

# Television food advertising: Counterproductive to children's health? A content analysis using the Australian Guide to Healthy Eating

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## Abstract

(Nutr Diet 2003;60:78–84)

**Objective:** To undertake a content analysis of the types of foods advertised during programs, which have particular appeal to children and in timeslots where children are likely to be watching television and to assess conformity with the recommendations of the Australian Guide to Healthy Eating (AGHE).

**Setting:** Adelaide, South Australia

**Methods:** Sixty-three hours of programs classified as 'C' (programs specifically produced for children six to 13 years of age) or 'G' (programs for general viewing, suitable for children to view without adult supervision) were videotaped. Advertisements with the intent of selling were included in the analysis. Food advertisements were coded for type of food (using the AGHE), network stations, program classification and viewing time.

**Statistics:** A chi-squared test was used to see if any difference existed between the network stations, viewing times and program classification for certain types of food advertising.

**Results:** There were 544 food advertisements: 21% percent for core foods; and 79% for non-core foods of the AGHE. Fast foods, chocolate and confectionery made up almost 50% of food advertisements shown on television.

**Conclusions:** Television food advertising did not support the recommendations for healthy eating contained in the AGHE. Child viewers were exposed to a television environment that predominantly promotes foods high in fat, sugar and salt. These nutrients are associated with obesity, dental caries and chronic diseases such as cardiovascular disease and diabetes. Changes are required to create a media environment more supportive of good nutritional health and one which enables Australian children to make healthier food choices.

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Key words: advertising, television, children, food

## Introduction

Dietary patterns in early childhood are recognised as important, not only for the prevention of childhood diseases such as obesity, anaemia and tooth decay, but also because eating habits developed in childhood are likely to persist into adulthood (1–3). It is therefore important that children are supported to make healthy food choices so as to optimise their growth and protect them against diet-related diseases later in life. Television is recognised as an important source of education for children and it exerts its influence on children, from a young age (4–6). Therefore, television as a source of nutrition education has received some critical attention in Australia and overseas.

Children watch an average of 23 hours per week of television (7,8). Since nine to 13 minutes of advertising is broadcast per hour, children on average view approximately 240 minutes of advertising per week. This degree of exposure to advertising has the potential to influence children's health attitudes and behaviours (4–6). The National Health and Medical Research Council has reported that television may be more influential than fam-

ily in setting children's food preferences (9). At the same time, educationists contend that young children under eight years of age are not developmentally capable of understanding the persuasive intent of advertisements, and therefore accept advertising claims as statements of truth (4). The youngest viewers, up to age eight years, are not able to distinguish between the content of advertising and television programming (4). Young children, therefore,

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are particularly susceptible to manipulation by advertisers.

As a result of these findings, the impact of television on children's eating, nutritional status, knowledge and perception of foods has been the focus of a range of investigations (7,10). There is evidence to show that foods heavily advertised on television are rated highly by children (11). Borzekowski and Robinson (2001) found that brief exposures to televised food commercials can influence preschool children's food preferences (11). There is also confirmation that children can strongly influence the purchasing habits of their parents. This is called 'peer-power' or the 'nag factor' in advertising jargon (12,13).

A recent survey by Consumers International found a wide diversity in the practice and regulation of television food advertising to and for children in a recent study of 13 countries (1). It found food advertising was the single largest category of advertising in the majority of countries during television programs of appeal to children (1). Other studies have consistently shown that food advertising during children's viewing times predominantly promote products of low nutritional value (high in fat, salt or sugar and low in fibre) (7,12,14-16). Advertisements for healthier food such as fruits and vegetables, were either non-existent or extremely few in number (1). The most heavily advertised categories of food during children's viewing times have been found to be fast food restaurants, soft drinks, confectionery and sweetened breakfast cereals (7,12,16). It is clear therefore, that television food advertising directed at children does not encourage or support the healthy eating messages of nutrition educators. Yet the eating habits of many Australian children are of concern to public health nutritionists.

