Case for Change – Cardiac Rehabilitation Services

Evidence
Commissioning Packs are tools to help commissioners improve the quality of services for patients and minimise unwarranted variation in service delivery. Each pack provides a tailored set of guidance, templates, tools and information to assist commissioners in commissioning healthcare services from existing providers or for use in new procurements.

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Case for Change - Cardiac Rehabilitation Services

Evidence

Prepared by the Strategic Commissioning Development Unit (SCDU)
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Purpose of the document

The purpose of this document is to explain the evidence which has been used:

1. To identify in-scope patients for cardiac rehabilitation
2. For the design of the cardiac rehabilitation service and its core components

The information contained in this document is designed for use by commissioners for business case purposes only and includes:

Evidence for in-scope patients

- Overview of patients in-scope for cardiac rehabilitation services
- Description of evidence sources and evidence hierarchy for patients in-scope
- Evidence by patient type

Evidence for cardiac rehabilitation service design

- Description of evidence hierarchy and sources of evidence for service design

Overview – In scope patients

Although much of the evidence for the benefits of cardiac rehabilitation services is not disaggregated by type of chronic heart disease, NICE Commissioning guidelines for cardiac rehabilitation services\(^1\) notes that:

“Once Trusts have an effective system for identifying, treating and following up people who have survived an MI or who have undergone coronary revascularisation (coronary artery bypass graft and percutaneous coronary intervention) they should extend their rehabilitation services to people admitted to hospital with other manifestations of CHD.”

This should include patients who have been admitted for “other specialised interventions (for example, heart transplant and surgery to fit implantable cardiac defibrillators)”.

The language accompanying previous and recent guidance (national and international) has changed with a greater emphasis now being placed on diagnostic groups rather than cardiac interventions. One fundamental change has been the use of the term ‘acute coronary syndrome’ to bring together the two versions of acute MI (STEMI and NSTEMI) and unstable angina. The following sections will utilise this new approach when reviewing the available evidence as to the benefit of cardiac rehabilitation for the following patients:

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\(^1\) Cardiac rehabilitation service, Commissioning guide, Implementing NICE guidance, March 2008
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- Acute coronary syndrome (ACS) which includes STEMI, NSTEMI and unstable angina with reference to patients who had reperfusion in the form of coronary artery bypass graft (CABG) and angioplasty – percutaneous coronary intervention (PCI)
- Heart failure
- Valve surgery
- Heart transplant
- Implantable cardiac defibrillator (ICD) & Cardiac resynchronisation therapy (CRT)
- Ventricular assist devices (VAD)

Summary of evidence – In scope patients

For each in-scope patient group, evidence is presented using the following hierarchy:

1. NICE guidelines
2. Meta-analyses, randomised trials and controlled trials
3. Other academic studies

A summary of the NICE guidelines used as part of the evidence base to identify in-scope patients for cardiac rehabilitation services is as follows:

**NICE 2007 (CG48) MI: secondary prevention in primary and secondary care for patients following a myocardial infarction**

This national guidance for the NHS offers best practice advice and recommendations on secondary prevention for patients in primary and secondary care after myocardial infarction (MI). It includes specific guidance on cardiac rehabilitation after an acute MI (see section 1.2). As with all NICE guidance, this nationally agreed guideline should be taken into account by commissioners when planning and delivering care.


NICE has also published Implementation Advice for this Clinical Guideline: [http://www.nice.org.uk/nicemedia/pdf/word/IAFINAL.doc](http://www.nice.org.uk/nicemedia/pdf/word/IAFINAL.doc)

**NICE 2010 (CG108) Chronic heart failure: Diagnosis and management in primary and secondary care**

The NICE chronic heart failure guideline makes recommendations about:

- The care provided by GPs and hospital healthcare professionals who have direct contact with patients with heart failure
- All the key areas of managing heart failure including diagnosis, drug and non-drug treatments and the management of depression and anxiety
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Section 1.2 on treating heart failure recommends that, “Patients with heart failure should be encouraged to adopt regular aerobic and/or resistive exercise. This may be more effective when part of an exercise programme or a programme of rehabilitation”

(NICE 2010 (CG94) Unstable angina and NSTEMI: The early management of unstable angina and non-ST-segment-elevation myocardial infarction

This guideline offers best practice advice on the care of adults (18 years and older) with a diagnosis of unstable angina or non-ST-segment-elevation myocardial infarction (NSTEMI).

