Complete Summary

GUIDELINE TITLE

Management of chronic heart failure. A national clinical guideline.

BIBLIOGRAPHIC SOURCE(S)

Scottish Intercollegiate Guidelines Network (SIGN). Management of chronic heart failure. A national clinical guideline. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 2007 Feb. 53 p. (SIGN publication; no. 95). [155 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Diagnosis and treatment of heart failure due to left ventricular systolic dysfunction. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 1999. 68 p. (SIGN publication; no. 35).

This guideline was issued in 2007 and will be considered for review in three years. Any updates to the guideline in the interim period will be noted on the Scottish Intercollegiate Guidelines Network (SIGN) Web site.

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SCOPE

DISEASE/CONDITION(S)

Chronic heart failure

GUIDELINE CATEGORY

Counseling
Diagnosis
Evaluation
Management
Risk Assessment
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine
Nursing
Surgery

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To present evidence-based recommendations for diagnostic testing, lifestyle modification, optimum pharmacological and interventional treatments, organisation of care and discharge planning, and palliative care of patients with chronic heart failure

TARGET POPULATION

Adult patients with chronic heart failure

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Measurement of brain natriuretic peptide (BNP) or N terminal-pro-BNP (NT pro-PNP) levels and/or electrocardiogram
2. Chest x-ray
3. Clinical examination including full blood count, fasting blood glucose, serum urea and electrolytes, urinalysis, thyroid function

Treatment/Management

Behavioural Modification

1. Advice to refrain from excessive alcohol consumption or to stop drinking alcohol
2. Smoking cessation advice and support
3. Motivational techniques to promote regular low intensity physical activity

Pharmacological Therapies

1. Angiotensin converting enzyme inhibitors
2. Beta-blockers
3. Angiotensin receptor blockers
4. Candesartan, following specialist advice
5. Spironolactone, following specialist advice
6. Eplerenone
7. Diuretic therapy
8. Digoxin
9. Hydralazine and isosorbide dinitrate
10. Pneumococcal vaccination and annual influenza vaccination

Interventional Procedures

Patients with Left Ventricular Systolic Dysfunction

1. Cardiac resynchronisation
2. Continuous positive airway pressure for obstructive sleep apnoea
3. Moderate intensity supervised exercise training programmes

Surgical Assessment and Intervention

Intra-aortic balloon counterpulsation

Models of Care

1. Comprehensive discharge planning
2. Follow up by trained heart failure nurses
3. Multidisciplinary follow up, including pharmacy input

MAJOR OUTCOMES CONSIDERED

Diagnosis

Sensitivity, specificity, and clinical effectiveness of diagnostic tools

Treatment

- Left ventricular function
- Cardiothoracic ratio on chest X-ray
- Level of cardiac function
- Morbidity and mortality
- Hospitalisation rates
- Exercise capacity
- New York Heart Association (NYHA) class

- Quality of life
- Progression of disease
- Level of symptoms
- Patient compliance with therapy

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence base for this guideline was synthesised in accordance with Scottish Intercollegiate Guidelines Network (SIGN) methodology. A systematic review of the literature was carried out using an explicit search strategy devised by a SIGN Information Officer. Searches were focused on existing guidelines, systematic reviews, randomised controlled trials, and (where appropriate) observational and/or diagnostic studies. Databases searched include AMED, Medline, Embase, Cinahl, PsychINFO, and the Cochrane Library. The year range covered was 1996-2005, though where questions overlapped with those addressed in the 2003 NICE guidelines on chronic heart failure searches were limited to an update of the evidence tables from that guideline. The palliative care literature was reviewed back to 1986. Internet searches were carried out on various websites including those for the Guidelines International Network, National Institute for Health and Clinical Excellence, the National Library for Health, and the US National Guidelines Clearinghouse. The Medline version of the main search strategies can be found on the SIGN website, in the section covering supplementary guideline material. The main searches were supplemented by material identified by individual members of the development group. Each of the selected papers was evaluated by two members of the group using standard SIGN methodological checklists before conclusions were considered as evidence.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

1++: High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias

1+: Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias

1-: Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias

2++: High quality systematic reviews of case control or cohort studies
High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal

2+: Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal

2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

3: Non-analytic studies (e.g. case reports, case series)

4: Expert opinion

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Once papers have been selected as potential sources of evidence, the methodology used in each study is assessed to ensure its validity. The result of this assessment will affect the level of evidence allocated to the paper, which will in turn influence the grade of recommendation that it supports.

