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An independent audit of the Australian food industry's voluntary front-of-pack nutrition labelling scheme for energy-dense nutrition-poor foods

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Background

Since 2006 the Australian food industry has promoted its front-of-pack (FOP) food labelling system—the Daily Intake Guide (DIG)—as a success story of industry self-regulation. With over 4 000 products already voluntary featuring the DIG, the industry argues that government regulation of FOP nutrition labelling is simply unnecessary. However, no independent audit of the industry's self-regulation has ever been undertaken and we present the first such Australian data.

Methods

Energy-dense nutrient-poor (EDNP) snacks were audited at nine Australian supermarkets, including biscuits, candy, ice creams, chocolates, crisps, sports drinks, energy drinks, flavoured milks, sweetened juices and soft drinks. In these categories nutrition labels were recorded for 728 EDNP products in various packaging sizes.

Results

The DIG was displayed on 66% of audited EDNP products but most of these (75%) did not report saturated fat and sugar content. Only generic supermarket EDNP products were likely to display saturated fat and sugar content, compared to very few branded products (48% *v.* 4%, $p<.001$). Branded products not displaying fat and sugar content contained on average ten-times more saturated fat than those displaying such (10% *v.* 1% DI, $p<.001$) and nearly twice as much sugar (21% *v.* 13% DI, $p<.05$).

Discussion

We confirm that most Australian manufacturers of EDNP products have adopted the DIG; consistent with industry claims of widespread adoption. However, most manufacturers still avoid displaying the high saturated fat and sugar content of their products, highlighting loopholes and serious weaknesses in the industry's self-regulation.

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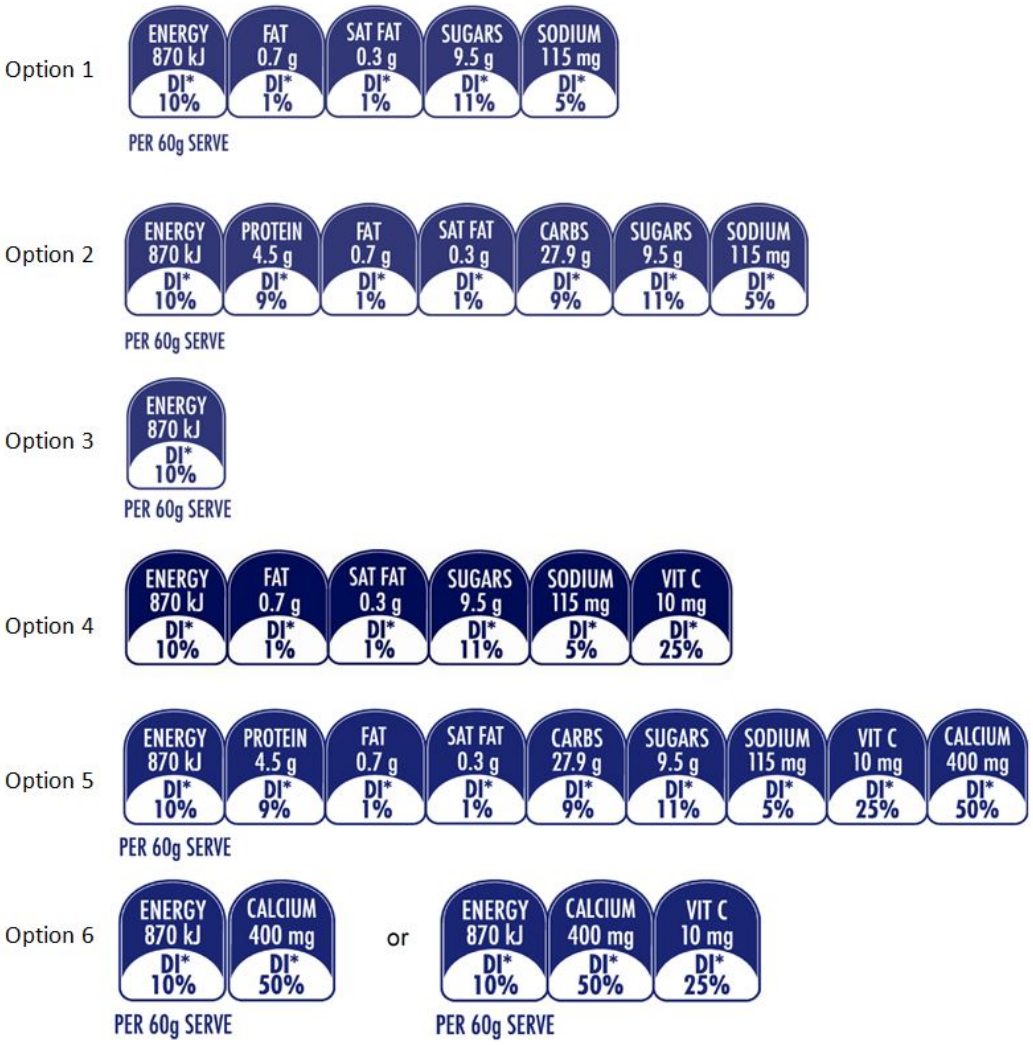
Like most adults in the developed world, a majority of Australians (61%) are currently overweight or obese putting them at elevated risk of a variety of chronic conditions including cardiovascular diseases, diabetes and some cancers.[1] It is estimated that 'extra foods'—energy-dense but nutrient poor (EDNP) snack foods—account for 41% of saturated fat intake and 47% of sugar intake of the average Australian adult diet, amounting to 36% of total daily energy intake.[2] Children and adolescents obtain even more of their daily energy from EDNP products, estimated at 41–43%.[3, 4] Overconsumption of EDNP products is therefore a major public health concern in Australia, prompting many advocates to call for compulsory, front-of-pack (FOP) nutrition labelling to empower people to make healthier food choices.[5]

