Evaluation of a community-based health promotion program supporting public policy initiatives for a healthy diet

DAVID DUNT, NEIL DAY and JANE PIRKIS

Centre for Health Program Evaluation and Centre for Program Evaluation, The University of Melbourne, Australia

SUMMARY

The ‘Towards a Healthy Diet’ phase of the Shepparton Healthy Heart Project was evaluated. The principal goal of this phase was to promote public policy initiatives that promoted healthy diet, supported by changes in community opinion and interest in healthy diet. Changing individual behaviour was a secondary goal only. These public policy initiatives were directed at eating places, schools and the health services. The eating places initiative promoted healthy practices in food preparation and presentation as well as customer healthy food choice behaviours. These initiatives were accompanied by media-based health education and community events. The evaluation employed a two-community, quasi-experimental study design which assessed process, formative and impact (but not outcome) dimensions relevant to the program’s objectives. Community opinion as well as dietary behaviour and cognition about healthy diet were assessed using a panel mail questionnaire survey of 1137 residents in the two communities. Community awareness and response to Towards a Healthy Diet were assessed at its completion in a separate cross-sectional mail questionnaire survey of 703 residents of Shepparton. Supermarket sales figures supplemented assessment of behaviour. Fifty-one eating places were assessed using interviews of a panel of proprietors/managers as well as on-site inspections. Initiatives aimed at schools were assessed by on-site interviews, those at general practitioners by a panel mail questionnaire survey. Towards a Healthy Diet achieved its goals only in part. A higher proportion of Shepparton residents reported recent increases in the number of eating places offering healthy food and local residents eating healthy food. There was a significantly greater increase in the number of fruit dishes offered in Shepparton eating places as well as customer requests for fruit. Changes in individual behaviours only differed in the two communities for frequency of eating take-away food, where there was a significant decrease in Shepparton. Canteen policies were more frequently implemented in Shepparton schools. This study provides support for community-based approaches to healthy diet-based public policy initiatives supported by social marketing in the future. Further rigorously evaluated demonstration projects are necessary to replicate and extend these results. This is true for other alternative approaches to community-based programs so far implemented for promoting healthy diet.

Key words: determinants of health; environmental health; health education

INTRODUCTION

The very high rates of coronary heart disease morbidity and mortality existing in all industrialized societies have generated considerable interest in both its primary and secondary prevention. A very important primary prevention strategy has been the community-based Heart Health Program, which is directed at behaviour change in the whole population and consequently groups at all risk levels, and not just high-risk sub-groups. These programs generally include community risk factor education in relation to diet, smoking and physical activity. The dietary components are given most emphasis in this paper. Such programs are based on mass media, adult classes,
schools, etc. There is usually community participation involving community organizations, their leaders as well as other volunteers, and (sometimes) risk factor screening. Their goal has been to produce behaviour and risk factor change, and ultimately to reduce morbidity and mortality among individuals in the intervention communities.

These community-based programs have attracted substantial funding. The best known of these in recent years have been the three programs and studies funded by the US National Heart, Lung and Blood Institute—the Minnesota Heart Health Program, the Stanford Five-City study and the Pawtucket Heart Health Program (Jacobs et al., 1986; Lefebvre et al., 1987; Farquhar et al., 1990).

The recent evaluation of the most methodologically adequate of these—the Minnesota Heart Health Program—however, reported disappointing results (Luepker et al., 1994). While many intervention components proved effective in targeted groups, against a background of strong secular trends of increasing health promotion and declining risk factors, the overall program effects (including cholesterol and body mass index) were modest in size and duration, and generally within chance limits.

The evaluation of the Stanford Five-City Program concluded that community-based cardiovascular disease prevention trials could have sustained effects. However, the modest net differences in risk factors (including cholesterol) suggested the need for new designs and interventions that will accelerate positive risk factor change (Winkleby et al., 1996). The evaluation of the Pawtucket Program concluded that achieving cardiovascular risk reduction (including cholesterol and body mass index) at the community level was feasible, but maintaining statistically significant differences between cities was not (Carleton et al., 1995). Accelerating risk factor changes will likely require a sustained community effort with reinforcement from state, regional, and national policies and programs.

