

# **Development of joint Australia New Zealand Food Standards**

**As part of the process of the Review of the  
*Food Standards Code***

## **Review of Nutrition Labelling**

### **Full Assessment Report**

#### **Proposal P167**

**April 1999**

The Authority should receive written submissions  
no later than **16 June 1999**

Submissions should be sent to:

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Australia New Zealand Food Authority  
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Submissions will be placed on the Authority's public register (unless a claim of commercial confidentiality is made and accepted by the Authority) and will therefore be open to public scrutiny.

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ANZFA expresses its appreciation of the assistance from these experts and acknowledges that the views contained in the paper do not necessarily represent their views or the views of the organisation from which they come.

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# REVIEW OF THE *FOOD STANDARDS CODE*

## 1. PREFACE

IN JULY 1996 AN AGREEMENT BETWEEN AUSTRALIA AND NEW ZEALAND CAME INTO FORCE WHICH ESTABLISHED THE AUSTRALIA NEW ZEALAND FOOD AUTHORITY (ANZFA) – A SYSTEM FOR DEVELOPING JOINT FOOD STANDARDS AND AN AUSTRALIA NEW ZEALAND FOOD STANDARDS CODE.

The aim of the Agreement is to extend the Australian food standard system to include New Zealand so that food standards developed by ANZFA and approved by the Australia and New Zealand Food Standards Council can be adopted throughout Australia and in New Zealand. The current review of the Australian *Food Standards Code* is an important element in developing joint standards. The provisions of the agreement provide common policy objectives for developing food standards and a common approach to a transparent, timely and consultative accountable standards setting process – both key features of the review process. ANZFA is seeking to ensure full New Zealand participation in the standards setting process and the review of the food standards.

This paper forms part of the review of the labelling provisions in the *Food Standards Code*. It is the only paper for the review of nutrition labelling and interlinks with a number of other reviews including those of ingredient labelling, low joule and carbohydrate modified foods, derivation of energy factors for labelling purposes, unpackaged foods, code of practice on nutrient claims, vitamins and minerals, and health and related claims, and the application for inulin and fructooligosaccharides as dietary fibre. Public comment was sought on the recommendations made in the proposal paper for the review of nutrition labelling. This paper takes into account the comments received in respect of each issue, and makes further recommendations and proposes draft variations to the *Food Standards Code* for public comment.

## 2. BACKGROUND

### **2.1 Australia New Zealand Food Authority**

The Australia New Zealand Food Authority is a joint statutory body responsible for making recommendations on food standards which, when approved by the Australia New Zealand Food Standards Council, are adopted by reference and without amendment into the food laws of the Australian States and Territories. In New Zealand for the time being, such standards apply as part of a system of dual standards, where the Australian *Food Standards Code* is recognised as an alternative to the New Zealand *Food Regulations*. At a future date, standards in the New Zealand *Food Regulations* will be repealed and the standards developed under the joint system will apply in both countries.





ANZFA's other functions include developing codes of practice for industry on any matter that may be included in a food standard, coordinating the surveillance of food in Australia and liaising with the Ministry of Health in New Zealand on arrangements for imported foods, conducting research and surveys in relation to food standards matters, developing food safety education initiatives in cooperation with the States and Territories, and assisting in the coordination of food recalls in Australia. The Ministry of Health manages recalls in New Zealand. In Australia, ANZFA develops assessment policies in relation to imported food.

## **2.2 Review of Food Standards**

When ANZFA was established in August 1991, the Commonwealth Government in Australia indicated that ANZFA would review the policies and principles for setting and varying food standards which it would then apply to a review of the Code.

In developing or reviewing food standards, ANZFA must have regard to the objectives outlined in section 10 of the National Food Authority Act 1991 (now the Australia New Zealand Food Authority Act 1991).

Consistent with these statutory objectives and the policies of ANZFA, the review will, where possible:

- reduce the level of prescriptiveness of standards to facilitate innovation by allowing wider permission on the use of ingredients and additives, but with consideration of the possible increased need for consumer information;

- develop standards which are easier to understand and make amendment more straightforward;

- replace standards which regulate individual foods with standards that apply across all foods or a range of foods;

- consider the possibility of industry codes of practice as an alternative to regulation; and

- facilitate harmonisation of food standards between Australia and New Zealand.

The Review will also be carried out in accordance with the competition policy guidelines established by the Council of Australian Governments in 1995. These generally require that the impact of regulation on competition should be minimised, and require an assessment of the impacts on all affected sectors of the community.

### **2.3 Food Standards Setting in Australia and New Zealand**

The Governments of Australia and New Zealand entered an Agreement in December 1995 establishing a system for the development of joint food standards. The Australia New Zealand Food Authority is now developing a joint *Australia New Zealand Food Standards Code* which will provide compositional and labelling standards for food in both Australia and New Zealand.

Until the joint *Australia New Zealand Food Standards Code* is finalised the following arrangements for the two countries apply:

- **Food imported into New Zealand other than from Australia** must comply with either the Australian *Food Standards Code*, as gazetted in New Zealand, or the New Zealand *Food Regulations 1984*, but not a combination of both. However, in all cases maximum residue limits for agricultural and veterinary chemicals must comply solely with those limits specified in the New Zealand *Food Regulations 1984*.
- **Food imported into Australia other than from New Zealand** must comply solely with the Australian *Food Standards Code*.
- **Food imported into New Zealand from Australia** must comply with either the Australian *Food Standards Code*, as gazetted in New Zealand, or the New Zealand *Food Regulations 1984*, but not a combination of both.
- **Food imported into Australia from New Zealand** must comply with the Australian *Food Standards Code*. However, under the provisions of the Trans-Tasman Mutual Recognition Arrangement, food may **also** be imported into Australia from New Zealand provided it complies with the New Zealand *Food Regulations 1984*.
- **Food manufactured in Australia and sold in Australia** must for most products comply solely with the Australian *Food Standards Code*.

In addition to the above, all food sold in New Zealand must comply with the New Zealand *Fair Trading Act 1986* and all food sold in Australia must comply with the Australian *Trade Practices Act 1974*, and the respective Australian State and Territory *Fair Trading Acts*.

Any person or organisation may apply to ANZFA to have the *Food Standards Code* amended. In addition, ANZFA may develop proposals to amend the Australian *Food Standards Code* or to develop joint Australia New Zealand food standards. ANZFA can provide advice on the requirements for applications to amend the *Food Standards Code*.

## **2.4 Review of Food Labelling**

The review of food labelling provisions is part of the general review of food standards and will be predicated on policies developed by ANZFA for the Review (for example, use of Section 10 objectives<sup>1</sup>, consideration of codes of practice, harmonisation of food standards with New Zealand).

In conjunction with the review of labelling provisions, ANZFA will also develop a guideline to food labelling in Australia and New Zealand in consultation with stakeholders. This guideline, which will contain explanations and offer guidance on food labelling, will not be finalised until the review of food labelling provisions has been completed.

The review of food labelling provisions should also be seen in the context of provisions in State and Territory legislation relating to the labelling of food. These provisions are based upon the Model Food Act which states that it is an offence punishable by a fine:

for a person to pack or label any food in a manner which is false, or misleading in any particular, or deceptive (clause 10(1));

for food not to be labelled in compliance with the regulations or the Code (clause 10(2));

for a person to sell food which is labelled in a manner which is false, or misleading in any particular, or deceptive (clause 10(3)).

## **2.4 Regulatory impact analysis**

ANZFA is required, in the course of development of regulations suitable for adoption in Australia and New Zealand, to consider the impact of various options (including non-regulatory options) on all sectors of the community, including consumers, the food industry and governments in both countries. The regulatory impact assessment will identify and evaluate, though not be limited to, the costs and benefits of the regulation, and its health, economic and social impacts.

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<sup>1</sup> Section 10 states that ANZFA, in developing standards and variations of standards, must have regard to the following objectives in descending order:

- (a) the protection of public health and safety;
- (b) the provision of adequate information relating to food to enable consumers to make informed choices about food and to prevent fraud and deception;
- (c) the promotion of fair trading in food;
- (d) the promotion of trade and commerce in the food industry; and
- (e) the promotion of consistency between domestic and international food standards where these are at variance.

To assist in this process, comment on potential impacts or issues pertaining to these regulatory options is sought from all interested parties in order to complete the development of the regulatory impact statement. Public submissions should clearly identify relevant impact(s) or issues and provide support documentation where possible.

## **2.5 World Trade Organization (WTO)**

Australia and New Zealand are members of the WTO and are bound as parties to WTO agreements.

In Australia, an agreement developed by the Council of Australian Governments (COAG) requires States and Territories to be bound as parties to those WTO agreements to which the Commonwealth is a signatory. Under the agreement between the Governments of Australia and New Zealand on Uniform Food Standards, ANZFA is required to ensure that food standards are consistent with the obligations of both countries as members of the WTO.

In certain circumstances Australia and New Zealand have an obligation to notify the WTO of changes to food standards to enable other member countries of the WTO to make comment. Notification is required in the case of any new or changed standards which may have a significant trade effect and which depart from the relevant international standard (or where no international standard exists).

Matters relating to public health and safety may be notified as a Sanitary or Phytosanitary (SPS) notification, and other matters as a Technical Barrier to Trade (TBT) notification. Where possible the proposals in this document are consistent with the approach taken in Codex and are consistent with Australia's and New Zealand's international obligations and WTO commitments.

## **2.6 Invitation for public submissions**

Written submissions containing technical or other relevant information which will assist ANZFA in undertaking a full assessment on matters relevant to the proposal, including consideration of its regulatory impact, are invited from interested individuals and organisations. Technical information presented should be in sufficient detail to allow independent scientific assessment.

Submissions providing more general comment and opinion are also invited. ANZFA's policy on the management of submissions is available from the Standards Liaison Officer upon request.

The processes of ANZFA are open to public scrutiny, and any submissions received will ordinarily be placed on the public register of ANZFA and made available for public inspection. If you wish any confidential information contained in a submission to remain confidential to ANZFA, you should clearly identify the sensitive information and provide justification for treating it in confidence.

The *Australia New Zealand Food Authority Act 1991* requires ANZFA to treat in confidence trade secrets relating to food and any other information relating to food, the commercial value of which would be or could reasonably be expected to be, destroyed or diminished by disclosure.

Following its full assessment of the proposal ANZFA may prepare a draft standard or draft variation to a standard or standards (and supporting draft regulatory impact assessments) or decide to reject the proposal. If a draft standard or draft variation is prepared, it is then circulated to interested parties, including those from whom submissions were received, with a further invitation to make written submissions on the draft. Any such submissions will then be taken into consideration during the inquiry which ANZFA will hold to consider the draft standard or draft variation to a standard.

Submissions should be received by ANZFA by **16 June 1999**. All correspondence and submissions on this matter should quote the full title, **Proposal P167**, and be sent to either of the addresses on the front page of this document.

General queries on this matter can be directed to the Standards Liaison Officer at the above address or by Email on <slo@anzfa.gov.au>. However submissions should not be sent by Email as ANZFA cannot guarantee receipt. Requests for general information on ANZFA can be directed to the Information Officer at the above address or by Email <info@anzfa.gov.au>.

# REVIEW OF NUTRITION LABELLING

## 1. EXECUTIVE SUMMARY

This paper reviews Standard A1(13) of the Australian *Food Standards Code* (the Code) having regard to the objectives outlined in section 10 of the *Australia New Zealand Food Authority Act 1991* (the Act) and the policies of the Australia New Zealand Food Authority (ANZFA). This proposal has been developed to assist ANZFA assess the need for amendments to the Code for the provisions relating to nutrition labelling.

ANZFA must consider Australia and New Zealand's obligations to World Trade Organization agreements when establishing joint standards. ANZFA has considered a range of issues relevant to the review of existing provisions, including the current Code, the *New Zealand Food Regulations 1984* and the relevant Codex Alimentarius Standards. ANZFA has also assessed the regulatory impact of the recommended provisions.

The review project team proposes that provisions for nutrition labelling be based on the need to provide consistent, meaningful and accurate information relating to the nutritional content of foods and, that this information be based on national policies for public health and nutrition.

The key recommendations made by this review are given below.

### 1. Retention of current provisions

It is considered that some of the current provisions of the *Food Standards Code* should continue essentially unchanged so as to meet the objectives as outlined above. There have been minor changes to some in the interests of clarity. These provisions are that:

- 'nutrition claims' refer to any representation that states, suggest or implies that a food has a nutritional function or content whether general or specific and whether expressed affirmatively or negatively, made on food labels or in advertising;
- unit quantity refer to 100g or 100mL;
- the use of a nutrition information panel (NIP) be triggered by a nutrition claim;
- the disclosure of energy, fat, saturated fat, protein, carbohydrate, sodium and any claimed nutrient(s) be mandatory when a nutrition information panel is used;
- the disclosure of any other nutrient be voluntary, unless a related claim is made, in which case declaration of the respective nutrient(s) is/are mandatory (note also however the triggering of other nutrients within chemically defined clusters, as noted in the second group of recommendations below);
- the exemption from the nutrition information panel for small packages (less than 100 cm<sup>2</sup>) be retained;
- 'sugars' be defined as the sum of monosaccharides and disaccharides;
- 'fat' refer to total fat;
- 'average quantity' be determined by manufacturer's analysis of the food, calculation from the actual or average quantity of nutrients in the ingredients used,

or calculation from generally accepted data, which best represents the quantity of a nutrient which the food contains, allowing for seasonal variability and other known factors which could cause actual values to vary.

- declaration of nutrients ‘per serving’ be retained;
- declaration of nutrients per 100g or 100mL be retained;
- household measures be allowed to be used in addition to metric serving sizes to describe the quantity of food in a serving;
- serving sizes not be standardised;
- energy be expressed as kilojoules (kJ) with the voluntary addition of kilocalories (Cal);
- nutrients be expressed as gram (g), milligram (mg) or microgram (µg), with the optional addition of millimole (mmol) for sodium;
- nutrients and energy be declared to no more than 3 significant figures; and
- ‘LESS THAN’ declarations be permitted for insignificant amounts of nutrients; and
- unless specifically exempted, all packaged food should continue to be required to include a NIP in a prescribed format when a nutrition claim is made.

## **2. Addition, deletion or significant amendment to current provisions**

As a result of submissions received, consultation with experts and reviews and studies undertaken, the need for addition of new provisions or deletion or significant amendment of other provisions was considered necessary. Again the primary considerations were that the consumer should be able to make informed choices of foods in the best interests of public health.

It is therefore recommended that:

- any prescribed names which, to all intents and purposes imply a nutrition claim, and unless otherwise exempt, trigger a NIP;
- negative claims be considered as nutrition claims and thereby trigger a NIP;
- the terms ‘sweetened’ or ‘unsweetened’ be considered as nutrition claims, and thus, the label should carry a NIP.
- the provision for exemption from the NIP when a claim is made regarding salt, sodium or potassium but no other nutrient (sub-clause A1(13) (c) (iii)), be deleted due to the inconsistency of the provision with other provisions for making nutrition claims;
- if the recommendation for the declaration of potassium to be changed from mandatory to voluntary is adopted, consideration be given to claims regarding the declaration of salt, sodium or potassium triggering the declaration of both sodium and potassium;
- the issue of appropriate declarations when salt substitutes are used as ingredients, be considered by the current review of salts and salt products;
- in the interests of consistent provision of information, the disclosure of energy, fat and saturated fat be mandatory for all packaged foods;
- if the mandatory declaration of energy, fat and saturated fat is adopted for all packaged foods, the format for presentation of this information (where a NIP is not used) be prescribed;

if the mandatory declaration of energy, fat and saturated fat is adopted for all packaged foods, small packages not be exempt from declaring this information (a statement may be used instead of a NIP);

- on the grounds of lesser public health significance, the declaration of sugars and potassium be changed from mandatory to voluntary, unless a related claim is made (note that it is recommended that related claims for sugars also include claims relating to any type of carbohydrate or dietary fibre, and related claims for potassium also include any claims relating to salt or sodium);
- a claim regarding any type of carbohydrate or dietary fibre, trigger the declaration of the named carbohydrate, sugars and dietary fibre;
- a claim regarding a fatty acid or class of fatty acids, including trans fatty acids, also trigger the disclosure of the other classes of fatty acids *viz* saturated, polyunsaturated, monounsaturated;
- saturated fat be inclusive of the sum of all fatty acids containing no double bonds;
- consideration be given to the use of the terms ‘hydrogenated’ or ‘partially hydrogenated’ fats or oils in the ingredient listing;
- the order in which nutrient information is to be set out in the panel be prescribed as energy, fat, saturated fat, carbohydrate, protein, sodium;
- the provisions for energy factors and average energy content as recommended by P177 be adopted by this review;
- the carbohydrate definition [‘carbohydrate by difference calculated by subtracting the percentages of water, protein, fat, dietary fibre and ash from 100’] as recommended by P177 be adopted by this review, dietary fibre be defined by its method of analysis, and that the analytical method of Lee, AOAC 991.43, for the determination of dietary fibre be adopted as an alternative to the currently prescribed method AOAC 985.29 so as to allow the use of alternative enzymes insofar as it covers measurement of total dietary fibre, and not individual soluble and insoluble fractions.
- the quantity of food in a serving be expressed in grams or millilitres and, that the word ‘serving’ may also be replaced by the word ‘slice’, the words ‘metric cup’ or ‘metric tablespoon’ or ‘pack’ where a pack constitutes a single serve, or other appropriate word(s) expressing a unit or common measure;
- provisions be given for the declaration of nutrients for reconstituted foods, drained foods and foods intended to be consumed with one or more foods;
- provision be made for the voluntary use of an interpretive element, such as Percent Daily Intake (%DI);
- the interpretive element be linked with health recommendations; and
- for purposes of consistency the format of the interpretive element be prescribed.

### **3. Proposals for which ANZFA specifically seeks public comment**

Throughout the process of this review, a number of issues have arisen which were not raised previously, are of an innovative nature, or may be controversial. ANZFA would appreciate public comment regarding these issues and therefore invites submissions on these topics. Comment is particularly sought on the following, some of which have already been drafted into the proposed standard for purposes of clarifying their intended use.

Issues for which provisions have been incorporated into the draft standard.



1. An indication of the 'average' nature of nutrient declaration be provided in the NIP by means of column headings ('Average quantity per 100g (mL)' or 'Average quantity per serving' above the appropriate columns).
2. With regard to the 'average quantity of a nutrient', tolerances be applied to the nutrient which is the subject of the claim. Proposed option is :

*The actual content in a food of a nutrient that is the subject of a nutrition claim must:*

- *in the case of carbohydrate, fibre, monounsaturated fat, polyunsaturated fat, protein, vitamins or minerals - be not less than 80% of the declared amount;*
- *in the case of cholesterol, energy, saturated fat, sodium, sugars, total fat or trans fatty acids – be not more than 120% of the declared amount.*

3. Where a written nutrition claim is made regarding an unpackaged food, energy, fat, saturated fat and the claimed nutrient to be provided in conjunction with the claim.
4. For the purposes of nutrition labelling, the clause '*a biologically active substance, other than a vitamin or mineral*' be used to include biologically-active substances, eg isoflavones which may act as phytoestrogens, for which a nutrition claim is made, in the NIP.

*Issues not accompanied by drafting*

5. Consideration to be given as to whether the interpretive element should also be mandatory, on the basis that the proposed interpretive element used for the macronutrients and sodium is very similar in nature to the mandatory RDI declaration for vitamins and minerals.
6. Consideration to be given to the substitution of nutrient declarations per serving with the proposed interpretive element (%DI per serving) declarations.
7. Subject to the adoption of mandatory declaration of fat and saturated fat on all packaged foods, consideration to be given to the possibility of other means of disclosing these values, for example as a percentage of targeted daily intake value, rather than absolute value (the purpose of this would be to enhance the meaningfulness of the declaration).
8. Consideration be given to the mandatory declaration of trans fatty acids in the NIP when hydrogenated or partially hydrogenated fats or oils are included in the ingredient listing. Ideally trans fatty acids would also be declared when present in significant amounts due to processing practices, however this may pose considerable difficulties in relation to enforcement.
9. Further to the recommendation for the mandatory application of a modified NIP (energy, fat and saturated fat) to all packaged foods, the Authority signals its intent to consider the expansion of this declaration to the full NIP (ie energy, fat, saturated fat, carbohydrate, protein and sodium).

10. Subject to the adoption of the above (point 9), and in the interests of consistency, consideration be given to the provision of the full NIP in conjunction with written nutrition claims for unpackaged foods.

## 2. LIST OF ABBREVIATIONS USED IN THIS PAPER

ANZFA	Australia New Zealand Food Authority
NZFR	New Zealand Food Regulations
FAO	Food and Agriculture Organization
WHO	World Health Organization
NIP	Nutrition Information Panel
NLEA	Nutrition Education Labeling Act
RDI	Recommended dietary intake
UK	United Kingdom
USA	United States of America

## 3. INTRODUCTION

In December 1997 the Australia New Zealand Food Authority raised a proposal to review the regulation of nutrition labelling in Australia and New Zealand, including the harmonisation of provisions for nutrition labelling in regulation A1(13) of the Australian *Food Standards Code* and for nutrition labelling in regulation 13(A) of the *New Zealand Food Regulations*, and other relevant provisions, such as nutrition claims which determine the use of nutrition labelling.

It is intended that nutrition labelling applying to Australia and New Zealand reflect current scientific knowledge regarding the relationship between diet and diet-related diseases and provide for a labelling format that facilitates consumer understanding and use of this nutrition information in food selection.

ANZFA began an initial review of nutrition labelling with the presentation of an information paper on this matter to the Board in August 1995. An extensive internal nutrition-labelling workshop was subsequently held at ANZFA in July 1996. A teleconference followed in November 1996 to discuss the outcomes of the workshop with relevant stakeholders from industry, the State and Territory health departments and consumers. The full project team including external consultants for this review met in Canberra on 30 October 1997 for a face-to-face meeting to formulate recommendations to the ANZFA Board on the review of nutrition labelling. In December 1997 ANZFA then released a document entitled *Review of Nutrition Labelling*. This proposal to review the requirements for nutrition labelling provisions was given the number P167. The full project team met again in December 1998, *via* teleconference, to make final recommendations on outstanding issues.

The proposal for the review of nutrition labelling included a review of the requirements for nutrition information, where it should be used, and provisions specifying the content and presentation of the nutrition information provided on packaged foods. Given the central

role of the content and presentation of the nutrition information and its requirements for use, specific public comment relating to these issues in particular was invited.

However acknowledgment of the wider scope of this review, namely an examination of the requirements for nutrition information labelling and integration of the outcomes from other related ongoing labelling reviews, will be kept under full consideration as this review progresses.

This document provides a full assessment of the provisions for nutrition labelling and takes due account of the comment received in response to the public comment period. The earlier proposal document suggested options for certain aspects of nutrition labelling and this document expands these considerations further.

## **4. PUBLIC CONSULTATION**

In December 1997 ANZFA released P167- the Review of Nutrition Labelling. Fifty-four submissions were received in response to this document with the following distribution by sector: eight submissions from consumers, eight submissions from independent health professionals, 21 submissions from manufacturers and representative organisations, and 17 submissions from public health and community organisations. Attachment 2 provides a complete listing by sector of all submissions, and summaries of the comments received.

As part of P167 ANZFA developed a structured feedback questionnaire to facilitate submissions. This questionnaire addressed the key issues identified in the proposal and response using this instrument was entirely voluntary, but could be completed in place of the more standard descriptive response or as part of such a response.

The majority of submissions utilised the structured feedback questionnaire, and as such most submissions included comment on all the key issues of the nutrition labelling proposal. The submissions overall provided a large amount of information and helpful comment on the provisions for nutrition labelling.

## **5. ISSUES**

The main issues considered by this review are the principles which underpin the provision of nutrition information, the circumstances under which such information should be disclosed, the actual nutrients (or other elements) to be disclosed, and the manner (format and terminology) of disclosure. The following information is provided to assist invited public comment specific to these issues, in addition to general comment, for consideration by ANZFA in its review of nutrition labelling.

### **5.1 Policy context**

In reviewing food standards, such as the review of nutrition information labelling, ANZFA must have regard to the objectives outlined in section 10 of the *Australia New Zealand Food Authority Act 1991* and the competition policy principles adopted by the Council of Australian Governments. Central to the review of nutrition information labelling are the first two objectives: (a) protection of public health and safety, and (b) provision of adequate information relating to food to enable consumers to make informed choices about food. In relation to nutrition labelling on foods, information which allows for decisions about dietary intakes of nutrients or energy has important implications for public health and safety.

Further to the review of nutrition information labelling, ANZFA recognises the importance of the relationship between diet and certain chronic diseases such that promoting the *Dietary Guidelines for Australians*<sup>2</sup> and New Zealand's *Food and Nutrition Guidelines*<sup>3</sup> will provide an appropriate approach to safeguard long-term public health and safety and provide for informed choice. These dietary guidelines provide advice to the general public about healthy food choices, with the goal that their selection of an appropriate diet can contribute to a healthy life-style and is consistent with minimal risk for the development of diet-related diseases.

Finally, the outcomes of this review have implications if the review of Standard A1(19) Health and Related Claims results in exemptions to the current prohibitions on health claims. If such exemptions were to be permitted, nutrition labelling on foods would most likely underpin health claims, in addition to nutrition claims. The intent of using nutrition labelling with a health claim on a food product would be to maximise the public health benefits of introducing health claims, should a health claims standard be developed. Nutrition labelling information could serve as one element of the supplementary education associated with health claims, and thus, aid in creating a supportive environment for healthy food choices and associated improvements in health outcomes among Australians and New Zealanders.

## **6. OBJECTIVE**

The objective of the nutrition labelling provisions within the *Food Standards Code* is to provide sufficient information to allow consumers to make informed choices to deliver public health and safety benefits.

## **7. RELEVANT PROVISIONS**

### ***7.1 International provisions***

#### **Australia**

Currently in Australia, the Code prescribes that nutrition information in the form of a nutrition information panel is voluntary for all foods, with the exception of infant formulae, supplemented drink bases and supplemented drinks, and sports foods. In these cases, and in the case of packaged foods for which nutrition claims are made, the nutrition information panel (or an alternative prescribed panel) is mandatory (packaged foods with surface areas less than 100 cm<sup>2</sup> are exempt).

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<sup>2</sup> National Health and Medical Research Council 1992. *Dietary Guidelines for Australians*. AGPS, Canberra.

<sup>3</sup> Public Health Commission, 1995. [Set of] *National Food and Nutrition Guidelines for all New Zealanders*. Public Health Commission, Wellington.

Where nutrient declaration is applied, declaration is mandatory for energy, protein, fat, carbohydrate, total sugars, sodium, potassium and the claimed nutrient(s), and must be expressed per 100 g (or 100 mL) and per industry nominated serving (g or mL).

## **New Zealand**

The provisions relating to the nutrition information for labelling of food sold in New Zealand are similar but not identical to those in Australia. In New Zealand, as in Australia, nutrition information in a panel is voluntary for all foods and mandatory for packaged foods for which nutrition claims are made on the label (packaged foods with surface areas less than 100 cm<sup>2</sup> are exempt). Where nutrient declaration is applied, the declaration in New Zealand is mandatory for energy, protein, fat, carbohydrate and for the claimed nutrient(s), but not for total sugars, sodium and potassium. Nutrient amounts must be expressed per 100 g (or 100 mL) and per industry nominated serving.

## **Codex Alimentarius**

In Codex Alimentarius, nutrition labelling is voluntary for all foods, except for packaged foods for which nutrition claims are made. Where nutrient declaration is applied, the declaration is mandatory for energy, protein, carbohydrate, fat, the claimed nutrient and for any other nutrient considered relevant for maintaining a good nutritional status. A review is currently underway to consider the extension of these mandatory components to sugars, fibre, saturated fat and/or sodium. No prescribed format for presenting the nutrient information is made. Nutrient amounts should be expressed either per 100 g (or 100 mL) or per serving, but it is not mandatory for both forms of expression.

## **United States of America**

In 1994, the United States of America (USA) implemented the Nutrition Labelling and Education Act (NLEA) which requires a Nutrition Facts panel for almost all processed foods (other than meat and poultry). Nutrient declaration is mandatory for calories, calories from fat, total fat, saturated fat, cholesterol, sodium, total carbohydrate, dietary fibre, sugars, protein, vitamin A, vitamin C, calcium and iron. Nutrient amounts must be expressed in grams (or milligrams) per standardised reference serving for total fat, saturated fat, cholesterol, sodium, total carbohydrate, dietary fibre, sugars and protein, and as percent daily values (DV) for all nutrients except calories, calories from fat, sugars and protein.

## **7.2 Other provisions within the Food Standards Code**

Other review projects under consideration which may have an impact on the provisions for nutrition labelling include:

- the Review of Derivation of Energy Factors for Purposes of Food Labelling (P177);
- the Application for Inulin and Fructooligosaccharides as Dietary Fibre (A277);
- the Review of Print Size and Quality (P142) which will consider some of the presentation issues for the nutrition information panel;
- the Review of Low Joule and Carbohydrate Modified foods (R2/R3);

the Review of Vitamins and Minerals (P166);  
the Review of Lactose Claims (R1);  
the Review of Gluten (P176);  
the Review of Salts and Salt Substitutes (H9/J2)  
the Review of Code of Practice on Nutrient Claims;  
the Review of Prescribed Names (P151);  
the Review of Ingredient Listing (P143);  
the Review of Health and Related Claims (P153);  
the Review of A1(12) – nomenclature for fats; and  
the Review of R4/R9 (P199).

Where respective reviews have been completed to at least full assessment at the time of writing this report, the relevant recommendations have been incorporated.

## **8. REGULATION IMPACT STATEMENT**

ANZFA is required, in the course of development of regulations suitable for adoption in Australia and New Zealand, to consider the impact of various options (including non-regulatory options) on all sectors of the community, including consumers, the food industry and governments in both countries. The Regulation Impact Statement identifies and evaluates, though is not limited to, the costs and benefits of the regulation, and its health, economic and social impacts.

### **8.1 Issue / Problem**

Diet-related diseases are a major cause of morbidity and mortality in developed countries such as Australia and New Zealand. The majority of the population bases their dietary intake on foods obtained *via* the retail food industry with trends indicating an increasing reliance on processed and pre-prepared foods. For the majority of foods the label is the first and only source of information regarding the nutritional content of the foods as purchased.

### **8.2 Objective**

In the interests of protecting public health and safety, and in order to be able to make informed decisions/choices, consumers, health professionals, government and health and nutrition educators are, in many cases, reliant on this information. It thereby needs to be reliable, meaningful and consistent.

The objective of the nutrition labelling provisions within the *Food Standards Code* is to provide sufficient information to allow consumers to make informed choices to deliver public health and safety benefits.

### **8.3 Consultation**

In developing this proposal there has been one round of public comment which drew 54 responses. Attachment 2 contains a list of the submitters, a summary of the responses to the proposals according to extent of agreement and a summary of comments made regarding the issues. There has also been consultation with an expert panel consisting of representation from industry, government and consumer organisations.

### **8.4 Options**

ANZFA is required to make a formal assessment of the impact of any draft standard (or amendment) on all sectors of the community, including consumers, the food industry and governments. The assessment may include (but is not limited to) identifying and evaluating the impacts - be they financial, economic or social (including health).

The regulation impact of ANZFA's proposals has been described in the next section of this document. Comment on this regulation impact assessment is invited.

There are three possible options for regulating nutrition labelling for packaged food and unpackaged food sold by retail.

#### *Option 1- status quo*

Nutrition labelling to be required where a product carries a nutrition claim, or where it is required by the *Food Standards Code* as in the case of Special Purpose Foods which are regulated under the R-standards. A code of practice to be developed to provide guidelines on format and nutrients to be disclosed.

#### *Option 2 – no regulation*

Remove provision relating to the nutrition labelling of foods from the *Food Standards Code*. Develop a code of practice on the nutrition labelling of foods should stakeholders identify the need for guidance.

#### *Option 3 – amended regulation*

Amend the current regulations in the Code such that the mandatory declaration of nutrients within the NIP is reduced from seven to six, with the removal of sugars and potassium and addition of saturated fat, and; extend the requirements for mandatory declaration of energy, fat and saturated fat to all packaged foods (there may be some exemptions) within the retail food sector. Also to extend conditional requirements for declaration of key nutritional information to unpackaged foods. The format for the presentation of the information to be prescribed.



## **8.5 Identification of affected parties**

Government - Australian Commonwealth (ANZFA, AQIS), New Zealand, State/Territory and Local.

Industry- the retail food industry (manufacturers and importers) in Australia and New Zealand.

Consumers (and community)- purchasers and users of retail foods, health professionals and health and nutrition educators.

## **8.6 Statement of costs and benefits or Impact Analysis**

### **Option 1 – status quo**

#### **EFFECT**

This is the current option in the Code and provides that a nutrition information panel (NIP) is only required where a product carries a nutrition claim, or where it is required by the Code as in the case of certain products regulated under the R-standards. This provides industry with guidelines, consumers with useful information and government with relevant information for monitoring and enforcement. Where a NIP is required, its format and the nutrients for disclosure are prescribed.

#### **IMPACT ON STAKEHOLDERS**

##### **Industry**

###### *Advantages/ benefits*

This option offers some cost savings and savings on space on labels for foods which do not require nutrition information.

###### *Disadvantages/ costs*

Where a NIP is required, its use reduces flexibility of space on food labels and, manufacturers must bear the cost of providing information on at least seven nutrients (including energy) in each NIP (these data can be sourced from food composition tables, direct analysis is rarely required).

##### **Consumers**

###### *Advantages/ benefits*

This option provides the benefit of information on, and verification for, nutrient composition relevant to public health and safety, for foods which make a nutrition claim or are covered by the R-standards. The R-standards cater for specific sub-groups within the population with specific nutritional requirements.

###### *Disadvantages*

Therefore by default, this option does not provide information on nutrient composition for foods which do not make a nutrition claim or are not covered by the R-standards.

This considerably disadvantages many consumers and prevents (does not allow for) comparison of nutrient profiles of food products across the food supply.

This lack of consistency in the provisions does not allow for informed choice and represents inconsistency in the regulatory application of regulation to protect public health and safety supported by public health and nutrition education.

## **Government**

### *Advantages*

This option is useful in assisting verification of nutrition claims.

### *Disadvantages*

This option introduces some prescriptiveness of legislation about foods and does not consistently regulate to protect public health and safety. It also does not consistently fulfil the objectives of the Australian National Food and Nutrition Policy regarding provision of sufficient information on food labels to allow consumers to make informed food choices including comparisons between products. This option may also result in difficulty of enforcement due to lack of consistency of food regulations.

The current regulations, as provided by the Code and NZFR also do not provide consistency between the two countries. The Australian regulations are also somewhat more prescriptive than Codex by virtue of the additional requirement for mandatory declaration (in the nutrition information panel) of sugars, potassium and sodium.

## **ENFORCEMENT**

Monitoring and enforcement by government is necessary where a NIP is used. Enforcement is potentially convoluted with the use of a NIP enforceable by government, whilst some format and content are self-regulated by industry. Further difficulties are created by the differences between Australian and New Zealand regulations.

## **Option 2 – no regulation**

### **EFFECT**

With this non-regulatory option all nutrition labelling of foods would become voluntary. Even the use of nutrition claims would not mandate the use of a nutrition information panel.

## IMPACT ON STAKEHOLDERS

### **Industry**

#### *Advantages/ benefits*

This option provides potential cost savings due to no compliance costs and provides more freedom with space on food labels with maximum flexibility for the provision (or lack) of nutrition information about products.

#### *Disadvantages/ costs*

No disadvantages for industry were identified.

### **Consumers**

#### *Advantages/ benefits*

Due to the potential lack of nutritional information provided on food labels, no advantages were identified.

#### *Disadvantages/ costs*

This option considerably disadvantages consumers. The potential lack of information provided at the point of sale prevents informed choice in food selection, even voluntary labelling by some manufacturers will not completely alleviate this problem as comparative judgements may not be possible. Similarly, the lack of consistency of information on food labels would mean consumers have no realistic expectations as to which information would be provided on any given product. Also importantly, consumers would have no readily available means of verifying claims or other similar nutritional information provided on labels.

Those responsible for health and nutrition education would be similarly disadvantaged without ready access to relevant nutritional information and lack of consistent provision of information.

### **Government**

#### *Advantages/ benefits*

This option minimises prescriptiveness of legislation about labelling of foods and encourages self-regulation by industry. There would be consistency between Australia and New Zealand with regard to regulation (or lack thereof), and this option would be less prescriptive than Codex.

#### *Disadvantages/ costs*

However, self-regulation by industry may mean lack of consistency between states, territories and governments. This option also does not ensure the protection of public health and safety and does not fulfil the objectives of Australia's National Food and Nutrition Policy regarding the provision of sufficient information on food labels to allow consumers to make informed choices. There is also no readily available analytical information for products where this may be needed, for example, for verification of nutrition claims. The processes of determining whether or not label information is deceptive or misleading would be potentially more difficult.

## ENFORCEMENT

Industry self-regulation

### **Option 3 - amended regulation**

#### **EFFECT**

This option reduces the current regulation with regard to the number of nutrients declared within a NIP, but extends the current requirements with regard to circumstances under which nutrient information is declared.

The provision for use of a NIP when a nutrition claim is made would remain as currently described in the Code but with one less mandated nutrient than is presently the case. The declaration of potassium and sugars would no longer be required, however saturated fat would be included in the mandatory provisions.

All other packaged foods which do not currently require a NIP, would be required to carry a prescribed statement advising of the energy, total fat and saturated fat content of the food (there may be some exemptions). It is also recommended that unpackaged foods, which make a written nutrition claim, be required to declare this same information in conjunction with the claimed nutrient.

#### **IMPACT ON STAKEHOLDERS**

##### **Industry**

###### *Advantages/ benefits*

For those foods which currently carry a NIP there are advantages of less space and cost requirements due to the declaration of two less nutrients. For those foods which currently do not carry a NIP, no advantages for industry were identified.

###### *Disadvantages/ costs*

For those foods which would not otherwise carry a NIP, this option, incorporating mandatory declaration of energy, fat and saturated fat reduces flexibility of usage of space of food labels. However as only three nutrients are involved (and it is recommended that a statement may be used instead of a panel), it is anticipated that only a small amount of label space will be required. [For those products already displaying a NIP, the mandated nutrients will be included in this provision, therefore no further space is required.]

Similar arguments apply to the costs of sourcing information. There are less costs for products which already provide a NIP. For those manufacturers who would now be required to provide data on energy, fat and saturated fat content of their products, there may be some costs in obtaining saturated fat data, whereas energy and fat values can be readily sourced from food composition tables therefore requiring minimal cost. A phased-in approach as part of normal review processes should assist in absorption of additional costs.

##### **Consumers**

### *Advantages/ benefits*

This option offers many advantages for consumers. Consumers are provided with three key pieces of nutritional information about packaged foods - which relate directly to the prevention of obesity, heart disease and some cancers, along with other diet-related illnesses, and the maintenance of long-term health. The most important facet of this option is that it provides greater consistency in the declaration of nutritional information across the food supply. This in turn allows the ready comparison of energy and fat profiles between products both within and between various sectors of the retail food market and, allows the monitoring of individual daily dietary intakes of energy and fats. This option provides the basis for informed choice in the interests of protecting public health and safety.

The key issue lies with the objective of providing sufficient information to allow consumers to make informed choices to deliver public health and safety benefits. Although it may be considered that there are other ways of providing such information, the food label remains the prominent interface between the consumer and the product. Provided the information given is meaningful and relatively accurate, the label provides the most reliable and immediate means of nutrition information reaching the majority of consumers. Similarly, those involved in public health and nutrition education have greater and more consistent access to key nutritional information.

Recent results from American studies following the introduction of mandatory nutrition labelling indicate positive behavioural health-related changes for consumers as a result of increased availability of nutrition information.

### *Disadvantages/costs*

The removal of mandatory disclosure of potassium and sugars from the NIP may disadvantage some sub-groups of the population if the information is not voluntarily included by manufacturers. It should be noted however, in accordance with all other nutrition claims, this information would still be required when a related claim is made.

## **Government**

### *Advantages*

It is considered that the level of prescriptiveness afforded by this option will provide a means of effective legislation with direct public health and safety outcomes. This option provides a link between food labelling and public health and nutrition education, and facilitates protection of public health and safety. It also facilitates access to key analytical information on food products. The amended regulations will provide consistency between Australia and New Zealand by virtue of the joint FSC.

### *Disadvantages*

There would be increased enforcement responsibilities and costs as a result of extended requirements for nutrition labelling, and concurrently reduced costs and responsibilities due to the mandatory requirements of one less nutrients on the NIP. This option is more prescriptive than Codex and thereby may have trade implications.

## ENFORCEMENT

The enforcement implications are similar to those currently required by the present situation for foods for which a nutrition claim is made. They are further facilitated for packaged foods with regard to energy, fat and saturated fat declaration as no decision has to be made as to whether or not it is required. The format for both mandatory and voluntary nutrition information is prescribed.

### **8.7 Conclusion and recommended option**

Option 1 (status quo) provides some benefits, particularly to consumers and government, but through the inconsistency of the approach considerably disadvantages all groups. Option 2 (no regulation) is most beneficial to industry as it removes a number of labelling costs, but severely disadvantages consumers, government and public health organisations through the lack of key information directly related to optimisation of public health. Option 3 (amended regulation), imposes some disadvantages on industry (in comparison with the current situation) whilst offering considerable benefits for both consumers and government.

#### *Overall cost versus benefits of Option 3*

There are no current data available specifically on the costs of diet-related disease in Australia, however they can be estimated at over \$3.7 billion per annum<sup>4,5</sup>. The financial costs to industry by the imposition of the mandatory nutrient information are also unknown at this stage. In order to assess the estimated cost *versus* benefits of Option 3, the American situation was considered where mandatory labelling has been in place since 1993. The risk analysis for the introduction of mandatory nutrition labelling in the USA estimated the dollar value of the changes in health status, measured as life-years gained and number of cases and deaths avoided, to be \$US 4.4 to 26.5 billion per annum. The annual costs to manufacturers and food service establishments were estimated at \$US1.3 to 1.8 million, and the costs to government at \$US163 million. The overall summation was that: *'although the action [mandatory labelling] is expensive, the likely benefits to the US consumer substantially exceed the costs that shareholders, taxpayers, and consumers will ultimately bear'*.<sup>6</sup>

The USA regulations require the mandatory declaration of 12 nutrients, whereas the current proposal for the joint Australia New Zealand code is recommending just three, or six if the full NIP is adopted. It is therefore considered likely that there will be considerably less costs imposed on industry in Australia and New Zealand, whilst the

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<sup>4</sup> Australian Institute of Health and Welfare 1998. Australia's health. AIHW Cat. No.10, Canberra

<sup>5</sup> Lester IH 1994. Australia's food and nutrition. AGPS, Canberra

<sup>6</sup> Federal Register 1993 (58) No.3: 2927-2941

benefits to consumers and government would be only somewhat reduced by the fewer number of mandated nutrients.

It is the opinion of ANZFA that Option 3 would incur the most benefits and be the most cost-effective with regard to meeting the objective as outlined above.

## **9. WTO NOTIFICATION**

In the case of Option 3, advice to WTO would be required as a TBT notification as it is more prescriptive than the current requirements of Codex and thereby may constitute a technical barrier to trade. This option is being recommended in the interests of protecting long-term public health through the consistent provision of key nutritional information. Although it may be considered that there will be barriers to trade, it should also be noted that one of the most significant stakeholders, the USA, already mandate nutrition labelling on all processed foods, and for a greater number of nutrients than is being recommended by this review. Canada is also undergoing review of its nutrition labelling provisions and may be considering mandatory requirements. Within the Australian and New Zealand food industry, the smaller businesses are the most likely to incur the greater relative costs of implementation, however a phasing-in stage provided by the review process would assist in alleviating this burden.

## **10. OTHER RELEVANT MATTERS**

### ***10.1 Date of gazettal***

If adopted it is proposed that the date of effect of the draft variation be the date of gazettal. It should be noted that this date will also become the date of gazettal for the draft recommendations as proposed by P177, some of which have been adopted by this review.

### ***10.2 Guidelines to the Standard***

It is recommended that guidelines to the standard be incorporated to provide supporting information on the requirements of the nutrition labelling regulations.

### ***10.3 Communication Strategy***

There are two particular aspects of this review which will be most effectively implemented if accompanied by consumer education programs. These aspects are the introduction of the interpretive element, and the mandatory declaration of energy, fat and saturated fat on a more extensive range of foods. It is recommended that nutrition education accompany labelling changes, that this should be approached in a collaborative manner incorporating stakeholders such as health professionals, health

and nutrition educators, government health agencies and industry, and that consideration be given to the necessary allocation of appropriate resources.

## **11. ASSESSMENT**

### ***11.1 Introduction***

This review considers the provisions made for the declaration of nutrition information by manufacturers, for foods consumed in Australia and New Zealand. Many diseases are directly related to foods consumed and as such, the availability of nutritional information for those foods relates directly to the health and well being of Australians and New Zealanders. The cost of diet-related illness in Australia has been estimated to be over \$3.7 billion per annum<sup>7</sup>. This cost is borne by the governments of the respective countries and the consumers themselves. Extensive research has shown that many aspects of diet-related diseases are preventable or manageable when appropriate dietary measures are taken. To be able to take such measures, the consumer needs readily available nutritional information which relates directly to the foods consumed.

As identified in Objective 1 of the National Food and Nutrition Policy<sup>8</sup>, to implement dietary change consumers need sufficient point-of-sale information to help them to make healthy food choices in the retail environment. Point-of-sale information can be provided in a number of ways, however the food label is the most immediate and direct. The following issues are assessed with these points in mind, whilst also aiming to minimise the degree of prescription necessary for effective regulation.

For some of the discussions, further detail on the information has been provided in Appendix I. Reference is made to this appendix where appropriate.

### ***11.2 Principles for assessing the provisions for nutrition labelling***

In the earlier proposal document for nutrition labelling some principles were proposed for assessing the provisions for nutrition labelling. As a result of the comment received and further assessments of nutrition labelling provisions some amendments were made to these principles.

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<sup>7</sup> Australian Institute of Health and Welfare 1998. Australia's health. AIHW Cat. No.10, Canberra

<sup>8</sup> Commonwealth Department of Health, Housing and Community services, 1992. Food and Nutrition Policy. Canberra: AGPS: 1-32



It is now proposed that:

1. Nutrition information on food labels, where used, should be developed in the context of national nutrition policies for both countries as a means of safeguarding long-term public health and safety, and providing for informed choice. By extension, this information can provide consistency and linkage with the Dietary Guidelines for Australians<sup>9</sup>, New Zealand's Food and Nutrition Guidelines<sup>10</sup> and other authoritative nutritional recommendations such as the Dietary Guidelines for Children<sup>11</sup>.
2. Technical information, such as terms used to describe nutrients and the quantification of nutrients in the panel, should be made as meaningful as possible and limited to essential information for informed choice.
3. Labelling information which is provided for consumers should be accurate, easy to use, not confuse, and assist them in identifying the key nutrient contents of individual food products, comparing nutrient contents within product categories, and choosing among relevant food alternatives.
4. For manufacturers, labelling information should not impose unnecessary costs, and where possible, be introduced with other labelling changes concurrently rather than sequentially.
5. Labelling information requirements should be explicit and able to be substantiated. In developing these requirements, consideration should be given to the use of regulatory and non-regulatory approaches, eg Code of Practice and/or guidelines to the standard, to provide appropriate labelling information.

### ***11.3 Definitions of generic terms in the Standard***

#### **11.3.1 Definition of a nutrition claim**

It is proposed that a nutrition claim be defined to mean a representation that states, suggest or implies that a food has a nutritional function or content whether general or specific and whether expressed affirmatively or negatively. ANZFA considers that nutrition messages (messages based on the relationship between a nutrient in a food and a functional outcome), as described in the Guidelines to Manufacturers<sup>12</sup>, should be considered as nutrition claims, and thus, when used should trigger the requirement for a nutrition information panel.

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<sup>9</sup> National Health and Medical Research Council, 1992. Dietary Guidelines for Australians. Canberra, AGPS: 1-110.

<sup>10</sup> Public Health Commission, 1995. [Set of]National Food and Nutrition Guidelines for all New Zealanders. Public Health Commission, Wellington.

<sup>11</sup> National Health and Medical Research Council, 1995. Dietary Guidelines for Children. Canberra: AGPS.

<sup>12</sup> National Food Authority 1993. Nutrition information on food labels and in advertising.

### 11.3.2. Definition of a 'nutrient'.

Discussions have arisen concerning the definition of a nutrient as such, and the implications for this on what may or may not be included in a NIP. Codex defines a nutrient as any substance normally consumed as a constituent of a food which provides energy or; is needed for growth, development and maintenance of life or; a deficit of which will cause characteristic bio-chemical or physiological changes to occur. The NZFR have adopted the same definition. The Code does not currently provide a definition as such, but for the purposes of nutrition labelling provides a clause outlining the types of substances permissible in a NIP. This clause does not allow for substances which may have not been traditionally described as nutrients, but are nonetheless biologically active. For this reason, it is recommended that an additional sub-clause be added which allows for such substances. This clause is shown below as sub-clause 1(v) of the draft Standard 1.2.8.

This provision requires that any such substances which are claimed on the label of a food must also be quantified in the NIP, however it should be noted that for such substances no recommended or required daily intakes are known and therefore, they cannot be quantified in terms of recommended targets or RDIs (Recommended Dietary Intakes) for public health. The question arises as to whether or not consumers expect or require such reference amounts.

This information would not be available for a number of substances which may be included in the NIP by virtue of this sub-clause, neither are there currently available reference amounts to enable qualified claims such as 'good source/ rich source/ low in' etc., as described in the Code of Practice - Nutrient claims in food labels and in advertisements (CoPoNC) (National Food Authority, 1995). This latter aspect is outside the scope of this review however will need to be considered by the review of CoPoNC.

**nutrition claim** means a representation that states, suggests or implies that a food has a nutritional function or content whether general or specific and whether expressed affirmatively or negatively:

The term includes a reference to -

- (i) energy;
- (ii) salt, sodium or potassium;
- (iii) amino acids, carbohydrate, cholesterol, fat, fatty acids, fibre, protein, starch, sugars;
- (iv) vitamins and minerals;
- (v) *a biologically active substance, other than a vitamin or mineral; or*
- (vi) any other nutrient;

but does not include -

- (vii) a reference in a statement of ingredients, a prescribed name, or any other prescribed information;
- (viii) a reference to a quantitative or qualitative declaration of certain nutrients, ingredients or energy in the label where that declaration is required otherwise by the Act or this Code; or
- (ix) a reference to reduced alcohol content.

ANZFA is interested in further opinion on the definition of a ‘nutrient’ and the inclusion of ‘biologically active substances’ in the provisions for nutrition labelling, and welcomes public comment.

Additional qualifying criteria for vitamins and minerals may also be prescribed by Standard A9, these provisions may be further addressed by P166 (Review of Vitamins and Minerals).