In 2009, the Council of Australian Governments (COAG) and the Australia and New Zealand Food Regulation Ministerial Council instigated a comprehensive review of food labelling law and policy. A panel reviewed over 6 000 public submissions before concluding there was a 'strong case' for the introduction of a single, compulsory, interpretive, FOP nutrition label modelled after the multiple traffic lights (MTL) system.[6] However, by December 2011 COAG ministers had declined to adopt this recommendation in the face of vigorous opposition from Australia's $108 billion (USD 108 billion, EUR 140 billion) food manufacturing industry.[7] Five years before, in November 2006, the industry had introduced its voluntarily Daily Intake Guide (DIG) and was therefore in a position to argue it had *"already introduced an effective front-of-pack labelling system"* (p.17).[8] The DIG is described by the industry as "*the amount per serve for energy and the six nutrients—protein, carbohydrate, sugars, fat, saturated fat and sodium—and the percentage of daily intake*

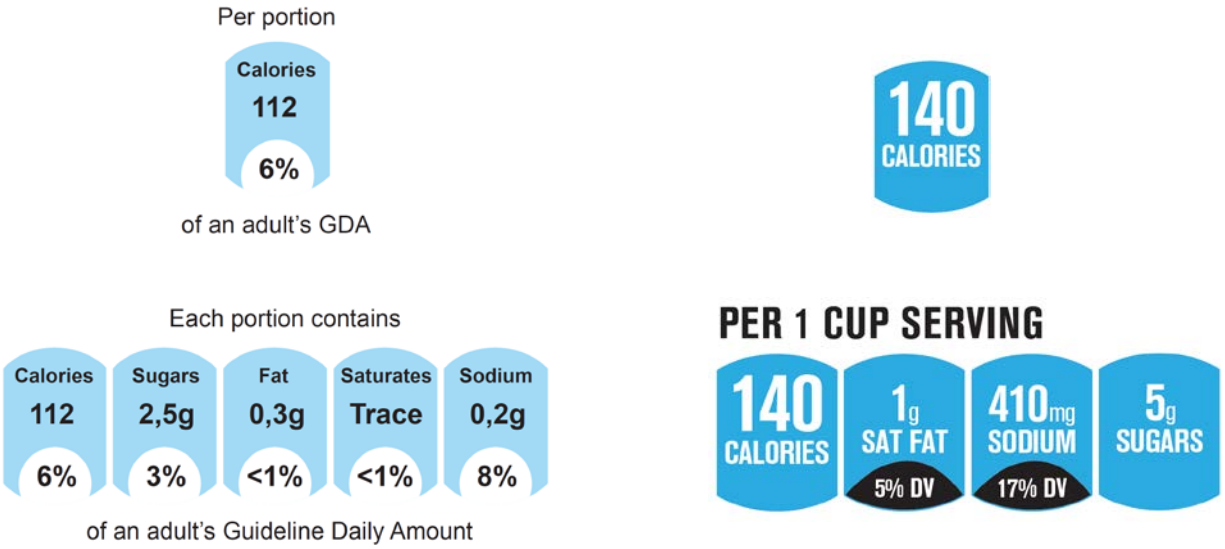
[%DI] *these represent per serve*."[9, 10] However, this description only corresponds to one of six options provided by the DIG style guide, Option 2 (E+6). It and the other five display options can be seen in Figure 1.

Figure 1: Six display options for the Australian food industry's Daily Intake Guide (DIG)



The DIG is similar to other industry-instigated FOP systems around the world, such as the *Guideline Daily Amount* (GDA) system originally devised in the United Kingdom in 1998 and a decade later adopted throughout Europe, and the Nutrition Keys, recently changed to the *Facts Up Front* (FUF) program, launched in the US in January 2011 (see Figure 2).

Figure 2: Europe's *Guideline Daily Amount* (GDA) and the US *Facts Up Front* (FUF) systems respectively



Within Australia, the DIG style guide gives suggestions for which label option manufacturers should use. Option 1 (E+4) is recommended as the default, with the other options being provided as alternatives based upon a combination of nutritional content and pragmatism. For instance, Option 5 (E+8) includes additional desirable nutrients, such as vitamins and minerals. Option 3 (E), displaying energy alone, is recommended for products "very low in core nutrients" but also for products that have "limited label space" (p.5).