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Front of pack daily intake labelling on Australian packaged foods: introduction and use 2007-2009

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Abstract

This study aimed to measure the extent of use of front-of-pack daily intake (DI) labelling across food categories in Australian supermarkets, and assess the level of compliance with the Australian Food and Grocery Council (AFGC) guidelines. Surveys of six supermarkets in the Illawarra region of New South Wales were conducted twice a year in 2007, 2008 and 2009. The number of products with DI labelling increased from 58 in February 2007 to 1939 in August 2009 and appears to be growing strongly. The greatest number of products with the labelling are in the biscuits and crackers, cooking sauces, breakfast cereals, ice cream, soft drinks, processed meats, frozen foods, snack foods, juices and confectionery categories, but labelling is present in almost all categories, with the exception of milk products. Approximately 75% of products complied strictly with the AFGC guidelines, with most non-compliance being issues of minor layout differences. The DI labelling system is now widely present in the Australian market across most food categories, however further research is required to determine how useful the DI label scheme is in helping consumer choice.

Keywords

2009, foods, pack, australian, packaged, introduction, 2007, daily, front, labelling, intake

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

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Front of pack daily intake labelling on Australian packaged foods: introduction and use 2007–2009

P. Williams, R. Duncan, K. de Agnoli, A. Hull, A. Owers and T. Wang

This study aimed to measure the extent of use of front of pack daily intake (DI) labelling across food categories in Australian supermarkets, and assess the level of compliance with the Australian Food and Grocery Council (AFGC) guidelines. Surveys of six supermarkets in the Illawarra region of New South Wales were conducted twice a year in 2007, 2008 and 2009. The number of products with DI labelling increased from 58 in February 2007 to 1939 in August 2009 and appears to be growing strongly. The greatest number of products with the labelling are in the biscuits and crackers, cooking sauces, breakfast cereals, ice-cream, soft drinks, processed meats, frozen foods, snack foods, juices and confectionery categories, but labelling is present in almost all categories, with the exception of milk products. Approximately 75% of products complied strictly with the AFGC guidelines, with most non-compliance being in minor layout differences. The DI labelling system is now widely present in the Australian market across most food categories; however, further research is required to determine how useful the DI label scheme is in helping consumer choice.

The provision of nutrient information on food products is one example of a population-based approach aimed at creating a supportive environment for consumer health. The principal purpose of nutrient information panels (NIP) is to inform consumers of the nutrient composition of foods, to assist them to make nutritionally appropriate food choices. NIP can also reduce information search costs for consumers, which should make it more likely that the information provided is actually being used (Grunert & Wills 2007).

However, NIP have faced the criticism that consumers are not using them to make food purchasing decisions and that they find them confusing and difficult to interpret or, if they do, the panels are being misinterpreted (Cowburn & Stockley 2005, Ni Mhurchu & Gorton 2007). Research conducted on behalf of Food Standards Australia New Zealand (FSANZ) concluded that while consumers have little trouble in reading and interpreting the NIP for a single product, they experience difficulty in using the NIP for product comparison, which may limit their ability to make healthy choices (FSANZ 2003).

Nutrient profiling is a means of categorising the healthiness of a food based on its nutrient composition (Drenowski 2007, Scarborough & others 2007, Drenowski & Fulgoni 2008). Nutrient profiling is increasingly being looked at to help inform consumer choices and assist in regulatory decisions; 23 different systems were identified in a recent review (Garsetti & others 2007). Several systems using nutrient profiling to develop a device displayed on the front of packaging have been developed recently:

- In the UK, there is a voluntary program setting bands for low, medium and high content of fat, saturated fat, sugars and salt, displayed on front of pack with coloured 'traffic light' devices (Food Standards Agency 2009). It has been used by a number of manufacturers and retailers in different formats, and the Food Standards Agency recently published research on the effectiveness of these schemes (Food Standards Agency 2008).
- The Institute of Grocery Distribution in the UK, in collaboration with government and consumer groups, developed another system that food companies can use on front of pack to indicate the percentage of Guideline Daily Amounts (GDA) of nine nutrients provided by a serve of the food (Institute of Grocery Distribution 2006) and this was extended to a front of pack system with five nutrients in 2005 (Food and Drink Federation 2005). A similar system of 'thumbnail' values (Daily Intake Guide) has been promulgated for front of pack use by the Australian Food and Grocery Council (AFGC 2008b) and the Confederation of Food and Drink Industries in the EU (CIAA 2008).