### 11.3.3 Definition of ‘unit quantity’ as solid and semi-solid food in grams, or beverage in millilitres

Unit quantity is currently defined in the Code to mean, in the case of a solid or semi-solid food, 100 g, or in the case of a beverage, 100mL. It is recommended that this definition be retained.

## **11.4 Assessment of the provisions for nutrition labelling**

The following section considers the circumstances under which it is recommended that nutrition labelling be required on foods. The first part (11.4.1) discusses the declaration of nutrients on a more extensive range of foods, regardless of whether or not a nutrition claim is made. Section 11.4.2 considers the circumstances under which a nutrition information panel is triggered by a nutrition claim.

### 11.4.1 Provisions for nutrient declaration on a more extensive range of foods

In this review the question was posed as to ‘whether the use of nutrition labelling should be extended to more foods or more purchasing settings’. This becomes inclusive of foods which are not making nutrition claims. This issue has arisen largely due to the lack of consistency of the current provisions, whereby some food labels provide nutrient information and others don’t. This lack of consistency is seen by consumers to be a major barrier to being able to make informed food choices on the basis of health and nutrition. Extended labelling could aid consumer education, and assist consumers in making informed food purchase and consumption decisions which in turn, can impact favourably on public health. However, ANZFA recognises that any extension of labelling may impose additional costs on industry.

There was substantial support for extending nutrition labelling coverage to other packaged foods or defined settings from the submissions from consumers, including the Australian Consumers’ Association, and from health professionals and organisations, whilst the idea evoked strong disagreement from the majority of the industry sector primarily on the basis of implementation costs.

The idea of extended labelling is further supported by recent consumer research by ANZFA<sup>13, 14</sup>, with the qualification that the information was not wanted if it meant substantial increases in food prices. Consumers also considered that other information on the package, including the ingredient listing, did not provide sufficient 'reliable' information regarding the nutritional attributes of a product. Nutrition labelling was considered a necessity to be able to make informed choices.

The same research noted that each group could describe at least one specific occasion where they had looked for a NIP on a food product but had not found it. NIPs were mostly perceived to be missing from bulk food items, non-branded packaged foods, bakery products, tinned tomato products and tinned fish. Participants who were frequent label readers also expressed frustration at the inconsistency in the availability of NIPs in most product categories. They wanted them to be compulsory. One or two people however said that they did not want mandatory labelling if it involved an increase in the cost of food. A 1993 Australian survey<sup>15</sup> into use of food labels indicated that about 80% of respondents used food labels.

Just over half the respondents said that it would be useful to have information on items such as confectionery, snacks, take-aways, soft drinks and biscuits – these tend to be the types of foods where NIPs are often not found. This lack of consistency results in the current situation whereby consumers may be misled regarding the nutritional properties of comparative food products, eg mayonnaise has been used as a clear example where a product labelled as 'reduced-fat' was shown to contain more fat than the regular version of another brand<sup>16</sup>.

There are mixed findings from the surveys relating to label use by American shoppers. Access to recent data on consumer shopping behaviours in the USA since the inception of the mandatory Nutrition Facts label have indicated that people's shopping behaviours have changed, in a positive direction, as a result of the use of this label on wide range of foods. The Food Marketing Institute (FMI)/Prevention Magazine survey<sup>17</sup> revealed that 22% of shoppers started buying or using a new product because of something they had seen on the label. Similar comments were provided by the American Dietetic Association's 1997 Nutrition Trends Survey with over 60% saying purchasing behaviours were affected by label information.

Furthermore, a recent report by the Economic Research Service of the USDA (United States Department of Agriculture) quantifying healthy eating behaviours in relation to nutrition information (including a broad range of nutrients on both packaged and unpackaged foods) concluded that nutrition information increases overall diet quality, as measured by the 'health eating index'<sup>18</sup>.

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<sup>13</sup> ANZFA 1999. Consumer reactions to three different nutrition information panel formats (see Appendix IV)

<sup>14</sup> ANZFA 1998. Focus groups with Australians and New Zealanders on a folate health claim (see Appendix V)

<sup>15</sup> CSIRO Division of Human Nutrition. Information needs and concerns in relation to food choice.

<sup>16</sup> Choice 1998. All dressed up. August: 9-14

<sup>17</sup> Food Marketing Institute 1996. Trends in the United States: consumer attitudes and the supermarket 1996. Washington DC.

<sup>18</sup> Variyam JN, Blaylock J, Smallwood D, Basiotis PP. 1998. USDA's health eating index and nutrition information. Economic Research Service/USDA : 1-21



A 1999 report<sup>19</sup> from the USA has stated that 80% of Washington residents report reading the nutrition labels on packaged foods, and that these results are comparable to other studies. On the other hand, for example, the 1993 FMI Trends survey of grocery shoppers<sup>20</sup> found that label use had not increased. Variability in study findings can arise from a number of factors including length of survey time and where subjects are studied. Observation in shopping situations tends to indicate lower prevalence of label use than self-reported studies as labels may be used when foods are being prepared or eaten, rather than just at time of purchase.

If the requirements for nutrition labelling were extended to include all foods provided by the retail industry, then the current standard would be more prescriptive. It could be argued that extending nutrition labelling requirements in this way should not be a mandatory requirement as it is either included voluntarily or already required when a nutrition claim is made. However not all manufacturers do include the information voluntarily, particularly on those products which are of most concern, that is, the energy and/or fat dense products. In particular, pre-prepared foods and take-away foods which are contributing increasingly to the total dietary intake of Australians are often those foods which are particularly fat-dense.

Extending requirements for nutrition labelling could also impose some costs, at least initially, on industry and increased enforcement responsibilities for governments. In addition, extension of nutrition labelling coverage in this way would be inconsistent with Codex and New Zealand and could create barriers to trade. These issues have been discussed earlier in relation to regulation impact (see Section 8), where it was considered that the benefits would outweigh the costs.

ANZFA is of the view that more extensive declaration of nutrients is warranted, particularly on packaged foods, however declaration for unpackaged foods raises difficulties with regard to implementation, both for accessing and presenting the information. If the requirement for mandatory declaration is not applied to unpackaged foods, the problems with lack of consistency in application of the underlying principles (ie safe-guarding of public health and provision for informed choice) remain.

Requirements could be applied such that declaration for unpackaged foods is required at point of sale. In the USA the NLEA regulations require nutrition labelling on virtually all foods (unless they are specifically exempt). Under these regulations nutrition labelling must be prominently displayed for unpackaged foods by means of placards, pamphlets, tags etc. It is anticipated that this would be a considerable impost on industry.

Another possibility is that the information be provided upon request. This option is less expensive for industry, allows for some degree of consistency in the provisions and is consistent with other provisions, such as those for substances causing adverse reactions. However it is far less convenient and thereby less effective for the consumer.

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<sup>19</sup> Neuhouser ML, Kristal AR, Patterson RE. 1999 Use of the food nutrition labels is associated with lower fat intake. *Journal of the American Dietetic Association* (1): 45-50

<sup>20</sup> Food Marketing Institute/Opinion Research Corporation 1993. *Trends in the United States: Consumer attitudes and the supermarket 1993*. Washington D.C.

The foods for which nutrient information is likely to be of greatest concern to the consumer are those for which a nutrition claim is made. The making of this claim may be verbal, but more generally is in print of one form or another. It therefore seems reasonable to suggest that wherever such a claim is made, that key nutrient information could be declared in conjunction with the claim.

### *Conclusion*

It view of the above, it is recommended that provision be made for declaration of nutrient values on a more extensive range of packaged foods and, in the interests of consistency, that due consideration also be given to unpackaged foods.

In summary, the key reasons for this recommendation include:

- protection of public health;
- consistency in provision of information for informed choice;
- strong support from key consumer groups and public health and community organisations;
- results from consumer research in Australia and New Zealand;
- results from the recent US experience with the Nutrition Facts label which suggest that the presence of nutrition labelling is influencing consumer purchasing behaviours; and
- results from the recent US experience with the Nutrition Facts label which suggest that the benefits outweigh the costs.

It is acknowledged that extending requirements for nutrition labelling could also impose costs, at least initially, on some parts of industry and modest increased enforcement responsibilities for government, and that such provisions would be inconsistent with Codex.

*Refer to Appendix I.I for further discussion. Further information on unpackaged foods is found below in Section 11.4.2.2.*

## 11.4.2 Provisions for the use of a nutrition information panel

### *11.4.2.1 Nutrition labelling on packaged foods*

Currently in Australia and New Zealand, nutrition information in the form of a nutrition information panel is voluntary for all foods, and mandatory for packaged foods for which nutrition claims are made. This approach aligns with Codex. Exemptions are provided for packaged foods with surface areas less than 100 cm<sup>2</sup>, and foods with a prescribed name which incorporated words implying a nutrition claim. The specific requirements for nutrient disclosure for Infant Formulae and Sports Foods are described under the relevant provisions within the Code.

Recent consumer testing conducted by ANZFA<sup>21</sup> identified the information in the nutrition information panel as important for verifying claims and providing

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<sup>21</sup> ANZFA 1999. Consumer reactions to three different nutrition information panel formats (see Appendix IV);

compositional information on nutrients of interest. Consumers also considered the panel provided the most credible or ‘trustworthy’ labelling information on food packages.

ANZFA recommends that unless specifically exempted, all packaged food should continue to be required to include a nutrition information panel when a nutrition claim is made.

#### *11.4.2.2. Nutrition labelling on unpackaged foods*

Currently in Australia, unpackaged food is addressed in relevant provisions in Australia in the Model Food Act and in State and Territory Food Acts, the Trade Practices Act and individual requirements in the Australian *Food Standards Code*. In New Zealand, there are provisions in the Food Act 1988, the Fair Trading Act and generic provisions in the New Zealand Food Regulations (NZFR)1984.

ANZFA is currently examining the provisions for unpackaged food as part of the Review of Information Required for Unpackaged Food Sold by Retail (P175). The Pilot for the Management of Health Claims, currently in progress, also includes a requirement for a nutrition information panel to be provided ‘on food which is displayed for retail sale other than in a package’.

Submitters comments to this review indicated divided views with regard to labelling of unpackaged foods. There was some consumer and health professional support for extending labelling to unpackaged foods, particularly pre-prepared and ready-to-eat meals. One industry submitter (Heinz Australia) expressed support for extending mandatory nutrition labelling coverage to unpackaged foods, including produce, sold by retail when a nutrition claim is made. It was suggested that for these foods, the nutrition information would need to be available upon request.

However there were also arguments against extending nutrition labelling coverage to unpackaged foods due to the difficulties of providing this information uniformly if there is no package, and the associated costs of extended labelling. A 1996 study<sup>22</sup> by ANZFA on food labelling revealed that there is less or no apparent demand for the labelling of unpackaged foods including fruit, vegetables and meats, however researchers postulate this may occur because traditionally these foods are not provided with nutrition labels.

It has been considered by this review that nutrition labelling should be applied equally, as far as is practicable, to packaged and unpackaged foods (see Section 11.4.1). In view of these arguments, and being mindful of the practicalities involved, it is recommended by ANZFA that nutrition labelling be extended to unpackaged foods, when a written nutrition claim is made, and that the required declarations be the claimed nutrient and other key nutrients *viz* energy, fat and saturated fat (see further discussions in Section 11.5.1).

ANZFA welcomes public comment on this issue.

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ANZFA 1998. Focus groups with Australians and New Zealanders on a folate health claim (see Appendix V).

<sup>22</sup> ANZFA, 1996. National Consumer Survey on Food labelling.



#### *11.4.2.3. Exemption for small packages*

It is considered by ANZFA that the exemption from the NIP for small packages (less than 100 cm<sup>2</sup>) be retained, however it is further considered that if the recommendation for mandatory declaration of key nutrients is adopted (see Section 11.5.1) small packages should not be exempt from this declaration, where practicable. Such declarations would also be subject to the provisions given by P142 (Review of print size and quality).

#### *11.4.2.4. Consideration of foods with a prescribed name as nutrient claims.*

Standard A1(13)(a)(vi) exempts foods with a prescribed name which includes a nutrient claim, from the requirement to provide a nutrition information panel. This is because it is a name that the law requires, rather than a voluntary representation made by the manufacturer. On this basis, it was considered inappropriate to mandate a name and then as a result of the use of this name mandate other labelling requirements. However this exemption provides for inconsistency in regulatory provisions which is difficult to support. ANZFA is further of the opinion, substantiated from submission comments, that most consumers would expect that foods with a prescribed name, which implies or infers a nutrition claim, would be required to include substantiation of the nutrient claim in the form of a nutrition information panel.

Submitter comments from each sector overwhelmingly agreed that nutrition labelling provisions should provide for consistency in regulatory provisions. One manufacturer, Heinz-Wattie, specifically noted that a nutrition information panel should be required for foods with prescribed names which imply a particular nutrient status.

The provisions concerning foods with a prescribed name are currently under review by ANZFA. Under the current provisions some prescribed names included words that implied a nutrition claim eg 'reduced fat yoghurt'. Such names may no longer be prescribed subject to the outcomes of the respective reviews, however it is the view of ANZFA, that any prescribed names which to all intents and purposes imply a nutrition claim, and unless otherwise exempt, should trigger a NIP.

#### *11.4.2.5. Consideration of negative claims as nutrition claims*

Standard A1(10) - Labelling and Advertising, in the Code prohibits the claim 'no added sugar' from being included in a label of a food if the food contains any of the products defined in Standard K1, honey as defined in Standard K2, malt, malt extract or maltose.

Products carrying these negative claims, which state or imply an absence of a nutritional property in a food, are currently not required to provide nutrition information in the form of a panel despite intrinsic properties of the food (eg fruit sugars in canned fruit or juice). The exemption for these negative claims is difficult to understand when it is considered that the majority of nutrition claims require substantiation in the form of a nutrition information panel on the food package.

ANZFA is further of the opinion that most consumers would expect that foods carrying a 'no added sugar' or 'no added salt' claim would be required to include substantiation of these claims in the form of a NIP. With regard to 'no added salt' the declaration in the NIP would be for sodium. For 'no added sugar' the required declaration in the NIP would be 'sugars', whether that actual claim refers to sucrose, or any other sugar as defined by Standard K1.

For consistency with regulatory provisions and to provide substantiation for these claims for consumers, ANZFA recommends that negative claims, such as those described above, should be considered as nutrition claims and thereby trigger a NIP.

#### *11.4.2.6. Consideration of claims about the presence or absence of sweetness*

Standard A1(10A) - Labelling and Advertising in the Code prohibits the claim 'unsweetened' from being included in a label of a food if the food contains any of the products defined in Standard K1, honey as defined in Standard K2, sweetening substances as defined in A8, malt, malt extract or maltose, polyols or polydextrose.

As stated in Standard A1(11A), where the term 'unsweetened' is used in a label, if a nutrition information panel is not provided, the label must disclose the energy value of the food expressed per 100g or 100 mL.

Use of the term 'sweetened' or 'unsweetened' implies the presence/absence of sugars in some form and thereby a nutritional characteristic of the food as such. It has been considered by ANZFA that this in turn could be construed to constitute a nutrition claim which would in turn trigger a nutrition information panel.

For consistency with regulatory provisions and to provide substantiation for these claims for consumers, ANZFA recommends that the terms 'sweetened' or 'unsweetened' be considered as nutrition claims, and thus, the label should carry a NIP.

#### *11.4.2.7. Consideration of low joule foods and carbohydrate modified foods.*

The provisions for low joule foods and carbohydrate-modified foods are currently being reviewed. If this review recommends the standards for these foods be revoked, ANZFA considers that low joule and carbohydrate-modified claims would be nutrition claims, and thus, when used should trigger the requirement for a NIP.

#### *11.4.2.8 Nutrient declarations for salt and salt substitutes*

The requirements for salts and salt products (including salt substitutes) are prescribed in the Code under Standard J2. For these particular products this standard currently takes precedence over references to salt, sodium or potassium as described under the definition of 'nutrition claim' Standard A1(13)(a).

Also, Standard A1(13)(c)(iii) exempts products making nutrition claims regarding salt, sodium or potassium, but no other claim, from declaring any nutrients other than sodium or potassium.

This provision may have been intended only for salt and salt substitutes, but is not clearly defined as such, and indeed allows for many other foods to be exempt from triggering a full NIP despite making a nutrition claim. This provides for an inconsistency in the provisions which is difficult to support. It is recommended that this provision be deleted.

In addition, if the recommendation for the declaration of potassium to be changed from mandatory to voluntary is adopted, salt and sodium claims for foods will not automatically result in declaration of potassium content of the food. As the balance between sodium and potassium content is relevant for certain sub-groups of the population, consideration should be given to the mandatory declaration of sodium and potassium, when a claim is made regarding salt, sodium and/or potassium. This is particularly relevant when a potassium-based salt substitute is used as an ingredient in the food. It is recommended that this latter issue be further considered by the review of salts and salt substitutes.

Furthermore, it is recommended by this review that any nutrition claim referring to salt, sodium or potassium should trigger declaration of both sodium and potassium in the NIP.

## **11.5 Nutrients recommended for declaration**

### 11.5.1 Nutrients recommended for mandatory declaration

The arguments for the extension of mandatory disclosure of nutrients to more foods are provided above in Section 11.4.1. When this issue was raised with submitters there was no particular reference given to specific nutrients, rather a general expression of interest in increasing the number of food labels on which nutritional information was disclosed.

With regard to the safeguarding of public health it is considered that the key nutrients of concern are energy, fat and saturated fat. These have also been determined to be the nutrients which consumers are most interested in by a number of studies including the recent research conducted by ANZFA, and another on nutrition labelling in the UK<sup>23</sup>.

#### *Energy*

Energy declaration is important primarily because of its relationship to overnutrition in westernised countries such as Australia and New Zealand.

Although obesity *per se* does not cause death, it increases the risk of developing a number of diseases including atherosclerotic vascular disease, diabetes, hypertension and gallstones. It can be argued that declaration of energy values on foods (as required in the USA), and industry's development of low-joule and low-fat foods has not 'solved' the obesity problem as the prevalence of obesity continues to rise. However

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<sup>23</sup> Sadler M. 1999 UK industry guidelines on nutrition labelling to benefit the consumer. Nutrition and Food Science No. 1: 24-28.

the fundamental issue remains that the key to weight control or gain/loss is the relationship between energy input and energy output.

In the interests of stemming the increasing prevalence of overweight and obesity, the need to place greater emphasis on energy output has been recognised<sup>24</sup>. However consumers still require knowledge of energy input in order to manage this relationship.

### *Fat*

Fat is important because of its significant contribution to energy intake (and hence obesity), and its association with colorectal cancer and atherosclerotic vascular disease. Although there are some indications that the relationship between total fat intake and colo-rectal cancer may be weaker than previously thought<sup>25</sup> there are still sufficient concerns to warrant its consideration.

In the recent proposal 'Acting on Australia's weight: a strategic plan for the development of overweight and obesity' developed by the NHMRC<sup>26</sup>, it was recommended that the Australian food industry continue to increase the proportion of foods on the market with low or reduced fat levels and, that the relevant agencies 'develop a food labelling system that clearly informs about the total amount of fat in foods and the proportion of energy provided by fat'.

Furthermore, it is considered by ANZFA that the lack of information on total and type of fat content in high volume manufactured baked goods (including fast foods) is exposing an increasing number of Australians, particularly young Australians, to an identifiable hazard that they may choose to avoid if given the information and educational resources to read the label in an informed fashion.

It has been found in a recent study<sup>27</sup> of the new labels in the USA, that there was a highly significant statistical association between the use of nutrition labels, and consumption of a lower-fat diet. This study is considered to be the first population-based investigation of the associations between the implementation of the Nutrition Education Labeling Act (NLEA), and diet. The study found a 5% reduction in dietary fat after adjusting for demographic and psychosocial factors. These results have been interpreted by the researchers as being suggestive of the helpfulness of the nutrition label in selection of a lower-fat diet. They also considered that the magnitude of dietary fat reduction would result in meaningful decreases in the risk for dietary-related chronic diseases.

Dietary fat intake and its effect on human health continues to be a widely debated issue as the pendulum continues to swing between those considering saturated fat to

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<sup>24</sup> Prentice AM and Jebb SA 1995. Obesity in Britain: gluttony or sloth? *British Medical Journal* (311): 437-439

<sup>25</sup> Giovannucci E & Goldin B 1997. The role of fat, fatty acids and total energy intake in the etiology of human colon cancer. *American Journal of Clinical Nutrition* (66): 1564S-71S.

<sup>26</sup> National Health and Medical Research Council 1997. *Acting on Australia's weight: a strategic plan for the prevention of overweight and obesity*. Commonwealth Department of Health and Family Services, AGPS, Canberra

<sup>27</sup> Neuhouser ML, Kristal AR, Patterson RE. 1999 Use of the food nutrition labels is associated with lower fat intake. *Journal of the American Dietetic Association* 99 (1): 45-50

be the major concern, particularly in relation to cardio-vascular disease, and those who maintain the importance of total fat intake<sup>28</sup>.

### *Saturated fat*

Saturated fat is also a nutrient of considerable consumer interest with indications that it is one of the most 'asked about' nutrients by consumers. Results from recent ANZFA consumer testing (see Appendix IV) showed that saturated fat was the second most important nutrient (after total fat) when making nutrition judgements about foods.

There was substantial support in submissions from consumers, independent health professionals and public health and community organisations for extending nutrition labelling provisions to include mandatory disclosure of saturated fat content. Reasons cited included the public health significance of saturated fat and consumer interest in having this information available.

Opposing views came primarily from industry. The majority of industry submissions, including from the Australian Food and Grocery Council, argued for maintaining voluntary disclosure of saturated fat content. Reasons included:

- increased analysis costs for industry;
- increased space requirements on labels;
- inconsistency with Codex and New Zealand nutrition labelling provisions; and
- the fact that not all saturated fatty acids are detrimental to health, eg stearic acid.

This latter point is acknowledged, however, it is also noted that research has clearly established the role of most saturated fats in the aetiology of atherosclerotic and other vascular diseases, and recognised that there are national consensus recommendations regarding the levels of intake for saturated fat. There is consensus amongst Australia scientists<sup>29</sup> that the primary objective is to differentiate between saturated and unsaturated fats. One author went on to note that there are declining intakes of polyunsaturates, and that this is possibly due to the 'eat less (total) fat' message. In which case, he argues, to say 'eat less saturated fat' is potentially a more effective message.

The importance of simple and consistent nutrition messages to the public is also recognised. To attempt to educate consumers as to which particular saturated fats are harmful and which are not, and further support this through nutrition labelling would seem somewhat unrealistic at this stage.

It could be argued that declaration of saturated fat, rather than total fat, would be more useful to consumers and therefore only saturated fat disclosure is required. ANZFAs' concerns with declaring only saturated fat are the potential for confusion by consumers in that the single declaration, and consumers' lack of understanding of total fat *versus* saturated fat, may lead to the assumption that one equals the other. Similarly declaration of saturated fat alone could be misleading (with regard to the

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<sup>28</sup> Lichtenstein AH. 1999 Dietary fat: a history. *Nutrition Reviews* 57 (1): 11-14.

<sup>29</sup> Proceedings of the Sydney University Nutrition Research Foundation Symposium, November 1997, Sydney NSW

total fat content of the food) if it is only a small amount. Therefore it is considered that declaration of both total fat and saturated fat would be required.

As a least prescriptive approach, in strict accordance with the principle of protection of public health and being mindful of the potential costs for industry, it is recommended that extended nutrient declaration be applied to these three key nutrients, namely energy, fat and saturated fat and, that saturated fat disclosure should be provided indented under fat content (left-justified) to indicate its relationship to total fat content. Voluntary declaration of other nutrients would be strongly encouraged.

This review would be interested in seeking public opinion as to whether just these three nutrients should be mandated for disclosure, or if the full NIP (six nutrients) should be required.

ANZFA would also like to consider other means of disclosing the fat and saturated fat content, for example as a percentage of targeted daily intake value (see Section 11.10), rather than as absolute values. The purpose of this would be to enhance the meaningfulness of the declarations. Such declarations would need to be 'per serving' - this then raises the issue of whether serving sizes should be standardised to enable easier comparability between products.

If only three nutrients are being recommended for mandatory disclosure, it would be considered unnecessary to mandate a nutrition information panel as such. It is suggested that the manufacturer may have the discretion to use a sentence style of format instead. In either case the requirements for font size and display should be in accordance with the general labelling provisions as described in the Code in Standard A1 – Labelling and Advertising. [It is relevant to note here that P142 (Review of Print Size and Quality) has recommended that a minimum print size for prescribed information should not be regulated on small packages, and that the primary requirement is that the information be legible and in English.]

Furthermore, it is recommended that this information be required to be provided on the label of all packaged foods, including small packages (some exemptions may be considered on a case-by-case basis). This same information should also be provided for unpackaged foods for which a written nutrition claim has been made, the declarations to be made in conjunction with the claim.

It is also recommended that communication strategies be considered to accompany these changes to the regulations.

#### 11.5.2 Nutrients recommended for mandatory declaration where a nutrition information panel is used

Standard A1(13) of the Code currently mandates that where a nutrition information panel is used it must contain a declaration of the energy, protein, fat, carbohydrate (classified as total carbohydrate and sugars), sodium and potassium in the food. The NZFR mandate that such a panel must declare energy, protein, fat and carbohydrate. Current provisions of Codex provide for mandatory declaration of energy,

carbohydrate, fat and protein. The provisions for declaration of sugars, fibre, saturated fat and sodium are currently under consideration for mandatory inclusion.

The issue in this review was whether the declaration of nutrients currently mandated by the Code was useful and should continue. Each nutrient was considered on the basis of its scientific merit with regard to public health and safety, and international practice. Opinions on each of these issues were also sought from stakeholders. More detail on submitter responses is provided in Attachment 2.

Given below is a summary of the findings for those nutrients for which mandatory declaration is now being recommended.

### *Energy*

There was clear agreement from all sector respondents that energy should continue to be disclosed. ANZFA recognises the need for energy disclosure on the grounds of public health and safety, and notes that such disclosure is consistent with Codex, and the current Australian and New Zealand nutrition labelling regulations. It was therefore considered by submitters that the requirement for energy disclosure should remain.

Energy and fat have also been determined to be the nutrients which consumers are most interested in by a number of studies including the recent research conducted by ANZFA, and another on nutrition labelling in the UK<sup>30</sup>.

Energy declaration is important primarily because of its relationship to overnutrition in westernised countries such as Australia and New Zealand. See further discussions above in Section 11.5.1.

### *Fat*

All sector submitters clearly supported disclosure of total fat content in the NIP, when a panel is used. ANZFA acknowledges its considerable public health significance and strong consumer interest. As noted by Goodman Fielder, queries on fat levels are the most frequent nutrition enquiries to their consumer advisory services. Disclosure of fat is also consistent with Codex, and the current Australian and NZFR. Recent research by ANZFA on the use of NIPs (Appendix IV) has indicated that fat should be declared as 'total fat' due to confusion by some consumers of the relationship of different types of fat. For example, in the survey some consumers summed 'fat' and 'saturated fat' to assess the fat content of a food.

The discussion on fat also raised the issue of saturated fats and whether the disclosure of these should also be mandated in the NIP. This issue, along with further considerations regarding fat, are discussed above in Section 11.5.1.

It was considered by this review that the requirement for fat disclosure should remain, and that in order to clarify its status as total fat, it should be declared as 'fat, total' when relevant sub-groups are also declared.

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<sup>30</sup> Sadler M. 1999 UK industry guidelines on nutrition labelling to benefit the consumer. Nutrition and Food Science No. 1: 24-28.

### *Saturated fat*

The Code, NZFR and Codex all provide for voluntary declaration of saturated fat, unless a claim relating to the type and/or amount of fatty acid in a food is made, in which case declaration is prescribed.

Extending nutrition labelling provisions to include mandatory disclosure of saturated fat content when a NIP is used would provide content information on a nutrient of significant public health significance, and one for which the science linking saturated fat intake with negative health outcomes is not in dispute. The discussions in the section above (11.5.1) further support the inclusion of saturated fat in the NIP.

It is not possible to isolate the discussion on saturated fats without mention of trans fatty acids and hydrogenated fats. However as these are not being recommended for mandatory inclusion in the NIP at this point in time, they are discussed in the section below (11.5.3).

### *Carbohydrate*

There was clear agreement from all sectors to support disclosure of carbohydrate content in the nutrition information panel. Although there are currently some concerns regarding the disclosure of sugar on nutrition information panels, this issue does not impact on the general agreement that disclosure of (total) carbohydrate is relevant to public health, and is of interest to the consumer. Mandatory declaration of carbohydrate is consistent with the current Australian, New Zealand and Codex provisions for nutrition labelling. It was considered that the requirement for carbohydrate disclosure should remain.

### *Protein*

There was clear agreement from all sector respondents that protein should continue to be disclosed. ANZFA acknowledges that protein is of less public health significance today, but notes that adequate protein is needed, together with fats and carbohydrates, to provide for optimal growth and development. In addition to its significant physiological significance, protein also contributes to total energy intake, and thus, information on packaged foods about protein content is of value to consumers, particularly among some segments of the population, such as children and the elderly. Disclosure of protein content, when a panel is used, is also consistent with Codex, and the current Australian and NZFR. It is recommended that the requirement for protein disclosure should remain.

### *Sodium*

Current provisions of the Code provide for the mandatory disclosure of sodium wherever a nutrition information panel is used, this is not the case in the NZFR. Codex also does not require the disclosure of sodium (unless a related claim is made) however this provision is under review.

The role of sodium in health outcomes has been the subject of some scientific debate. The majority of submitters are of the opinion that sodium remains relevant to public health and as such mandatory disclosure should continue. ANZFA supports this view, particularly with regard to the significant proportion of the population with sodium-sensitive hypertension.



Issues raised by submitters related primarily to lack of consumer understanding of salt *versus* sodium, and the differences between added sodium and naturally occurring sodium. These concerns were indicative of a need for supporting education. Discussion was also raised on the appropriate units for disclosure. This latter issue is addressed in Section 11.8.7. It was considered that the requirement for sodium disclosure should remain. Also identified was a need for supporting education on the significance of sodium, rather than salt as such.

## Conclusion

ANZFA recommends that the disclosure of energy, fat, saturated fat, carbohydrate, protein and sodium content in the NIP be mandated, when a panel is used (unless specifically exempted). ANZFA considers that the benefits associated with providing this information to consumers is greater than the costs of not providing such information. Figure 1 provides an example of a NIP with the mandated information as discussed above.

It is also recommended that communication strategies be considered to accompany these changes to the regulations.

FIGURE 1

Example of recommended NUTRITION INFORMATION PANEL

<b>NUTRITION INFORMATION</b>		
Servings per package = ... One serve = .....g,mg		
	<b>Average quantity per 100g (mL)</b>	<b>Average quantity per serving</b>
Energy	....kJ (Cals)	....kJ (Cals)
Fat, total	....g	....g
-saturated fat	....g	....g
Carbohydrate	....g	....g
Protein	....g	....g
Sodium	.....mg (mmol)	....mg (mmol)
Insert here any other nutrient to be declared	....g,mg,µg	....g,mg,µg

### 11.5.3 Nutrients recommended for voluntary declaration where a nutrition information panel is used

Given below are the considerations for nutrients for which it is recommended that disclosure be voluntary, wherever a nutrition information panel is used. The following considerations do not include the vitamins and minerals which are covered by Standard A9 and will be considered by P166 (Review of Vitamins and Minerals).

#### *Sugars*

Within the Code, declaration of total sugars is currently mandated wherever a nutrition information panel is used. Under the current provisions of Codex and the NZFR it is mandated only where a nutrition claim is made relating to the type of carbohydrate in a food. The provisions by Codex are currently under review.

There has been considerable debate regarding whether or not sugars should be mandated on nutrition information panels, largely as a result of current scientific considerations that sugars play a less significant role in disease aetiology than was previously thought. The submissions received as part of this review reflected this debate.

The mandatory declaration of sugar on NIPs has been supported in the past by its inclusion in the Australia Dietary Guidelines, however there is considerable opinion that this guideline [‘avoid eating too much sugar’] is no longer justifiable and should be deleted. This view however does not necessarily extend to the needs of the elderly as sugar is still considered a significant factor in relation to the formation of dental caries<sup>31</sup>.

Consumers, and public health advocates and organisations were in clear agreement that the mandatory declaration of sugars should remain. Consumer confusion as to which saccharides actually constituted ‘total sugars’ was also noted. [This issue may best be addressed as part of supporting communication to accompany nutrition labelling changes.] The majority of industry submissions were opposed to retaining mandatory declaration of sugars in the NIP.

In order to gain a broader perspective on this debate ANZFA undertook a review of the role of sugars in chronic disease, and considered this in conjunction with a further review provided by an external member of the review project team. These reports, by providing quite different perspectives on the sugar issue, clearly represented the current debate surrounding sugars and their role in public health. One report suggested that the current breakdown of carbohydrates (including sugars) in the NIP is potentially confusing to consumers, and that the lack of scientific support for sugars in disease outcomes is quite evident, concluding that mandatory declaration of sugars is no longer justified on the basis of health implications.

In the other report the declining evidence of a role for sugars for some health outcomes was also identified, however considered inconclusive for a number of conditions.

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<sup>31</sup> MacEntee M, Clark D & Glick N 1993. Predictors of caries in old age. *Gerodontology* 10(2): 90-97

This report concluded that until the metabolic interrelationships of sugar and fat in insulin dependent and non-insulin dependent diabetes mellitus, and the dyslipidaemias of syndrome X and cardiovascular disease are defined, there is insufficient justification for removing sugars from the NIP. Furthermore, the role of various sugars in processed foods and their overall contribution to total energy intake was clearly noted, in particular their use in foods marketed as low fat - which to many consumers may inappropriately suggest that the product is also low in energy. It was also identified that excessive use of sugars in processed foods may lead to significant dilution of nutrients, which can be of concern for those with limited food intakes, such as the very young or elderly. This review supported the continued declaration of sugars in the NIP.

The 1997 joint FAO/WHO report on carbohydrates in human nutrition<sup>32</sup> clearly places the emphasis on the healthful properties of poly- and oligosaccharides, and notes the lack of implication of sugars in disease, although the relationship between sugars and dental caries still remains a concern, particularly for the elderly. This report adds that the bulk of carbohydrate foods consumed should be those rich in non-starch polysaccharides, and that excessive intakes of sugars which compromise micronutrient density should be avoided. The outcomes of this report have been interpreted in a number of ways, however it appears clear that the primary concern for the consumer is the differentiation between the different types of carbohydrates, particularly where a claim is made regarding the carbohydrate or dietary fibre content of a food.

Consideration of carbohydrate content is exacerbated by the difficulties of terminology – finding terms which are accurate and meaningful, whilst still being understood by consumers. The 1997 FAO/WHO report on carbohydrates in human nutrition highlights the dichotomy which exists with regard to using terminology based on chemistry, as opposed to that which reflects physiology and health. As also noted by the FAO/WHO report it is important to provide appropriate information for consumers on food labels. For this purpose the terms used should be as simple as possible whilst maintaining relevance and technical accuracy. This review suggested that the term ‘sugars’ be used on the label, and noted that in accordance with the current definition in the Code, this term should refer to total sugars – that is, monosaccharides and disaccharides.

The subject of glycaemic indices was also raised by a substantial number of submitters and further considered by the ANZFA review. Although becoming increasingly well known, the glycaemic index concept is still being developed and is not widely used on a global basis at this point in time. Consumer understanding would be predominantly restricted to sub-groups of the population with relevant nutritional needs, such as diabetes mellitus. Its practical application is limited by the many factors which cause variation in glycaemic index values between foods of the same type, such as variety and seasonality, and then further variations which occur as the single food item becomes incorporated into a meal. For these reasons, it is suggested that it would not be appropriate to require declaration of the glycaemic index of a food on labelling at this stage.

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<sup>32</sup> Report of a Joint FAO/WHO Expert Consultation. Rome, 14-18 April 1997.

In consideration of all the above, ANZFA proposes to change the declaration of total sugars, to be termed as 'sugars', to voluntary unless a carbohydrate-related claim is made. Such claims include claims relating to carbohydrates, sugars, polyols, starches, non-starch polysaccharides and dietary fibre. Furthermore, in situations where nutrients which are sub-groups of carbohydrates are declared, they should be indented under the declaration for carbohydrate and, the carbohydrate declaration should be expressed as 'carbohydrate, total'. See Figure 2 (page 42).

*Refer to Appendix I.II for further discussion on sugars.*

#### *Potassium*

Potassium is currently included on all nutrition information panels as a mandatory component under the Code, but is not required by either NZFR or Codex unless a related claim is made. It was suggested in the proposal paper for this review that the declaration for potassium in the joint Code be changed to voluntary. The majority of submitters agreed with this proposal.

ANZFA notes the inter-relationship between sodium and potassium, and the public health significance of potassium for some subgroups, particularly renal patients. It is therefore considered that if a claim is made regarding the salt or sodium content of a food, that such a claim should trigger the disclosure of potassium. [It should be noted that the intention of this provision does not include the claim that is made by virtue of the mandatory presence of sodium in the NIP]. Apart from these situations however, it is considered that mandatory disclosure of potassium cannot be justified on public health and safety grounds and is therefore not warranted.

Products such as salts and salt substitutes, and the use thereof, are a separate issue, currently regulated by Standards J2 and H8. These standards are under review and resultant recommendations may result in consequential amendments to the provisions of this review.

It is thus recommended that the disclosure of potassium on a nutrition information panel be changed to voluntary, unless a related claim, or a claim for salt or sodium (excepting the declaration of sodium in the NIP) is made.

*Refer to Appendix I.II for further discussion on potassium.*

#### *Trans fatty acids*

This issue was raised by a number of submitters and is a matter of some debate. On this basis ANZFA undertook a review of the literature regarding the role of trans fatty acids in the diet and contribution to health outcomes.

The main elements from this review are provided in the discussion below. For the full report see Appendix II.II.

Whilst structurally similar to unsaturated fatty acids, there is a strong argument that physiologically, trans fatty acids behave similarly to saturated fats. Therefore, in recognition of public health and safety, it could be deemed necessary to consider declaration of trans fatty acids in nutrition information panels either with, or as part of, declaration of saturated fats.

However consumers are not familiar with the term ‘trans fatty acids’, and the difficulty also remains of confusing terminology between chemical and functional definitions.

It is also noted that amounts of trans fatty acids within the food supply are not well quantified. Major contributors to trans fatty acids in the diet are processed foods such as margarines, and baked and fried foods. Although consumption of, and levels of trans fatty acids in margarines appear to be decreasing, this decrease may be counteracted by increasing consumption of baked and fried foods. Trans fatty acids are also found in dairy fats, meats and ruminant fats such as tallow and dripping. Levels in dairy foods may vary seasonally.

The TRANSFAIR Study in Europe (1998) has considered trans fatty acid consumption in 14 countries of the European Union. The average estimate for the EU is 8-10g per day. Estimates from British sources suggest 4-6g per day (range 2-12g or greater) which represents 2% of dietary energy and 6% of total fat. The USA based its estimates on disappearance data (1995) to arrive at a per capita consumption of 8-13g per day, representing 2-4% of total energy intake. A more recent and comprehensive review in the USA has estimated trans fatty acid intake from the diet to be 5.3g/day, representing 2.6% of total energy, and 7.4% of energy from fat<sup>33</sup>.

There are two major margarine and spread companies in Australia that do estimate TFA content of their products and make the data generally available, however overall there is insufficient data to be able to accurately estimate trans fatty acid intakes within Australia and New Zealand. Current estimates of trans fatty acid intakes by the Australia population are 3-12g per day, or 5-7% of total fat. Consultation with food industry and scientists has determined that to all intents and purposes, levels of trans fatty acids within the food supply appear to be decreasing, primarily through a reduction in those which arise as a result of processing practices. Although it should be noted that this decrease may be counter-acted by a corresponding increase in the intake of fried and baked foods.

In the absence of generally available data, determination and declaration of trans fatty acids would impose considerable extra financial burden on industry.

The science is also not clear as to whether all trans fatty acids exert atherosclerotic effects, or only those from vegetable sources, in which case, those which are currently being monitored (for example from sectors of the meat and dairy industry in New Zealand), may not be the physiologically relevant ones.

The position of trans fatty acids on nutrition labels has also been considered by organisations such as the National Heart Foundation of Australia, The American Society of Clinical Nutrition and the British Nutrition Foundation however there are no clear views as to whether it should be listed separately, or in conjunction with saturated fats.

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<sup>33</sup> Allison et al 1999. Estimated intakes of *trans* fatty and other fatty acids in the US population. *Journal of the American Dietetic Association* 99 (2) : 166-174

Provisions by other countries:

the Danish Nutrition Council requires TFA disclosure in the nutrition information panel;

the Netherlands have required mandatory labelling of TFA content in margarines since 1995 and;

Codex does not require declaration of trans fatty acids.

ANZFA acknowledges the current debate relating to the role of trans fatty acids in public health, but considers the declaration of trans fatty acids is not practicable, nor the science sufficiently clear at this point in time to warrant mandatory declaration of trans fatty acids for all foods. It is recognised however, that trans fatty acids may make a significant contribution to some foods, particularly those which are baked or fried, and/or have hydrogenated or partially hydrogenated fats or oils as ingredients. In order to address the desirability of trans fatty acid declaration in a practical and meaningful way, it is proposed that the declaration of hydrogenated or partially hydrogenated fats or oils in the ingredient listing should trigger declaration of trans fatty acids in the NIP, [or if the mandatory provision for a modified NIP /statement is adopted, the declaration to be included in such a statement].

It is recognised that processing practices may contribute significantly to trans fatty acids levels in foods, and that ideally these should also be declared. However this aspect is more difficult in relation to monitoring and enforcement.

ANZFA seeks public comment and would welcome further opinions on this issue.

It is also recommended that as for other fatty acid declarations, trans fatty acids should trigger the disclosure of saturated, polyunsaturated and monounsaturated fatty acids (there may need to be some exemptions to this). It is recommended that these disclosures be provided indented under total fat content to indicate their chemical relationship.

*Refer to Appendix II.II for more detailed discussion on trans fatty acids.*

#### *Hydrogenated fats*

Processing of vegetable oils or fats into more solid forms involves the process of adding additional hydrogen atoms, otherwise known as hydrogenation. These hydrogenated oils/fats result in the formation of trans fatty acids, which are considered to have similar effects on health outcomes as saturated fats. It is therefore recommended by this review that consideration be given to some means of reflecting the contribution of hydrogenated fats to the final fat content of a food. Towards this end, it is recommended that hydrogenated fats should be included in the ingredient listing – this is discussed further in Section 11.6.2.

#### *Cholesterol*

Currently, if a nutrition information panel is used, the Code, the NZFR and Codex do not mandate for the declaration of cholesterol unless a related claim is made. The issue in this review was whether this requirement should remain as it is. The vast majority of submitters from each of the sectors expressed agreement for the voluntary disclosure of cholesterol.

It is noted that this was one of the few nutrients for which consumers were not largely in favour of disclosure being required, in recognition of the greater public health significance of fats, particularly saturated fats.

It is therefore considered that the current provision should remain as it is.

#### *Calcium and Iron*

Calcium and Iron are two micronutrients considered for declaration within the nutrition information panel as they are specifically mentioned within the Australian Dietary Guidelines and NZ Food and Nutrition Guidelines. Currently, if a nutrition information panel is used, the Code, NZFR and Codex do not mandate for the declaration of calcium or iron unless a related claim is made. The issue in this review was whether this requirement should remain as it is.

Apart from submissions received from consumers, the majority of whom would like to see calcium declared on all products where a nutrition information panel is used, most submitters were satisfied with the current arrangement of voluntary disclosure of calcium. The general views expressed were that public health significance related to only a sub-set of the population, and that calcium disclosure was relevant to only certain food products.

The vast majority of submitters supported voluntary disclosure of iron with the recognition that it is relevant only in certain foods, and to certain sub-groups of the population. The complexity of iron in relation to its varying bioavailability in different foods was also noted, which would be a relevant consideration if disclosure were to be mandatory, or would most likely necessitate either a different means of expressing iron content, or supporting education.

It was also considered that Standard A9 of the Code already adequately provided for calcium and iron disclosure.

#### *Dietary fibre*

Currently, if a nutrition information panel is used, the Code does not mandate the declaration of dietary fibre, except when a related claim is made. It may also be included on a voluntary basis when a panel is used. This is a similar situation for New Zealand and Codex, however the Codex provision is currently under review.

There was considerable support from consumers, independent health professionals and public health and community organisations for mandatory declaration of dietary fibre. However all but one industry submission disagreed, urging voluntary, rather than mandatory declaration, except when a nutrition claim was made.

ANZFA considers that the current provisions are adequate for the declaration of dietary fibre and that mandatory declaration on all products where a panel is used is neither necessary nor appropriate.

Furthermore, it is recommended that, as dietary fibre encompasses various forms of oligo and polysaccharides, its disclosure relates to carbohydrate declaration as a whole, and therefore in line with the consistency of other carbohydrate declarations, should also trigger disclosure of sugars.

It is recommended that the ‘dietary fibre’ disclosure be displayed beneath, but in line with the left justification of ‘carbohydrate’<sup>34</sup>.

*Refer to Appendix I.II for more detailed discussion.*

## **Conclusion**

It is recommended that the disclosure of sugars, potassium, trans fatty acids, cholesterol, calcium, iron and dietary fibre, or any type thereof, be voluntary, unless a related claim is made in which case declaration of the respective nutrient(s), or other nutrients prescribed within chemically defined clusters, would be mandatory.

### **11.5.4. Order in which nutrient information is set out in the panel.**

Information is currently provided in the nutrition information panel in Australia in the following order: energy, protein, fat, total carbohydrate, total sugars, other nutrients to be declared, sodium and potassium. The order for nutrients is the same in New Zealand except information is not routinely provided on sodium and potassium, unless a related claim is made. Codex does not specify a particular order for listing of nutrients.

Consumer survey research indicates that consumers first look for nutrients to avoid, such as energy, fat and sodium, and then, nutrients that provide benefits, such as dietary fibre. This approach based on ‘negative’ or ‘positive’ attribution is defined according to the dietary guidelines, however it may not be appropriate for the individual needs of all users. It also does not cater for more ‘neutral’ nutrients such as potassium. Limited experimental research has been done to test the effects of nutrient order on food preferences and purchases. Muller<sup>35</sup> found no influence of order on shopping purchases. Geiger *et al.*<sup>36</sup> found that consumers preferred breaks between nutrients that were ordered in terms of familiar, yet low interest nutrients (protein and total carbohydrate), followed by micronutrients, and finally information on high interest nutrients (energy, sodium, fat, cholesterol, simple sugars). Recent consumer research by ANZFA (see Appendix IV) indicated that the order itself is not so important, but rather that the order is consistently applied. Familiarity that comes with consistency then allows for more rapid utilisation of information.

The possibility of a revised order based on public health significance was also considered and as far as possible taken into account. It also seemed logical to group the macronutrients together, and place them first, after energy, as they are predominantly the mandated components of the NIP.

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<sup>34</sup> Where carbohydrate is defined as carbohydrate by difference, calculated by subtracting the percentages of water, protein, fat, dietary fibre and ash from 100

<sup>35</sup> Geiger CJ, Wyse BW, Parent MCR and Hansen RG 1991. Review of nutrition labeling formats. *Journal of the American Dietetic Association* 91 (7): 808-812, 815

<sup>36</sup> Muller TE. 1985. Structural information factors which stimulate the use of nutrition information: a field experiment. *Journal of Market Research* May : 143-157



This resulted in a suggested order of energy, fat, saturated fat, carbohydrate, protein and sodium, followed by any other nutrients to be declared, unless these nutrients form part of clusters, as described below. It was considered that the claimed nutrient should go after the declaration of sodium, rather than before as is currently the case. The reason for this was that no particular reason for placing sodium last was ascertained, and it seemed logical to place the mandated components first. Where multiple nutrients are declared voluntarily, and where not otherwise prescribed, the order of these other nutrients could be at the discretion of the manufacturer.

#### *Clustering of subgroups*

Some of the nutrients which may be declared voluntarily are subgroups of one or other of the mandated macronutrients. It would therefore seem logical, and more meaningful for these nutrients to be declared in clusters or groups, and displayed in such a way as to indicate the relationship between each. For example, fat could be declared as 'fat, total' and the respective fatty acids (including trans fatty acids if declared) listed underneath and indented, as components of the total fat. This same reasoning would apply for carbohydrates, protein and dietary fibre.

#### **Conclusion**

ANZFA recommends that the revised order for listing of nutrients for the mandated components as discussed above be adopted and that the word 'total' and indents should be used as appropriate to indicate clusters of nutrients as groups, sub-groups or sub-sub-groups. It is recommended that the manner of disclosure of these nutrients should be as displayed in Figure 2, note that the sub-groups provided are examples only and are not exhaustive.

FIGURE 2.

Example of recommended NUTRITION INFORMATION PANEL with the inclusion of some additional nutrients.

<b>NUTRITION INFORMATION</b>		
Servings per package = ... One serve =.....g,mg		
	<b>Average quantity per Serving</b>	<b>Average quantity per 100g (mL)</b>
Energy	....kJ (Cals)	....kJ (Cals)
Fat, total	...g	...g
- saturated	...g	...g
- polyunsaturated	...g	...g
- monounsaturated	...g	...g
- trans	...g	...g
Carbohydrate, total	...g	...g
- starch	...g	...g
- sugars	...g	...g
- sucrose	...g	...g
- lactose	...g	...g
- polyols	...g	...g
Dietary fibre, total	...g	...g
- pectin	...g	...g
Protein	...g	...g
- amino acids	....g,mg,µg	....g,mg,µg
Sodium	....mg (mmol)	....mg (mmol)
Insert here any other nutrient to be declared		

### **11.6 Definition of nutrients in the nutrition information panel**

The definitions for protein, and sodium are clearly recognised and well accepted, however the most appropriate definitions for carbohydrate, saturated fat, dietary fibre and sugars have been the subject of some scientific debate. Whether or not saturated fat should be inclusive of trans fatty acids has also been debated.

The method of determining the energy content of foods has also been considered recently by ANZFA and addressed in the Review of the Derivation of Energy Factors (P177). This review has clarified the procedures for calculating total energy content of a food by either the factorial method (summation of the energy contributions of protein, fat, carbohydrate and dietary fibre components, where carbohydrate and dietary fibre are defined according to P177), or by derivation from food composition tables.

### 11.6.1 Carbohydrate

Carbohydrate is currently defined as carbohydrate by difference, calculated by subtracting the percentages of water, protein, fat and ash from 100. It has been recommended in P177 (Review of Derivation of Energy Factors) that, for the purposes of calculating the energy content of foods, this definition be amended to include dietary fibre, such that it reads ‘carbohydrate by difference, calculated by subtracting the percentages of water, protein, fat, dietary fibre and ash from 100’.

It is recommended that the definition as described by P177 also be adopted by this review. Amendments to the drafting will need to be incorporated into the draft revised standard.