CG94 includes recommendations that patients should be treated in line with ‘MI: secondary prevention’, NICE clinical guideline 48 in relation to:

- Diagnosis and arrangement for follow-up
- Cardiac rehabilitation
- Management of cardiovascular risk factors and drug therapy for secondary prevention
- Lifestyle changes

(NICE Clinical Guideline 48 (2007), MI: secondary prevention in primary and secondary care for patients following a myocardial infarction, p88 of 231


Acute Coronary Syndrome - Myocardial Infarction (MI)

1. NICE 2007 Guidance (CG48) clearly states that cardiac rehabilitation leads to an improvement in exercise capacity and reduced mortality. The evidence base supporting exercise based cardiac rehabilitation is of the highest order (Grade A). The results from the NICE clinical evidence extractions show that cardiac rehabilitation is cost effective in terms of cost per quality adjusted life year (QALY) when compared with other treatments. The ICER (incremental cost-effective ratio) is estimated to be £7860 and £8360 per QALY gained for men and women respectively. This is well below the level usually affordable in the NHS (about £20,000 to £30,000 per QALY). These results were robust in sensitivity analysis.²

2. Cardiac rehabilitation has been shown to increase physical health and decrease subsequent morbidity and mortality in patients with CHD (including MI patients). Two systematic reviews that included 48 randomised controlled trials (RCTs) showed that a 20% reduction in all cause mortality and a 27% reduction in cardiac mortality at 2-5 years³. This review concluded that exercise-based cardiac rehabilitation is effective in reducing cardiac deaths, cardiovascular morbidity and primary risk factors in patients who have had myocardial infarction (MI).⁴

² NICE Clinical Guideline 48 (2007), MI: secondary prevention in primary and secondary care for patients following a myocardial infarction, p88 of 231
3. Dusseldorp et al (1999) conducted a meta-analysis of 8,988 patients in 37 trials. This found that cardiac rehabilitation programmes including psychological and/or educational interventions resulted in a 34% reduction in cardiac mortality and a 29% reduction in recurrent MI at 1-10 years follow up.

4. Five randomised trials have demonstrated that diet modification included in cardiac rehabilitation programmes can provide significant reductions in cardiac events such as MI or sudden cardiac death.

5. Taylor and Kirby (1997) analysed two controlled trials, which examined the medium to long-term implications of cardiac rehabilitation. They found savings for the wider economy resulting from an improvement in patient quality of life leading to an earlier return to work and a reduction in readmission costs.


7. Dalal et al (2010) analysed 12 randomised controlled trials including 1,938 patients to compare the effectiveness of home based and centre based cardiac rehabilitation for patients with coronary heart disease. The study showed that patient choice and preference lead to improved outcomes to the extent that rehabilitation can be delivered equally effectively at home or centre based. Patients in the study included CABG, PCI, Angina and Heart Failure.

8. Fidan et al (2007) used the IMPACT CHD model to calculate the number of life-years gained (LYG) from specific cardiological interventions from 2000 to 2010. Cost effectiveness intervention ratios (costs per LYG) were generated for each specific intervention. The results showed that cardiac rehabilitation was second only to aspirin and beta-blockers in terms of cost effectiveness (<£1,000 per LYG compared to £1,957).

Acute Coronary Syndrome reperfusion - Angioplasty – percutaneous coronary intervention (PCI)

1. Bardellini et al (2001) demonstrated that PCI patients who participated in cardiac rehabilitation experienced a significant increase in functional capacity and quality of life compared with a control group which showed no change in these variables. A total of 130 patients were included in the trial. Total clinical events were significantly lower in the cardiac rehabilitation group (11.9%) compared to 32.2% in the control group. Hospital readmission rates were also lower in the cardiac rehabilitation group compared to the control group (18.6% vs 46%).