In addition to these schemes, which attempt to convey detailed nutritional profile information, there are several voluntary schemes used by industry or health organisations that aim to help consumers make 'healthy' food choices with simple systems that classify foods as better choices within a category. Examples of these schemes include the US Healthy Choice logo (ConAgra 2009), the Swedish Green Keyhole system (Larsson & others 1999, National Food Administration 2009), the Finnish Heart symbol (Kinnunen 2000), the Netherlands Nutrition Centre Tripartite classification system (Dutch Nutrition Centre 2005), the Canadian Heath Check program (The Heart and Stroke Foundation of Canada 2009) and the National Heart Foundation of Australia's Tick system (Schrapnel 1993).

There have been a number of scientific and policy reviews of these different systems (Azais-Braesco & others 2006, Drenowski 2007, Garsetti & others 2007, Tetens & others 2007, Lobstein & Davies 2009). In particular, consumer reaction to front of pack labelling has been the subject of significant recent research, but although the concept seems popular with consumers, the best format to support healthier food purchases is not yet clear (Clegg & Lawless 2008, Kelly & others 2008, van Kleef & others 2008, National Heart Foundation 2009). Research indicates that generally consumers like the idea

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of improved and simplified nutrition labelling, especially on the front of the pack, and that they use it as a shopping aid. Opinion is, however, divided in relation to which system the consumers themselves prefer (Grunert & Wills 2007, Fuenekes & others 2008). It has been argued that the presence of a range of different systems is likely to confuse consumers (Ni Mhurchu & Gorton 2007); therefore, there have been calls in Australia for the adoption of a single national system (Choice 2007, Australian Chronic Diseases Prevention Alliance 2009).

At present, the most widespread system in Australia is the voluntary guideline daily amounts system (DI labelling) introduced by the AFGC (2006). The stated aim of that system is to provide consumers with information in a uniform, easy-to-understand format to assist them to make informed choices about their food. The system has a strict set of guidelines for manufacturers to ensure that the format of labelling is common across all products, and these guidelines were updated and extended in 2007 (AFGC 2007, 2008b). Companies who participate are required to include at a minimum the energy DI information on the front of pack, with the options to use additional DI information for four core nutrients (fat, saturated fat, sugars and sodium), or energy and the core four with an additional two: protein and carbohydrate. Figure 1 shows examples of the display formats (sometimes called 'thumbnails') that are permitted under the AFGC guidelines.

There has been some criticism of the scheme, with claims that a traffic light system like that used in the UK might be easier for consumers to use (Choice Magazine 2008). The AFGC has responded that consumer research demonstrates that 74% of Australian consumers are aware of the system and 66% say it is easy to understand (AFGC 2008c, Palmer 2009). In 2008, the government in Australia announced a review of food labelling law and policy which will report in 2010. The review will consider front of pack nutrition labelling to assist informed consumer choices, in addition to many other food labelling policy and regulatory issues (Department of Health and Ageing 2008).

This paper presents results from a series of six-monthly audits of the uptake and use of this system on packaged foods in Australian supermarkets over the first three years since its implementation in 2006. The study was commissioned by the AFGC and carried out independently by staff of the Smart Foods Centre at the University of Wollongong. The aims were to measure the use of DI labelling across food categories, and assess the level of compliance with the AFGC guidelines.

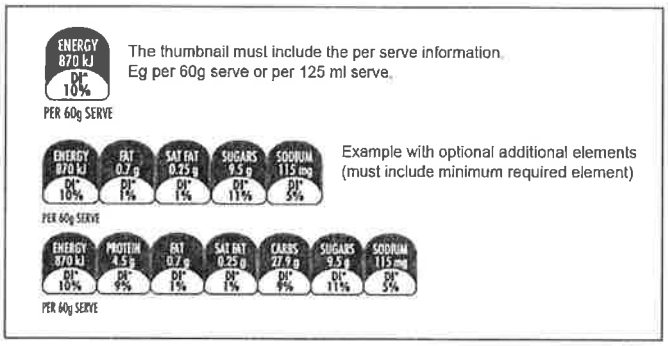

Figure 1. Optional formats of Daily Intake Guide labelling scheme.

