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Monitoring the nutritional composition of foods to improve the global food supply

Dr Elizabeth Dunford

IUNS 20th International Congress of Nutrition, Granada, Spain
September 2013

Health benefits of improving the food supply

- Poor diet major contributor to chronic disease worldwide
- Current food supply has excess levels of nutrients total fat, 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

Processed foods

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

The importance of branded food composition data

Example – same brand in same country

Sodium per serve: 155mg

Product higher in salt

Sodium per serve: 55mg

65% less salt!

Product lower in salt

Example – same product in different countries

Product higher in salt

USA: Sodium per 100g: 900mg

35% less salt!

Product lower in salt

Australia: Sodium per100g: 620mg

Example – white bread – different brands, same country

Sodium per 100g: 600mg

Brand higher in salt

35% less salt!

Sodium per 100g: 400mg

Brand lower in salt

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Saving strokes: Comparison of salt in example adult meals in one day				
Amount of salt in initial choice		Amount using lower salt options		Salt saved
Breakfast				
Kellogg's Special K Forest Berries 45g	0.50	**Kellogg's** Just Right Barley & Berry Flavour 45g	0.05	94% less salty
Total breakfast	***0.50 g***	***Total breakfast***	***0.05 g***	***Save 0.45 g***
Snack				
Arnott's Sao Biscuit 25g	0.50 g	**Ryvita** Multigrain Wholegrain Rye Crispbread 25g	0.20	67% less salty
Kraft Crunchy Peanut Butter 20g	0.30 g	**Coles** Crunchy Peanut Butter No Added Salt 20g	0.06	96% less salty
Total snack	***0.80 g***	***Total snack***	***0.26 g***	***Save 0.50 g***
Lunch				
Wattle Valley Soft Wholegrain Wraps 43g	0.90	**Freedom Foods** Norganic Multigrain Wraps 43g	0.30	71% less salty
Primo Premium Shaved Leg Ham 50g	1.50	**Don** Shaved Light Leg Ham 50g	0.95	38% less salty
Bega Super Cheese Slices 21g	0.80	**Kraft** Liveactive Light Cheese Slices 21 g	0.65	17% less salty
Spring Gully Foods Green Tomato Pickle 20g	0.15	**Beerenberg** Green Tomato Pickle 20g	0.05	65% less salty
Total lunch	***3.35 g***	***Total Lunch***	***1.95 g***	***Save 1.40 g***
Snack				
Coles Fruit Filled Bar (Apple & Cinnamon) 38g	0.30	**Weight Watchers** Raspberry Pie Bar 38g	0.10	*61% less salty*
Total snack	***0.30 g***	***Total snack***	***0.10 g***	***Save 0.20 g***
Dinner				
Pastabilities Ravioli Beef with Caramelised Onion and Red Wine in Cracked Black Pepper 350g	3.75	**Lean Cuisine** Steam Beef and Mushrooms with Pasta Steams in Minutes 350g	1.40	*63% less salty*
Total dinner	***3.75 g***	***Total dinner***	***1.40 g***	***Save 2.4 g***
Total salt	**8.7 g**	**Total salt**	**3.8 g**	**Salt saved 5 g**

Typical Australian daily food intake

- By switching to different brands of processed foods, **5g of salt** can be removed from the daily diet