References:

1. Dusseldorp Et al, A meta-analysis of psychoeducational programs for coronary heart disease patients, Health psychol 1999; 18:506-19
3. Taylor R.S and Kirby B., The evidence base for the cost effectiveness of cardiac rehabilitation, Heart 1997 78:5-6
5. Dalal H et al, Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis, BMJ 2010
2. Taylor et al (2004) confirmed the effectiveness of exercise-based cardiac rehabilitation in patients with coronary heart disease (MI, CABG and PCI patients). The study looked at 48 trials with a total of 8940 patients.\textsuperscript{12}

3. Studies in elderly patients have also demonstrated the favourable effects of cardiac rehabilitation on plasma lipids, obesity, peak oxygen uptake, depression and quality of life.\textsuperscript{13}

4. Hambrecht et al (2004) produced a study comparing the effects of exercise training in a PCI patient group versus a control group. Exercise training was associated with a higher rate of event-free survival (88% versus 70% in the control group).\textsuperscript{14}

5. Lisspers et al (1999) undertook a study involving 93 patients who were randomly assigned a behavioural oriented intervention or a control group. Results showed that after 12 months, the intervention patients improved significantly on self-rated measures of smoking, exercise and diet habits. Patients also lost weight, improved their exercise capacity and experienced less chest pain during exertion\textsuperscript{15}.

6. Dalal et al (2010) analysed a number of randomised controlled trials including 1,938 patients to compare the effectiveness of home based and centre based cardiac rehabilitation for patients with coronary heart disease. The study showed that patient choice and preference lead to improved outcomes to the extent that rehabilitation can be delivered equally effectively at home or centre based\textsuperscript{16}. Patients in the study included CABG, PCI, Angina and Heart Failure.

7. Cardiac rehabilitation has been shown to increase physical health and decrease subsequent morbidity and mortality in patients with CHD (including PCI patients). Two systematic reviews that included 48 randomised controlled trials (RCTs) showed that a 20% reduction in all cause mortality and a 27% reduction in cardiac mortality at 2-5 years\textsuperscript{17}.

8. Taylor and Kirby (1997) analysed two controlled trials, which examined the medium to long-term implications of cardiac rehabilitation. They found savings for the wider economy resulting from an improvement in patient quality of life leading to an earlier return to work and a reduction in readmission costs.\textsuperscript{18}

9. Fidan et al (2007) used the IMPACT CHD model to calculate the number of life-years gained (LYG) from specific cardiological interventions from 2000 to 2010. Cost effectiveness intervention ratios (costs per LYG) were generated for each specific intervention. The results showed that cardiac rehabilitation was second only to aspirin and beta-blockers in terms of cost effectiveness (<£1,000 per LYG compared to £1,957)\textsuperscript{19}

\textsuperscript{13} Lavie, CJ, Milani, RV Benefits of cardiac rehabilitation and exercise training programs in elderly coronary patients. Am J Geriatr Cardiol 2001;10:323-327
\textsuperscript{16} Dalal H et al, Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis, BMJ 2010
\textsuperscript{18} Taylor R.S and Kirby B., The evidence base for the cost effectiveness of cardiac rehabilitation, Heart 1997 78:5-6
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Acute Coronary Syndrome reperfusion - Coronary artery bypass graft (CABG)

1. Taylor et al (2004) confirmed the effectiveness of exercise-based cardiac rehabilitation in patients with coronary heart disease (MI, CABG and PCI patients). The study looked at 48 trials with a total of 8940 patients.\textsuperscript{20}

2. Hedback et al (2001) undertook a 10 year study of 98 CABG patients, half of whom had been offered a cardiac rehabilitation programme and compared results in relation to cardiovascular mortality, morbidity, total cardiac events and readmissions to hospital. The study concluded that a comprehensive cardiac rehabilitation programme offered to patients after surgery improved long-term prognosis and reduced the need for hospital care\textsuperscript{21}.