[11] Interestingly, the corresponding guidelines for the GDA and FUF restrict their versions of 'energy alone' labels to packaging of no more than 80cm^2 in Europe and 13 square inches (84cm^2) in the US.[12, 13] However, the Australian DIG style guide provides no specific dimensions.

Industry-provided figures suggest over 4 000 products currently feature the DIG, with this number having increased steadily since introduction.[9, 14] An industry-commissioned survey also suggests most Australian consumers (78%) are now 'familiar' with the DIG, just over half (55%) claim it is 'useful', and 39% have 'ever used it'.[8] There is little reason to

question that most Australians have noticed the DIG at least once since its introduction five years ago. However, the claims about the extent to which Australians find the DIG useful is incongruent with scientific peer-reviewed literature that concludes the DIG (and GDA) are difficult for consumers to utilise in any practical sense due to the lack of interpretive information they contain.[15-18] Notwithstanding, the industry claims that self-regulation is 'highly successful' and government-imposed regulation is consequently unnecessary, and indeed undesirable: *"voluntary codes can be as effective as black letter law but have the advantage of being more flexible"* (p.17).[19]

While there is no reason to doubt the industry's DIG adoption figures, there is a paucity of information about which types of foods are being labelled with it, and perhaps more importantly, which are not. We hypothesised that Australian producers of EDNP foods would be unlikely to voluntarily use the DIG. This was based upon the assumption that food manufacturers would be unwilling to voluntarily display high levels of saturated fats and sugars contained within their products as these could potentially deter consumers within a highly competitive commercial environment. As such, we conducted what we understand is the first independent audit of DIG labelling usage on Australian EDNP foods.

