderly people;

- in patients with history of renal or electrolyte disorders.

5.3 What to do when renal impairment occurs?

- When monitoring renal function, always evaluate the patient's fluid overload status. If there are no signs of fluid overload: taper off diuretics.
    - **Note that fluid overload leads to renal oedema and decline in renal function. In that case, increase the dose of loop diuretics.**
- If kidney function declines, check the drug regimen. Actively check drug use with the patient and stop the use of nephrotoxic medications (NSAIDs,...).
- Recommendations in case of renal impairment after start or dose increase of aldosterone receptor antagonists (**GPP**):
    - If eGFR 20-44 ml/min/1.73 m²: halve the dose and check eGFR again after 2 weeks.
    - If eGFR <20 ml/min/1.73 m²: discontinue aldosterone receptor antagonist and check eGFR again after 2 weeks.
    - If eGFR remains low (< 30 ml/min/1.73 m²): consult or refer to a cardiologist or nephrologist.
- Recommendations in case of renal impairment following start-up or dose increase of a RAAS inhibitor (ACE inhibitor, sartan)(**GPP**):
    - If eGFR 30-60 ml/min/1.73 m²: a certain decrease in eGFR is normal, a decrease < 20% from baseline – if eGFR remains >30 ml/min/1.73 m² – is acceptable.
    - If eGFR between 20-30 ml/min/1.73 m²: halve the dose and check eGFR again after 2 weeks.
    - If eGFR <20 ml/min/1.73m2 or remains low (<30 ml/min/1.73m2): consult or refer to a cardiologist or nephrologist.
- Recommendations in case of renal impairment after start-up or dose increase of ARNi (**GPP):**
    - If eGFR 30-60 ml/min/1.73 m²: a certain decrease in eGFR is normal, a decrease < 50% of baseline – if eGFR remains >30 ml/min/1.73 m² – is acceptable.
    - If the eGFR falls to <30 ml/min/1.73 m² or by more than 50% of the initial value, a cardiologist or nephrologist should be consulted.

5.4 What to do in case of electrolyte disorders?

- Recommendations for the management of hyperkalaemia (**GPP**):

    - Potassium <=5.5 mmol/l is acceptable.
    - Potassium >5.5 mmol/l:
        - Consider repeating the measurement without disturbing blood flow (without tourniquet) in the general practice or lab.
        - Recommend stopping intake of potassium-containing foods (e.g., salt substitutes) or potassium supplements.
        - Advise discontinuation of nephrotoxic drugs such as NSAIDs (these increase potassium levels).
        - When using an aldosterone antagonist (spironolactone, eplerenone): halve the dose and check potassium again after 2 weeks.
        - If a RAAS inhibitor (ACE inhibitor, sartan) or ARNi is used in patients with HFrEF and potassium is still high: consult with the cardiologist or nephrologist to consider treatment with a potassium chelator.
- Recommendations for the management of hypokalaemia (**GPP**):
    - Potassium 3.0-3.5 mmol/l: if possible, increase the dose of RAAS inhibitor (ACE inhibitor, sartan)/ARNi and/or add an aldosterone antagonist, stop or reduce the dose of potassium-lowering diuretics (loop and thiazide diuretics) and/or give potassium supplements. Monitor potassium closely after adjustments to therapy (+/- 3 days).
    - Potassium <3.0 mmol/l: the same recommendation applies, but is more urgent. If necessary, consult the cardiologist or nephrologist.
- Recommendations for the management of hyponatraemia (**GPP**):
    - 130-135 mmol/l: consider adjustment of diuretic treatment (loop/thiazide diuretics) taking into account the patient's fluid overload status, salt intake and/or fluid restriction and check again after 2 weeks.
    - <130 mmol/l: the same recommendation applies, but is more urgent. If necessary, consult the cardiologist or nephrologist.