### 11.6.2 Saturated fat

Currently, saturated fat is not defined within the Code nor in the NZFR nor Codex. The generally accepted chemical definition for saturated fat is the sum of all fatty acids containing no double bonds. However this definition is a chemical one rather than a physiological one, in which case it would not include trans fatty acids. Although chemically trans fatty acids are not saturated fats, they are considered to behave in a similar physiological way with regard to health outcomes. This is one reason why, for labelling purposes, the USA is currently considering the option of classifying fats according to their cholesterol-raising or lowering properties, rather than a strict chemical definition.

Food composition data tables have generally been used in epidemiological investigations that relate diet to risk of chronic diseases, and these tables group all the chemically defined saturated fatty acids together as a class. Thus, the term saturated fat used in these dietary recommendations pertains to the chemical classification of fatty acids.

Recent consumer research by ANZFA (see Appendix IV) noted the confusion amongst some consumers regarding the relationship between fats and saturated fats; they were considered to be two different entities, rather than one being a sub-group of the other. To clarify this it is recommended that saturated fat be clearly indented beneath fat in the NIP, and that when a sub-group of fat is declared, fat be referred to as ‘fat, total’.

It is considered at this point in time that ANZFA will retain recognition of the chemical definition. ANZFA recommends that declaration of saturated fats be as a sub-heading of total fat and that for nutrition labelling purposes, saturated fat be inclusive of the sum of all fatty acids containing no double bonds. Where information regarding trans fatty acids is available, this may be declared separately, indented under total fat but in line with saturated fat.

#### *Hydrogenated fats*

Hydrogenated fats are the end products of oils that have been saturated by the technical process of adding hydrogen ions.

This process not only converts unsaturated fatty acids into saturated ones, but also converts naturally occurring *cis* forms of unsaturated fatty acids into their *trans* forms. Although these latter fatty acids are still unsaturated to some degree, they are treated by the body in the same way as saturated fats. This aspect is discussed further in ANZFA's review of trans fatty acids in Appendix II.II.

When (total) fat content is declared, it is not possible to determine from the NIP whether or not the fat is saturated or unsaturated. The ingredient listing will provide the names of the contributing fats and oils and for consumers with some knowledge of fat composition, this may give indications as to the relative amounts of saturated and unsaturated fats. It is generally assumed that vegetable oils are to the greater degree unsaturated (with the exceptions of palm and coconut oils), and that animal fats are primarily saturated. This heuristic is generally adequate, unless the oil(s) have been hydrogenated. In this case the fatty acids are more likely to be saturated. As there are health implications involved (see Appendix II.II) it is the recommendation of this review that hydrogenated fats be included in the ingredient listing, in order to assist consumers in making informed choices. As noted above, the important aspects of this information would not be available from the NIP unless saturated and/or trans fatty acids are specifically declared.

It is recommended by this review that hydrogenated or partially hydrogenated fats and oils be described as such in the ingredient listing, and that this issue be considered further by the review of Standard A1(12). It is also being proposed by this review that further consideration be given to the presence of hydrogenated or partially hydrogenated fats/oils in the ingredient listing triggering the declaration of trans fatty acids in the NIP.

### 11.6.3 Fat

It is considered that reference to 'fat' in the NIP should mean total fat, inclusive of both naturally occurring and hydrogenated fats, and that declaration of any sub-groups of fat should be clustered with, and indented under 'fat, total' when disclosed in the NIP.

### 11.6.4 Dietary Fibre

For the purposes of nutrition labelling dietary fibre is currently defined by its method of analysis. Australia and New Zealand have adopted the current official AOAC method for dietary fibre analysis as validated and supported by the recent FAO/WHO report and adopted by Codex. Information on dietary fibre content for labelling purposes is more often than not, obtained from food composition data sources.

Codex and New Zealand also provide definitions for dietary fibre. The Codex provisions define dietary fibre as meaning 'edible plant and animal material not hydrolysed by the endogenous enzymes of the human digestive tract as determined by the agreed upon method', and NZFR use a similar definition excluding animal material.

The above definitions however do not recognise the different oligo- and polysaccharide components which may behave physiologically in different ways. Issues of terminology regarding dietary fibre were also raised in responses received for the Review of Derivation of Energy Factors for the Purposes of Food Labelling (P177). In submissions to both P177 and this review a number of different terms and definitions were considered including terms such as ‘glycaemic’ or ‘available’ carbohydrates. The Bread Research Institute of Australia noted that the term dietary fibre is well understood, and should be retained in preference to the terms ‘available’ and ‘unavailable’ carbohydrates. The Kelloggs’ company commented also on the potential usefulness of ‘dietary fibre equivalents’ for newer ingredients such as inulin. [The P177 full assessment report has subsequently recommended that the term ‘dietary fibre equivalents’ is not necessary, providing new provisions are made in Standard A1(13) for the analysis of unavailable carbohydrates.]

The 1997 FAO/WHO Report<sup>37</sup> commented that dietary fibre is a concept rather than an entity in its own right, this may explain to some extent the difficulties which emerge with regard to terminology.

ANZFA recommends that dietary fibre continue to be defined by its method of analysis, with the adoption of a second alternative method. These provisions are discussed further below in Section 11.7.1.

#### 11.6.5 Sugars

For the purposes of nutrition labelling sugars are currently defined as monosaccharides (glucose, galactose, fructose) and disaccharides (sucrose, lactose, maltose), and are frequently referred to as simple carbohydrates.

It is recommended that this definition for ‘sugars’ be retained, and be implicit of total sugars. Polyols and polydextrose would thereby not fall under the definition of ‘sugars’ and if declared would need to be declared underneath, left-justified in line with sugars.

### **11.7 Method of analysis**

#### 11.7.1 Dietary fibre

For the purposes of nutrition labelling dietary fibre is currently determined in Australia according to analysis - Section 985.29 of the AOAC, 15<sup>th</sup> Edition (1990), and in New Zealand by a very similar method (Prosky method – Journal of the AOAC 67, No.6, 1044-1052, (1984)).

It is noted that this definition however does not acknowledge the total contribution of unavailable carbohydrates, such as resistant starch.

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<sup>37</sup> Food and Agricultural Organization / World Health Organization (FAO/WHO) 1998, ‘Carbohydrates in human nutrition’, Food and Nutrition Paper No 66. Report of a Joint FAO/WHO Expert Consultation, 14-18 April 1997, FAO, Rome

In accordance with this, the Review of Derivation of Energy Factors (P 177) has recommended that permission be given to manufacturers to use additional prescribed methods of analysis for resistant starch or other unavailable carbohydrates, provided that by so doing the unavailable carbohydrate is not double-counted.

Further to this, the Authority has chosen to adopt the method of Lee, AOAC 991.43 for the measurement of dietary fibre as an alternative to the existing prescribed method so as to allow the use of alternative enzymes and buffer.

It is the view of this review that the changes recommended by P177 should be adopted, and thereby incorporated into the drafting of the proposed new Standard 1.2.8. and, that the analytical method of Lee, AOAC 991.43, for the determination of dietary fibre should be adopted as an alternative to the currently prescribed method AOAC 985.29, so as to allow the use of alternative enzymes - insofar as it covers measurement of total dietary fibre, and not individual soluble and insoluble fractions. This method yields equivalent results to the currently prescribed method in the Code, and includes steps for the measurement of insoluble fibre and soluble fibre fractions that are summed to yield the dietary fibre result.

It is noted in conjunction with this, that the FAO/WHO report has recommended phasing-out the terms 'soluble' and 'insoluble' in relation to dietary fibre. These terms are no longer considered physiologically or analytically useful.

#### 11.7.2 Other nutrients

It is not proposed within the scope of this review, to set methods of analysis for other nutrients.

### **11.8 Quantification of nutrients in the nutrition information panel**

#### 11.8.1 Use of term 'average quantity'

The current regulations provide for three alternative methods of determining the average quantity of a nutrient in a food which best represents the quantity of a nutrient which the food contains, allowing for seasonal variability and other known factors which could cause actual values to vary. These methods include the manufacturer's analysis of the food, calculation from the actual or average quantity of nutrients in the ingredients used, or calculation from generally accepted data.

The USA requires either direct analysis or reference to databases provided by industry and approved by the FDA. The NZFR provide for tolerance levels for some nutrients of plus or minus 10-20 % depending on the nutrient, and Codex provides guidelines regarding tolerances. Details on these international provisions may be found in Appendix I.III.

With the use of averages it is recognised that an individual product may differ considerably from the average value provided. Important determinants include natural

and seasonal variability and sampling techniques. Methods of analysis are also important.

Whilst some techniques for defining nutrient content may be prescribed by the Code eg dietary fibre (by analysis) and carbohydrate (by difference), there may be some leeway with methods used for other nutrient determinations. Degree of inter-laboratory agreement on nutrient values can also vary with the actual nutrient being measured. For example, a recent inter-laboratory study on the analyses of nutrients in cereals revealed better agreement with energy, carbohydrate, protein and ash, than for moisture, fat, sugars, sodium and potassium<sup>38</sup>.

ANZFA has received enquiries from enforcement officers and industry regarding the use of averages and the potentially poor agreement with actual analyses. Tolerance levels do provide some guidance in this situation, however it is difficult to apply them effectively to factorial 'averages' determined by the methods as outlined above due to natural variability. For tolerance levels to be meaningfully applied, all foods would need to be directly analysed, or averages calculated from databases specific to certain sectors of industry such as is done in the USA, rather than averages calculated from general food composition data. Direct analyses would be a considerable and costly imposition on industry, and potentially lead to significant increases in food prices.

With some nutrients, particularly the vitamins and minerals, the issues of agreement with averages is also incumbent upon whether or not the nutrient is naturally occurring, or added. It has been estimated by ANZFA that naturally occurring vitamins and mineral contents of foods may vary by up to 60%, therefore to apply tolerance levels would be meaningless. However for added nutrients greater control is possible. Where a claim is made for particular added or substituted nutrients, the consumer would be entitled to assume that at least that amount is present, or in the case of a reduced claim, not higher than the stated amount. To ensure truth in labelling these situations warrant the consideration of tolerance levels.

In the interests of facilitating monitoring by health enforcement officers and compliance by industry, an alternative option to the current Australian provisions for 'average quantities' and New Zealand regulations concerning the amount of nutrients declared on the label, has been proposed by ANZFA. This option is intended only for application to nutrient(s) which is/are the direct subject of a claim, because it is felt that for the consumer these are the most important with regard to accuracy. The accuracy of declaration of other nutrients, whilst still important is potentially less so, and the natural variation of indigenous nutrients makes application of tolerances to these impracticable.

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<sup>38</sup> BRI Australia Ltd., Nutrition Information Panel Interlaboratory Study, 1997

## Proposal

*The actual content in a food of a nutrient that is the subject of a nutrition claim must: in the case of carbohydrate, fibre, monounsaturated fat, polyunsaturated fat, protein, vitamins or minerals - be not less than 80% of the declared amount; in the case of cholesterol, energy, saturated fat, sodium, sugars, total fat or trans fatty acids – be not more than 120% of the declared amount.*

It should be noted that an underlying premise to this option is that the amount of added, reduced or substituted nutrient is sufficiently greater than its indigenous counterpart to diminish the effects of natural variability.

By virtue of their reference to ‘average quantity’, other Standards which may also be affected by this recommendation include A9 (Vitamins and Minerals), H9 (Cheese and Cheese Products), R9 (Supplementary Foods) and R10 (Formulated Supplementary Sports Foods).

ANZFA welcomes further discussion on this proposal.

### 11.8.2 Use of term ‘energy’ and ‘average energy content’

The term ‘energy’ is currently used on the NIP to express the kilocalorie or kilojoule content of the food, and is consistent with Codex. Submitters’ responses acknowledged the confusion that can occur with regard to the term energy in view of its meaning when expressed in everyday language to indicate vitality or power (a positive attribute) as opposed to the energy content of a food (which may be viewed more negatively). Although five submitters wrote specifically against the use of the term, there were no other clear opinions or suggestions as to an alternate term.

In view of the absence of an alternative, its history of use, consistency with Codex and given no compelling reasons to change it, it is the recommendation of ANZFA that the term ‘energy’ continue to be used.

The energy value of a food is currently determined in the Code as that defined in Standard R2 (2). The table of energy factors provided in this clause has been considered and amended by the review P177. The proposed factors for this table can be referenced in this review, and have been incorporated into the drafting for the new nutrition labelling Standard 1.2.8 of the proposed joint Code. The average energy value of a food is determined by reference to the average quantity of nutrients in a food multiplied by the respective energy factor.

For the purposes of nutrition labelling energy values may currently be determined by reference to the average quantity of nutrients in the food (the average quantities being determined as discussed above – Section 11.8.1). However energy contents as determined in this way may vary depending on the method of determination of nutrients.



The factorial method as described by Standard R2 and reviewed by P177, uses a different definition of carbohydrate than that which is represented in the food composition tables. There are also different energy factors for carbohydrate and dietary fibre encompassed by each method. The current food composition tables make no allowance for the energy factor of 8kJ/g for dietary fibre, or the determination of carbohydrate by difference, as opposed to the summation of sugars and starch employed by food composition tables. The provisions of the new standard with respect to each of these issues will need to be considered for future food composition databases and calculation of energy contents.

Standard A1(13)(a) requires (total) carbohydrate content/100g to be calculated as the difference between 100 and the sum of the percentages of water, protein, fat and ash. The concept of carbohydrate by difference, which includes all forms of carbohydrate, is not used in nutrition education and is not understood by consumers. It is not readily conveyed by NIPs unless dietary fibre is voluntarily declared and indented under total carbohydrate; it not conveyed when dietary fibre is aligned directly under total carbohydrate.

The calculated value for carbohydrate by difference includes completely-, partially- and non-digestible forms of carbohydrate and other minor constituents, plus any error from the estimated content of other macronutrients; it thus overestimates true carbohydrate content. The assignment of the *available* carbohydrate energy factor to the (total) carbohydrate content further compounds the overestimate of energy content. The discrepancy is greatest for high fibre foods.

P177 (Derivation of Energy Factors) developed a definition for energy and proposed changes to the derivation of energy factors that are assigned to energy yielding constituents. P177 proposes that *for energy calculation purposes*, the present approach of calculating carbohydrate by difference is retained, but that its calculation is amended to also subtract dietary fibre from 100, ie:

*'carbohydrate' means carbohydrate by difference, calculated by subtracting the percentages of water, protein, fat, dietary fibre and ash, from 100'.*

To ensure internal consistency with nutrition labelling, P177 has recommended to P167 - Review of nutrition labelling, that this same definition apply to declaration of carbohydrate content in NIPs and for carbohydrate claims. Adopting this approach will align with Codex, which has adopted a 'carbohydrate (excluding dietary fibre)' definition for the purposes of nutrition labelling.

The FAO/WHO Report recommends that laboratories no longer report carbohydrate by difference. Both the Australian and New Zealand food composition tables (DCS&H/ANZFA, 1989-)(NZ Crop and Food Research/ Ministry of Health, 1997) as generally available data, are permitted to be used as a data source for nutrition labelling. The tables do not define total carbohydrate as carbohydrate by difference, rather as the sum of sugars, starch and dextrans, polyols where measured, but not dietary fibre. Currently, oligosaccharides, resistant starch and polyols are not comprehensively reported in the tables.

It is recommended that these provisions for energy factors and average energy values be adopted.

### 11.8.3 Use of serving sizes as a reference unit for declaring nutrient content

The Code currently requires that the NIP state the number of servings in the package, and that the quantity of food in a serving be expressed in grams or millilitres. The word ‘serving’ may also be replaced by the word ‘slice’, the words ‘metric cup’ or ‘metric tablespoon’ or other appropriate word(s) expressing a unit or common measure. The majority of submitters supported the continuance of the use of serving sizes as a reference unit for declaring nutrient content. Consumer familiarity and consistency with Codex were the main reasons given. The Dietitians Association of Australia also noted the usefulness of this measure for placing nutrient intake in the context of the whole diet. Most industry groups supported the principle. Unlike the USA, Australian manufacturers may independently nominate serving sizes for their own products. This allows for flexibility in meeting the needs of different products, but does not cater for direct comparability between products. Standardisation of serving sizes is discussed below in Section 11.8.5.

The Australian Food and Grocery Council (AFGC) also requested that for single serve packages the word ‘pack’ or similar should be allowed to replace the word serve.

ANZFA proposes to retain the present provisions for serving sizes on the nutrition information panel and recommends, in response to submitter requests, that the word ‘pack’ or similar for single serve packages may also be used.

### 11.8.4 Declaration of serving size in common household measures in addition to actual weight or volume.

The possibility of expressing serving sizes in common household measures was also considered.

There was reasonable support from consumer and professional health submitters on the use of household measures mainly on the basis of aiding consumer understanding of serving sizes.

However there were also views that such information would be redundant, may potentially be misused, and is not in accord with food labelling regulations in Australia and New Zealand. Industry gave some concession that such measures may be useful, but suggested their use be voluntary.

Furthermore ANZFA is of the opinion that there are inherent difficulties in attempting to define serving sizes in household measures across the food supply due to the nature of different foodstuffs and variations between household measuring utensils.

ANZFA recommends that household measures may be used in addition to metric serving sizes when describing the measure of a ‘serve’.

### 11.8.5 Standardisation of serving sizes

The primary benefit to be gained by standardising serving sizes is that it allows ready comparison between products in measures similar to likely serve sizes. This would be of benefit to health professionals and consumers with regard to product choice. These viewpoints were echoed by some submitters, primarily consumers and independent health professionals.

On the other hand, there are inherent difficulties in attempting to standardise serving sizes due to differences in serving sizes for different products and for different sub-groups of the population, and tying these factors in with empirical data on the 'serve sizes' that Australians actually eat. Industry were strongly opposed to the use of standardised serving sizes for reasons similar to those outlined above, also noting that the size of the package would need to be taken into account [in relation to the number of serves contained within]. R. Stanton suggested that it would more appropriate to use packaging sizes such as 'biscuits' or 'slices'.

Also considered, was whether or not the use of standardised serving sizes would eliminate the need for the current means of allowing comparisons between products, which is by the expression of nutrients per 100g (or 100mL). Submitters responses to this issue were mixed however over all, it was considered that the per 100g/mL reference unit was preferable to attempting to standardise serving sizes. The AFGC stated that the need for product comparisons was grossly overstated, and that in their view per 100 g/mL was already redundant. However this was not necessarily the view of individual industry representatives. Recent consumer research conducted by ANZFA (see Appendix IV) also indicates it is not the view of consumers. Some respondents (mainly consumers) felt that label information could be confusing without the ability to refer to per 100g/mL, and that the computations required to compare products with different reference amounts would be too difficult. Health professionals were more in favour of retention of the per 100g/mL reference, as this also enables comparisons with food composition tables.

The per 100g/mL approach is consistent with food labelling regulations in both Australia and New Zealand which currently require expression as both per industry nominated serving size, and per 100g (mL); this also allows for easier monitoring. Codex provides for a choice between either unit of expression; it is not mandatory to use both.

ANZFA does not propose to mandate serving sizes, or suggest that these be in place of the 'per 100g/mL' measure.

### 11.8.6 Units of expression of nutrients

#### *Energy*

The question was raised as to whether energy should be expressed as kilojoules or calories. Although there was strong sentiment from some submitters for the retention of calories on the basis of consumer understanding, particularly for the older generation.

It was also felt that kilojoules were more appropriate on the basis of metrication and consistency with international SI units. The compromise solution suggested by eight submitters was to use kilojoules with calories being optional, with a similar number suggesting that both should be mandatory. Only a minority opted for the use of kilojoules alone. There was no suggestion that calories alone should be used however two respondents gave emphasis to calories suggesting that it be displayed as the predominant unit. It was also considered that problems with these terms will decrease as familiarity increases.

ANZFA recommends that the current system be retained ie that energy be expressed as kilojoules including provision for the voluntary use of calories, in brackets, after the kilojoule amount.

#### *Protein, fat, carbohydrate, sugars*

It was proposed that protein, fat and carbohydrate continue to be declared in gram per serving and per 100 g (or 100 mL). Overall the submitters were in agreement with the proposal on the basis of consumer familiarity and these being the expressions which are most commonly used.

Industry viewpoints suggested one of the measures (ie per serve measures or per 100 g/mL) be voluntary, and one mandatory however, there was no clear agreement as to which should be mandatory and which should be voluntary. ANZFA recommends that the current system be retained.

#### *Sodium*

Submitters' responses clearly indicated preference for the use of mg due to lack of familiarity and understanding by most consumers of millimole (mmol). However the clinical need for mmol was also recognised and to this end it was suggested that mmol be included voluntarily. These comments support the current provisions, it is therefore recommended that the current system be retained.

### 11.8.8. Declaration to not more than 3 significant figures

The Code currently provides that in the NIP, average energy values and average quantities of nutrients shall be expressed to not more than 3 significant figures. ANZFA recommends that this provision be retained.

### 11.8.9. Declaration of nutrient values that are 'less than '

#### *Energy*

The Standard currently provides that where the average energy value of a serving of food or, as the case may be, the unit quantity of food is less than 40 kJ, the average energy value may be expressed in the panel as 'less than 40kJ'.

#### *Protein, fat, fatty acids, carbohydrate, sugars, dietary fibre*

The Standard currently provides that where the average quantity of protein, fat, carbohydrate or total sugars in a serving of food, or as the case may be, in the unit

quantity of the food is less than 1 gram, the average quantity may be expressed in the panel as 'less than 1g'.

#### *Sodium, potassium*

The Standard currently provides that where the average quantity sodium or potassium in a serving of food, or as the case may be, in the unit quantity of the food is less than 5 milligrams, the average quantity may be expressed in the panel as 'less than 5 mg'.

It is recommended by ANZFA that the current provisions for 'less than' declarations of energy, fat (or fatty acids), protein, carbohydrate, sugars, dietary fibre, sodium and potassium be retained.

### **11.9 Supplementary information**

#### **11.9.1 Declaration of energy and nutrient values for packed dehydrated food or packed concentrated food**

The Code currently provides that in the case of a package of food in the dehydrated or concentrated form, where directions contained in the label on or attached to that package indicate that the food should be reconstituted with water, particulars set out in the panel with respect to average energy values or average quantity of a nutrient shall be expressed as a proportion of the food as so reconstituted.

ANZFA recommends that the current provision be retained.

#### **11.9.2 Declaration of nutrient values in relation to drained weights of foods**

The current Code does not specify the provisions for nutrient declaration in foods for which there are directions on the label to drain the contents before consumption, such as canned vegetables.

It is recommended by ANZFA that where such directions are found on the label, the manufacturer should be required to declare nutritional information according to the drained weight of the product.

#### **11.9.3 Declaration of energy and nutrient values for a food intended to be prepared or consumed with another food.**

The Code currently provides that in the case of a food intended to be prepared or consumed with another food, an additional column may be added at the right hand side of the panel specifying, in the same manners as that set forth in the panel, descriptions and quantities of the foods in question together with the average energy value thereof and the average quantities of nutrients therein.

ANZFA recommends that the current provision be retained.

## **11.10 Interpretive element**

### 11.10.1. Optional use of an interpretive element

Interpretive elements are those components of the label that enable some interpretation of the nutrition information, as it relates to either other products or the whole diet context. The latter have been described in the literature as ‘dietary guidance features’.

Proposal P167 raised the issue of whether an interpretive element should be used as part of the NIP. The majority of submissions supported the concept of establishing a voluntary interpretive element.

Several comments specifically highlighted this as being a means of assisting consumers to understand the relative contribution of a food to the total daily recommended intake of particular nutrient(s).

Some however suggested that establishing an interpretive element could potentially obscure individual health needs, take up too much space, and without a supporting information campaign, could be ineffective in assisting consumers to make wise food choices.

These issues have all been addressed in recent consumer testing by ANZFA (see Appendix IV). An interpretive element provides a ‘benchmark’ against which the nutritional value of a particular food can be assessed. The ANZFA research has clearly indicated that without considerable prior knowledge on food and health, the current NIP provides little guidance as to how relatively ‘healthful’ an individual product is. It was found that the interpretive element more readily enabled consumers to judge the healthfulness of the product. Therefore, an interpretive element is unlikely to obscure individual health needs, rather, it is more likely to provide a ‘yardstick’ basis for clearer assessment.

Any more particular needs would be best met by education from health professionals on an individual or sub-group basis. The space issue is addressed by the proposed recommendation for its voluntary use.

This same research also considered the potential placement of an interpretive element in the NIP, in the context of a clear and uncluttered look. The subjects involved in this testing found the interpretive element, presented as a %DI (Percent Daily Intake) meaningful, helpful and easy to use. With regard to education on use of the element these subjects were provided with only a simple, single sentence. For the most part they felt this was adequate and could be easily provided through advertising or promotional materials and that more extensive education would not generally be necessary.

The current Australian or New Zealand regulations do not provide for the use of such an element, however Codex does. Codex notes that to ensure the nutrition labelling is effective, provision is made for the 'opportunity to include supplementary nutrition information on the label' (Codex Alimentarius, 1993).

ANZFA considers that providing for the voluntary use of an interpretive element allows for an optional labelling tool that aligns internationally, and is consistent with the fundamental principle that nutrition labelling provide information to facilitate choosing foods consistent with national nutrition policies and guidelines.

ANZFA recommends that provision be made for the voluntary use of an interpretive element.

#### 11.10.2. Linkage of an optional interpretive element with health recommendations

The majority of submissions supported the concept of linking a voluntary interpretive element with health recommendations. Others who disagreed did so on the basis of the need for further evaluation on the effectiveness of such an approach, poor consumer understanding of terms, such as % RDI and the perceived need for accompanying supporting information. The use of a percent daily value concept as used in the USA was considered to be a feasible approach as the basis for an interpretive element.

In response to some of the above concerns ANZFA has undertaken an extensive review of past research pertaining to nutrition labelling, including interpretive elements. Interpretive elements linked with health recommendations are noted in the literature to provide consumers with a tool that enables them to assess foods in relation to public health recommendations. In order to do this effectively nutritional information must be presented in a comparative way, for example on a percentage energy basis, or as daily/dietary reference values.

This approach is supported by a more recent study in the UK which found that calories and fat provided as Guideline Daily Amounts (GDAs) on food labels made nutrition information more accessible to consumers<sup>39</sup>. The system used to convey such information needs to be easy to use and readily understood - with the basic aim being to prevent misinformed choices and gradually educate consumers about the nutrient composition of foods. Ultimately, however, it is also recognised that food choice is influenced many factors other than health and nutrition factors, such as taste, cost and social implications. Appendix II.1 provides the report of the literature review on nutrition labelling formats, including use of interpretive elements.

It is concluded that it is both feasible and desirable to use recommended daily intakes linked to public health recommendations as the basis for an interpretive element.

### 11.10.3. Presentation of a nutrition information panel with an interpretive element

The consumer research literature is clear that users of the nutrition label need to be able to find relevant information quickly, and thus, the format needs to be easily accessible (eg readable), familiar, and readily understood, eg comprehensible or require as little computational effort as possible to make use of the information. Tested techniques to facilitate use of the panel information include use of large fonts for the most important information, consistent relative positioning on labels, hierarchical displays of information, for example, establishing a hierarchy based on the order in which consumers, rather than manufacturers or regulators, are likely to use the information, and use of symbols which quickly and consistently convey concepts. Use of lines to separate different levels of information can also assist in distributing the information load into smaller, and therefore more 'manageable' parcels.

ANZFA briefly examined the use of symbols as part of recent consumer testing for health claim wording.

Use of shaded circles, adjectives and percentages as comprehension aids to assist consumers in using the information in panel were examined. Appendix V provides the relevant sections from this report. Briefly, participants in both the Australian and New Zealand focus groups revealed a slight preference for percentages, followed by adjectives, but did not prefer shaded circles.

Earlier consumer survey research by ANZFA<sup>40</sup> found that 56% of 1498 respondents reported that they would rather have reliable symbols, including percentages, than numbers or words to summarise information, compared to 29% who disagreed.

The FDA and a number of food industries and trade associations in the USA conducted research regarding label formats prior to the introduction of the Nutrition Facts label.

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<sup>39</sup> Sadler M. 1999 UK industry guidelines on nutrition labelling to benefit the consumer. Nutrition and Food Science No. 1: 24-28.

<sup>40</sup> ANZFA 1996. National consumer survey on food labelling. AGPS, Canberra



Whilst no one format was considered perfect, virtually all the research demonstrated that graphical presentations did not suitably encompass the diverse amount and type of information required on nutrition panels. The FDA ultimately adopted a format based on effective use and comprehension, rather than the stated preference of consumers. This format was a column of nutrient values expressed as a percentage of a reference value. It was found that this 'Daily Value' aided consumers in determining the relative contribution of a particular nutrient<sup>41</sup>.

Incorporation of these findings into further consumer testing recently undertaken by ANZFA to develop a nutrition label with an interpretive element, resulted in the use of separate columns to list percentage daily intake (%DI) information which had been applied to eight different nutrients. In one of the panels tested the numeric information on the amount of nutrient present was presented adjacent to the wording, this was not well received, whereas information presented in discrete columns was found easier to read and use. One of the factors that arose from the research was not so much how the information was presented, but rather that it should be done so consistently. The point was made that usage and learning are enhanced by quick and ready access to information, and that this hinges on the information being presented in a consistent format each time.

The use of columns is recommended to provide a simple and clear approach for label presentation of an interpretive element. Figure 3 (next page) provides an example of such a format, however it is acknowledged that this would require more space on the label, and therefore may not be well suited to some packages.

It is recommended that if provision is made for the voluntary addition of an interpretive element on food labels, that this element should be presented as %DI. Furthermore, it is recommended that at this point in time, the interpretive element be applied to the nutrients which are being recommended for mandatory declaration in the NIP ie energy, fat, saturated fat, carbohydrate, protein and sodium. The relevant target or recommended reference values for each of these nutrients is provided in Appendix III.

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<sup>41</sup> Shapiro R Ed. 1995. Nutrition Labeling Handbook. Publ. Marcel Dekker, Inc. New York

FIGURE 3

Example of recommended mandatory NUTRITION INFORMATION PANEL incorporating voluntary use of the interpretive element

<b>NUTRITION INFORMATION</b>			
Servings per package = ... One serve = .....g,mg			
	<b>Average quantity provided by 100g (mL)</b>	<b>Average quantity provided by one serving</b>	<b>% Daily Intake* (per serving)</b>
Energy	....kJ (Cals)	....kJ (Cals)	.....%
Fat, total	....g	....g	.....%
-saturated fat	....g	....g	.....%
Carbohydrate	....g	....g	.....%
Protein	....g	....g	.....%
Sodium	....mg (mmol)	....mg (mmol)	.....%

\*Percent daily intakes are based on an average adult diet of 8700 kJ. Your daily intakes may be higher or lower depending on your energy needs.

#### 11.10.4 Consumer testing of an interpretive element

To further progress the idea of introducing an interpretive element to the NIP ANZFA undertook research on use of different NIP formats with consumers. The full report of this research is provided in Appendix IV.

Four consumer groups sessions were conducted in Australia and New Zealand during October 1998 to evaluate consumer reactions to the inclusion of an interpretive element in NIPs. The interpretive element was called 'Percentage Daily Intake' (%DI). To derive the %DI, the per serve intake of a nutrient was converted into a percentage value, based on its contribution to recommended daily intakes or recommended targets according to national nutrition policy. These values were calculated on the basis of an average Australian and New Zealand adult daily energy intake of 8700kJ. Worked examples and the reference values used are provided in the appendix of the research report (see Appendix IV).

The intent of the interpretive element being considered by ANZFA is to provide quantitative information regarding that food within the context of the total diet. This then allows individual interpretation as to its suitability. It does not ascribe 'good food', 'bad food' status to the product.

The key findings of the research with regard to the interpretive element were that:

Percent Daily Intake (%DI) was strongly liked by some participants because they felt they could immediately relate it to their daily requirements;

The NIP format which contained the nutrient information per serve, per 100g and as %DI performed best on single food tasks, compared with an NIP with per serve and per 100g, and an NIP with per serve and %DI expressions;

Participants used %DI more frequently than other unit expressions and thereby suggest that %DI is valued information, however it did not necessarily improve decision making; and

In conjunction with other findings, it seems that %DI should only be considered as additional voluntary information to the present NIP format which uses per serve and per 100g information.

The recommendations were that:

If %DI is used as an additional unit expression, then the label format should contain all three unit expressions clearly identified as columns; and

That an education campaign in the form of short promotions be undertaken to introduce the concept of %DI to consumers if manufacturers use the expression.

#### 11.10.5 Further issues for consideration

The interpretive element that has been recommended by ANZFA (see section 11.10.3) is similar in nature to the current recommended dietary intakes (RDIs) which are used in the NIP to place declared amounts of vitamin and minerals within the context of the whole diet. It could be argued that the interpretive element being recommended for the macronutrients and sodium, performs a similar function, and is thereby an extension of the RDI declaration. This then raises some questions for consideration.

1. If an element termed %DI used for the macronutrients and sodium, is similar to the mandatory RDI declaration for vitamins and minerals, should the %DI also be mandatory?
2. Furthermore, for purposes of consistency and to enhance understanding, should the %DI concept be used for vitamins and minerals instead of RDIs? This aspect would also need to be considered further by the review of Standard A9.
3. If such declaration were to be mandatory, could this information be declared instead of, rather than in addition to, the current declaration per serving?

This review would like to invite public comment on issues 1 and 3, and refer issue 2 to P166 (review of vitamins and minerals) for consideration.

### **11.11 Format of the nutrition information panel**

#### 11.11.1. Requirement for a panel format

Many of the submissions received argued in favour of a prescribed panel format to allow for fair comparisons between foods and to enhance use of the information by consumers. Only one industry submitter specifically argued against the need for a prescribed panel format, noting that the needs of users would be better met by not specifying a single format.

However this latter viewpoint was not supported by the recent ANZFA consumer research which clearly indicated a consumer preference for standardised NIPs (see Appendix IV).

These subjects stated that consistency in format is essential to enable ready assimilation of new information, easy comparison of products and quick utilisation of information. A literature review of past research pertaining to nutrition labelling formats (see Appendix II.1) also strongly identifies the importance of stability of one format in a nutrition information panel. Consistency and clarity in label format is important to facilitate use of the information, particularly for the more field-dependent consumers, such as the elderly.

ANZFA recommends that, unless specifically exempted, all packaged food should continue to be required to include a nutrition information panel in a prescribed format when a nutrition claim is made. This is in accordance with the current provision. It is also recommended that if mandatory declaration of energy and fat is adopted, that the format for presentation of this information (where a NIP is not used), also be prescribed in the joint Code.

#### 11.11.2. Use of print size, colour and font to enhance panel appearance

In response to whether or not alternative label formats, if pursued, should include a clear, consistent title, familiar terms, no technical jargon and effective use of colour contrasts, the majority of submitters from each sector (consumer, public health and community organisations, and industry) agreed. The use of colour contrasts drew the most comment from submitters. Some manufacturers noted that colour contrasts may be costly, may be impractical for some types of food packages, may disadvantage some labels, and be unnecessary. It was also noted that use of colour contrasts may not always assist clarity of understanding. Use of bolding and different type face could be considered as an alternative to colour contrasts to enhance panel appearance.

ANZFA recommends that a prescribed format be used for the NIP and for mandatory declaration of energy and fat, but that manufacturers may, within the context of those prescriptions, and those provided by the Review of Print Size and Quality (P142), apply additional enhancement features, such as the use of colour contrast banding or lines.

### **11.12 Communication strategy**

The literature is clear (see Appendix II.1) that any initiative to revise nutrition labelling, including revisions to nutrition information panels or ingredient lists, must be accompanied by a supporting information campaign to ensure effective use of the label by consumers. Such campaigns need to stress the personal benefits of using, and the negative consequences of failing to use the available information so that target audiences are motivated to search out the labelling information. The research conducted by ANZFA (Appendix IV) elicited some decision-making strategies employed by consumers when using NIPs. This information should be taken into account when considering communication strategies.

If an interpretive element were to be used, the consumer research conducted by ANZFA suggests that for general purposes, accompanying education although necessary, would not be onerous and could be readily met through standard advertising and promotional activities. A recent review<sup>42</sup> of the use of the new 'Nutrition Facts' labels in the USA identified that although the labels were well used, and assisted in the choice of a lower-fat diet, the %DV (daily value) information was only used by 39% of respondents. It was considered that education is required to assist consumers in the interpretation and use of this component. It is also considered by this review that educational strategies should support the recommended mandatory use of the NIP for all packaged foods, and that there is an identified need for education to assist in relieving consumer confusion between salt and sodium declarations on food labels.

ANZFA recommends that an education campaign be instigated to support any revisions to the nutrition labelling provisions, and that due consideration be given to allocating resources for such campaigns. It is also considered that any such communication strategies should be a collaborative effort between stakeholders such as health professionals, health and nutrition educators, government health agencies and industry.

## **12. CONCLUSION**

This assessment concludes that many of the current provisions of the Code for nutrition labelling regulation are suitable for transferral to the proposed joint Code. However there are some clauses which will require amendment, and other new initiatives to be added.

The most significant new initiatives are; the suggested introduction of a mandatory nutrition information panel on the labels of all packaged foods, the provision of similar information for unpackaged foods for which a written nutrition claim is made and, the voluntary use by industry of an interpretive element.

These changes are recommended on the basis of more adequately providing for the safe-guarding of public health, more consistent provisions for informed choice and the provision of nutrition information in a meaningful way. It is considered that educational strategies will be required to accompany such labelling changes.

Furthermore, it has been determined that this review will have WTO implications as a TBT notification, and that there are implications for a number of other reviews in the overall review of the Food Standards Code.

As some of the issues raised by this assessment had not been proposed, or have been amended, since the earlier round of public comment (Proposal 167), further comments are to be anticipated.

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<sup>42</sup> Neuhouser ML, Kristal AR, Patterson RE. 1999 Use of the food nutrition labels is associated with lower fat intake. *Journal of the American Dietetic Association* 99 (1): 45-50

## APPENDICES

### *Appendix I*

#### ***Appendix I. Further discussions relating to the Assessment***

Please note that the subheadings in Appendix I reflect the respective section number (in brackets) to which they relate in the main body of the report

##### **I.I Provisions for nutrient declaration on a more extensive range of foods (11.4.1)**

Thirteen out of twenty industry submissions, including the Australian Food and Grocery Council, were opposed to extending mandatory nutrition labelling coverage. Reasons cited included increased costs to industry (for implementation) and government (for enforcement), disadvantages for small businesses, and that for some products, the information would be meaningless. However, three submissions (Monsanto, Heinz Australia and Hansells) identified support for extension of nutrition labelling on a voluntary basis; the Australian Dairy Products Federation cited a need to evaluate on a case-by-case basis the additional benefit an extension of nutrition labelling would provide.

One submission (SA Health Organisation) suggested use of incentives to encourage extended labelling. Another (Heinz Australia) suggested nutrition labelling coverage could be extended to unpackaged foods, fresh produce, meal solutions, and food from retail food services, restaurants and/or take-away food establishments when nutrition claims are made.

The principle is supported by consumer research by ANZFA<sup>43</sup> earlier this year where consumers said they were reliant on the nutrition information panel to verify a health claim on the package. More recent<sup>44</sup> research re-affirmed this with consumers considering that other information on the package, and the ingredient listing did not provide sufficient 'reliable' information regarding the nutritional attributes of a product. Nutrition labelling was considered a necessity to be able to make informed choices. One comment was also made that, faced with a choice of two products where one was labelled with a nutrition information panel and the other wasn't, the chosen product was selected on the basis of the presence of the nutrition information panel. This type of action could be indicative of a marketing advantage due to the presence of a nutrition information panel (or disadvantage in the case of panel absence).

The predominant reason cited for supporting nutrition labelling extension was the desire to be able to make informed choices, and that this 'right' should be on more foods and in more varied settings.

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<sup>43</sup> ANZFA 1998. Focus groups with Australians and New Zealanders on a folate claim (see Appendix V).

<sup>44</sup> ANZFA 1999. Consumer reactions to three different nutrition information panel formats (see Appendix IV).

Examples of such settings were identified as large take-away establishments, weight loss clubs, health food shops and retail food services, including restaurants. The American experience with the NLEA has seen nutrition labelling applied to approximately 90% of all processed foods. There are exemptions, and there are provisions for voluntary declaration of nutrition information. These voluntary provisions apply for the 20 most frequently eaten raw fruits, vegetables and fish and the 45 major cuts of raw, single ingredient meat and poultry products. However even within the voluntary program, there are guidelines stating that if there is not significant participation (defined as 60% of stores labelling at least 90% of products) then mandatory programs will be considered<sup>45</sup>.

Two of the major principles underpinning this review are those of public health and safety and the provision of informed choice for consumers. If these principles are to be adopted more consistently than is presently the case, nutrition labelling needs to be extended to more foods than as is currently the case in the Australia and New Zealand.

## I.II Nutrients recommended for voluntary declaration where a nutrition information panel is used (11.5.3)

### *Sugars*

Consumers, and public health advocates and organisations were in clear agreement that the mandatory declaration of sugars should remain. Despite the increasing emphasis given to the glycaemic index (GI) of foods, it is still considered by many that information on sugar content is important to diabetics in assisting them to maintain healthy dietary practices. It was also noted that retaining the required declaration of total sugars serves to inform consumers of the potential replacement of fats by sugars in products that are marketed as low fat.

Twelve out of 15 industry submissions, including one from the Australian Food and Grocery Council, were opposed to retaining required declaration of total sugars in the NIP. Reasons included:

- the need to review the status of total sugars in the dietary guidelines, in light of the changing science regarding the role of sugars and health;
- the potential to use alternative sources to obtain this information, such as the ingredient list; and
- label clutter.

As also noted by the FAO/WHO report it is important to provide appropriate information for consumers on food labels: 'the health benefit of different carbohydrate-containing foods cannot readily be communicated simply from a description of their composition'. The terms most likely to be required are sugars, starch, polyols and dietary fibre. Dietary fibre will be considered further in the section below. Polyols will undoubtedly be unfamiliar to most consumers and will require considerable educational input, however it is considered its use may be necessary due to increasing use of polyols in processed foods and related claims on packages. These terms are in accordance with those suggested by the FAO/WHO report, along with non-starch polysaccharides, non-digestible oligosaccharides and resistant starch. These terms, like polyols, if used would require considerable consumer education and

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<sup>45</sup> Shapiro R Ed. 1995. Nutrition Labeling Handbook. Publ. Marcel Dekker, Inc. New York.

will need to be clearly defined. It is suggested that the term ‘sugars’ be used on the label and noted that in accordance with the current definition in the Code, this refers to total sugars – that is, monosaccharides and disaccharides.

### *Potassium*

The original inclusion of potassium in the NIP was most probably to show the sodium to potassium ratio which is meaningful and useful to some sufferers of hypertension, however this applies to only a sub-group of the population. Due to lack of accompanying education most consumers are unaware of the significance of this declaration. The majority of submitters did not consider there to be a need for mandatory declaration of potassium when a nutrition information panel is used, rather it was considered that such disclosure should be voluntary. Reasons cited included the questionable public health significance of potassium and poor understanding of it by consumers. Some groups noted however that declaration of potassium is important for some sub-groups such as patients with renal disease and, that the inclusion of potassium is supported by the Dietary Guidelines for Australians in relation to balancing sodium intake.

ANZFA notes the inter-relationship between sodium and potassium, and the public health significance of potassium for some subgroups, particularly renal patients. However it is considered that these consumers are in the minority, and their needs, whilst important, might be more appropriately addressed through professional advice.

Acknowledgment is also made of the inclusion of potassium in the report on the Dietary Guidelines for Australians<sup>46</sup> where it states that; ‘some authors consider it desirable that the potassium excretion rate be at least equal to the sodium excretion rate’. However it is noted that reference to potassium was not included as part of the formal dietary guidelines.

### *Dietary fibre*

The arguments presented by submitters against mandatory listing of dietary fibre (wherever a nutrition information panel is used) included:

- lack of relevance in a number of foods, primarily the non-plant based ones;
- required declaration imposes an unnecessary analytical burden and expense on manufacturers of foods that are not substantial sources of fibre; and
- crowding of the label.

Some suggested the declaration of dietary fibre only be required on certain foods or food categories, such as plant-based foods or foods providing a ‘significant’ source of dietary fibre.

With regard to crowding of the panel, the impact of adding one line would most likely be minimal, and if the proposal to delete disclosure of potassium content from the panel is accepted, then the space burden is less of an issue.

Arguments for the required declaration of dietary fibre related to:

- its consistency with the dietary guidelines (recommendation to eat plenty of breads and cereals (preferably wholegrain), vegetables (including legumes) and fruits

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<sup>46</sup> NHMRC Dietary Guidelines for Australians. Canberra AGPS, 1994:77



(Dietary Guidelines for Australians) and eating a variety of foods from each of the four major food groups each day: vegetables and fruits, breads and cereal foods (New Zealand Food and Nutrition Guidelines);  
the weight of scientific evidence supporting a protective role for dietary fibre in numerous chronic diseases, including coronary heart disease, colon and rectal cancers, stomach cancer, diabetes and hypertension;  
strong consumer interest; and  
the difficulty in identifying added fibre in foods which are not naturally good sources.

With regard to the latter point, generally in this situation the fibre has been added to gain a marketing advantage and as such, is voluntarily declared by the manufacturer.

### I.III Use of term 'average quantity' (11.8.1)

Details on international provisions for use of the term 'average quantity' are as follows.

#### The New Zealand Food Regulations

*The amount of nutrients declared on the label shall not differ from the actual nutrient content, -*

- a) by more than 20% of the declared value, in the case of energy, carbohydrate, starch or dietary fibre; or*
- b) by more than 10% of the declared value, in the case of all other nutrients other than vitamins.*

*In the case of vitamins, the amount present shall not be less than 90% of the declared value.*

#### Codex

- 1. Tolerance levels should be set in relation to public health concerns, shelf-life, accuracy of analysis, processing variability and inherent liability and variability of the nutrient in the product, and, according to whether the nutrient has been added or is naturally occurring in the product*
- 2. The values used in nutrient declaration should be weighted average values derived from data specifically obtained from analyses of products which are representative of the product being labelled.*
- 3. In those cases where a product is subject to a Codex standard, requirements for tolerances for nutrient declaration established by the standard should take precedence over these guidelines.*

#### USA

For compliance purposes the USA prescribes both sampling and analysis methods, the latter either specifically or according to the Official Methods of Analysis of the AOAC International. Furthermore, two classes of nutrients are defined *viz* *Class 1*- added nutrients in fortified or fabricated foods, and *Class 2* - naturally occurring (indigenous) nutrients<sup>47</sup>.

The provisions<sup>48</sup> state that:

Added (*Class 1*) vitamins, minerals, protein, fibre, potassium must at least equal the amount of nutrient declared on the label

Naturally occurring (*Class 2*) vitamins, minerals, protein, fibre, potassium, carbohydrate, polyunsaturated fat and monounsaturated fat must equal at least 80% of label

Calories, sugars, total fat, sat fat, cholesterol, sodium must be no more than 120% of the amount declared on the label.

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<sup>47</sup> 21 Code of Federal Regulations Ch.1 (4-1-94 Edition)

<sup>48</sup> Provisions are made for generally recognised analytical variability and reasonable excesses/ deficiencies of respective nutrients allowable under good manufacturing practice.

## **Appendix II. Reviews of the literature**

### II.I Review of nutrition labelling

#### **LITERATURE REVIEW ON NURITION LABELLING**

##### **EXECUTIVE SUMMARY**

This review has considered approximately sixty articles pertaining to nutrition information panels and associated consumer use of labels. The literature expresses clearly the need for understanding consumer behaviour in relation to label design, and also considers many different formats which could be used for the expression of nutrition information. The results of the studies do not provide a clear or consistent picture for determining which is the 'best' label format. Rather, they indicate the need for ongoing research in this area and, the associated need for identification of market segments.

The possible components of a nutrition information label (NIP) are drawn out from the literature, and some guidance given as to those worthy of further focussed research, or those which can after due consideration, be disregarded. These components and a summary of the indications as derived from the literature are given below.

##### **Popularity *versus* effectiveness**

In any consideration of labels the distinction needs to be made between testing for whether or not the label is 'liked' as opposed to how readable, useful and understandable it is, as popular labels are not always the most effective.

##### **Suitability of one format for all consumers**

Review of six different studies has highlighted the delineation between different consumer groups and their ability to use labels. Market segments need to be recognised and labels designed accordingly. However it would be impractical to have a range of different formats for NIPS. Consistency in label formats is also important to facilitate use of the information, particularly for the more field-dependent consumers, such as the elderly. One possible approach towards meeting the different needs of different consumer groups could be to segment the label, for example, with a line to separate the different levels of information which provide more/less in-depth nutritional information.

This approach may also assist in distributing the information load into smaller, and therefore more 'manageable' parcels.

## **The basic information**

### **Numeric**

Although visually unappealing and hard to use on its own, the numerical information is recognised as being essential, but in need of accompanying information to enable its most effective use. Graphical considerations for the numerical information include the use of columns to clearly differentiate information, and/or use of bold lettering or highlighting with colour.

The numerical information on its own informs simply of the nutrient content of the product, it gives no indication as to how consumption of this product will contribute to the overall daily diet.

By providing a ‘benchmark’ against which the basic numerical information can be assessed, the consumer is able to make comparative (nutritional) judgements about the product.

### **Daily reference values**

Daily reference values (DRVs) are one of the more commonly used forms of benchmarking with the alternatives being expression as absolute values or percentage daily intake values. One group of researchers found the DRVs hard to use and space-consuming, however 3 other groups were more in favour citing them as being helpful, particularly with graphical support.

### **Calorie base lines**

Another form of benchmarking is the use of calorie base lines. Just one of the studies reviewed looked closely at this area. Although it could be considered that the calorie base line maybe useful as a means of interpreting nutrient information, such interpretations were found to be greatly subject to manipulation of the base line and as such quite misleading, consequently, this would not be one of the preferable format alternatives.

### **Language**

The difficulty of understanding technical terms was noted by a number of researchers, it is therefore important as far as possible to use simple, ‘lay’ terms, or ones with which consumers are familiar through education or other means.

### **Positioning**

Positioning was also noted to be important. One study in particular (Hrovat *et al.*, 1994) considered this aspect and found that primary purchase decisions were based on front-label information, however closer consideration of information on the back, ie the nutrition information panel, had the power to alter the initial decision. Consumers also suggested, as a means to improving NIPs, that such information be bigger, bolder or more prominent, or that the NIPs should be larger.

## **Comprehension aids and interpretive elements**

Comprehension aids and interpretive elements are additional features which may be used on a label to assist in the comprehension and consequent usability of the label. Such components are generally graphical, or in the case of banding, adjectival words may be used.

### **Graphical and/or Adjectival banding**

This approach attracted virtually universal approval amongst the five studies which focussed on it. It was generally found to be effective in providing a useful short cut to understanding with minimal space requirements. The words could be presented alone, or in conjunction with graphics such as bars, however the use of bars raises the difficulty of scale as described below under bar graphs. The level of banding needs to be determined, for example, 3 bands or 4. The advantage of 3 bands is simplicity, however this comes at the cost of detail with the result that many products may fall between the bands. Four bands allow greater differentiation between products, whereas 5-bands appears to be too definitive. One potential problem with the latter is that small nutritional changes by manufacturers can result in a reclassification of the product which may be misleading to consumers.

