The pilot Australian Children's Key Foods Program 2006

Introduction

The Food Composition Program within FSANZ maintains a custom-made data management system containing information on the nutrient composition of Australian foods. FSANZ uses the data to produce reference and survey databases such as NUTTAB and AUSNUT, and to feed into FSANZ risk assessment processes. These data are also used externally for nutrition labelling, research on diet and disease, education, and to assist consumers make healthy food choices.

In order to maintain the database with the most current information, FSANZ conducts analytical programs where specific foods and nutrients are targeted for laboratory testing. Unfortunately, analytical programs are often expensive and time-intensive, so FSANZ needs a method for prioritising foods for nutrient analysis.

In 2006, FSANZ developed the pilot Australian Children's Key Foods Program (2006 KFP), based on the United States Department of Agriculture (USDA) Key Foods concept (Haytowitz et al. 2002) to assist in prioritising foods for nutrient analysis. This allowed us to provide up-to-date nutrient data for estimating nutrient intakes from the 2007 National Children's Nutrition and Physical Activity survey (*Kids Eat, Kids Play*) for the foods that contribute most to nutrient intake

The Survey

Selection of 'key foods'

Key foods were identified by:

- combining food consumption data for 2-15 year olds from the 1995 National Nutrition Survey (1995 NNS) with nutrient values reported in AUSNUT 1999 (ANZFA, 1999) to produce a list of food groups that contributed to the intake of each individual nutrient
- determining which food groups contributed the most to intakes across all nutrients
- selecting specific foods from within the food groups for analysis, giving consideration to changes in consumption and composition since 1995, the availability of recent analytical data and market share data.

For further information on the approach used for identifying key foods, see Appendix 1.

For a list of key foods selected for analysis as part of the 2006 KFP, see Appendix 2.

Sampling

A total of 10 purchases were made for each key food, one in each Australian capital city and two regional centres located in NSW and Queensland. Foods were purchased with the

cooperation of Australian state and territory government health departments over a four week period in August 2006.

For the majority of foods FSANZ nominated the most common brands or varieties and styles based on market share data.

Preparation

Preparation of food to a table-ready state was conducted by the laboratory and included cooking raw products (e.g. meat, potatoes) using typical cooking methods and separation of inedible portions (e.g. skin on bananas).

Individual samples and composite samples of each key food were prepared for nutrient analysis. Individual samples were composed of a single purchase of the food. The composite samples included an equal portion from each of the 10 purchases of that food combined to form a single sample for analysis.

Analysis

Nutrients selected for analysis in the 2006 KFP were determined based on the list of nutrients to be reported as part of the *Kids Eat, Kids Play* survey and nutrients of interest to FSANZ (Table 1).

Table 1: Nutrients analysed in the 2006 KFP.

Proximates	Vitamins	Minerals	Other
Moisture	Carotenes (α and β)	Calcium	Fatty acid profile
Protein	Cryptoxanthin	Chromium	Cholesterol
Total fat	Retinol	Copper	Tryptophan
Starch	Thiamin	Iodine	
Sugar profile	Riboflavin	Iron	
Dietary fibre	Niacin	Magnesium	
Ash	Vitamin B6	Manganese	
	Vitamin B12	Molybdenum	
	Pantothenate	Phosphorus	
	Total folates	Potassium	
	Free folates	Selenium	
	Vitamin C	Sodium	
	Vitamin D (D2, D3 and hydroxy derivatives)	Zinc	
	Tocopherols (α, β, γ and δ)		

In general, individual samples were analysed for nutrients for which the food is a key contributor to dietary intake. Individual samples were also analysed for nutrients where the food was fortified with the nutrient and/or the nutrient was a priority for FSANZ standards development work.

Composite samples were analysed for nutrients for which the food is not considered to be a key contributor to dietary intake. Based on existing data and the nature of the food, some nutrients were not analysed in some foods not expected to contain the nutrient.

Results

Average, minimum and maximum results for each food are outlined in Appendix 3.