6 What kind of follow-up and treatment are recommended in patients with iron deficiency with and without anaemia?

1. Iron deficiency (defined as a serum ferritin <100 ng/ml or serum ferritin between 100-299 with a transferrin saturation (TSAT) <20%, with or without anaemia) is a common comorbidity in patients with decreased ejection fraction (EF<40%) and

confers reduced exercise tolerance, increased risk of hospitalization for heart failure and high mortality.

2. Following the annual blood test, determine, in patients with HFrEF, ferritin and transferrin saturation to determine whether intravenous iron treatment is required (**GPP**).
3. Do not give oral iron because of no effect and adverse effects.
4. Consider referral of patients with EF<40% as well as iron deficiency with or without anaemia for intravenous iron treatment in the day clinic (**GRADE 2B**).

7 What kind of multidisciplinary care is recommended in patients with chronic heart failure?

1. Include the patient with chronic heart failure, especially those with repeated hospitalizations for HFrEF, in a structured care programme (**GPP**), i.e., a patient-centred multidisciplinary programme, including self-care and management, early care planning palliative care,...
2. If a structured patient-centred plan around drug follow-up and up-titration is provided by the hospital, follow it up in primary care (**GPP**). Optimal transition of care can reduce the risk of avoidable readmission and mortality and increase patient satisfaction.
3. Upon discharge of a patient after hospitalization for heart failure: schedule a consultation or home visit after 7 to 10 days (**GPP**).
4. If deemed necessary: initiate home care.

8 What kind of (cardiac) rehabilitation is recommended in patients with chronic heart failure?

- Offer patients with chronic heart failure long-term structured cardiac rehabilitation (by a multidisciplinary team), and intervene here if necessary (**GRADE 1C**).
    - Structured cardiac rehabilitation consists of somatic (initial/final examination, medication, exercise therapy), educational (information/advice/support), psychological (counselling) and social (involving family) components.
    - It is important to motivate patients with heart failure to actively participate in structured cardiac rehabilitation.

- Offer patients with chronic heart failure a personalized, exercise-based rehabilitation programme, in a form and setting (home, hospital or neighbourhood) that is easily accessible to them (**GRADE 1C**).
    - The training programme for patients with heart failure preferably consists of a combination of moderate or moderately intensive endurance training (70-80% VO_2peak) and dynamic strength training.
    - It is important to properly match the intensity of the endurance training to the optimal training heart rate for the patient or according to the modified Borg scale.
- The rehabilitation programme should also include psychological counselling and patient education (**GPP**).
- In the case of acute hospitalization of the patient: start the rehabilitation programme immediately afterwards, as part of the follow-up (**GPP**).
- At the end of the rehabilitation programme (**GPP**):
    - Inform and advise patients on further structured aftercare measures;
    - Provide the patient with an individual daily exercise plan, based on the level of exercise achieved during rehabilitation and taking into account risk factors and the results of the last exercise test (possibly spirometry).

9 When is referral and palliative care of patients with chronic heart failure recommended?

- Routine follow-up by a cardiologist (1-2 per year) is recommended for any patient with reduced ejection fraction (EF<50%) and any patient in NYHA stage III-IV (**GPP**).
- Refer patients with chronic heart failure to a cardiologist (**GPP**):
    - if their condition is not under control (persistent symptoms and/or signs of heart failure, new episode of acute decompensation,...);
    - if they experience another heart incident;
    - In case of a wish to have a child;
    - in case of severe and prolonged dehydration despite treatment.
- **Early care planning and the timely initiation of palliative care are essential**. In consultation with the treating specialists, the patient and the family caregiver, initiate palliative care in the following cases (**GPP**):
    - frequent hospitalizations for heart failure;
    - persistent symptoms despite optimal therapy;
    - negative response to the 'surprise question' (would you be surprised if your patient dies in the next 12 months?);
    - the patient is not eligible for heart transplant or support heart;

- symptomatic arrhythmias or ICD shocks for which no further treatment is possible;
- severe comorbidity with negative impact on quality of life.

Hyperlink to source guideline: www.worel.be:

Dutch: Chronisch hartfalen

French: Insuffisance cardiaque chronique

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