These results prompt the question whether these programs represent viable health promotional strategies in the future, and, assuming that they do, in what form and on what scale. The authors of the Minnesota Program as well as an editorialist in the American Journal of Public Health have argued that these community-based strategies are viable but that their program content, goals and objectives will need to be redefined (Luepker et al., 1994; Winkleby, 1994). These authors propose that, in the future, these programs should consist of Heart Health-related public policy initiatives. Traditional health educational strategies will still be necessary. Their purpose, however, will be to generate sufficient community support for the initiatives to be taken up and succeed, rather than as in the past, to achieve short-term individual behaviour change. The long-term goal of these initiatives would need to remain individual Heart Healthy behaviour change, but this is assumed to occur beyond the period of the program’s implementation.

These proposals concerning public policy initiatives require study and confirmation if they are to become a mainstream health promotion activity in the future. An opportunity for this presented itself in the evaluation of the Shepparton Healthy Heart Project (the Project). This was a community-based rural Heart Health Program in the community of Shepparton in Victoria, Australia.

The primary objective of the Project was to generate public policy changes supported by a traditional health education program. Only secondly was its objective to change short-term, individual behaviour, which was also to be achieved by the same traditional health education program.

This paper presents the overall results of the evaluation of the Towards a Healthy Diet phase of the project. This public policy objective was most vigorously pursued, and likely therefore to show an effect if successful. It aimed at changing practices relevant to a healthy diet in local cafes and restaurants, in schools, and among general practitioners and their patients. This was to be made possible by a change in public opinion generated by the Project. Because achieving healthy eating patterns is central to all of the Heart Health Programs described above, it is possible to investigate the feasibility of establishing public policy initiatives in Heart Health by reference to healthy diet.

This phase of the Project, and consequently its evaluation, was multifaceted. Results relating to both the public policy initiative and short-term behaviour change are presented amongst these and their relative impact compared.

METHOD

The evaluation employed a two-community, quasi-experimental study design which assessed process, formative and impact dimensions (but not outcome dimension) relevant to the program’s objectives.
The intervention community and its experience

Greater Shepparton (GS) was selected as the intervention community. GS is a closely settled irrigation area based on fruit growing and dairy industries in Central Victoria, Australia. The town of Shepparton is its main centre of population. In 1991, the population of GS was 50,483.

The Project began in October 1991 and continued for just over 2 years. Towards a Healthy Diet ran early in the Project, for 3 months. Like the rest of the Project, Towards a Healthy Diet was conducted by the Victorian Division of the Heart Foundation in conjunction with locally based working parties. It was essentially based on social learning or marketing theory to achieve its impact on individuals as well as other models for involvement of community leaders and their institutions (Rothman, 1970; Bandura, 1977).

Core activities were devised to meet these objectives. Amongst these were two media campaigns: ‘Fruit ‘N’ Veg with Every Meal’ and ‘Flavour without Fat’. Each was of 5 weeks duration. These were adapted from the successful media-based programs of the Health Department of Western Australia, and involved promotion via television, radio, brochures, tee-shirts and a variety of ‘media events’ (Scott et al., 1992). An annual ‘Fruit Salad Day’ as well as poster displays and cookbooks for sale in fruit and vegetable retailers were organized.

Three public policy initiatives were mounted alongside these media-based campaigns throughout Towards a Healthy Diet.

• The Eating Places Subprogram aimed at promoting the adoption of ‘healthy’ practices concerning food preparation and presentation in eating establishments. To this end, Heart Foundation staff visited all establishments and reviewed their current practices. The participation of eating places in the program and their conformity to Heart Foundation’s healthy diet recommended practices were recognized by wall plaques that could be mounted. ‘Table tents’ with healthy diet messages were also used.

• As part of the Schools Subprogram, resource packages entitled ‘What You Can Do’ were distributed to all school teachers. A canteen managers’ group supported by a newsletter was formed aimed at change in canteen nutrition policy and food offering.

• As part of the GP Subprogram, information kits were made available to GPs as well as brochures, and videotapes to patients. This was supported by a Project nurse.

During the intervention period, the people of GS were exposed to usual programs as well as the intervention. These consisted of services delivered mainly by medical practitioners and other health care professionals. They also included statewide services, e.g. the Food and Nutrition Program delivered under contract and funded by the State Department of Human Services.

The comparison community and its experience

Sunraysia (SUN) was selected as the comparison community. SUN is a municipality in North-western Victoria, based around the city of Mildura. Like GS, SUN has a large fruit growing industry. Its population size is similar, being 48,318 in 1991. The two communities also share similar socio-demographic characteristics. During the study period, SUN was exposed to usual programs only, as existed in GS.

