



Best Practice

Evidence based information sheets for health professionals

Nurse-led interventions to reduce cardiac risk factors in adults

Recommendations

- Nurse-led clinics may reduce cardiac risk factors in healthy adults, as well as those with established heart disease or known cardiac risk factors. **(Grade A)**
- The use of nurse-led clinics is particularly supported in relation to blood pressure management, cholesterol reduction, dietary modification and increasing physical activity. **(Grade A)**
- Long-term benefits of nurse interventions can be seen for some outcomes such as dietary modification and cholesterol levels, whereas others such as smoking cessation were inconclusive. Research needs to be undertaken to determine how best to support the nurse-led clinic with the aim of improve sustained improvement of health measures. **(Grade A)**
- The cost-effectiveness of nurse interventions in relation to those provided by general practitioners or hospitals need to be established for each healthcare system. **(Grade A)**

Information Source

This Best Practice information sheet updates and supersedes the Joanna Briggs Institute (JBI) information sheet published in 2005² which is based upon a systematic review of 6 randomised clinical trials.³ Additional information has been derived from a systematic review published in 2007.⁴ In total, this information is derived from 22 randomised controlled trials. Original references can be sourced from the systematic reviews.^{3,4}

Background

In recent years there has been a general shift of focus in the management of chronic disease from the hospital to the community. An emerging area in community healthcare is the nurse-led clinic. Nurse-led clinics are seen to focus on health promotion and education, rather than treatment of illness and are well received by patients. There are also benefits for the practice nurse, as nurse-led clinics provide an opportunity for increased development of professional autonomy amongst nurse practitioners, particularly in areas of chronic disease, such as cancer therapies, continence management, wound care, smoking cessation and Coronary Heart Disease (CHD).

Coronary Heart Disease is the major cause of illness and death in Western countries, an effect which is likely to increase as the population ages. Many of the included studies were conducted in the United Kingdom, where there is a high incidence of CHD; however, the care processes are no different to other Westernised countries and the outcomes are considered comparable. Individuals with established CHD are at the highest risk of experiencing further coronary events. Establishing and maintaining a healthy lifestyle may contribute significantly in reducing cardiovascular mortality in these individuals. In the current economic and political climate, optimising the management of the chronically sick is a prime concern. Providing nurse-led services to divert patients from busy hospital and general practice settings has been suggested as one way of maintaining quality care of patients with chronic illness, such as CHD. Conceptually, practice nurses have the potential to contribute to risk factor reduction as a result of their familiarity with the patient, availability for sustained consultation and the potential to apply interventions when patients are ready to initiate change rather than during a period of acute crisis.

Grades of Recommendation

These Grades of Recommendation have been based on the JBI-developed 2006 *Grades of Effectiveness*¹

Grade A Strong support that merits application

Grade B Moderate support that warrants consideration of application

Grade C Not supported

Definitions

For the purposes of this information sheet the following definitions are used:

General practice nurse – a registered or enrolled nurse who provides nursing care in a general practice environment, under some degree of supervision from their employing general practitioner.

Coronary heart disease (CHD) – a term that covers a wide array of disorders, including diseases of the cardiac muscle and the vascular system supplying the heart, brain, and other vital organs. The most common manifestations are ischemic heart disease, congestive heart failure, and stroke.

Cardiac risks factors – health or lifestyle influences that increase the chances of CHD. Known risk factors include being overweight, smoking, elevated cholesterol levels, sedentary lifestyle and having a high intake of alcohol.

Objective

The purpose of this information sheet is to present the best available evidence for nurse-led clinic interventions that reduce cardiac risk factors in healthy adults as well as those with known cardiovascular disease.

Quality of the research

These reviews consist of Level A evidence in the form of 22 randomised controlled trials (RCTs). This information sheet represents a synthesis of the results of these trials. It should be noted though that several trials were limited by the presence of small sample sizes and relatively short follow-up periods.

Types of Intervention

The interventions of interest were those related to the broad area of practice, incorporated within nurse-led clinics for patients at risk of CHD. They included a range of strategies such as individualised health assessment, lifestyle counselling and advice giving, health education, follow-up, referral and motivational interviewing. More specific areas of focus were smoking cessation, reduction of alcohol consumption and weight loss programs. The effects of nurse interventions were most commonly compared with “usual care” however this was not always fully detailed.

Outcome measures

Primary outcomes of interest were; blood pressure, alcohol intake, cholesterol levels, diet, amount of physical activity undertaken, smoking status, body mass. Results of these outcomes are reported below. Secondary outcomes of interest included anxiety, depression and satisfaction with treatment. There is some evidence to suggest that patients with known CHD showed a significant reduction in self-reported symptoms of anxiety and depression following nurse-led education sessions and motivational interviews, compared with usual care.²

Blood pressure

Participants who received nurse-led guidance in the form of motivational interviews, consultations and an educational manual had reduced systolic and diastolic blood pressure after 18 weeks, regardless of their initial health status. Five trials (3 clinical and 2 in the general community) found significant reduction in blood pressure either between the intervention and control groups or from baseline to the 12-month follow-up. Prescription of antihypertensive drugs also decreased substantially during this time. Follow-up data at 18 months was provided by two studies which revealed no significant difference between mean systolic or diastolic blood pressure for the intervention groups compared with controls. These findings imply that the nurse interventions are effective over a 12 month period; however this benefit is no longer seen at 18 months.