The 1995 National Nutrition Survey (17) recorded the diets of 3007, two- to 18-year-old children, based on a 24-hour recall. The survey found more than one third of children did not eat any fruit (18) and approximately 20% did not eat vegetables (18), on the day prior to the survey and, therefore, did not benefit from the protective effect of these food groups. In contrast, one third of children ate snack foods such as potato crisps and extruded snacks, 50% ate confectionery such as lollies and chocolates, and 75% ate high-fat foods such as commercial hamburgers, and pastries (19). These are coincidentally the very foods that are heavily advertised during children's television viewing times (7,12,16). Studies have also shown significant associations between time spent watching television and the prevalence of both hypercholesterolaemia (20) and obesity (21) in children.

More Australian children are overweight and obese today, compared to any other time in Australian recorded history (22). In 1995 the proportion of overweight or obese children and adolescents aged two to 17 years was 21% for boys and 23% for girls (23). The prevalence of obesity in Australia almost doubled between 1985 and 1995 (24). The Australian prevalence rate was higher than all international reference populations used by the International Obesity Task Force to determine the BMI cut-off points defining childhood overweight and obesity (24). The rising prevalence of childhood obesity is a serious public health problem because childhood obesity confers psychosocial distress to the obese child (25), carries increased risk of comorbidities such as hyperlipidaemia, insulin-resistance and hypertension (25), and is an independent predictor of adult obesity (26).

Most available treatments for obese children have yielded modest, unsustainable effects (27,28). Consequently, obesity prevention is considered to hold the greatest promise. Unfortunately, most prevention programs that specifically attempt to reduce fat and energy intake and increase physical activity have not been effective in the long term at changing body fatness (27,28).

There is speculation that television viewing is one of the most easily modifiable causes of obesity among children. Two primary means by which television viewing contributes to obesity have been suggested. These are reduced energy expenditure from displacement of physical activity and increased dietary energy intake, either during viewing or afterwards because of food choices resulting from exposure to food advertising (28). Because the current environment of television food advertisements predominantly promotes less healthy food products, making healthy food choices is consequently not made easy for Australian children.

There are very few food advertisements, especially in children's timeslots, that promote less processed products such as rice, pasta, breads, fruits, vegetables, meat, fish or chicken. Nevertheless, the Australian Dietary Guidelines for Children and Adolescents recommends increased consumption of fruit, vegetables, bread and cereal products (29). This is expressed in the Australian Guide to Healthy Eating (AGHE) (30), the national food selection guide, which recommends specific amounts of foods from each of the five core food groups each day and generally recommends enjoying a variety of foods from each group. The AGHE recommends fruits, vegetables, bread and cereals account for over three-quarters of daily food intake (30). Australian studies (7,31) have consistently shown these core foods to be significantly underrepresented in television food advertising directed at children.

While previous Australian studies have used compliance with the dietary guidelines to code the food advertisements in their samples, the AGHE has not yet been used as a measuring tool (7,32). The AGHE was designed, over a three-year period of community and scientific consultation, to translate scientific information about nutrient needs into food terms. Since then, it has been widely used as the basis for nutrition education programs directed at particular groups, including children.

This study used the food recommendations of the AGHE (30) as a basis to evaluate television food advertisements directed at children. The aim of this study was to undertake a content analysis of the types of foods advertised during programs that particularly appeal to children and in timeslots where children are likely to be watching television.

## Methods

A total of 63 hours of children's television programs classified 'C' for children's viewing (programs specifically produced for children six to 13 years of age) and 'G' for general viewing (programs suitable for children to view without adult supervision) were videotaped and included in the study. Programs from three commercial network stations broadcast in Adelaide, Channels 7, 9, and 10, were included in the sample. Fifty-four hours were taped during 2 to 7, 9, 10 April 2001, and nine hours during 23 to 28 April 2001. Programs broadcast during school holi-

days were excluded. Programs between 7.00 and 10.30am Monday to Friday, 3.30 and 7.30pm Monday to Friday and from 7.00 to 11.30am Saturday were taped and formed part of the study. Not all stations or all programs during these timeslots were included. News and current affairs programs directed towards an adult audience were not videotaped.

A single observer (JZ) viewed each videotape and identified all non-program content shown during programs. Only advertisements with the intent of selling were included in the analysis (community service announcements, sponsorship announcements and station promotions were excluded). All food advertisements identified were then coded under the following headings:

- the food category (AGHE) (30)
- the network station (7, 9, 10)
- the timeslot (morning weekday, afternoon/early evening weekday and Saturday morning)
- C or G classification.