Methods

EDNP snack foods and drinks were defined as containing >6g of saturated fat and/or >15g of sugar per serve, as per criteria determined by Food Standards Australia New Zealand .[20, 21] The following ten categories of EDNP packaged snack foods and drinks were thus identified: biscuits, candy, crisps, chocolates, individual serve ice-creams, sweetened juices, soft drinks, energy drinks, flavoured milks, and sports drinks. In Australia, over two-thirds (68%) of foodstuffs are purchased at supermarkets so we targeted the top three supermarket chains,

representing a 78% market share, under the assumption this would present a reasonable representation of the Australian market.[22] Nine supermarkets from the three chains were visited in Perth (pop. 1.7 million), the capital city of Western Australia. All food and drink products within the ten categories appearing on shelves at each supermarket were audited. A standardised recording sheet was created to collect information on food category, product name, manufacturer, FOP label, suggested serving size (g/mL), and surface area of the front-of-pack (cm^2). For cylindrical containers (e.g., cans and bottles) the FOP surface area was considered half the cylindrical surface area of the packaging. All data were entered on to an SPSS (v.19) database for analysis. Identical products appearing in one or more of the nine supermarkets were only entered once into the database.

Results

Data were gathered on 728 EDNP products packaged by 43 different companies. This list comprised of 186 products packaged in a single size plus 179 products packaged in between 2 to 9 sizes (mean: 3), making a total list of 365 discrete products. No instances were noted of products varying FOP nutrition labels by package size and as such the label information was analysed by discrete EDNP product (n=365). A diagnostic check of these products confirmed that almost all products (n=349, 96%) met the criteria for EDNP foodstuffs by containing >6g saturated fat and/or >15g of sugar per serve. Sugar-free drinks (n=16, 4%) were the only exceptions.

Table 1: List of EDNP products audited by category

Food category	Manufacturers (n)	Products (n)	FOP DIG-labelled (n)
Crisps	5	29	29 [100%]
Ice creams	4	15	14 [93%]
Sports drinks	6	17	15 [88%]
Soft drinks	12	63	52 [83%]
Biscuits	7	67	51 [76%]
Flavoured milks	2	21	16 [76%]
Juices	9	49	35 [71%]
Energy drinks	5	9	5 [56%]
Candy	5	21	5 [24%]
Chocolates	4	74	18 [24%]
Total	**59***	**365**	**241 [66%]**

*includes 43 different manufacturers of which 10 manufactured across multiple categories

As can be seen from Table 1, 241 (66%) products displayed the DIG labelling system on the FOP. An additional 69 products (19%) featured a FOP logo and message '*Be treat wise. Get to know your %DIs*' referring customers to DIG information on the back of packs (see Figure 3). Only 55 (15%) products featured neither the DIG nor 'treat wise' labels. As we were specifically interested in FOP nutritional labelling and the 'treat wise' logo provides no FOP nutrition information *per se*, products displaying the 'treat wise' logo were treated as featuring no FOP nutrition label and so were combined with the no DIG category.