Global Food Monitoring Group

Aim

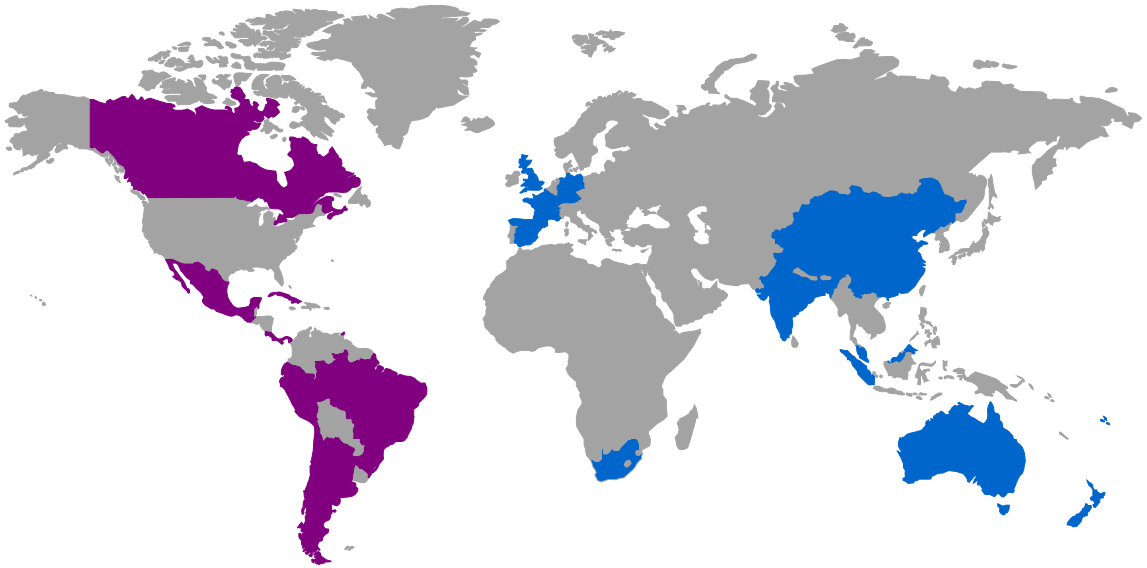
To bring together data on nutrient information (or lack thereof) for processed foods that can be used to drive national and international improvements in the food supply

Design

- Collect nutrient information for processed food products in each country (direct from manufacturer, through analysis or from product labels)
- Enter data into a central system
- Compare information by:
  - product and/or brand
  - category
  - manufacturer
  - country
  - over time

Established in January 2010

Countries involved in the Global Food Monitoring Group



countries in The Americas

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

What has been done so far?.....

Group protocols published

Original scientific paper

European Journal of Cardiovascular Prevention & Rehabilitation

EUROPEAN SOCIETY OF CARDIOLOGY®

International collaborative project to compare and monitor the nutritional composition of processed foods

Elizabeth Dunford[1,2], Jacqui Webster[1], Adriana Blanco Metzler[3,4], Sebastien Czernichow[5], Cliona Ni Mhurchu[6], Petro Wolmarans[7], Wendy Snowdon[8,9,10], Mary L'Abbe[11], Nicole Li[12], Pallab K Maulik[13], Simon Barquera[14], Verónica Schoj[15], Lorena Allemandi[15], Norma Samman[16], Elizabete Wenzel de Menezes[17], Trevor Hassell[18], Johana Ortiz[19], Julieta Salazar de Ariza[20], A Rashid Rahman[21], Leticia de Núñez[22], Maria Reyes Garcia[23], Caroline van Rossum[24], Susanne Westenbrink[24], Lim Meng Thiam[25], Graham MacGregor[26] and Bruce Neal[1,2] (for the Food Monitoring Group)

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SAGE

STUDY PROTOCOL Open Access

International collaborative project to compare and track the nutritional composition of fast foods

The Food Monitoring Group*

Overall goal and objectives

The overall goal of this project is to collate nutrient composition data for processed foods in different countries with the objective of improving the nutritional composition of the world's processed food supply. Information about product composition will be collected in a standardized format in a number of countries and compared. A particular focus of the project will be supporting the participation of low- and middle-income countries. The primary outcome measures to be assessed will be energy content, saturated fat, total sugar, sodium, and serving size, in line with the World Health Organization's global strategy on diet, physical activity, and health.[1] There will be three main objectives:

1. compare mean levels and ranges of the primary outcome measures in each food category between countries;
2. compare mean levels and ranges of primary outcome measures for food categories between companies. Comparisons for this objective will be restricted to companies manufacturing comparable product lines;
3. track changes over time in mean levels and ranges of the primary outcome measures in food categories by country and company.