The studies by the UK Coronary Prevention Group (1986, 1989 and 1992) provide useful guidance in the use of adjectival and graphical banding systems. Both styles may be worthy of further consideration.

### **Pie charts**

Four of the studies reviewed had considered the use of pie charts, however opinion was divided. One older study found the pie chart more effective when comparing nutrients to a reference food than the currently proposed FDA format (nutrients as percentages of RDAs), and the other favourable study included the pie chart in its proposed format. The more negative indications came from studies which found the pie charts confusing and evocative of strongly negative reactions amongst the groups studied. Overall, the evidence appears to lean away from the use of pie charts.

### **Bar graphs**

More studies have focussed on the use of bar graphs than any other graphical representation (nine studies reviewed). Again there were mixed results from the studies with one group of researchers finding them hard to use, time consuming, less effective and unhelpful in the absence of supporting education. They were also considered to be confusing, space consuming and misleading by another group of researchers. One of the greater difficulties with the bars appears to be the tendency of consumers to compare lengths, irrespective of scale.

More favourable results came from the older studies (1980-1986) where the bars were found to be more useful than the current format of the time. They also noted that the simple graphs (direct representations of nutrients present) were just as effective (and simpler) than those attempting to provide representations of nutrient density.

The bar graphs do however appear to be visually appealing to consumers, and appear to be simple to use (although this may be misleading). They would appear to be a format worthy of further consideration, but emphasis must be given to establishing criteria as to the ways in which they may be used (eg direct nutrients or nutrient density) and appropriate scale(s) to provide consistency, and therefore comparability between products.

### **Shaded circles**

The use of shaded circles as a means of expressing nutrients relative to daily requirements was trialed in the Netherlands in the 1980's. No evaluative data on the success of otherwise of this approach was located and consequently little is known about its effectiveness. In essence it is a very similar approach to the use of bar graphs, but with a different type of graphic. At this stage this format would not be considered worthy of further consideration.

### **Logos; Food Groupings**

Logos are used in a variety of ways for labelling and marketing purposes, not only within the food industry but by other retail areas as well. They may be a single symbol to imply official approval or they may be used as a rating system. Logos are a quick and easy form of providing information and tend to imply 'official approval' of the product, for example, The National Heart Foundation 'tick' is widely used across Australia and foods imported into New Zealand. Food groupings place the product in a position relative to the whole diet, through the use of a graphic such as a plate or pyramid.

Logos have been enthusiastically adopted by other retailers in Australia, particularly the utility suppliers. One advantage of this concept is that if it is of appeal to industry and suggestive of competitive advantage, then it will voluntarily be adopted by industry, thereby increasing exposure and reinforcing promotion at no additional cost to public health.

The food group or pyramid approach has not been widely used or studied, however it does have some appeal in being a relatively simple approach with the distinct public health advantage of presenting the whole diet concept. A New Zealand study found some favour and effectiveness through the use of a Healthy Food Pyramid and suggested it worthy of further consideration. It should also be acknowledged that such an additional graphic might pose space problems (on the label package) for some products.

### **Educational support**

It is quite clear from the literature that a supporting education program to ensure effectiveness of the label must accompany any initiative with regard to the implementation of a revised nutrition information panel.

## **RECOMMENDATIONS ARISING FROM THE LITERATURE**

## **Further testing of nutrition information panels is warranted.**

Components which should be included:

Basic numerical information; and  
Some form of interpretive element or comprehension aid.

Areas for testing include:

presentation of numeric information;  
daily reference values (or similar);  
adjectival banding;  
bar graphs; and  
logos or pyramid/plate.

Components not requiring further consideration are:

pie charts; and  
shaded circles.

A supporting educational program would be required.

## **DISCUSSION PAPER**

### **INTRODUCTION**

The provision of nutrition information has increased considerably over the past 20 years with increased availability of point of sale information, nutrition labelling, advertising and educational programs. Consumers' demand for nutritional information has been recognised and it is generally indicated that 'more' is desirable rather than 'less'. However what is not so clear is the actual utilisation of this information. Although the information appears to be reasonably accessible, there is some doubt as to firstly, its comprehensibility, and secondly its effect on consumer choice of foods and decision-making processes.

This paper considers specifically the nutrition labels as a source of nutrition information both about a single product, and for comparative purposes between products. A number of studies, particularly over the past 15-20 years have looked at this particular issue and considered among other factors, the effects of label format. Other factors which may influence nutrition label acquisition are situational variables – time pressure and store preference; potential pay-off (Russo *et al.*, 1986; Feick *et al.*, 1986); and product class characteristics (Lehmann and Moore, 1980; Guthrie *et al.*, 1995)(cited in Scott *et al.*, 1998, unpublished).

This paper concentrates specifically on nutrition label formats through an extensive review of the literature, and considers also the underlying principles of consumer behaviour in relation to label use, given the understanding that such knowledge is conducive to effective label design.

## **The consumer**

Differences between consumers and their resultant interest in, and ability to read and use nutrition information panels (NIPs) has been highlighted in various studies (Cronin *et al.*, 1993; Foulke, 1992) while the varying aims and needs of the different stake-holders have also been identified (Williams, 1993). The challenge for the label designer lies in the desire to cater for the differing needs of consumers, whilst striving for design consistency, meeting industry needs, acknowledging the practical constraints and providing a label which is graphically appealing, readily used and easily understood.

Above all it appears clear that any design label must be ‘user-friendly’ and cognitively ‘cost-effective’. However, the reported disparity between popularity and actual effectiveness must also be borne in mind. Is the objective of the label to be able to read it / to understand it / or to be able to use it (which does not necessarily imply understanding)? And, at each of these levels – what degree of accuracy is required?

Williams (1993) looks closely at the use of graphics in nutritional labelling and notes the considerable work done and schemes that have been proposed. She notes the importance of recognising the different needs and expectations of different client groups, such as food industry, health professionals and policy makers, consumers, legislators and educators. Given that the use of the label is intended primarily for consumers, she queries whether the needs of the consumers have been sufficiently explored. In her view the consumer needs an information system enabling comparison between products, as opposed to the view of Black and Rayner (1992), that consumers are mainly concerned with assessing single products. Williams also notes that if consumers are to be able to assess foods in relation to public health recommendations, then ‘judgmental’ information needs to be provided. In order to do this nutrient information must be presented in a comparative way, for example on a percentage energy basis, or as daily/dietary reference values. The system used to convey such information needs to be easy to use and readily understood – with the basic aim being to prevent misinformed choices and gradually educate consumers about the nutrient composition of foods (Williams, 1993). Ultimately however, food choice will be influenced by not only the health and nutrition factors, but also considerations such as taste, cost and social implications.

### *Popularity versus effectiveness*

One of the major difficulties in designing labels is that popularity of label format does not necessarily equate with measurable outcomes of effectiveness of the label to assist in making judgements or food choices (Levy *et al.*, 1991). ‘Preference’ can be tested for format alone, however as indicated consumers’ preference for label format, consumer’s ability to use the label and professionals ideas on important components of labels do not always coincide (Porter and Earl, 1990; Foulke, 1992; Levy *et al.*, 1992; Scott and Worsley, 1994; Worsley, 1996).

Contrary to the above Byrd-Bredbenner (1994) found that consumer perceptions of label helpfulness did align with ability to use the labels (however the author also comments on the limitations of sample, they were relatively highly educated and from the higher socio-economic groups).



Although a number of studies attempted to devise the 'ideal label', few succeeded in doing so. Geiger *et al.*'s study (1991) found that the clearly preferred label was one which displayed all nutrient values using a bar graph format, offered the most information load, expressed nutrient values using both absolute numbers and percentages. The order of the nutrition information was also considered and preference was for the more desirable nutrients (those which should be consumed in adequate amounts) at the top, calories in the middle, and the less desirable nutrients at the bottom. However these results indicated only preference, and as earlier consumer preference and actual usefulness do not always coincide. At the end of their report Geiger *et al.* Suggested that further research was required to test the revised composite label against other label formats for usefulness, comprehensibility and understandability.

#### *Information load*

One aspect of 'preferences as opposed to usage' relates to the amount of detail provided. There are indications that consumers tend to prefer more detail even when they don't use it (Porter & Earl, 1990).

Whoever is to use the label should be able to find the relevant information quickly and in a format that is meaningful, and requiring as little computational effort as possible to make use of that information. However, it must also be acknowledged that labels, particularly in an unfamiliar format, cannot be expected to initially stand alone in presenting readily comprehensible information. It is expected that supportive education programs will be needed as a complementary component of any reform in label design, even in the absence of significant changes to the label.

#### *Market segmentation*

A number of studies have highlighted the differences between sub-groups of consumers and their relative ability to use labels. Similarly, differences in format can result in differences in decision-making, according to who is using the label (Brucks *et al.*, 1984; Muller 1985; Venkastan *et al.*, 1986). Bettman *et al.*, (1986) make the point that it must first be clearly determined as to which information is to be used, and how, before a format is specified. The cognitive skills, and motivation of the target market need to be clearly understood before policy-makers determine the way in which information is to be presented. As an example of market segmentation, Sims (1992) categorised nutrition label readers on a need-to-know basis, the 'must knows, need to knows, want to knows and should knows'; the FDA's consumer research (Foulke, 1992) identified that consumers can be grouped into three types, 'those who are already motivated to use a nutrition label, those who are not, and those who would use the label if it were made easy'.

As an analogy, research done in the area of 'efficiency ratings' within the utility industry, has identified 4 market segments in regard to purchasing behaviours on the basis of efficiency-rating systems for gas and electrical appliances. Of the 4 segments, it is considered that only 3 can be potentially influenced, that is, that there will always be one group who will not be influenced by any new information provided on a label (J. Hughes, Water Services Association of Australia, 1998, personal communication).

Researchers in the area have noted in consideration of the results of many different studies that 'trade-offs' will be necessary to enable selection of a final format (Levy *et al.*, 1992). For example: different formats may suit different users – infrequent users

of NIP were more influenced by graphics, interested participants were more likely to appreciate numerics (Black & Rayner, 1992); people with lower numeracy levels may be more attracted by the graphics – but – find them hard to interpret (Levy *et al.*, 1991); conflict exists between ease of use, and adequate information (Levy *et al.*, 1992); some consumers want it simplified, others want it detailed (McCullough & Best, 1980); more detailed information is not well received on labels - but consumers say they are interested in more information (Fisher, 1985).

Multiple programs may be needed to meet consumer's differing needs, or, different consumer groups may need to be targeted in information campaigns (Moorman, 1990). Consumer preferences for information vary widely and an optimal policy should provide different labels for different market segments. McCullough and Best (1980) noted that: 'Increasing the amount of information may reduce its effectiveness amongst the low income consumers it is intended to help'.

Black & Rayner (1992) also made the point that different formats may suit different tasks, one such difference being the desire to compare products, as opposed to making judgements about single foods. They conclude that people mainly use nutrition information to make judgements about single foods.

#### *Label users*

A number of studies have considered the characteristics of those individuals who read and use labels. Cronin *et al* (1993) summarised the label readers as educated women who are knowledgeable about nutrition, live with others, are concerned about the quality of food and acknowledge the importance of current dietary recommendations. Similarly Scott and Worsley (1998) summarise the literature to relate that those who are interested in nutrition information are: women, higher educated, households with children, those following recommended dietary practices and those on special diets. They also noted that the findings have been inconsistent in relation to age. They also note in conclusion to their study that: 'Technological development has advanced the variety and extent of foods such that conventional wisdom no longer guides on nutritional value. NIPs are therefore important and should be equitable. Research suggests labels are not meeting the needs or gaining the attention of some consumer groups. Research needs to focus on non-users of labels'.

#### *Non-users*

Levy *et al.* (1991) commented that – 'the most vulnerable are the elderly and under-educated; regardless of format they have greater difficulty discriminating nutrient differences and greater tendencies to perceive differences where none exist'.

There is evidence to suggest the elderly have greater difficulty dealing with unfamiliar information. One of the suggested explanations for this relates to 'field-dependency.' It is suggested that the elderly are more field-dependent, that is they rely on information being presented consistently within a particular context, to enable them to readily find relevant information (Coles and Gaeth, 1990; Porter and Earl, 1990. Levy *et al.*, 1991). For example, frozen meat pies always stating the sodium content, with the information always being presented in the same place on the packet and in the same format.

#### *Age relative to label use*

The study by Cole and Gaeth (1990) looked specifically at cognitive and age-related differences in consumers and their ability to use nutritional information. They also considered whether these cognitive differences could be counter-acted by training, and the provision of a perceptual aid. Overall the study was deemed to contribute to a more thorough understanding of how people, of all age groups, obtain and use nutritional information. The sample used consisted of 48 subjects, aged 29-86 years. The combined results suggested that the use of a perceptual aid (circling of the relevant information with a red pen) reduced decision time for all subjects and improved accuracy for subjects with high field dependence. They also determined that changes in basic perceptual ability, not just age, were responsible for decreased accuracy across the cohort. Training considerably improved the performance of the older age group, to bring it in line with the younger group. However it was also noted, as a limitation of the study, that these older people may have received an unrealistic amount of training and practice in the experimental situation.

The elderly take longer to process nutrition information (Cole and Gaeth, 1990) and are less accurate in their use of it (Cole and Gaeth, 1990; Moorman, 1990; Sullivan and Gottschall-Pass, 1995). These factors however may also be a consequence of their lower motivation, and difficulty reading small print (Scott and Worsley, 1988).

Familiarity itself may be a factor – greater familiarity may on one hand aid comprehension (Guthrie *et al.*, 1995), or conversely it may have the effect of reducing the effort applied. Existing knowledge can encourage the search for information up to a certain level, after which familiarity reduces utilisation (Bettman and Park, 1980; Johnson and Russo, 1984, cited in Scott *et al.*, 1998).

All the above market segments can also be considered as being the difference between the short-term, and long-term markets. The short-term markets are the motivated and generally more knowledgeable and capable readers who will seek and use the NIP. The long-term markets are those who have either little interest in the panel, or are unable to use it due to comprehension or computational difficulties. These groups will require a supportive education program with the aims of highlighting the potential uses of the label, and eradicating barriers to its use.

## **The process**

Simply providing information in a format that gives all the necessary detail, and/or is visually appealing does not guarantee acceptance or use by consumers. An understanding of how consumers process information needs to be taken into consideration. A number of studies have considered the processes underlying the acquisition of nutrition information from labels or other similar (printed) sources (Russo *et al.*, 1986; Guthrie *et al.*, 1995; Moorman, 1990, 1996), or other information from labels (Bettman *et al.*, 1986).

Bettman *et al.* (1986) considered the cognitive considerations of effective label design. They were looking specifically at hazard-warning information on cleaning products, however the basic concepts of how humans process label information is of relevance to any label design. Whilst discussing the impact of risk-perception on the success of information provision, they note that consumers will ignore information either if they feel it is of little benefit, or that there is little risk (cost) associated with using the product. Relating this directly to nutrition labels the presence of information

pertaining to positive nutrients, that is, those which are perceived to carry little 'risk', does not tend to influence consumers purchasing decisions, however when 'negative' attributes are displayed (such as sodium, sugar or calorie content) behaviour is more likely to be influenced. Through reference to a study by Svenson in 1985, Bettman *et al.* Also consider the issue of consumers grappling with multiple risks which maybe associated with a product, and attempting to determine an overall judgement of risk for that product – people find it difficult to combine multiple items of information, and therefore may arrive at biased judgements of a product with multiple risk factors.

Following from this is the issue of how people deal with decision-making in the face of such risk factors. If the benefits are seen to outweigh the costs then the simple approach will be to deny the risk, or consider it insignificant. Another approach is to apply heuristics to trade off the positively and negatively-evaluated attributes. It is considered that the use of heuristics in decision-making increases as the problem becomes more complex (Payne, 1976, cited in Bettman *et al.*, 1986). The implications for this with regard to nutrition labelling, is the importance of accompanying any label format with supportive information such as an education program, for example, which provides consumers with the necessary knowledge to be able to assess the degree of risk carried by particular negative nutrients, or if appropriate, encourage the development of appropriate heuristics which can simplify the decision-making process.

Bettman *et al.* (1986) discuss in detail the basic properties of the human mind as an information processor, in the belief that understanding of such components is necessary for the design of effective labels. Their discussions include the understanding of the cognitive system with regard to short-term memory including the amount of information which can be considered at any one time (generally 4-5 items, up to a maximum of 7), the processes of 'chunking' information and the use of heuristics.

With regard to long-term memory, the issues of interest are storage and recollection of information. Important features that are noted are facilitation of the acquisition of new information by the 'existence of previously acquired relevant knowledge that can be used to form associations'. In other words, the use of common formats and sets of concepts across labelling systems to provide an existing memory structure for the encoding of new information. Similarly the process of chunking information into hierarchical structures facilitates information recall. All of this information is also highly relevant to the design and implementation of supportive education programs.

The important factor to note in Bettman *et al.*'s discussions is that their approach reflects the limitations of the human processing capacities, rather than assuming that humans are extensive information processors, and that providing more information is always helpful.

This is congruent with the findings discussed below that although consumers state that they want more information, it doesn't necessarily mean that they are able to use it. It is important therefore to note that information needs to not only be available, but also easily processed, and, that the format and organisation of the information must be congruent with the type of processing which will be required to utilise that information. As determined by the cognitive cost-benefit analysis discussed by Russo *et al.* (1986), consumers will be more inclined to use information as it is presented, rather than to transform it. Therefore processing should be facilitated by judicious design of information provision. For consumers to apply the necessary effort to use label information, the cognitive costs, which include the efforts required to collect the information, compute and comprehend it (Russo *et al.*, 1986) either need to be reduced, or the perceived benefits of accessing the information increased.

Another aspect of congruence is the reactive or proactive approach. That is, label formats should either be provided in a way which meets the way consumers currently process information, or if a particular type of processing is desired by the policy makers (for example, comparing across brands) then formats should be proactively designed which facilitate such processing.

Fundamental to all of this is the need for the information to be easily located and encoded. Location can be facilitated by the use of contrasting colours, large fonts, consistent relative positioning on labels and hierarchical display of information – the hierarchy could be based on the order in which consumers are likely to use the information (rather than an hierarchical importance attributed by manufacturers or nutritionists). Participants of the Johnston and Hodges study (1995) commented that they would like [nutrition information] panels to be made clearer, bigger or bolder. Encoding can be assisted by the use of symbols which quickly and consistently convey concepts. This topic is discussed further in relation to nutrition labelling in the section below on Logos.

Cronin *et al.* (1993) provide the conceptual framework for an Information Processing Model in relation to educational strategies for helping consumers use food labels, including the nutrition panel. This model provides a useful framework for discussing the various issues relating specifically to nutrition label, or nutrition information panel (NIP) design.

The model consists of 5 stages: exposure, attention, comprehension, retention and retrieval and decision-making. Various points discussed in this paper are pertinent to the design of NIPs.

In this case the exposure stage relates to the presence of the NIP on the food package. This NIP may be supported by other points of exposure such as point of sale information, advertisements and any educational strategies.

The second stage is the 'attention' stage – during the shopping process consumers are exposed to a vast amount of information, they are neither able nor inclined to attend to it all. At this point the consumer will seek out the information they wish to read and ignore the rest. There are both internal and external factors which will affect this process.

According to Cronin *et al.* (1993) consumers will pay attention to information which they believe will meet their needs. They also note that additional label features such as nutrient claims and health claims will also influence the attention stage. As discussed by Russo *et al.* (1986) the information will also be analysed on a cost-benefit basis. That is, does the benefit of gaining the information outweigh the mental costs of acquiring and comprehending it? Cronin *et al.* (1993) also point out the external factors influencing attention to labels such as the physical presentation – these include graphical attributes such as colour, size, font, graphics etc. A well-designed label will assist this attention-stage by providing information in an easily-located, easily-read format.

Another important aspect here is the load of information provided by the label. Research at the Pennsylvania State University indicated that college students could remember just four lines of information within 1 minute of looking at it (cited in Cronin *et al.* 1993). The important implication here for label design is that the design of the label should be such that quick scanning by the consumer enables ready location of the portion of the label which is of interest. This ‘portion’ should then provide sufficient detail for those shoppers requiring in-depth information (see section below on market segmentation).

The third stage of the Information Processing Model is that of comprehension. This stage represents the point at which the consumer applies meaning to the information provided by the NIP. This stage could perhaps be considered as the major ‘stumbling block’ in label design. The challenge lies in providing information which is scientifically valid and technically correct, whilst at the same time trying to avoid the unnecessary use of technical jargon, and, the desire to use a consistent format whilst avoiding the need to perform ‘mental computations’ in order to transform the information into something useful for each individual. Cronin *et al.* (1993) note that many consumers do not understand some terms and concepts used on food labels, including nutrient terms, metric units and household measures.

The next stage is retention and retrieval. For information to be useful it must be retained, and retrievable for use in decision-making – this will be affected by both short-term and long-term memory processes. Long term memory may require appropriate cues to assist in retrieval, this suggests label design should to some extent provide such cues. Familiarity through consistency of format would be one such cue. Other cues may be derived from a separate, complementary educational program.

The final stage is decision-making. Decision making can be difficult in the face of many contributing factors. Consequently most consumers resort to heuristics or ‘simplifying rules’ in order to simplify the process (Cronin *et al.*, 1993; Bettman *et al.*, 1986). They also tend to use, at least in the first instance, only that information which directly and easily provides the information they are seeking, in the form of a direct answer to ‘the question’. ‘The question’ will vary with each individual, and will relate largely to the typology of consumers, as discussed below in market segmentation.

## **The label**

A good nutrition label should aim primarily to provide information in a form which is easily accessible, ie readable, and secondarily which is readily understood ie comprehensible. There tends to be an underlying assumption that provision of a good label will lead to better food choices by consumers and potentially, improvements in health. However, the validity of this assumption is open to debate. The intended aims of the label need to be clearly defined prior to embarking on any design process.

There have been three main types of research used to investigate to consumer desire for, understanding and use of nutrition labels, namely consumer surveys, laboratory experiments and field experiments in naturalistic settings. The first two have most commonly been used for studying labels (Glantz *et al.*, 1989).

In a comprehensive review of nutrition labelling formats by Geiger *et al.* (1991) it is noted that since 1971 only 9 experimentally designed studies have focussed on label format. The more recent of these have concentrated on consumer preference for, usefulness and comprehension of label formats. The majority of these studies used grocery shoppers as their sample.

## **Components of the label**

### Testing the variables

A number of different components are integrated to arrive at the final label – or nutrition information panel (NIP). Some of these components have been studied together, or others in isolation. Because of the confounding nature of considering a number of variable at once it is very difficult to compare and contrast the different studies. Bettman *et al.* (1986) noted that the number of alternatives presented to subjects in a testing situation, may in itself affect the way the subjects make decisions. This point has implications for the testing environment. If just a single aspect of a format is presented for testing this avoids the complications of confounding variables, however it also presents an artificial situation. Geiger *et al.* (1991) used the ‘adaptive conjoint analysis’ approach as a means of estimating the effects of changing a number of variables in NIPs.

### The variables

The numeric component of a NIP is generally considered to be essential. Additional, optional information may then be provided which enhances the basic information enabling it to be more useful. Such written and numeric information may be in the form of some sort of benchmark, or criteria against which the numerical information can be compared or assessed.

### Numerics

The numerical information on the NIP provides the basic nutritional information pertaining to that particular product. Variations on this information include whether the nutrient information is expressed per serving or per 100 gram (or other), and as absolute measures or as comparative measures, for example comparative to recommended daily intakes. Nutrients may also be classified as mandatory (to be included on the label) or voluntary (may be included).

Studies on label formats have found differing consumer reactions to the basic numeric information. Some consumers have found numerics hard to use, and that they increased task time and decrease accuracy (Levy *et al.* 1991, 1992). Focus groups conducted in the study by Lewis and Yetley (1992) found numerics easy to use, fast and clear. Some considered percentage listings more helpful, others found listing reference values more helpful. For this study numerics were selected as most useable format. Fisher in 1985 found the numeric format was initially disliked but found to be the easiest to use.

Williams (1993) notes that consumers have difficulty using this standard information. It can be used quite well to compare between foods, but does little to assist in the assessment of an individual food. She suggests that some type of interpretive element, or graphical representation could help consumers to assess individual foods in the context of health recommendations. The study carried out by Bred-Bredbenner (1994) found absolute measures with comparative DRVs to be helpful. The most useful format consisted of two columns, one for amounts of food components per serving, the other listing % of reference value eg RDA, however in the pilot study conducted by Hrovat *et al.* (1994), approximately one-half of the participants could not understand the % daily value. These concepts are discussed further in the section below on Benchmarks.

Also of note are the different reactions of consumers with regard to 'negative' as opposed to 'positive' nutrients. Cronin *et al.* (1993), Worsley (1994) and Bettman *et al.* (1986) have all shown that the greater interest lies in the negative nutrients ie the ones to be avoided.

## Benchmarks

### *Daily reference values*

Some form of benchmarking has been found to be a useful component of NIPs as it provides an element by which the numeric information can be interpreted or assessed (nutritionally) relative to other products. In the USA this benchmark is provided by Daily Reference Values (DRVs)

The Levy *et al.* Studies (1991; 1992) found disadvantages with DRVs in so much as they increase space requirements by more than 60% (1991), did not provide enough information and were too hard to use (1992).

However other researchers found the DRVs to be helpful and useful (Byrd-Bredbenner, 1994; Lewis & Yetley, 1992), particularly when combined with graphical support (Black & Rayner, 1992). Black and Rayner also noted that the DRVs were mainly of value to those participants [of the study] with the greater interest in nutrition issues.



### *Calorie base lines*

Another form of benchmarking can be provided by the calorie base line. This is a nominated calorie intake level, generally taken to be a typical 'average' for the general population, which provides a baseline for expressing the nutrients provided per energy intake. The addition of a caloric base level can significantly affect consumers' perceptions of nutritional quality. Rudd (1986) showed that the inclusion of a calorie base statement could be manipulated to imply that a particular product was 'more nutritious' with the quality estimations declining as the calorie base (2500, 2000, 1500) declined.

### Positioning

Considerations in relation to the position of the label on the package include which face of the package it is on, its prominence in relation to other components of the food package. Some respondents wanted the label in more prominent position on the package (Johnston and Hodges, 1995). Hrovat *et al.* (1994) noted the effects of the front of the package *versus* back on label reading and decision making, they found that the majority of their participants used the front-label information to make consumer decisions, however, this decision was changed after the back label was viewed. They concluded that educational programs emphasising viewing [and understanding] of the back label will be important. They also noted that health-related choices of products by consumers would depend largely on the personal health risks or concerns of the purchaser.

### Language

Researchers have also noted that it is important that the reader readily understands the language used on a NIP. Both literacy and numeracy limitations make it difficult for many consumer to understand the terms and expressions used with technical information, and a number of studies have highlighted the desire by consumer for terms with which they are familiar. For example, the use of fat, salt or sugar as opposed to words like sodium, mono or polyunsaturated fats and potassium (Fisher, 1985; Levy *et al.*, 1991; Johnstone and Hodges, 1995; Scott and Worsley, 1997).

### Comprehension aids and interpretive elements

Comprehension aids are visual features incorporated to assist in the comprehension of the information provided. Interpretive elements are those components of the label which enable some interpretation of the nutrition information, as it relates to either other products or the whole diet context. They have also been described as 'dietary guidance features' (Byrd-Brenner, 1994). Such aids are generally graphical or may use words as in the case of adjectival descriptors. Examples encountered in the literature include; pie charts, bar graphs, partly shaded circles, banding and adjectival descriptors.

### Pie charts

Supportive studies of the pie chart were by Babcock and Murphy (1972) and Byrd-Brenner (1994). When compared with the (then) proposed FDA format, expressing nutrients as percentages of RDAs, Babcock and Murphy (1972) found the pie chart to be more effective. The preferred format as derived by Byrd-Brenner (1994) from her study with supermarket shoppers included a pie chart.

Contrary to the above findings other studies have been less supportive of the pie chart. The focus groups of Lewis and Yetley (1992) did not find the pie charts useful, but rather found them confusing and indeed expressed strongly negative reactions. Fisher (1985) also reported confusion, difficulty of use and lack of popularity with the pie charts.

### Bar Graphs

Many of the studies on label formats have considered bar graphs for consideration. The results of these studies indicate a reasonably even division of those in favour or against.

The studies providing least support for the bar graph include Levy *et al.* 1991; 1992; Lewis and Yetley, 1992; and Fisher, 1985. The study of Black and Rayner (1992) described both positive and negative attributes of the bar graph approach.

The reported disadvantages of bar graphs were that they were hard to use, increased task time, decreased accuracy and increased space requirements by more than 100% (Levy *et al.*, 1991) and; hard to read and provided too much information (Levy *et al.*, 1992). Levy *et al.* Also commented in their 1992 report that subjects scored worst with this format, and that such graphics do not help consumers to distinguish between products without supporting education. The FDA focus groups found them confusing. Fisher (1985) also found that consumers tended to compare bar graph lengths, between products, irrespective of the scale used on different products. Such comparisons are potentially misleading and invalid. Similarly Lewis and Yetley (1992) noted that the longer bars tended to be suggestive of better nutrition.

Black and Rayner (1992) did not strongly endorse graphical formats as such. They noted that those which attempted to evaluate nutrient level were confusing, and pointed out that it depended on the type of graphics being used. They did however find graphical formats helpful as direct representations of nutrient levels, and that they tended to speed up response time in the studies performed. They also noted that due to their visual appeal they might be a way of attracting people who would not normally look at NIPs.

More supportive of the bar graph format were the reports by Mohr *et al.*, 1980; Rudd, 1986; Yeomans, 1986 and Geiger and Wyse, 1991. Yeomans (1986) found bar charts to have immediate appeal and could be used successfully, but with limitations on additional information. He suggested that bar charts could be used in addition to standard presentation with words and numbers. Rudd elaborated on Mohr's work by specifically studying the difference between the simple bar graphs, that is, depictions of the nutrients within the product, as opposed to graphical representations of nutrient density which enable inter-product comparisons. His findings were that simple graphical labels are just as effective (and simpler) than graphical nutrient density labels. Geiger and Wyse (1991) found consumers clearly preferred the label displaying all nutrient values in a bar graph format.

Bar graphs cannot stand alone as a source of information, by their very nature they require some degree of interpretation, and prior knowledge and mental effort on behalf of the reader to be able to do this. That is, this type of label requires extra computational effort by the reader. As discussed above, any extra effort required will be subject to cost-benefit analysis by the consumer (Russo *et al.*, 1986). Also, success

of such graphical formats relates to the readers prior knowledge and familiarity with such formats – to some extent this will discriminate against the lower educated or less literate in the community.

#### Adjectival descriptors

Adjectival descriptors have generally been well received with positive feedback from consumers. They are also advantageous in that they have minimal implications for space requirements (Levy *et al.*, 1991). Adjectival descriptors received the most substantial preference score in the study by Levy *et al.* (1992) and were found to provide ‘shortcuts’ to understanding, but there were also indications that consumers assume the only differences between the products are those described by the adjectives. It was also noted that the adjectives used must provide meaningful differences in intervals (Levy *et al.*, 1992). Byrd-Bredbenner (1994) found the format helpful (in conjunction with other factors) and effective. Scammon (1977, cited in Brucks *et al.*, 1984) found adjectival format for television advertisements more effective than the then current USA RDA % format.

The findings of Lewis and Yetley (1992) were a little more varied, they found the adjectival descriptors could be misleading, mistrusted, helpful to some and vague to others.

#### Shaded circles

Reference to the use of shaded circles comes from a nutrition labelling initiative described in the Netherlands in 1985 (Anon). Through a consultative process label designs were devised and subjected to consumer testing by a professional marketing bureau. A definitive layout including the use of shaded circles was derived from this process. Success or otherwise of this system is not known due to a paucity of further information.

#### Banding

In 1986 the UK Coronary Prevention Group (CPG) discussed an approach to banding suggesting that bandings should be applied systematically to all packaged foods and foods provided to catering establishments. This was in response to consumer requests for ‘at a glance’ information on the nutrient content of foods, and industry’s self-initiated use of systems which divided foods into nutrient categories of ‘high’, ‘medium’ and ‘low’. The banding system as derived by the CPG was defined in terms of high, medium-high, medium-low and low with definitive quantitative ranges given for total fat, saturated fat and trans fatty acids all as percentage energy, and total sugars, salt and fibre expressed as g/10 MJ energy. They also noted that any labelling proposals designed to assist consumer choice would require major educational campaigns to inform of the new system and how it could be used to choose and obtain a nutritionally balance diet.

A 1989 presentation on banding by the same group suggested that although many consumers favoured a simple 3-banded system, the CPG found that such a system did not provide sufficient nutritional discrimination between foods with substantial nutrient differences. Alternatively a five –band system gives greater discrimination, but loses simplicity, and such a system would open the way for trivial nutritional changes to be made as the basis for claims of ‘improvement’. This 1989 presentation also suggested symbols that could be used in place of words to express banding.

Black and Rayner (1992) investigated banding experimentally. They looked at banding alone, and banding alongside numeric information, and the use of banding to directly represent nutrient levels, as opposed to an evaluative system. They also considered a variety of graphical representations of the banding system including bars, stars and shaded circles. Although the participants in the study recognised the value of the 4-band system, they still preferred the simplicity of 3 bands where levels of nutrients were indicated as being 'high', 'medium' or 'low'. In summary, the indications of the study were that supplementing numeric nutrition information with words or well-designed graphic information was helpful for consumers, and that banding systems using words or graphic representations were more versatile and helpful than formats based on DRVs. Also, that direct representation of nutrient levels resulted in less errors than the evaluative system, and that direct and evaluative systems should certainly not be used together.

### Logos

Logos are used in a variety of ways for labelling and marketing purposes, not only within the food industry but by other retail areas as well. They may be a single symbol to imply official approval, such as the National Heart Foundation tick, or they may be used as a rating system, such as the American Tesco logo. Logos are a quick and easy form of providing information and tend to imply 'official approval' of the product.

Logos have been enthusiastically adopted by the utility suppliers in Australia in the form of 'efficiency ratings'. The concept was first used by the gas industry in the late 1970's with the use of stars to define the efficiency of the appliance. The more stars the more efficient the appliance. In the late 1980's the electricity industry followed suit by adopting a similar approach. The idea has been adopted so enthusiastically that model legislation is currently being drawn up to ensure consistency between states and territories in regard to the use of such symbols. More recently the water industry has also adopted a rating system in the form of A's. The perception of those involved in the implementation of these systems is that results are being achieved, however, these results are more reflective of manufacturer, rather than the consumer. Industry research on market segmentation suggests that not all consumers are energy conscious, however the number of manufacturers developing equipment that will entitle them to high efficiency ratings appears to be increasing quite markedly (personal communication; John Hughes, Water Services Association of Australia), presumably due to the market advantage of having the 'competitive edge'.

The relevance of the above information in relation to nutrition labels lies in the recognition of the advantages of providing information in formats or within concepts that are 'familiar' and constantly being reinforced. Through consistency of application of a ratings system, not only for food but other consumer purchases as well, the concept becomes more readily understood and more readily used. The other advantage is that if the concept is appealing to industry and suggestive of competitive advantage, then it will voluntarily be adopted by industry, thereby increasing exposure and reinforcing promotion at no additional cost to public health.

Research by Scott and Worsley (1994) in New Zealand compared consumer reaction to ticks, claims, labels and food groups. Ticks are similar to a logo in the simplified approach with the underlying suggestion of official approval. In this study the tick was found to be popular with consumers, but misleading. As discussed earlier this

incongruence between popularity and effectiveness has been reported in a number of studies.

#### Food Groups / Pyramids

The use of food groups or a pyramid relates to placing the product within the concept of the whole diet, for example, a graphic of the dietary pyramid with an arrow pointing towards the section of the pyramid containing the particular product. This idea has been used by industry for example on the side of cereal packets, and was used in a study by Scott *et al.* (1994).

Scott and Worsley found the pyramid to be a simple format which resulted in better decision-making than the tick or the claim (also considered in the same study), although it was not as appealing to the consumers. The authors considered that this format had potential, and maybe effective due to its contribution towards the development of heuristics (Bettman *et al.*, 1986), in this instance, inducing the reader to develop a heuristic which says 'eat less at the top and more at the bottom.'

#### **Educational support programs**

It is quite clear from the literature that any initiative with regard to implementation of a revised NIP must be accompanied by a supporting education program to ensure effectiveness. As noted by Scott and Worsley (1994) in their comparative study of nutrition labels, all the labels they considered required further explanation to be understood. This was not only suggestive of the need for educational support programs, but also highlights the limitation of labels as 'health promoters' in their own right.

Cole and Gaeth (1990) look specifically at the underlying processes of label use, to assist marketers in designing cognitive and perceptual aids for consumer education. They note that: 'Education programs should stress personal benefits of using, and negative consequences of failing to use, the available information so that target groups are willing to expend the extra effort.'

Other researchers provide support for, and useful insights into, relevant considerations for such educational programs (Cronin *et al.*, 1993; Bettman *et al.*, 1986 and Russo *et al.* 1986), and note consumer requests for education to assist in reading and interpreting labels (Johnston and Hodges, 1995).

Further discussion on such an education program is beyond the scope of this paper but would form an integral part in the next stage of proceeding with a revised NIP.

#### **Conclusion**

The results of the literature are inconclusive with regard to which format, or which components constitute the 'best' label. When considered in light of the underlying processes involved in cognitive use of labels, and an understanding of the differentiation between market segments, this outcome is hardly surprising.

The implications are that: further testing on label formats would be appropriate and; any new initiatives with regard to nutrition information panels should be accompanied by supporting educational programs to maximise effectiveness.

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## *Appendix II.II*

### II.II Health effects and dietary intakes of trans fatty acids

## **LITERATURE REVIEW ON HEALTH EFFECTS AND DIETARY INTAKES OF TRANS FATTY ACIDS**

## **Introduction**

### **Occurrence in the diet**

**Principal food sources**

**Estimated international intakes**

**Dietary exposure to trans fatty acids**

**Presence and use of different fatty acids in food production**

### **Health related effects of consumption**

**Scientific studies**

**The foetus and the neonate**

**EPIDEMIOLOGICAL STUDIES**

## **EVALUATION OF PUBLIC HEALTH IMPACT**

### **Conclusion**

### **References**

### **Reports**

## INTRODUCTION

The health effects of specific fatty acids are the subjects of continuing research and debate. There are inherent difficulties in food labels keeping pace with research findings in relation to health outcomes associated with fat consumption, such as, the contributions of the omega-3 and omega-6 individual fatty acids stearic, linoleic and oleic, and trans fatty acids (TFA). Projects in progress for example are; the creation of saturated fat free vegetable oils, margarines engineered to contain stearic acid for hardening, and restructured oils with fatty acids associated with lowered lipoproteins. Food labelling is always behind the forefront of science, the question is how far behind before the information provided becomes confusing. When dietary advice and food labelling become too complicated, consumers may lose interest and become confused. The dilemma faced by regulators is to provide accurate information which can be used by consumers to choose foods containing the amount and type of fat appropriate for their needs. The provision of simple concise background educational information as the science changes is a public health challenge. The food label is an integral part of food choice for most consumers, so changes in the label require simple mass educational strategies for effectiveness.

The current Food Code, now under review, does not require informative labelling (Nutrition Information Panel), unless a nutrition claim is made. It does however require ingredient listing, but this is not quantitative and does not provide detailed information on fat composition. Trans fatty acids are not required to be listed separately either in the ingredients or in the nutrition information panel, or as a proportion of saturated fat.

The National Heart Foundation (NHF) in 1997 requested as policy that TFA be listed as part of the total saturated fat content of processed foods (sum of saturated plus trans fatty acids). This position does not differentiate between saturated and trans fatty acids. Some fatty acids like stearic appear to be of little harm, whereas the epidemiological evidence appears to implicate trans, particularly elaidic acid, in atherogenesis. The NHF criteria for margarines and spreads to qualify for 'Pick the Tick' are saturates plus trans fats of 28% or less of total fat, and for oils saturates of 20% or less.

The American Society of Clinical Nutrition Special Task Force Report on trans fatty acids 1996, considered the following labeling options:

*Trans fatty acids should be added to or included with saturated fatty acids.*

*Trans fatty acids should be a separate class on labels;*

*There should be a threshold proportion of trans fatty acids if a claim is made. eg low fat; and*

*Fatty acids should be quantified on the NIP as cholesterol raising and cholesterol neutral and/or beneficial.*

The British Nutrition Foundation Report on trans fatty acids, 1995, concludes:-  
'Evidence that trans fatty acids have adverse effects on blood cholesterol levels may have implications for nutrition labelling.

If labelled, trans fatty acids should not be combined with unmodified, cis unsaturated fatty acids. The options for labelling trans fatty acids separately or in combination with saturated fatty acids require detailed consideration’.

The British Institute of Food Science and Technology (IFST) issued a position statement in 1998 stating: ‘There are several unresolved problems concerning the consumption of TFA. Whilst there is no evidence of risk at current United Kingdom (UK) levels of intake, and the reduction of the intake of energy from fat, particularly saturated fatty acids, is the priority, IFST supports a recommendation that the intake of TFA should not be allowed to increase.’

The Australian National Health and Medical Research Council (1992) has official target recommendations on the fatty acid consumption which are:

Total fat	30% of energy
Saturated	10% of energy
PUFA	6-10% of energy
MUFA	10-14% of energy
Omega-3 PUFA	Moderate increase, especially in infant formula.
trans fatty acids	Consider as saturated

## **OCCURRENCE IN THE DIET**

### **Principal Food Sources**

Partial hydrogenation of vegetable oils used as margarines and fat sources in baked and fried foods are the major contributors of TFA in the Western diet . They are also found in milk fat, (with seasonal variation) butter, cheese and ruminant fats such as tallow and dripping.

The estimate of the contribution of TFA to energy intake varies in different countries, and is dependant on the most recent measurements, as there is a general move to reduce TFA content of the diet by industry. The United States of America (USA) and Europe, including the UK, have recent comprehensive data(1996-98). New Zealand (NZ) annually monitors TFA content particularly in dairy foods and meat products. Australia does not have a comprehensive monitoring program for TFAs and does not collect a TFA database, as does New Zealand Crop and Field. Two major margarine and spread companies in Australia do estimate TFA content, and one of these companies makes the data publicly available. ANZFA (Australia New Zealand Food Authority) does not request TFA data, nor commission TFA data.

The Australian dairy industry do not routinely monitor TFA content, although they do have a selected seasonal collection of butterfat which could be analysed if required.

## Estimated International Intakes

The recent publication of the TRANSFAIR Study in Europe (1998) has clarified TFA consumption in the European Union (EU) in 14 countries using a standardised market basket survey of 100 foods, identified in the National Dietary Surveys as the major contributors to TFA consumption in each country. The analyses were subdivided into bakery products, fats and oils, french fries, soups and snacks, and dairy and meat products. There was considerable variation across the products, due to seasonality as well as ingredient modification. The overall conclusion at this stage of the work was that the current health concerns regarding TFA have resulted in a number of soft margarines that are low in TFA, but that shortenings, frying fats and convenience foods are frequently high in TFA. The health benefit of reducing TFA requires reduction of saturated fatty acids, which does not appear to have happened, and the presence of TFA in bakery products and snacks is not readily discernable and very variable. Absolute consumption and source per country is not yet available and form the next part of the TRANSFAIR study. The average figure used for the EU is 8 to 10g per day. The British figures given are 4 to 6 g per day (range 2g to 12g or more), which is 2% of dietary energy and 6% of total fat.

The USA estimated its per capita consumption of TFA from vegetable and animal sources as 8.1 to 12.8g per day in 1995, based on disappearance data, which represents 2-4% of total energy intake, with the predominant source being hydrogenated vegetable oil.

Table 1. Major Sources of trans fatty acids in the UK and USA, expressed as a percentage of total intake.

UK	USA
	fried foods 24%
	Margarine 15%
	cakes, bread and baked goods 18%
	savory snacks 9%
	soft margarines and spreads 9%
	milk and butter 9%
	cookies and crackers 9%
	Household shortenings 3%
	ground beef 3%

Sources: British IFST position paper 1997; American J Clinical Nutrition, Special Task Force Report on trans fatty acids 1996.

In 1994, Noakes and Nestel estimated that 2 to 2.5% of total energy was derived from TFA in the Australian diet. Of this, 40 to 60% of intake was from domestic margarines and the rest from dairy and beef fats. The guessed estimate from food frequency data using modelling techniques is 3 to 5g/day. Mansour and Sinclair (1993) analysed 13 margarines, five blended spreads, and lard and dripping. They estimated the total TFA intake to be 2.7 to 4.8g/day, considerably less than the USA, the UK and the EU. Table margarines were reported to account for 36 to 64 % of intake. This represents 13% of total fat consumption as a proportion of fat content. There has been no comparative data available since the Mansour and Sinclair paper,

although the major margarine companies do analyse their own and their competitors' products. Baked goods, snacks and processed crackers and biscuits and fried foods have not been officially analysed in Australia. Some recent work by Attard *et al* (unpublished) is noted below in Table 3.

The New Zealand database does include trans fatty acids, however it is not yet complete. New Zealand surveyed selected foods in 1996, similar in scope to the TRANSFAIR and US surveys, and continues monitoring - particularly dairy foods at Crop and Field as standard operating procedure.

Table 2. Trans fatty acid levels, expressed as g/100g, in some New Zealand products.

NZ Product	TFA level as g/100g total fatty acids

Source: Lake *et al.*, 1996. Journal of Food Composition and Analysis

The NZ figures differ from the USA and EU figures, with lower figures for bakery products. Beef tallow, high in saturates and low in TFA is the most used frying product in NZ. The authors estimate that intakes in NZ will be similar to those estimated for Australia, and not the very low estimates reported by Ball *et al.* in 1993.

Dairy foods comprise a larger share of consumption in New Zealand than in Australia. There are marked differences seasonally in TFA content in butter fat, so average consumption in NZ will be more subject to change depending on the production time of the dairy product or animal fat consumed. The higher levels of hydrogenated plant oils containing TFA, evident in North America, are less evident in NZ where fats of animal origin are used more extensively (lard, beef dripping and butter) in the food supply.

In Australia the apparent consumption figures in 1995-96 show an increase in apparent consumption of dairy foods, and a recent decrease in margarine consumption. Table margarine consumption in Australia has decreased for the last 5 years to 5kg/ capita (1995-96). Other margarines, used for frying and baked goods rose 13% to 2.2 kg/capita. The consumption of dairy blends rose 9.5% in 1995-96, having risen 30% since 1990-91. Butter consumption was relatively steady at 3kg/capita, cheese consumption at 10.6kg/capita and milk increased from 101 to 104 litres/capita.

Exposure to TFAs in Australia is similar to Europe and North America, where consumption of baked and fried foods has increased as prepared foods increase in market share. The TFA content of these foods in Australia has not been measured officially. Some recent data is available on convenience foods from Attard *et*

*al.*(unpublished), shown below (Table 3). The top 100 Neilson grocery brands for 1997 (Retail World, November 1997), correlated with the seven-day cyclic menu obtained from the Victorian Nutrition Survey (1990), identifying the following fat sources as the major non-meat, non-dairy exposures. This exposure has not been baselined, is not monitored, and if Australia is similar to the rest of the world, is increasing each year. Meanwhile the exposure *via* table margarine is dropping rapidly, and the exposure *via* meat and dairy is maintained at about 5%. Manufactured pies and pasties and the margarine of one of the two major suppliers, are the main sources of TFA in the diet.

Table 3. Cis and trans fatty acid content of some Australian take away/convenience foods.

**Convenience/take away foods, Australia**

FOOD (Lipid Content %)	18:1Cis % of total fat	18:1Trans % of total fat	18:1Cis and Trans % total fat
Australis sausage rolls (10.9)	30.6	2.75	1.66
Arnotts Scotch Fingers (19.8)	29.04	1.93	1.5
Cornish pasties (9.9)	25.9	8.02	2.43
Smiths potato chips (33.4)	23.32	0.13	0.62
Cinnamon doughnuts (13.8)	32.25	3.00	2.34
Meadow lea margarine (78.4)	26.32 24.59	9.21 13.2	3.70
Croissants (18.4)	17.94	3.29	1.77
Pizza Hut supreme pizza (10.0)	29.72	2.52	2.2
Hungry Jacks french fries (16.2)	37.53 39.27	1.19 3.05	1.77
KFC fries (9.5)	39.72	3.07	
Red Rooster fries (10.6)	35.79	1.87	
McDonalds fries (16.7)	37.56	3.00	
Beef pies (8.6)	31.75	9.57	3.03
Big Ben meat pies (19.1)	42.57	6.51	
Patties meat pies (12.0)	34.29	3.33	
Four'n Twenty pies (14.4)	39.34	5.28	
Hungry Jack's Whopper with cheese (11.2)	34.02	2.67	
McDonalds Big Mac. (10.8)	31.24	2.43	
Hungry Jacks cheese burger (12.3)	37.12	3.02	
McDonalds cheese burger (10.2)	32.3	3.02	

Source: Attard D., Mansour P., Mariani M. and Sinclair A. RMIT Victoria. 1993,95,97. (Unpublished)





The extra energy content for men came from alcoholic beverages, particularly beer. Australian men and women aged over 19 years consumed an average of 32.5% energy as fat with 12.7% saturated, 11.8% monounsaturated and 5% polyunsaturated.

Fats and oils as separate line items contribute 4% of total energy to adults aged over 19 (butter, margarine, oils and copha). This leaves 28% of energy as fat accounted for in dairy, meat and processed foods. The high volume line item 'cereal based products and dishes', which includes biscuits, cakes, pies, fried rice, pizza, vol au vents, quiche, gnocchi, lasagne, commercial hamburgers, croissants, pancakes, and pies and pasties represent 15 % of total energy, meat and poultry 15%, and milk products 11% of total energy respectively. These are the major hidden sources of saturated and trans fatty acids in the Australian diet.

The dairy blends and butter have been analysed for TFAs representing 3.8% of total fat, lard 0.4% and dripping 3.6%, giving a total of 8% of total fat TFA content accounted for in dairy and meat based TFAs (Mansour and Sinclair, 1993). Using these calculations 9.3% of energy as fat is derived from meat and dairy, of which about 1% is derived from TFAs. Ice confections containing TFAs have not been analysed, and do represent a possible source of TFAs as shown in the TRANSFAIR study.

This leaves 5.4% of energy as fat in the 'cereal based products and dishes', based on the differences, with no official analyses of the TFA content available except those given in Table 3. Snack foods like potato crisps and fast foods like french fries are not included in these items, and would constitute a separate exposure to TFAs.

The intake data and the consumption data differ as expected, with more weight attributable to the intake data even if generally underreported. The approach used for the TRANSFAIR study, identifying the 100 high volume high fat items in the National Dietary Survey, and routinely monitoring these items for trans fatty acids over time is useful. In the European Study each country was very distinctive in the selected foods, and this would apply in Australia with ethnic cuisines like meat pies, hamburgers and lamingtons as high volume items. The Australian Institute of Health and Welfare and ABS will have estimates of the volume consumption of these items, as well as table margarine and butter from the National Nutrition Survey available later in 1998. The Neilson Survey 1997 shows Meadow Lea (9 –13% TFA) the highest volume margarine followed by Flora.

