

The development and testing of a cardiac rehabilitation audit tool

ABSTRACT – Cardiac rehabilitation is a multidisciplinary activity and as such necessitates the development of audit systems that cut across professional boundaries. The objective of this paper is to describe the development and testing of an audit tool for cardiac rehabilitation. The tool, based on published guidelines, comprised three proformas: one for each patient entering a cardiac rehabilitation programme, one for a summary of a series of patients and one for the facilities available. The proformas were tested in three centres that were assessed as either 'high', 'moderate' or 'low' providers of cardiac rehabilitation. The cardiac rehabilitation programme coordinator of each centre examined a consecutive series of 30 patients' case notes and completed the proformas. The proformas were found to be clear and easy to use. Information was obtained that informed users of current practice and provided pointers to improvements in the provision of care. In conclusion, the cardiac rehabilitation audit tool proved to be effective in determining the documented evidence of practice, was better for determining the level of provision than a purely subjective judgement and provided information indicating an individual programme's strengths and weaknesses. This is the first attempt at producing an audit tool for cardiac rehabilitation. However, further work may be required in its refinement.

Cardiac rehabilitation is a multidisciplinary approach to improving short-term recovery and to promoting long-term changes in lifestyle that correct adverse risk factors¹. A recent survey² found the provision of cardiac rehabilitation services across England and Wales to be variable and none of the programmes studied used any form of audit or evaluation. Clinical guidelines and audit points are therefore sorely needed³. This paper describes the development and testing of an audit tool for cardiac rehabilitation, based upon previously published clinical guidelines⁴.

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Background

The volume, type and quality of evidence for cardiac rehabilitation is variable. For example, there is a comparatively large amount of randomised controlled trial (RCT) evidence available for exercise, whereas there is little RCT evidence but a growing volume of qualitative research evidence available for social support. In order to identify and sift such evidence, a workshop was convened at the Royal College of Physicians in late 1994 under the auspices of the National Institute for Nursing, the Research Unit of the Royal College of Physicians and the British Cardiac Society. Background papers reviewing the evidence of aspects of cardiac rehabilitation were prepared by eight experts (Table 1).

Participants represented consumers and health and social care professions, including cardiology, exercise physiology, health economics, health psychology, general practice, medical sociology, nursing, occupational therapy, physiotherapy, psychiatry and rehabilitation medicine. They also represented the interests of a variety of professional organisations and charities, including the British Heart Foundation, the British Cardiac Society and the British Association for Cardiac Rehabilitation.

Salient points from the pre-circulated papers were presented by the authors at the workshop, and each session was followed by open discussion among the participants. The proceedings were audio-taped and transcribed, resulting in the production of a report for each participant. Ultimately, agreement was confirmed for the consensus based guidelines⁴ and this yielded information for the development of a cardiac rehabilitation audit tool that was clear and unambiguous and provided easily accessible useful information for a range of health service personnel. The main principles in constructing the tool were to:

- address important cardiac rehabilitation issues
- design a clear and concise format not exceeding one page of A4
- seek information that should be readily available
- enable the recording of information that was likely to lead to improvements in the quality of care
- enable completion with ease and speed by any health professional.

Three single page proformas were designed:

1. *Patient proforma:* to retrieve information concerning the provision of cardiac rehabilitation for the individual patient.

Table 1. Review of evidence of aspects of cardiac rehabilitation

- Needs and action priorities
- Medical component
- Psychological component
- Social component
- Exercise component
- Vocational component
- Economic component
- Patients' experiences

2. *Patient summary proforma*: to enable a summation of a series of patients' results to be presented.
3. *Facility proforma*: to retrieve information concerning the policies, protocols and resources dedicated to cardiac rehabilitation.

The patient (and patient summary) proforma comprised eight sections (Table 2), and the facility proforma comprised five sections for the purpose of audit (Table 3). (Copies of the proformas are available from Professor Thompson on request.)

After compilation, the three proformas were reviewed by a cardiologist, nurse, psychologist and exercise physiologist who participated in the workshop, and amended according to their recommendations. This process was repeated until agreed proformas emerged and were ready for testing.