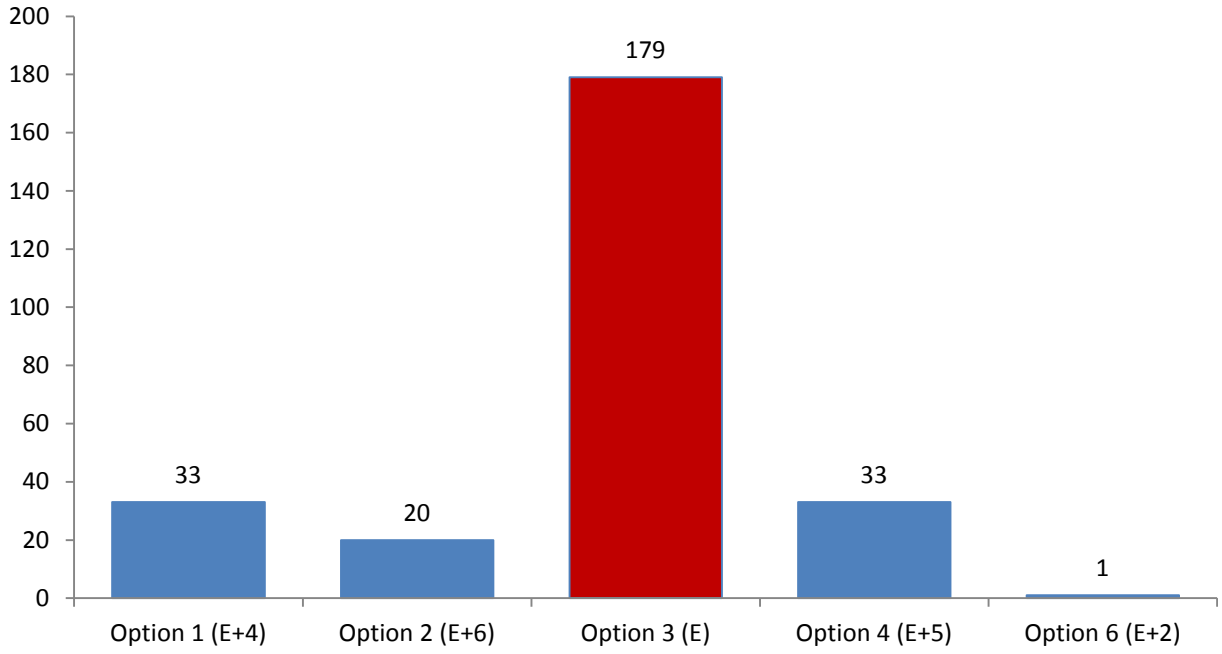
Figure 3: Treatwise logo appearing FOP on confectionary products

The proportion of products featuring the DIG on FOP varied widely between food categories (see Table 1). Nonetheless, the DIG appeared on a majority of products on FOP in all categories, with the exception of chocolates and candy, for which the 'treat wise' logo appeared most commonly (73% and 71% respectively).

An examination of nutrition labelling practices by the 43 different manufacturers in our sample suggested 22 (51%) used the DIG on all their products, 13 (30%) used the DIG on none of their products, and 8 (19%) used the DIG on some but not others. Of the inconsistent group, six manufacturers used the DIG inconsistently between food categories but consistently *within* food categories, and two used the DIG inconsistently within the same food category. Clear usage patterns emerged for these last two manufacturers. One produced 31 different types of biscuits, of which five did not feature the DIG and 26 did so. The former were brands clearly aimed at children, whereas the latter seemed more aimed at the general population. The second manufacturer produced 14 varieties of flavoured milk, nine with the DIG and five without. Those *not* featuring the DIG consistently contained more than 20% of recommended daily energy, while those featuring the DIG were consistently below 20%. A clear trend was also noted within generic supermarket brands, of which a significantly higher proportion (n=50 of 62, 81%) displayed the DIG versus branded products (n=190 of 303, 63%) (Fisher's Exact Test p=.008).

In total, five of the six variants of the DIG were noted. However, in a large majority of cases (n=179, 74%), Option 3 (E) was used, displaying energy alone (see Figure 4).

Figure 4: Distribution of FOP DIG label styles used for 241 EDNP snack foods



Mainstream brands displaying the DIG were significantly more likely to favour Option 3 (E) than generic supermarket brands (87% *v*. 28%, Fisher Exact Test $p<.001$), with the latter more likely to favour Option 1 (E+4) and Option 2 (E+6), as per industry guidelines. Of the 190 mainstream branded EDNP products displaying the DIG, only 24 (13%) employed forms of the DIG other than Option 3 (E), which was the only style of DIG observed at all within the categories of biscuits, candy, chocolates, ice-creams, soft drinks, energy drinks, flavoured milks or sports drinks. The only mainstream products displaying other versions of the DIG were in the categories of crisps (15 of 25, 60%) and fruit juices (8 of 37, 22%).

