

Guideline topic: Management of Chronic Heart Failure

General comments: Update of SIGN 95

Search coverage

Systematic reviews

Databases covered: Medline, Embase, Cochrane Library Dates covered: 2006-2014

Total hits: 3900

Sifted result: 265

Papers requested: See table below giving details of sifted result and papers selected for each individual question.

RCTs

Databases covered: Medline, Embase, Cochrane Library Dates covered: 2006-2015 (with variations depending on topic; see Scope of Searches below)

Observational studies/ Searches without filter

Databases covered: Medline, Embase Dates covered: 2009-2014 (with variations depending on topic; see Scope of Searches below)

Economic searches

Databases covered: Medline, Embase, NEED Dates covered: 2000-2015 (with variations depending on topic; see Scope of Searches below)

Search strategies

The following are listings of the main Medline strategies used for this guideline. All conventions and symbols are from the Ovid implementation of Medline. Strategies used in other databases were substantially the same, though different terminology may have been used to take account of different thesauri used in non-Medline databases. Search filters were added to identify studies of a particular type (systematic review, RCT, economic etc.) Listings of the search filters used by SIGN can be found on the SIGN Web site.

Generic Stem:

1. exp Heart Failure/
2. heart failure.tw.
3. cardiac failure.tw.
4. (heart adj (dysfunction or overload or insufficienc*)).tw.
5. (cardiac adj (dysfunction or overload or insufficienc*)).tw.

6. (myocard* adj (dysfunction or overload or insufficienc* or failure)).tw.
7. ((heart or cardiac or myocard*) adj3 decompensat*).tw.
8. (systolic adj (dysfunction or overload or insufficienc*)).tw.
9. (diastolic adj (dysfunction or overload or insufficienc*)).tw.
10. exp Ventricular Dysfunction/
11. ((ventricular or ventricle*) adj3 (dysfunction or failure or insufficien*)).tw.
12. CHF.tw.
13. LVSD.tw.
14. or/1-13

Systematic review papers:

KQ	Sifted result	Papers selected
1	3	3
2	25	1
3	1	1 (+ 2 SRs identified during RCT search)
4	8	8
5	12	11
6	3	3
7	12	10
8	12	12
9	9	8
10	55	No papers selected (NICE MTA used)
11	9	9
12	12	10
13	8	6
14	1	1
15	4	3
16	10	9
17	0	0

Note: Key questions 18 and 19 were added later and searched for individually.

KQ	Initial recall	Sifted result	Papers selected
18	143	7	7
19	11	5	4

Scope of searches for RCTs, observational studies (OBS) and no filter (NOF) searches

KQ	Type of studies	Date range	Initial recall	Sifted result
1	NOF	2009- Oct 2014	1045	5
2	NOF	To Oct 2014	1054	1
3	RCT	2011- Aug 2014	477	3
4	RCT	2011- Nov 2014	985	8
5	RCT	2012- Nov 2014	1263	1
6	RCT	2008- Sep 2104	367	23
7	RCT	2011- Sep 2014	503	7
8	RCT	2009- Sep 2014	711	12

9	RCT	2012- Sep 2014	1283	6
11	RCT	2006- Oct 2014	1995	11
12	NOF	2009- Nov 2014	895	30
13	RCT	To Oct 2014 (updated Oct 2015)	473 (66)	10 (0)
14	NOF	2010- Nov 2014	665	16
15	NOF	2010- Dec 2014	199	2
16	NOF	2011- Dec 2014	27	20
17	RCT	2010-2015	2	1
19	RCT	To Oct 2015	202	8

Scope of searches for Economics searches:

KQ	Date range	Initial recall	Sifted result	Papers selected
4	2000 - Nov 2014	213	11	9
6	2000 - Nov 2014	10	1	1
8	2000 - Feb 2015	212	6	3
9	2000 - Dec 2014	478	6	5
12	2000 - Dec 2014	399	24	10
13	2000 - Dec 2014	125	2	0

Medline Search strategies used for specific key questions (combined with heart failure generic stem):

KQ 1 (clinical scoring systems)

1. exp decision support techniques/
2. (clinical adj3 (scor* or rule* or tool*)).tw.
3. (diagnos* adj3 (scor* or rule* or tool* or criteria or system* or strateg*)).tw.
4. (scor* adj3 (rule* or tool* or criteria or strateg* or system* or method*)).tw.
5. or/1-4

KQ 2 (BNP - referral)

1. Natriuretic Peptide, Brain/
2. Natriuretic Peptides/
3. (natriuretic adj3 peptide*).tw.
4. (BNP or NT-proBNP or NT-pro BNP or NT-BNP).tw.
5. (nesiritide or natrecor).tw.
6. or/1-5
7. exp Echocardiography/
8. echocardiograph*.tw.
9. or/7-8
10. 6 and 9
11. exp Time Factors/
12. (time or timing).tw.
13. exp "Referral and Consultation"/
14. refer*.tw.