Protocol for collecting data on processed foods for Latin American countries

FIC-Argentina have developed a guidance document for Latin American countries in Spanish to undertake data collection in line with the global protocol


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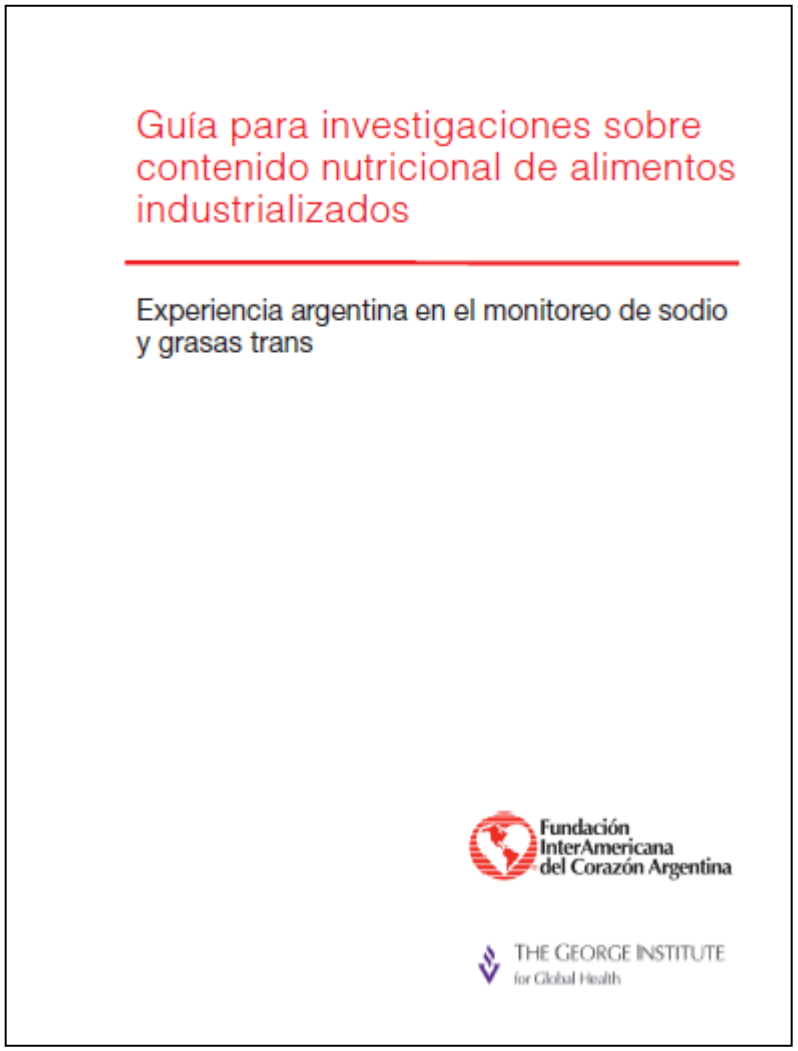
Anexo 2

Instrucciones para la descarga de la aplicación "Data Collector"

1. Diríjase a la tienda virtual de su Smartphone y busque "George Institute". Dentro de las aplicaciones se encuentra la opción de "Data Collector" (figura 1).

Figura 1


Guía para investigaciones sobre contenido nutricional de alimentos industrializados