Method

The proformas were tested in three cardiac rehabilitation centres in England, each sited in a different health region. All centres claimed to provide a hospital-based programme. The purpose of testing was to determine whether the audit proformas could be readily used in practice and to establish the current level of record keeping associated with cardiac rehabilitation. Of the three participating centres, one had a

Table 2. Sections of the patient (and patient summary) proforma

- Initiating event
- Risk factor assessment
- Exercise capacity
- Personal plan
- Exercise programme
- Psychological state
- Education and support
- Medical investigations and treatment

Table 3. Sections of the facility proforma

- General information
- Policy
- Special group attendance
- Programme resources
- Training protocol

cardiac rehabilitation service that had been in operation for over eight years and offered a range of interventions to support patient education and adaptation; this was judged by the researchers to be a 'high' provider of rehabilitation. Another centre had been in operation for three years and offered mainly an education and exercise programme; this was judged to be a 'moderate' provider of rehabilitation. The remaining centre had been in operation a few months and admitted difficulties in providing an effective level of support for cardiac rehabilitation; this was judged to be a 'low' provider of cardiac rehabilitation. The subjective judgements by the researchers were based on the descriptions by the cardiac rehabilitation coordinator of each centre of the services on offer.

Procedure

The cardiac rehabilitation programme coordinator of each centre was invited to conduct the audit. They were asked to locate and examine the medical case notes of a consecutive series of 30 cardiac patients who had received cardiac rehabilitation twelve months prior to the audit. This was to ensure that sufficient time had elapsed for all available information to be recorded. The information required for the patient and facility proformas was systematically sought and recorded by the coordinators and then forwarded to the researchers who completed the patient summary proforma. At the outset of the study, coordinators were asked to make notes concerning the proformas' content, design and ease of completion, and any difficulties encountered during data collection. They were also invited to contact one of the researchers (GSB) if problems arose. At the completion of data collection, the coordinators were contacted by telephone and asked about their experiences with the proformas. Suggestions were incorporated where appropriate in the final draft.

Results

Each of the three centres returned 30 completed patient proformas and one facility proforma. The results are presented under four subheadings: utility of proforma, reliability of recording information, benefits of audit and other observations.

Utility of proforma

The three cardiac rehabilitation programme coordinators reported the audit proformas as being easy to complete, though two of them offered a few minor suggestions on improving the layout, such as enlarging the type face and the boxes. The coordinators reported that, on average, each patient proforma took between 15 and 20 minutes to complete, depending on the availability of the case notes and the ease of locating the required information. Information related to the patient's medical state, such as coronary risk factors, was more readily available than that related to the patient's lifestyle, such as habitual exercise pattern. The facility proforma took roughly five minutes to complete.

Despite the opportunity for the coordinators to comment freely on the utility of the proformas, only two of them made suggestions: these were of a minor nature and were incorporated into modified versions.

Reliability of recording information

There were some obvious discrepancies in the recording of information. For example, in the 'low' provision centre, 21 patients were recorded as having an exercise test though only 13 were recorded as having exercise capacity assessed. In the 'medium' provision centre, only 11 patients were recorded as having an exercise test though 25 were recorded as having exercise capacity assessed.

Benefits of audit

Although the primary purpose of the study was to assess the use and reliability of the audit proforma, it is noteworthy that even at this pilot stage, clear differences were evident in the provision of cardiac rehabilitation, and the audit was able to inform the collaborating centres of their strong and weak points.

The 'high' provision centre had evidence of providing all aspects of cardiac rehabilitation. Its main weakness lay in three areas:

- the programme enrolled only patients with an acute myocardial infarction or angina
- the exercise component of the programme was hospital-based only
- there was no formal assessment of psychological state.

The 'low' provision centre had evidence of higher provision than the 'moderate' centre. Its main weaknesses lay in seven areas:

- the programme did not enrol patients with heart failure
- there was inconsistency in risk factor assessment
- few patients with a recorded assessment of exercise capacity had a recorded exercise test

- no patient had a personal rehabilitation plan
- the exercise component of the programme was hospital-based only
- there was little informal and no formal assessment of psychological state
- there was no support in the form of counselling, stress management or a home visit.