Methods

Guidelines

The Smart Foods Centre was provided with a copy of the AFGC guidelines on the use of the DI labelling. The first two audit surveys in February and August 2007 reviewed compliance against the first set of guidelines issued in October 2006 (AFGC 2006). These guidelines were updated in October 2007 and August 2008 and those revised guidelines were used as the standards of comparison in the later surveys (AFGC 2007, 2008b).

Data collection

The supermarket surveys were conducted over a two week period during February and August in 2007, 2008 and 2009 in the same six supermarkets in the Illawarra region of NSW. The stores were chosen to include samples of the major supermarket chains: Wollongong Woolworths, Figtree Coles, Dapto Independent Grocers of Australia (IGA), Shellharbour Aldi, Bi-Lo Thirroul and Woonona Franklins. Verbal permission to conduct each audit was sought from the customer service desk upon entry to each store.

The front packaging of all food products was examined for the use of the DI labelling, with the following details recorded: brand, product name and whether energy, energy plus four nutrients (fat, saturated fat, sugar and sodium only) or all of the seven mandatory elements of the nutrition information panel were displayed. Additionally, inclusion of any additional nutrients as a component of the DI labelling was recorded, as well as level of compliance with AFGC general usage. Various package sizes of a single brand item were not recorded separately; any one stock keeping unit (SKU) carrying the labelling was reported as a positive finding for the product.

Data analysis

Foods were categorised as described in previous labelling research (Williams & others 2003) with the following additional categories: savoury snacks, frozen foods, frozen meals, canned vegetables and confectionery, as these products did not easily fit into the previous food grouping system. Data were entered into Microsoft Excel spreadsheets with the following analyses carried out for each product category:

- Number of products carrying the DI labelling values.
- Proportion of products displaying energy only, or energy plus the additional six, four, three, two or one other nutrients.
- Number of products displaying additional nutrients outside the six mandatory nutrients of the nutrition information panel (NIP).

A comments column was also utilised to assist in the qualitative analysis of level of brand compliance to AFGC general usage guidelines.

Approval to conduct these studies was granted by the University of Wollongong Human Research Ethics Committee.

Results

Presence of DI labelling

Table 1 provides details of the number of items displaying the DI thumbnail by food category. The trends over the three years from February 2007 to August 2009 are shown graphically in Figure 2. At the time of the first

Table 1. Number of food products displaying the DI labelling by category from 2007–2009.