Foods categories were:

- (1) *Core foods*—breads and cereals, fruits, vegetables, milk and meat groups
- (2) *Non-core foods*—these were divided into two groups: fast food restaurants, and extra foods (which included soft drinks, chocolates, biscuits, confectionery and more); in accordance with the AGHE.

Following test coding by the primary coder (JZ), the coding form and the coding instructions were given to a second coder (HM), who then coded a five percent sample of the total videotaping time. Intercoder reliability was calculated using the following formula:

$$\frac{\text{Number of agreements} \times 100}{\text{Number of agreements} + \text{number of disagreements}} \text{ (12)}$$

The primary coder also coded another ten percent of the sample to check for intracoder reliability. Intercoder reliability was calculated to be 96% and intracoder reliability 100%.

**Table 1. The number, frequency and percentage of food advertisements broadcast in different timeslots**

Television viewing times	Total hours	Frequency <sup>(a)</sup> of food advertisements	Number of food advertisements per hour
Morning weekday (7.00–10.30am) <sup>(b)</sup>	14.5	106/396 (27%)	7.3
Afternoon/evening weekday (3.30–7.30pm) <sup>(b)</sup>	36	322/1022 (32%)	8.9
Saturday morning (7.00–11.30am)	12.5	116/303 (38%)	9.3
Total viewing	63	544/1721 (32%)	8.6

- (a) Number of food advertisements/total number of advertisements in that timeslot represented as a percentage (%).  
 (b) Not all programs in these viewing times were recorded. News and current affairs programs were not included in the study.

**Table 2. Number and percentage of food advertisements (n = 544) by food category, shown during 63 hours of television programs directed towards children**

Food groups	Number of food advertisements	(%)
<b>Core foods<sup>(a)</sup></b>		
Bread and cereal	32	6
Fruit	19	4
Vegetables	1	0.2
Milk and milk products	36	7
Meat and fish <sup>(b)</sup>	24	4
<b>Total</b>	<b>112</b>	<b>21</b>
<b>Non-core foods<sup>(c)</sup></b>		
<b>Extras</b>		
High sugar cereal	3	1
Soft drinks	19	3
Chocolate/confectionery <sup>(d)</sup>	101	18
Biscuits	39	7
Margarine/oil	7	1
Thickshake/ice-cream	7	1
Sauces <sup>(e)</sup>	25	4
Cakes	3	1
Milo	22	4
Coffee	3	1
Uncle Toby roll ups <sup>(f)</sup>	10	2
Others <sup>(g)</sup>	31	6
<b>Sub-total</b>	<b>270</b>	<b>49</b>
<b>Fast food restaurants</b>		
McDonalds	32	6
Hungry Jacks	64	12
Pizza Hut	10	2
Domino	24	4
Pizza Haven	6	1
KFC	16	3
Chicken Treat	10	2
<b>Sub-total</b>	<b>162</b>	<b>30</b>
<b>Total</b>	<b>432</b>	<b>79</b>

- (a) Core foods—major food groups from the AGHE (30).  
 (b) Includes frozen crumbed fish.  
 (c) Non-core foods—from the extras list of the AGHE (30). The fast food restaurants were separated for interest. They are included in the extras list.  
 (d) Chocolate excludes spreads and powders.  
 (e) Includes ready-made sauces for cooking e.g. risotto sauce, 'Chicken Tonight'.  
 (f) Fruit 'leather' straps.  
 (g) Includes chips (n = 2), chewing gum (n = 9), rice crisps (n = 6), custard (n = 1), individual microwave meals (n = 6), S26 toddler (n = 2) (vitamin and mineral fortified powdered milk drink for toddlers), Subway (n = 4) (fast food chain that makes rolls with assorted fillings (> 30 g fat per roll for this particular advertisement).

### Statistical analysis

Statistical analyses were undertaken using SPSS for Windows (SPSS Inc, Chicago, SPSS for Windows, Version 10.0 1999). A Pearson chi-squared test was applied to see if any difference existed between the network stations and viewing times for food advertising of core foods and non-core foods (extra foods and fast food restaurants).

