THE GEORGE INSTITUTE
for Global Health

The use of a global branded food composition database to monitor product formulation by food companies

Elizabeth Dunford

9th International Food Data Conference
Friday 16th September
Norwich, UK

Affiliated with the University of Sydney

Background

- Processed foods are major contributors to dietary salt, sugar, saturated fat and energy intakes both in Australia and globally
- Some major food companies have started to reformulate a number of products, however a monitoring system is key to targeting reformulation strategies and to monitoring progress

Health Benefits of Improving the Food Supply

- Poor diet major contributor to chronic disease worldwide
- Current food supply has excess levels of saturated fat, sugar and salt in large serves of energy-dense foods
- Driving global epidemics of obesity, high blood pressure, diabetes and dyslipidaemia, leading to ↑ heart attacks, stroke and cancer

"Even small changes in key constituents of the food supply have the potential to produce enormous health gains"

Current intakes of energy, total fat, saturated fat, sugar and sodium

	Boys[1] 14-16yrs	Girls[1] 14-16yrs	Men[2]	Women[2]
Energy (kJ)	11,598	8,436	11,041	7,481
Total fat (g)	99.7	73.1	98.5	67.6
Saturated fat (g)	44.2	31.7	39.0	26.7
Sugar (g)	163.1	126.3	133.5	97
Sodium (mg)	3,672	2,624	>2,300*	>2,300*

* Estimated intakes between 5-13g salt per day for men and women

1 2007 Australian National Children's Nutrition and Physical Activity Survey

2 ABS1998. 1995 National Nutrition Survey Nutrient Intakes and Physical Measurements. Cat. No 4805.0

Food Industry Support

George Weston Foods Limited

What does this add up to?

- We need to know whether there has been an actual change in food formulation, both within individual food categories and across the whole spectrum

Global Branded Food Composition Database

Aim

To bring together data about the composition of processed foods that can be used to drive national and international improvements in the food supply

Design

- Collect nutrient information for processed food products in each country (direct from manufacturer, through analysis or from product labels)
- Enter data into either a standardised Microsoft Excel spreadsheet OR the online data entry system
- Compare levels of adverse nutrients by:
  - product
  - category
  - manufacturer
  - country

Countries involved

- Argentina
- Australia
- Barbados
- Brazil
- Canada
- Chile
- China
- Costa Rica
- Ecuador
- Fiji
- France
- Guam
- Guatemala
- India
- Malaysia
- Mexico
- Mongolia
- New Zealand
- Panama
- Peru
- Singapore
- Solomon Islands
- South Africa
- The Netherlands
- Tonga
- UK

Foods Included

Depending upon the resources available, collaborating countries will determine the most feasible way to collect data. Strategies may include:

- *Comprehensive nutrient information for all product categories* –
  - Preferred approach
  - Major retail outlet (or set of outlets) identified, full listing of foods for sale recorded, primary variables sought for each product.
- *Data for selected product categories or nutrients* –
  - Where resources are limited, initial efforts may be restricted to specific food categories and/or nutrients of interest. For example, if the focus is sodium reduction then priority food categories may be bread, cereals and processed meats.
  - Collaborators will be encouraged to collect the full set of primary variables wherever possible and to use the same sampling method each year data are collected.

Food composition data

Data sources

There will be three main sources of information:

- Data determined from chemical analysis of each product
- Data copied from the Nutrition Information Panels (NIPs) on product labels in-store
- Data provided direct by manufacturers

Categorisation of foods

- Hierarchical structure of food ‘groups’, ‘categories’ and ‘subcategories’.
- Goal is that it be broadly applicable internationally, based on existing branded food databases, and reflect industry practices and consumer purchasing patterns.
- Some food types may be specific to particular countries or regions so there will be some flexibility within the categorization system.