Alcohol intake

The effect of nurse-led education sessions on alcohol intake was assessed in two studies and both found that participants – either with or without known cardiac risk factors- decreased their alcohol intake in response to nurse-led information sessions. This result was significant at 18 weeks but was not sustained at 12 months, 18 months or 4 years.

Body Mass

Studies that examined the body mass of overweight individuals reported a decrease in percentage body weight or body mass index (BMI), over a third of participants lost up to 5% (Counterweight study, 2005). It was unclear in most studies was about whether the weight loss was sustained long-term.

Cholesterol

Three studies demonstrated significant improvements in mean cholesterol levels at 3 months, 12 months and 4 years. One study noted that those with higher initial cholesterol levels showed larger decreases than those with lower starting levels. Potentially, this reflects the capacity for change in contributing factors such as dietary intake in this group. One study highlighted that a practice nurse-led group showed significant reductions in total cholesterol, high and low density lipoprotein concentrations compared to baseline at the end of a 6-month trial. Another study compared practice nurse advice to usual care. 80% compliance was achieved at the 12-month follow-up with the intervention group indicating mean reduction in serum cholesterol compared to the control group. This was accompanied by a fall in the percentage of food energy from both total and saturated fat.

Diet

Four studies using either a self-report questionnaire, fat score or saturated fat intake showed general improvement in diet following nurse-led intervention. Two CHD-oriented studies reported significant improvements in diet. The Change of Heart study (2005) demonstrated greater decrease in fat intake of the intervention group compared to the control group. Two studies reported significantly lower saturated fat intake by the intervention group at 1 and 4 years, suggesting sustainable lifestyle changes.

Physical activity

Studies that examined the impact of nurse intervention on the level of physical activity revealed a general increase in the amount of self-reported physical activity being undertaken by participants.

Counselling combined with nurse education and an education booklet led to an increase in walking distance covered. A high or low level of patient-nurse interactions had no effect on physical activity.

Smoking

The effectiveness of nurse-led interventions on smoking cessation is unclear and is complicated by self-reporting methods. One study reported a significant decline in cigarettes smoked per day in the nurse intervention group after 4 months (Change of Heart study). A decrease in the number of cigarettes smoked per day was maintained in the intervention group at one year, however it was no longer significantly different from controls.

There were discrepancies between self-reported smoking status and laboratory results, i.e. participants in control and intervention groups continued to smoke despite claiming to have stopped.

Conclusions

More recent research does not alter the recommendations published in 2005. The importance of nurse interventions in the management of coronary heart disease and risk factor reduction is recognised in terms of improved health outcomes for patients. However, the variation in outcome measures and inconsistent findings between some studies makes it difficult to draw firm conclusions. Improvement was demonstrated in the outcomes of anxiety and depression, quality of life, general health and lifestyle including dietary intake and physical activity. Beneficial effects attributable to nurse-led clinics were also identified for reduction in severity of angina, blood pressure, cholesterol levels, adherence to medication schedules, and lifestyle changes. Of these, only blood pressure, body mass and cholesterol levels were measured on the patient. All other outcomes were self-reported and should be interpreted with caution. It should be noted that reductions in blood pressure were reported at 12 but not 18 months, indicating that interventions are effective in the short and medium term. This trend of early and medium term success is also observed with reduction in body mass. Additional methods may need to be employed for there to be long term changes. Improvements in diet and cholesterol levels were observed up to 4 years after the intervention, showing that nurse-interventions can have long-term benefits on health care outcomes. The effectiveness of nurse-intervention on smoking cessation is unclear, there is some evidence to suggest that the number of cigarettes smoked decreased during the short term, however this was a small



reduction which was not sustained past 12 months.

There were no negative outcomes of nurse-led clinics reported by any of the studies.

Further examination of the content and delivery of practice nurse interventions needs to be conducted to maximise beneficial outcomes. Additional research is also required to establish the cost-effectiveness of nurse interventions, as compared to those provided by general practitioners or other health professionals. Given the disparity between international health systems, studies related to cost-effectiveness need to consider individual health system differences.

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In addition this Best Practice information sheet has been reviewed by nominees of international Joanna Briggs Collaborating Centres.

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This *Best Practice* information sheet presents the best available evidence on this topic. Implications for practice are made with an expectation that health professionals will utilise this evidence with consideration of their context, their client's preference and their clinical judgement.⁵



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