Key findings

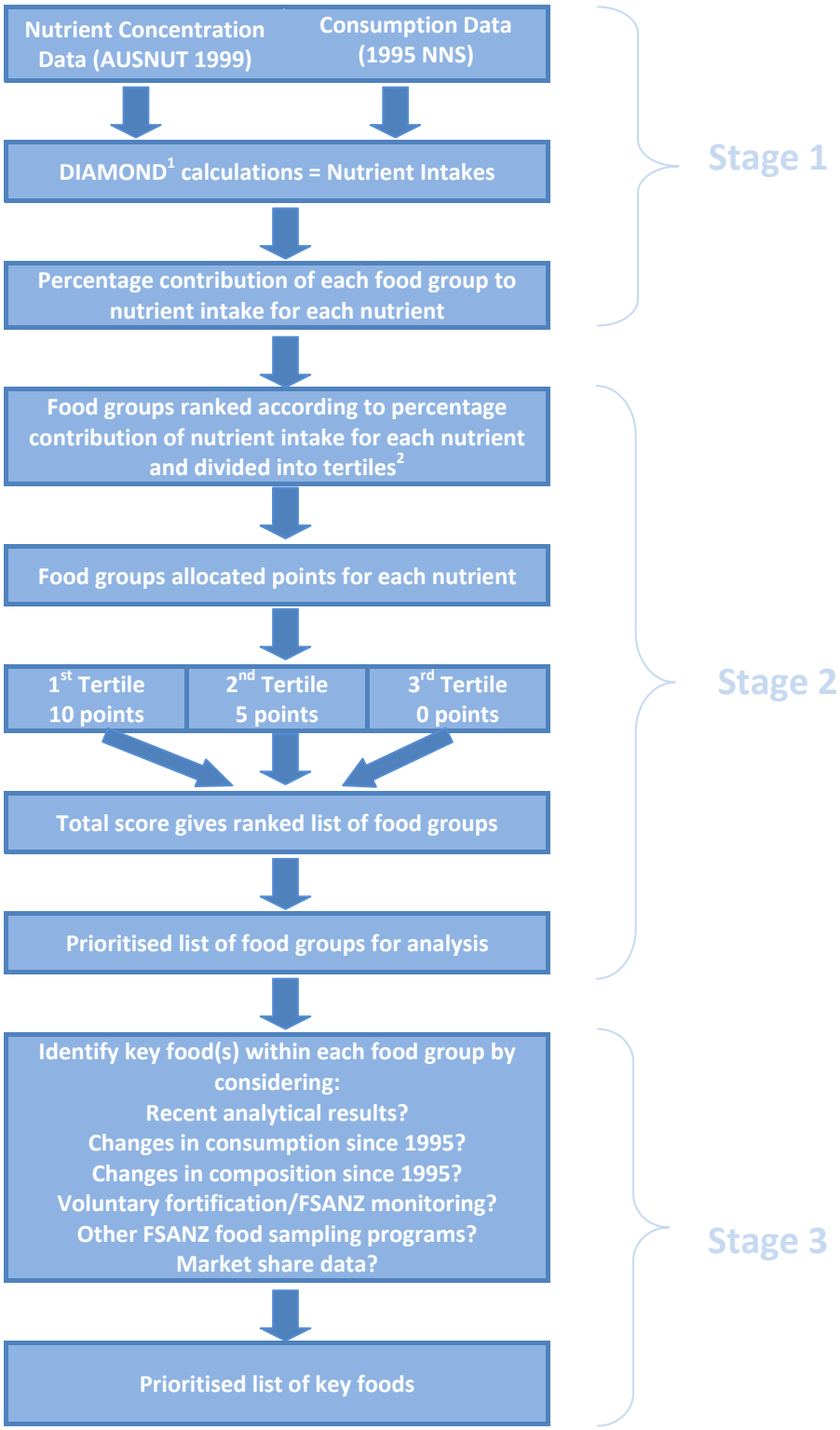
- Full fat milk was the most important contributor to overall nutrient intake of Australian children between 2-15 years of age.
- Foods analysed for this program showed little variation in nutrient levels between states and territories. There were also no major differences noted between the analytical results from samples purchased in major cities compared to rural centres.
- The levels of iodine found in some foods such as milk and bread seem to be higher than levels found in previous analytical surveys such as the 2005 Australian Iodine Program and the 22nd Australian Total Diet Study. This may be a result of seasonal variation or due to an increase in the use of iodised salt in processing.
- Conversely, the levels of calcium found in some foods, such as full fat milk, seem to be lower than levels found in previous surveys. There is no immediately obvious explanation for this reduction.
- For foods where a direct link between the analytical sample and a particular brand could be made, the nutrition information panel values were generally in close agreement with the analytical result; where nutrients were added to these foods (such as added calcium), the levels found were generally above the levels reported in the product's nutrition information panel.
- A few unexpected results were found, such as measurable levels of dietary fibre in cheese and meat. Any values that seem unusual have been highlighted on the results spreadsheet and should not be relied upon as being accurate. Nutrient analyses sometimes yield unexpected results, and some analytical methods are not as reliable as other methods.
- The 2006 KFP was the first time FSANZ had the vitamin D content of food analysed. Methods for the accurate analysis of the low levels of vitamin D found in unfortified foods are still being developed internationally, and FSANZ will continue to gather data on the vitamin D content if food as the methodology is refined.
- For a small number of foods, low levels of some long chain omega 3 fatty acids were found. There is some uncertainty in the identification and quantification of some of these and results should be interpreted with caution.