### Results

The 63 hours of television viewed contained 1721 advertisements. Thirty-two percent of the advertisements were for food ( $n = 544$ ) (an average of 8.6 separate food advertisements per hour) (see Table 1). The remaining 1177 advertisements (68%) promoted products other than food (an average 18.7 advertisements per hour). Of the 544 food advertisements, 21% were for foods from the core food groups of the AGHE (30) (see Table 2). The remaining 79% were food from the non-core foods of the AGHE (30) ( $n = 432$ ) (see Table 2). Table 3 shows a com-

parison of recommended serves from the AGHE (30) for children (aged less than 11) and the actual proportion of food advertisements found in this study.

Fifty-one of the advertisements were for supermarket chains, advertising sale items. Most of these depicted foods. This group of commercials was not included as part of the 544 food advertisements. They represented three percent of the total advertisements. The 51 supermarket advertisements advertised 101 products. Eighty-three were food and 18 were products other than food. The foods advertised were chocolate  $n = 35$  (42%), meat  $n = 21$  (25%), soft drinks  $n = 18$  (22%), breads and cereals  $n = 4$  (5%), fruit  $n = 3$  (4%), cake  $n = 1$  (1%), and bacon  $n = 1$  (1%).

Of the 544 food advertisements, 18% ( $n = 97$ ) of these were food advertisements shown in 'C' programs (see Table 4) and 82% ( $n = 447$ ) were food advertisements shown in the 'G' programs. During 'C' classified programs food advertisements represented 41% ( $n = 97$ ) of total

**Table 3. Comparison of recommended serves from the Australian Guide to Healthy Eating (30) for children (aged less than 11 years) and the proportion of food advertisements directed at children**

Core food group	Sample serve sizes	Number of recommended serves each day		Proportion of food advertisements found in this study
		Children 4-7 years	Children 8-11 years	
Bread, cereals, rice, pasta and noodles	2 slices of bread or 1 medium bread roll	3-7	4-9	6%
	1 cup cooked rice, pasta or noodles			
	1 $\frac{1}{3}$ cups breakfast cereal flakes			
Vegetables and legumes (dried beans, lentils or peas) (375 g)	$\frac{1}{2}$ cup muesli			
	1 small potato	2-4	3-5	0.2%
	1 cup salad vegetables			
Fruit (300 g)	$\frac{1}{2}$ (75g) cup cooked vegetables			
	$\frac{1}{2}$ (75g) cup cooked dried beans, lentils or peas			
	1 medium apple, pear, orange or banana	1-2	1-2	4%
Milk, yoghurt and cheese	2 fresh apricots, plums or kiwi fruit			
	4 dried apricot halves			
	1 cup (250 mL) cup milk	2-3	2-3	7%
Meat, fish, poultry, eggs, nuts, tofu, legumes (dried beans, lentils or peas)	200g tub yoghurt			
	2 slices (40 g) cheese			
	$\frac{1}{2}$ cup lean mince, 2 slices roast meat	0.5-1	1-1.5	4%
Core foods (sub total)	65-100 g cooked meat, chicken			
	$\frac{1}{2}$ cup cooked dried beans, lentils or peas			
	1 medium fish fillet			
Extra foods (non-core foods)	2 small eggs			
	$\frac{1}{2}$ small bar (25 g) chocolate	1-2	1-2	21%
	4 (35 g) plain sweet biscuits			
	12 (60 g) hot chips			
Core foods (sub total)	1 can (375 ml) soft drink			
	$\frac{1}{3}$ (60 g) meat pie or pastie			
Extra foods (non-core foods)	1 can (375 ml) soft drink			
	$\frac{1}{3}$ (60 g) meat pie or pastie			
	1 can (375 ml) soft drink			
	$\frac{1}{3}$ (60 g) meat pie or pastie			

advertisements (n = 236). During 'G' classified programs, food advertisements (n = 447) represented 30% of total advertisements (n = 1485).

There was a difference ( $\chi^2 = 90.8$ ;  $df = 4$ ;  $P < 0.001$ ) found in the screening of food advertisements by each of the network stations. Network 10 had a greater proportion of advertisements for fast food restaurants and less for core food groups. Network 7 had a greater proportion of advertisements for extra foods and a lower proportion of fast food restaurants. Network 9 fell midway between these two. It is important to note that the study covered two weeks of food advertisements and therefore, does not necessarily represent typical screening of food advertisements by these network stations.