DATA COLLECTION AND ANALYSIS

Methods relevant to community opinions and individual behaviour

Panel mail questionnaires

Pre- and post-intervention mail questionnaires were devised to assess the perceived impact of Towards a Healthy Diet on community interest and involvement in Heart Health generally, and healthy nutrition specifically. The questionnaires also assessed the impact of Towards a Healthy Diet on individual self-reported dietary behaviour. The questionnaires also ascertained perceptions about the other phases of the Project, but these are not reported here.

No previously developed instruments existed which addressed the above purpose. As a result, new data collection instruments relevant to Towards a Healthy Diet’s objectives were designed and piloted. These instruments took the form of pre- and post-intervention questionnaires. They comprised a series of checklists (in this case, Likert-style opinion statements) which have been reported to be an efficient, rapid and valid way to inform public health nutrition programs (Kristal et al., 1990).
The questionnaires assessed respondents’ perceptions of recent community changes in interest in healthy diet. Specific questions related to:

- the level of influence of local groups on healthy diet within their community (pre- and post-intervention questionnaires);
- the number of places supporting healthy eating (post-intervention questionnaire only);
- the number of other people in their community eating healthy food (post-intervention questionnaire only).

The instrument also included questions concerning individual changes in dietary behaviour and cognition, all of which were asked pre- and post-intervention. This included frequency of eating fresh fruit, vegetables or green salads, food fried in oil or fat, high- or low-fat milk products, fat on meat and table spreads. The frequency of eating takeaway foods (fish and chips, etc., not bread rolls and sandwiches) was also assessed. They also included participation in ‘diet classes’ over the past month, dietary intentions (using the Transtheoretical Model and the concept of self-efficacy) and knowledge of the effects of diet on heart health (Prochaska et al., 1982; Bandura, 1982). Socio-demographic variables were also included.

The pre-intervention and post-intervention questionnaires were mailed to respondents for self-completion prior to the commencement of the Project and 2 years later at the completion of the Project, respectively (note not at the end of Towards a Healthy Diet). In the event of non-response to the initial mail-outs, respondents were followed up with two further mail-outs, as well as telephone or home visit. Incentives (cinema tickets or gymnasium passes) were also used.

Samples of 1115 and 1090 residents of all ages in GS and SUN, respectively, were randomly selected from the Electoral Roll. From this sample, a panel was formed consisting of 591 residents of GS and 546 residents of SUN aged 18–74 years who completed both the pre- and post-intervention questionnaires.

Change in relevant parameters across the study period in the cohorts drawn from each community was compared. This was done using a scale (+4 to –4), created by subtracting pre- from post-intervention questionnaire scores for variables with ordinal rankings from 1 to 5. For items that were collected via the post-intervention questionnaire only, their ordinal rankings of 1–5 were compared. Statistical analysis for both types of variables was based on the Mann–Whitney U-test. No attempt was made to control for confounding variables, as there were no significant differences between the two cohorts on a large number of socio-demographic and minimal differences in Heart Health variables included in the mail questionnaire.

Supermarket food purchases study

In order to assess changes in patterns of food purchases across the Project period, a supermarket food purchases study was conducted. Sales of milk and table spreads at supermarkets in the two communities were monitored during the course of the Project. Sales of these products were relevant to the Flavour Without Fat campaign. Study of these products also had other methodological advantages—standard packaging, easy to identify as Heart Healthy or not, amenable to numerical analysis and not subject to widely fluctuating seasonal variations in price or demand.

Five supermarkets in GS and four in SUN had suitable scanning equipment, and all of these agreed to participate. Computer printouts of sales figures for all relevant items were obtained for the period immediately preceding Towards a Healthy Diet till the end of the Project (rather than the end of Towards a Healthy Diet). These sales figures were converted into volumes within each product category. Full-cream milk and butter, and saturated (regular) margarine, as proportions of all milk and table spread sales, respectively, were calculated monthly for each individual supermarket and combined within each community. These proportions in GS and SUN were then compared.

Mail questionnaire at completion of Towards a Healthy Diet

A self-completion mail questionnaire was also administered at the end of Towards a Healthy Diet in Greater Shepparton only. Its aim was to determine residents’ awareness of both media campaigns and recognition of advertisements and cookbooks used in the program, as well as some of their other responses to the program. This questionnaire was sent to a separate, randomly selected sample of 1105 residents registered on the electoral roll in GS only. Seven hundred and three residents, aged 18–74 years, responded. Proportions of residents with nominated category responses for awareness, recognition
and other responses regarding both media campaigns were reported.