15. or/11-14

16. 10 and 15

KQ 3 (phosphodiesterase inhibitors)

1. exp Phosphodiesterase Inhibitors/

2. phosphodiesterase*.tw.

3. PDE5.tw.

4. sildenafil*.tw.

5. tadalafil*.tw.

6. vardenafil*.tw.

7. or/1-6

KQ 4 (mineralocorticoid receptors (MRAs))

1. exp Mineralocorticoid Receptor Antagonists/

2. Spironolactone/

3. (aldosterone adj3 antagonist*).tw.

4. (mineralocorticoid adj3 antagonist*).tw.

5. antimineralocorticoid*.tw.

6. spironolactone*.tw.

7. eplerenone*.tw.

8. or/1-7

KQ 5 (angiotensin receptor blockers (ARBs))

1. exp Angiotensin Receptor Antagonists/

2. (angiotensin adj3 blocker*).tw.

3. (angiotensin adj3 antagonist*).tw.

4. (ARB or ARBS).tw.

5. candesartan.mp.

6. irbesartan.mp.

7. Losartan/

8. losartan.mp.

9. olmesartan.mp.

10. telmisartan.mp.

11. valsartan.mp.

12. or/1-11

KQ 6 (ivabradine)

1. ivabradine.tw.

KQ 7 (HFPEF)

1. exp Angiotensin-Converting Enzyme Inhibitors/
2. (ACEI or ACE-I).tw.
3. ACE inhibit*.tw.
4. angiotensin converting enzyme inhibit*.tw.
5. (captopril or cilazapril or enalapril or fosinopril or imidapril or lisinopril or perindopril or quinapril or ramipril or trandolapril).tw.
6. or/1-5
7. exp Adrenergic beta-Antagonists/
8. beta-adrenoceptor blocker*.tw.
9. (beta blocker* or beta-blocker*).tw.
10. (bisoprolol or carvedilol or nebivolol or metoprolol).tw.
11. or/7-10
12. exp Angiotensin Receptor Antagonists/
13. (ARB or ARBs).tw.
14. angiotensin receptor blocker*.tw.
15. (candesartan or irbesartan or losartan or olmesartan or telmisartan or valsartan).tw.
16. or/12-15
17. exp Mineralocorticoid Receptor Antagonists/
18. aldosterone antagonist*.tw.
19. mineralocorticoid receptor antagonist*.tw.
20. Aldosterone receptor antagonist*.tw.
21. antimineralocorticoid*.tw.
22. (eplerenone or spironolactone).tw.
23. or/17-22
24. 6 or 11 or 16 or 23
25. normal ejection fraction.tw.
26. preserved ejection fraction.tw.
27. (HFNEF or HF-NEF).tw.
28. (HFPEF or HF-PEF).tw.
29. (preserved adj5 fraction).tw.
30. preserved LVEF.tw.
31. diastolic ventricular dysfunction.tw.
32. or/25-31
33. 24 and 32

KQ 8 (iron deficiency)

1. Iron/

2. exp Iron Compounds/
3. exp Hematinics/
4. Erythropoietin/
5. iron.tw.
6. ferrous.tw.
7. ferric.tw.
8. erythropoietin.tw.
9. erythropoiesis.tw.
10. epo.tw.
11. (esa or esas).tw.
12. epoetin.tw.
13. darbepoetin.tw.
14. epoinetin.tw.
15. darbepoinetin.tw.
16. rhuepo.tw.
17. or/1-16

KQ 9 (BNP-guided treatment)

1. Natriuretic Peptides/
2. Natriuretic Peptide, Brain/
3. (natriuretic adj3 peptide\$).tw.
4. (BNP or NT-proBNP or NT-pro BNP or NT-BNP).tw.
5. (nesiritide or natrecor).tw.
6. (natriuretic adj2 factor\$).tw.
7. or/1-6

KQ 10 (ICD/CRT devices)

No search for primary studies – NICE MTA 134 used to address this KQ.