Nutrient values to be collected

Variable	Format
Serving size	g or mL
Energy	kJ / 100g
Protein	g / 100g
Total fat	g / 100g
Saturated fat	g / 100g
Trans fat	g / 100g
Monounsaturated fat	g / 100g
Polyunsaturated fat	g / 100g
Total carbohydrate	g / 100g
Total sugars	g / 100g
Total dietary fibre	g / 100g
Sodium	mg / 100g
Calcium	mg / 100g
Potassium	mg / 100g

Other variables to be collected

Variable	Format
Country	Country name
Food group	As in protocol
Food category	As in protocol
Sub-category (major)	As in protocol
Sub-category (minor)	As in protocol
Brand name	As per product label
Product title	As per product label
Data source	NIP, MANUF, WEB, OTHER
Date of data entry	Date (dd/mm/yyyy)
Front-of-pack labelling	As in protocol
Health claim	As in protocol

Global Collaborating Organisations

- World Health Organisation - **Geneva**
- InterAmerican Heart Foundation – **USA**
- Medical Research Council – **UK and South Africa**
- PanAmerican Heart Organisation – **Latin America**
- Health Canada - **Canada**
- Costa Rican Institute of Research and Education on Nutrition and Health – **Costa Rica**
- RIVM – **The Netherlands**
- C-POND – **Fiji**
- National Public Health Institute – **Mexico**
- Center for Science in the Public Interest – **USA and Canada**
- Centro Nacional de Alimentacion y Nutricion – **Lima**
- Health Promotion Board - **Singapore**
- National Chronic Non Communicable Diseases Commission – **Barbados**
- Peru Center of Excellence to Combat Chronic Diseases **- Peru**
- Consumers International – **Chile**
- CUBAFOODS – **Cuba**
- The George Institute – **Australia, China and India**
- Ministry of Health - **Thailand**

Global Collaborating Organisations cont…

- University of Auckland – **New Zealand**
- University of Calgary – **Canada**
- University of Paris - **France**
- Queen Mary University of London – **UK**
- Centro Nacional de Alimentacion y Nutricion – **Lima**
- Universidad de Panamá - **Panama**
- University College of Medical Sciences – **Malaysia**
- Universidad de San Carlos de Guatemala – **Guatemala**
- Cuenca University – **Ecuador**
- University of Toronto – **Canada**
- Universidade de São Paulo – **Brazil**
- Universidad Nacional de Tucumán – **Argentina**
- University of Cape Town – **South Africa**
- University of the South Pacific - **Fiji**

What have we done so far?

2008 baseline paper – mean sodium levels by major food category

Food category	Mean sodium (mg/100g)
Bread and bakery products	467
Cereal and cereal products	206
Meat and meat products	846
Dairy	353
Edible oils	419
Fish and fish products	512
Fruit and vegetables	211
Snackfoods	797
Convenience foods	301
Sauces and spreads	1283

Global Fast Food Monitoring

- Nutrient content data for products served by six leading fast food chains in Australia, USA, UK, New Zealand, France and Canada were collected in April 2010
- Mean (and range) sodium content per 100g and per serve for breakfast items, burgers, pizzas, salads, sandwiches and side items was determined
- Results were compared between countries

RESULTS

Sodium per 100g

- 3 fold variation in fries
- 4 fold variation in chicken nuggets
- 5 fold variation in salads