Experiencia argentina en el monitoreo de sodio y grasas trans

Fundación InterAmericana del Corazón Argentina

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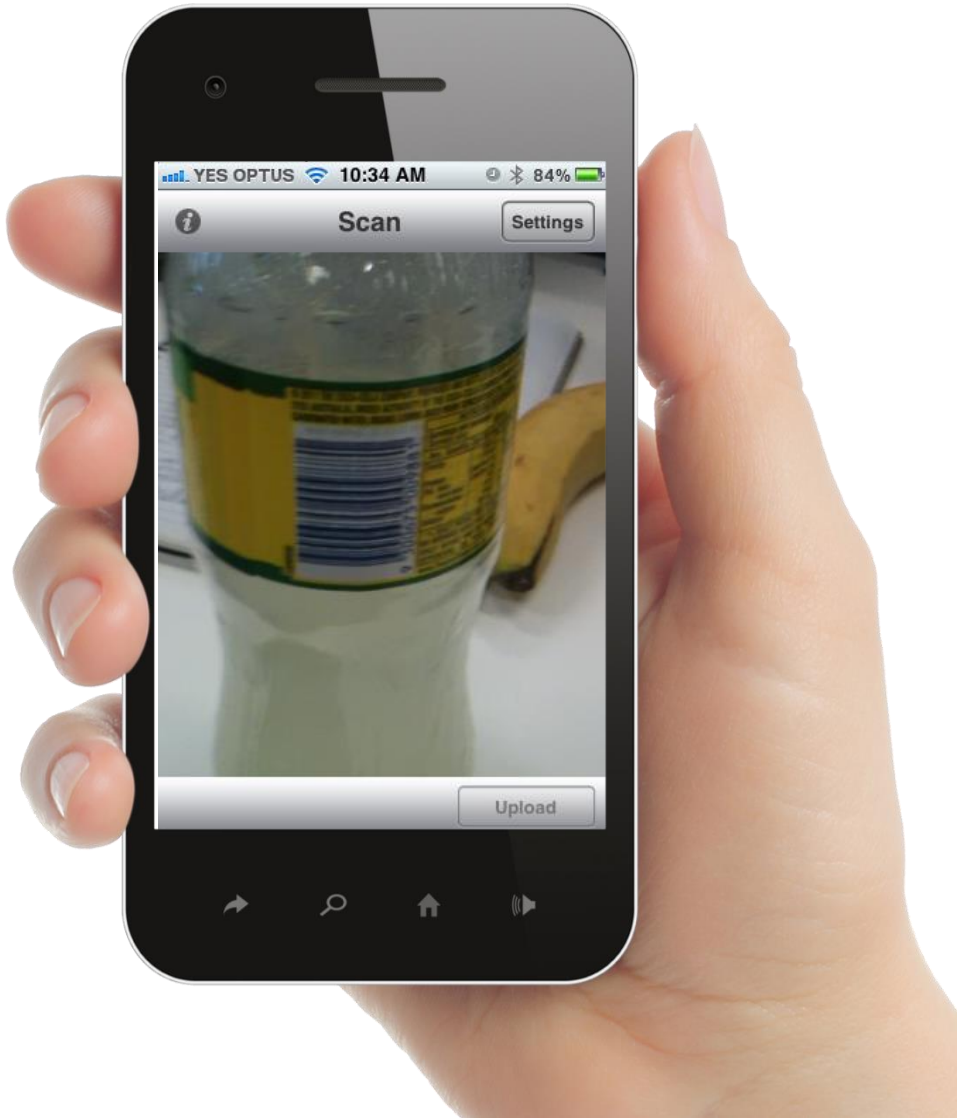
http://www.ficargentina.org/images/stories/biblioteca/guia_investigacion_alimentacion.pdf

Process for data collection

- iPhone app downloaded