**Methods relevant to public policy initiatives**

*Structured interviews of eating places’ proprietors and managers, and on-site observations*

Structured interviews of eating place proprietors/managers and on-site observations were undertaken in order to determine whether *Towards a Healthy Diet* had resulted in eating places adopting healthy diet practices. Answers were validated (or corrected) where possible by observation of the kitchen area, menus, table tents and posters by the interviewer.

The interviews were undertaken at the beginning of the overall Project and 2 years later at the end (rather than at the end of *Towards a Healthy Diet*). They were conducted in spring–summer in both communities in order to avoid seasonal effects. Some climatic differences did exist, however, between the two communities.

Interviewers asked open- and closed-ended questions concerning the following issues:

- customers’ various requests for grilled (rather than fried) food, fruit, extra vegetables and low-fat food;
- response of the eating places to these requests, in terms of style of cooking;
- composition of the menu (e.g. proportion of menu items not deep fried; number of salad and fruit dishes; type of cooking oil used);
- salt on table added to food;
- presence of health messages on menus or posters or in table tents.

Sampling frames of all eating places in both GS (116) and SUN (76) were compiled from several sources (e.g. the commercial section of the telephone directory and tourist brochures). Samples were selected using a random start within both sampling frames and a fixed sampling interval. To be eligible, an eating place had to have an attached kitchen, provide a response at both Project start and end, and be under the same management at both time points. Twenty-seven (out of 65) eating places in GS and 24 (out of 46) in SUN formed the study population.

Many questions were open-ended, requiring the construction of *post hoc* coding categories. The response of the eating place across Project start to end was classified as being ‘Heart Healthy’, ‘Heart Unhealthy’ or ‘No Change’. Net movement in GS compared with SUN was estimated. Statistical analysis was again based on the Mann–Whitney U-test.

**Semi-structured interviews of school canteen personnel/nutrition curriculum personnel**

An examination of the impact of *Towards a Healthy Diet* on school nutrition policy and practices was conducted. This involved semi-structured interviews of canteen managers, teachers or volunteers. The semi-structured interviews were designed to assess canteen policy and organization, importance of nutritional issues, school nutrition curriculum and canteen display areas. Sixteen of the 41 schools in GS and 13 of the 41 in SUN provided interview data. Statistical analysis was not appropriate.

**GPs’ mail questionnaire**

In order to determine the impact of *Towards a Healthy Diet* on GPs’ interactions with their patients, GPs in the two communities were canvassed using a mail questionnaire. The questionnaires were designed to assess whether GPs initiated enquiries about patients’ diet and their frequency of use of eight strategies to assist patients with dietary fat and cholesterol reduction. This was similarly performed regarding weight loss. Self-administered mail questionnaires were sent to GPs at the beginning of the Project and at its end (rather than the end of *Towards a Healthy Diet*). Where necessary, mail and telephone follow-up was conducted to maximize the response rate.

All GPs in the two communities were targeted. Twenty (77%) of the 26 identified in GS completed the questionnaire at both pre- and post-intervention, as did 15 (79%) of the 19 identified in SUN. Change in relevant parameters across the Project period towards practices supporting Heart Health was compared for GPs in GS and SUN.

**RESULTS**

**Panel mail questionnaires**

As noted, there were no significant differences in the socio-demographic characteristics of the two cohorts. For example, the mean ages for men in the two cohorts are 43.4 and 43.9 years in GS and SUN, respectively, and for females are 42.6 and 44.0 years. Ninety-five per cent confidence intervals for these age differences are –2.8, 1.6 years.
for males and −3.5, 0.7 for females. (Age limits imposed on samples are 18–75 years.)

Community impacts

With regard to the items assessed at post-intervention only, 58% of GS residents believed that there had been a recent increase in the number of eating places offering healthy food, compared with 48% of SUN residents. Similarly, 58% of GS residents believed that there had been an increase in the numbers of local residents eating healthy food, compared with 51% of their SUN counterparts. In both cases, these differences were statistically significant ($p = 0.002$ and $p = 0.03$, respectively, Table 1).

The change in perceived influence of local groups on healthy diet and weight reduction, measured at the beginning and end of the Project, did not differ significantly between the two communities.