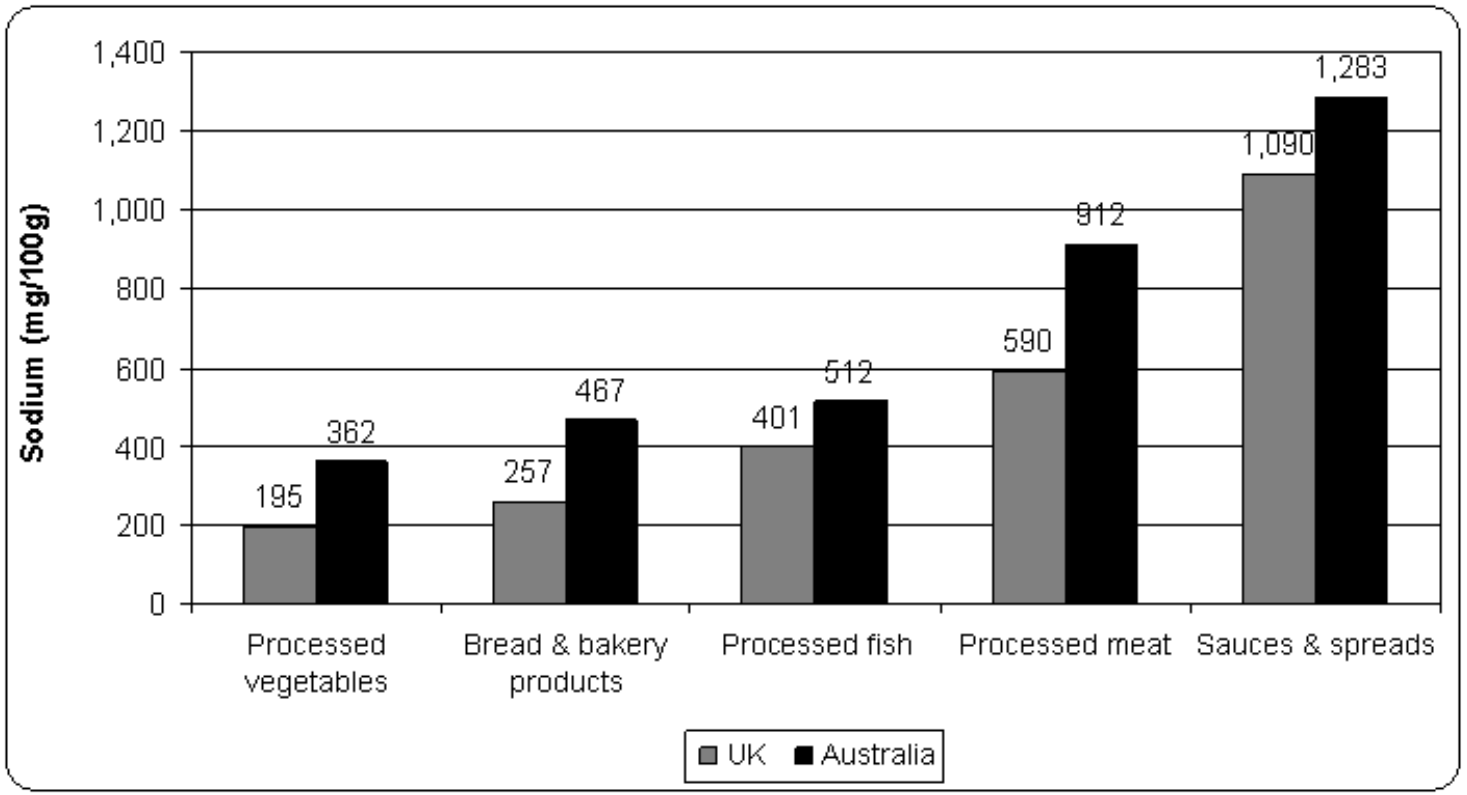
Sodium per serve

- Marked variation, reflecting non-standard serving sizes between countries
- >100-fold variation in salads
- 13-fold variation in sandwiches
- 25-fold variation in pizzas

Results by country

- Breakfast products in the US were higher in sodium than other countries (1061mg)
- Burgers in Australia (1180mg)
- Chicken products in France (994mg)
- Salads and sandwiches in Canada (790mg and 1292mg)

UK and Australia comparison



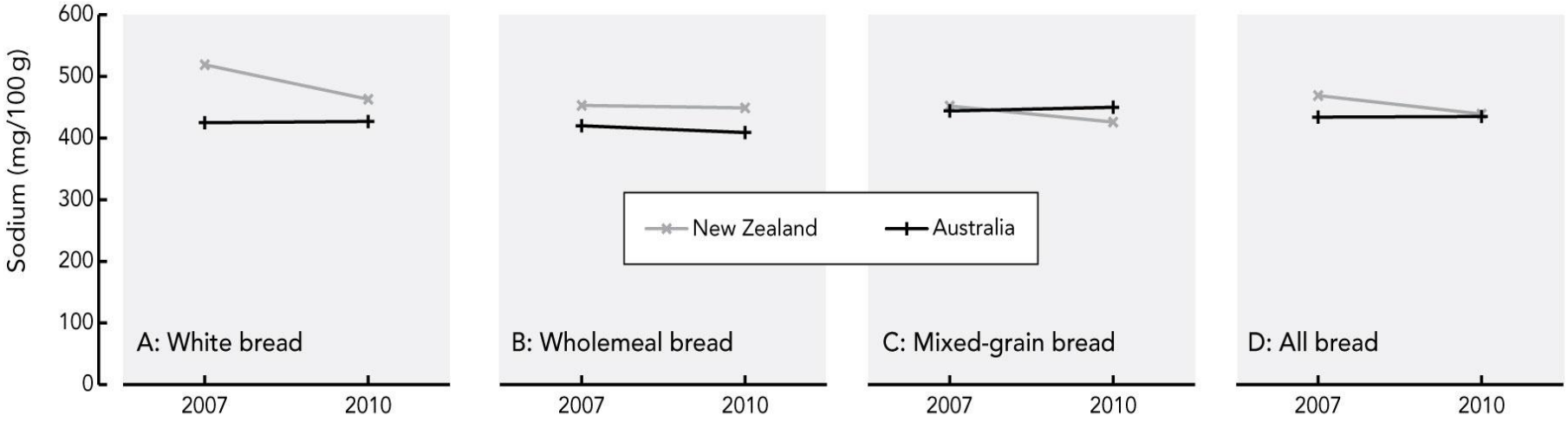
Global branded food database was used to compare sodium levels in UK and Australia