The average FOP surface area of all 728 products, including those with no DIG and those in different sizes of the same products, was 223cm^2 (range 24–1305). Although Option 3 (E) is specified for use with products of 'limited label space', products featuring this label averaged 215cm^2 (range 35–1305), and did not statistically differ in FOP surface area from products

using any other DIG option ($t(698)=.914$ p=.361). In total, 84% of Australian products using DIG Option 3 (E) would not meet the size criteria for the European GDA cut-off for 'limited label space' (80cm^2) and 79% would not meet the US FUF criterion (13 inches^2).

Discussion

Our study is not without limitations. Our sampling strategy was good, but not exhaustive, and so is not a perfect census of EDNP products within Australia. Further, new products are constantly being introduced into the market while others are discontinued. As such, our sample is most relevant to the time of data collection (January to March, 2012). With these caveats in mind, our data suggest two-thirds of EDNP products in Australia feature the DIG on an entirely voluntary basis. This result seems to add credence to the Australian food industry's claim that its DIG labelling system is an example of successful industry self-regulation.[19]

However, the present data also reveal widespread use of the DIG for EDNP foods and drinks in a manner that appears to contravene the industry's own code of practice. Rather than using Option 1 (E+4) by default, a large majority of EDNP manufacturers chose Option 3 (E). The DIG style guide clearly specifies this option for foods 'very low in core nutrients' yet our selection criteria specifically screened for foods and drinks high in saturated fats (>6g) and sugars (>15g) per serve. Thus, other than the n=16 sugar free drinks in our sample, all other products in our sample featuring Option 3 (E) (n=179) appear to contravene this guideline. A few examples of this breach include a 600mL flavoured milk product being labelled '25% DI energy' but not displaying the 57% DI saturated fat and 66% DI sugar. Others include a 500mL can of energy drink labelled as '16% DI energy' but also containing 93% DI sugar,

and a single serve ice cream labelled 16% DI energy but containing 64% DI saturated fat and 37% DI sugar.

The other guideline for use of Option 3 (E) is for packages with 'limited label space'. Although this concept is not specifically defined in Australia, only approximately one-in-five Australian EDNP products in our sample that used Option 3 (E) would be classified as having 'limited label space' elsewhere in the world (<80–84cm^2). The DIG Code of Practice specifically defines as a breach when the "*E only* [Option 3] *is used when E+4 or E+6* [Options 1 and 2] *would fit the pack*" (p.14).[23] By international standards our data include 333 products making this breach from 30 different companies. Some particularly obvious examples included 24-can cartons of soft drinks, 20-packs of crisps, 12-packs of chocolate bars, and 10-packs of ice creams; ranging in size from 308–1305cm^2 and all featuring Option 3 (E).

The only companies that consistently seem to be following the DIG guidelines are the three generic supermarket brands. This may be due to their primary competitive strategy being low pricing, largely at the expense of packaging (and taste), whereas mainstream branded products cannot ignore product and packaging as these are essential aspects of marketing. *Prima face*, it appears mainstream manufacturers are less willing to overtly display high levels of saturated fats and sugars in their EDNP products but there is no direct evidence to suggest they are trying to be deliberately misleading. However, the industry seems to tacitly acknowledge the limited usefulness of the Option 3 (E) by placing specific restrictions on its use. Furthermore, previous peer-reviewed research suggests that 'energy alone' nutrition labels are virtually meaningless to consumers and simply do not facilitate informed consumer choices.[24, 25] This fact seems to be recognised by Australian consumers who have voiced

deep-seated suspicions regarding the motivations of EDNP manufacturers' use Option 3 (E), suggesting that such companies are cynically trying to 'look good' while actually conceding very little.[24]

Ultimately, our data suggest there is a near-universal use of Option 3 (E) for branded EDNP foods and drinks in breach of the Australian industry's own guidelines. This casts serious doubt over the industry's claims of effective self-regulation and, if anything, points to the need for more government regulation, not less. It would be beneficial to replicate our study in the European and the US markets in order to assess whether their specific definitions for 'limited label space' help restrict the use of 'energy alone' labels to packages of appropriate size, or whether voluntary industry guidelines are equally ineffectual the world over.

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