There was a significant difference in the type of food advertised during different viewing times ( $\chi^2 = 11.1$ ;  $df = 4$ ;  $P < 0.025$ ) (Table 5). Fast food restaurants were advertised more in the afternoon/early evening weekdays than on morning weekdays or Saturday morning time-slots.

## Discussion

The types of television food advertising directed at children, in this study conducted in South Australia in 2001 do not support any of the recommendations of the Australian Guide to Healthy Eating (30). The AGHE recommends eating specified proportions of foods from each of the five core food groups each day, and includes a general recommendation about eating a variety of foods from within each group. It also recommends eating less frequently some less healthy foods or in small amounts (30). The overall food images and messages presented by television advertisers to children in this sample, is contrary to all these recommendations for healthy eating. The majority of advertisements in this sample of 63 hours of television programs, was for fast food restaurants and chocolate and confectionery that are not in the core food groups (30). The most highly advertised products in this sample are foods from the category 'eat occasionally or in small amounts' (30).

Food advertisements comprised just over 30% of all advertisements during television programs directed at children in this sample. Previous studies found that food advertisements comprised up to 48% of all advertisements (7,16,32), with an average of 34%. The different studies varied in their methodologies, particularly with respect to viewing times, and consequently it is difficult to compare the studies with each other. Nevertheless, the concentration of food advertising during children's viewing times, was similar to other studies and shows no sign of abating. Although the amounts varied, every half hour of programming had some food advertising.

Previous research also found that 50 to 84%, (average 72%) of the advertised foods were of low nutritional value (7,16,32,33,34), being generally high in fat, salt or sugar, or low in fibre. In this study, using compliance with the recommendations of the AGHE instead of the Australian Dietary Guidelines as its tool, 79% of the advertised foods were for non-core foods. There has been no improvement over time, in the types and quality of foods in television advertisements directed at children (7,10,16,34).

Advertisements for fast food restaurants (30%) were the single most common type of food advertisement. In

**Table 4. Number of food advertisements (n = 97) by food category, shown during 12.5 hours of 'C' classified children's programs**

<i>Food groups</i>	<i>Number of food advertisements</i>
<b>Core foods<sup>(a)</sup></b>	
Bread and cereal	12
Fruit	5
Vegetables	
Milk and milk products	
Meat and fish <sup>(b)</sup>	6
<b>Total</b>	<b>23</b>
<b>Non-core food<sup>(c)</sup></b>	
<b>Extras</b>	
High sugar cereal	
Soft drinks	
Chocolate/confectionery <sup>(d)</sup>	25
Biscuits	21
Margarine/oil	
Thickshake/ice-cream	
Sauces	
Cakes	
Milo	
Coffee	
Uncle Toby roll ups	6
Others	
<b>Sub-total</b>	<b>52</b>
<b>Fast food restaurants</b>	
McDonalds	15
Hungry Jacks	2
Pizza Hut	
Domino	5
Pizza Haven	
KFC	
Chicken Treat	
<b>Sub-total</b>	<b>22</b>
<b>Total</b>	<b>74</b>

(a) Core foods—major food groups from the Australian Guide to Health Eating (AGHE) (30).

(b) Includes frozen crumbed fish.

(c) Non-core foods—from the extras list of the AGHE (30). The fast food restaurants were separated for interest. They are included in the extras list.

(d) Chocolate excludes spreads and powders.

two earlier studies conducted in Adelaide by Morton (1984, 1990), fast food restaurant advertising comprised 8% and 17% respectively of all food advertising (31,32). Thus, there has been a significant increase in fast food advertising on commercial television in the last 17 years and this raises many public health concerns. Most foods sold in fast food restaurants are high in fat, salt and sugar.

The second most advertised food category was for chocolate and confectionery, concurring with other studies (1,7,16,31). Sweetened breakfast cereals were rarely advertised in the period under study whereas other studies reported this category of foods was heavily advertised (1,7,16,32,35). There is no simple explanation for

**Table 5. Number (and proportion) of food advertisements shown in each of the timeslots**

Children's viewing times <sup>(a)</sup>	Australian Guide to Healthy Eating (30)			Total number of food advertisements
	Core foods <sup>(b)</sup>	Non-core foods		
		Extra foods <sup>(c)</sup>	Fast food restaurants <sup>(d)</sup>	
Morning weekday (7.00–10.30am)	22 (21%)	60 (56%)	24 (23%)	106
Afternoon/early evening weekday (3:30–7.30pm)	64 (20%)	145 (45%)	113 (35%)	322
Saturday morning (7.00–11.30am)	26 (22%)	65 (56%)	25 (22%)	116
Total	112 (21%)	270 (49%)	162 (30%)	544

( $\chi^2 = 11.1$ ;  $df = 4$ ;  $P < 0.025$ )

(a) News and current affairs programs were not included.

