

Impact of the *Pick the Tick* food information programme on the salt content of food in New Zealand

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SUMMARY

The *Pick the Tick* programme of the National Heart Foundation of New Zealand aims to provide a framework for cooperation with the food industry to improve nutrition labelling and to develop a healthy food supply. Food manufacturers, whose products meet defined nutritional criteria, are able to display the *Pick the Tick* logo on food labels. The tick is used by 59% of shoppers in assisting them make healthy food choices. Food companies are encouraged to reformulate product composition if they fail to meet criteria and develop new products to specifically meet the *Pick the Tick* criteria. The objective of this study was to evaluate the impact of the programme on food formulation. The main outcome measure was the amount of salt not added to food products. Changes to sodium levels were multiplied by the volume of sales and then converted to salt in tonnes to

provide a tangible measure of the impact of the programme. In a 1-year period, July 1998 to June 1999, *Pick the Tick* influenced food companies to exclude ~33 tonnes of salt through the reformulation and formulation of 23 breads, breakfast cereals and margarine. Breakfast cereals showed the largest reduction in sodium content by an average of 378 mg sodium per 100 g product (61%). Bread was reduced by an average of 123 mg per 100 g product (26%) and margarine by 53 mg per 100 g (11%). *Pick the Tick* appeals to the food industry as a tool for marketing food products and has provided an incentive to improve the nutritional value of foods. The tick on approved products not only acts as a 'nutrition signpost' for consumers but can also significantly influence the formulation of products without sacrificing taste or quality.

Key words: food industry; food labels; food supply; salt

INTRODUCTION

High blood pressure is a major risk factor for cardiovascular diseases, especially stroke. Populations with a high average dietary salt intake have higher mean blood pressure and higher prevalence of hypertension (ICRG, 1988; Elliott *et al.*, 1996).

Salt is a commonly used food additive. In Western countries, 75–85% of the salt intake is non-discretionary from processed food (James *et al.*, 1987; Sanchez-Castillo *et al.*, 1987). Regularly consumed foods such as bread and cereals are not normally recognized as major contributors to salt intake yet they have been shown to be major

sources in the diet (Ernst, 1991; Joosens *et al.*, 1994).

While there is debate about the benefit of low salt diets for individuals with hypertension, there is consensus that a reduction in salt in the food supply will have population-wide effects on mean blood pressure levels (James *et al.*, 1987; Hegsted, 1991; Law *et al.*, 1991; MacGregor and Sever, 1996). It has been estimated that reducing the mean daily salt intake by 80–100 mmol (~5–9 g or half the daily intake) would benefit a population by reducing the incidence of stroke by 26% and of coronary heart disease by 15%. This would

require, in addition to individuals not adding salt to food, considerable food industry cooperation to reduce the amount of salt added to processed food and to label foods to show their sodium content (Law *et al.*, 1991; Stamler, 1991; Bonita and Beaglehole, 1998). The nutrition guidelines in New Zealand (MOH, 1997) and many other countries (WHO, 1990) recommend preparing food with minimal added salt and choosing pre-prepared foods that are low in salt.

Some strategies for a population-wide approach to reducing mean salt intake include the following:

- (i) Food industry development and promotion of special low salt or no salt foods. However, many low salt foods on the market are not widely accepted because of poor taste, higher cost from small production runs and slow turnover (Engstrom *et al.*, 1997).
- (ii) Nutrition signposting of regular foods, which meet defined salt standards. Nutrition signposting is defined as endorsed signals at point of choice which indicate to the consumer that particular foods, messages, policies or practices related to food meet certain nutrition standards.
- (iii) Influencing food manufacturers to formulate or reformulate regular food products (Engstrom *et al.*, 1997). There is some evidence that the food industry is very gradually lowering the salt content of food products across major food categories over time (Jacobsen and Liebman, 1996). In Britain, members of the food industry such as grocery retailers and manufacturers have reduced the salt levels in large numbers of processed foods such as bread, convenience meals and pizza to reduce population salt intakes (Morrison, 1999). The average salt content of 94 commonly consumed processed foods in America dropped by 15% over an 11-year period (Jacobsen and Liebman, 1996). In New Zealand, a major canned food manufacturer has been lowering the salt content in some foods over time in response to consumer demand (D. Monro, personal communication). Small reductions in the salt content of foods are likely to be undetectable to consumers compared with the unacceptability of the very low salt levels in many low salt foods (Rodgers and Neal, 1999).

Pick the Tick uses the last two strategies to influence a variety of nutrient intakes and this

paper reports its influence on product reformulation and formulation on salt intake in New Zealand.