Individual impacts

There were some modest positive changes in a number of individual dietary behaviours of GS residents from the beginning of the Project to its end (Table 2). However, these did not significantly exceed those of SUN residents. Specifically, there were no significant differences between the two communities in terms of increased consumption of fruit and vegetables, nor in decreased consumption of fried food, milk, fat on meat and butter.

GS did, however, perform significantly better than SUN in terms of decreased consumption of take-away food. Fourteen per cent of GS respondents decreased their reported consumption of take-away food between Project start and end, while only 10% of SUN respondents did so. At the same time, only 8% of GS respondents increased their reported take-away food consumption, compared with 11% of SUN respondents. Taken together, these results represent a statistically significant net collapsed movement of 7% in GS’s favour.

There was no significant difference between the two communities in terms of change in present behavioural intention or future confidence (self-efficacy) regarding diet, nor in terms of knowledge of the effects of unhealthy diet on heart disease.

Supermarket food purchases study

There was no evidence of any downward trend in the consumption of Heart Unhealthy products in GS during the Project period. In both GS and SUN, full-cream milk sales comprised between ~70–75% of all milk sales for the entire Project period. In GS the proportion of table spread sales accounted for by butter exceeded 20% in all but 4 months, whereas in SUN it never reached 20% and was below 15% for 11 months during the period. This may reflect the presence of a more substantial dairy industry in GS than in SUN. Higher proportional consumption of saturated (regular) margarine was also evident in GS compared with SUN.

Table 1: Perceptions of change in community interest in healthy diet, GS ($n = 591$) and SUN ($n = 546$)

<table>
<thead>
<tr>
<th>Structural and organizational change supporting healthy diet</th>
<th>GS (%)</th>
<th>SUN (%)</th>
<th>Net collapsed movement (GS–SUN) (%)</th>
<th>Probability*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number eating places healthy food</td>
<td>↑ 58.0</td>
<td>48.0</td>
<td>10.0</td>
<td>0.002</td>
</tr>
<tr>
<td>Community interest towards healthy diet</td>
<td>↑ 57.8</td>
<td>51.3</td>
<td>6.5</td>
<td>0.03</td>
</tr>
<tr>
<td>Number people eating healthy food</td>
<td>↑ 35.1</td>
<td>32.9</td>
<td>4.0</td>
<td>NS</td>
</tr>
<tr>
<td>Influence of groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy diet</td>
<td>↑ 64.3</td>
<td>31.4</td>
<td>7.7</td>
<td>NS</td>
</tr>
<tr>
<td>Weight reduction</td>
<td>↓ 31.2</td>
<td>36.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

↑, Change to healthy diet—*collapsed* data.
↓, Change to unhealthy diet—*collapsed* data.
*, Mann–Whitney U-test—*uncollapsed* data.
Change within each community was measured using a scale (+4 to –4), created by subtracting pre- from post-intervention questionnaire ordinal rankings of 1–5.
Towards a Healthy Diet

In general, there was high awareness of both media campaigns and advertisements, for both were frequently remembered (Table 3). Two-thirds of the sample remembered having seen the Fruit ‘N’ Veg campaign daily or every couple of days. A quarter of the sample had seen the Fruit ‘N’ Veg cookbooks and more than 10% reported use in their households. A smaller proportion of subjects reported a response to the media campaigns, the most frequent being stronger belief that diet affected health. In general, subjects responded more frequently to the Fruit ‘N’ Veg than the Flavour without Fat campaign and did so for a variety of dimensions.

Structured interviews of eating places’ proprietors/managers and on-site observations

In GS, 26% of eating place proprietors reported increased requests for fruit on the part of their customers between Project start and Project end (Table 4). This compared with only 4% in SUN. Balancing this increase against the proportion in each community who observed no change (70% in GS and 79% in SUN) or a decrease (4% in GS and 17% in SUN), this represented a statistically significant net heart health change of 35% in GS’s favour.

In response to these requests, 40% of GS proprietors reported an increase in the number of fruit dishes offered in their establishments, compared with only 17% in SUN. Again, when these figures were considered in conjunction with the proportion in each community who observed no change (52% in GS and 57% in SUN) or a decrease (8% in GS and 26% in SUN), the net heart health change was significantly higher in GS (41%).