(b) Core foods—bread and cereal, fruit, vegetables, milk and milk products, meat and fish.

(c) Extra foods—high sugar cereal, soft drinks, chocolate/confectionery, biscuits, margarine/oil, thickshakes/ice-cream, sauces, cakes, Milo, coffee, Uncle Toby roll ups and others.

(d) Fast food restaurants: McDonalds, Hungry Jacks, Pizza Hut, Domino, Pizza Haven, KFC, Chicken Treat.

variations in advertising except to emphasise that studies like this are simply snapshots of long and continuous periods of advertising. To obtain a more comprehensive picture of trends in advertising it would be necessary to undertake content analyses over longer periods of time. However, it can be stated clearly and unequivocally that television food advertising directed to children continues to disproportionately promote the consumption of foods high in fat, salt or sugar. As an educational medium, television food advertising has given children the completely opposite message to government health recommendations.

Previous studies found that advertising of healthy foods ranged from 10 to 29% with an average of 16% of all food advertisements (7,16,32). This study found just over 20% of foods advertised were core foods (healthy foods). Fruits and vegetables, two core foods from the AGHE (30), represented a small proportion of overall food advertisements (4%). There was one advertisement for vegetables (0%) and 19 for fruit (4%). Thus no network station provided a viewing environment supportive of the AGHE regarding greater fruit and vegetable consumption. As foods advertised on television appear to assume a higher status for children, it follows that fruit and vegetables are devalued by association with their low advertising rates (36).

The dietary patterns of children as reported in the 1995 National Nutrition Survey, are of public health concern due to the poor consumption of fruit and vegetables and in contrast the high consumption of foods high in fat, sugar and salt (18,19). It is no coincidence that the dietary pattern of children mirrors the types of foods advertised on television. It is the contention of the authors of this study that television food advertisements directed at children make a contribution to the development of unhealthy eating habits. The majority of foods promoted to children through television advertisements are non-core foods and eaten regularly or in excess, would contribute to a diet low in nutrients, high in energy and high in saturated fat. Such a diet is associated with an increased risk of obesity and dental caries in childhood, and heart disease, diabetes and

cancer in adulthood (29,37). It is well recognised that eating habits established in childhood are carried into adulthood (29) and an estimated 65% of chronic diseases are diet-related and preventable (38).

Television advertising influences children's food choices (39,40) and it is not difficult to see why advertisers have such huge budgets. Studies conducted on the effect of television commercials on children's dietary behaviour, have shown that the amount of time spent watching television correlates with the request, purchase and consumption of foods advertised on television (39–41). Changes to the television advertising environment are increasingly recognised as an important factor in population-wide strategies to encourage healthy food choices by children (42).

It is clear from this study that children's health and nutrition interests are not being protected in the medium of television advertising. A co-regulatory system has operated in Australia since 1984 (44). Advertising standards in 'C' programs aimed at primary school-aged children are enforced by the Australian Broadcasting Authority through the Children's Television Standards (44), while advertising standards in 'G' programs are self regulated through the Industry Code of Practice administered by the Federation of Australian Commercial Television Stations (45). The co-regulatory system does not provide adequate safeguards for children against the disproportionate marketing of foods of low nutritional value, during children's viewing times.

This study highlights the need for radical changes to the current regulatory system. Despite growing evidence from research that the content of television food advertisements influences children's food choices and subsequent health outcomes, there is a lack of willingness by the food industry to voluntarily constrain marketing activities. This would be an important environmental strategy to foster healthy eating habits among children.

#### Acknowledgments

This research was conducted as part of Food Ads to Kids—A Fair Go!, an advocacy project to improve television food adver-

tising to children, funded by SA Department of Human Services and Noarlunga Health Services, 2001–2003. We would like to thank Anthea Magarey for her assistance with the statistics and Lynne Daniels for her feedback on the paper.

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