Programme description

The National Heart Foundation of New Zealand (NHF) introduced the *Pick the Tick* nutrition labelling programme in 1991, following a successful 3-week supermarket-based nutrition labelling campaign in 1988 (Worsley *et al.*, 1990). It was modelled on a similar programme, which the Australian Heart Foundation began in 1989 (Noakes and Crawford, 1991). *Pick the Tick* provides a framework for collaboration between the NHF and the food industry to encourage a healthy food supply and improve nutrition labelling. Promotion of the *Pick the Tick* logo (Figure 1), and nutrition messages to consumers, food industry and health professionals are the main promotion strategies. In 1996, the New Zealand programme merged with the Australian programme to become an Australasian scheme.

Food manufacturers, whose products meet defined nutritional criteria, enter into a formal licensing agreement with the Foundation, which enables them to display the logo on the packaging of approved products and in other promotional activities related to the approved product. All reproductions of the tick device must be submitted to the Foundation for approval prior to final usage. Criteria are set for total fat, saturated fat, *trans* fatty acids (for margarine only), sodium, added sugar, fibre and calcium (for soya milk only). The nutrition criteria for bread, breakfast cereals and margarine are shown in Table 1. Products are chemically analysed at an accredited laboratory independent of the food manufacturer.



Fig. 1: *Pick the Tick* logo.

Table 1: *Pick the Tick* nutrition criteria for bread, breakfast cereal, and margarine and reduced fat spreads

	Fat	Sodium	Sugar	Fibre
Bread	5% or less ^a	450 mg per 100 g or less	15 g added sugar or less	3 g/100 g or more
Breakfast cereal	5% or less ^a	400 mg per 100 g or less	15 g added sugar or less	3 g/100 g or more
Margarine and reduced fat spreads	Saturated fat plus <i>trans</i> unsaturated fatty acids no more than 28% of total fatty acids	400 mg per 100 g or less		

^aProducts with a fat level of between 5 and 10% will also be approved if the saturated fatty acids are $\leq 20\%$ of total fatty acids.

If products do not meet the criteria, companies are encouraged to reformulate product composition in order to obtain the logo. Companies also formulate new products to specifically meet the *Pick the Tick* criteria and this has increased substantially since the programme began. Some products such as fresh fruit, vegetables, rice and dried pasta do not require analysis.

The *Pick the Tick* programme is funded by the licensees through a royalty payment schedule, which relates to the sales turnover of their approved products. It has successfully encouraged both large and small companies to participate. The royalties are used solely for the education, promotion, programme evaluation, ongoing assessment of product compliance and administration of the programme.

The programme has been very successful in reaching consumers and supporting their ability to make healthy choices. Independent consumer research showed a very high (89%) 'unprompted recognition' of the *Pick the Tick* logo. When shown the logo, awareness rose to 96%. Ninety-three per cent of consumers were in agreement with the programme concept and 59% of consumers reported buying products sporting the logo where they can while shopping (Gander and Harding, 1999).

METHODS

Records of analysis and changes to formulation of food products have been kept since the programme began in 1991. When food companies joined the programme, it was recorded whether the products had been formulated, reformulated or already complied with the criteria. The study

period for this analysis was the 12 months from 1 July 1998 to 30 June 1999. Bread, breakfast cereals and margarine were analysed because these categories were commonly eaten foods and significant changes were made in the reformulation or formulation of these products. The products in the analysis were reformulated or formulated prior to the study period. The volume data pertains to the study period only.

Reformulation

Food companies that had made changes were asked to provide information on the volume of approved product sold during the designated time period. The volume in kilograms was multiplied by the difference in sodium content before and after reformulation. Sodium was converted into salt using the conversion factor 1 g sodium (Na) = 2.5 g salt (NaCl). The volume data was obtained from barcode monitored sales in major supermarkets (Neilson, 1999). It does not include sales from the food service sector (e.g. convenience stores, fast food outlets, service stations and restaurants). Only products approved to carry the logo at the time of publication were included in the results.

The companies were interviewed to determine if product reformulation changes were made in order to meet the *Pick the Tick* criteria and therefore qualify to use the logo. A range of questions was asked including whether the company had been dropping sodium levels in products over time independent of *Pick the Tick*; whether the sodium level would have been lowered to the *Pick the Tick* criteria, e.g. 450 mg or less per 100 g for bread if the tick was not available; and the effect of the sodium reduction on product quality.

Formulation

To estimate the effect of formulation of new food products to meet *Pick the Tick* criteria, the difference between the average sodium level of food products without the Tick in the category and the actual sodium level of the food product with the Tick was used. The average sodium level of food products in the category was calculated from an NHF survey of food products conducted in major supermarkets (see Table 3). The volume of product sold over the 12-month study period was multiplied by the difference in sodium content. Of the three categories, only bread and margarine had new products formulated prior to or during the study period.