The methodological assessment is based on a number of key questions that focus on those aspects of the study design that research has shown to have a significant influence on the validity of the results reported and conclusions drawn. These key questions differ between study types, and a range of checklists is used to bring a degree of consistency to the assessment process. Scottish Intercollegiate Guidelines Network (SIGN) has based its assessments on the MERGE (Method for Evaluating Research and Guideline Evidence) checklists developed by the New South Wales Department of Health, which have been subjected to wide consultation and evaluation. These checklists were subjected to detailed evaluation and adaptation to meet SIGN's requirements for a balance between methodological rigour and practicality of use.

The assessment process inevitably involves a degree of subjective judgment. The extent to which a study meets a particular criterion - e.g., an acceptable level of loss to follow up and, more importantly, the likely impact of this on the reported results from the study will depend on the clinical context. To minimise any potential bias resulting from this, each study must be evaluated independently by at least two group members. Any differences in assessment should then be discussed by the full group. Where differences cannot be resolved, an independent

reviewer or an experienced member of SIGN Executive staff will arbitrate to reach an agreed quality assessment.

Evidence Tables

Evidence tables are compiled by SIGN executive staff based on the quality assessments of individual studies provided by guideline development group members. The tables summarise all the validated studies identified from the systematic literature review relating to each key question. They are presented in a standard format to make it easier to compare results across studies, and will present separately the evidence for each outcome measure used in the published studies. These evidence tables form an essential part of the guideline development record and ensure that the basis of the guideline development group's recommendations is transparent.

Additional details can be found in the companion document titled "SIGN 50: A Guideline Developers' Handbook" (see "Availability of Companion Documents" field in this summary).

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Synthesising the Evidence

Guideline recommendations are graded to differentiate between those based on strong evidence and those based on weak evidence. This judgment is made on the basis of an (objective) assessment of the design and quality of each study and a (perhaps more subjective) judgment on the consistency, clinical relevance and external validity of the whole body of evidence. The aim is to produce a recommendation that is evidence-based, but which is relevant to the way in which health care is delivered in Scotland and is therefore implementable.

It is important to emphasise that the grading does not relate to the importance of the recommendation, but to the strength of the supporting evidence and, in particular, to the predictive power of the study designs from which that data was obtained. Thus, the grading assigned to a recommendation indicates to users the likelihood that, if that recommendation is implemented, the predicted outcome will be achieved.

Considered Judgment

It is rare for the evidence to show clearly and unambiguously what course of action should be recommended for any given question. Consequently, it is not always clear to those who were not involved in the decision making process how guideline developers were able to arrive at their recommendations, given the evidence they had to base them on. In order to address this problem, SIGN has introduced the concept of considered judgment.

Under the heading of considered judgment, guideline development groups summarise their view of the total body of evidence covered by each evidence table. This summary view is expected to cover the following aspects:

- Quantity, quality, and consistency of evidence
- Generalisability of study findings
- Directness of application to the target population for the guideline
- Clinical impact (i.e., the extent of the impact on the target patient population, and the resources needed to treat them)
- Implementability (i.e., how practical it would be for the NHS in Scotland to implement the recommendation)

Guideline development groups are provided with a pro forma in which to record the main points from their considered judgment. Once they have considered these issues, the group is asked to summarise their view of the evidence and assign a level of evidence to it, before going on to derive a graded recommendation.

Additional detail about SIGN's process for formulating guideline recommendations is provided in Section 6 of the companion document titled "SIGN 50: A Guideline Developers' Handbook" (see "Availability of Companion Documents" field).

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grades of Recommendation

Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation.