Food category	Energy label only						Energy plus nutrients						Total products displaying %DI labelling					
Date[1]	F 07	A 07	F 08	A 08	F 09	A 09	F 07	A 07	F 08	A 08	F 09	A 09	F 07	A 07	F 08	A 08	F 09	A 09
Biscuits and Crackers	0	14	17	39	56	**104**	0	0	0	0	17	**83**	0	14	17	39	73	**187**
Bread	0	0	1	19	6	**15**	0	2	0	0	18	**49**	0	3	19	15	24	**64**
Breakfast Cereals	0	0	0	0	0	**0**	32	42	55	72	98	**125**	32	42	55	72	98	**125**
Cooking Sauces	0	0	13	21	10	**46**	0	11	37	29	52	**106**	0	11	50	50	62	**152**
Dairy	0	0	12	0	0	**0**	0	0	4	0	0	**0**	0	0	16	0	0	**0**
Cheese	0	0	0	23	25	**37**	0	0	0	1	0	**1**	0	0	0	24	25	**38**
Milk and Substitutes	0	0	0	0	4	**25**	0	0	0	3	5	**11**	0	0	0	3	9	**36**
Yoghurt	0	0	0	23	43	**76**	0	0	0	6	8	**10**	0	0	0	29	51	**86**
Drink Bases	0	0	0	0	7	**0**	0	0	0	7	3	**13**	0	0	0	7	10	**13**
Drinks Other	0	22	63	0	0	**0**	0	0	0	0	0	**0**	0	22	63	0	0	**0**
Cordials and Water Ices	0	0	0	12	14	**26**	0	0	0	0	0	**0**	0	0	0	12	14	**26**
Soft Drinks	0	0	0	71	103	**122**	0	0	0	0	0	**0**	0	0	0	71	103	**122**
Sports Drinks	0	0	0	8	24	**31**	0	0	0	0	0	**0**	0	0	0	8	24	**31**
Frozen Foods	0	0	6	38	35	**67**	0	0	32	43	20	**44**	0	0	38	81	55	**111**
Frozen Meals	0	0	0	0	29	**56**	0	0	0	0	25	**17**	0	0	0	0	54	**73**
Ice-Cream	0	0	44	57	88	**108**	0	0	1	0	7	**17**	0	0	45	57	95	**125**
Juices	0	18	0	2	27	**89**	0	0	31	40	48	**6**	0	18	31	42	75	**95**
Nutritious Snacks	0	0	0	3	0	**5**	18	32	34	53	53	**94**	18	32	34	56	53	**99**
Processed Meats	8	8	8	25	71	**76**	0	0	0	0	2	**44**	8	8	8	25	73	**120**
Ready Foods	0	6	15	34	33	**50**	0	0	21	16	19	**42**	0	6	36	50	52	**92**
Soup Mixes	0	0	0	14	16	**64**	0	0	0	29	36	**14**	0	0	0	43	52	**78**
Dressings	0	6	17	15	19	**28**	0	0	0	0	0	**1**	0	6	17	15	19	**29**
Savoury Snacks	0	0	0	32	45	**57**	0	0	0	0	8	**8**	0	0	0	32	53	**65**
Spreads and Dips	0	13	19	22	28	**31**	0	0	0	0	0	**8**	0	13	19	22	28	**39**
Confectionery	0	0	0	0	32	**41**	0	0	0	0	5	**51**	0	0	0	0	37	**92**
Canned Vegetables and Legumes	0	0	0	0	0	**7**	0	0	0	0	28	**34**	0	0	0	0	28	**41**
Total	8	88	233	454	715	**1161**	50	78	215	299	452	**778**	58	166	448	753	1167	**1939**

[1] F = February; A = August.

survey, four months after the program launch, only two companies – Kellogg's and Don – were using the DI labelling on a total of 58 products, and these were restricted to the categories of breakfast cereals, nutritious snacks and processed meats. Nestlé had a similar graphic presenting some nutrient information on some dairy products, but in a manner that differed from the AFGC DI labelling style guide.

Over the 30 months from the first to the sixth survey, there was a rapid growth in the presence of the DI labelling. It was found in virtually all food categories by August 2008 and by August 2009 a total of 177 brands were displaying the DI labelling. There were a number of brands, including 70 Aldi brands (395 products), that displayed a DI label with the same general information, but of a modified style design. Including these design-modified DI labels, there was a total of 1939 products identified in August 2009; 1161 products (60%) displayed the energy only label and 778 (40%) displayed energy plus additional nutrients.

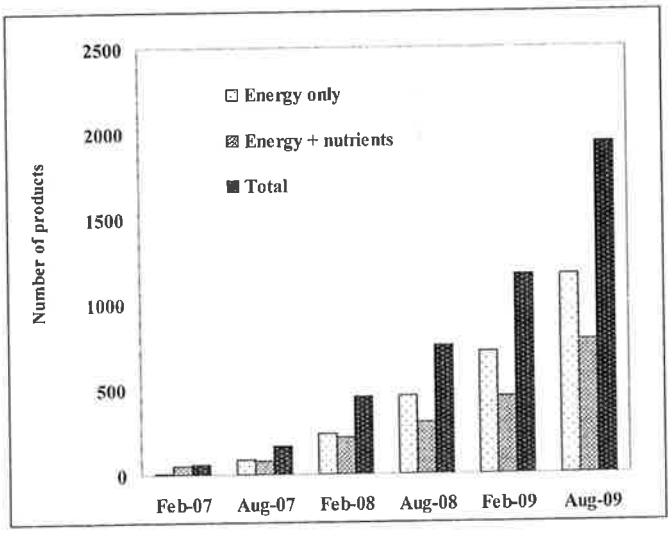

Figure 2. Trends in the number of food products with DI labelling 2007–2009.