There were no significant differences between the two communities in terms of reported requests for vegetables, low-fat foods or grilled foods. Nor was there any difference between the two communities in terms of the type of cooking oil used. Although there was a tendency for GS proprietors to more commonly report improved practices with regard to number of salad dishes provided and proportion of fried food on the menu, the respective net heart health changes of 34% and 38% did not reach significance.

Table 2: Change in individual’s diet behaviour, GS (n = 591) and SUN (n = 546)

<table>
<thead>
<tr>
<th>Individual’s diet behaviour</th>
<th>GS (%)</th>
<th>SUN (%)</th>
<th>Net collapsed movement (GS–SUN) (%)</th>
<th>Probability*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fruit ‘N’ Veg campaign (frequency)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh fruit</td>
<td>↑ 23.2</td>
<td>23.3</td>
<td>–0.9</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 20.3</td>
<td>19.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>↑ 18.2</td>
<td>19.5</td>
<td>–2.2</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 17.2</td>
<td>16.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flavour without Fat campaign (frequency)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fried food</td>
<td>↑ 18.9</td>
<td>21.6</td>
<td>0.5</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 18.6</td>
<td>21.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat on meat</td>
<td>↑ 15.8</td>
<td>17.7</td>
<td>–1.4</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 12.4</td>
<td>12.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td>↑ 21.8</td>
<td>18.8</td>
<td>4.7</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 17.9</td>
<td>19.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>↑ 15.4</td>
<td>13.0</td>
<td>3.8</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 11.0</td>
<td>12.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take-away</td>
<td>↑ 13.5</td>
<td>9.9</td>
<td>6.6</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>↓ 8.1</td>
<td>11.1</td>
<td></td>
<td></td>
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<tr>
<td><strong>Intention/self-efficacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present intention re diet</td>
<td>↑ 26.2</td>
<td>24.4</td>
<td>–1.1</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 22.7</td>
<td>19.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future confidence re diet</td>
<td>↑ 26.9</td>
<td>22.9</td>
<td>5.2</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>↓ 23.0</td>
<td>24.2</td>
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</tbody>
</table>

↑, Change to healthy diet—**collapsed** data.
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Change within each community was measured using a scale (+4 to –4), created by subtracting pre- from post-intervention questionnaire ordinal rankings of 1–5.

Evaluation of health promotion program

Mail questionnaire at end of Towards a Healthy Diet

In general, there was high awareness of both media campaigns and advertisements, for both were frequently remembered (Table 3). Two-thirds of the sample remembered having seen the Fruit ‘N’ Veg campaign daily or every couple of days. A quarter of the sample had seen the Fruit ‘N’ Veg cookbooks and more than 10% reported use in their households. A smaller proportion of subjects reported a response to the media campaigns, the most frequent being stronger belief that diet affected health. In general, subjects responded more frequently to the Fruit ‘N’ Veg than the Flavour without Fat campaign and did so for a variety of dimensions.
At the end of the Project period, a higher proportion of schools in GS than SUN had policies relevant to seven of the eight healthy diet areas (Table 5). Five of the 16 GS schools had changed their policy during the Project period, four as a result of Project input. Nutrition curriculum in GS and SUN schools followed central policy and
did not change across the Project period. There was little interaction between schools’ nutrition curricula and the operation of their canteens.

GPs’ mail questionnaire
There were substantially greater increases among GPs in GS than SUN in initiating discussions about weight loss, exercise and smoking across the Program. There was a substantially greater increase among GPs in GS than SUN recommending hypnotherapy as a weight loss strategy. Otherwise there was no consistent increase in strategies in GS than SUN GPs relating to the other seven dietary fat and cholesterol change strategies or the other seven weight reduction strategies.

DISCUSSION
Towards a Healthy Diet was successful only in part. The program’s ‘traditional health educational strategies’ generated high awareness of both media campaigns, its advertisements, cookbooks as well as other responses reported by respondents. This was insufficient, however, to have any marked impact on either individual dietary behaviour or indeed intention to change dietary behaviour, as assessed in either the panel questionnaire or supermarket sales figures for milk and table spreads. This is consistent with results of the dietary impacts of the US community-based Heart Health Programs (Jacobs et al., 1986; Lefebvre et al., 1987; Farquhar et al., 1990).

These ‘traditional health educational strategies’ had a more substantial impact on perceptions about the level of interest in healthy diet in the GS community (more eating places offering healthy food and more local residents eating healthy food).