A: At least one meta-analysis, systematic review of randomized controlled trials (RCTs), or RCT rated as 1++ and directly applicable to the target population; *or*

A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results

B: A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 1++ or 1+

C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 2++

D: Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

Good Practice Points: Recommended best practice based on the clinical experience of the guideline development group

COST ANALYSIS

None of the trials related to post-discharge care conducted formal cost effectiveness analyses but many did record the medical costs of each comparator. Three meta-analyses consistently reported that implementing a discharge-management plan reduced costs compared to usual care. The resultant savings exceeded the cost of implementation by an average of over six times (range two to 14 times). The savings arose primarily from the lower rate of re-admissions. The only study where the intervention costs exceeded savings provided follow up support in a day hospital.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The national open meeting is the main consultative phase of Scottish Intercollegiate Guidelines Network (SIGN) guideline development.

Peer Review

All SIGN guidelines are reviewed in draft form by independent expert referees, who are asked to comment primarily on the comprehensiveness and accuracy of interpretation of the evidence base supporting the recommendations in the guideline. A number of general practitioners (GPs) and other primary care practitioners also provide comments on the guideline from the primary care perspective, concentrating particularly on the clarity of the recommendations and their assessment of the usefulness of the guideline as a working tool for the primary care team. The draft is also sent to a lay reviewer in order to obtain comments from the patient's perspective. The comments received from peer reviewers and others are carefully tabulated and discussed with the chairman and with the guideline development group. Each point must be addressed and any changes to the guideline as a result noted or, if no change is made, the reasons for this recorded.

As a final quality control check prior to publication, the guideline and the summary of peer reviewers' comments are reviewed by the SIGN Editorial Group for that guideline to ensure that each point has been addressed adequately and that any risk of bias in the guideline development process as a whole has been minimised. Each member of the guideline development group is then asked formally to approve the final guideline for publication.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the Scottish Intercollegiate Guidelines Network (SIGN) and National Guideline Clearinghouse (NGC)*: In addition to these evidence-based*

recommendations, the guideline development group also identifies points of best clinical practice in the full-text guideline document.

The grades of recommendations (A–D) and levels of evidence (1++, 1+, 1-, 2++, 2+, 2-, 3, 4) are defined at the end of the "Major Recommendations" field.

Diagnosis and Investigations

B - Brain natriuretic peptide (BNP) or N terminal-pro-BNP (NT pro-BNP) levels and/or an electrocardiogram should be recorded to indicate the need for echocardiography in patients with suspected heart failure.

B - A chest X-ray is recommended early in the diagnostic pathway to look for supportive evidence of chronic heart failure and to investigate other potential causes of breathlessness.

Behavioural Modifications

C - All patients with heart failure should be advised to refrain from excessive alcohol consumption. When the aetiology of heart failure is alcohol related, patients should be strongly encouraged to stop drinking alcohol.

B - Patients with chronic heart failure should be strongly advised not to smoke and should be offered smoking cessation advice and support.

B - Motivational techniques should be used to promote regular low intensity physical activity amongst patients with stable heart failure.

Pharmacological Therapies

A - Angiotensin converting enzyme inhibitors should be considered in patients with all New York Heart Association (NYHA) functional classes of heart failure due to left ventricular systolic dysfunction.

A - All patients with heart failure due to left ventricular systolic dysfunction of all NYHA functional classes should be started on beta-blocker therapy as soon as their condition is stable *(unless contraindicated by a history of asthma, heart block or symptomatic hypotension)*.

A - Patients with chronic heart failure due to left ventricular systolic dysfunction alone, or heart failure, left ventricular systolic dysfunction or both following myocardial infarction who are intolerant of angiotensin converting enzyme inhibitors should be considered for an angiotensin receptor blocker.

B - Patients with heart failure due to left ventricular systolic dysfunction who are still symptomatic despite therapy with an angiotensin converting enzyme inhibitor and a beta-blocker may benefit from the addition of candesartan, following specialist advice.