RESULTS

At 30 June 1999, the *Pick the Tick* programme involved 55 food companies and 390 products, of which 15 were breakfast cereals, 26 were breads and 12 were margarines. Ten products (three breads, four breakfast cereals and three margarines) from these food categories were reformulated according to *Pick the Tick* guidelines.

Table 2 shows the changes to the sodium content of bread, breakfast cereals and margarine due to reformulation. Breakfast cereals showed the largest reduction by an average of 378 mg sodium per 100 g product (61%). Bread was reduced by

an average of 123 mg per 100 g product (26%) and margarine by 53 mg per 100 g product (11%).

Table 2 also shows the volume of product sold in each food category and the amount of sodium and salt *not* added to these food categories as a result of reformulation. In total, >12 tonnes of salt was not added to these foods over the 12-month study period.

Food companies reported that all reductions in sodium would not have been made if they were not seeking *Pick the Tick* approval. They also stated that sodium levels were not being reduced over time in these product categories and that products not carrying the tick logo were higher in sodium when compared with those conforming to *Pick the Tick* standards. Reducing the sodium levels to meet *Pick the Tick* criteria had not affected product quality.

Formulation of 13 new products (four breads and nine margarines) to meet *Pick the Tick* criteria for sodium is estimated to have removed ~21 tonnes of salt from these food categories in 1 year (see Table 3). No breakfast cereals had been formulated up until or during the study time period.

DISCUSSION

Pick the Tick has influenced food companies to exclude ~33 tonnes of salt over a 12-month period

Table 2: Effect of reformulation of bread, breakfast cereals and margarine products on sodium and salt content from July 1998 to June 1999

	Sodium before reformulation (mg/100 g)	Sodium after reformulation (mg/100 g)	Sodium difference (mg/100 g)	Sodium difference (%)	Volume of product sold (kg)	Sodium not added to food (kg)	Salt not added to food (kg)
Bread							
1	500	230	270	54	147 000	397	992
2	350	290	60	17	481 600	289	722
3	490	450	40	8	330 400	132	330
Total					959 000	818	2044
Breakfast cereal							
1	663	335	328	49	437 779	1436	3590
2	284	49	235	83	374 183	879	2198
3	849	380	469	55	221 507	1038	2597
4	874	395	479	55	25 254	121	302
Total					1 058 723	3474	8688
Margarine							
1	410	395	15	4	134 500	20	50
2	410	395	15	4	215 000	32	80
3	525	395	130	25	515 750	670	1676
Total					865 250	722	1806
Overall total						5014	12 537

Table 3: Effect of formulation of bread and margarine products on sodium and salt content from July 1998 to June 1999

	Sodium before formulation ^a (mg/100 g)	Sodium after formulation (mg/100 g)	Sodium difference (mg/100 g)	Sodium difference (%)	Volume sold (kg)	Sodium not added to food (kg)	Salt not added to food (kg)
Bread							
1	585	380	205	35	351 400	720	1801
2	585	450	135	23	840 000	1134	2835
3	585	410	175	30	492 750	862	2155
4	585	440	145	25	427 500	620	1550
Total					2 111 650	3336	8341
Margarine							
1	531	393	138	26	838 000	1156	2891
2	531	367	164	31	735 499	1206	3016
3	531	380	151	28	274 200	414	1035
4	531	367	164	31	19 003	31	78
5	531	367	164	31	147 912	243	606
6	531	358	173	33	20 800	36	90
7	531	367	164	31	1948	3	8
8	531	357	174	33	566 825	986	2465
9	531	368	163	31	546 806	891	2228
Total					3 150 993	4966	12 417
Overall total							20 758

^aAverage sodium level of foods in the category, excluding products already meeting *Pick the Tick* criteria and using the logo.

through the reformulation and formulation of 23 breads, breakfast cereals and margarines. Some of the changes, as a result of reformulation, made to the salt content of foods in this study were not trivial and occurred in regularly consumed foods that are major contributors to salt intake, such as bread and breakfast cereals. Bread was reduced in sodium by an average of 26% and breakfast cereals by 61%. Despite these changes, the impact of this salt reduction is likely to have an imperceptible effect on the population's blood pressure simply because of the limited number (23) of products involved. In volume terms, only 25% of the volume of margarine sold in the 1-year study period meets the *Pick the Tick* criteria and 3% of breads. Although not always the case, the food industry often position such foods for the 'health conscious' sector using nutrition as a key part of the marketing strategy. These healthy options can be more expensive. Low cost or 'budget' brands are not marketed in the same way, therefore the tick logo is not used on these products.