See Ni Mhurchu C, Capelin C, Dunford EK, Webster JL, Neal BC, Jebb SA. Sodium content of processed foods in the United Kingdom: analysis of 44,000 foods purchased by 21,000 households. Am J Clin Nutr. 2010:93(3);594-600.

Western Pacific Region vs Australia

Category	Tonga	Australia	Solomon Islands	Fiji	Mongolia
Soy sauce	3054 (880-7203)	6585 (5665-8420)	4017 (1180-7190)	5900 (5400-6800)	
Tomato sauce	855 (505-1118)	989 (20-1350)	1004 (890-1118)	835 (490-1200)	
Instant noodles	365 (235-900)	399 (190-1380)		342 (240-462)	1586 (1117-2140)
Canned meat	795 (625-1070)	621 (220-1179)	595 (530-630)	615 (550-645)	937 (542-1411)
Canned tuna	N/A	384 (60-1032)	415	405 (224-564)	479 (257-558)
Sanitarium Skippy Cornflakes	680	780		-	
Sanitarium Weet-Bix	285	290		-	

Changes in the sodium content of bread in Australia and New Zealand



Changes in the sodium content of bread 2007–2010

Ref: Dunford E, Eyles H, Ni Mhurchu C, Webster J, Neal B. Changes in the sodium content of bread in Australia and New Zealand between 2007 and 2010 – implications for policy. Med J Aust 2011;195(4).

Conclusions

- Global database will provide new high quality information about the composition of processed foods in multiple countries and will be used to drive progressive reformulation of processed foods globally
- Sustained small-to-moderate reductions in salt, saturated fat, sugar, energy density and serve size are improvements that will reap significant public health gains
- Database has been set up to monitor changes in product formulation over time
  - Transparent
  - Brand/company-specific information
  - Results used to drive policy and push industry

REFRIGERATE AFTER OPENING. BEST CONSUMED

NUTRITION INFORMATION

SERVINGS PER PACKAGE 20 SERVING SIZE 13g

	AVG. QTY PER SERVE	% DAILY INTAKE PER SERVE*	AVG. QTY PER 100g
ENERGY	138kJ	2%	1062kJ
PROTEIN	1.6g	3%	12.4g
FAT - TOTAL	2.2g	3%	17.1g
- SATURATED	1.5g	6%	11.9g
CARBOHYDRATE	1.6g	1%	12.1g
- SUGARS	LESS THAN 1g	0%	3.2g
SODIUM	186mg	8%	1410mg
NIACIN (B3)	1300µg	13%	10mg
THIAMINE (B1)	286µg	26%	2.2mg
RIBOFLAVIN (B2)	224µg	13%	1.7mg
FOLATE (B9)	52µg**	26%	400µg

The George Institute Contact Details

Elizabeth Dunford

Email: edunford@georgeinstitute.org.au

Phone: (02) 8507 2529

Jacqui Webster

Email: jwebster@georgeinstitute.org.au

Phone: (02) 9993 4520

Bruce Neal

Email: bneal@georgeinstitute.org.au