The 'moderate' provision centre had little evidence of a comprehensive rehabilitation programme. Its main weaknesses lay in seven areas:

- the programme did not enrol patients who had had cardiac surgery
- there was inconsistency in risk factor assessment
- no patient had a personal rehabilitation plan
- the exercise component of the programme was advice to continue activities of daily living
- a low provision of exercise testing
- there was little assessment of psychological state
- there was little education and no support in the form of counselling, stress management or a home visit.

Other observations

There were some interesting differences in recorded information between the three centres. For example, records in the case notes of the psychological state of the patient ranged from 10–100% among the three centres. With regard to coronary risk factor assessment, in the moderate and low provision centres blood fats, weight and height, and habitual exercise pattern and weight and height respectively, were recorded in the case notes of less than half of the patients.

Entry to the cardiac rehabilitation programme was almost exclusively restricted to patients who had suffered an acute myocardial infarction or angina, though one centre also included patients who had undergone cardiac surgery. The proportion of women enrolled varied between 20% and 40%.

The recorded provision for patients enrolled into a cardiac rehabilitation programme varied among the three centres in a number of ways. The number of patients with an exercise test ranged from 70 to 87% and the number with advice on exercise ranged from 37 to 100%. One centre did not refer patients to a hospital-based exercise programme. Only one centre provided a personal rehabilitation plan. The number of patients offered access to education ranged from 40 to 100% and the number referred for specialist (smoking cessation, vocational and sexual) counselling ranged from 3 to 50%.

Discussion

The success of cardiac rehabilitation largely depends on the caring professions, and, as a multidisciplinary activity, is in need of clinical audit⁵. According to

Walshe⁶, clinical audit is about learning from failings and using them positively as opportunities for improvement. However, it is still regarded by some health professionals as a separate, burdensome, repetitive, boring and time consuming activity⁷. This audit tool was designed to address the important components of cardiac rehabilitation and to identify strengths and weaknesses in service provision.

Prior to using the audit tool, a subjective assessment of the level of provision of cardiac rehabilitation in the three centres was made by the authors. This assessment was based on the verbal descriptions given by the cardiac rehabilitation programme coordinator of each centre. The notion of the level of provision had to be revised for two of the three centres in the light of the audit.

The considerable variation in the provision of cardiac rehabilitation among the three centres mirrors a wider national audit². Though the estimated costs of cardiac rehabilitation are comparatively low⁸, the level of provision reflects factors such as staffing and funding which vary considerably.

The advantage of using staff responsible for the provision of cardiac rehabilitation to conduct the audit was their understanding of how case notes were retrieved and the data located and interpreted. It was also a useful way of determining the utility of the proformas. The three auditors found the proforma clear and easy to use, the main difficulty encountered being location of information in poorly maintained case notes. Although the actual information required by the audit proforma is straightforward, the ease with which information can be extracted from case notes will depend very largely on the structure of those records. Better structuring of either the records themselves or a discharge summary would not only facilitate audit, but also almost certainly lead to an improvement in the quality of communication.

The coordinators reported that each patient proforma took about 20 minutes to complete. It may be argued that with a consecutive series of 30 patients this may indeed be a time-consuming exercise. However, even if only a small sample is audited at specified intervals, useful data will emerge that will allow a rehabilitation service to improve the quality of care provided to patients. There is certainly no need to audit the quality of care provided to every single patient. Appropriate sampling should be the basis of quality control.

Clinical audit operates on the basis that if an item of care is not recorded, it did not take place⁹. Hopkins, in an overview of clinical audit, describes some of the weaknesses in audit based on review of case notes⁹. These include bias in record retrieval, and inadequacies of data capture and information tech-

nology systems. It would have been interesting in this study to use an external, independent auditor in addition to the local staff to see whether any differences emerged in the type of information recorded: it is possible that local staff could be subjective and place their own interpretation on the type of information required.

The multidisciplinary nature of cardiac rehabilitation challenges purchasers and providers to pool the skills and knowledge of various professional groups for the benefit of patients. This simple and easy to use patient audit tool cuts across professional boundaries and thus should overcome some of the difficulties reported⁷.

Conclusion

The use of the cardiac rehabilitation audit tool in the three centres has shown that it is effective, clear and easy to use, and that it provides useful information that can indicate the strengths and weaknesses of individual programmes.

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