Personal communication with Oil Seed manufacturers verify the trends in the published figures up to 1998 with a continuing increase in consumption of oils of approximately 4% pa and continuing replacement of polyunsaturated oils with canola and olive oils for domestic purposes. Palm oil has become the leader of the food service oils. The estimate of 500,000 metric tons pa in 1997-98 is close to correct with most of the increase in food service and industry required oils. The production figures for 1994 are shown below in Table 5. Canola production is much higher in 1998 as canola becomes a larger market share. Production of Australian olive oil is still negligible and of the boutique variety.

Table 5. Annual production figures for Australian oils.

	<b>PRODUCTION ('000 metric tonnes)</b>

### **Dietary Exposure to Trans Fatty Acids**

The exposure estimate therefore for trans fatty acids is different in sources from the estimate of 1994 reported by Noakes and Nestel, but not markedly different in quantity. The exposure from table margarines and spreads has reduced and the exposure from industry based use in baked goods and take away food like meat pies has increased. The exposure from the dairy food component appears stable, but seasonal, and from the meat component reduced due to less apparent consumption. The unpublished data of Attard *et al.* is the most informative in terms of common high volume items in the 'take away' category and could serve as a baseline for monitoring changes in this group which is expanding most rapidly. The Europeans TRANSFAIR study 1998 is not complete but would be a benchmark for comparison.

The per capita consumption of fats and oils in Australia is estimated at 27-30kg pa. Comparatively, the USA is 44kg pa and China is 9kg pa. The increasing use of palm oil in Australia is seen in the 5.6kg/capita versus 1.2 kg/capita in the USA. Tallow is around 4kg /capita in Australia and the USA. The amount of hydrogenated oils used in Australia in manufacturing is slowly increasing as prepared convenience foods increase in market share. The retail margarines and spreads are decreasing their TFA content simultaneously, with canola based margarines rapidly taking an increasingly larger market share.

As a very approximate estimate using production and disappearance data, (wastage not calculated) and dietary assessment methodology, (underreported in some demographic groups), the Australian intake is in the range of 3 to 12 g/day or 5 to 7 % of total fat. The inter-individual variation is immense with the table margarine component reduced and the convenience food component increased over the past 4 years. This estimate includes TFAs of all origins, animal and vegetable. There is no precision and no accuracy in the estimate, the estimate is lower than the estimate from the US and Canada, (8-13g/day) and Europe (8-10g/day) and there is no available Australian longitudinal data except for margarines and spreads.

Using ABS consumption data 1991-92 for butter, margarine, whole milk, cheese and meat intake has been estimated at 3 to 5gm/capita/day in 1992. (Note that baked goods and take away and convenience foods are not included). This estimate attempts to take account of the increasing use of convenience foods, and the increasing proportion of TFAs in baked goods like meat pies and pastries which use hydrogenated vegetable oils for preference as shortening to ensure pastry firmness. It assumes that the 10% market share of non-TFA containing frying oils with a low saturated fat content is increasing slowly over time at the commercial level despite the higher cost. As a percentage of total energy at the consumption level, oils and fats represent half and table spreads the other half. Until a consistent monitoring system is in place it is impossible to state with any certainty whether the TFA component of the Australian food supply is increasing, decreasing or stabilised but with different sources of TFAs. Most of the commercial fast food sources are not required to provide labelling information or point of sale information on their products, as they are in the USA, and this exposure is almost certainly the fastest growing one in the food supply for both saturated and trans fatty acids.

The exposure of specified age groups and changed family structures to the increase in the TFA level from the take away food sector in Australia and New Zealand may prove to be important in cardiovascular risk reduction from saturated and trans fatty acids.

### **Presence and Use of Different Fatty Acids in Food Production**

Animal fats contain 2-9% TFA due to bacterial hydrogenation in the rumen, and TFAs are consequently found in milk fat, products containing milk like ice cream, yoghurt, cream, butter and cheese, and in beef and mutton fat. TFAs found in pork and poultry are derived from their feed. These animal sources represent about a third of normal intake of TFAs on a population base. Ruminant TFAs consist of mainly octadienoic acid, sourced from pasture and feed linoleic and linolenic acids.

Unsaturated fatty acids of plant origin essentially have a cis configuration, which when hydrogenated in the presence of a nickel catalyst, under controlled conditions, causes isomerisation at the hydrogenated surface and migration along the hydrocarbon chain to produce a mixture of positional isomers with the desired semi-solid plasticity to use in margarines and shortenings.

The bakery industry uses hydrogenated shortenings like hydrogenated cottonseed and palm oils in shortening because of the stability of the beta prime crystal formation. They are important for good aeration, creaming properties and prevention of spread in cookies during baking. Palm oil is preferred for the biscuit and baked goods industry. The absence of linolenic acid is seen as positive for flavor, the semi-solid consistency is good for flakiness, and it is oxidatively stable, increasing the shelf life.

Most of the trans fats produced commercially are monoenes, with some polyunsaturated trans isomers. As the degree of hydrogenation increases, the proportion of polyunsaturates decreases, mono and trans fatty acids increase and saturates increase slightly. A hydrogenated fat that is solid at room temperature typically contains 15-25% TFAs. Hydrogenation of vegetable fats produces mainly 9,10 and 11 trans isomers of 18-chain length. Hydrogenation of fish oils produces 16c to 22c with some dienoic acid isomers.

Since the publication of the epidemiological evidence linking TFA content with coronary artery disease, food scientists, agricultural scientists and molecular biologists have been working to eliminate the TFAs in the margarine making process. These include modifications of the hydrogenation process using lower temperatures and fresher catalyst, interesterification to raise the melting point of vegetable fats without affecting the degree of saturation or isomerisation, and genetic engineering techniques with oilseed where stearic acid (saturated but neutral) is introduced. Collectively all of these techniques will potentially contribute to a significant decrease in the TFA content of the Australian diet.

## **HEALTH RELATED EFFECTS OF CONSUMPTION**

### **Scientific Studies**

The publication in 1990 of the paper by Mensink and Katan in the New England Journal of Medicine implicated elaidic acid, 9t-18:1, substituted for oleic 9c-18:1 in increased total and LDL cholesterol and decreased HDL cholesterol. The hypercholesterolemic effect was about half that of a mixture of saturated fatty acids (lauric, myristic and palmitic). The dose was high, 11% of energy. Subsequent studies at lower doses by Zock and Katan (1992) compared the effect of a linoleic acid rich diet, a TFA rich diet, and a stearic acid rich diet. At 7% of energy the TFA diet increased LDL cholesterol and decreased HDL cholesterol when TFA substituted for linoleic acid. This was verified by Noakes and Nestel (1994) with a 3 week diet with 7% of energy as mainly elaidic acid, showing no significant differences in LDL cholesterol when compared with isocaloric diets containing palmitic acid or butter fat and a significant difference with oleic acid. The Zock and Katan study points out that table margarines with no TFAs, made from unmodified sunflower oil and stearic acid rich stock have been sold in Europe and the USA for many years.

A recent study from Garland *et al.* (1998) compared fatty acid levels in adipose tissue with fatty acid intake in 140 female participants and found that polyunsaturated and trans fatty acids correlated with dietary intake. The trans fatty acids from vegetable sources showed a much stronger correlation than trans fatty acids from animal sources; the vegetable sourced TFAs have been shown to be the predictive of coronary artery disease in some epidemiological studies (see next section). Depot fat has a half-life of about two years so fatty acid content is a good estimate of background diet. In a cross sectional study Siguel and Lerman (1993) found a positive association between plasma TFAs and angiographically documented coronary artery disease in 47 subjects. Trans 16:1 and 18:2 were significantly higher than controls. Diet records of margarine versus animal fat consumption were not mentioned.

The metabolic fate of the animal TFAs is not clear, the mechanism of atherogenesis for vegetable origin TFAs is not clear, and the effects of the combination of different vegetable oil sourced TFAs are not clear. Combining animal and vegetable sourced TFAs appears incorrect at this point until more work is completed on effects of the myriad of TFAs generated. Elaidic acid is the only well defined atherogenic TFA. Lipoprotein [a] (Lpa) is a validated risk factor for cardiovascular disease. Serum concentrations are thought to be largely genetically determined with a steady increase

with age. The dietary studies of Mensink and Nestel in 1992 implicated TFAs in a significant increase in Lp(a) when TFAs were 7% or more of energy.

### **The Foetus and the Neonate**

Large amounts per kilogram of long chain essential fatty acids (EFAs) are required for development in the brain and retina of the foetus and neonate from the 25<sup>th</sup> week of gestation and the first 3-4 months post-natally. Almost all the EFAs in the brain are arachidonic, eicosonic, and docosahexaenoic acids (20:4, 22:4, 22:6). Linoleic and linolenic must be supplied by the diet as substrate for 22:4 (n-6) and 22:6 (n-3) EFAs. Depletion can cause learning disability and impaired vision.

TFAs of 18:1 and partially hydrogenated soy bean oil impair metabolism of EFAs, even in the presence of dietary linoleic acid. Neonates at birth are EFA deficient (Wahle and James, 1993) and have a limited capacity to transform precursors into n-6 and n-3 for brain deposition (Koletzko, 1993). Small quantities of 18:3 (n-6) in infant formula are the only substrate for EFA 22:6 (n-3). There is some evidence in animal studies that feeding of TFAs can cause lower birth weight and impaired post natal weight gain. (Hill *et al.*, 1982). TFAs are maternal in origin in the neonate demonstrated by comparable levels in cord and maternal plasma lipids at birth.

Breast fed infants receive TFAs in their mothers milk, related to the diet of the previous day. Breast milk levels rise by 0.4% for every 1% increase in dietary intake.

The exposure during the third trimester of pregnancy and during the first three months of breast feeding to high levels of TFAs in the diet is a recently recognised risk, particularly for premature babies who are receiving breast milk. The Danish Nutrition Council has officially recommended reduction of TFA intakes from **vegetable** sources to an average of 2g/day for pregnant and lactating mothers, and require TFA labelling in the nutrition information panel. The Netherlands have required mandatory labelling of TFA content in margarines since 1995, this has resulted in reduction of TFA content.

### **Epidemiological Studies**

A recent prospective study from the Nurses Health Study (Hu *et al.*, 1997), found polyunsaturated fatty acids to be the most protective against coronary artery disease, and saturated and trans fatty acids of vegetable origin increased the risk. The same group from Willett's department (Garland *et al.*, 1998) showed that polyunsaturated and trans fatty acids from vegetable oils correlated with recorded dietary intakes of fatty acids. Ascherio *et al.* (1994), in a case control study, found that intake of partially hydrogenated vegetable oils was associated with coronary disease risk. Medians of the lowest and highest quintiles of intake in a matched case control study were 3.05g/day and 3.47g/day, energy adjusted. Adjusted for cardiovascular risk factors the relative risk between validated myocardial infarction and TFA intake was 3.65 for women and 2.17 for men. Hydrogenated vegetable fats contributed 74% of total trans intake. There is a consistency in these studies, but they are all from the same Harvard group, and the TFA compositional analysis used is 32% for hard margarines and 17.5% for soft margarines, which is now high in the USA and Australian context for the Unilever group of margarines. However Attard *et al.*'s (unpublished) analysis of some

Australian margarine does show the highest volume retail 'soft' margarine at between 9 and 13 % TFA content.

In the EURAMIC study (Kohlmeier *et al.*, 1997) 700 European women from 5 countries participated in a prospective study where their adipose tissue levels of fatty acids were measured. Lower levels of polyunsaturated fatty acids, combined with higher levels of TFAs was associated with breast cancer. This is the only epidemiological study to report a link. Roberts (1995) reviewed the literature and found no evidence of association between TFA and cancer in animal and human studies. London *et al* (1993) found no association between trans, poly, mono and long chain fatty acids in adipose tissue and breast cancer.

The conclusions drawn by the British Nutrition Foundation in 1995 were that the average amounts of TFAs consumed in the UK constitute a small risk, there is defined risk for higher intakes, and that the UK food supply should attempt to decrease the current intake. These views have not been changed and are supported by the British Institute of Food Science and Technology (1997).

The work of Koletzko (1994) in Germany and Houwelingen and Hornstra (1994) in the Netherlands have demonstrated that TFAs in the diet of up to 3% of energy increase the need for essential fatty acids in the foetus/neonate. These authors were in disagreement with the British Nutrition Foundation and the USA FDA on the hypothesised placental barrier to TFAs which does not appear to exist. The more recent Position Paper from the USA task force on TFAs in 1996, point out that human studies in pregnancy and lactation are rare and inconclusive. The British IFST go further and suggest that neonates, particularly premature infants are borderline deficient in EFAs, so a reduction in TFAs for lactating mothers may be appropriate.

## **EVALUATION OF PUBLIC HEALTH IMPACT**

Australian data sources of the TFA content of the foods most commonly consumed are not extensive and not ongoing. Foods identified in Europe and the USA as being high volume items that consistently contribute to the TFA content of the diet are not measured for TFA content in Australia. New Zealand has a more extensive database of fatty acids in their food supply from the Crop and Field Institute, performed on a monitoring basis. The foods requiring regular analysis include breads, baked goods including cakes, fried convenience foods, dairy products and the Australian high consumption items of fried chips, meat pie, pastie and sausage roll. Soft retail margarines and hard commercial margarines are analysed by industry. The New Zealand data on the commonly consumed foods is lower in TFA content than USA and Europe, but higher in saturated fatty acid than the USA and Europe, almost certainly because tallow is used commercially at higher levels.

The data supplied by Attard *et al.*, when combined with ABS dietary survey volume data, not yet published but available, and Neilson high volume items at the retail level (which does not include takeaway), will provide a more realistic current estimate of TFA exposure. There is no reason to believe Australia will be very different from the USA and the Europeans except for locally popular dishes like meat pies, vanilla slices and lamingtons. French fries appear to transcend all cultural borders. The fat they are cooked in varies and is usually high in saturated fatty acid for crispness of taste.

The risk for cardiovascular disease appears to be confined to TFAs of vegetable origin. The balance that is required to replace saturated fats of animal origin with polyunsaturated fat, or monounsaturated fat, in the food supply has carried the risk of TFAs being introduced for the past 20 years. Food technology using interesterification and genetic manipulation of oil seeds has rapidly decreased the exposure to TFAs in soft margarines.

The major exposure to TFAs in Australia currently will be in the take away and baked goods, not extensively and systematically monitored. The soft margarine exposure has decreased and the hard margarine increased. The dairy food and meat exposure has not been measured, on current evidence is less harmful, and would be seasonal, stable or decreasing due to decreased consumption.

New Zealand uses tallow based shortenings in baked goods, Australia uses a mixture but has moved from tallow based shortenings to palm oil and cotton seed oils with different degrees of hydrogenation depending on the taste requirements. Table margarines have increasingly become monounsaturated (canola and olive), increasing the mono component of the fatty acid profile of the food supply at the expense of polyunsaturated.

The epidemiological evidence of the decline in rates of cardiovascular disease in the USA and Australia, and the later decline in coronary mortality in the UK and New Zealand can be associated with the increase in polyunsaturated (n:6) fat intake. Saturated fat intake fell by 20-25% and polyunsaturated intake doubled. The plasma cholesterol of the USA fell during the 1960s and 1970s. The TFA content of the soft margarines was higher at that point in time so the relative risk of TFA content, versus saturated content, of fatty acids is in favour of the polyunsaturated, even containing TFAs. The Australian food supply has moved toward a monounsaturated fat content in soft margarines, containing less TFAs but less protective for cardiovascular disease. Monounsaturates do not lower LDL cholesterol as much as polyunsaturates do and have the same effect on HDL. Neither mono or polyunsaturates have a significant effect on thrombosis. The omega-3 fish oils (polyunsaturated) do appear to be beneficial. Replacement of saturates by monounsaturates is beneficial as monounsaturates are neutral.

Canola monounsaturated soft margarines are the dominant products in Australia as shown in the supply data (Table 5), partly because they are very profitable for farmers compared to other crops (\$400/ton). The recent decline in polyunsaturated products in Australia has yet to be reflected in any cardiovascular morbidity and mortality figures. The popularity of the Mediterranean-style diet with up to 40% of energy as monounsaturated fat has been a recent phenomenon still being examined in epidemiological studies. Olive oil is the oil of choice, although many olive oil brands are blended with soy oil and other vegetable oils. This switch to monounsaturated fatty acids, not due to TFA content, but fashion, does not seem to have occurred with the same impact in New Zealand. It appears ironic that the change has occurred as industry is attempting to remove TFAs from retail table margarines, whilst the saturated and TFA content of food service fats and oils is increasing by an unknown amount. The food service and industrial sector is a fast growing high volume sector, so as one source of TFA is eliminated another source of both saturates and TFAs appears in the fast food sector.

The public health impact of replacement of EFAs in mother's milk by TFAs should not be discounted despite the current lack of evidence from multiple studies. The Danish Nutrition Council has obviously felt sufficiently concerned to make a recommendation to pregnant and lactating mothers restrict trans fatty acid intake from vegetables to 2g/day.

## **CONCLUSION**

Analysis for TFAs in a consistent and monitored fashion, as has been recently conducted across the EU using the 100 high volume items identified in each country as a source of TFAs, would clarify the exposure and the changes in exposure in the Australian context. It would allow benchmarking against New Zealand and the EU, and provide an epidemiological tool to track the changes in the science of fatty acid metabolism.

Based on previous epidemiological data of the effects of polyunsaturated fatty acids on cardiovascular health, the relative risk of vegetable TFAs in the food supply, in the context of a reduction in saturated fatty acid intake, appears small. There is currently no real evidence of carcinogenic effects of TFAs. The highest relative risk, and possibly the most important from a public health point of view, is the validated substitution of EFAs in the neonate and foetus with TFAs, implicating TFA at normal levels with EFA deficiency in the rapidly developing infant who is breast fed, and particularly in premature infants who are EFA deficient.



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**Appendix III. Reference values for an interpretive element**

Based on 8700 kilojoules (2100 kcal) a day for adults and children over 4 only.

<b>Food component</b>	<b>Reference Amount</b>	<b>Basis for Reference Amount</b>	<b>Source of health Recommendations for Reference Amount</b>
Protein	50 g*	Protein based on average for RDI for men (55g) and non-pregnant, no-lactating women (45g)	Australian RDI, as per NHMRC 1991 <sup>1</sup>
Fat	70 g	Fat based on 30 percent of energy	CDHSH 1994 <sup>2</sup>
Saturated fat	24 g	Saturated fat based on 10 percent of energy	CDHSH 1994 <sup>2</sup>
Carbohydrate – total	310 g	Carbohydrate based on difference and cross-referenced with survey data and international targets (60 percent of energy)	No RDI or targets set. US value for labelling set at 60 percent of energy
Sodium	2300 mg/day		Better Health Commission Target, Commonwealth Dept Health, 1987 <sup>3</sup>

\* This value is used here as an average representation.

[RDI for protein for other groups are: infants under 1 year: 1.6g/kg body weight; children 1-3 yrs, 14-18 g; children 4-7 yrs, 18-24 g; children 8-11 yrs, 27-39 g; children 12-15 yrs, 42-60 g; 16-18 yrs, 57-70 g; pregnant women, 51 g; lactating women, 61 g.]

<sup>1</sup> NHMRC = National Health and Medical Research Council. Recommended dietary intakes for use in Australia. AGPS Canberra, 1991.

<sup>2</sup> CDHSH = Commonwealth Department of Human Services and Health. Better health outcomes for Australians . National goals, targets and strategies for better health outcomes into the next century. Commonwealth Department of Human Services and Health, Canberra, 1994.

<sup>3</sup> Commonwealth Department of Health. Towards better nutrition for Australians. Report of the Nutrition taskforce of the Better Health Commission'. AGPS Canberra, 1987

**Appendix IV. Findings from ANZFA conducted consumer research on an interpretive element**

**CONSUMER REACTIONS TO THREE DIFFERENT NUTRITION INFORMATION PANEL FORMATS**

**EXECUTIVE SUMMARY**

**Introduction**

Four groups sessions were conducted in Australia and New Zealand during October 1998 to evaluate consumer reactions to the inclusion of an interpretive element in nutrition information panels (NIPs). The interpretive element was called '%Daily Intake'. Percent Daily Intakes for each nutrient were calculated from an average Australian and New Zealand adult daily intake of 8700kJ and from Australian national nutrition targets. The hypotheses were that:

H1: Consumers will use %Daily Intake information in decision making more frequently than g/100g and g/serve and will make better nutrition decisions.

H2: Consumers will make better nutrition decisions and have more positive attitudes to NIPs when a '%Daily Intake' column is added to a traditional NIP.

H3: Consumers will make better nutrition decisions and have more positive attitudes to NIPs when a per 100g column in a traditional NIP is replaced by a '%Daily Intake' column.

**Method**

The sessions included both quantitative and qualitative elements. They focussed on three different NIPs. The control label expressed nutrient information using the current traditional format of grams per 100 grams (g/100g) and grams per serve (g/serve). A DI replaced format provided '% Daily Intake' (%DI) values as well as g/serve while a DI supplement format expressed all three unit expressions: namely %DI, g/100g and g/serve. Participants completed a self-administered questionnaire in the first part of the session which principally involved making nutritional decisions about single foods and alternative foods using each of the labels. A brief description of daily intake was given in the questionnaire and all food comparison tasks used standardised serving sizes. The order of the labels was randomised within each group. Participants also rated each label format on seven variables which focussed on their informative value and their ease of use under different shopping conditions. They then completed a food comparison task using the control label but with different serving sizes and rated it according to three shopping criteria. Finally participants chose the format which they most preferred.

The qualitative component consisted of a focus group discussion in which participants discussed shopping behaviours and attitudes, attitudes to NIPs and reactions to each of the label formats used in the questionnaire. They finally compared the formats in terms of their relevance in a supermarket environment. Each session consisted of at least six people who were recruited by marketing research companies. A total of 27 participants took part in the study. Participants were mainly responsible for food buying in the household and groups reflected a mix of frequent and infrequent NIP readers, a range of socio-economic levels and age levels between 20 and 65 years. Women were predominantly selected in accordance with shopper sex ratios.

### **Key findings**

- NIPs have a role in food labelling as an accountability measure. They are perceived to be credible and are used by consumers to verify other labelling elements such as nutrient claims and emotive language.
- Participants wanted NIPs to be compulsory. Some however said they did not want it if it involved an increase in the price of food.
- Consistent and standardised NIP regulations in conjunction with education were seen as fundamental principals for achieving effective NIPs.
- Most participants consistently used information about fat and saturated fat when making decisions about foods in the questionnaire, while sodium, sugar, dietary fibre and energy which were also frequently used, appeared to be dependent on the type of food product being examined and the level of difference between foods. This was verified in the focus group discussions.
- There was some confusion about the relationship between 'fat' and 'saturated fat', grams and milligrams and energy and kilojoules. Abbreviations such as '<' and 'Tr' were well understood.
- Participants interpreted fat and saturated fat content most successfully and had most difficulty with carbohydrate and sodium information. Difficulties may have arisen in single food assessments because nutrient values were compared with each other or the full percentage or 100 scale was used in judging nutrients or because some participants lacked knowledge about nutrient recommendations. The principal fault in comparing products was to judge minimal numerical differences as being important.
- Overall participants mostly sought information expressed as %DI (59%), followed by g/serve (50%), then g/100g (39%) when making nutrition assessments (single food judgements and food comparisons). Findings from the questionnaire showed that %DI was used for single food judgements more than food comparison tasks which was verified in the focus group discussions. Grams per serve was used about equally for food comparisons and single food assessments. About half the participants used g/serve when comparing products in the control format with different serving sizes. They said that they compensated the differences with a proportional factor, which was reportedly difficult to do. Grams per 100g was the least

used unit expression in both food comparison and single food tasks. Some people did not appear to comprehend that 'per 100g' was synonymous with percentages.

- Although frequently used, many participants disliked g/serve because of its generalisation. They thought the information was most likely to be of use to people with health related problems, but they weren't actually sure whether such precision was required.
- Percent Daily Intake was strongly liked by some participants because they felt they could immediately relate it to their daily requirements.
- The DI supplement label performed best on single food tasks (62% made correct nutrient assessments). There was no difference between the DI replaced and control labels (57% and 58% were correct).
- The DI replaced label performed best on comparative tasks (84% made correct nutrient assessments). There was little difference between the control and DI supplement label (73% and 76% were correct).
- Participants performed no better when using %DI information compared to g/serve and g/100g information
- Consumers most preferred the control label (44%), followed by the DI supplement label (37%) and DI replaced label (19%) in the questionnaire. The control label was liked because of its simplicity. The DI supplement label was liked because it offered choice. However some found the amount of information overwhelming and numbers were difficult to keep track of when comparing products. The DI replaced label was disliked because it did not carry g/100g information. Some said they would have liked the label if g/serve were replaced with g/100g.
- Declaration of the average daily energy intake in kilojoules at the bottom of the DI replaced and DI supplement labels was appreciated by some participants.
- Overall ratings for the labels when shopping under different circumstances were highest with the control format when serving sizes were standardised. However the format was no better or was worse than the other labels when servings in the control format were different between products. The DI replaced label performed second overall.

## **Discussion**

Hypothesis 1 was partially supported because participants used %DI more frequently than other unit expressions. It suggests that %DI is valued information. However it did not improve decision making. In conjunction with other findings, it seems that %DI should only be considered as additional voluntary information to the present NIP format which uses g/serve and g/100g information.

There was no support for the second hypothesis. The addition of a third column in the DI supplement label, familiarity with the control label and incorrect judgements using %DI information all provide plausible reasons why the DI supplement label did not result in better decision making or higher attitudes than the control. Visual simplicity



in the control label appeared to slightly override the need for more information, though this view was not supported by many participants. Overall then the DI supplement label was not considered suitable as a standard format for NIPs. However if additional information is permitted on a prescribed NIP then %DI should be considered and should be presented in a manner similar to the DI supplement label, but with each unit expression clearly defined as a column. Education would be needed to introduce the daily intake concept and could be achieved *via* short sharp promotions.

There was little support for the third hypothesis. It performed significantly better than the control label in food comparison tasks which was thought to be because minimal differences between products were masked using %DI as compared to g/100g. Lower preference and attitude ratings were probably due to a lack of g/100g information, because %DI was new and because the DI replaced label was not quite as visually simple as the control. It is therefore unlikely to be appropriate for a standard NIP format.

Serving sizes need to be standardised because attitudes to the control label decreased significantly when they were not standardised and many participants used g/serve information when comparing foods.

## RECOMMENDATIONS

1. That NIPs are made compulsory on food packages if it can be achieved with minimal increase in food costs.
2. That a standard format is prescribed for all NIPs. In particular nutrients and unit expressions should be listed in a specified order, using specified names and specified measurements.
3. Serving sizes should be standardised.
4. That total fat, saturated fat, sodium, sugar, dietary fibre and energy be considered as part of a standard format for NIPs. The term 'total fat' should be used instead of 'fat'.
5. If the terms 'energy' and 'kilojoules' are prescribed as part of a standard format for NIPs then manufacturers should be encouraged to state the average energy intake in kilojoules for Australians and New Zealanders, below the NIP.
6. That g/100g and g/serve be used as the only unit expressions in a standard format, but that %DI be permitted as an additional expression.
7. If %DI is used as an additional unit expression, then the label format should be similar to the DI supplement label but with all three unit expressions clearly identified as columns.
8. That an education campaign be undertaken to inform consumers on how to read NIPs.
9. That an education campaign in the form of short promotions be undertaken to introduce the concept of %DI to consumers if manufacturers use the expression.

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## 1. INTRODUCTION

Research indicates that many consumers are confused by information in nutrition information panels and do not utilise it, even though they value its appearance on food labels (Jacoby *et al.*, 1977; Coronary Prevention Group, 1992; Patten *et al.*, 1994). One reason may be because people don't generally transform information to any extent but instead process it in the form given. The realities of shopping in supermarkets and the lack of nutrition label knowledge means that few can interpret whether a particular food contains a lot of a nutrient or not and even fewer can convert g/100g and g/serving information into nutrient density information (CPG, 1992).

Reference information therefore requires consideration in the design of NIPs. It provides a standard with which to interpret a message, thereby enabling people to make informed decisions even though they may know little about the subject. NIP information, when expressed in terms of nutrient density, has particular relevance because it relates to health recommendations. Nutrient density information such as %RDA (percent Recommended Daily Allowance) describes the amount of nutritional value, in terms of a Daily Reference Value (DRV) that a consumer will receive from a food, relative to the amount of energy (in terms of some estimate of daily needs) that food will provide. In other words it tells you how much of the recommended daily amount will be consumed in one serving of food. For instance, if a food has a 50% RDA for folate then half of the daily requirements for folate can be obtained from eating one serving of that food.

Consumers can therefore quickly interpret the relative nutritional significance of a food in the context of their total daily diet. One example in use is %DV (percent Daily Value) per serving. Daily values in the U.S. are based on a 2000 calorie daily diet and refer to two dietary standards: DRVs which are used for macronutrients and for cholesterol, sodium and potassium and RDIs (Reference Daily Intake) which have replaced USRDAs (United States recommended daily allowance).

Research into the usefulness of nutrient density information for NIPs has so far been inconclusive. Moorman (1990) demonstrated that %USRDA increased subjects' comprehension levels for certain judgments such as calculating the number of servings needed to fulfil the daily requirement for a particular nutrient. A second study also showed partial support in that an interaction between reference information and nutrition value occurred. When reference information was provided, purchase likelihood and accuracy increased for a product with higher nutrition value and decreased for a product with lower nutrition value (Burton *et al.*, 1994). A later study which examined the effects of the US Nutrition Labelling and Education Act (NLEA) found that consumers acquired and comprehended more nutrition information in the post-NLEA period than in the pre-NLEA condition. Motivation levels and nutrition knowledge did not determine comprehensibility in study participants implying a degree of equity in label design (Moorman, 1996).

In contrast, participants' judgments of a product's overall healthiness were not improved by the provision of %DVs or %USRDA in four studies, irrespective of whether comprehension tasks were based on comparing product alternatives or making single product assessments (Barone *et al.*, 1996; Burton *et al.*, 1994; Levy *et al.*, 1991; Brucks *et al.*, 1984). Presentation of nutrient density in a bar graph format

added no advantage to a graphic label without nutrient density either (Rudd, 1986). This may be because of specific contrasting effects. For instance, Barone *et al.*, (1996) found that while subjects correctly perceived products as being healthier in terms of fibre content when fibre levels were high compared to when they were low, they incorrectly rated high sodium products as healthier in sodium compared to low sodium products. The authors concluded that consumers may simply assume that higher percentages of DV are always more desirable than lower percentages. This has serious implications for nutrients like fat and sodium and therefore requires further study. Other disadvantages with nutrient density relate to definitions of appropriate serving sizes and daily calorie needs because of varying age, sex, activity levels, health status and other factors. Rudd (1989) showed that varying the calorie base level on a graphical nutrient density food label affected consumer estimations of nutritional quality: as the calorie base used declined (from 2500 calories, to 2000 then 1500 calories) so too did food quality estimations. In addition shoppers perceived nutritionally identical foods as higher in quality when a calorie base identification statement was present on a food label compared to when it was not present.

Lastly it is unclear whether DRVs are better presented numerically or graphically. Consumers in a U.K. Coronary Prevention Group study (1992) appeared to be most effective with DRVs when presented graphically whereas a U.S. focus group discussion study found a numerical format preferable to pie charts and bar graphs (Lewis and Yetley, 1992).

Such inconclusive results has led ANZFA to propose further testing of label formats, particularly in terms of the relevance of nutrient density information. The purpose of this study was therefore to evaluate a NIP with reference information in the form of '%Daily Intake'. The hypotheses were that:

H1: Consumers will use %Daily Intake information in decision making more frequently than g/100g and g/serve and will make better nutrition decisions.

H2: Consumers will make better nutrition decisions and have more positive attitudes to NIPs when a '%Daily Intake' column is added to a traditional NIP.

H3: Consumers will make better nutrition decisions and have more positive attitudes to NIPs when a per 100g column in a traditional NIP is replaced by a %Daily Intake column.

## **2. METHOD**

### **2.1 Procedure**

A small group session was designed with both quantitative and qualitative components. It consisted of a questionnaire which participants worked on individually in the first part of the session and then a focussed discussion. The session was conducted four times during October 1998: twice in Melbourne, Australia and twice in Wellington, New Zealand. The moderators' discussion outline and the questionnaires were developed by a consumer research team made up of an ANZFA staff and two communication consultants. One communication consultant moderated the sessions in Australia and one moderated in New Zealand. The sessions took between one and a half and two and a quarter hours. The discussions were either

audio-recorded or video and audio recorded and transcribed for analysis by the consumer research team.

## 2.2 Participants

Participants were recruited by a marketing research company in each country, using strict selection criteria. The main criteria were that participants were primarily responsible for shopping for food in their household. They were also selected so that a range of people was represented in each group. The groups comprised an equal mix of frequent and infrequent nutrition label readers, varying ages between 20 and 65 years and varying socio-economic groups. Women were mostly represented in accordance with a shopper ratio of 7:3. Seven or eight participants were recruited for each group to assure at least six persons present. People were paid \$30 for their participation.

## 2.3 Development and administration of the questionnaire

A self-administered questionnaire was developed and pretested to assess respondents' use of and preference for three different nutrition label formats (Figure 1). The formats were similar in that they listed the energy content first, followed by the amount of fat, saturated fat, total carbohydrate, sugars, dietary fibre, protein and sodium. They differed however in the unit expressions. In the control label, information was expressed as grams per 100 grams (g/100g) and grams per serve (g/serve), which is the format currently prescribed in the Australian Food Standards Code and the New Zealand Food Regulations. The DI replaced format provided %Daily Intake (%DI) and g/serve information. Daily Intakes were based on an average daily intake of 8700kJ, which is the average intake for men and women in Australia (9265kJ) and New Zealand (8200kJ) (Australian Bureau of Statistics, 1997; Howarth *et al.*, 1991). Australian national nutrition targets were used to develop daily intakes for nutrients (Table 1). More detail on the reference amounts for Daily Intakes and the workings for determining %DIs is provided in the appendix.

Table 1. Daily Intakes for nutrients

The DI supplement label expressed nutrient information in g/100g, g/serve and as a %DI. Gram per serve (g/serve) information was presented beside the nutrient name so that only two columns were needed instead of three. It was hoped that this layout would reduce the visual clutter.

Figure 1. Nutrition information panels: Label A = DI supplement label; Label B = DI replaced label; Label C = control label

A statement was given on a page preceding the DI replaced and DI supplement labels in order to briefly explain %DI. It stated: 'You will notice a term called '% Daily Intake' on this next label. It tells you how much of your recommended daily amount you will eat in a serving of food.'

The background to the study and procedure were described briefly at the beginning of the questionnaire. The questionnaire took 20-75 minutes to complete.

Each participant saw all three label formats and three sets of materials (A, B and C). The three sets of materials consisted of information on five food categories: baked beans, cheese, breakfast cereal, bread and margarine. They had been selected because they offered at least two of the following: a high weekly sales volume, the availability of nutrition information panels, strong consumer nutrition associations and the ability to demonstrate a range of daily values for nutrients. Set A consisted of a NIP for baked beans which was used in single judgement tasks and two breakfast cereal NIP labels for comparative tasks. Set B comprised a cheese product (single assessment) and two breads (comparative assessment) while set C contained a breakfast cereal (single assessment) and two margarines (comparative assessment).

The order in which the labels were presented was randomised within each group session as summarised in Table 2. Thus within a group of six participants, two people received order 1, two received order 2 and two received order 3.

Table 2. Design of study. The total number of participants in each treatment order is shown in parenthesis.

Order
1 (9)
2 (9)
3 (9)

In each set (A, B or C) participants made judgements about the single food and then comparative judgements about the two foods. Participants were asked 'How would this food contribute to a healthy diet?' (for single foods) or 'Which of these foods do you think would be a wiser choice for a healthy diet?' (for food comparisons). A five point response scale from 1=very poorly to 5=very well was provided for the single food judgement, while participants could select product A, product B, 'it's impossible to tell' or 'I don't know' in the comparative assessment. In each case, they were asked to explain their judgement. They were also asked which nutrients and which unit expressions they mostly used to make their decisions. Following this they then made judgements about individual nutrients. For single foods they were asked whether the fat, fibre, sodium, carbohydrate and saturated fat were high, medium or low. For food comparisons they were asked to consider which food of two products was healthier in terms of the fat, fibre, sodium, carbohydrate and saturated fat content. In each case, they were again asked to explain their judgement.

At the end of the single food task they were asked if the label meant anything to them. Following the food comparison questions, they were asked to use a five point Likert scale to answer seven questions about the usefulness of the label format being examined. The questions related to the likelihood of using the label when buying a new or unfamiliar food, when shopping in a hurry, when shopping with plenty of time, its informative value, its ease of use, and its ease of use when making a decision about an individual food and when comparing foods. Participants were provided with space to make further comments about the label.



After participants had completed sets A-C, they all viewed nutrition information from two frozen vegetables (potato fries) presented in the control format. While serving sizes had been previously standardised in comparative tasks, they differed in this part of the questionnaire. A statement which said 'Please note the serving sizes in this next exercise' was included to ensure that all participants were aware of the difference. Participants repeated the comparative questions and then answered questions about the label's informative value, its ease of use and its ease of use when comparing foods. Again space was provided for comment.

Next participants were presented with all three label formats and asked which label they most preferred. They were then asked whether it was good to eat more of five nutrients: dietary fibre, sodium, fat, sugars and saturated fat. Finally participants answered demographic questions and questions relating to the frequency with which they looked at nutrition information when shopping, whether they were the main shopper in the household and how much they believed they followed healthy eating practices.

A copy of the questionnaire is available upon request from the authors or ANZFA.

#### **2.4 Content and design of the focus group discussion**

Each focus group discussion began with a brief warm-up in which participants introduced themselves and discussed who they shopped for, their attitudes to food shopping and what their main priorities were when buying.

Participants then began to discuss their attitudes to using NIPs while shopping. This involved a discussion about their own and other people's use of NIPs. It included consideration on whether they used NIPs, when they were most likely to use them and what information they were mostly looking for. They also discussed whether they had had experiences where NIP information was unavailable. Participants were then asked to think about the type of person who they perceived to be most likely to use NIPs and their reasons for using them as well as reasons why some people do not use them. At the end of this theme they considered the value in mandating fat and saturated fat content.

The next topic in the discussion involved examination of the label formats used in the questionnaire. Each participant was handed a sheet of paper with all three labels. They were asked to discuss their initial reaction to each of them, how easy or difficult each one had been to work with in the questionnaire, whether the information had been meaningful to them, who each label was most likely to suit and whether each label could be improved. For the control label participants were also asked to reflect upon their approach and attitudes to answering comparative questions where the serving sizes differed.

Finally participants were asked to compare the three formats in terms of their relevance in the supermarket and their ability to convey meaningful information. While the discussion was not about finding consensus about the 'best' label, they discussed which label they felt had the most potential.

A copy of the topic guide given to moderators can be found in appendix 3 to this report.

### **3 DETAILED FINDINGS**

#### **3.1 Results from the questionnaire**

Twenty-seven shoppers who were primarily responsible for buying food for the household and who fulfilled the study criteria participated in the study (see appendix for demographic details and frequency of NIP use when shopping).

##### **3.1.1 Consumers' use of NIP elements**

Overall participants mostly used information about fat (60%) and saturated fat (52%) when making nutrition judgements about foods (Table 3). More than a third also looked at other nutrients, but their interest seemed to be influenced by the type of food product being examined and by the level of difference between foods in food comparison tasks.

Participants mostly used information expressed as %DI (59%), followed by g/serve (50%) and then g/100g (39%) when making nutrition assessments (single food and food comparison tasks (Table 4). The differences were statistically significant ( $p < 0.05$ ). Percent Daily Intake was used significantly more than g/serve and g/100g when undertaking single food assessments ( $p < 0.001$ ) and g/serve and %DI were more frequently used for food comparison tasks compared to g/100g ( $p < 0.05$ ). G/100g was used least in both types of assessment.

Percent Daily Intake was used more often for single food assessments than food comparison tasks, whereas g/100g was used slightly more often for food comparisons compared to single foods. G/serve was used about equally in the two types of tasks.

About half the participants (48%) used g/serve information when comparing products in the control format with different serving sizes. Fifty-nine percent used g/100g information. These results were similar to the control format with standard serving sizes. In Table 4, 48% used g/serve information when comparing products with the control label and 52% used g/100g.

Table 4. Participants' use of unit of expressions when making nutritional assessments (n=27)

Treatment	Food	g/100g	g/serve	% Daily Intake	No expression
<i>Order 1</i> Control	Baked beans	3	6	-	2
	Breakfast cereal	4	3	-	1
DI replaced	Cheese	-	6	6	-
	Bread	-	8	2	-
DI supplement	Breakfast cereal	3	4	3	1
	Margarine	3	6	3	-
	Total	13	33	14	4
<i>Order 2</i> DI replaced	Baked beans	-	3	8	-
	Breakfast cereal	-	3	8	-
DI supplement	Cheese	2	4	7	-
	Bread	2	3	6	1
Control	Breakfast cereal	5	6	-	-
	Margarine	5	6	-	1
	Total	14	25	29	2
<i>Order 3</i> DI supplement	Baked beans	1	3	8	-
	Breakfast cereal	4	3	4	-
Control	Cheese	5	3	-	2
	Bread	5	4	-	-
DI replaced	Breakfast cereal	-	4	5	-
	Margarine	-	6	4	-
	Total	15	23	21	2
Percentage use for single food tasks		35%	48%	69%	3%
Percentage use for comparative food tasks		43%	52%	50%	2%
	Total count	42	81	64	8
	Total possible counts	108	162	108	162
Percentage use for all tasks		39%	50%	59%	5%

### 3.1.2 Consumers' label comprehension

The number of correct reasons given for each single food judgement is shown in Table 5. Each participant could have given a maximum of eight reasons for each food as there were seven nutrients plus energy. The data demonstrated that participants were selective, giving a mean of 2.1 reasons. There were no significant differences between the labels, though there was a tendency for more correct reasons to be given using the DI supplement label than the DI replaced and control labels. Few errors were

made with the label formats (Table 6) and there was no significant differences between them. Only a few participants gave reasons for the assessed healthfulness of a food that were occasionally not related directly to individual nutrients.

The number of correct reasons and errors given in each comparison of foods are shown in Tables 5 and 6. There was no significant difference between the three labels, though there was again a tendency towards more correct reasons with the DI supplement label.

Table 5. Number of correct reasons for food judgements given by participants using three NIP formats.

Food	Control (n=9)	DI replaced (n=9)	DI supplement (n=9)
<i>Single foods</i>			
Baked beans	8	20	23
Cheese	18	9	13
Breakfast cereal	16	14	13
Total	42	43	49
<i>Food comparisons with std servings</i>			
Breakfast cereal	18	21	22
Bread	20	13	17
Margarine	8	11	9
Total	46	45	48
Overall total	88	88	97
<i>Food comparison with different serving sizes (n=27)</i>	24		

Table 6. Number of errors made for judgements given by participants using three NIP formats.

Food	Control (n=9)	DI replaced (n=9)	DI supplement (n=9)
<i>Single foods</i>			
Baked beans	2	1	2
Cheese	1	2	0
Breakfast cereal	2	4	3
Total	5	7	5
<i>Food comparisons with std servings</i>			
Breakfast cereal	1	1	0
Bread	1	2	2
Margarine	1	1	3
Total	3	4	5
Overall total	8	11	10

<i>Food comparison with different serving sizes (n=27)</i>	13		
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When translating numerical nutrient information into meaningful information for a single product, participants tended to perform best with the DI supplement label (62% made correct judgements), though it was not statistically different to the DI replaced and control labels (57% and 58% correct) (Table 7). When comparing products, the DI replaced label performed best statistically (84% were correct;  $p < 0.05$ ) while there was little difference between the control and DI supplement label (73% and 76% respectively correct) (Table 7). Overall there was no significant differences between the three labels though the DI replaced format performed slightly better (71%), than the DI supplement (69%) and control labels (65%). It appeared that participants translated information about the fat and saturated fat content most successfully but had difficulty in applying the carbohydrate and sodium information.

Table 7. Number of correct assessments for nutrients in foods (n=27)

Food	Nutrient	Control (n=9)	DI replaced (n=9)	DI supplement (n=9)	
<i>Single assessments</i> Baked beans	Fat	6	8	9	
	Fibre	0	4	7	
	Sodium	8	8	8	
	Carbohydrate	1	1	1	
	Saturated fat	6	8	6	
Cheese	Fat	5	2	6	
	Fibre	8	8	8	
	Sodium	1	1	7	
	Carbohydrate	9	9	8	
Breakfast cereal	Saturated fat	6	5	8	
	Fat	9	8	6	
	Fibre	2	2	1	
	Sodium	3	4	2	
	Carbohydrate	5	1	-	
	Saturated fat	9	7	6	
	Total count (percent)	78 (58%)	76 (57%)	83 (62%)	
	<i>Food comparisons</i> Breakfast cereal	Fat	8	7	7
		Fibre	7	7	6
		Sodium	8	7	6
Carbohydrate		8	8	6	
Saturated fat		7	8	9	
Bread	Fat	5	9	7	
	Fibre	8	8	8	
	Sodium	2	4	5	
	Carbohydrate	5	7	8	
	Saturated fat	5	9	8	
Margarine	Fat	8	9	9	
	Fibre	9	9	9	
	Sodium	8	6	6	
	Carbohydrate	4	9	3	
	Saturated fat	6	7	6	
	Total count	98	114	103	
	Percentage	73%	84%	76%	
	Total percentage	65%	71%	69%	

An examination of the unit expression used in relation to nutrient comprehension revealed no significant difference (Table 8). That is, people were no better at making nutrient decisions when they used %DI information only as compared to when they used g/serve only or g/100g only.

Table 8. Percentage of correct judgements made about nutrients when using different unit expressions (n=27).

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Unit expression used

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%DI

g/serve

g/100g

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Participants were able to easily compare the fat (78%) and saturated fat (89%) content in two packets of potato fries with different serving sizes but had more difficulty comparing carbohydrates, dietary fibre and sodium (67% were correct for each nutrient).

The reasons why each participant made their decisions were examined in detail to reveal decision-making strategies. The following strategies and observations were found:

*Single food assessments*

- A common heuristic was to limit evaluations to one or two nutrients when assessing the overall value of a product.
- Participants used their nutrient knowledge of common foods to judge the worth of a single product.
- Nutrients were commonly compared against each other to judge whether they were low or high. Thus saturated fat was judged as high when its value looked high compared to the values for other nutrients. This occurred irrespective of the way the information was expressed. For instance, many participants judged a breakfast cereal product containing 12% DI for sodium, 11% DI for dietary fibre and 6% DI for carbohydrate as being both high in sodium and dietary fibre or both medium in sodium and dietary fibre and medium or low in carbohydrates when the correct answers were medium in sodium, high in dietary fibre and high in carbohydrates.
- A common strategy was to use the full percentage scale in judging a single product. Thus 5.6g dietary fibre per 100g of baked beans was perceived to be low because the value is low on a 0-100 scale. However when expressed as 40% DI, participants were more inclined to judge it as high. Such an approach did not favour any unit expression though. For example 20% DI for fat in cheese was considered to be medium by many participants because it only represented one fifth of the scale but when expressed as 35g fat per 100g, it was more likely to be judged as high.
- A couple of people ignored milligram and gram units. They therefore rated all sodium levels, which were expressed in milligrams as being high because their values were in the hundreds or thousandths while values for other nutrients were in the tens or units. One person, however, thought that because sodium was expressed in milligrams rather than grams, the content was always low.
- The fat and saturated fat contents were added to determine fat levels in food. This was demonstrated clearly by two participants.



- One person converted nutrient amounts were converted into %energy. She had been on Weight Watchers and was an avid reader of NIPs.
- Several people simply wrote the wrong answer even though they had given the right reason.
- Lack of knowledge about nutrient recommendations meant that some people made the wrong judgement. For instance at least four participants thought that carbohydrate consumption should be decreased and therefore choose products with lower values as being healthier.
- Some participants overemphasised nutrient recommendations. For instance, 2% DI for fat in baked beans was considered medium because ‘we do not need saturated fat in our diets’. Similarly carbohydrates in baked beans were assessed as medium because ‘a balanced diet needs to contain a higher proportion of carbohydrates’.
- When fat content was low in two products, one person choose the product with the higher fat content because ‘you need a little fat in the diet’.

#### *Food comparisons*

- When using the g/100g column or g/serve information, some participants judged any nutrient difference between two products as being important, even when the differences were minimal and the %DI were the same.

#### 3.1.3 Consumers' label preference

Consumers significantly preferred the control label (44%), to the DI supplement label (37%) and DI replaced label (19%;  $p < 0.001$ ) (Table 9).

Table 9. Participants' preference for label format (n=27).

Treatment order	Control (n=9)	DI replaced (n=9)	DI supplement (n=9)
Order 1	5	1	3
Order 2	4	1	4
Order 3	3	3	3
Total count	12	5	10
Percentage	44%	19%	37%

Overall the control label appeared to be most useful too (Table 10). It rated highest or about equal highest when shopping in a hurry and when shopping with plenty of time. It was most informative, easiest to use overall and easiest to use when comparing foods. However its ratings dropped dramatically on some variables when serving sizes were not standardised. For instance while the control label was most informative when serving sizes were standardised, it ranked as least informative when the serving sizes between products were different. This was probably because only 59% considered the label easy to use when comparing foods with non standardised serving sizes whereas 74% thought it easy with standard servings.

The DI replaced label seemed to be the second most useful label overall. Participants were most likely to use it when buying a new or unfamiliar food and when shopping with plenty of time. It was also perceived to be easy to use when making decisions about individual foods. The DI supplement label was worst on five out of the seven variables in Table 10 when compared to the DI replaced label and the control label with standard serving sizes.

Most participants found NIPs useful when they had plenty of time and when buying new or unfamiliar foods. However they were not likely to use them when shopping in a hurry.

#### 3.1.4 Participants' comments about the three label formats.

The DI replaced and DI supplement labels were slightly though not significantly more meaningful to participants (78%) than the control label (73%).

Of the 72 comments made about the labels only 25% were considered relevant to the study aim (Table 11). The control label was considered easy to understand but was criticised for not providing enough information, particularly reference information (Table 12). The DI replaced label was liked because it related to daily needs but some found it complicated. The DI supplement label was considered informative but it too was thought to be complicated.

Table 11. Participants' comments about label formats.

Seventy-two comments were made when asked if the labels meant anything to them.

The following category of comments were made:

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s a list of ingredients

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Table 12. Number of participants' comments made about the unit expressions for different label formats.