In order to have an impact on mean blood pressure there would need to be an increase in market share and volume of *Pick the Tick* approved products, an extension of the programme to include a larger number and range of products, and in addition other strategies would be needed to

influence the formulation of food products. One such strategy could be to audit formulations of high salt contributing categories such as bread and to influence manufacturers of high salt containing brands to reduce levels. An example of this approach was a survey by the NHF of margarines in supermarkets, which identified one low cost, high volume brand containing 767 mg sodium per 100 g while most other brands contained an average of 531 mg/100 g (see Table 3). The *Pick the Tick* criteria for margarine is no more than 400 mg/100 g sodium (see Table 1). After contact with the company, the level was reduced to 600 mg/100 g, with a further reduction planned to 400 mg/100 g after 1 year. The initial change has excluded ~2 tonnes of salt from this product per year.

Nutrition has been used increasingly by the food industry as a marketing tool. The *Pick the Tick* programme has appealed to the food industry as a valuable vehicle for advertising and marketing food products. Attaining the Tick logo has provided an incentive for food manufacturers to improve the nutritional value of foods, and the NHF has been viewed as a credible, independent organization by the industry (Wiseman and McLean, 1994).

The study is limited by the assumptions made in the calculation of the amount of salt not added

to food as a result of formulation of new foods to meet *Pick the Tick* criteria. The use of the average sodium level from the food product category is an estimate of the true figure. Calculations in this study assumed that all of the food sold is consumed, which may not be the case. However, the results are likely to be an underestimate due to the exclusion of food service sector sales data. This would add ~10% to the volume of product sold. Interviews with the respective companies indicated the changes to sodium levels were made to qualify with *Pick the Tick* guidelines rather than a secular trend accounting for the reduction.

There is a paucity of literature on strategies to produce healthier food choices that involve a partnership between a health agency and the food industry and product endorsement. A review of cooperative relationships between professional societies and the food industry by Tobin *et al.* outlined the benefits and risks of product endorsements (Tobin *et al.*, 1992). The food company benefits from new opportunities to market and increase product sales. The voluntary agency may motivate the food companies to supply products to meet standards of the organization and thereby gain exposure of sound nutrition messages to large audiences for minimal cost. The risks include incompatibility with food labelling regulations, influencing only a small number of people depending on the size of the endorser organization and the products' market share, and reinforcing certain foods over others of a similar kind. Exchange of money for endorsement may also cause scepticism from public and/or professional groups. When the *Pick the Tick* programme was launched in New Zealand, some nutrition professionals and the Ministry of Health questioned the compliance of *Pick the Tick* with statutory nutrition labelling requirements and its ability to improve nutrition when a fee was charged to the food industry for participation. These groups also perceived the NHF's logo as separating foods into 'good' and 'bad' categories and leading to 'undue' emphasis on individual foods instead of the importance of a person's diet as a whole. Glanz and Mullis viewed relationships between health professionals and the food industry as essential to the success of environmental interventions to promote healthy eating but also documented similar risks to success for both groups (Glanz and Mullis, 1988). At the time of these reviews there were no product endorsement schemes operating. In 1990, the American

Heart Association halted a proposed endorsement programme because of incompatibility with food regulations. Such schemes are now operating in the United States (AHA, 2000), Singapore (SNHA, 1999), South Africa, Canada and Australia. The outcomes have not been reported. In Australia, the *Pick the Tick* programme has exceeded the Heart Foundation expectations of success and is the organization's most successful national nutrition initiative (Shrapnel, 1994).

Environmental interventions to promote good nutrition in the supermarket can reach many individuals at a minimal cost (Cornelie *et al.*, 1988; Glanz and Mullis, 1988). Supermarket-based interventions described in the literature involved mass media campaigns together with activities in the supermarket. It is not evident that such campaigns influenced the formulation of food products.

In conclusion, *Pick the Tick* effectively reduced the salt content of commonly consumed foods by influencing the food industry to reformulate existing food products or formulate new food products. The programme's nutrition criteria have a unique position providing a nutritional benchmark for the food industry. *Pick the Tick* uses nutrition signposting to successfully provide consumers with an increased range of foods with reduced salt content without affecting product taste or quality, and has increased collaboration with the food industry.

Future research will include ongoing monitoring of food composition changes (including other nutrients such as fat and saturated fat) and consumer usage and understanding of the programme. New research will facilitate the reformulation of foods in conjunction with leading food technologists to expand further the range of foods meeting *Pick the Tick* criteria.

New strategies include the expansion of the *Pick the Tick* programme into the food service sector (such as restaurants, fast food outlets and school canteens) given the increasing size and influence this market has on people's eating habits.

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