3. A study of CABG and MI patients demonstrated that improvements in peak capacity after cardiac rehabilitation correlated with a decrease in long-term mortality rates\textsuperscript{22}.

4. Cardiac rehabilitation has been shown to increase physical health and decrease subsequent morbidity and mortality in patients with CHD (including CABG patients). Two systematic reviews that included 48 randomised controlled trials (RCTs) showed that a 20% reduction in all cause mortality and a 27% reduction in cardiac mortality at 2-5 years\textsuperscript{23}.

5. Taylor and Kirby (1997) analysed two controlled trials, which examined the medium to long-term implications of cardiac rehabilitation. They found savings for the wider economy resulting from an improvement in patient quality of life leading to an earlier return to work and a reduction in readmission costs.\textsuperscript{24}

6. Dalal et al (2010) analysed a number of randomised controlled trials including 1,938 patients to compare the effectiveness of home based and centre based cardiac rehabilitation for patients with coronary heart disease. The study showed that patient choice and preference lead to improved outcomes to the extent that rehabilitation can be delivered equally effectively at home or centre based\textsuperscript{25}. Patients in the study included CABG, PCI, Angina and Heart Failure.

7. Fidan et al (2007) used the IMPACT CHD model to calculate the number of life-years gained (LYG) from specific cardiological interventions from 2000 to 2010. Cost effectiveness intervention ratios (costs per LYG) were generated for each specific intervention. The results showed that cardiac rehabilitation was second only to aspirin and beta-blockers in terms of cost effectiveness (<£1,000 per LYG compared to £1,957)\textsuperscript{26}.


\textsuperscript{21} Hedback, B et al, Cardiac rehabilitation after coronary artery bypass surgery: 10-year results on mortality, morbidity and readmissions to hospital. Journal of Cardiovascular Risk 2001, 8:153-159

\textsuperscript{22} Vahees L, et al, Prognostic value of training-induced change in peak exercise capacity in patients with myocardial infarcts and patients with coronary bypass surgery. Am J Cardiol 1995;76:1014-9


\textsuperscript{24} Taylor R.S and Kirby B., The evidence base for the cost effectiveness of cardiac rehabilitation, Heart 1997 78:5-6

\textsuperscript{25} Dalal H et al, Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis, BMJ 2010

Acute Coronary Syndrome reperfusion - Angina (Unstable)

1. NICE Guidance 2010 (CG94) notes that unstable angina patients should be offered cardiac rehabilitation in line with ‘MI: secondary prevention’, NICE clinical guideline 4827

2. Dalal et al (2010) analysed a number of randomised controlled trials including 1,938 patients to compare the effectiveness of home based and centre based cardiac rehabilitation for patients with coronary heart disease. The study showed that patient choice and preference lead to improved outcomes to the extent that rehabilitation can be delivered equally effectively at home or centre based28. Patients in the study included CABG, PCI, Angina and Heart Failure.

3. Fidan et al (2007) used the IMPACT CHD model to calculate the number of life-years gained (LYG) from specific cardiological interventions from 2000 to 2010. Cost effectiveness intervention ratios (costs per LYG) were generated for each specific intervention. The results showed that cardiac rehabilitation was second only to aspirin and beta-blockers in terms of cost effectiveness (<£1,000 per LYG compared to £1,957)29

Heart failure

1. NICE 2003 Guidance (CG108) states that heart failure patients should receive exercise training and rehabilitation and notes that “Patients with heart failure should be encouraged to adopt regular aerobic and/or resistive exercise. This may be more effective when part of an exercise programme or a programme of rehabilitation.”30

2. Davies et al (2010) reviewed nineteen randomized controlled trials with a total of 3,647 patients and noted that compared with usual care, in selected heart failure patients, exercise training reduces heart failure-related hospitalizations and results in clinically important improvements in HRQoL31.

3. Davies et al (2009) Exercise based CR was associated with an estimated increment in life expectancy of 1.82 years/person in a time period of 15.5 years compared with patients in the control group This review also found a significant improvement in exercise capacity and HRQoL.