B - Following specialist advice, patients with moderate to severe heart failure due to left ventricular systolic dysfunction should be considered for spironolactone

unless contraindicated by the presence of renal impairment or a high potassium concentration.

B - Patients who have suffered a myocardial infarction and with left ventricular ejection fraction ≤40% and either diabetes or clinical signs of heart failure should be considered for eplerenone unless contraindicated by the presence of renal impairment or a high potassium concentration.

B - Diuretic therapy should be considered for heart failure patients with dyspnoea or oedema *(ankle or pulmonary)*.

A - Digoxin should be considered as an add-on therapy for heart failure patients in sinus rhythm who are still symptomatic after optimum therapy.

A - African American patients with advanced heart failure due to left ventricular systolic dysfunction should be considered for treatment with hydralazine and isosorbide dinitrate in addition to standard therapy.

B - Patients who are intolerant of an angiotensin converting enzyme inhibitor and an angiotensin II receptor blocker due to renal dysfunction or hyperkalaemia should be considered for treatment with a combination of hydralazine and isosorbide dinitrate.

D - Patients with chronic heart failure should receive one pneumococcal vaccination and an annual influenza vaccination.

Interventional Procedures

Patients with Left Ventricular Systolic Dysfunction

A - For patients in sinus rhythm with drug refractory symptoms of heart failure due to left ventricular systolic dysfunction *(left ventricular ejection fraction ≤35%)* and who are in NYHA class III or IV and who have a QRS duration of >120 ms, cardiac resynchronisation should be considered.

B - Patients with obstructive sleep apnoea and heart failure may be safely treated with continuous positive airway pressure.

B - Consideration should be given to enrolling stable heart failure patients who are in NYHA class II – III into a moderate intensity supervised exercise training programme to give improved exercise tolerance and quality of life.

Surgical Assessment and Intervention

B - In patients undergoing coronary artery bypass grafting with left ventricular ejection fraction ≤35% consideration should be given to preoperative introduction of intraaortic balloon counterpulsation.

Models of Care

Post-Discharge Care

A - Comprehensive discharge planning should ensure that links with post-discharge services are in place for all those with symptomatic heart failure. A nurse led, home based element should be included.

A - Follow up *(including by telephone)* by trained heart failure nurses should be considered for patients post-discharge or with stable heart failure. Nurses should have the ability to alter diuretic dose and the interval between telephone calls, and recommend emergency medical contact.

A - Patients with heart failure should be offered multidisciplinary follow up, including pharmacy input to address knowledge of drugs and compliance. Follow up should include feedback to clinicians about possibilities for optimising pharmacological interventions.

Refer to the original guideline document for a discussion of palliative care for patients with chronic heart failure.

Definitions:

Grades of Recommendation

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D: Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

Good Practice Points: Recommended best practice based on the clinical experience of the guideline development group

Levels of Evidence

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1+: Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias

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High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal

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2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

3: Non-analytic studies (e.g. case reports, case series)

4: Expert opinion

CLINICAL ALGORITHM(S)

An algorithm is provided in the original guideline document for the assessment of suspected chronic heart failure.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of chronic heart failure

POTENTIAL HARMS

- Important adverse effects of angiotensin converting enzyme inhibitors are cough, hypotension, renal impairment and hyperkalaemia. Angio-oedema is a rare adverse effect, which can be life threatening (due to laryngeal involvement). Renal impairment is likely to occur in those with unsuspected (bilateral) renovascular disease. Angiotensin converting enzyme inhibitor induced renal dysfunction is a possible indicator of renovascular disease.