- App used to scan product barcode in-store
- App used to take a photo of the front of package
- App used to take a photo of the product's nutrition info



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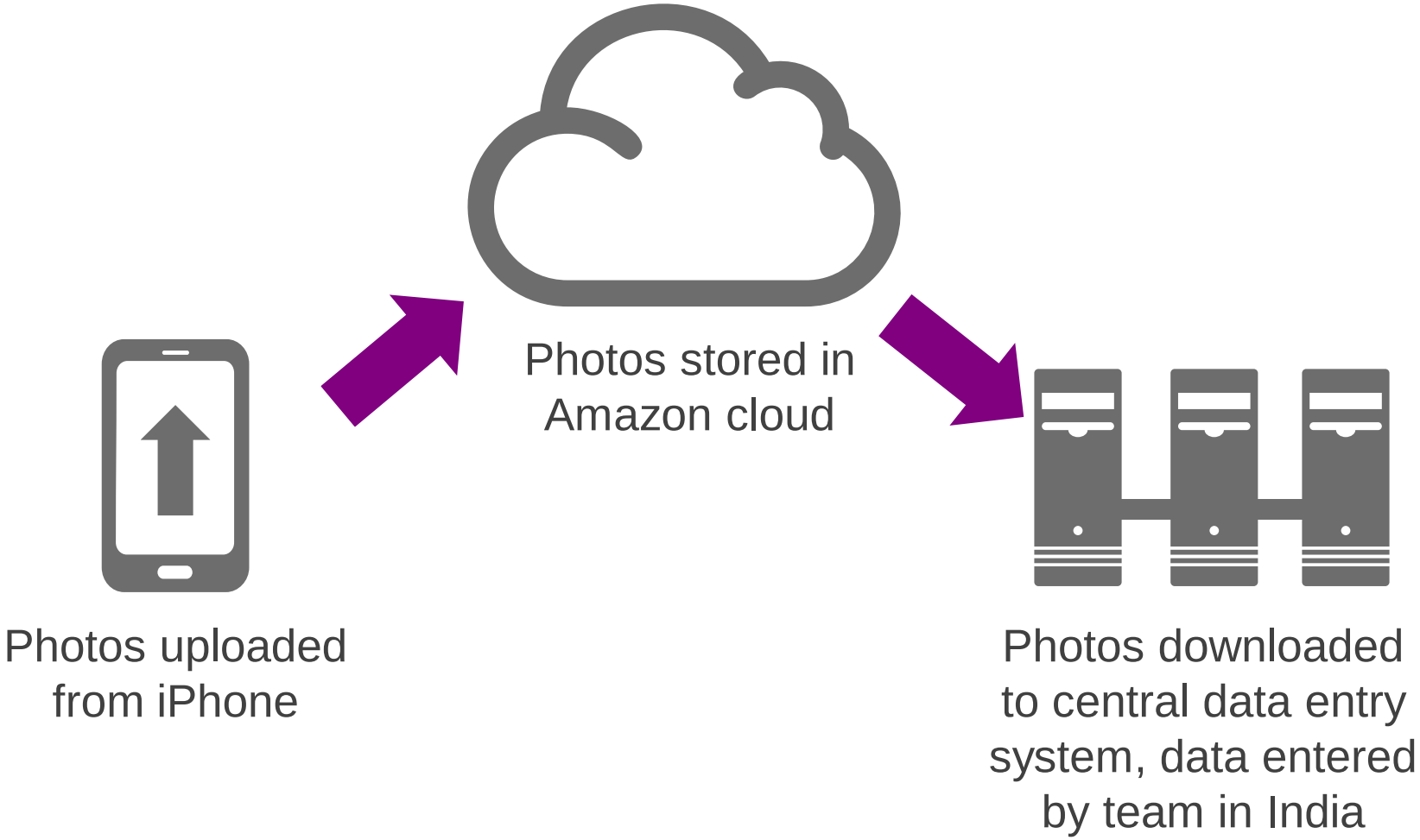
Photos of food products uploaded and nutrition information entered into the FMG database