Table 2. Types of non-compliance with AFGC guidelines.

Type of non-compliance	Number of compliance issues	Percent of total
Modified style design	432	50.5
Variations in the number of allowed additional nutrient thumbnails	203	23.6
Thumbnail difficult to read	71	8.2
Additional nutrients listed in between the six mandatory nutrients and not after	66	7.7
DI thumbnail not on the front of package	50	5.8
Decimal places in the DI label	16	1.9
Nutrient not listed in the NIP	15	1.8
Energy in calories and not kilojoules	3	0.5
Total	**856**	**100**

Table 3. Number of products in August 2009 with additional nutrients in the DI labelling.

Food category	Number of products	Additional nutrients
Breakfast Cereals	107	Fibre, vitamins B1, B2, B3, B6, C; folate, iron, calcium, zinc, magnesium
Nutritious Snacks	51	Fibre
Processed Meats	1	Vitamin B1, iron, calcium
Milk and Substitutes	13	Calcium, vitamin D
Canned Vegetables	23	Fibre, vitamin C
Juices	55	Vitamins C, E, A
Ice-Creams	5	Calcium
Savoury Snacks	3	Fibre
Bread	7	Fibre, vitamins B1, B2, B3, B6, E; folate, iron, calcium, zinc
Total	**265**	

Of the products displaying energy and other nutrients, 33% displayed energy plus the six other mandatory NIP nutrients, and 67% displayed energy plus four mandatory NIP nutrients (fat, saturated fat, sugar and sodium).

There is a greater presence of DI labelling in some categories than others. The greatest number of products with the labelling are found in biscuits and crackers, cooking sauces, breakfast cereals, ice-cream, soft drinks, processed meats, frozen foods, snack foods, juices and confectionery, with over 90 labelled products in each of these categories. In soft drinks, sports drinks, cordials, salad dressings and cheese, most (> 90%) of the labels use the minimum energy label only. In the breakfast cereals, drink bases and nutritious snacks categories, most foods display the values for energy and at least four other major nutrients.

Compliance with AFGC guidelines

A significant proportion of products failed to comply strictly with the AFGC general usage guidelines. In August 2009, 1156 products (59.6%) used DI labelling that strictly met the guidelines for format, design and content. Eight different types of non-compliance were identified across 38 brands (46% of participating brands). The types of non-compliance found included:

- Modified style design (eg shape or colour)
- Variations in the number of allowed additional nutrient thumbnails (eg displaying energy plus protein and sugar, or displaying energy plus vitamin C)
- Label difficult to read (eg due to colour with insufficient contrast to background)
- Additional nutrients listed in between the six mandatory nutrients and not after the DI label, as required by the guidelines
- DI label not located on the front of package
- Decimal places used in the DI label
- Nutrient not listed in the NIP despite being used on front of pack DI label
- Energy values given in calories and not kilojoules.

Table 2 shows the types of non-compliance in August 2009, with the number of products for each type and the percentage of total products; 783 products were found to be non-compliant, but there were 856 individual compliance issues, since some products were non-compliant for more than one reason. Modified style design represented the largest compliance issue (50.5%), mainly due to the large number of Aldi brands represented displaying DI thumbnails of their own design.

There was an overall decrease in the percentage compliance between the two surveys in the 2009 audit: from 66% in February to 59.6% in August. However, if the 395 Aldi products are excluded from the analysis (since they use a quite different format of labelling), the percentage compliance actually improved in the most recent survey to 74.9%.

Additional nutrients

Manufacturers are free to provide more information on additional nutrients outside of the energy plus six standard nutrients, provided they use the agreed thumbnail presentation style, and that information is available under the Food Standards Code for the recommended daily intake of that nutrient (AFGC 2007).

The August 2009 survey identified 265 (13.6%) of the 1939 products with DI thumbnails displaying additional nutrient thumbnails across nine food categories: breakfast cereals, juices, drink bases, milk and substitutes, processed meats, canned vegetables and legumes, nutritious snacks, ice-creams and bread (Table 3). The most common additional nutrient was dietary fibre, which was displayed on 191 (9.9%) products.