- In the short term, *beta blockers* can produce decompensation with worsening of heart failure and hypotension.
- *Spironolactone* can produce gynaecomastia, hyperkalaemia, and renal dysfunction
- Although *eplerenone* produces less gynaecomastia than spironolactone, it can still produce hyperkalaemia and renal dysfunction and blood urea.
- *Loop diuretics* can cause an elevated urate level and may precipitate gout
- Evidence of benefit must be weighed against the possibility of an increase in sudden deaths associated with *digoxin*. The risk of *digoxin* toxicity is increased by hypokalaemia.
- Other important cautions and drug interactions of pharmacological therapies are listed in the annexes of the original guideline document.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Beta-blockers are contraindicated in patients with:
    - Asthma
    - Heart block or heart rate <60/min
    - Persisting signs of congestion, hypotension/low blood pressure (systolic<90 mm Hg), raised jugular venous pressure, ascites, marked peripheral oedema
- Spironolactone is contraindicated in patients whose baseline serum potassium is >5 mmol/l or serum creatinine is >220 micromol/l. Such patients are particularly likely to suffer the adverse effects of hyperkalaemia or renal dysfunction.
- Eplerenone is contraindicated by the presence of renal impairment or high potassium concentration.
- Angiotensin converting enzyme inhibitors are contraindicated in patients with a history of angioneurotic oedema or with known bilateral renal artery stenosis.
- Angiotensin receptor blockers are contraindicated in patients with:
    - History of angioneurotic oedema
    - Known bilateral renal artery stenosis
- Diltiazem and verapamil are generally contraindicated in congestive heart failure.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be

arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation of national clinical guidelines is the responsibility of each National Health Services (NHS) Board and is an essential part of clinical governance. It is acknowledged that every Board cannot implement every guideline immediately on publication, but mechanisms should be in place to ensure that the care provided is reviewed against the guideline recommendations and the reasons for any differences assessed and, where appropriate, addressed. These discussions should involve both clinical staff and management. Local arrangements may then be made to implement the national guideline in individual hospitals, units and practices, and to monitor compliance. This may be done by a variety of means including patient-specific reminders, continuing education and training, and clinical audit.

Key points for audit are identified in the original guideline document.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Chart Documentation/Checklists/Forms
Clinical Algorithm
Foreign Language Translations
Patient Resources
Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Scottish Intercollegiate Guidelines Network (SIGN). Management of chronic heart failure. A national clinical guideline. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 2007 Feb. 53 p. (SIGN publication; no. 95). [155 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Feb (revised 2007 Feb)

GUIDELINE DEVELOPER(S)

Scottish Intercollegiate Guidelines Network - National Government Agency [Non-U.S.]

SOURCE(S) OF FUNDING

Scottish Executive Health Department

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Declarations of interests were made by all members of the guideline development group. Further details are available from the Scottish Intercollegiate Guidelines Network (SIGN) Executive.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Diagnosis and treatment of heart failure due to left ventricular systolic dysfunction. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 1999. 68 p. (SIGN publication; no. 35).

This guideline was issued in 2007 and will be considered for review in three years. Any updates to the guideline in the interim period will be noted on the Scottish Intercollegiate Guidelines Network (SIGN) Web site.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Scottish Intercollegiate Guidelines Network (SIGN) Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Quick reference guide: Heart disease. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network, 2007 Feb. 31 p. Available in Portable Document Format (PDF) from the Scottish Intercollegiate Guidelines Network (SIGN) Web site.
- SIGN 50: A guideline developer's handbook. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network. (SIGN publication; no. 50). Available from the SIGN Web site.
- Appraising the quality of clinical guidelines. The SIGN guide to the AGREE (Appraisal of Guidelines Research & Evaluation) guideline appraisal instrument. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network, 2001. Available from the SIGN Web site.
- Management of coronary heart disease: A national clinical and resource impact assessment. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network, 2007 Feb. 120 p. Available in Portable Document Format (PDF) from the SIGN Web site.
- Excel spreadsheets to assist health boards to estimate their local costs (used in conjunction with the national clinical and resource impact assessment). Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network, 2007 Feb. Available from the SIGN Web site.

PATIENT RESOURCES

The following is available:

- Chronic heart failure for patients. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network, 2007 Feb. 26 p.

Available in Portable Document Format (PDF) from the Scottish Intercollegiate Guidelines Network (SIGN) Web site. Urdu translation is also available from the SIGN Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This summary was completed by ECRI on January 3, 2002. The information was verified by the guideline developer as of February 4, 2002. This NGC summary was updated by ECRI Institute on April 24, 2007.

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