Comment	Control	DI replaced	DI supplement
<i>Positive comments</i>			
Easy to understand	1	-	-
Tells me what part of my dietary requirements I will consume	-	1	-
Very helpful / informative	-	-	2
<i>Negative comments</i>			
Percentage would make it easier to work out	1	-	-
Doesn't give enough information	1	-	-
No reference information / no RDIs	2	-	-

### 3.1.5 Consumers' knowledge of nutrient recommendations and their health related behaviour

Nearly all participants knew whether it was good to eat more of the following five nutrients: dietary fibre (100% correct), fat (96% correct), saturated fat (93%), sodium (85%) and sugar (89%).

Participants mostly claimed to be following healthy eating practices. On a five point Likert scale where 1= not following healthy eating practices very much and 5= following healthy eating practices very much, no one gave a value of 1 and only 7% gave a value of 2, while 59% rated 4 or 5.

## 3.2 Results from the focus group discussions

### 3.2.1 Shopping

Shopping for food is an experience that many participants said they did not particularly enjoy doing, mainly because of the routine nature, the desire to do other things and because of the complexity in having to deal with many food related issues. The majority therefore spends as little time in supermarkets as possible, using shopping lists and buying products habitually to reduce time. Habitual buying is perceived to be of low risk and requires no cognitive effort.

Price seemed to be the main determinant for participants when involved in decision making. However price was considered in relation to other factors, such as freshness, taste, nutrition content, ingredient list (particularly the amount of additives and preservatives), the amount of food processing and brand name. No one factor stood out as being most important, partly because they each depended on the type of food being considered. This then reflects the very holistic view most participants have of food. For some foods, these factors were of such importance that participants were prepared to trade off an increase in shopping time and buy from several places in order to fulfil their criteria.

Food label information was primarily important when buying food for children or for people in the household with health related problems and when considering the purchase of a new food.

### 3.2.2 Nutrition information panels (NIP)

Many participants thought that NIPs were of most use to people with dietary related health problems, people whose lifestyle is health orientated, children, consumers with analytical minds and those with good eyesight. Several women explained that NIPs were useful in not only making food decisions for children, they were also a valuable tool for justifying their purchases to them and in educating them on how to make wise choices.

People with specific diets where calories or nutrients had to be counted, were assumed to require NIPs. Some participants also argued that NIPs were essential for any person evaluating manufactured products. This was because of a general scepticism of the food system. They believed that the motives of manufacturers were to hide nutrients in products, like fats, salts and sugars in order to make consumers addicted to the taste and therefore to the product. Reading NIPs was therefore necessary. NIPs were also seen as a necessary form of accountability, whether used or not used by consumers.

The groups felt that some decisions about the nutritional content of food could be made without NIPs, but not all decisions. Some thought that a balanced diet could be maintained if only the basics were purchased. Others believed that by using education tools like the Healthy Food Pyramid, by trial and error, routine purchase, brand buying, by using label elements like nutrient claims, country of origin and ingredient lists and by examining the look of the product, consumers would have a general idea about what to eat and what not to eat. Many, particularly the New Zealand groups, also liked and used the National Heart Foundation's 'Pick the Tick' logo. Some people however argued that devices such as nutrition claims weren't always reliable. They believed that while there were regulations to specify the meaning of certain terms, they could often be misleading. For instance it was thought that terms such as 'low fat' and 'lite' could denote a high sugar or high salt product. 'Lite' was also ambiguous because it could refer to calories (kilojoules) or colour. In such situations, NIPs were used as a way of verifying nutrient claims and emotive language because they were believed to be credible.

Participants believed that some people do not look at NIP information because they may feel they have the knowledge and confidence to buy healthy foods, they may find the label complex and meaningless without NIP knowledge, some have poor eyesight or insufficient time, much of shopping is routine and therefore doesn't require evaluation, and for some people, nutrition is a low priority. Decision making about food was seen by a few participants as multi-complex because there were many elements to consider and some elements, such as nutrition and ingredients, have many attributes. One person therefore thought that only one or two elements could reasonably be considered in the evaluation of any food, which often did not include nutrition.

Every group could describe at least one specific occasion where they had looked for a NIP on a food product but had not found it.

NIPs were mostly perceived to be missing from bulk food items, non branded packaged foods, bakery products, tinned tomato products and tinned fish. Participants who were frequent label readers also expressed frustration at the inconsistency in the availability of NIPs in most product categories. They wanted them to be compulsory. One or two people however said that they did not want mandatory labelling if it involved an increase in the cost of food.

The nutrients seen as being most essential were fat, saturated fat and sodium. Other nutrients and ingredients were listed as being important too, so selection of just one or two mandatory nutrients was seen by some as impossible.

Finally, in accordance with a holistic view of food, participants often discussed NIPs in conjunction with the ingredient list, as if they were one and the same thing. It is believed that participants saw them as synonymous because they were assumed to both contain accurate information, they relate to what is contained within a product, they are written in small print, are complex and are both used by consumers when making decisions about the health value of a food.

### 3.2.3 NIP label formats

Most participants found the questionnaire exhausting, even though they were essentially only making seven food judgements. They said that the labels and products all became a blur. Unit expressions such as servings, grams and milligrams became especially confusing. One woman said that she didn't realise there were three different formats until she saw them all presented at once and was asked to select the one she most preferred. Another woman thought there were five or six different formats.

#### 3.2.3.1 Energy, nutrients, SI units and abbreviations

A couple of participants were confused by the terms fat and saturated fat. While they understood that sugars were a part of total carbohydrate they thought that saturated fat was not a component of fat; it was a separate entity. They thought that saturated fat and unsaturated fat or monounsaturated fat and polyunsaturated fat would have made more sense. Total fat and saturated fat would have also been acceptable, as it would have been consistent with total carbohydrate and sugars.

Energy and kilojoules were described as '90's yuppie terms'. They compared them to the use of grams for birthweight in that they were technical terms that have been around for awhile, but which have little meaning to consumers, particularly elderly people. One man thought that experts had deliberately tried to make NIPs complicated by using kilojoules and other technical terms like grams, rather than inches or percentages which, he said, people could visualise. Participants in other groups expressed a similar sentiment.

A few people, who were concerned about their weight, knew rough conversion factors for kilojoules to calories and one even knew calorie/gram conversions for different nutrients. Thus they alone could estimate their daily kilojoule requirements. They did not like the term kilojoules because 'the numbers look enormous'.

When one group was asked how their needs related to the prescribed 8700kJ/day, several women said that they would probably eat less while one man said he would divide by three because there are three meals in a day and accept it as that.

Some people were confused about the relationship between grams and milligrams. While they knew that one was a division of the other, values were meaningless to each other.

All four groups understood the abbreviation '<1%', though several people were at first uncertain as to whether '<' meant 'greater than' or 'less than'. Similarly nearly everyone understood or presumed that the term 'Tr' meant 'trace'.

### 3.2.3.2 Unit expressions

Participants compared the unit expressions %DI, g/serve and g/100g. Many of them did not relate to g/serve. They argued that serving sizes varied from one person to another. Some tried to visualise a serving of 253g but couldn't and therefore concluded that the unit expression was meaningless, even if it was defined. Many women felt that the serving sizes on packages were smaller than the portions that they would serve, although they also quoted exceptions such as cereals where bowls of fruit were often pictured overloaded with the product or the product was related to 'ironmen' and their cereal consumption. A few people emphasised that the serving sizes were merely a guide. One woman thought that general terms such as 'low', 'medium' or 'large' were more useful. Another participant also queried how servings related to daily nutrition. She did not know how many servings or what servings of food from all that is available in supermarkets constituted a daily balanced diet.

Most participants thought that the g/serve column was for people who needed to accurately know their intakes because of specific health problems. However they were also unsure of whether people with health problems actually used the g/serve column or not. One woman felt that in the past, people, such as those with diabetes, may have weighed specific foods but because of more information being available from support groups and societies and because of nutrient claims and ingredient lists, those same people may not now need to use g/serve information. Lists of appropriate and inappropriate foods and diets were thought to be given out by societies which a few participants thought may negate the need for g/serve information.

The groups were equally divided about how to compare two products with different serving sizes. Some of them used the g/100g column in the control label while others used the g/serve information and allowed a percentage increase to balance out the difference in serving sizes. They said that it was difficult to do and the value they came up with was only an approximate. The conclusion was that serving sizes needed to be standardised. One woman said that standardisation would help the consumer and should not affect the manufacturer unless they were using the serving size to enhance the nutritional look of an unhealthy product. Some people said that g/serve information was not for comparing products.

G/100g was seen as the tool for comparing food products. People understood that direct comparisons could be made without the need for computation. However the expression did not lend itself to single product assessments because many participants appeared to associate the term 'per' with measurement. That is, in order to make a

single assessment participants had to visualise 100g of the product and compare it to the amount eaten in a serving, then compute the actual value for a nutrient from the proportion they had estimated. This was exhausting and unrealistic to participants. When a few people tried to visualise 100g they found that they couldn't and didn't think that others could either. They felt that percentages could instantly tell them the worth of a product and was therefore much easier to work with. These people did not, therefore, appear to understand that g/100g was synonymous with percentages. Others realised the association and used the terms interchangeably.

Some people within each group were strongly in favour of %DI because they felt that they could relate the percentage amount for a nutrient to their daily needs. It was therefore a tool for single assessments. They described what the term meant by giving examples using the DI replaced label. For example, one person said, 'On an average diet of 8700kJ this is how much fat per day, it's 64% in one serve. It's a useful guideline...if it's 50% fat, then that's high; if 10% then it's reasonable.' Those that liked the unit expression said that it was an easy concept, especially from a mathematical perspective because it was presented as percentages, it gave the best indication of daily needs and the information was very useful. One person who defined herself as 'mathsophobic' said the %DI concept was much easier to deal with than g/100g and g/serve because no maths was involved. Others however did not relate to it. They either made no comment about it and made positive comments about other unit expressions, or they said that it was meaningless because of unstandardised serving sizes. There was also some dislike over the fact that it was an interpretation of the actual values made by people whose values and opinions they did not know. That is, they believed the consumer did not have the raw data to make their own interpretation. One person dismissed it because she said it was impossible to keep an account of all the percentages. Only one person clearly indicated that %DI could be used for food comparisons as well as single assessments.

### 3.2.3.3 Label presentations

There was no unanimous decision about which of the three labels was best. Most people favoured either the control label or the DI supplement label. The control label was described as being simple, clear and precise. Those that favoured the control label tended to be people who did not like change and/or who understood that g/100g was analogous to percentages. They said they did not want to be confused by a new label, that they liked old but not new currency and that their familiarity with the label meant it was easiest to understand and use when in a hurry. The g/100g was column was seen as being much more useful than the g/serve column.

Although everyone criticised the DI supplement label as being too busy, many preferred it because it catered for everyone: it provided all three expressions so consumers simply had to learn where their column was and use it. They also found the information about daily intakes at the bottom of the label useful, particularly because it stated the average energy needs of an adult in kilojoules and pointed out that daily intakes varied because of different energy requirements. Some people felt that declaration of average kilojoule intakes could help them interpret values in NIPs. Groups were able to explain that energy demands depended on lifestyle habits, sex, exercise levels, physical work and growth. Those that disliked the label said that the amount of information overwhelmed and confused them and that they would not therefore use it in a supermarket. They said they didn't know which column to use and

their eyes couldn't follow one expression when comparing foods. Instead they wanted a label which did not require glasses. This meant a label that contained less information, larger writing and good background contrast. The group of people who did not like the label did not like the statement about daily intakes varying because of energy needs as they felt that it made the concept and the stated values on the packet meaningless. The wording also made one person feel that she had not read her diet books lately. Everyone disliked the staggered presentation of the per serve column and felt that three clear columns was a preferable solution.

Most people liked the DI replaced label least of all because it did not have the g/100g column. G/100g was perceived to be the only expression useful for comparing products and was therefore considered an essential component on any NIP. Many also felt the g/serve information was redundant because 'it stretches mental powers too much'. People in two groups therefore suggested an alternative label using %DI and g/100g information. Others also indicated that daily intake for nutrients would be useful.

Overall, the groups thought that education and consistency in labelling through standardisation were the fundamental rules for designing and implementing NIPs. They therefore most wanted nutrients and expressions listed in the same order on all packages. Although many disliked change, the general sentiment appeared to be that any unit expression was feasible so long as an effective education programme accompanied its introduction. There was some cynicism though. Some people felt that those who read NIPs would make the effort to understand any changes introduced and will find them useful while those who do not will continue to not use NIPs. Also participants who were price conscious did not want to see an increase in the price of foods because of label changes.

## **4 DISCUSSION**

### **4.1 Hypothesis 1**

The critical question for this study is whether %DI is of any benefit to consumers. Hypothesis 1 stated that consumers would use %DI more frequently in decision making than g/100g and g/serve and would result in better nutrition decisions. H1 was partially supported because %DI was used significantly more than g/100g and g/serve in single food assessments. It was also used more than g/100g in food comparisons. This would therefore support the argument that %DI is value information. However H1 was not supported in terms of %DI resulting in better nutrition decisions than other unit expressions. Unfamiliarity with the use of %DI may be one reason. However it seems more likely that %DI has the same fault as g/100g in encouraging participants to use the full percentage scale to make judgements and to compare nutrient values in single food assessments. These are different faults to that found by Barone *et al.*, (1996) who determined that consumers perceive high Daily Value percentages to be advantageous to lower percentages, irrespective of the nutrient being examined. The overall findings were similar though in that the daily intake concept offered no value in terms of comprehensibility.

Overall then, the findings indicate that %DI could only be considered in NIP regulations on the basis that it was used more often than other expressions. It could



either be considered as a replacement for g/100g as it was used more often in both single food assessments and food comparisons or it could be considered as a third unit expression to the present regulations.

## 4.2 Hypothesis 2

Hypothesis 2 and 3 relate to the value of two labels which carry %DI information compared to a control label. They do not directly test %DI as in H1 because other variables were also important such as the number and type of unit expressions used. The second hypothesis was that consumers would make better nutrition decisions and have more positive attitudes to NIPs when a %DI column is added to a traditional NIP. Overall there was no support for H2, though results did indicate a non significant tendency for the DI supplement label to perform better when judging foods and nutrient levels in single food assessments. The most likely explanation for the null findings is that %DI offers no advantage with respect to label comprehension as determined in H1. The addition of an extra unit expression in the DI supplement label may have also made it difficult for participants to keep track of a particular unit expression (especially when comparing products) or they may have had difficulty choosing a particular column to use. Participants verified this in the qualitative study. Familiarity with the control label and unfamiliarity with the DI supplement label is also a plausible explanation.

It seems somewhat surprising that the DI supplement label did not result in more positive attitudes, given that participants chose to use %DI more than any other unit expression as determined in H1. In fact the reverse effect was found for two variables relating to attitudes; otherwise there was no difference between the labels. The control label had significantly higher ratings for 'shopping with plenty of time' and 'ease of label use when comparing foods'. The addition of a third column, rather than %DI information is likely to have made the DI supplement label unrealistic in a supermarket environment, particularly when comparing foods. Familiarity with the control label is also likely to have biased the results. The DI supplement label only rated higher than the control for one variable (informativeness) and that occurred when serving sizes were not standardised. Such a result probably reflected the weaknesses of serving sizes not being standardised in the control label rather than strengths with the DI supplement label.

Lastly there was no significant difference in preference between the two labels, although more people tended to prefer the standardised control label. The qualitative study indicated that the DI supplement label was liked because of its many types of information, but it was at the expense of simplicity. This therefore reiterates the notion that simplicity is of greater importance than the need for more information in a shopping environment. It suggests that the label is not suitable as a standardised format for NIPs, though it could be considered as a voluntary option when manufacturers want to provide consumers with more information. Consumers scrutinise some foods far more carefully than others, particularly new foods and those with high consumer nutrition associations (ANZFA 1996). Under such circumstances the addition of a %DI column may therefore be worthwhile because some participants highly valued it.

Educating consumers about the %DI concept would be necessary but it need not be overly prescriptive. There is some support that education in terms of a series of short

sharp promotions could be viable because participants were only provided with one sentence in the quantitative study to explain the %DI concept. Thus some promotions could merely carry a brief explanation of the term, while others could tell consumers low and high values for a nutrient because errors tended to be made when the entire percentage scale was used, and when different nutrient values were compared in order to make single food judgements.

If the DI supplement label was used by manufacturers wanting to provide additional information to a standard NIP, then consumers would become familiar with %DI whilst not being forced to use it. This is important because some participants were adverse to change. It would also provide future reviews of NIP regulations with an opportunity to investigate the effectiveness of %DI with less bias as participants would be familiar with all unit expressions.

### 4.3 Hypothesis 3

The third hypothesis stated that consumers would make better nutrition decisions and have more positive attitudes to NIPs when a per 100g column in a traditional NIP is replaced by a %DI column. Overall there was little support for H3. The only evidence shown from the quantitative research was that the DI replaced label did significantly better than the control label when participants made judgements about nutrients in food comparison tasks. This is somewhat surprising as the strength of %DI information is with single food and nutrient assessments. It may have been because the precision of g/100g information encouraged participants to consider differences as being important, even when they were minimal, whereas %DI, which was expressed as whole numbers, did not reflect such small contrasts.

There was no support for H3 in terms of attitudes, except when serving sizes were not standardised in the control label. The DI replaced label had significantly higher ratings than the control label with unstandardised serving sizes for informativeness and the ease of label use when comparing foods. Again this is likely to be due to the ineffectiveness of unstandardised servings in the control format, rather than the strength of the DI replaced label.

Significantly fewer people preferred the DI replaced label to the control format. This is probably due to a number of reasons which include lack of g/100g information in the DI replaced label, unfamiliarity with %DI and slightly more visual clutter in the DI replaced label (the only layout difference was that '%' was written beside each %DI value in the DI replaced label whereas 'g' was not written beside each value in the control label). These findings were confirmed in the qualitative study.

The DI replaced label is therefore unlikely to be an appropriate choice as a standardised format for NIP regulations. Consumers need to become familiar with the concept of %DI before its formal introduction and this may best be done *via* use of the DI supplement label when additional information is provided to the prescribed NIP.

### 4.4 Standardised vs unstandardised serving sizes

The effectiveness of the control label was seriously undermined when serving sizes were not standardised. Participants were alerted to serving size differences in a food comparison task, yet about half of them still used the g/serve column when g/100g

would have been a faster and cognitively less demanding unit expression to use. In the comparison task fat and saturated fat had values that did not highlight the difficulties associated with using g/serve. In other words, the correct answer could be gained by using either column. In contrast the correct answer could only be reached for other nutrients (carbohydrate, fibre and sodium) if they used g/100g or if participants were able to accurately calculate proportions using g/serve. The latter strategy would have been difficult to do. Findings indicate that participants did better making fat and saturated fat decisions than carbohydrate, fibre and sodium. Also attitudes to the control label decreased significantly and were less than the DI replaced and DI supplement labels for two of the three variables tested when the label used unstandardised serving sizes. Finally participants strongly expressed the need for standardisation of serving sizes in the qualitative study and for consistency in food labelling.

Standardising foods is problematic because of the discrepancies in the serving sizes of dietary guidance information, nutrient composition data bases and food consumption research. However because many consumers may never check serving sizes before making food comparisons and may use g/serve information, there seems strong reason for ANZFA to consider regulation regarding the standardisation of serving sizes.

#### 4.5 Future studies

The present study was abstract from time pressure and other realities faced in the shopping environment. Future studies could therefore investigate whether the decision making process is faster using %DI as compared to g/100g and g/serve in single food and food comparison tasks. A CPG study achieved this for several NIP format studies by recording individual's starting and finishing times to voice decisions (CPG, 1992). Distractions such as noise or visual stimuli could be introduced into other experimental studies to determine their effects on the acquisition and comprehension of different NIP formats.

Perhaps more importantly from an ANZFA perspective, is the need to examine several education strategies for informing consumers about NIPs. There has been little consumer education about NIPs in the past in Australia and New Zealand so it would seem timely to consider this when NIP regulations are finalised.

Lastly gradual consumer familiarity with %DI through regulations which permit its use as additional information to the prescribed NIP format, could later provide an opportunity to test different presentations of it, such as bar graphs, numerics and adjectives.

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## **APPENDICES**

1. Reference amounts for an interpretive element
2. Workings for determining %Daily Intakes
3. Moderator's topic guide
4. Table A1. Demographic details of participants  
Table A2. Frequency of NIP use when shopping
5. Tables (3,10)

Appendix IV(1)

**1. Reference amounts for an interpretive element**

Based on 8700 kilojoules (2100 kcal) a day for adults and children over 4 only.

Food component	Reference Amount	Basis for Reference Amount	Source of health Recommendations for Reference Amount
Protein	50 g*	Protein based on average for RDI for men (55g) and non-pregnant, no-lactating women (45g)	Australian RDI, as per NHMRC 1991 <sup>1</sup>
Fat	70 g	Fat based on 30 percent of energy	CDHSH 1994 <sup>2</sup>
Saturated fat – total	24 g	Saturated fat based on 10 percent of energy	CDHSH 1994 <sup>2</sup>
Carbohydrate – total	310 g	Carbohydrate based on difference and cross-referenced with survey data and international targets (60 percent of energy)	No RDI or targets set. US value for labelling set at 60 percent of energy
Sugars	62 g**	Sugars based on (12 percent of energy)	Better Health Commission Target, Commonwealth Dept Health, 1987 <sup>3</sup>
Dietary Fibre	30 g/day	Dietary fibre based on 30g per day	Better Health Commission Target, Commonwealth Dept Health, 1987 <sup>3</sup>
Sodium	2300 mg/day		Better Health Commission Target, Commonwealth Dept Health, 1987 <sup>3</sup>

\* This value does not apply to certain population groups; RDI for protein for other groups are: infants under 1 year: 1.6g/kg body weight; children 1-3 yrs, 14-18 g; children 4-7 yrs, 18-24 g; children 8-11 yrs, 27-39 g; children 12-15 yrs, 42-60 g; 16-18 yrs, 57-70 g; pregnant women, 51 g; lactating women, 61 g.

\*\* A value of 50gm/day was used in the present study, based on 10 percent of energy. The approximations have been adjusted to reflect recommendations available.

<sup>1</sup> NHMRC = National Health and Medical Research Council. Recommended dietary intakes for use in Australia. AGPS Canberra, 1991.

<sup>2</sup> CDHSH = Commonwealth Department of Human Services and Health. Better health outcomes for Australians. National goals, targets and strategies for better health outcomes into the next century. Commonwealth Department of Human Services and Health, Canberra, 1994.

<sup>3</sup> Commonwealth Department of Health. Towards better nutrition for Australians. Report of the Nutrition taskforce of the Better Health Commission?. AGPS Canberra, 1987

## 2. Workings for determining %Daily Intakes

To determine the %DI for specific nutrients in a food product, the calculation used is:

$$\frac{\text{grams/milligrams of nutrient in one serve}}{\text{daily intake for the nutrient}} \times 100$$

Daily Intakes for nutrients are given on the previous page under the column 'reference amount'.

Thus:

If a product has 20g carbohydrate per serving then the %DI is:

$$\frac{20}{310} \times 100 = 6.5\%$$

If a product has 3.3g dietary fibre in one serve then the %DI is

$$\frac{3.3}{30} \times 100 = 11\%$$

If a product has 84mg sodium per serving then the %DI is

$$\frac{84}{2300} \times 100 = 3.7\%$$

### 3. Moderators guide

1. Warming up. Each participant will:
  - i) Introduce themselves
  - ii) State who they shop for, how they feel about shopping for food and what is uppermost in their minds as they head down the aisles (ie what is their main priority when shopping)
  
2. Attitudes to using NIPs while shopping.

Do participants use NIPs while shopping? If so, what information do they mostly look for?  
What sort of people would be most likely to use NIPs while shopping?  
Why would people not look at NIPs while shopping?  
Can you shop for healthy foods without using NIPs? How?  
Have you ever had the situation of wanting NIP information and not finding it on a food package?  
If so, what product?  
What NIP information were you mostly after?  
Some experts are saying that every food or nearly every food should carry the fat and saturated fat content. Would this be of any use to you?
  
3. Hand out the three labels and discuss one at a time:

What their initial reactions were  
How easy/difficult it was to work with  
Whether it gave meaningful information  
Who the label was most likely to suit  
Whether the label could be improved and how

For the control label ask participants:  
In part D of the questionnaire you had to look at two products with different serving sizes. How difficult was this to do? What did you do to solve the problem?

Also: What did 'Tr' mean?  
What did <1% mean?
  
4. Discussion of all three labels:

Which label has the most potential? Why?



## 4. Tables A1 and A2.

**Table A1. Demographics of participants**  
(n=27)

Demographic
<i>Sex</i>
Women
<i>Age</i>
18-25
26-35
36-45
46-55
56-65
<i>Qualifications</i>
None
Non-tertiary certificates
Polytech qualification
University degree
<i>Main shopper</i>
<i>Special diet</i>

**Table A2. Frequency of looking at nutrition information when shopping**  
(n=27)

1=Not very often; 5=Very often

Treatment Order	1	2	3	4	5
Order 1	1	1	3	1	3
Order 2	2	1	0	2	4
Order 3	1	1	3	1	3
Total count	4	3	6	4	10
Percentage	15%	11%	22%	15%	37%

**5. Tables (3, 10)**

**Tables 3, 10 cont.**

## **Appendix V. Findings on nutrition labelling from research on folate health claims, conducted by ANZFA**

### 1. BACKGROUND

The Australia New Zealand Food Authority conducted initial consumer research amongst Australian and New Zealand consumers as part of a development for a pilot to trial the use of a folate health claim. The research included an examination of different presentations for nutrition information panels (NIP).

### 2. METHOD

A focus group discussion is a qualitative information-gathering technique in which a group of 8 to 10 people is guided through a discussion on a specific topic by a trained moderator. Eight women participated in a focus group in Sydney and eight women attended in Auckland. All of the women were primarily responsible for food shopping for the household; none of them were intense food label readers. The groups represented a mix of working and non-working women with average education levels and a wide range of ages from 20 to 60. The focus group in Sydney lasted an hour and a half, while the Auckland session was two hours.

As part of the session, participants discussed information that they noticed and searched for on food packages. A mock-up cereal box was then shown. Nutrient content in the NIP was expressed per serving and per 100g for macronutrients, while micronutrients were expressed per serving and as a percentage of the recommended daily intake per serving. The groups were asked to discuss the folate content in the NIP. They were then shown a second product and asked to compare folate content. Two alternative formats were then presented alternately. Nutrient content was expressed as absolute values in both cases, as well as in adjectival form ('high' 'medium' 'low') or as shaded circles. For each alternative, two products were shown and participants were asked to compare their folate content. They were also asked to compare the formats in terms of their visual impact and the ease with which the information could be utilised in the supermarket. Finally in the Auckland focus group, each participant chose one alternative as her preferred NIP format.

### 3. THE MAIN FINDINGS

#### **3.1 The importance and credibility of NIP**

Both groups listed information contained in the NIP as being the most important information on food packages. Participants were particularly concerned about the fat and sugar content in order to prevent or reduce their weight or a family member's weight in the former case and to reduce hyperactivity in their children in the latter case.

*'I always look for the percentages. When it says low in fat, they might all be low in fat anyway. I check the grams.'* (Auckland woman)

Other nutritional information looked for in the Auckland group was quality checks, such as the National Heart Foundation's tick logo. Participants trusted the organisation, they believed approved foods were tested by them and they wanted to be able to make decisions quickly and without cognitive effort in the supermarket.

When shown a mock-up cereal box, participants in both groups quickly turned to the information on the side, particularly the Food Pyramid and the NIP, thereby verifying their interest in NIP. The nutrients mentioned in the Sydney group were two of the four highlighted nutrients (fat and folate).

The nutrition information panel was clearly seen as the most credible piece of information on the mock-up cereal box. Standardisation of the format and numeracy appeared to provide authenticity for the Sydney group, perhaps because they promoted the concept of precision and science:

*So what's the difference between the thing on the banner [a folate claim] and the fact that they've put folate on the side panel?...numbers...I still like to look at this and see percentages and work out what it is and where do I get the rest of it from.'*  
(Sydney woman)

*'The bit on the panel is, like those percentages are worked out by scientific means. Like if they put incorrect figures there, they could be in all sorts of trouble. Whereas this [a folate claim], they can just write anything. That's why you look at that [the NIP] and you know that that's got to be the truth. Well you think it is anyway.'*  
(Sydney woman)

*'[The NIP is] a certain... they're supposed to put it there in the standard form.'*  
(Sydney woman).

Although participants discussed the importance of NIPs and claimed to use the content information when shopping, they did not discuss the content displayed in the mock up cereal package until directed by the moderator. They did however occasionally mention nutrient names. For example, folate, fat and sugar were all named. It may therefore be that many shoppers place a high priority on the presence of NIP on food labels and look for nutrient names but don't spend much time reading and processing the information.

### **3.2 Comprehension of the mock-up NIP**

A folate claim on the front of the mock-up cereal package did not prompt participants to verify the information using the NIP.

Some participants expressed an understanding of the folate information when assessing a single product (ie the cereal mock up package), but others remained silent. There was very little expansion on the quotes below:

*'But what they're saying is per 30g serve you get 25% and if you have 60g you get 50% ...of the recommended daily intake. In that one 30g serve. 30g is not a great deal is it?'* (Sydney woman).

*'It says that a serving is 30g. Therefore you can assume that 30g gave you that 25% of folate'. (Auckland woman).*

*'And 100[ug] is only 25%.' (Sydney woman).*

Unit measures did not appear to have much relevance for participants:

*'Milligrams and what's that one? Isn't that micro that sign?'* (Sydney woman).

*'...the one on the box is 100 micrograms. I didn't even know that this was different from the content of 'mgs'. What is 'ugs?''* (Auckland woman)

While this did not matter so much when choosing between two foods, it was of some relevance for single product assessments because the amount of nutrient was related to the serving size:

*'...In that one 30g serve. 30g is not a great deal is it?'* (Sydney woman)

When the Auckland group was asked to compare the folate content between two cereal products (the mock up cereal package and cereal 'B'), a woman used the microgram per serving information rather than the percentage recommended daily intake information:

*'Just comparing the numbers. Cereal B is a higher content of folate. The one on the box is 100ugs...'*

However when asked whether ug per serving information was easier to use or percentage recommended daily intake information, the group preferred the latter. One woman said that she did not understand or read the former on food labels. The Sydney group did not undertake a comparison of product.

### **3.3 Presentation formats**

#### **3.3.1 Shaded circles**

Reactions to shaded circles were negative because some participants in Sydney and Auckland could not work out what each shaded circle represented:

*'That's the whole point, you don't know...what does each dot mean? The more dots the better? It should only be four dots if it's 100 or 25% each dot. But there's actually 125% there worth of dots.'* (Sydney woman)

*'I can't work out whether it's the circles that are not filled out or the ones that are filled in.'* (Auckland woman)

Although the Sydney group later worked out that each shaded circle represented 20% of the recommended dietary intake, it did not make any difference to their opinion. They did not like shaded circles.

Two woman in Auckland chose shaded circles as their preferred format . One of them believed that the information was immediately transparent:

*'It's easy to see at a glance. You wouldn't have to read anything. You just say 'it's low'.'* (Auckland woman)

*'Circles are easy to understand. They step out at you.'* (Auckland woman)

### **3.3.2 Adjectives**

At least three participants in the Sydney group and one participant in Auckland preferred adjectives to shaded circles and percentages because the nutrient content was perceived to be translated into a form that was understandable. For some consumers then, adjectives may represent the coded form for information processing. That is, adjectives provide meaningful information for answering the question 'how much folate am I going to get if I eat a serving of this food?':

*'There's no mental sum. What does 75% mean? It's high. The simple words. High, medium or low.'* (Auckland woman).

No participants in Auckland preferred adjectives to percentages, though one woman believed that it could be easier for people who did not understand percentages. One participant in Sydney believed that defining folate content in words was misleading:

*'The high and low is sort of...it could mean 50%, they might think that's high, they might think 90% is high, they might think 20% is high. It doesn't mean anything.'* (Sydney woman)

### **3.3.3 Percentages**

Participants believed that percentages were understood by everyone. This seemed to be a reason why the Sydney group liked and preferred percentages overall. Some participants discussed percentages as if they were the coded form for comprehension. That is, they did not seem to think that percentages required translation into any other form during information processing:

*'Well it's clear then. You don't have to work it out.'* (Sydney woman)

*'It's easy to see at a glance. If you wanted to know what was high in folate, you wouldn't have to read anything. Just look at the numbers.'* (Auckland woman)

*'Yeah I think it's clear. Like you don't have to stand there and work it out.'* (Sydney woman)

*'The percentages is better. It's a simple term for everybody to comprehend.'* (Sydney woman)

A rule of thumb for percentages seemed to be that for any nutrient, the higher the percentage of the recommended daily intake, the better. There did not seem to be any understanding that the percentage had to be added to other servings of the same nutrient and that in some cases toxicity could be an issue.

Five participants in the Auckland group chose percentages as their preferred NIP format. The majority of women in the Sydney group also seemed to favour percentages.

## SUMMARY OF FINDINGS

Overall, participants in both groups believed that NIPs were very important. They appeared to differentiate NIPs from advertising on a food package because of its numeracy and the appearance of scientific precision. However they tended to treat the information somewhat superficially in that nutrient names were mentioned, but actual amounts was not discussed to any extent. This then suggests that the accuracy of NIPs are needed for reassurance but that the actual measures of nutrients are not used extensively. Other simpler forms of expression, such as reliable symbols, may in fact be utilised more effectively in the supermarket, particularly by the Auckland participants. This is confirmed by an ANZFA survey which found that 56% of 1498 respondents said that they would rather have reliable symbols than number/words to summarise information compared to 29% who disagreed (ANZFA, 1996).

Because of the need for creditable information, changing the format of NIPs may not be what consumers want. Both the Australian and New Zealand focus groups appeared to favour the presentation of nutrient content in NIPs as percentage daily recommended intake in preference to two other formats. The study did not reveal however, how effectively they actually used the information in making single product assessments and comparisons between food alternatives. It is also not known to what extent familiarity with the format and unfamiliarity with shaded circles and adjectives determined their preference.

Adjectives appeared to have some appeal because participants thought absolute value information was transformed into meaningful information. The study did not test how participants reacted to nutrients where the desirable level was 'low' in comparison to other nutrients where the desirable level was 'high' though. Shaded circles were confusing to participants and from this study did not appear to provide potential for further investigation.

The results from the focus groups were somewhat 'crude' because NIPs were discussed at the end of the session when many participants were tired. The study therefore represents 'gut' reactions to various NIP formats but may be beneficial in that participants reacted in much the same way as they would in a supermarket situation where most decisions are reached within a few seconds of finding the required information.

## EVALUATION

The NIP appears to be needed and used as a marker of credibility, and to provide reassurance that 'precise and scientific' information is available on food packages. However the actual detail of the information is not necessarily used. This may be due to limitations in understanding, or ability to use the information in the (short) time generally available to supermarket shoppers.

This study suggests that the NIP is an important part of the package, but that consideration should be given to making the information as user-friendly as possible,



for example, by the use of presentation such as percent recommended daily intake. Furthermore, consideration should also be given to further research into how consumers use the NIP information to make single product assessments and to compare food alternatives and, the extent to which familiarity (with the form of presentation) influences consumers' usage of nutrition information.

## ATTACHMENTS

Attachment 1

### 1. Drafting for proposed nutrition labelling.

Note that this review seeks comments relating to the shaded sections only.

## Standard 1.2.8

# Nutrition Information Requirements

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### Purpose

This Standard sets out the requirements relating to the provision of nutritional information on packaged foods and in relation to unpackaged foods. The Standard sets out when nutritional information must be provided, and, if it is provided, the information to be provided and its method of presentation.

**Editorial note:**

This Standard does not apply to infant formula products. Standard 2.9.1 (Infant Formula Products) sets out specific nutrition labelling requirements that apply to infant formula products. Standard 1.3.2 (Vitamins, Minerals and Micronutrients) sets out the labelling requirements for claims made about the vitamin and mineral content of foods.

**Drafting note:**

The requirements relating to particular nutrition claims and the labelling of foods in relation to fatty acids are not included in this draft because they are being reviewed in the review of current clause A1(12).

### Table of Provisions

- 1 Definitions
- 2 Energy factors
- 3 Declaration of energy, fat and saturated fat content on packaged food
- 4 Nutrition information panel requirements
- 5 Tolerance levels
- 6 Food in dehydrated or concentrated form
- 7 Food that must be drained before consumption
- 8 Food to be prepared or consumed with other food
- 9 Expression of certain average energy content and unit quantities
- 10 Nutrition information for unpackaged foods

- 11 Methods of analysis for the determination of dietary fibre
- 12 Prescribed method of analysis for the determination of dietary fibre in food
- 13 Labelling of food intrinsically low in energy
- 14 Labelling of food with a low joule food claim

Schedule 1 - Nutrition Information Examples

## Clauses

### 1 Definitions

In this Standard –

**average energy content** is the energy content of a food determined by reference to the average quantity of nutrients in the food and application of the appropriate energy factor;

**average quantity** in relation to a nutrient in a food is the quantity determined from one or more of the following:

- (i) the manufacturer's analysis of the food;
  - (ii) calculation from the actual or average quantity of nutrients in the ingredients used;
  - (iii) calculation from generally accepted data;
- which best represents the quantity of a nutrient which the food contains, allowing for seasonal variability and other known factors which could cause actual values to vary;

**carbohydrate** means carbohydrate by difference, calculated by subtracting the percentages of water, protein, fat, dietary fibre and ash, from 100;

**fat** means total fat;

**low joule food claim** means a claim that the energy content of a food is no more than 170 kJ per 100 grams of food and no more than 80 kJ per 100 mL in the case of beverages;

**low joule** and **low energy** are interchangeable terms for the purposes of this Standard, unless expressly stated to the contrary elsewhere in this Code;

**Editorial note:**

Although 'low joule' and 'low energy' are interchangeable, the expression 'low calorie' is not included in this Standard.

**nutrition claim** means a representation that states, suggests or implies that a food has a nutritional function or content whether general or specific and whether expressed affirmatively or negatively:

The term includes a reference to –

- (i) energy;
  - (ii) salt, sodium or potassium;
  - (iii) amino acids, carbohydrate, cholesterol, fat, fatty acids, fibre, protein, starch or sugars;
  - (iv) vitamins and minerals;
  - (v) a biologically active substance, other than a vitamin or mineral; or
  - (vi) any other nutrient;
- but does not include -
- (vii) a reference in a statement of ingredients, a prescribed name, or any other prescribed information;
  - (viii) a reference to a quantitative or qualitative declaration of certain nutrients, ingredients or energy in the label where that declaration is required otherwise by the Act or this Code; or
  - (ix) a reference to reduced alcohol content.

**Editorial note:**

‘Sweetened’ is an example of a nutrition claim that is expressed affirmatively. Examples of nutrition claims that are expressed negatively are ‘unsweetened’ and ‘no added sugar’.

**panel** means a nutrition information panel in accordance with clause 4 of this Standard;

**sugars** means monosaccharides and disaccharides;

**unit quantity** means, in the case of a solid or semi-solid food, 100 g or, in the case of a beverage, 100 mL.

## 2 Energy factors

(1) In this Standard, **energy factor** means the energy expressed in kilojoules per gram of constituent, rounded to the nearest whole number, derived by the following formula:

$$\mathbf{TME = GE - FE - UE - GaE - SE}$$

Where:

**TME** means true metabolisable energy

**GE** means gross energy (as measured in bomb calorimetry)

**FE** means energy lost in faeces

**UE** means energy lost in urine

**GaE** means the energy lost in gases produced by fermentation in the large intestine

**SE** means the energy content of waste products lost from surface areas

**Editorial Note:**

An example of the application of the above formula is as follows:

In deriving an energy factor for protein, it is assumed that losses of protein in the urine are 22% (urinary energy UE measured by bomb calorimetry), principally in the form of urea but also to a small extent as ammonia, amino acids and protein.

It is also assumed that 92% protein is digestible (faecal energy FE measured by bomb calorimetry). The gross energy GE for protein in a mixed diet from bomb calorimetry is 23.6 kJ/g.

Given current knowledge about processes taking place in the intestine, the assumption that there are no gaseous losses due to fermentation for dietary protein and that surface losses are minimal in a mixed diet is reasonable.

The TME definition then becomes:

$$\begin{aligned} \text{TME} &= \text{GE} - \text{FE} - \text{UE} - \text{GaE} - \text{SE} \\ &= 23.6 - 1.8 - 5.1 - 0 - 0 \\ &= 16.7 \text{ kJ/g} \end{aligned}$$

The energy factor for protein is 17 kJ/g (rounded to the nearest whole number).

- (2) Energy factors in relation to food components are set out in the Table to this subclause.

**TABLE TO SUBCLAUSE 2(2)**



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**Editorial note:**

\* Energy factor for sorbitol taken as an average of calculated range determined with or without ingestion of other foods.

**Drafting note:**

The energy factor provisions relate to P177 (Derivation of Energy Factors). Further drafting changes may need to be made to this Standard depending upon the outcomes of the reviews of the standards relating to vitamins and minerals, salt and salt products, low joule foods, and the Code of Practice on Nutrient Claims in Food Labels and in Advertisements.

**3 Declaration of energy, fat and saturated fat content on packaged food**

- (1) Packaged food must be labelled with a declaration of the average energy content and average fat content and average saturated fat content of the food.
- (2) The average energy content must be expressed in kilojoules per 100g (or 100mL) and per serve and the fat and saturated fat content must be expressed in grams (or mL) per 100g (or 100mL) and per serve.
- (3) The declaration must also include the serving size of the food.

**Editorial note:**

An example of a recommended declaration of energy, fat and saturated fat content is set out in the Schedule to this Standard (EXAMPLE 1). Where the label has a nutrition information panel in accordance with clause 4 below, the requirement to declare the average energy content, average fat content and saturated fat content will be satisfied by the inclusion of these particulars in the panel.

**4 Nutrition information panel requirements**

- (1) Subject to subclause (2), packaged food must not be labelled with, or advertised using, a nutrition claim unless the food is labelled with a nutrition information panel setting out the particulars specified in subclause (3) in the format immediately following that subclause.
- (2) Subclause (1) does not apply to a package of food that has a total surface area of less than 100 cm<sup>2</sup> where there is included in standard type in the label on or attached to the package, a statement of:
  - (a) the average quantity of the claimed nutrient present in 100g or 100mL of the food; and
  - (b) the average energy content, average fat content and average saturated fat content of the food per 100g or 100mL of the food.
- (3) Save in a case to which subclause (11) of this clause applies, the following particulars, namely:
  - (a) the number of servings of the food in the package;



- (b) the average quantity of the food in a serving expressed, in the case of a solid or semi-solid food, in grams or, in the case of a beverage, in millilitres;
- (c) the unit quantity of the food;
- (d) the average energy content, expressed in kilojoules or both in kilojoules and in Calories (kilocalories), of a serving of the food and of the unit quantity of the food;
- (e) the average quantity, expressed in grams, of protein, fat, saturated fat and carbohydrate in a serving of the food and in the unit quantity of the food;
- (f) the average quantity, expressed in milligrams or both milligrams and millimoles, of sodium in a serving of the food and in the unit quantity of the food;
- (g) the name and the average quantity, expressed in grams, milligrams or micrograms, of any other nutrient in the food in respect of which a nutrition claim is made, in a serving of the food and in the unit quantity of the food; and
- (h) must be set out, in standard type, in the panel in the following format:

(4) The declaration of dietary fibre in a nutrition information panel must be a declaration of dietary fibre.

(5) An additional column with the heading ‘% Daily Intake\*’ may be added at the right hand side of the panel, adjacent to the column headed ‘Average Quantity per Serving (g (or mL))’.

(6) Where a ‘% Daily Intake’ column is included in the panel:

- (a) it must specify the percent daily intake of energy, fat, saturated fat, carbohydrate, protein and sodium;

- (b) it may specify the percent daily intake of any other nutrient; and
- (c) the following statement must be included at the end of the panel:  
“\*Percent daily intakes are based on an average adult diet of 8700kJ. Your daily intakes may be higher or lower depending upon your energy needs.”

**Editorial note:**

An example nutrition information panel incorporating the voluntary ‘% Daily Intake’ column is set out in the Schedule to this Standard (EXAMPLE 2).

- (7) The percent daily intakes of energy and nutrients that are to be included in the panel are to be calculated using the relevant reference value that is set out in the Table to this subclause.

**TABLE TO SUBCLAUSE 4(7)**

**Food component**

(8) The following nutrients must be set out in the panel in the order and format specified in the format immediately following this subclause:

- (a) polyunsaturated fat or monounsaturated fat - if a nutrition claim is made in respect of any of these nutrients or trans fatty acids, or trans fatty acids is voluntarily included in the panel; and
- (b) dietary fibre and sugars - if a nutrition claim is made in respect of either dietary fibre or sugars.

NUTRITION INFORMATION		
Servings per package: (here insert number of servings)		
Serving size: .... g (or mL)		
	Average Quantity per 100g (or 100 mL)	Average Quantity per Serving
Energy	kJ (Cals)	kJ (Cals)
Fat, total	g	g
- saturated	g	g
- **	g	g
- polyunsaturated	g	g
- **	g	g
- monounsaturated	g	g
- **	g	g
- trans	g	g
- **	g	g
Carbohydrate, total	g	g
- *	g	g
- **	g	g
- *	g	g
- **	g	g
Dietary fibre, total	g	g
- **	g	g
Protein, total	g	g
- *	g	g
Sodium	mg(mmol)	mg(mmol)
Insert here any other nutrient to be declared	g,mg, µg	g,mg, µg

\*a sub-group nutrient    \*\*a sub-sub-group nutrient

**Editorial Note:**

The word 'total' following 'fat', 'carbohydrate', 'dietary fibre' or 'protein' in the first column of the panel need only be included if it is immediately followed by a sub-group. This format sets out how sub-groups and sub-sub-groups of nutrients may be included. The number of these nutrient groupings that may be displayed in the panel is not limited by this format.

- (9) In the panel, the word 'serving' may be replaced by:
  - (a) the word 'slice', 'pack' or 'package'; or
  - (b) the words 'metric cup' or 'metric tablespoon' or other appropriate word or words expressing a unit or common measure.
  
- (10) In the panel, average energy content and average quantities of nutrients must be expressed to not more than three significant figures.
  
- (11) The declaration of a vitamin or mineral made under Standard 1.3.2 must be made in accordance with that Standard.

(12) Where packaged food is labelled with, or advertised using, a nutrition claim with respect to salt, sodium or potassium or any two or all of them, then sodium and potassium must both be declared in the panel.

## **5 Tolerance levels**

The actual content in a food of a nutrient that is the subject of a nutrition claim must:

- (a) in the case of carbohydrate, fibre, monounsaturated fat, polyunsaturated fat, protein, vitamins or minerals - be not less than 80% of the quantity of that nutrient that is declared in the nutrition information panel; and
- (b) in the case of cholesterol, energy, saturated fat, sodium, sugars, total fat or trans fatty acids - be not more than 120% of the quantity of that nutrient that is declared in the nutrition information panel.

## **6 Food in dehydrated or concentrated form**

In the case of a package of food in the dehydrated or concentrated form, where the food is labelled with directions that indicate that the food should be reconstituted with water, the particulars set out in each column of the panel must be expressed as a proportion of the food as so reconstituted.

## **7 Food that must be drained before consumption**

In the case of food that is labelled with directions that indicate the food should be drained before consumption, the particulars set out in each column of the panel must relate to the drained food.

## **8 Food to be prepared or consumed with other food**

In the case of a food intended to be prepared or consumed with at least one other food, an additional column may be added at the right hand side of the panel specifying, in the same manner as that set forth in the panel, descriptions and quantities of the foods in question together with the average energy content thereof and the average quantities of nutrients therein.

## **9 Expression of certain average energy content and unit quantities**

- (1) Where the average energy content of a serving of food or, as the case may be, the unit quantity of the food is less than 40 kJ, the average energy content may be expressed in the panel as 'LESS THAN 40 kJ'.
- (2) Where the average quantity of protein, fat, carbohydrate or sugars in a serving of the food or, as the case may be, the unit quantity of the food is less than 1 gram, that average quantity may be expressed in the panel as 'LESS THAN 1g'.
- (3) Where the average quantity of sodium or potassium in a serving of the food or, as the case may be, the unit quantity of the food is less than 5 milligrams, that average quantity may be expressed in the panel as 'LESS THAN 5 mg'.

## **10 Nutrition information for unpackaged foods**

(1) Where a nutrition claim is made in writing in respect of food that is offered for sale other than in a package, information concerning the following matters must be provided:

- (a) the average energy content, average fat content and average saturated fat content of the food; and
- (b) the average quantity of the nutrient that is the subject of the claim.

(2) The information referred to in subclause (1) must be provided in conjunction with the claim using the same presentation method as is used for the nutrition claim.

### **Editorial note:**

For example, if a nutrition claim is made on a poster in respect of unpackaged food, or on a sign adjacent to the food, the information to be provided must be provided on the same poster or sign.

(3) The information to be provided in relation to the average energy, fat and saturated fat content must comply with the requirements of subclauses 3(2) and 3(3).

(4) The information relating to the nutrient that is the subject of a nutrition claim must be provided as an Average Quantity per Serving (g (or mL)) and an Average Quantity per 100g (or 100mL).

## **11 Methods of analysis for the determination of dietary fibre**

The methods set out in this clause are the prescribed methods of analysis for the determination of dietary fibre content of food.

## **12 Prescribed method of analysis for the determination of dietary fibre in food**

Proceed according to Section 985.29 of the 4th Supplement (1998) to the A.O.A.C, 16th Edition (1995), or in the alternate to Section 991.43 of the A.O.A.C, 16th Edition (1995), in so far as these methods measure as the endpoint, the total dietary fibre and not the soluble and insoluble fractions of dietary fibre.

## **13 Labelling of food intrinsically low in energy**

Where a food intrinsically low in energy is labelled with a low joule food claim, the label must not expressly or impliedly suggest that the food has been altered to reduce the energy content of the food.

**Editorial note:**

Foods intrinsically low in energy are foods which would naturally meet the definitional requirements in clause 1 of a low joule food claim.

The term describing the level of energy shall not precede the name of the food (eg, “low joule” [name of the food]), but should be in the following form

–

“[name of the food] is a low joule food”

**14 Labelling of food with a low joule food claim**

Where food is labelled with a low joule food claim the label must contain a Nutrition Information Panel.

## SCHEDULE

### NUTRITION INFORMATION EXAMPLES

**EXAMPLE 1:**

Example of a recommended declaration of average energy content and average fat and saturated fat content:

This food provides kJ per serve (kJ per 100g) and g fat per serve (g per 100g) and ...g saturated fat per serve (...g per 100g).

