Title
Occupational Health Promotion: Reducing Cardiovascular Risk in the State Rail Authority

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Occupational health promotion: reducing cardiovascular risk in the SRA*

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I.SCHAEMIC heart disease (IHD) is an important cause of death and disability in the Australian worker population. This paper reports on the preliminary results of an IHD risk factor screening survey amongst New South Wales State Rail Authority employees. Increased levels of cholesterol and blood pressure were found in this group when compared to a group of Australian males from similar occupational categories. An educational program Staying Healthy The Australian Way was offered to all participants in the survey. Preliminary follow-up results on these people indicate that this intervention was both an appropriate and also an effective way of modifying IHD risk factor levels in an industrial population.

KEYWORDS  
CARDIOVASCULAR DISEASE  
SCREENING SURVEY  
EDUCATIONAL PROGRAM  
WORKPLACE HEALTH PROMOTION

INTRODUCTION
Cardiovascular disease is a major concern in Australia as it is the cause of about half of all deaths and the cause of a significant number of those deaths that occur early, during the productive years. In addition, there is significant untimely morbidity associated with the disease as well.

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the disease which also affects the individual’s quality of life as well as productivity.

The fact that heart disease affects many people before the age of retirement makes its prevention directly relevant to both employers and unions. The fact that prevention is possible with a change in lifestyle, even if the healthy lifestyle is clearly not the preferred way of living for most people, means that both employers and unions need to be involved in motivating people to choose healthier lifestyles.

In 1986, the Chief Executive of the State Rail Authority [SRA, N.S.W.], approved plans for a study of the heart disease risk of a number of occupations within the organisation. The impetus for these plans had come from union concern about the possible increased level of risk associated with what was perceived as a more stressful job. The occupations included in this study were engineers, guards, rostering officers and shunters, with a sample of clerks for comparison purposes.

The Study was to be a demonstration project which had the following aims:

1. To identify whether there was any extra risk of heart disease either in the State Rail workers as a whole (compared with the National Heart Foundation random sample), or in the different occupations within State Rail.
2. If any increased risk was identified, to implement a health promotion program to reduce the level of risk. This health promotion program should be as cost-effective as possible.

This article reviews the approach used to achieve these aims, with particular reference to the role of health promotion strategies. In addition, some of the early results are presented.

IS THERE AN INCREASED HEART DISEASE RISK IN STATE RAIL?

A special Union Advisory Committee was set up to ensure that the rights of workers were protected and to help in the interpretation and dissemination of research findings. The study selected an age-stratified random sample of approximately 3,000 men, from the selected occupations, from the State Rail payroll. All those who were selected for participation were invited to first attend a free health check made available during work time.

PARTICIPATION IN THE STUDY

From the very start, it quickly became obvious that many workers were particularly concerned about possible future work discrimination should their personal health check results be entered on a file at the State Rail Authority. This fear was proffered as a major reason why workers were reluctant to take up the offer of a free health check. To overcome this, the Union Advisory Committee in conjunction with the study team made a 10-minute videotape on the benefits of being in the study and drawing attention to the safety checks that were in place to ensure the utmost confidentiality of any information provided during the course of the study. This videotape was then distributed through union stewards to all sites where workers had been invited to participate.

As the study progressed, it became obvious that there was another very important reason why some people were reluctant to join the study. Many study participants had taken their study results back to their local doctor for confirmation, as suggested by our study team. Unfortunately, many doctors are under the misapprehension that only cholesterol measurements taken when the subject is fasting yield accurate results. The protocol that this study used was based on the advice of the National Heart Foundation, which indicated that fasting was not necessary. Local doctors, still believing that fasting cholesterol was essential, advised their patients that the study results were unreliable. This issue had not been foreseen by the study team.

Early remedial action, a strong letter from the chairman of the Diet-Heart Committee of the National Heart Foundation explaining the facts, was prepared. This letter was sent to any person who indicated concern so that they could, in turn, show it to their doctor. This issue could have been prevented if participants had been willing to identify their...
personal doctor at the time of entry into the study; an "Introduction to the study" had been prepared for circulation to all such doctors, however, only 15% of participants actually indicated that they had a doctor whom they regularly attended. The result of this influence means that a total response rate of the order of 60% is anticipated. This is a reasonable good response rate in occupational health promotion.

CARDIOVASCULAR RISK FACTORS IN STATE RAIL

The first 600 participants in the study have been analysed at the time of writing, August 1987, and their results compared with male transport workers and clerks of the same age in the National Heart Foundation Risk Factor survey of 1983.

Figure 1 compares the levels of the three major risk factors (Smoking, High Blood Cholesterol, High Blood Pressure) in the two populations. These pie charts clearly indicate that there is significant extra risk in the State Rail (SRA) sample with only 24% of people in this sample without any major risk factor compared with over 40% in the comparable National Heart Foundation (NHF) sample. Conversely, double the number of people in the SRA sample were high on all three risk factors compared with the NHF sample. Using the relative risks calculated from the large scale multiple risk factor intervention trial (MRFIT) project which had almost 400,000 people screened for risk factors and followed up over seven years, the SRA sample has approximately 2.5 times the risk of cardiovascular disease related death in the next seven years compared with the NHF sample.

The SRA sampled population smoked at a lower level than the NHF sample, however, they were much higher on blood cholesterol and blood pressure risk factor scores. Figure 2 [see next page] indicates clearly that over 50% of the SRA population had a blood cholesterol greater than 6.5 mmol/l. Further, only 18% of the SRA sample was within the same NHF proportions.