Branded food products currently in database

Country	Number of products
Australia	60,000+
New Zealand	12,829
Costa Rica	5,079
Argentina	2,405
Canada	16,500+
China	11,157
India	8,700
UK	8,500 (+120,000 Brandbank)
Fiji	1,500
TOTAL	**126,670** (+120,000 Brandbank)

Building capacity in Latin America to collect food composition data:

Training seminar held at the Latin American Nutrition Congress Havana, Cuba -14 November 2012

Training items covered:

- Data collection using smartphone technology in the supermarket
- Uploading and management of photos
- Creation of food categorisation system appropriate to each country
- Data entry, checking and analysis

Attended by 33 participants from 15 Latin American countries

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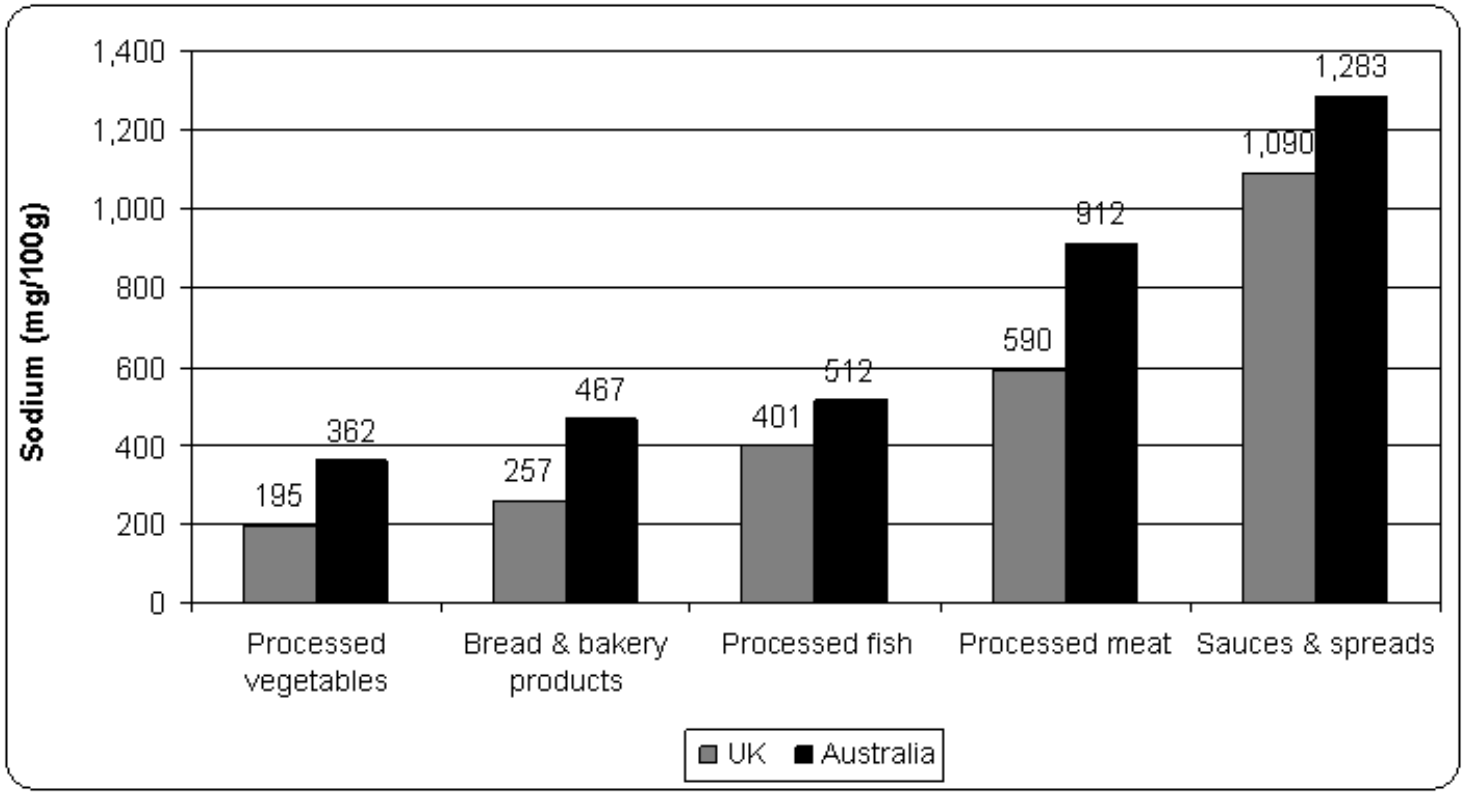
UK and Australia comparison



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

Publication: 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.

In India, information on food labels was used to examine the presence of labelling