4. Davies et al (2009) systematic review revealed a significant reduction (28%) in acute readmissions due to cardiac rehabilitation and thus, direct financial cost saving through a reduction in HF patient readmissions (due to cardiac rehabilitation)32.

5. These findings were similar to the two previous systematic reviews of cardiac rehabilitation in heart failure by Rees et al (2004) and Smart & Marwick (2004).

27 NICE Clinical Guideline 94 (2010), Unstable Angina and NSTEMI.
28 Dalal H et al, Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis, BMJ 2010
30 NICE Clinical Guideline 108 (2010), Chronic heart failure, Diagnosis and management in primary and secondary care
6. The British Heart Foundation\textsuperscript{33} has used the Hillingdon study\textsuperscript{34} to estimate that there are about 38,000 and 30,000 new cases of heart failure in men and women respectively, each year in the UK; making a total of approximately 68,000. Heart failure accounts for about 5% of all medical admissions to hospital and patients are often frequently readmitted post diagnosis. Indeed, readmission rates for heart failure are among the highest for any common condition in the UK and have been estimated to be up to 50% over 3 months.\textsuperscript{35} Up to half of these readmissions may be preventable.\textsuperscript{36} NACR estimates that only 1% of patients with heart failure are referred for cardiac rehabilitation, despite the evidence on readmission reduction.\textsuperscript{37} Heart failure patients are less likely to be referred than other cardiac patients, and the complexity of the medical condition has been identified as a barrier to physician referral.\textsuperscript{38} Therefore, increasing uptake in cardiac rehabilitation in heart failure patients could lead to significant cost savings if this results a lower readmission rate.\textsuperscript{39}

7. Dalal et al (2010) analysed a number of randomised controlled trials including 1,938 patients to compare the effectiveness of home based and centre based cardiac rehabilitation for patients with coronary heart disease. The study showed that patient choice and preference lead to improved outcomes to the extent that rehabilitation can be delivered equally effectively at home or centre based\textsuperscript{40}. Patients in the study included CABG, PCI, Angina and Heart Failure.

8. Fidan et al (2007) used the IMPACT CHD model to calculate the number of life-years gained (LYG) from specific cardiological interventions from 2000 to 2010. Cost effectiveness intervention ratios (costs per LYG) were generated for each specific intervention. The results showed that cardiac rehabilitation was second only to aspirin and beta-blockers in terms of cost effectiveness (<£1,000 per LYG compared to £1,957)\textsuperscript{41}

Valve Surgery

1. Hotta (1991) notes that heart valve surgery patients have no unique characteristics that differentiate them from patients with myocardial infarction or patients that have undergone coronary artery bypass surgery in terms of their need for cardiac rehabilitation.\textsuperscript{42}

2. In one study, Sire et al (1987) note that the for valve surgery patients there the increase in aerobic capacity in an exercise group was 38% higher than in the control group at 6 months and was 37% higher after 12 months\textsuperscript{43}.

\textsuperscript{33} The Health Foundation – “Bridging the quality gap: heart failure”
\textsuperscript{35} SIGN Secretariat, Diagnosis and Treatment of Heart Failure due to Left Ventricular Systolic Dysfunction. February 1999. SIGN Publication number 35, Royal College of Physicians, Edinburgh, Scotland
\textsuperscript{37} British Heart Foundation – National Audit of Cardiac Rehabilitation: Annual Statistical Report 2009, p12
\textsuperscript{38} Beswick A.D. et al, 2004, Revision, uptake and cost of cardiac rehabilitation programmes: improving services to under-represented groups, p3.
\textsuperscript{40} Dalal H et al, Home based versus centre based cardiac rehabilitation: Cochrane systematic review and meta-analysis, BMJ 2010
\textsuperscript{42} Hotta, SS Cardiac Rehabilitation Programs. Health Technol Assess Rep 1991; 1-10
\textsuperscript{43} Sire, S Physical training and occupational rehabilitation after aortic valve replacement. Eur Heart J 1987;8, 1215-1220