The proportion of pressure (diastolic blood pressure) is shown in Figure 3 [below]. It included more people at the upper end of the scale. One-third of those individuals in the SRA sample had high blood pressure, 27% in the referred
18% of the SRA sample had cholesterol levels below the recommended threshold of the National Heart Foundation (5.5 mmol/l) compared with almost 50% of the referant NHF population.

Figure 2
Distribution of cholesterol levels
SRA and NHF populations

The proportion of both populations with high blood pressure (diastolic over 95 mmHg) is presented in Figure 3 (below). In all age groups the SRA population included more people who were hypertensive. One-third of those aged over 45 years in the SRA sample had high blood pressure, compared with about 27% in the referant population.

Figure 3
Diastolic hypertension by age
SRA and NHF populations

The program to reduce cardiovascular risk

The goal was to develop a cost-effective program to motivate participants to change their lifestyle so as to reduce their risk of heart disease. It is well known that people, similar to the participants in this study, are poor attenders at groups formed with the aim of helping them to change their behaviour. In addition, in a large scattered organisation such as the SRA, such an approach would have significantly inhibiting cost implications. Because of this, it was decided that the only feasible option available was a self-help program aimed at motivating participants to make and maintain healthy lifestyle changes.

Experience in other programs with similar goals indicated that attention to the following could be helpful in making a self-help program work:

1. The risk factor results should be explained in lay persons’ terms.
2. Participants should be able to choose the risk factor on which they wanted to work.
3. The package should be very readable, e.g. be written in large print and in an easy-to-read informal style.
4. Participants should receive the full program in instalments so they would be regularly reminded of their need to modify their risk factor levels.
5. Instalments should be divided into short term target and action goals (e.g. a three week period).
6. Instalments should be so designed that the chosen risk factor could be easily displayed in a place where it would continually come to the attention of the participant (e.g. the refrigerator door).
7. There should be a limit of about four instalments for each risk factor.
8. Where possible, recommendations contained in the instalments should be cross-referenced across risk factors.
The program Staying Healthy: The Australian Way was written by Prue Breitrose, the print media director of the Stanford Heart Disease Prevention Program, in conjunction with one of the authors (John Pierce) specifically to meet these criteria.

BUILDING SOCIAL SUPPORTS FOR CHANGE

In addition to the factual information about the risk factors, experience has shown that people are likely to change their behaviour if there is an environment of support within the community, their family and among their friends. Accordingly, the study needed to do something to raise the general awareness in the community and among SRA workers that behaviour changes were a good idea.

The approach chosen was to concentrate on the high cholesterol issue and the “Pathbusters” campaign was launched, funded by the Federal Department of Health, with the aim of making high profile changes in the canteen food offered by the SRA. A feature of the campaign was instant cholesterol readings which were taken of workers eating in the canteens.

IMMEDIATE EVALUATION OF THE HEALTH PROMOTION PACKAGE

Workers were enrolled in the self-help program at the time of their initial examination. Four months after entry into the study, participants were surveyed on how they had liked the health promotion package and on any changes that they had tried to make in their lifestyle.

There was an overwhelming support for the study with almost 40% of the participants nominating the design of the Staying Healthy: The Australian Way package as one of the best points of the study. Other key aspects of the package nominated were the initial health check, and the general level of awareness about health which the study had engendered.

At this four month juncture, 44% of participants felt that they had an urgent need to reduce their blood cholesterol level. Twenty-six per cent of the total felt that they urgently needed to make a major change in the amount of fat that they had in their diet so as to achieve this goal. A further 42% of participants felt that they probably needed to reduce their fat intake. These figures indicate that the program had a major impact on the motivation of participants to reduce their heart disease risk.

Participants also indicated that they had made lifestyle changes — 30% indicating that they had already made a major change in their diet, and 60% reporting that they had been successful in instituting some change.

EFFECTIVENESS IN REDUCING CHOLESTEROL LEVELS

The key issue in a health promotion program is not that people indicate an interest in changing what they do, but clear evidence that the risk factor of concern is reduced in the participants.

The study is currently recalling a weighted random sample and repeating the health check. The variable of most interest is the cholesterol level.

As of July 1987, i.e. one year after initiating the study, 40% of those in this weighted random sample had been through their repeat health check. The mean plasma cholesterol of this group before the study was 7.5 mmol/l. One year later this had been reduced to 6.8 mmol/l, a 9.5% reduction in the level of cholesterol. The major overseas studies indicate that such a reduction in cholesterol will be associated with an approximate 20% decrease in later heart disease in this population.1 Thus the program has been associated with a major improvement in the health of the SRA participants.

The literature on health promotional attempts to change cholesterol levels has indicated that, in a community study, a change of about 4% is achievable.5 In high risk patients not on medication, the level of change reported at one year is around 5%.7 If the patient is taking the drug clofibrate, then the mean reduction is of the order of 13%.1 It is clear that the Staying Healthy: The Australian Way health promotion package is having a major impact on the SRA population, well above what would be expected from previous studies.
CONCLUSION

The workplace is a key place in which to improve the health of Australians. The SRA study has shown that support systems, behaviour change and change in the work environment, such as healthier canteen food, can achieve a reduction in the risk of heart disease in the working population. Further, by careful attention to health promotion techniques (such as awareness programs and the presentation of a self-help package which is appropriate to the language levels of the respondents) a cost-effective package can be delivered and greatly improve the health of the workers.

References