Serving size: 50g

**EXAMPLE 2:**

Example of a recommended nutrition information panel for mandatory nutrients incorporating the optional ‘% Daily Intake’ element:

NUTRITION INFORMATION			
<b>Servings per package – (here insert number of servings)</b>			
<b>Serving size - g/mg</b>			
	Average Quantity per 100g (or 100mL)	Average Quantity per Serving (g (or mL))	% Daily Intake* (per serving)
Energy	kJ (Cals)	kJ (Cals)	%
Fat, total	g	g	%
- saturated fat	g	g	%
Carbohydrate	g	g	%
Protein	g	g	%
Sodium	mg(mmol)	mg (mmol)	%

\*Percent daily intakes are based on an average adult diet of 8700 kJ. Your daily intakes may be higher or lower depending on your energy needs.



## 2. Submissions – Review of Nutrition Labelling

### 2.1 List of submitters

(n=54)

#### *GROUP 1 - Independent Health Professionals (IHP):*

Campbell, Cathy  
Lawrence, Mark  
Roshier-Taks, Marjo  
Scott, Vicky  
Stanton, Rosemary  
Thompson, Susan  
Truswell, Stewart  
Wood, Beverley

n=8

#### *GROUP 2 - Consumer (C):*

Attwood, Elaine  
Australian Consumers' Association  
Davis, Colin  
Home Economics Institute of Australia  
National Council of Women of Australia  
Raizis, Anthony (Christchurch School of Medicine)  
Russell, Suzanne  
Wilson-Roberts, Dianne

n=8

#### *GROUP 3 - Industry (I):*

Australian Dairy Products Federation  
Australian Food and Grocery Council (AFGC)  
Australasian Soft Drink Association Ltd  
BRI Australian Ltd  
Cerebos Foods  
Chamber of Commerce and Industry  
Confectionery Manufacturers of Australasia (CMA)  
Dairy Farmers' Group (Reynolds, Norm)  
Food Technology Association of Victoria Inc  
Golden Circle Ltd  
Goodman Fielder Ltd (Lee, Frank)  
Hansells (New Zealand)  
Heinz  
Heinz-Wattie Ltd (Stichbury, G J)  
Kellogg's  
Monsanto Australia Ltd  
Nestle  
New Zealand Dairy Board  
New Zealand Dairy Foods Ltd  
Uncle Toby's Co Ltd  
Wrightson Nutrition

n=21

*GROUP 4 - Public Health and Community Organisations (PHCO):*

Auckland Healthcare Service Ltd (Stewart, Elizabeth)

Centre for Science in the Public Interest

Commonwealth Department of Health & Family Services

Cootamundra Health Centre (Pettengell, Kate)

CSIRO

Diabetes Australia

Dietitians Association of Australia

Healthcare Otago Ltd

Health Department of Western Australia

Menzies Centre for Population Health Research

New South Wales Health Department

New Zealand Nutrition Foundation (InforMed Systems Ltd)

Pritikin Health Association of Australia Inc

Public Health Association (FANSIG)

QLD Community Health Services (Radcliff, Barbara)

South Australian Health Commission

Therapeutic Goods Association

n=17

## 2.2 Charts indicating responses to issues by sector

The following charts provide a summary of submitters' responses to the proposal questionnaire (questions 2 to 5), as presented in P167.

### Question 2.

#### **Interpretive element**

An interpretive element should be provided in the nutrition labelling provisions, as one way to provide linkage with dietary guidelines and enhance consumer understanding and use of the nutrition information in food selection.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	4	3	1
<b>Consumers</b>	8	3	2	3
<b>Industry</b>	21	8	8	5
<b>PHO</b>	17	11	2	4
<b>Total</b>	53	26	15	12

### Question 3a.

#### **1. Energy**

Disclosure of energy in the nutrition information panel should continue to be required, when a panel is used.

<b>Group</b>	<b>N</b>	<b>Agree</b>	<b>Agree with modification</b>	<b>Disagree</b>	<b>No Comment or unclear</b>
<b>IHP</b>	8	8			
<b>Consumer</b>	8	5			3
<b>Industry</b>	21	13			8
<b>PHO</b>	17	12			5
<b>Total</b>	<b>54</b>	<b>38</b>			<b>16</b>

### 1. Protein

Disclosure of protein in the nutrition information panel should continue to be required, when a panel is used.

Group	N	Agree	Agree with modification	Disagree	No Comment or unclear
IHP	8	4		3	1
Consumer	8	5		1	2
Industry	21	12		1	8
PHO	17	9		4	4
<b>Total</b>	<b>54</b>	<b>30</b>		<b>9</b>	<b>15</b>

### 1. Carbohydrate

Disclosure of carbohydrate in the nutrition information panel should continue to be required, when a panel is used.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
IHP	8	8			
Consumer	8	6			2
Industry	21	11			10
PHO	17	12			5
<b>Total</b>	<b>54</b>	<b>37</b>			<b>17</b>

### 4. Fat

Disclosure of fat in the nutrition information panel should continue to be required, when a panel is used.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
IHP	8	8			
Consumer	8	7			1
Industry	21	15			6
PHO	17	13			4
<b>Total</b>	<b>54</b>	<b>43</b>			<b>10</b>

### 5. Total sugars

Disclosure of total sugars in the nutrition information panel should continue to be required, when a panel is used or;

Disclosure of total sugars in the nutrition information panel should be voluntary, when a panel is used.

Group	N	Required	Voluntary	Other comments	No comment or unclear
<b>IHP</b>	8	5	2	1	
<b>Consumer</b>	8	6			2
<b>Industry</b>	21	3	13		5
<b>PHO</b>	17	8	5		4
<b>Total</b>	<b>54</b>	<b>22</b>	<b>20</b>	<b>1</b>	<b>11</b>

### 6. Sodium

Disclosure of sodium in the nutrition information panel should continue to be required, when a panel is used.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
<b>IHP</b>	8	7	1		
<b>Consumer</b>	8	5			2
<b>Industry</b>	21	7	1	3	10
<b>PHO</b>	17	12			5
<b>Total</b>	<b>54</b>	<b>31</b>	<b>2</b>	<b>3</b>	<b>17</b>

### 7. Potassium

Disclosure of potassium in the nutrition information panel should be changed to voluntary, unless a claim is made.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
<b>IHP</b>	8	7			1
<b>Consumer</b>	8	5			3
<b>Industry</b>	21	13	1	1	6
<b>PHO</b>	17	9		3	5
<b>Total</b>	<b>54</b>	<b>34</b>	<b>1</b>	<b>4</b>	<b>15</b>

### 8. Saturated fat

Consideration should be given to requiring declaration of saturated fat, when a panel is used.

Group	N	Required	Required with modification	Voluntary	No comment or unclear
<b>IHP</b>	8	4	1	2	1
<b>Consumer</b>	8	7			1
<b>Industry</b>	21	1	2	11	7
<b>PHO</b>	17	11	1	1	4
<b>Total</b>	<b>54</b>	<b>23</b>	<b>4</b>	<b>14</b>	<b>13</b>

### 9. Cholesterol

Disclosure of cholesterol in the nutrition information panel should be voluntary, when a panel is used.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
<b>IHP</b>	8	7			1
<b>Consumer</b>	8	2		3	3
<b>Industry</b>	21	14			7
<b>PHO</b>	17	11		2	4
<b>Total</b>	<b>54</b>	<b>34</b>		<b>5</b>	<b>15</b>

### 10. Dietary Fibre

Consideration should be given to requiring disclosure of dietary fibre, when a panel is used.

Group	N	Voluntary	Required with modification	Required	No comment or unclear
<b>IHP</b>	9	3		6	
<b>Consumer</b>	8	2	1	3	2
<b>Industry</b>	21	15		1	5
<b>PHO</b>	17	4	3	6	4
<b>Total</b>	<b>55</b>	<b>24</b>	<b>4</b>	<b>16</b>	<b>11</b>

## 11. Calcium

Disclosure of calcium in the nutrition information panel should continue to be voluntary, unless a claim is made.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
IHP	8	6		2	
Consumer	8	1		4	3
Industry	21	14		1	6
PHO	17	8		4	5
<b>Total</b>	<b>54</b>	<b>29</b>		<b>11</b>	<b>14</b>

## 12. Iron

Disclosure of iron in the nutrition information panel should continue to be voluntary, unless a claim is made.

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
IHP	8	7		1	
Consumer	8	2		3	3
Industry	21	15			6
PHO	17	9		2	6
<b>Total</b>	<b>54</b>	<b>33</b>		<b>6</b>	<b>15</b>

### Question 3b.

#### 1. Units of expression – protein, fat, carbohydrate

Units of expression for protein, fat and carbohydrate should continue to be disclosed in g (or mL) per serving and per 100g (or 100mL).

Group	N	Agree	Agree with modification	Disagree	No comment or unclear
IHP	8	8			
Consumer	8	4		1	3
Industry	21	8		6	7
PHO	17	11	1	1	4
<b>Total</b>	<b>54</b>	<b>31</b>	<b>1</b>	<b>8</b>	<b>14</b>

## 2. Units of expression – energy

For energy, further discussion is sought regarding the term used in the panel to express energy ie energy, calories or kilojoules.

Group	N	Energy	Calories	Kilojoules	No comment or unclear
<b>IHP</b>	9	5	2	3	
<b>Consumer</b>	8	1	3	2	2
<b>Industry</b>	21	5	7	10	6
<b>PHO</b>	17	5	3	10	5
<b>Total*</b>	<b>55</b>	<b>16</b>	<b>15</b>	<b>25</b>	<b>13</b>

\* Totals greater due to multiple answers

The unit of expression for energy should continue to be in kilojoules or kilojoules and calories

Group	N	Agree (kJ or kJ and calories)	Agree (kJ and calories)	Disagree	No comment or unclear
<b>IHP</b>	8	4	3	1	
<b>Consumer</b>	8	3		2	3
<b>Industry</b>	21	12	1	1	7
<b>PHO</b>	17	12			5
<b>Total</b>	<b>54</b>	<b>31</b>	<b>4</b>	<b>4</b>	<b>15</b>

## 1. Units of expression – sodium

The optimal unit of expression for sodium is mg (mmol), where the use of (mmol) is voluntary

Group	N	mg only	mg (mmol)	mg (with mmol voluntary)	No comment or unclear
<b>IHP</b>	8	4	1	3	
<b>Consumer</b>	8	3	1		4
<b>Industry</b>	21	12		2	7
<b>PHO</b>	17	6	1	6	4
<b>Total</b>	<b>54</b>	<b>25</b>	<b>3</b>	<b>11</b>	<b>15</b>



#### **Q4 Presentation of nutrition information**

##### **Reference Units for Declaring Nutrition Information**

###### **4(a) 1.**

Serving size disclosure should continue to be used for declaring nutrition information.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	8	0	0
<b>Consumers</b>	8	6	0	2
<b>Industry</b>	21	15	2	4
<b>PHO</b>	17	13	1	3
<b>Total</b>	53	42	3	8

###### **4(a) 2.**

Serving sizes should be expressed in common household measures in addition to weight in grams, to aid consumers in understanding serving amount on labels.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	7	1	0
<b>Consumers</b>	8	3	1	4
<b>Industry</b>	21	6	7	8
<b>PHO</b>	17	10	1	6
<b>Total</b>	53	26	10	17

###### **4(a) 3.**

Consideration should be given to standardising serving sizes across food categories on the basis of volume or weight measures.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	4	4	0
<b>Consumer</b>	8	2	2	4
<b>Industry</b>	21	3	10	8
<b>PHO</b>	17	7	4	6
<b>Total (n=53)</b>	53	16	20	17

**4(a) 4.**

If standard serving sizes are made available, the use of a reference unit of per 100g (or 100mL) for comparisons between products would be redundant and could be voluntary.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	1	6	1
<b>Consumers</b>	8	2	3	3
<b>Industry</b>	21	6	7	8
<b>PHO</b>	17	5	7	5
<b>Total</b>	53	14	23	16

**4(a) 5.**

An alternative reference unit which links with health recommendations should be considered as the basis for an interpretive element.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	6	2	0
<b>Consumers</b>	8	3	1	4
<b>Industry</b>	21	4	6	11
<b>PHO</b>	17	6	4	7
<b>Total</b>	53	19	13	21

**Label formats****4(b) 1.**

Alternative label formats to present nutrition content information should be developed and consumer tested.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	6	2	0
<b>Consumers</b>	8	4	0	4
<b>Industry</b>	21	8	3	13
<b>PHO</b>	17	9	0	8
<b>Total</b>	53	27	5	24

**4(b) 2.**

Design attributes of nutrition information labelling that should be considered, if alternative label formats are pursued are:

- clear, uncluttered look;
- consistent title that is also an attention grabber;
- use of familiar terms and no technical jargon; and
- effective use of colour contrasts to highlight key items of information.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>AGREE WITH MOD</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	6	0	2	0
<b>Consumers</b>	8	6	0	0	2
<b>Industry</b>	21	6	2	3	10
<b>PHO</b>	17	9	1	0	7
<b>Total</b>	53	27	3	5	18

**Users of label formats****4(c) 1.**

Needs of various consumers, or users, of the nutrition labelling information should be taken into account.

<b>GROUP</b>	<b>N</b>	<b>AGREE</b>	<b>DISAGREE</b>	<b>NO ANSWER</b>
<b>IHP</b>	8	5	2	1
<b>Consumers</b>	8	5	0	3
<b>Industry</b>	17	8	3	8
<b>PHO</b>	21	8	3	6
<b>Total</b>	53	26	8	17

### **Extension of nutrition labelling**

**5a. Issue of whether the use of nutrition labelling should be extended to more foods or purchasing setting; and if so what would be the preferred approach and cost-benefit implications of that approach.**

<b>Group</b>	<b>N</b>	<b>Agree</b>	<b>Agree with modification</b>	<b>Disagree</b>	<b>No answer</b>
<b>IHP</b>	8	4	2	1	1
<b>Consumers</b>	8	7	-	-	1
<b>Industry</b>	21	3	3	13	2
<b>PHO</b>	17	7	2	4	4
<b>Total</b>	<b>53</b>	<b>20</b>	<b>7</b>	<b>18</b>	<b>8</b>

**5b. Provisions for nutrition labelling should provide for consistency of nutrition information in food labels**

<b>Group</b>	<b>N</b>	<b>Agree</b>	<b>Disagree</b>	<b>No answer</b>
<b>IHP</b>	8	7	-	1
<b>Consumers</b>	8	5	-	3
<b>Industry</b>	21	14	3	4
<b>PHO</b>	17	12	1	4
<b>Total</b>	<b>53</b>	<b>38</b>	<b>4</b>	<b>11</b>

## 2.3 Summary of comments

The following points 1 to 5 provide summaries of the comments received from submitters in response to P167. The summaries are set out in accordance with the questions as provided in the questionnaire which formed part of P167. The conclusions provided are on the basis of submitters' comments only. Further consideration is given to all issues in the full assessment report before arriving at the final recommendations.

### 1. Development of principles for assessing the review of nutrition labelling

#### PRINCIPLE 1

##### **Proposal recommendation:**

*Nutrition information on food labels, where used, would be developed in the context of national nutrition policies for both countries, and by extension, provide for consistency and linkage with Dietary Guidelines for Australians (NHMRC, 1992) and New Zealand's Food and Nutrition Guidelines (Public Health Commission, 1995) as a means of safeguarding long-term public health and safety, providing for informed choice and preventing fraud and deception.*

##### **Public comment**

###### **Consumers (n=8)**

Five consumers agreed with this principle with the proviso that nutrition policies are subject to change as scientific knowledge emerges and therefore information on labels may need to be changed accordingly.

###### **Public Health and Community Organisations (n=17)**

Auckland Healthcare Services Ltd, Cootamundra Health Centre, CSIRO, Diabetes Australia, Dietitians Association of Australia, Healthcare Otago Ltd, the Health Department of WA, Menzies Centre for Population Health Research, NSW Health Department, and the SA Health Commission all supported this fundamental principle. Reasons included the acknowledgment that nutrition labelling is a public health issue, and thus should be linked with such policies; that it provides a means for safeguarding long term public health; and that it presents information in a consistent way, thus allowing for ease of consumer use.

Pritikin Health Association of Australia, Inc. and Queensland Community Health Services agreed with modification. Pritikin noted that some consumers have nutrition interests outside of those of health professionals, and thus, the needs of these consumers may not always be adequately addressed *via* nutrition labelling.

Queensland Community Health Services noted the limitations of the population based approach to national nutrition policies, such as the dietary guidelines, in addressing the needs of individual consumers.

###### **Industry (n=21)**

The Australian Dairy Products Federation, Cerebos Foods, Confectionery Manufacturers of Australasia, Goodman Fielder Ltd, Hansells (NZ), Heinz, New Zealand Dairy Board, NZ Dairy foods Ltd, Uncle Toby's Co. Ltd, and Wrightson Nutrition all supported this principle. General reasons for support included the usefulness of this policy as a platform for consumer education, for diminishing the chance for consumer confusion, and for positioning nutrition labelling in a context consumers can understand. Acknowledgment was also made of the fact that while nutrition labelling alone cannot safeguard long-term public health, it can contribute by providing practical and educative information for consumers.

The Australian Food and Grocery Council found this fundamental principle to be marginally relevant to nutrition labelling, and noted a need for clarification of its interpretation, the importance of education preceding nutrition labelling to maximise its benefit, and recommended removing the reference to fraud and deception.

The Dairy Farmers Group, Heinz-Wattie Ltd, Kellogg's, and Monsanto Australia Ltd agreed with suggested modifications. These modifications included noting the need for nutrition labelling to keep up with changing science and look broader than national nutrition policies as a reference point for nutrition labelling. Also noted was the population based approach of national nutrition policies and the fact that nutrition labelling should also fit the needs of smaller population groups.

Three submissions (AFGC, Heinz, Nestle) contested the concept that nutrition labelling can prevent fraud and deception; one submission (Monsanto) supported it.

### **Independent health professionals (n=8)**

The majority of independent health professionals also supported this fundamental principle. Comments included the importance of nutrition labelling information in providing a cornerstone for implementation of the ANZFA act and in providing a central means for implementing nutrition policies.

Two submissions agreed with modification. One of these submissions identified the need for such policies to be timely and noted that they are not all inclusive. The other submission from Professor Stewart Truswell agreed with this latter point, and suggested the following addition to the principle:

'and other authoritative nutrition recommendations in Australia and New Zealand (eg NHMRC '92 etc...)

### **Evaluation**

A clear majority of submissions from industry, public Health and Community Organisations and consumers fully supported the fundamental principle proposed by ANZFA for assessing nutrition labelling provisions. While agreeing with this principle, a number of comments from industry, health professional organisations and consumers also noted that such nutrition policies were not all inclusive and there is a need to acknowledge that these policies do not necessarily represent the totality of relevant and emerging nutritional science.

In setting forth this principle, the Authority recognised the evolving character of the scientific understanding of the relationship between diet and chronic disease which

underpin the Dietary Guidelines for Australians (NHMRC, 1992), and New Zealand's Food and Nutrition Guidelines (Public Health Commission, 1995), seeks to make its recommendations in light of the current status and potential changes in scientific knowledge likely to occur in the next decade. The Authority accepts the central recommendations of the guidelines for Australia and New Zealand without independently assessing their correctness based on relevant studies on nutrition, dietary consumption, and health, yet recognises the evolving character of the scientific knowledge underpinning these dietary guidance recommendations. This approach is dictated by resource constraints, but is independently justified by the broad acceptance of these dietary recommendations within the Australian, New Zealand and international scientific communities.

However, in acknowledgment and response to the comments from industry, ANZFA proposes that this fundamental principle be expanded as suggested by one submitter to include other 'authoritative nutritional recommendations in Australia and New Zealand'. Authoritative as defined by ANZFA would refer to recommendations that reflect a consensus of scientific evidence as reviewed by scientific experts and recognised nationally, such as NHMRC recommendations and the Better Health Commission targets.

The Authority believes that the nutrition label can and should help consumers make informed choice and that it can also contribute to helping consumers to maintain healthy dietary practices. Providing consumers with factual information about nutrients of public health significance, eg those reflected in national nutrition policies, including dietary guidelines, and other authoritative nutritional recommendations, can assist consumers in making informed choices, some of which will assist consumers in maintaining healthy dietary practices. Maintenance of healthy dietary practices, in turn, can contribute to the protection of public health, which is central to the review of nutrition labelling. However, the ANZFA also recognises that maintaining health dietary practices is a much larger and more complex goal than that of informing food choices and one that requires knowledge and motivation. Supporting education can best assist consumers in acquiring and developing these elements.

A few comments noted that national nutrition policies, including dietary guidelines noted in principle 1, use a population based approach, and that this population based approach is in conflict with nutrition labelling, which must also meet the needs of smaller, special population groups. The ANZFA would disagree with this comment. Nutrition labelling needs to give first consideration to providing information about the nutritive value of food which meets the needs of the general population as a whole. Thus, use of national nutrition policies and other authoritative nutritional recommendations, which also use a population based approach, would be most relevant for assessing nutrition labelling provisions.

Industry voiced a mixed view on the reference in principle 1 to fraud and deception. The argument against was that nutrition labelling can not do anything to protect against fraud and deception. The ANZFA is not persuaded by this argument on the basis that the factual information provided needs to be as accurate as possible in order to aid informed choice, and in turn, assist consumers in making choices which can help maintain healthy dietary practices, and thereby, contribute to the protection of public health and safety.

## **Conclusion**

Retain this fundamental principle with an amendment, as follows:

*Nutrition information on food labels, where used, would be developed in the context of national nutrition policies for both countries, and by extension, provide for consistency and linkage with Dietary Guidelines for Australians (NHMRC, 1992) and New Zealand's Food and Nutrition Guidelines (Public Health Commission, 1995), and other authoritative nutritional recommendations, such as the Dietary Guidelines for Children, (NHMRC, 1995), the Better Health Commission (DHFS, 1987), and other relevant NHMRC reports (eg NHMRC Folate Recommendations, 1995), as a means of safeguarding long-term public health and safety, and providing for informed choice and preventing fraud and deception.*

## **Proposal recommendations: Four additional principles**

Building on this fundamental principle, ANZFA proposed four additional principles.

### **PRINCIPLE 2**

*Technical information should be kept to a minimum and quantification of nutrients should be made as meaningful as possible.*

### **Public comment**

#### **Consumers (n=8)**

For consumers, the majority agreed to the principle with modification. Agreement was generally stronger for the second part of principle two, pertaining to quantification of nutrients, than with the first part, relating to minimising the amount of technical information on a panel. A few comments noted a need to define technical information.

#### **Public Health and Community Organisations (n=17)**

The Auckland Healthcare Services Ltd, Cootamundra Community Health Centre, Diabetes Australia, Healthcare Otago Ltd, Menzies Centre for Population Health Research, the Queensland Community Health Service, and South Australian Health Commission supported principle two. Comments included ease of consumer understanding; a need to target information to consumers who read labels on a daily basis, need to provide not less information but more relevant information, and provide information that is easily understood to people of all education and literacy levels; and building on this principle, identified a need for an interpretive element to aid consumer understanding, particularly those with low literacy skills.

CSIRO, Diabetes Australia, Dietitians Association of Australia, Menzies Centre for Population Health Research, NSW Health Department, and Pritikin Health Association of Australia Inc agreed with modification. Suggested modifications included preference to replace 'minimum' with 'limited to essential information for informed choice', a suggestion to simplify the principle to 'technical information should be made as meaningful as possible', and a note that keeping technical information to a minimum is not always possible nor appropriate. An additional



comment raised the issue of the rounding of numbers declared on the panel. The Dietitians Association of Australia argued that overly precise representation of average analytical results can falsely give an impression of significant nutrient differences between products when none exists.

The Health Department of WA disagreed with the principle. They argued that it is not always effective to keep technical information to a minimum, particularly when assessing relevancy of nutrient claims. Although they agreed that information should be meaningful, they believed that industry should provide sufficient information and/or education or awareness campaigns to enable the general public to understand and use the nutrition information provided.

### **Independent Health Professionals (n=8)**

All agreed except for three, who agreed with modification, to principle two. Agreement was generally stronger for the second part of principle two, pertaining to quantification of nutrients, than with the first part, relating to minimising the amount of technical information on a panel. One submitter noted in her rationale the lack of consumer interest and ability to relate to technical information found in consumer research studies.

### **Industry (n=21)**

All industry submission except for BRI Australia Ltd, Chamber of Commerce and Industry, Golden Circle Ltd, and Kellogg's supported principle two. The exceptions neither supported nor opposed principle two; they simply abstained from comment. General reasons for support for principle two included consumer desire to seek information that is easy to understand; the need to keep information to a common level of understanding; and finally, the need to keep the nutrition information panel simple and uncluttered so that it is able to be readily observed and comprehended, even by those with low numeracy skills.

Wrightson Nutrition believed that the technical information on labels should be concise, but not necessarily kept to a minimum. They would like to see a widening of permitted voluntary labelling to allow the increasingly educated consumer to make informed choices about food purchasing.

### **Evaluation**

The majority of submissions from industry, public health and community organisations and consumers fully supported principle two proposed by ANZFA for assessing the review of nutrition labelling provisions. A uniform theme to the reasoning for this support was consumer ease of comprehension, including among individuals with low education and literacy levels.

Suggested modifications included both a clarification for 'minimum' and a simplification of the statement. Moreover, a few comments requested clarification for what was meant by 'technical information'. In the previous recommendation, technical information included terminology, such as terms for nutrients, and units of expression for those terms, such as grams or kilojoules, and also, expression to 3 significant figures. ANZFA agrees with these suggestions and proposes to amend the principle accordingly.

Regarding expression of average quantities of nutrients to not more than three significant figures. The Dietitians Association of Australia makes a cogent argument for the potential for a false impression of significant nutrient differences resulting from this provision, which will be considered under presentation of nutrition panel information.

## **Conclusion**

Retain principle two with an amendment, as follows:

*Technical information, such as terms used to describe nutrients and the quantification of nutrients in the panel, should be made as meaningful as possible and limited to essential information for informed choice.*

## **PRINCIPLE 3**

*Labelling information which is provided for consumers should be accurate, easy to use, not confuse, and assist them in identifying the nutrition contents of individual food products, comparing nutrition contents across product categories, and choosing among relevant food alternatives.*

## **Public comment**

### **Consumers (n=8)**

For consumers, two agreed with the principle and three agreed on the principle with modification. Two submissions agreed with the suggested modification that the word 'complete' be added after 'accurate'; one submission suggested a possible need to include comparative information relating the information to the RDIs.

### **Public Health and Community Organisations (n=17)**

The clear majority of submissions from health professional organisations supported principle three. Comments included that this principle was particularly important for people with medical condition in making purchasing decisions, embodied the elements required for people to be able to use the information to make healthy food choices, and that the 'comparison' role identified in the principle was especially important.

CSIRO and the NSW Department of Health agreed to the principle with suggested modifications. CSIRO expressed a preference for 'nutrition' to be replaced by 'key nutrients' and to delete 'contents'; the NSW Department of Health believed the wording should include a reference to current nutritional knowledge, eg 'Labelling information ....should be accurate, reflect current nutritional knowledge...'

### **Industry (n=21)**

The majority of industry submitters agreed with principle three. Comments included the challenge of how to best present this information so that it meets the criteria of accurate, clear and easy to use (Confectionery Manufacturers of Australasia); and that this principle is the key objective of nutrition labelling (Heinz-Wattie);

Industry views on the need to use a prescribed format were mixed. Golden Circle Ltd argued that information needs to be presented in a prescribed manner for consistency. However, Kellogg's believes that nutrition labelling regulations should allow for a degree of flexibility, rather than being very prescriptive.

Monsanto and Uncle Toby's agreed with the note that comparing nutrition contents within, rather than between, product categories' is more appropriate.

### **Independent Health Professionals (n=8)**

The overwhelming majority of independent health professionals agreed with the principle. Comments included that this principle was basic to the discussion, just commonsense, and noted its consistency with the fundamental principle.

### **Evaluation**

The majority of submissions from industry, public health and community organisations and consumers supported principle 3 proposed by ANZFA for assessing the review of nutrition labelling provisions. Suggested modifications included changing 'nutrition' to 'nutrients' and 'across' to 'within'. ANZFA agrees with these suggestions and proposes to amend the principle accordingly.

### **Conclusion**

Retain principle three with a minor amendment as follows:

*Labelling information which is provided for consumers should be accurate, easy to use, not confuse, and assist them in identifying the key nutrient contents of individual food products, comparing nutrient contents within product categories, and choosing among relevant food alternatives.*

### **PRINCIPLE 4**

*For manufacturers, labelling information should not impose unnecessary costs, and where possible, is introduced with other labelling changes concurrently rather than sequentially.*

### **Public comment**

#### **Consumers (n=8)**

Out of the consumers, two agreed on the principle with modification and two disagreed with the principle. S.Russell agreed providing there is no undue delay in the introduction of agreed labelling changes. E. Attwood and A. Raizis strongly disagreed with the principle. A. Raizis' primary concern was that manufacturers could impose unnecessary delays citing unnecessary costs as an excuse. He further argues that the initial one-off cost of labelling is likely to be passed onto the consumer, and if all changes were mandatory, then the cost might result in a modest but uniform price increase which may even be temporary. E. Attwood and the National Council of Women of Australia presented a similar argument.

#### **Public Health and Community Organisations (n=17)**

The majority of submissions from health professional organisations supported principle four. The NSW Health Department agreed with the suggested modification that the wording be simplified to ‘labelling changes should not impose unnecessary costs to manufacturers during their introduction’.

The Pritikin Health Association of Australia disagreed. They argued that based on discussions with several manufacturers, the costs of providing labelling information is negligible compared to other costs, such as those associated with decoration, advertisements, competitions, and give-aways.

#### **Industry (n=21)**

Industry submissions agreed overwhelmingly with this principle citing the need for adequate lead time to make label changes so as to keep unnecessary expenses to a minimum.

#### **Independent Health Professionals (n=8)**

Ten agreed with the principle and two agreed with modification. R. Stanton disagreed noting that manufacturers will take the maximum time to make changes, if it suits them. She further argues that labels for most products are printed frequently and if manufacturers can change labels for a product promotion (as many do), they should be able to change them to fit new standards within a reasonable time.

#### **Evaluation**

A clear majority of submissions from industry, public health and community organisations and independent health professionals supported the principle. The consumers expressed mixed support for this principle based primarily on concerns that, given the voluntary nature of most nutrition labelling information, costs borne initially by manufacturers will eventually be passed onto consumers. The issue of voluntary *versus* mandatory nutrition labelling information is an issue separate from that put forward in this principle, and is being discussed as part of nutrition labelling coverage.

#### **Conclusion**

Retain principle four as previously proposed.

### **PRINCIPLE 5**

*Labelling information requirements should be explicit and able to be substantiated. In developing these requirements, consideration should be given to the use of regulatory and non-regulatory approaches, eg code of practice guidelines, to provide appropriate labelling information.*

#### **Public Comment**

#### **Consumers (n=8)**

Views from consumers were mixed with two agreeing with the proposed principle five and three agreeing with modifications. The Home Economics Institute of Australia and Suzanne Russell noted that non-regulatory approaches should be used with caution as experience shows that many consumers do not have the knowledge or experience to decide on the accuracy of health related statements. The National Council of Women of Australia agreed with the first sentence but suggested omitting 'non-regulatory approaches, eg code of practice guidelines'.

### **Public Health and Community Organisations (n=17)**

The majority of submissions from public health and community organisations also supported the principle. Four submissions agreed with modifications. CSIRO requested additional clarification on substantiated; Diabetes Australia suggested 'by objective measurement' be added to substantiated. They noted that values needed to be substantiated by manufacturers and that information which could not be substantiated is easily used for misleading purposes. Healthcare Otago Ltd agreed yet noted that non-regulatory approaches need to be well documented, linked with regulations, and re-evaluated and changed as nutritional guidelines change.

### **Industry (n=21)**

Industry submissions agreed overwhelmingly with principle five, particularly supporting non-regulatory approaches, such as the establishment of guidelines or codes of practice, to assist manufacturers in complying with food regulations. The Dairy Farmers Group agreed with the suggest modification to retain permission to use additional labelling to inform and educate the consumer. Heinz supported the principle and recommended that consumer information requirements also be explicit and substantiated.

### **Independent Health Professionals (n=8)**

The majority of submissions from independent health professionals agreed with principle five, with six agreeing and two agreeing with modifications. These modifications identified a need to differentiate nutrition labelling from health claims, where self-regulation was not believed to be appropriate, and that substantiation is often an issue. Although incorrect labels may be corrected, considerable sales may have occurred in the interim due to the unsubstantiated information.

### **Evaluation**

The majority of submissions from industry, public health and community organisations and consumers supported principle five proposed by the ANZFA for assessing the review of nutrition labelling provisions. Details of non-regulatory approaches raised the most comment, rather than whether or not to use non-regulatory approaches. The use of non-regulatory approaches to assist in the regulation of nutrition labelling is highly supported by the Authority as this is consistent with a range of other regulatory approaches now being explored and implemented by the Authority.

### **Conclusion**

Retain principle five as previously proposed.

## **2. Development of an interpretive element**

### **Proposal recommendation:**

*An interpretive element should be provided in the nutrition labelling provisions, as one way to provide linkage with dietary guidelines and enhance consumer understanding and use of the nutrition information in food selection.*

### **Public Comment**

#### **Consumers (n=8)**

Three consumers agreed that an interpretive element should be provided and two disagreed. The reasons for which consumers agreed were that the interpretive element would assist consumers in understanding the numeric information in the panel and assist specific subgroups of the population.

Concerns expressed by those consumers who disagreed with the principle were that an interpretive element may be misleading, it may delineate ‘good foods’ from ‘bad foods’ and it may create an unfair trading advantage.

#### **Public Health and Community Organisations (n=17)**

Public health and community organisations were highly supportive with eleven agreeing that an interpretive element should be provided on the NIP. The reasons for agreement were that it would assist consumers in understanding the numeric information in the panel and assist specific subgroups of the population. The NSW Health Department, whilst agreeing that an interpretive element would be useful, felt that its use should be assessed on a case by case basis, rather than being an intrinsic part of the labelling process. A number of organisations also agreed that further consumer testing would be required to ascertain the most effective way to include an interpretive element.

Two public health and community organisations disagreed with the principle because they felt that individual health needs may be obscured and that an interpretive element would take up too much space.

#### **Industry (n=21)**

Industry groups were divided regarding this principle with eight agreeing and eight disagreeing. Despite this however, two of the eight industry submissions who disagreed commented that the intention is sound but that it should be voluntary.

Industry groups who agreed with the principle including the Australian Food and Grocery Council, Australian Soft Drink Association and Heinz-Wattie Ltd, also expressed the view that if an interpretive element was to be utilised, it should be on the proviso that it be required only on a voluntary basis.

Those who disagreed with the principle including the Bread Research Institute, the New Zealand Dairy Board and New Zealand Dairy Foods Ltd, Heinz and Uncle Toby’s, did so on the basis that it would take up too much space on the label, that it may obscure individual health needs and that it may create trade barriers.

**Independent health professionals (n=8)**

Four independent health professionals agreed to the use of an interpretive element whilst three disagreed.

The reasons for which public health and community organisations agreed with including an interpretive element was that it would assist consumers in understanding the numeric information in the panel and assist specific subgroups of the population. C. Campbell suggested that an interpretive element could be advantageous to international and domestic trade.

Those who disagreed to the use of an interpretive element did so primarily on the basis that individual health needs may be obscured. R. Stanton suggested that there was no evidence to suggest that an interpretive element would assist consumers.

**Evaluation**

In consideration of submissions received, it is appropriate to further explore and develop the concept of an interpretive element.

**Conclusion**

An interpretive component of nutrition labelling should be developed and allowed to be used when a nutrition information panel is required. In consideration of industry's concerns the ANZFA proposes that its use should be voluntary.

### **3. Nutrition labelling content**

#### **3a. Nutrients to be declared**

##### **Energy**

##### **Proposal recommendation**

*Disclosure of energy content in the nutrition panel continue to be required, when a panel is used.*

##### **Public comment**

##### **Consumers (n=8)**

Five consumers agreed with above proposal. The other three made no comment. Reasons for support were primarily on the basis of consistency with Codex and the current Australian and New Zealand requirements, consumer interest and public health significance.

##### **Health Organisations (n=17)**

Again, the majority of replies expressed support for the proposal for similar reasons to those given above. The New Zealand Nutrition Foundation suggested energy should be included 'where appropriate', but did not define what was considered to be appropriate. Some comments were made regarding the expression of energy as kilojoules or calories, this issue is addressed in Question 3b of Proposal 167. The Pritikin Association also noted the need to define food content of foods that have 'non-food' content such as water.

##### **Industry (n=21)**

There was no comment from eight of the industry representatives, the remaining 13 all agreed with the recommended proposal. Reasons were not always provided however those that did were similar to the previous two groups of submitters. The Dairy Farmers Group suggested it could be voluntary as did Monsanto Australia. However the latter then noted its relevance to all foods and therefore suggested it remain mandatory. Goodman Fielder noted energy to be the most important item in the panel, and of significant interest to consumers and health professionals.

##### **Independent Health Professionals (n= 8)**

All submitters were in agreement with the proposed recommendation. The proposal was supported on the basis of consistency with Codex, and current Australian and New Zealand requirements, public health significance and consumer interest.

##### **Evaluation**

As there was clear agreement from the submitters, and none expressing disagreement it would appear that the recommendation is accepted by all parties. There were no major issues arising, and consistent reasons were given for support.



## **Conclusion**

That the proposal recommendation be accepted.

## **Protein**

### **Proposal recommendation**

*Disclosure of protein content in the nutrition panel continue to be required, when a panel is used.*

### **Public comment**

#### **Consumers (n=8)**

Five consumers agreed and two gave no comment. The only disagreement was from the Australian Consumer Association (ACA) suggesting that protein disclosure should not be mandatory on all products, but rather only when the food is used as a high protein substitute, such as soy drinks. A. Raizis was also concerned that protein sources should be disclosed, citing in particular animal protein such as 'jelly' [gelatine] due to consumer interest. The National Council for Women of Australia (NCWA) noted that the significance of protein in the diet should be emphasised through nutrition education for [school] students.

#### **Health Organisations (n=17)**

Although the majority (9) of this group were in agreement with the recommendation, four disagreed and four made no comment. Those disagreeing (Dietitians Association of Australia (DAA), NSW Health Department, NZ Nutrition Foundation, Auckland Health Care Services) did so on the basis that protein disclosure is unnecessary due to lack of public health significance, and confusing on products which contain no or little protein. However DAA added that certain foods, such as infant foods and protein modified foods should have mandatory protein disclosure. The NSW Health Department also added that certain foods may benefit from declaration of protein, such as milk substitutes.

Those in agreement with the recommendation did so on the basis of a recognition of some public health significance, particularly for certain sub-groups and professional requirements, consistency with other regulations and some consumer interest. Its part in the total energy equation was also noted (Diabetes Australia).

#### **Industry (n=21)**

The majority (12) agreed with the recommendation, with eight making no comment and one in disagreement. The latter was from the Uncle Toby's Company (UTC) who considered protein disclosure should be voluntary due to relatively minor public health significance, and lack of protein in many foods. Others (Monsanto, Goodman Fielder) also commented that protein declaration could be voluntary, however noted its significance as a macronutrient, and a component of the total energy equation. On these grounds, and the reasons of consistency with other regulations, consumer interest and some recognition of public health significance, the majority of industry submitters supported the recommendation.

#### **Independent Health Professionals (n= 8)**

Opinion was divided by this group of submitters with five agreeing with the proposal, three disagreeing and one divided opinion. The issues raised included its relevance, or lack of, for consumers (R.Stanton, V.Scott, S.Truswell). Those in agreement with the recommendation did so on the basis of consumer interest public health significance and consistency with Codex, Australian and New Zealand regulations.

## **Evaluation**

Although there was some disagreement on this recommendation, the majority of all groups agreed with it, and amongst those that disagreed, there was notable qualification that some foods and population groups would benefit from protein disclosure.

## **Conclusion**

That the proposal recommendation be accepted.

## **Carbohydrate**

### **Proposal recommendation:**

Disclosure of carbohydrate content in the nutrition panel continue to be required, when a panel is used.

### **Public comment**

### **Consumers (n=8)**

All consumers who commented were in agreement with the proposal recommendation, again for the reasons as cited above. The health significance of complex carbohydrates in particular were noted by the Home Economics Institute of Australia (HEIA) and S.Russell. The ACA noted that sugar must remain on the panel however added that the status of sugar and health should be reviewed in terms of the Dietary Guidelines. Sugar is discussed further in the section below on 'Total Sugars'. NCWA again commented on the need for nutrition education from primary school onwards.

### **Health Organisations (n=17)**

Again the recommendation was strongly supported with 12 in agreement, and four providing no comment. The response from the New Zealand Nutrition Foundation was not clear suggesting only that carbohydrate should be disclosed 'where appropriate'.

### **Industry (n=21)**

Of those industry representatives who commented (10) all were in agreement with the recommendation. The reasons for support were again as given above, and no particular issues were raised.

### **Independent Health Professionals (n= 8)**

All submitters were in agreement with the proposal recommendation noting public health significance, consumer interest and consistency with Australia, New Zealand

and Codex as their reasons. One noted that carbohydrate *per se* is poorly understood by consumers.

## **Evaluation**

Clear indications were given by submitters that the disclosure of carbohydrate should be retained, with some reference to sugars and total carbohydrates. These issues will inherently be considered further in the sections on Total Sugars and Dietary Fibre.

## **Conclusion**

That the proposal recommendation be accepted.

## **Fats**

### **Proposal recommendation:**

Disclosure of fat content in the nutrition panel continue to be required, when a panel is used.

### **Public comment**

#### **Consumers (n=8)**

Of the seven consumers who responded all agreed with the recommendation, consistency with other regulations and public health significance were noted, with most discussion highlighting the importance of informed choice by consumers. E.Attwood, the NCWA, C.Davis and D.Wilson-Roberts commented in particular on the need for more detailed information on fat content, specifically in relation to fat type. This issue was of particular concern to D.Wilson-Roberts who commented ‘I am wanting this looked into and changed [ie more detail on fat type] so that as a responsible consumer, I can obtain the information I need to maintain a healthy life.’ Similar comments were made by C.Davis who stated that she has found it difficult to choose appropriate foods for a diet conducive to cardio-vascular health. Davis also commented on the advantages of cholesterol and calories being declared, as in the USA.

#### **Health Organisations (n=17)**

This group of submitters also showed no disagreement with the recommendation, although the New Zealand Nutrition Foundation was again not completely clear by suggesting fat should be disclosed ‘where appropriate’. This group of submitters also recognised the public health significance and consumer interest in this area, and the desire for disclosure for fat type was referred to by the Pritikin association, and possibly by Coorparoo Community Health Service and the SA community health Service who noted lack of consumer understanding of total fat *per se*. The Menzies Centre for Population Health Research suggested there was an urgent need for an interpretive element [for consumers] as the current numerical nutrition information panel caters primarily for health professionals.

#### **Industry (n=21)**

Fifteen of the industry responses were in agreement with the recommendation, the other six did not comment. Goodman Fielder highlighted the relevance of this nutrient

to consumers by informing that; ‘ Our consumer advisory services report that queries on fat levels are the most frequent they receive as far as nutrition information is concerned.’ The UTC noted strong support on the basis of public health significance and the need for consumer information.

### **Independent Health Professionals (n= 8)**

All submitters agreed with the recommendation, with all citing public health significance as a reason, strong support was also given for consumer interest and consistency with current Codex, Australian and New Zealand regulations. S.Thompson also noted the need for disclosure of saturated and trans fatty acids.

### **Evaluation**

The recommendation is clearly supported with a wide recognition of the public health significance of fats, and interest on behalf of consumers. The main issues raised centred on the need for disclosure of fat types, such as poly and mono-unsaturated, saturated fats and trans fatty acids. There will be further discussion on this area in the section below on saturated fats.

### **Conclusion**

That the proposal recommendation be accepted.

## **Total Sugars**

### **Proposal recommendation**

*Disclosure of total sugars content in the nutrition panel continue to be required, when a panel is used; or,  
Disclosure of total sugars content in the nutrition panel should be voluntary, unless a claim is made.*

### **Public comment**

#### **Consumers (n=8)**

Two consumers did not comment on this nutrient, however the other six all chose the ‘required’ option. Issues raised included the importance to many consumers, and the difficulties in understanding by consumers between naturally occurring and added sugars. The ACA agreed that sugars must remain on the panel however noted that the status of sugar and health should be reviewed with regard to the Dietary Guidelines.

#### **Health Organisations (n=17)**

Amongst the 13 organisations which commented, eight supported mandatory disclosure of sugars, whilst five preferred voluntary disclosure. A number of submitters, (Coorparoo Community Health Service, CSIRO, DAA, Diabetes Australia, Health Care Otago) which included those for both mandatory or voluntary disclosure commented on the lack of consumer understanding and confusion raised by the inclusion together of sucrose and non-sucrose sugars. Healthcare Otago also noted the need for consistency between Australia and New Zealand with regard to the definitions of ‘no added sugars’ and ‘sugar free’ etc. The SA Health Commission

commented on the need for consumer confusion regarding sugars to be addressed if the NIP is to be a 'success'. Diabetes Australia noted that consumers understand total sugars to be sucrose rather than all sugar sources, and that continuing misconceptions in diabetes education are supported by the over-emphasis of sugar in current labelling. The Pritikin Association considered that sugar disclosure should be required in order that consumers can make informed choices.

The Menzies Centre noted that it may be necessary to consider the possibility of the glycaemic index replacing actual sugar content, and that it would be superfluous to have both. The glycaemic index was also mentioned by Diabetes Australia.

Suggestions for mandatory triggering of sugar disclosure in the panel were made for either a 'no added sugar' (NSW Health Department), or 'reduced sugars' (NZ Nutrition foundation) claim.

### **Industry (n=21)**

The Industry group differed markedly from the other submitter groups for this nutrient with its strong support (n=12) for voluntary disclosure of sugars. Only three submitters considered sugar disclosure should be required, the other four did not comment.

The basis for many of the arguments was the considered declining role of sugar in negative health outcomes, except for dental caries, as indicated by a number of scientific studies. Even the dental caries were not considered to be a major concern in light of the relatively greater importance of fluoride and regular brushing of teeth, and the contribution of all types of fermentable carbohydrates to tooth decay.

Amongst those supporting voluntary disclosure of total sugars: the Australian Food and Grocery Council (AFGC) disputed the status of sugars within the dietary guidelines; Goodman Fielder suggested that consumers interested in the sugar content of a food can gain a good idea from the ingredient listing; the Confectionery Manufacturers Association (CMA) also noted the changing science with regard to sugars and health and suggested that 'total carbohydrate be declared on foods making a nutrition claim, and that sugars not be listed separately'; Kellogg's arguments were based on the current misconceptions by the general public regarding health aspects of sugar, the confusion to diabetics by over-emphasis of sugar [on the nutrition information panel] rather than the glycaemic index, and the lack of clarity of 'total sugars' regarding added sucrose as compared to naturally occurring mono- and disaccharides. Kellogg's also felt the ingredient list provided better information on product composition when considering sugar content. Heinz Australia and

Monsanto suggested sugar disclosure should only be required when a nutrient claim is made about specific carbohydrates such as simple, complex or fibre. Monsanto also noted the inherent difficulties without agreed definitions of complex and simple carbohydrates and the UTC commented on differing definitions of sugars according to the *Food Standards Code*. The New Zealand Dairy Board and New Zealand Dairy Foods commented on the increased space requirements [on the label] for mandatory disclosure.

The Bread Research Institute (BRI) was divided in its views on this nutrient. Some members felt declaration of total sugars was unnecessary and that consumers were

unaware of the difference between total sugars and added sugars, whilst others stated that total sugar information was valuable to diabetics. BRI suggested an expert review of the disclosure or non-disclosure of total sugars should be considered. Those submitters who supported mandatory disclosure did so on the basis of public health significance and compliance with New Zealand and Codex, and Hansells NZ noted that total sugars listing was of assistance to diabetics, and also necessary for consumers to be able to determine [presumably by subtraction from total carbohydrates] the amount of complex carbohydrate present.

### **Independent Health Professionals (n= 8)**

The majority of these respondents supported mandatory disclosure of total sugars, whilst one (S.Thompson) suggested consumers wanted to know 'added sugars'. R.Stanton and S.Truswell supported the use of voluntary disclosure unless a claim is made, suggesting that total carbohydrate was more important (R.Stanton), and that consumers may be confused by the inclusion of both naturally occurring and refined sugars in 'total sugars' (S.Truswell). Comments relating to the mandatory disclosure of sugars suggested that sugars were of consumer interest, and necessary for the comparison of products, in particular in light of the now more widely accepted inclusion of sugar in the diet.

### **Evaluation**

Sugar was the most contentious of the nutrients considered in the proposal. The current status of mandatory 'total sugar' disclosure on the nutrition information panel was challenged primarily on the basis of the changing science regarding sugar and health. Also clearly arising from the submissions was consumer confusion regarding the lack of clarity between sugar types when expressed only as 'total sugars'. This latter point may highlight the need for supporting consumer education in this area. The relatively new consideration of glycaemic indices was also noted and may need to be included as part of the watching brief on sugars.

Although the public health significance of sugar is under dispute, without a clear change in public health policy, there is no support (with regard to policy underpinnings of Proposal 167) for the removal of total sugars from mandatory disclosure. Consumer interest also appears to remain a relevant factor, albeit in need of supporting education.

### **Conclusion**

It is recommended that disclosure of total sugars remain on the NIP at this point in time. Due regard is given to the changing science and the need for a watching brief on the status of sugar within the context of public health policies within Australia and New Zealand.

### **Sodium**

#### **Proposal recommendation:**

Disclosure of sodium content in the nutrition panel continue to be required, when a panel is used.

## **Public comment**

### **Consumers (n=8)**

Of the four consumers who responded, all were in agreement with the recommendation. Reasons given for supporting the recommendation include public health significance, consumer interest and consistency with Codex, Australia and New Zealand.

### **Health Organisations (n=17)**

There was strong agreement from this group of submitters with 12 in agreement, none disagreeing, four making no comment and one reply (NZ Nutrition Foundation) suggesting 'where appropriate'. Diabetes Australia qualified their response by adding 'required for specific categories', and Healthcare Otago also felt poor consumer understanding could be aided by the use of an interpretive element such as adjectives. They also noted consumer confusion when 'sodium' is listed in the NIP but not in the ingredient list, (not being aware of its natural occurrence in many foods). The Menzies Centre emphasised that sodium disclosure is essential for implementation of the Salt Skip program.

### **Industry (n=21)**

Responses were a little more varied amongst industry submitters. Of the 12 who responded, seven were in agreement, three disagreed, Monsanto suggested it should only be when a claim is made, and the Australian Dairy Products Federation had no clear preference - noting lack of consumer understanding of the relationship between sodium and salt, and levels of sodium intake relative to health. Those who disagreed suggested sodium labelling should be discretionary and that 'salt' (NaCl) is more meaningful to consumers. NZ Dairy Board commented that mandatory disclosure is over-labelling.

### **Independent Health Professionals (n= 8)**

All submitters in this group were in agreement with the proposal except for one (B.Wood) who suggested it should be changed to voluntary disclosure, unless a claim is made. Amongst those in agreement, S.Truswell noted that the evidence is impressive for the relation of sodium and high blood pressure. The reasons for support given by all respondents were public health significance and consumer interest, as well as some noting consistency with Australia, New Zealand and Codex. One also noted poor understanding by consumers.