Use of survey results and future work

FSANZ has incorporated these nutrient data into the *Kids Eat, Kids Play* survey database AUSNUT 2007 and the reference database NUTTAB 2009.

APPENDICIES

Appendix 1: Overview of FSANZ process for building a key foods list



[1] DIAMOND is FSANZ's custom-built computer system for estimating chemical exposure and nutrient intakes.
[2] A tertile is a group of foods that together constitute one-third of the nutrient intake.

Appendix 2: Complete 2006 Children's Key Foods list

Food Group Category	Reason for Inclusion	Key foods selected for analysis
Milk, fluid, regular whole, full fat	1st tertile contributor to 16 nutrients (protein, total fat, total carbohydrate, energy, sugars, cholesterol, total saturated fat, total polyunsaturated fat, total monounsaturated fat, vitamin A, thiamin, riboflavin, calcium, zinc, magnesium, phosphorus, potassium) and 2nd tertile contributor to 3 nutrients	1. Milk, fluid, regular whole, full fat
Potatoes	1st tertile contributor to 14 nutrients (protein, total fat, total carbohydrate, energy, dietary fibre, total saturated fat, total polyunsaturated fat, total monounsaturated fat, vitamin C, niacin, iron, magnesium, phosphorus, potassium) and 2nd tertile contributor to 5 nutrients, foods rated high for overall consumption	2. Potato chips, fries, commercial, salted 3. Potato chips, regular, commercial, salted 4. Potato, boiled, without skin
Breads and rolls, white	1st tertile contributor to 12 nutrients (protein, total carbohydrate, energy, dietary fibre, total polyunsaturated fat, thiamin, niacin, iron, zinc, magnesium, phosphorus, potassium) and 2nd tertile contributor to 4 nutrients, food group rated high for overall consumption, fortified varieties have the potential to contribute significantly to overall nutrient intake	5. Bread roll, white 6. Bread, white 7. Bread, white, fortified with calcium 8. Bread, white, fortified with iron, folate 9. Bread, white, toasted
Ice cream, tub varieties	1st tertile contributor to 3 nutrients (total fat, energy, total saturated fat) and 2nd tertile contributor to 13 nutrients, possible compositional change to lower fat content	10. Ice cream, regular fat, vanilla
Savoury pastry products, double crust: pies, rolls and envelopes	1st tertile contributor to 3 nutrients (total fat, energy, total monounsaturated fat) and 2nd tertile contributor to 12 nutrients	11. Pie, meat, 2 crusts, individual size 12. Sausage roll, individual size
Breakfast cereal, wheat-based biscuits and shredded wheat	1st tertile contributor to 4 nutrients (dietary fibre, niacin, iron, magnesium) and 2nd tertile contributor to 9 nutrients	13. Breakfast cereal, weet-bix type (Sanitarium)
Breakfast cereal, other sweetened	1st tertile contributor to 4 nutrients (dietary fibre, niacin, iron, zinc) and 2nd tertile contributor to 8 nutrients	14. Breakfast cereal, nutrigrain (Kelloggs)
Beef	1st tertile contributor to 3 nutrients (protein, iron, zinc) and 2nd tertile contributor to 10 nutrients, steak rated high for overall consumption, mince considered a popular choice for children	15. Beef mince, regular mince, dry fried 16. Beef steak, rump, grilled, trimmed of fat
Chicken	1st tertile contributor to 3 nutrients (protein, cholesterol, niacin) and 2nd tertile contributor to 10 nutrients, chicken breast and drumstick rated high	17. Chicken breast, stir fried (no oil) 18. Chicken drumstick, baked