Discussion

The main limitation of this study is the restricted sample size of supermarkets used for data collection. The stores surveyed are unlikely to have contained all Australian food products displaying DI labels, especially those marketed solely outside of New South Wales. The inclusion of more supermarket chains and store locations could have made the data more complete, but would have been logistically prohibitive. Secondly, the total number of products on shelves was not recorded, so it is not possible to report the prevalence rates of the DI labelling. It has been estimated elsewhere that there are approximately 19 500 different food products available in a typical Australian supermarket (National Heart Foundation 2010), which would mean that about 10% of products carried the DI labelling in late 2009. The results can be used to see which food categories have had the greatest uptake of the system, to make an estimate of rate of growth in the use of the labelling, and make some assessments of compliance issues.

There has been a significant and rapid increase in the use of front of pack DI labelling since the system was introduced in 2006, and the trend appears to be continuing. The number of products with DI labelling increased by 66% in the six months between the last two surveys in 2009. Since February 2009, the major supermarkets (Woolworths, Coles, IGA and Franklins) have also been displaying DI labelling on their home branded products, which exposes consumers to an even greater variety of products with the DI label. It is noteworthy that the system is now widely used across most categories of foods, not only core foods with high nutrient density, but also more discretionary snack foods and soft drinks, to help consumers interpret how these foods contribute to their daily nutrition needs. The one notable exception is the absence of the labelling on most plain dairy foods (eg milk), although it was found widely on yoghurt and ice-creams.

The increasing number of Aldi products on the market displaying DI labels with their own modified style design is concerning, as it undermines the goal of a uniform labelling guide. Their labelling is very similar in the information provided to that in the AFGC DI label, and it may be equally valuable to assist consumers making food choices. However, recent research on traffic light systems in the UK has concluded that multiple versions of the labelling system is undesirable since it can foster consumer confusion and the Food Standards Authority there has called for a more consistent approach to front of pack labelling (Food Standards Agency 2009).

Many major food companies are listing dietary fibre as an additional non-mandatory nutrient in the DI label. Most commonly this nutrient is placed with the other macronutrients (next to carbohydrate), rather than after the six mandatory nutrients as required by the guidelines, and this is a source of significant technical non-compliance. Many of the other factors of non-compliance are similarly of minor concern; probably the issue of difficult legibility (about 8% of products) is the only major factor that might substantially affect consumer use of the DI label. A similar level of non-compliance was found by FSANZ research in 2006 on compliance with the format of the mandatory NIP on food labels. That study reported levels of non-compliance of 20%, but 70% of those were for minor technical formatting errors, so only 6% of overall products had significant problems of compliance (FSANZ 2008).

This research did not attempt to measure consumer use or understanding of the system, nor examine other communications from food companies about the use of the system. The AFGC has published results of two national online surveys of over 1200 adults conducted in December 2007 and June 2008 (AFGC 2008c). In the latter of these two surveys, 69% of grocery buyers agreed that the DI label was easy to read and understand and 58% agreed that it provided the type of information needed to help decide whether to buy a product. The AFGC as well as several companies have also established website presences that provide more detailed explanations of how to interpret DI labelling, some with additional information on how to calculate personalised intake requirements (AFGC 2008a, Kellogg's Australia 2009, Nestlé 2009, Tip Top 2009). It is also likely that the increased presence of the front of pack labelling has driven more companies to include voluntary daily intake information in the NIP, which is not a mandatory element at present.

It will be important to continue to monitor the implementation of the system, through audits such as those conducted as part of this study, to monitor the extent of its presence in the market and whether a standard format is being used within this voluntary system.

Conclusions

The number of products with DI labels on products in Australian supermarkets is growing rapidly and in 2009 the label was found on the front of over 1900 products across almost all major food categories. However, compliance still remains an issue, indicating a need for the AFGC to act in order to improve the uniformity of DI label formats. Further research is needed to determine the best labelling approaches to aid Australian consumers in selecting foods to construct healthy diets.

Acknowledgements

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