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3. In a non-randomized study of patients who had undergone heart valve replacement there was a significant improvement in quality of life after 6 months of exercise training compared with the non exercise group and this improvement correlated to increases in functional capacity.\(^{44}\)

**Heart Transplants**

1. A number of training studies have demonstrated the potential of cardiac rehabilitation for reversing or diminishing physiologic abnormalities in heart transplant patients, these include Kobashigawa et al (1999).\(^{45}\) Improvements in aerobic capacity range between 20% and 50% as a result of improved metabolic adaptations leading to increased oxygen extraction and hemodynamic changes, including an increase in heart rate and cardiac output.

2. Resistance training has been used for heart transplant patients for increasing lean muscle mass and bone density which have depleted as a consequence of heart failure and medications used after transplantation. In two separate six month trials, bone mineral density was restored to pre-transplant levels, compared to a 6% reduction in the control group\(^{46}\) and muscle strength increased dramatically\(^{47}\).

3. Although based on a relatively small sample size, Keteyian et al (1991) demonstrate the benefits of exercise training in partially reversing some of the physiological abnormalities observed in heart transplant\(^{48}\).

**Implantable cardiac defibrillator (ICD) & Cardiac resynchronisation therapy (CRT)**

1. The National Service Framework for coronary heart disease, chapter 8, arrhythmias and sudden cardiac death, notes that patients should receive rehabilitation support.\(^{49}\)

2. Although based on a small sample size, one randomized trial notes that cardiac rehabilitation appears to be safe for patients with ICDs and can improve exercise ability and lower the levels of psychological distress.\(^{50}\)

**Ventricular assist devices (VAD)**

1. Although no large-scale trials have been performed to date, a number of academic articles note the impact that cardiac rehabilitation can have for VAD patients in terms of improving muscular strength and aerobic capacity as well as nutrition and weight loss, lipid management, smoking cessation and positive reinforcement from meeting other patients with cardiovascular disease\(^{51}\)\(^{52}\).

\(^{48}\) Keteyian, S et al Cardiovascular responses of heart transplant patients to exercise training, J Appl Physiol 20; 1991, 2627-2631
\(^{49}\) National Service Framework for Coronary Heart Disease – Chapter Eight: Arrhythmias and Sudden Cardiac Death, 2005
\(^{50}\) Fitchet, A et al, Comprehensive cardiac rehabilitation programme for implantable cardioverter-defibrillator patients: a randomised controlled trial, Heart, 2003
\(^{51}\) King, ML et al Cardiac Rehabilitation for patients with ventricular assist devices: An offer to improve strong collaborative relationships, J Am. Coll. Cardiol 2010;55; 1053-1054
\(^{52}\) Atsuko, U et al Cardiac rehabilitation and artificial heart devices, J Artif Organs, 2009 12:90-97
Summary of evidence – Cardiac rehabilitation service design

Evidence for the design of cardiac rehabilitation services is taken from National Institute for Health and Clinical Excellence (NICE) Clinical Guidelines and other supporting evidence that is consistent with those guidelines.

NICE 2007 (CG48) MI: secondary prevention in primary and secondary care for patients following a myocardial infarction

This guideline includes recommendations in relation to the following aspects of care and rehabilitation:

- Dietary regimen and advice
- Physical activity and physical capacity
- Smoking cessation
- Weight management
- Health education
- Psychological and social support
- Drug therapy

[http://guidance.nice.org.uk/CG48/NICEGuidance/pdf/English]

NICE 2010 (CG15) Type 1 Diabetes and NICE 2008 (CG66) Type 2 Diabetes and partial update NICE 2010 (CG87)

These guidelines provide national clinical guidelines for the diagnosis and management of diabetes for adults and children in primary and secondary care.