KQ 11 (revascularisation)

1. exp Coronary Artery Bypass/
2. CABG.tw.
3. coronary artery bypass.tw.
4. exp Percutaneous Coronary Intervention/
5. PCI.tw.
6. percutaneous coronary intervention*.tw.
7. exp Angioplasty/
8. angioplast*.tw.
9. exp Myocardial Revascularization/
10. revasculari?ation*.tw.
11. or/1-10

**KQ 12 (mechanical circulatory support)
Focus on PROMs and psychological benefits/harms**

1. Heart-Assist Devices/
2. heart assist device*.tw.
3. exp Assisted Circulation/
4. mechanical circulat* support.tw.
5. (lvad or biVAD or bvad or vad or vads or rvad).tw.
6. (ventricular support or ventricular assist* or ventric* assist).tw.
7. (biventricular support or biventricular assist* or biventric* assist).tw.
8. or/1-7
9. Health Status/
10. (health state* or health status).tw.
11. "Quality of Life"/
12. (quality of life or qol).tw.
13. patient reported outcome*.tw.
14. patient outcome assessment/
15. Stress, Psychological/
16. (emotional stress* or emotional distress or psychological stress* or psychological distress).tw.
17. Anxiety/
18. Depression/
19. psychosocial.tw.
20. or/9-18
21. 8 and 20

KQ 13 (HF and depression – pharmacological and psychological therapies)

1. exp Depression/
2. exp Depressive Disorder/
3. (depression or depressive).tw.
4. or/1-3
5. exp Antidepressive Agents/
6. antidepressant*.tw.
7. antidepressive*.tw.
8. sertraline.tw.
9. citalopram.tw.
10. or/5-9
11. exp Psychotherapy/
12. psychological therap*.tw.
13. cognitive behavioural therap*.tw.
14. CBT.tw.
15. mindfulness.tw.

16. interpersonal psychotherap*.tw.
17. IPT.tw.
18. or/10-17
19. 4 and (10 or 18)

KQ 14 (deactivation of CRT/CRD devices)

1. exp Defibrillators, Implantable/
2. defibrillator*.tw.
3. Cardiac Resynchronization Therapy/
4. exp Cardiac Pacing, Artificial/
5. (CRT or CRD).tw.
6. exp Pacemaker, Artificial/
7. (implant* adj3 defibrill*).tw.
8. (cardiac adj3 implant*).tw.
9. ICD.tw.
10. or/1-9
11. exp Terminal Care/
12. Palliative Care/
13. deactivat*.tw.
14. terminal.tw.
15. palliative.tw.
16. (dying or death).tw.
17. end-of-life.tw.
18. (end adj2 life).tw.
19. or/11-18
20. 10 and 19

NOTE: UK Guideline used to address this KQ.

KQ 15 (benzodiazepines)

1. exp Dyspnea/
2. dyspn*.tw.
3. (breathing adj3 labour*).tw.
4. breathless*.tw.
5. shortness of breath.tw.
6. breathing difficult*.tw.
7. or/1-6
8. exp Benzodiazepines/
9. benzodiazepine*.tw.
10. (adinazolam or alprazolam or bentazepam or bromazepam or brotizolam or chlordiazepoxide or cinolazepam or clobazam).tw.

11. (clonazepam or clorazepate or clotiazepam or cloxazolam or delorazepam or demoxepam or desmethyldiazepam or diazepam or estazolam).tw.
12. (etizolam or etozolam or fludiazepam or flunitrazepam or flurazepam or flutoprazepam or halazepam or haloxazolam or ketazolam).tw.
13. (loprazolam or lorazepam or lormetazepam or medazepam or metaclozepam or mexazolam or midazolam or nimetazepam or nitrazepam).tw.
14. (nordazepam or oxazepam or oxazolam or pinazepam or prazepam or quazepam or temazepam or tetrazepam or tofisopam or triazolam).tw.
15. or/8-14
16. 7 and 15

KQ 16 (palliative/end-of-life care)

1. exp Terminal Care/
2. exp Palliative Care/
3. terminal care.tw.
4. palliative care.tw.
5. end-of-life care.tw.
6. eolc.tw.
7. or/1-6

KQ 17 (new drug – LZ696)

1. LCZ696.mp.
2. angiotensin receptor neprilysin inhibitor.tw.
3. ARNI.tw.
4. exp Angiotensin Receptor Antagonists/
5. Neprilysin/ai [Antagonists & Inhibitors]
6. 4 and 5
7. 1 or 2 or 3 or 6

KQ 18 (anticoagulants)

Search for systematic reviews only.

1. exp Anticoagulants/
2. Aspirin/
3. exp Fibrinolytic Agents/
4. aspirin*.tw.
5. warfarin*.tw.
6. anticoagulant*.tw.
7. antithrombotic*.tw.
8. or/1-7

KQ 19 (central sleep apnea)

1. Sleep Apnea, Central/
2. (central adj5 apnea).tw.
3. (central adj5 apnoea).tw.
4. or/1-3
5. exp Positive-Pressure Respiration/
6. adaptive servoventilation.tw.
7. adaptive servo-ventilation.tw.
8. servocontrolled.tw.
9. servo-controlled.tw.
10. positive airway pressure.tw.
11. Noninvasive Ventilation/
12. (ASV or EPAP or IPAP).tw.
13. or/5-12
14. 4 and 13