## **Evaluation**

The majority of submitters were clearly in agreement with the recommendation. Issues raised related primarily to lack of consumer understanding of salt *versus* sodium, and the natural occurrence of sodium, and discussion was also raised on the appropriate units for disclosure. This latter issue will be addressed further in the section on terminology for sodium.

## **Conclusion**

That the proposal recommendation be accepted. Consideration should also be given to supporting education on the relationship of sodium to salt, and associated health outcomes.

## **Potassium**

### **Proposal recommendation:**

Disclosure of potassium content in the panel should be changed to voluntary, unless a claim is made.

### **Public comment**

#### **Consumers (n=8)**

Of the four submitters who responded to this question, all were in agreement. Lack of consumer understanding with regard to the nutritional significance of potassium was noted.

#### **Health Organisations (n=17)**

Nine of this group of submitters supported the recommendation, with three disagreeing, four making no comment and one undecided. The reservations of this latter submitter were on the basis that potassium information is useful for some diets such as renal. Those in agreement did so in the basis of poor consumer understanding and questionable public health significance, and again compliance with New Zealand.

Those who disagreed noted that if sodium level is declared, then it is also important to declare the potassium level (Healthcare Otago) and for informed consumer choice (Pritikin Assoc). The Menzies Centre commented that inclusion of potassium is supported by the Dietary Guidelines for Australians (NHMRC, 1994:77) where it states 'Some authors think it desirable that potassium excretion rate should at least be equal to the sodium excretion rate'.

#### **Industry (n=21)**

Industry were mostly in agreement with the recommendation with just one disagreeing (Dairy Farmers Group), and Monsanto suggesting that potassium only be mandatory when sodium is also mandatory, in recognition of the inter-relationship between sodium and potassium. NZ Dairy Board commented that mandatory disclosure would again lead to over-labelling. Lack of consumer understanding, questionable public health significance and compliance with New Zealand were again the reasons given for support.

#### **Independent Health Professionals (n= 8)**

There was general agreement for this recommendation from the majority of submitters. One (R.Stanton) stated 'not sure' on the basis that public health significance may have been neglected, however also noting that disclosure is not always relevant and should only be made if the RDI is also shown. The main reasons given for changing the disclosure status of potassium were its questionable public health significance, and poor understanding by consumers.

### **Evaluation**

The clear majority of submitters were in favour of changing disclosure of potassium to voluntary, unless a claim is made. The inter-relationship between sodium and potassium was noted, and the public health significance of potassium for some sub-



groups recognised. It was felt that these consumers are in the minority and that their needs can be met more appropriately through professional advice.

## **Conclusion**

That the proposal recommendation (to change disclosure of potassium to voluntary) be accepted.

## **Saturated fat**

### **Proposal recommendation:**

Consideration should be given to requiring saturated fat content when a panel is used.

### **Public comment**

#### **Consumers (n=8)**

One consumer did not comment. All others were in agreement that saturated fat should be declared. Supporting reasons were public health significance and consumer interest, and the usefulness of such information in assisting with food choice, particularly of processed foods. Reference was also made by three respondents to oxidised and/or trans fatty acids and their relevance when considering saturated fats. Strong support for the disclosure of saturated fat came from A.Raizis and C.Davis. Raizis considered saturated fat to be an extremely important health issue with reference to a number of scientific studies linking saturated fat intake and negative health outcomes. Raizis also emphasised the need for supporting education, particularly in schools.

#### **Health Organisations (n=17)**

Eleven of the submitters in this group agreed that saturated fat disclosure should be required, whilst only one disagreed - on the basis that information on fat type (animal or vegetable) can be found from the ingredient listing. This submitter (Healthcare Otago) also noted that information on hydrogenated fats would be useful. The NZ Nutrition Foundation agreed with the recommendation on the basis that it should only be required for products where the amount of saturated fat present was significant, for example, over 10 g per serving. Four submitters made no comment.

Issues raised were similar to the previous group namely, that not all saturated fats are harmful and trans fatty acids should be included as saturated fats. This latter point was raised by DAA, Diabetes Australia, NSW Health Department and the NZ Nutrition Foundation.

#### **Industry (n=21)**

Industry response differed markedly from the other respondent groups. Only one (Cerebos Foods) was in direct agreement. The UTC and Goodman Fielder suggested saturated fat declaration only be required above a set level, for example; <10% of the product's energy, or, <3% total fat. They also noted that trans fatty acids should be inclusive in saturated fat disclosure.

Seven respondents provided no comment and the remaining 11 preferred voluntary disclosure of saturated fat. The comments relating to voluntary disclosure were considerable and varied. The AFGC noted that the current requirements are inconsistent with Codex and New Zealand and that the analysis for saturated fats is expensive and in many products irrelevant. The cost factor was also raised by Heinz-Wattie(NZ). The AFGC pointed out that not all saturated fats are detrimental [to health] and raised the question of whether or not trans fatty acids should be included. This latter aspect was also raised by the Australian Dairy Products Federation, the Dairy Farmers Group, Heinz Australia., NZ Dairy Board and the UTC.

The issues of over-labelling, and the requirements for panel space were raised by the Australian Dairy Products Federation, NZ Dairy Board and NZ Dairy Foods.

The scientific invalidity of pooling all saturated fats together, and potentially causing consumer confusions was considered by the Australian Dairy Products Federation, and the CMA. This point is raised with particular reference to stearic acid, which unlike the other saturates is not considered harmful to cardiovascular health. The CMA further stressed this point by adding that ‘If all saturates are listed together on food labels, it may well curtail any food industry development on new foods containing either cocoa butter or fats with higher levels of stearic acid.’

Comments regarding saturated fat content declaration on some foods were given by Goodman Fielder, the UTC and Monsanto Australia. Monsanto suggested declaration is only relevant when a claim is made about the types of fats, or about cholesterol. The UTC suggested there needs to be a cut-off level below which declaration is not required, such as where fat represents 10% of the product’s energy level. Goodman Fielder recognised the public health significance of saturated fats, and suggested that it would thereby be relevant to include trans fatty acids. However they also noted that saturate fat composition is not available for all foods (and not for trans fatty acids) and that such analysis is complex and expensive. On balance, they believe ‘there is a case for including saturated fat (including trans) for all foods that are not low fat foods (ie less than 3% fat according to the Code of practice on Nutrient Claims)’.

Two submitters (Heinz-Wattie NZ and Hansells NZ) considered that the ingredient listing would provide sufficient information for concerned readers to be able to identify saturated fats.

### **Independent Health Professionals (n= 8)**

The majority of respondents (5) agreed that disclosure of saturated fat should be required, primarily on the basis of consumer interest and public health significance. S.Truswell suggested however that such disclosure be required only for foods containing a significant amount of fat. S.Thompson and B.Wood considered voluntary disclosure would be more appropriate.

### **Evaluation**

The views on saturated fat requirement were reasonably supportive amongst public health individuals, organisation and consumers, however industry’s viewpoint was far more clearly in favour of voluntary disclosure. The arguments provided by all groups were reasonably similar with the main points being the discrepancies of stearic acid and trans fatty acids when considering the health implications of saturated fats. One of

the other main arguments by industry against mandatory disclosure, was that of the complexities and expense of saturated fat analysis.

Throughout all the submissions the majority acknowledged the overall public health significance with just three querying this, and significant consumer interest was also recognised by most, however seven also commented on poor consumer understanding. Some acknowledgment was given to compliance with Codex and consistency with NZ by maintaining declaration as voluntary.

On balance, in view of the policy regarding the public health significance, it was felt that saturate fats are of public health significance and therefore should be mandated for disclosure. However consideration also needs to be given to the issues concerning stearic acid and trans fatty acids, and also the implications for industry with regard to sourcing data on the saturated fat content of foods.

## **Conclusion**

It is recommended that the mandatory disclosure of saturated fat be considered further.

## **Cholesterol**

### **Proposal recommendation**

Disclosure of cholesterol content in the nutrition panel should be retained as voluntary, unless a claim is made.

#### **Public comment**

#### **Consumers (n=8)**

This was one of the few nutrients about which consumers were divided regarding its inclusion in the NIP. Two were in favour, two disagreed, two didn't comment and one wasn't clear. Comments made referred to consumer confusion and changing views on cholesterol. C.Davis felt that cholesterol should always be disclosed and A.Raizis emphatically disagreed. Raizis provided literature reviews to suggest that cholesterol remains a significant risk factor for heart disease and gallstones. He suggested the most prudent approach would be to label only foods that have higher than 50mg/100g cholesterol.

#### **Health Organisations (n=17)**

The majority of public health organisations were in favour of voluntary disclosure of cholesterol with just two disagreeing (SA Health Commission and Pritikin Association). The Pritikin Association based their disagreement on respected opinions that cholesterol does play a role in cardiac disease, and that consumers have a right to informed choice.

Those in agreement with the recommendation noted the consumer interest and health significance of cholesterol however also commented that it was confusing [to consumers] and that its disclosure may interfere with the more important messages

about total fat. Diabetes Australia suggested that if a cholesterol claim is made, total fats and saturated/unsaturated fat ratios should also be included.

### **Industry (n=21)**

All of the industry submitters who responded (14) agreed cholesterol disclosure should be voluntary. Their supporting reasons ranged across lack of public health significance and consistency with Codex and New Zealand, whilst consumer interest (and confusion) was also noted.

### **Independent Health Professionals (n=8)**

The majority (7) of this group agreed with the recommendation, except for one who did not comment. Those in agreement with the recommendation queried the public health significance, and although noting some consumer interest, most suggested cholesterol was poorly understood by consumers.

### **Evaluation**

The vast majority of submitters from each of the sectors expressed agreement for the voluntary disclosure of cholesterol, except for consumers who were more ambivalent. It is noted that this was one of the few nutrients for which consumers were not largely in favour of disclosure being required. The greater public health significance of fats *per se*, particularly saturated fats, rather than cholesterol, was recognised.

### **Conclusion**

That the proposal recommendation be accepted.

### **Dietary Fibre**

#### **Proposal recommendation**

Consideration should be given to requiring dietary fibre content when a panel is used.

#### **Public comment**

#### **Consumers (n=8)**

Amongst consumers, four preferred that disclosure be required, with the qualification by ACA that it only be required in plant-based foods. Two agreed with voluntary disclosure. Public health significance and consumer interests were given as the main reasons.

#### **Industry (n=21)**

Industry was clearly in favour of voluntary disclosure with just one disagreeing (Heinz-Wattie NZ) and five making no comment. Heinz-Wattie qualified their response by adding that they would support mandatory disclosure when a food is a significant source of fibre, otherwise disclosure would lead to unnecessary cost for manufacturers. The AFGC, BRI Australia, Hansells, and Heinz Australia also mentioned the cost factor (and impost to small manufacturers). A number of these responses noted that disclosure of low or nil fibre content is meaningless/superfluous, and unnecessarily crowds the label (NZ Dairy Board, Australian Dairy products, Dairy

Farmers Group). Goodman Fielder and Hansells made the additional point that there is significant consumer interest in fibre to encourage manufacturers to voluntarily declare it when present in a product.

Heinz Australia and the AFGC emphasised the concerns regarding analytical methods of determining fibre content and suggested that regular review is required to ensure new food components are included such as chemically modified starches and other complex carbohydrates which contribute to dietary fibre. An additional issue requiring clarification, raised by Monsanto, was that of the energy content of fibre: 'A policy is needed to establish whether fibre contributes the full energy of carbohydrates or a lower level. If the energy is lower, what level should it be? Without a policy on this there can be no certainty whether comparison of the energy content of different products can be made with any certainty. This can be a significant factor when making reduced energy claims for a high fibre food.'

### **Health Organisations (n=17)**

This group of submitters was equally divided in their views on this recommendation. Four agreed that disclosure should be voluntary. Nine submitters believed disclosure should be mandatory with some of these suggesting it only be required in certain foods or product categories (DAA, Diabetes Australia, Menzies centre, NSW Health Depot) or above a certain level eg 5g per serving (NZ Nutrition Foundation). The topic of 'fibre' definition and inclusion of particular types (such as resistant starch, soluble/insoluble fibre) was again raised (Coorparoo Community Health Service, Diabetes Australia, CSIRO, Healthcare Otago). The Pritikin Association noted the consumers' right to informed choice.

### **Independent Health Professionals (n=9)**

Responses from this group were divided with three choosing voluntary disclosure and the other six preferring that disclosure be required. Those preferring voluntary disclosure commented on the lack of relevance for many foods, and the difficulties in definition and associated analysis, the question of resistant starch was also raised (S.Truswell). Those in suggesting that disclosure be required related mainly public health significance and consumer interest, however the point was also made again about the lack of fibre (and therefore relevance) in a number of foods.

### **Evaluation**

The majority of submitters (24) considered that disclosure of dietary fibre should be voluntary, compared with 16 who suggested it be required and a further four suggesting it be required in certain foods. Industry was the only group with a clear mandate for voluntary disclosure. Some recognition of consistency with Codex and New Zealand was also noted by all groups of submitters.

Those against mandatory disclosure were so on the basis of lack of relevance in many (particularly non-plant) foods and the difficulties of definition and complexity of analysis. It was also suggested, particularly by industry, that the significant consumer interest would provide incentive for manufacturers to disclose fibre content where relevant.

Those for mandatory disclosure also noted the problems of definition and determination, however felt it was required because of public health significance and consumer interest. Suggestions were provided that disclosure only be mandatory in certain food products or categories, or where fibre was present in significant quantities.

## **Conclusion**

A clear mandate was not provided. Whereas consumers requested that dietary fibre be disclosed, industry clearly preferred voluntary disclosure. The public health individuals and organisations were divided in their views. Indications across the groups were that mandatory disclosure of dietary fibre would be appropriate and acceptable in certain foods, particularly those with significant fibre content.

If dietary fibre disclosure were not to be mandatory, it was considered that manufacturers would voluntarily provide such information, prompted by consumer interest.

If dietary fibre disclosure were to be mandatory, there were sufficient concerns expressed to suggest that clarification of definition, and consideration of contemporary analysis methods are required.

## **Calcium**

### **Proposal recommendation**

Disclosure of calcium content should be retained as voluntary, unless a claim is made.

#### **Public comment**

#### **Consumers (n=8)**

Half of the consumers (4) were opposed to the recommendation, requesting that calcium disclosure be required. Their comments reflected public health significance and consumer interest.

#### **Health Organisations (n=17)**

Four submitters in this group recorded that calcium disclosure should be required. Of these four, two added that it should only be required for specific products such as dairy foods and dairy-food substitutes. Public health significance and consumer interest was noted by most of the respondents along with consistency with Codex and New Zealand.

Eight respondents considered voluntary disclosure appropriate and DAA added that most consumers are already aware of major dietary sources of calcium. The NSW Health Department acknowledged the provisions made for calcium in Standard A9 and suggested it should therefore be omitted from the current considerations.

#### **Industry (n=21)**

Of the fifteen industry members who responded, all but one were in agreement that disclosure should be voluntary. Cerebos Foods considered it should be mandatory on

the basis of consumer interest. Views that disclosure should be voluntary were based on the unnecessary cluttering of the label with mandatory disclosure (Australian Dairy Products Federation, Dairy Farmers Group), and that calcium was only relevant to a sub-set of the population rather than being a broad-based health issue (Goodman Fielder, Heinz -Wattie NZ). The lack of relevance of 'zero' readings and potential confusion to consumers was noted by the UTC, Hansells and Monsanto. The Australian Dairy Products Federation also suggested that thought should be given to relating calcium to available calcium.

It was suggested that provisions made by Standard A9 (pertaining to 'claimable' foods) be used as the basis for disclosure (Heinz Australia, AFGC). The additional cost to manufacturers and lack of relevance for many foods was noted by Hansells who, along with Monsanto, also added that it is in the manufacturer's interest to declare calcium if it makes a significant contribution to calcium intake.

### **Independent Health Professionals (n=8)**

All submitters in this group, except for C.Campbell and M Roshier-Taks, were in favour of voluntary disclosure of calcium. The disagreement by Campbell was on the basis of recent results from the 1995 National Nutrition Survey which indicate that calcium is one of the most deficient nutrients in the Australian diet. Those supporting the recommendation did so with the comments that calcium is of questionable public health significance to [all] Australians, and that disclosure is only relevant to a limited range of foods.

### **Evaluation**

More than twice as many respondents were in favour of voluntary disclosure of calcium than those suggesting it be mandatory. Consumers however differed from the other groups with all who commented in disagreement with the proposal. The general views of submitters were that public health significance related to only a sub-set of the population, and that calcium disclosure was relevant to only certain food products. It was also considered by some that Standard A9 already adequately provided for calcium disclosure.

### **Conclusion**

That the proposal recommendation be accepted.

## **Iron**

### **Proposal recommendation**

Disclosure of iron content should be retained as voluntary, unless a claim is made.

### **Public comment**

### **Consumers (n=8)**

Of the five consumers who responded, only two agreed with the recommendation. The other three preferred that disclosure be required, however the comments of two would suggest that this only apply when a claim is made. On the other hand the National

Council of Women of Australia indicated that iron disclosure is important for vegetarians and those with iron-related diseases.

#### **Health Organisations (n=17)**

The majority (9) of public health organisations supported voluntary disclosure of iron. Those who disagreed (2) provided public health significance and consumer interest as their reasons.

Comments were again made relating to the variations in iron absorption, and the provisions for disclosure made in Standard A9. Mandatory declarations were considered for some particular foods eg DAA suggested infant foods and meat analogues, and Diabetes Australia suggested meat.

#### **Industry (n=21)**

All of the 15 industry members who commented agreed that iron disclosure should be voluntary. Their reasons were very similar to those for calcium, namely; relevance only to a sub-set of the population and to certain foods, unnecessary crowding of the label, additional cost to manufacturers, confusion by disclosure of low or nil levels. The additional consideration was that of the problems posed by the variations in iron bioavailability.

Again it was also felt that Standard A9 provided for disclosure where appropriate, and that manufacturers of foods providing significant levels of iron will voluntarily provide a disclosure.

#### **Independent Health Professionals (n=8)**

Only one of the eight respondents in this group was in disagreement with the recommendation. C.Campbell suggested disclosure should be required on the basis of public health significance and consumer interest. The other respondents suggested iron was of limited significance only (to population sub-sets) and disclosure relevant only to certain foods. S.Truswell also noted the difficulties [of interpretation] when iron is declared due to variations in bioavailability of iron from different food sources.

#### **Evaluation**

The vast majority of submitters supported voluntary disclosure of iron with the recognition that it is relevant only in certain foods, and to certain sub-groups of the population. The additional complexity of iron in relation to its varying bioavailability in different foods was also noted.

It was also considered by some that Standard A9 adequately provides for iron disclosure.

#### **Conclusion**

That the proposal recommendation be accepted.

### **3b. Units of Expression**



## **Protein, fat and carbohydrate**

### **Proposal recommendation**

Units of expression for protein, fat and carbohydrate continue to be disclosed in g per serving and per 100 g (or 100 mL).

#### **Public comment**

##### **Consumers (n=8)**

Four of the five consumers who responded were in agreement with the proposal recommendation on the basis of consumer familiarity and that they are the commonly used terms. Only one respondent in this group disagreed with the recommendation; A Raizis suggested it may be preferable to represent nutrient quantities in percentages. No other particular comments were made.

##### **Public Health Organisations (n=17)**

The majority (11) of public health organisations agreed with the recommendation, with just one disagreeing (NZ Nutrition Foundation) and the NSW Health Department suggesting that serving sizes be prescribed for each food category, including single-serve products being described as 'one serve'. It was noted that per 100 g/mL is important for enabling comparisons between products, particularly between products where the serving sizes differ. E.Stewart noted that gram measures can be confusing [for consumers] and per serves are subject to manufacturer manipulation however these are the terms with which people are now familiar. The Pritikin Association also commented that serving sizes appear to be arbitrary and subject to manipulation for advertising purposes.

The NZ Nutrition Foundation disagreed with the recommendation suggesting that it is confusing and redundant to have both expressions, and that the per meal or per day consumption is more important. It was suggested that the per 100 g/mL values be provided in an accompanying brochure for professionals who may require such information.

##### **Industry (n=21)**

Industry were more divided in their views with eight in agreement, six disagreeing and seven offering no comment. Those who disagreed were of the opinion that per serving would be more relevant (BRI Australia, Goodman Fielder, Monsanto) with Goodman Fielder adding that it should be industry-nominated serving sizes. Monsanto acknowledged that per 100 g/mL maybe useful for making comparisons but should not be mandatory. The NZ Dairy Board and NZ Dairy Foods on the other hand suggested that per 100 g/mL be mandatory, and per serve be voluntary.

##### **Independent Health Professionals (n=8)**

Those in agreement were so on the basis of consumer familiarity and what is most commonly used. It was also noted that this allowed for easy comparison between products (R.Stanton). S.Truswell suggested that serving sizes may need to be adjusted to what people actually eat, and that nutrients should not be expressed per kilogram.

### **Evaluation**

Overall the submitters were in agreement with the recommendation on the basis of consumer familiarity and being the expressions which are most commonly used. Industry viewpoints suggested one of the measures (ie per serve measures or per 100 g/mL) be voluntary, and one mandatory however, there was no clear agreement as to which should be mandatory and which should be voluntary. Comments were also made by the public health sector that serving sizes appear to be arbitrary and open to manipulation by industry, and that some requirement for standardisation may be required.

## **Conclusion**

That the proposal recommendation be accepted.

## **Energy, calories or kilojoules**

### **Proposal consideration**

For energy, further discussion is sought regarding the term used in the panel to express energy eg energy, calories, kilojoules.

#### **Public comment**

#### **Consumers (n=8)**

Similar to above, consumers had divided views. The HEIA and S.Russell suggested kilojoules noting that consumers will become more familiar with increasing use. The ACA recommended that ANZFA consider permitting kilojoules or kilojoules and calories as optional replacement words for energy. They noted the validity of all terms from the view that consumers are more familiar with calories, younger consumers with kilojoules and the term 'energy' is consistent with Codex.

#### **Health Organisations (n=17)**

Again there were varied opinions amongst respondents, with kilojoules being slightly favoured. It was acknowledged that kilojoules are used internationally and that consumers will become increasingly familiar with increased exposure to the term. As for the previous groups there was also some sympathy for the continued use of calories, at least as an optional addition (Healthcare Otago, Pritikin Association, E.Stewart).

#### **Industry (n=21)**

As for previous groups, industry views were divided with a small minority choosing kilojoules. Similarly to the ACA, the AFGC suggested kilojoules or kilojoules and calories be permitted as optional replacement words for energy.

Goodman Fielder expressed concern that there is not a clear understanding of the word 'energy', and suggested that just the unit kilojoules be used. However they also noted that they receive frequent consumer queries regarding calorie content when not provided on products.

Heinz Australia supported the use of 'energy' expressed as kilojoule, with the voluntary option of calories as well. Others suggesting that kilojoules be required with

calories optional included Hansells, Monsanto, Goodman Fielder and the UTC. Cerebos Foods suggested that both kilojoules and calories be provided in response to generation differences in familiarity. Monsanto added that kilojoules are the SI units of measure and it would therefore be relevant to familiarise consumers with kilojoules.

### **Independent Health Professionals (n=9)**

Views were divided on the best expression to use for energy with five opting for 'energy', two for 'calories' and three for 'kilojoules'. Views centred around the accuracy of energy, the official recognition of kilojoules, and consumer comfort with calories. As stated by S.Truswell; 'It is difficult to avoid all three, energy is the generic word, kilojoule the unit officially approved while calories are still more meaningful to a substantial minority.' Consumer confusion regarding the term energy was also noted by V.Scott and S.Thompson. This was further explained by both commenting that consumer see calories as something which should be reduced, whilst energy 'is strongly linked with vitality and should be increased'. Scott's suggestion was that the term calories be used (in boldface) in place of energy, with the kilojoules expressed underneath (in plain text and brackets) in recognition of SI units.

### **Evaluation**

It was not possible to determine a clear answer from this question as respondents did not simply choose one of the options of energy, calories or kilojoules. Rather, several combined options were chosen and most discussion centred around the use of the expression of energy ie kilojoules or calories, as considered in the next component on energy. There is a therefore some overlap between the outcomes of this proposal and the next.

Some respondents were happy to continue with the use of the term 'energy', others assumed it would continue to be used, and others expressed concern at the lack of consumer understanding and apparent conflict in meaning when expressed in everyday language (a positive attribute) as opposed to the energy content of a food - which may be viewed more negatively.

### **Conclusion**

A clear outcome on the use of the term 'energy' in the nutrition information panel was not determined.

## **Energy as kilojoules/calories**

### **Proposal consideration**

The unit of expression for energy continue to be in kilojoules, or kilojoules and calories.

### **Public comment**

### **Consumers (n=8)**

Of the five consumers who responded to this question, three agreed with the use of both kilojoules and calories, the other two felt that only one unit should be used indicating in the previous section that their preference was for kilojoules.

### **Health Organisations (n=17)**

All of the 12 respondents in this group agreed with the recommendation, with CSIRO and DAA suggesting that kilojoules only be used. Diabetes Australia added that calories should be optional and the Menzies Centre made the point that it has been 25 years since metric units were introduced and that 'calories have had a good innings'.

### **Industry (n=21)**

Amongst the 14 who responded, the majority agreed with the recommendation, with four suggesting the calories be optional again with the comments that some consumers, particularly the elderly, do not understand kilojoules. Hansells suggested using just the option kilojoules and calories, Australian Dairy Products Federation suggested just kilojoules and the Dairy Farmers Group placed the emphasis on calories by suggesting it be calories or kilojoules and calories.

### **Independent Health Professionals (n=8)**

Five of the submitters in this group agreed with the recommendation with a further three suggesting kilojoules and calories. The only respondent to disagree (V.Scott) considered that kilojoules was poorly understood by consumers, despite use by manufacturers and some nutrition education, and therefore not meaningful. She also felt, that as such, the use of kilojoules contravened the underlying principles that consumers should be able to make informed choices, and that the use of technical information should be minimised. Her suggestion was, as expressed in the section above, that calories be the predominant unit with the option of kilojoules underneath and in brackets. S.Thompson, S.Truswell and M Roshier-Tas also noted the continued need for calories.

### **Evaluation**

Due to some ambiguity in the wording of the recommendations for both this section and the one prior, interpretations of the responses were not totally clear. The responses to this proposal together with the previous one have therefore been considered together to clarify answers as far as possible.

Respondents desire to maintain use of the term 'energy' as such was the least clear with just 16 out of a possible 54 specifically nominating this term. Five wrote specifically against the use of the term, however acceptance or otherwise was not clear amongst the other 21 respondents.

With regard to the use of the unit expression as kilojoules or calories, there was strong sentiment for the retention of calories on the basis of consumer understanding, particularly for the older generation. However equally it was felt that kilojoules were a more appropriate term on the basis of metrication and use of international SI units. As a compromise, eight submitters suggested that kilojoules be used, with calories also present on an optional basis. A similar number of submitters suggested that both terms should be mandatory. Only a minority opted for the use of kilojoules alone. None suggested calories alone, however two respondents gave emphasis to calories suggesting it be displayed as the predominant unit.

## **Conclusion**

With regard to the expression of units, kilojoules should be used. There was also strong support for the display of calories. There was not a clear viewpoint as to whether this should be mandated or voluntary.

## **Sodium**

### **Proposal consideration**

For sodium, comment is sought to identify an optimal unit of expression eg mg (mmol) with mmol voluntary.

#### **Public comment**

#### **Consumers (n=8)**

Amongst the consumers, three opted for mg alone and the four did not comment. It was felt that one term should be used consistently and that this term should be mg for ease of understanding. A.Raizis agreed with mg(mmol) however also suggested expressing sodium as percentages to assist with consumer understanding.

#### **Health Organisations (n=17)**

This group of submitters was more divided in their views with six suggesting mg only, one for mg (mmol) and six for mg with mmol voluntary. Effectively all were in favour of mg for reasons similar to those above ie familiarity of the term and lack of consumer understanding of mmol, with some however suggesting the addition of mmol could be added voluntarily on the basis that it may be useful for some users of labels.

#### **Industry (n=21)**

Industry was largely in favour of mg only, with just two respondents suggesting mg (mmol) where mmol is voluntary. Seven industry members did not comment. The general sentiments were reasonably unanimous that mmol was confusing due to its unfamiliarity and technical/clinical nature, and that mg was far more familiar and suitable. It was also considered that those requiring the use of mmol (eg health professionals) would be able to make the conversion or acquire the necessary information.

#### **Independent Health Professionals (n=8)**

All respondents felt that mg should be used to express sodium, however some suggested mg alone (4) and three suggested mg with mmol voluntary. The general views were that mg is more familiar to consumers and thereby more meaningful, and that mmol is too technical but clinically more useful and more accurate. Therefore mg (mmol) was seen as a suitable compromise, except for those who felt one unit only should be used to avoid confusion, and that this unit should be mg.

## **Evaluation**

Clearly the preference is for the use of mg due to lack of familiarity and understanding by most consumers of mmol. However the clinical need for mmol was also recognised and to this end it was suggested that mmol could be included voluntarily.

### **Conclusion**

That the proposal recommendation be accepted.

## **4. Presentation of the nutrition information**

### **Reference Units for Declaring Nutrition Information**

#### **Proposal recommendation**

*Serving size disclosure should continue to be used for declaring nutrition information*

#### **Public comment**

##### **Consumers (n=8)**

Six consumers agreed that serving size should continue to be used predominantly because this strategy is consistent with Codex and consumers are familiar with it.

##### **Public Health and Community Organisations (n=17)**

Thirteen public health and community organisations agreed with the principle on the basis that it was a familiar term to consumers and it was consistent with Codex. The Dietitians' Association of Australia and Healthcare Otago Ltd felt that serve sizes were important to assist consumers put the nutrition information into the context of the total diet.

One health organisation disagreed on the basis that industry serve sizes are too variable to be meaningful.

##### **Industry (n=21)**

Fifteen industry groups agreed with the principle but a number of those who agreed also stipulated that it should not be mandatory. Uncle Toby's agreed although suggested that industry nominate the appropriate serve sizes, whilst expressing concern with the USA model, where serving sizes are listed, variant upon a number of factors. Kelloggs' support a limited voluntary system of standardised serving sizes, with the need for flexibility to account for natural variations in food density.

Two industry organisations disagreed with the principle. The New Zealand Dairy Board and New Zealand Dairy Group both disagreed on the basis that serve sizes are confusing/inconsistent and that 100g is the most consistent comparison.

##### **Independent health professionals (n=8)**

All of the independent health professionals agreed to the continuation of the disclosure of serving sizes. Reasons for agreement included that it was the most common term, that consumers were familiar with the concept and it is consistent with Codex.

#### **Evaluation**

The recommendation of using serving size disclosure of nutrients is clearly supported by the majority of submitters.

#### **Conclusion**

Declaration of nutrients per serving size should continue to be mandated in the nutrition information panel.

## **Serving sizes expressed as household measures**

### **Proposal recommendation**

*Serving size should be expressed in common household measures in addition to weight in grams, to aid consumers in understanding serving amounts on labels*

### **Public comment**

#### **Consumers (n=8)**

Three consumers agreed to the proposal while one disagreed. Those who agreed to the proposal felt that it would aid consumer understanding of information and potentially enhance consumer use of the information. In disagreement, S. Russell felt that it would be redundant.

#### **Public Health and Community Organisations (n=8)**

The public health and community organisations agreed with the proposal on the basis that it would aid consumer understanding and potentially enhance consumer use of the information. One health organisation, NSW Health, disagreed with the proposal because they believe this issue should be left to market forces. They maintain that there should be no mandatory requirement for the concept suggested in the proposal.

#### **Industry (n=21)**

Six industry groups agreed with the proposal, seven disagreed and eight did not respond to this question. Of those who agreed, two of the organisations stated that if household measures were to be used, then it should be on a voluntary basis.

Those organisations who disagreed, made the comments that household serving sizes are unnecessary as consumers can relate to gram weights. The New Zealand Dairy Board and New Zealand Dairy Foods stated that the use of household measures is inconsistent with food labelling regulations in both countries and they would be redundant.

#### **Independent health professionals (n=8)**

Seven independent health professionals agreed with the proposal and one disagreed. Comments supported the notion that household measures aid consumer understanding and enhance consumer use of nutrition information. S. Truswell disagreed because he felt that household measures are not precise and could be misused, therefore their use should be voluntary.

### **Evaluation**

There is strong agreement among independent health professionals, consumers and public health organisations regarding the proposal's recommendation and some expression from industry that the concept of household measures is useful, but should be optional.



## **Conclusion**

Declaration of nutrients per household measure should continue to be allowed voluntarily in the nutrition information panel.

## **Standardisation of serving sizes**

### **Proposal recommendation**

*Consideration should be given to standardising serving sizes across food categories on the basis of volume or weight measures.*

### **Public comment**

#### **Consumers (n=8)**

Two consumers agreed, two disagreed and others made no comment. Those who agreed felt it would aid consumer understanding and enhance consumer use of information. Those who disagreed felt that they agreed in principle, however in practice it would be very hard to implement effectively.

#### **Public Health and Community Organisations (n=17)**

Seven agreed to the proposal and four disagreed. Reasons for agreement included that it would aid and enhance the consumer's use of information.

Those who expressed disagreement including Queensland Community Health Services felt that 'real serves' may not always relate to standard servings. Health care Otago Ltd also noted that individual standard serving sizes may not always meet the agreed industry standard.

#### **Industry (n=21)**

The majority of those industry groups who responded to the proposal disagreed with it. Ten disagreed, while only three agreed. The main reasons for disagreement were that it would not add any benefit to the consumer, that it would be too difficult to identify an amount that represented the usual amount consumed, and it would be too difficult to identify the amounts that industry could agree upon. It was noted by Heinz-Wattie that you would need to take into account the size of the pack. It was suggested that standardised serving sizes could be used as a guide on a voluntary basis.

Cerebos foods agreed with the proposal because they felt it would assist in streamlining the amount of information required on a nutrition panel.

#### **Independent health professionals (n=8)**

Four independent health professionals agreed with the proposal on the basis of it aiding and enhancing consumer use and understanding of nutrition information.

Four people also disagreed with the proposal. V. Scott noted that serving sizes differ across different subgroups of the population and R. Stanton suggested that it would be more appropriate to use packaging sizes such as biscuits or slices. S. Truswell noted

that serving sizes should be as close as possible to available empirical data in relation to what Australian consumers actually eat.

### **Evaluation**

Lack of consensus among submitters suggests that opinion is strongly divided on this recommendation with questionable benefits to the consumer. Additionally, the practical aspect of implementing such a recommendation is potentially problematic.

### **Conclusion**

It is not recommended that serving sizes be standardised

### **Voluntary use of per 100g (or 100mL)**

#### **Proposal recommendation**

*If standardised serve sizes are made available, the use of a reference unit of per 100g (or 100mL) for comparisons between products would be redundant and could be voluntary.*

#### **Public comment**

##### **Consumers (n=8)**

Two consumers agreed with the proposal and three disagreed. Reasons for agreement were that it would help streamline the amount of information required on a nutrition panel and it would assist in identifying both the nutrition content of a food and making comparisons between foods. However, it was felt that to ensure effectiveness, serving sizes would have to be standardised at a national level to ensure that accurate comparisons can be made.

The major reason for disagreement was that it would potentially be confusing if the reference unit of 100g/mLs was removed.

##### **Public Health and Community Organisations (n=17)**

Five public health and community organisations agreed with the proposal. Reasons for agreement were the same as those mentioned by consumers. The New Zealand Nutrition Foundation also stated that it would be confusing and redundant to have standard servings as well as 100g/mLs.

Seven organisations disagreed with the proposal. Diabetes Australia stated that consumers need a baseline for comparison and standard serves are not relevant to the individual. The NSW Health Department also felt that comparison of foods is best facilitated by using 100g/mLs. Other organisations felt it would be inconsistent with food labelling regulations in both countries.

##### **Industry (n=21)**

Industry agreement to the proposal was mixed with six organisations agreeing to the proposal and seven disagreeing. The Australian Food and Grocery Council stated that the argument for comparison of product to product is grossly overstated and 100g/mL

is already redundant. Goodman Fielder felt that if the use of a standard serving size was not accepted, then the use of 100g/mLs must be retained. They also noted that it would be inconsistent with Codex if the use of 100g/mLs was deleted. Nestle agreed on the basis that you do not need a dual listing and the most relevant listing for the consumer is per serving. They noted that it would be unlikely for manufacturers to differ widely in their choice of serving sizes for the same or a similar product, therefore, comparisons can still be made.

The Australian Dairy Products Federation disagreed on the basis that 100g/mL is an easier comparison and that serving sizes may be standard across industry but not for consumers. CMA believe that standard serving sizes should not be considered.

Hansells (NZ) noted that in some instances it may be most appropriate to allow a choice between declaring per serving or per 100g/mL.

### **Independent health professionals (n=8)**

One independent health professional agreed with the proposal and six disagreed. V. Scott agreed with the proposal although stated that per 100g/mLs should only be voluntary if it is replaced with an alternative reference unit such as % daily value.

The reason for disagreement was primarily that for comparison between products, you need to use per 100g/mLs.

### **Evaluation**

The majority of submitters are in agreement that per 100g/mL is useful for the consumer to compare between products while it may also be useful for health professionals in the use of food tables. The majority of submissions received from industry appear to prefer this reference unit in declaring nutrition information than attempting to standardise serving sizes.

### **Conclusion**

It is recommended that the 'per 100g/m' declaration for nutrients continue to be required on nutrition information panels.

### **Alternative reference units**

#### **Proposal recommendation**

*An alternative reference unit which links with health recommendations should be considered as the basis for an interpretive element.*

#### **Public comment**

##### **Consumers (n=8)**

Three agreed with the proposal and one disagreed. Those who agreed, thought an interpretive element would be a positive addition, although felt that it should not be undertaken without consultation to determine the most effective format.

One consumer noted that an interpretive element may cause unfair trading.

### **Public Health and Community Organisations (n=17)**

Six organisations agreed with the proposal. Pritikin Health states that an interpretive element is already being used on some products and it is an invaluable guide.

Four organisations disagreed with the principle. The Menzies Centre noted that the US panel had infiltrated into the Australian market and many patients could not understand it. NSW Health stated that large amounts of information on labels should be avoided at all costs as consumers will be overwhelmed and not read the labels at all. The New Zealand Nutrition Foundation suggested that alternative labels should be developed and tested.

### **Industry (n=21)**

Four industry organisations agreed with the proposal, six disagreed and eleven did not provide a response.

Those who agreed included Cerebos Foods, Dairy Farmers' Group and Uncle Toby's. Comments included that an interpretive element would help position a food within a total dietary context, however the use of such a tool should be voluntary.

It was noted by other companies that there should be avoidance of cluttering of panels, that daily values are variable for different population groups and that education would be required. The effectiveness of the labelling system in the US should also be considered.

### **Independent health professionals**

Six independent health professionals agreed to the proposal and two disagreed.

R. Stanton noted that US labels are poorly understood and that daily value varies for different population groups. M. Lawrence also suggested an evaluation of the effectiveness of the US approach before proceeding. S. Truswell noted that there needs to be more research, debate and discussion regarding the issue before proceeding.

### **Evaluation**

Although submitters are divided in opinion regarding this recommendation and express the view that further research around this issue is required; the majority are in agreement with the proposal's recommendation.

### **Conclusion**

An alternative reference unit which links with current health recommendations should be further explored and developed.

### **Label formats**

### **Proposal recommendation**

*Alternative label formats to present nutrient content information should be developed and consumer tested.*

## **Public comment**

### **Consumers (n=8)**

Four consumers agreed to the proposal on the basis that it would assist in identifying a more versatile and meaningful label.

### **Public Health and Community Organisations (n=17)**

Nine public health and community organisations responded to this question and all agreed to the proposal. It was felt that this could assist in identifying a more versatile and meaningful label. It was noted by Dietitians' Association of Australia that the US research associated with the development of their new Nutrition Information Panel should be considered. The New Zealand Nutrition Foundation also noted that label formats should take into consideration the needs of typical consumers rather than nutritionists or health professionals.

### **Industry (n=21)**

Eight industry organisations agreed to the proposal and three disagreed. A number of companies agreed on the basis that it would assist in identifying a more versatile and meaningful label. Goodman Fielder suggested that industry representation and market research expertise would be beneficial in the development of alternative formats.

Hansells disagreed on the basis that it would be difficult to find an alternative format to suit the range of consumer groups. The New Zealand Dairy Board and New Zealand Dairy Foods noted that the development of an alternative would be costly and would require much consumer education.

Monsanto Australia Ltd stated that the format of the label should not be prescribed.

### **Independent health professionals (n=8)**

Six independent health professionals agreed with the proposal on the basis that it would assist in identifying a more versatile and meaningful label.

Although recognising the benefits of this proposal, S. Truswell felt that with limited resources, there are greater priorities to address in relation to food regulation and nutrition education. B. Wood advocated for consumer education rather than continued investigation.

## **Evaluation**

There is strong support from the majority of submitters for this recommendation with concerns of cost expressed by several industry groups and the need to consider available research regarding label formats expressed by several other submitters

## **Conclusion**

Alternative label formats to present nutrient content information should be developed and consumer tested.

## **Formatting of labels**

### **Proposal consideration**

*Design attributes of nutrition information labelling that should be considered, if alternative label formats are pursued - clear, consistent title, familiar terms, no technical jargon, effective use of colour contrasts.*

### **Public comment**

#### **Consumers (n=8)**

Six consumers agreed to the proposal. Comments included that the same format should be used by all manufacturers, that the label should not necessarily be an attention grabber, that 'too technical' should not be used as an excuse to omit technical information and on an overall basis, extensive consultation should be undertaken to determine format.

#### **Public Health and Community Organisations (n=17)**

Nine organisations agreed, one disagreed and seven did not respond. Those who agreed maintained that extensive consultation would have to be undertaken and that the US research should be taken into account.

NSW Health Department questioned the problem with the existing label format and stated that if changes are to be made, then extensive education will have to take place.

#### **Industry (n=21)**

Nine industry organisations agreed to the proposal although three of those suggested modifications. The Australian Food and Grocery Council suggested that whilst generally agreeing, they would not agree to the prescription of specific colours and contrasts as they are not always practical for packaging. Dairy Farmer's Group and Goodman Fielder noted similar concerns indicating that use of colours is costly.

Two industry organisations disagreed including New Zealand Dairy Foods Ltd who suggested that the approach was prescriptive and unnecessary and Uncle Toby's who suggested that colour contrasts put some labels at a distinct disadvantage.

### **Evaluation**

There is a strong consensus of support among all submitters regarding the design attributes of nutrition labels as made in this recommendation. However industry does caution on the use of colour as it is costly and may not be practical for some packaging/labels.

### **Conclusion**

Guidelines may be provided for the presentation of nutrition information which note the importance of clarity, consistency and legibility, however some leeway should also be provided for industry to best meet their own needs with regard to presentation of information.

## **Users of labels**

### **Proposal consideration**

*Needs of various consumers, or users of the nutrition labelling information should be taken into account.*

### **Public comment**

#### **Consumers (n=8)**

Five consumers agreed with the proposal as they felt it would assist in defining the impact decisions related to this review could have on consumers, tailoring of consumer information and forming a basis for making presentation decisions related to alternative label formats.

#### **Public Health and Community Organisations (n=17)**

Eight public health and community organisations agreed with the proposal for the same reasons as those outlined from consumers.

Three organisations disagreed with the proposal. Cootamundra Health Centre stated that it was unnecessary and that even subgroups have varying needs. The Dietitians' Association of Australia supports testing of options with representative groups of consumers but disagrees with using different labelling formats for different target audiences.

#### **Industry (n=21)**

Eight industry groups agreed with the proposal, three disagreed and eight did not respond. Of those who agreed, it was felt important to cater for consumers, but it was noted that it would be difficult to cater for everyone.

The three organisations that disagreed all felt that the costs associated with taking into account the needs of consumer, would be high in relation to the benefits.

#### **Independent health professionals (n=8)**

Five independent health professionals agreed with the proposal as they felt it would assist in defining the impact decisions related to this review could have on consumers, tailoring of consumer information and forming a basis for making presentation decisions related to alternative label formats.

Two disagreed who both indicated that it would be better to undertake consumer education in relation to current labels.

### **Evaluation**

There is clear consensus among submitters to consider the needs of consumers and users of the nutrition label when developing alternative label formats.

### **Conclusion**

As far as possible the needs of various consumers or users of the nutrition labelling information should be taken into account.



## 5. Use of nutrition labelling

### Extension of nutrition information to more foods or settings

#### **Proposal recommendation**

*Consideration should be given to nutrition labelling being extended to more foods or more purchasing settings and; if this were to be so, what would be preferred approach and cost-benefit implications of that approach*

#### **Public comment**

##### **Consumers (n=8)**

Seven consumers agreed with the principle that nutrition labelling should be provided more extensively. Comments included that of Elaine Attwood & the National Council of Women who noted that a phased-in approach to labelling of all foods will be required to convey health/diet messages to the public. There was support for mandatory nutrition information panels on all packaged foods and strong support for labelling on some unpackaged foods such as high fat fast-foods. It was also noted by the Home Economics Institute of Australia that consumers are buying more mixed ingredient, ready-prepared foods and therefore require more information.

##### **Public Health and Community Organisations (n=17)**

Nine public health and community organisations agreed with the proposal, although two of those suggested modifications, such as using a simplified label for some products. Comments reinforced the value of extending the use of the nutrition information panel for the purpose of consumer education although many organisations appreciate the cost to industry and the issues of practicality associated with extensive use of the NIP. One approach suggested by the South Australian Health Commission was that inclusion of the NIP could remain voluntary with incentives introduced for manufacturers to extend labelling.

The New Zealand Nutrition Foundation disagreed with the proposal on the basis that marketers should be required to make nutrition information available upon request.

##### **Industry (n=21)**

Thirteen industry submissions, including the Australian Food and Grocery Council did not support extended mandatory use of the nutrition information panel. The arguments given were that there is insufficient evidence to suggest that purchasing behaviours are influenced by the NIP, or that consumers necessarily want this information. However this latter point was somewhat contradicted by later statement suggesting that industry will respond to consumer demands for more extensive labelling by providing it on products where it is not currently required, and that a number of companies were already doing this.

It was also widely considered that on the basis of cost-benefit analysis the mandating of extended nutrition labelling could not be justified. Costs of initiating more extensive use of nutrition labelling would considerably outweigh the benefits. Goodman Fielder supported the continued use of a Code of Practice.

Other comments included that many foods do not have enough space for a nutrition information panel and therefore it was necessary to provide accurate, consistent information at the point of sale in alternative formats.

### **Independent Health Professionals (n=8)**

The majority of independent health professionals agreed with the principle. It was suggested that all labelled & packaged foods should provide information to consumers to enable informed choice. R. Stanton suggested that fast food outlets such as McDonalds used nutrition information charts on walls/in boxes, although this would not be as appropriate for small independent stores. It was also noted that consumers favour mandatory labelling for packaged foods although there is less demand for labelling of unpackaged foods. It was suggested that any increase in costs incurred by manufacturers will potentially be offset by reduction in public health spending although as a counter argument, it was suggested that it would be most effective to spend any additional funds on consumer education. S. Truswell would like to see more voluntary labelling of unpackaged foods such as fruit and vegetables.

### **Evaluation**

Clearly, this principle evoked strong disagreement from the majority of the industry sector whilst independent health professionals, consumers and public health and community organisations were generally in agreement. The Authority recognises that any extension of labelling may impose additional costs on industry. On the other hand, extended labelling could aid consumer education, and assist consumers in making informed food purchase and consumption decisions which in turn, may impact favourably on public health. Considerations of extended labelling could also contemplate the use of a modified (shortened) panel rather than the currently prescribed NIP.

### **Conclusion**

Unless specifically exempted, all packaged food should continue to be required to include a nutrition information panel when a nutrition claim is made. Also, consideration should be given to the extension of nutrition information to other foods or in other purchase settings.

### **Consistency of nutrition information**

#### **Proposal recommendation**

*Provisions for nutrition labelling should provide for consistency of nutrition information in food labels*

#### **Public comment**

##### **Consumers (n=8)**

Five consumers agreed with the principle. Comments from consumers were that consistent nutrition labelling would facilitate consumer education, minimise confusion amongst consumers and generate less cost for industry. The Home Economics Institute of Australia supported the principle given the changes in consumer buying practices and the amount of food currently being prepared outside the home. They

noted however, that consultation would be required to investigate the most appropriate way to make nutrition information consistent.

### **Public Health and Community Organisations (n=17)**

Seventeen organisations agreed with the principle and one disagreed. The principle was generally supported because it would increase consumer understanding, provide clarity and comparability amongst a range of foods. They considered it would also help eliminate false labelling & misleading advertising.

Cootamundra Health Centre noted that consistency of nutrition information would make labelling more acceptable to consumers. DAA agreed but acknowledged that there may be exceptions such as salt substitutes. The New Zealand Nutrition Foundation felt that apart from a formal NIP, consistent nutrition information should be achieved through the use of voluntary guidelines.

### **Industry (n=21)**

Fourteen industry submissions agreed with the principle and three disagreed. It was noted that consistent information allowed for easy comparison of similar food products and reduced the chance of misleading consumers. Golden Circle suggested that information should be in a prescribed format to ensure consistency of presentation. However, it was noted by the Australian Food and Grocery Council that the R Standards cover special purpose and modified foods and thus special nutrition labelling requirements may be appropriate in certain cases. The Australian Dairy Products Federation and the Dairy Farmers Group also noted the need to allow for additional/less information to be included when a food is a good/poor source of a particular nutrient.

Whilst agreeing with the principle, Goodman Fielder noted that there is a necessity to be practical and consider how appropriate it would be to include a full range of nutrition information for all food types. Monsanto Foods, whilst agreeing with the notion of consistency, did not agree with having a rigid format and irrelevant information. Uncle Toby's suggested that a complete NIP would not be appropriate for a range of foods such as salt substitutes and polyols.

The New Zealand Dairy Board and New Zealand Dairy Foods disagreed with the principle on the basis that labelling should be voluntary and discretionary depending on the nature of the food.

### **Independent Health Professionals (n=8)**

Seven independent health professionals agreed with the principle. Support was provided on the basis that consistency of information would enable consumers to readily make informed choices about foods and to facilitate comparison of nutrient content. R. Stanton and S. Truswell agreed with the principle but noted that consistent information should be provided only where appropriate in terms of the relevance of information provided and the costs involved.

### **Evaluation**

The inclusion of provisions for nutrition labelling that provide for consistency of nutrition information in food labels is clearly supported by the majority of submitters. However,

consideration should be given to the type of food, associated costs and whether needless information is being provided. Consistency may also be partly limited by the outcomes of other reviews which also have considerations relating to nutrition labelling eg infant formulae, sports foods.

### **Conclusion**

As far as practicable, and within the parameters of outcomes from this review and other relevant reviews, consistent information should be provided by the NIP.