[http://guidance.nice.org.uk/CG15/NICEGuidance/pdf/English]
[http://guidance.nice.org.uk/CG87/NICEGuidance/pdf/English]

NICE 2006 (CG34) Hypertension

CG34 provides information and guidelines on the pharmacological treatment of hypertension

[http://guidance.nice.org.uk/CG34/NICEGuidance/pdf/English]

NICE 2006 (CG43) Obesity guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children

This guideline includes recommendations around lifestyle advice and support to achieve and maintain a healthy weight and relates to increasing activity levels, improving diet (including reducing energy intake) and self-management strategies to help maintain a healthy weight.

[http://guidance.nice.org.uk/CG43/NICEGuidance/pdf/English]

These guidelines provide recommendations around the principles of assessment and the effective delivery of interventions for depression including, structured group exercise programmes, individual and group cognitive behavioural therapy and prescription of anti-depressants.

(http://guidance.nice.org.uk/CG90/NICEGuidance/pdf/English)
(http://guidance.nice.org.uk/CG91/NICEGuidance/pdf/English)

NICE 2006 (PH1) Brief interventions and referral for smoking cessation in primary care and other settings, NICE 2007 (PH5) Workplace interventions to promote smoking cessation and NICE 2008 (PH10) Smoking cessation services

These public health guidelines provide information and a number of recommendations for interventions to encourage smoking cessation

(http://guidance.nice.org.uk/PH1/Guidance/pdf/English)
(http://guidance.nice.org.uk/PH5/Guidance/pdf/English)
(http://guidance.nice.org.uk/PH10/Guidance/pdf/English)

British Association for Cardiac Rehabilitation (BACR) Standards and Core Components for Cardiac Rehabilitation (2007)

Developed in affiliation with the British Cardiac Society and cited in the Implementation Advice accompanying the NICE clinical guideline 48, this document defines minimum standards and core components for cardiac rehabilitation services and has been designed to help commissioners, providers, patients and the public understand what a good cardiac rehabilitation service looks like and to raise standards across the country. The minimum standards relate to the infrastructure to support cardiac rehabilitation and the contents of a programme are defined by the recommended core components.

(http://www.bcs.com/documents/affiliates/bacr/BACR%20Standards%202007.pdf)

Two supplements to the Standards and Core Components on Staffing of Cardiac Rehabilitation programmes and Automated External Defibrillators (AEDs) and Exercise were published in 2009. It is anticipated that the Standards will be updated in 2010.

(http://www.bcs.com/pages/page_box_contents.asp?navcatID=49&PageID=625)

The Scottish Intercollegiate Guidelines Network (SIGN) develops evidence based clinical practice guidelines for the NHS in Scotland. Guideline No. 57, supported and endorsed by the BACR, provides evidence-based recommendations for best practice in cardiac rehabilitation. It is primarily concerned with rehabilitation following myocardial infarction (MI) or coronary revascularisation, but also addresses the rehabilitation needs of patients with angina or heart failure.

[http://www.sign.ac.uk/pdf/sign57.pdf](http://www.sign.ac.uk/pdf/sign57.pdf)

Association of Chartered Physiotherapists in Cardiac Rehabilitation (2008) ACPICR Competencies

This document can be used as a tool to guide the planning, management and evaluation of CPD. It aims to give direction to individuals, enabling them to evaluate their skills and performance. While training requirements are identified, learning strategies and resources are provided to encourage quality care. It provides:

- A framework which enables individuals to be clear about their role and responsibilities
- Guidance on expected skills and knowledge relevant to their grade
- Identification of gaps in knowledge and skills required
- Identification of induction needs for new staff
- A tool through which to develop future objectives and training requirements


Association of Chartered Physiotherapists in Cardiac Rehabilitation (2009) Standards for Physical Activity and Exercise In the Cardiac Population

The Standards for Physical Activity and Exercise In the Cardiac Population have been developed through a review of the evidence for best practice in cardiac rehabilitation (CR) (1-4), by a working party of the Association of Chartered Physiotherapist In Cardiac Rehabilitation (ACPICR). The aim is to standardise the quality and approach taken by exercise professionals when delivering the exercise component of CR in order to provide service equity to the widest variety of people with cardiovascular disease (CVD).

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<td>NICE 2008 (PH10) Smoking cessation services: guidance</td>
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