In addition, there were some impacts on organizational practice (public policy initiatives). This was most apparent in the eating places subprogram. There were reports of change in customer behaviour (more requests for fruit) as well as proprietor/manager behaviour (more fruit and salad dishes, and less fried food offered). There were also other organizational impacts within both the schools subprogram (changes in school canteen policy) and the GP subprogram (GPs’ initiating discussions about dietary fat and cholesterol reduction as well as weight loss). This provides some confirmation sought for the proposals of the authors of the Minnesota Heart Health Program that, in the future, these future community-based Heart Health Programs should consist of public policy initiatives related to Heart Health, supported by traditional health educational strategies. It is not able to be determined from this study whether these public policy initiatives could have been achieved in the absence of the traditional health educational strategies.

It is interesting that there were only two exceptions to the overall pattern of minimal individual dietary behaviour change, i.e. decreased frequency of consumption of take-away food and increase in customer requests for fruit at eating places (as reported by proprietors/managers). Both involved behaviours concerning food cooked outside the home. It is possible that Towards a Healthy Diet with its established community impacts, has impacts on individual behaviours, such as these, which are most influenced by community norms.

Caution needs nevertheless to be exercised in interpreting the study’s results. A disadvantage of two-community evaluation studies is that it is difficult to determine the extent to which change would have occurred in the absence of the Project, i.e. whether there has been a community or a Project effect. Further studies are necessary to establish this point more definitively and in so doing, support the new underlying theory for future community-based Heart Health Programs, outlined above.

Alternative approaches
Programs based on public policy initiatives supported by social learning principles ultimately value the community—and its organizations, groups and key individuals—because they

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<th>Table 5: Canteen nutrition policies at end of Project period, GS (n = 16) and SUN (n = 13)</th>
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<tr>
<td>Low-sugar products</td>
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<tr>
<td>Low-fat products</td>
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<tr>
<td>Low-salt products</td>
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<td>Dietary fibre products</td>
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<td>Fruit</td>
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<tr>
<td>Vegetables</td>
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<tr>
<td>Healthy snacks</td>
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<td>Unhealthy snacks</td>
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reinforce or enhance the program’s primary social marketing approach. They are not, however, the only community-based alternatives to the whole community approaches exemplified by the Minnesota, Stanford Five-City and Pawtucket Heart Health Programs. Community development approaches in which the community, rather than external agencies or groups, initiate and undertake programs, are a clear alternative. ‘Community’ here has a different meaning, that of an ‘ecosystem with capacity to work towards solutions to its own community identified problems’ (Hawe, 1994). The role of the program or initiative is to harness and enhance the natural problem solving and helping processes in the community with regard to their health needs and health promotion priorities (Hawe et al., 1997). This, rather than a particular health-related behaviour, may be the immediate focus of these programs.

Individual approaches also exist in which individual practitioners offer dietary education to individuals, either in a clinical or community setting. Here, ‘community’ should be understood as a population or grouping of individuals (Hawe, 1994). To reduce costs, these interventions need to be brief or infrequent or both. For example, a home-based practitioner nutrition-initiated program aimed at hypercholesterolaemic children has been developed. Its use of health service practitioners was small as it relied for its implementation on a parent–child autotutorial group (Tershakovec et al., 1998). The interventions may also be ‘tailored’ so as to be suitable for groups with particular ‘readiness to change’ characteristics. For example, tailoring was a prominent feature of the Diabetes Control and Complications Trial (Anderson et al., 1993). Nutrition intervention in that trial was tailored to best meet a participant’s lifestyle, motivation, ability to grasp information and diet history. The Transtheoretical Model that focuses on an individual’s level of readiness to change behaviour is important in tailoring programs aimed at dietary change (Prochaska et al., 1982; Mhurchu et al., 1997).

Each of these different approaches, including the public policy initiative and social marketing approach, which is the focus of this paper, have their advocates and supporting literatures. Experience with programs exemplifying these different alternative approaches, however, is still relatively limited. This is because there have been relatively few such programs that have also been subject to rigorous evaluation. If community-based approaches are to assume an important place in the future in the prevention of diet-related diseases (including coronary heart disease), it is important that these alternatives are trialled and evaluated in this way. The results of this study support the inclusion of public policy and social marketing approaches in this further trial and evaluation stage.

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Address for correspondence:
David Dunt
Centre for Health Program Evaluation
PO Box 477
West Heidelberg
Victoria 3081
Australia

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