Food Group Category	Reason for Inclusion	Key foods selected for analysis
	for overall consumption	
Sausage	1st tertile contributor to 1 nutrient (zinc) and 2nd tertile contributor to 13 nutrients	19. Beef sausage, grilled
Pizza	2nd tertile contributor to 14 nutrients	20. Pizza, meat (including chicken), thick or thin crust, with vegetables and fruit
Filled rolls and hamburgers	2nd tertile contributor to 14 nutrients, anticipated increase in consumption of cheeseburgers since 1995	21. Cheeseburger, with regular beef patty on fortified bun
Cheese, natural, traditional	1st tertile contributor to 3 nutrients (total fat, total saturated fat, phosphorus) and 2nd tertile contributor to 8 nutrients	22. Cheese, cheddar, tasty
Potato crisps	1st tertile contributor to 2 nutrients (dietary fibre, total monounsaturated fat) and 2nd tertile contributor to 10 nutrients	23. Potato crisps, flavoured (salt & vinegar, chicken, barbecue, cheese), vegetable oil, salted
Breads and rolls, wholemeal	2nd tertile contributor to 13 nutrients, anticipated increase in consumption of wholemeal bread since 1995	24. Bread, wholemeal 25. Bread, wholemeal, toasted
Single fruit juices	1st tertile contributor to 2 nutrients (vitamin C, potassium) and 2nd tertile contributor to 8 nutrients, orange and apple juice both rated high for overall consumption	26. Juice, apple, shelf stable 27. Juice, orange, fresh 28. Juice, orange, shelf stable 29. Juice, orange, shelf stable, fortified with calcium and vitamin A
Milk, fluid, reduced fat, < 2%	2nd tertile contributor to 11 nutrients, consumption of reduced fat milk has increased as a proportion of total milk intake since 1995	30. Milk, fluid, reduced fat
Polyunsaturated margarine, and spreads (approximately 70% fat)	1st tertile contributor to 4 nutrients (total fat, energy, total polyunsaturated fat, total monounsaturated fat) and 2nd tertile contributor to 2 nutrients, significant formulation changes since 1995	31. Margarine spread, polyunsaturated
Poultry or game crumbed, battered, meatloaf or patty type with cereal	2nd tertile contributor to 10 nutrients, nuggets considered a high consumption for children	32. Chicken nuggets, frozen, baked
Breakfast cereal, low added sugar, puffed, flakes, extruded etc. single cereal corn, rice	1st tertile contributor to 2 nutrients (iron, zinc) and 2nd tertile contributor to 5 nutrients, corn flakes and rice bubble-type both rated high in overall consumption	33. Breakfast cereal, cornflakes, fortified (Kelloggs) 34. Breakfast cereal, rice bubble type, fortified (Kelloggs)
Apples	1st tertile contributor to 1 nutrient (dietary fibre) and 2nd tertile	35. Apple, red, raw, unpeeled, gala

Food Group Category	Reason for Inclusion	Key foods selected for analysis
	contributor to 6 nutrients, gala variety has an increasing market share, FSANZ has data for other red-skinned apple varieties	
Fruit Drinks	1st tertile contributor to 2 nutrients (total carbohydrate, sugars) and 2nd tertile contributor to 4 nutrients	36. Fruit drink, orange, ready-to-drink
Fruit-based or flavoured cordials and drinks	1st tertile contributor to 3 nutrients (total carbohydrate, energy, sugars) and 2nd tertile contributor to 1 nutrient	37. Fruit-based flavoured cordials
Breads and rolls, white, fibre increased	2nd tertile contributor to 7 nutrients, potential to contribute significantly to overall nutrient intake	38. Bread, white, high fibre
Bananas	2nd tertile contributor to 7 nutrients	39. Banana, cavendish
Soft drinks, non-cola	1st tertile contributor to 2 nutrients (total carbohydrate, sugars) and 2nd tertile contributor to 2 nutrients	40. Soft drink, flavoured (non-cola)

Appendix 3: 2006 Children's Key Foods Program analytical results