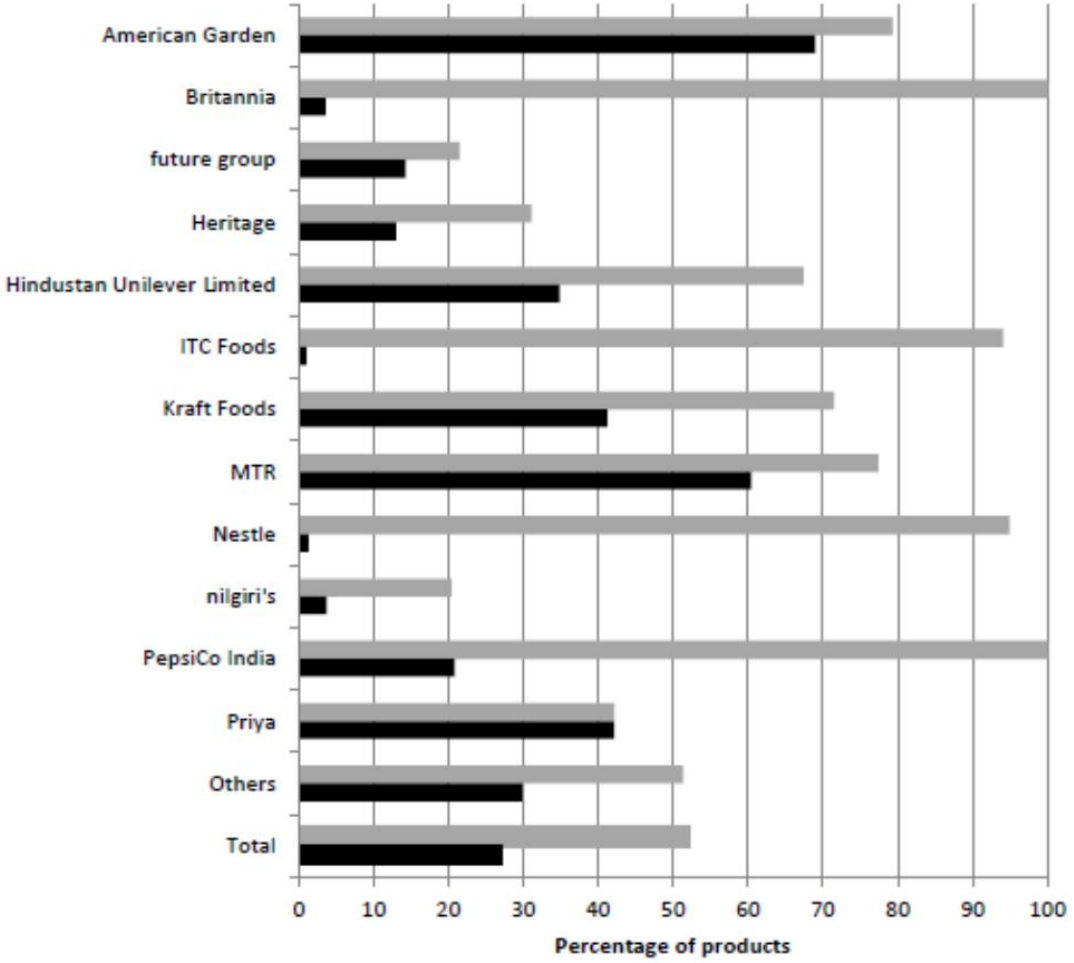


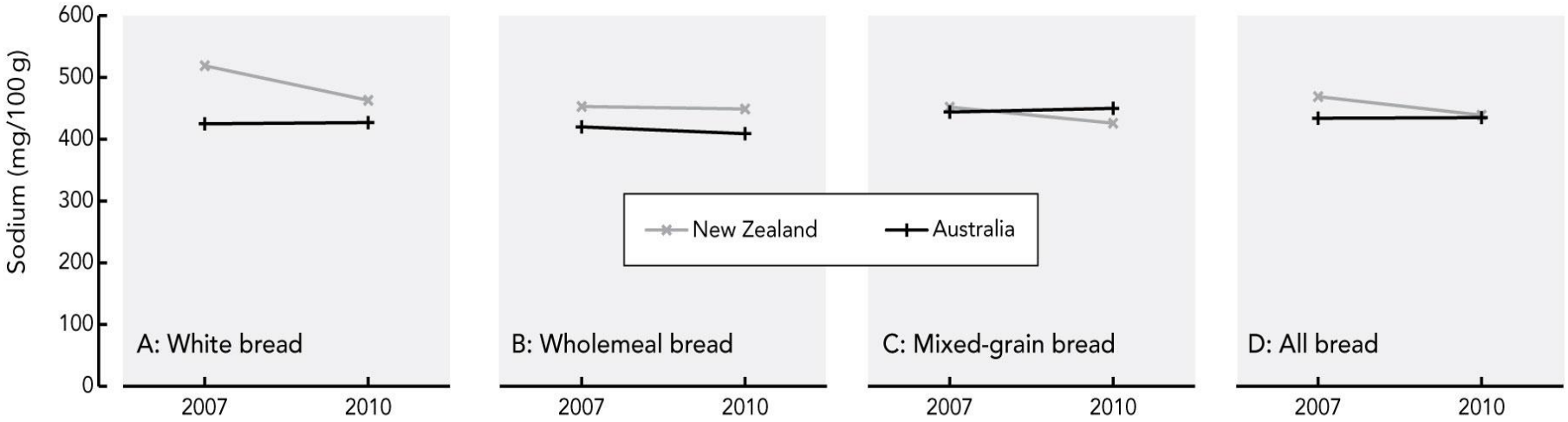
Figure shows proportion of products from major food companies meeting local (grey) and CODEX (black) requirements for nutrition labelling

Regional Comparisons Example – Pacific Islands

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	-	384 (60-1032)	415	405 (224-564)	**479 (257-558)**
Sanitarium Skippy Cornflakes	680	**780**	-	-	-
Sanitarium Weet-Bix	285	**290**	-	-	-

We compared similar foods in different countries in one region

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



Changes in the sodium content of bread 2007–2010

Publication: 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).

