Effectiveness of nurse-led cardiac clinics in adult patients with a diagnosis of coronary heart disease

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CRD summary
This review concluded that there is value in using nurses to lead coronary heart disease clinics when adequate training is given and with the appropriate expectations of the clinic. The complexity of the interventions addressed and the outcomes used make direct comparisons difficult. However, the evidence presented supports the authors' conclusion.

Authors' objectives
To determine the effectiveness of nurse-led cardiac clinics in adult patients with a diagnosis of coronary heart disease (CHD).

Searching
CINAHL, MEDLINE, Current Contents, the Cochrane Library, DARE, Expanded Academic ASAP, TRIP, Rural, Dissertation Abstracts International and Proceedings First were searched from inception to August 2002 for English language articles; the search terms were reported. The reference lists of relevant articles were checked and four relevant journals were handsearched.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion.

Specific interventions included in the review
Studies of cardiac nurse-led clinics were eligible for inclusion. Specific concepts of interest were: education, assessment, consultation, referral and administrative structures or models. Interventions varied across the included studies; most focused on advice giving, referral, education and models of primary care delivery and compared nurse-led clinics with other types of clinics.

Participants included in the review
Studies of adults (aged 18 years or older) attending a cardiac nurse-led clinic with new or existing CHD were eligible for inclusion. The included studies evaluated patients with CHD receiving secondary preventive care, including patients awaiting a coronary artery bypass graft (CABG).

Outcomes assessed in the review
Studies that reported adverse events, readmissions or admissions, clinical- or cost-effectiveness, consumer satisfaction or compliance were eligible for inclusion.

How were decisions on the relevance of primary studies made?
Two independent reviewers determined the eligibility of the studies; any disagreements were resolved by discussion.

Assessment of study quality
Each included study was assessed on the basis of randomised allocation, baseline comparability of groups, comparable treatment and outcome ascertainment, blinding of the participants and the outcome assessor, concealed allocation, use of appropriate statistical analysis, reliability of outcome measure and adequate follow-up of participants. Two independent reviewers assessed the validity of the included studies; any disagreements were resolved by discussion.
Data extraction
Two independent reviewers extracted data from each included study using a standardised tool. Data were extracted on the outcome and results of each comparison group. For studies that used the general health questionnaire SF-36, data were extracted to allow the calculation of a mean difference for each domain. Odds ratios were calculated for dichotomous data and mean differences for continuous outcomes.

Methods of synthesis
How were the studies combined?
Heterogeneity and inconsistencies in reporting precluded the statistical combination of most outcomes. The studies were combined in a narrative based on each reported outcome. A narrative summary of each included study was also presented. For studies that used the general health questionnaire SF-36, the results of each domain were combined using a fixed-effect meta-analysis to give a weighted mean difference with 95% confidence intervals.

How were differences between studies investigated?
Differences between the studies were discussed in the narrative, and were apparent from the tabulation of individual studies. Statistical heterogeneity was assessed using the chi-squared and I-squared statistics.

Results of the review
Six RCTs (n=3,939) met the inclusion criteria (the interim and final analysis of one was reported separately, thus 5 individual RCTs were included in the review).

Measures of anxiety and depression were improved in 2 studies that evaluated nurse-led clinics, whereas 2 studies that compared general practitioner (GP) clinics with nurse-led clinics showed no statistically significant difference in anxiety or depression.

Satisfaction in patients awaiting CABG was higher with nurse-led clinics (1 study); no comparison was made with GP care.

Angina symptoms were reduced in 3 studies: 1 study found improved physical limitations and number of attacks following the provision of a nurse-led structured Angina Plan and educational session, while 2 studies comparing nurse-led clinics with GP care found a reduction in exercise-induced angina and fewer patients who reported worsening of angina, respectively.

An assessment of general health status using the SF-36 instrument (2 studies) showed that nurse-led clinics were associated with statistically significant improvements compared with GP care in all domains, with the exception of mental health, energy and vitality (1 study). There was evidence of statistical heterogeneity in some of the domains assessed.

Blood-pressure was improved in nurse-led clinics compared with GP care, with a higher percentage of untreated hypertensive participants associated with GP care (1 study). No significant difference was found in the number of untreated hypertensive participants between specialist cardiac care and GP care (1 study).

Cholesterol levels in patients awaiting CABG were significantly reduced in patients receiving nurse-led care compared with GP care (1 study).

Prescribing of antiplatelets (1 study) and cholesterol agents (2 studies) was increased in patients receiving nurse-led and GP care. Untreated hypertension was apparent in 19% of patients in both nurse-led and GP care groups (1 study).

In terms of lifestyle, 1 study comparing nurse-led clinics with usual care in patients awaiting CABG showed improved body mass index, amount of activity and reduced levels of smoking, favouring the nurse-led clinic. One study comparing specialist cardiac nurse care with GP care showed no difference in diet or levels of smoking. One study comparing a nurse-led Angina Plan with an educational session showed improved dietary intake and amount of activity, favouring the Angina Plan. One study comparing nurse-led and GP clinics showed a reduced level of smoking.
One study comparing a specialist cardiac nurse-led clinic with GP care showed an increase in follow-up in both groups, with twice as many patients in the nurse-led clinic attending follow-up.

Admission rates between nurse-led and GP care were reported in 2 studies, one favoured nurse-led clinic and the other showed no difference between nurse-led and GP care.

**Authors' conclusions**
Nurse-led clinics were favourable for some outcomes and on a par with GP clinics for other outcomes, suggesting that nurses should be allowed to lead CHD clinics when adequately trained and with the appropriate expectations of the clinic.

**CRD commentary**
The review addressed a clear research question and the inclusion criteria appeared appropriate. Several relevant sources were searched for published and unpublished studies. However, the inclusion of only English language studies means that some studies may have been overlooked. Methods were used to minimise reviewer error and bias in the study selection, data extraction and validity assessment processes. The validity assessment was appropriate and a summary of the quality of each study was given.

Adequate details were presented on each of the included studies, suggesting that the methods used to combine the studies were appropriate. A fault with the review is that the authors considered the interim analysis and final analysis of the same study as 2 separate studies, when in fact only 5 studies met the inclusion criteria, not six as reported. However, the authors did go on to consider them as 1 study in the presentation of results. The complexity of the interventions addressed, along with the differences in interventions and outcomes across included studies, make direct comparisons difficult. In addition, there was evidence of heterogeneity in some of the meta-analyses. However, overall, the authors' conclusion would appear to be supported by the evidence presented and can thus be considered reliable.

**Implications of the review for practice and research**

**Practice:** The authors suggested that staffing with experienced CHD nurses is a preferred practice model. The authors also gave the following recommendations for practice: nurse-led clinics are recommended for CHD; nurse-led clinics should be used to increase clinic attendance and follow-up rates; and nurse-led clinics should be used for patients who require lifestyle changes to decrease their risk of adverse outcomes associated with CHD. All recommendations were based on level II evidence.

**Research:** The authors stated that further modelling is needed to determine the cost-effectiveness of cardiac-led clinics.

**Bibliographic details**

**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.