Comparison of sodium content of fast food products in 6 countries

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
- 25-fold variation in pizzas

Results by country

- Breakfast in US highest in sodium (1061mg)
- Burgers in Australia (1180mg)
- Chicken products in France (994mg)
- Sandwiches in Canada (790mg and 1292mg)

CMAJ RESEARCH

The variability of reported salt levels in fast foods across six countries: opportunities for salt reduction

Elizabeth Dunford MPH, Jacqueline Webster PhD, Mark Woodward PhD, Sebastien Czernichow PhD, Wen Lun Yuan MPH, Katharine Jenner MPH, Cliona Ni Mhurchu PhD, Michael Jacobson PhD, Norm Campbell MD, Bruce Neal PhD

ABSTRACT

Background: Several fast food companies have made commitments to reduce the levels of salt in the foods they serve, but technical issues are often cited as a barrier to achieving substantial reductions. Our objective was to examine the reported salt levels for products offered by leading multinational fast food chains.

Methods: Data on salt content for products served by six fast food chains operating in Australia, Canada, France, New Zealand, the United Kingdom and the United States were collected by survey in April 2010. Mean salt contents (and their ranges) were calculated and compared within and between countries and companies.

Results: We saw substantial variation in the mean salt content for different categories of products. For example, the salads we included in our survey contained 0.5 g of salt per 100 g, whereas the chicken products we included contained 1.6 g. We also saw variability between countries: chicken products from the UK contained 1.1 g of salt per 100 g, whereas chicken products from the US contained 1.8 g. Furthermore, the mean salt content of food categories varied between companies and between the same products in different countries (e.g., McDonald's Chicken McNuggets contain 0.6 g of salt per 100 g in the UK, but 1.6 g of salt per 100 g in the US).

Interpretation: The salt content of fast foods varies substantially, not only by type of food, but by company and country in which the food is produced. Although the reasons for this variation are not clear, the marked differences in salt content of very similar products suggest that technical reasons are not a primary explanation. In the right regulatory environment, it is likely that fast food companies could substantially reduce the salt in their products, translating to large gains for population health.

Competing interests: See end of article.

This article has been peer reviewed.

Correspondence to:
Elizabeth Dunford,
edunford@georgeinstitute.org.au

CMAJ 2012. DOI:10.1503/cmaj.111895

SUBWAY KFC BURGER KING Domino's Pizza Pizza Hut

Publication: Dunford E, Webster J, Woodward M, Czernichow S, Yuan WL, Jenner K, Ni Mhurchu C, Jacobson M, Campbell N, Neal C. The variability of reported salt levels in fast foods across six countries and opportunities for salt reduction. CMAJ 16 April [Epub ahead of print].

FoodSwitch

- The FoodSwitch app means that for the first time shoppers can:
- Scan the barcode of a product to know how healthy it is
- Switch for healthier food choices
- Share information about healthier food choices with friends

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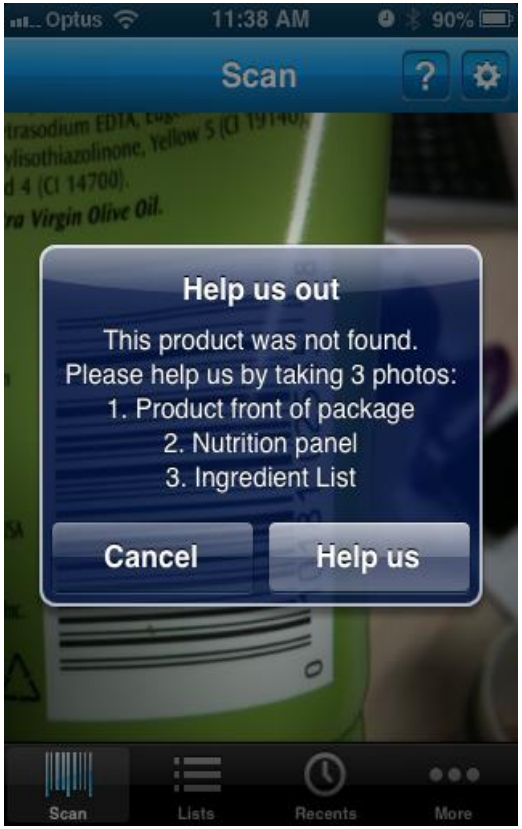
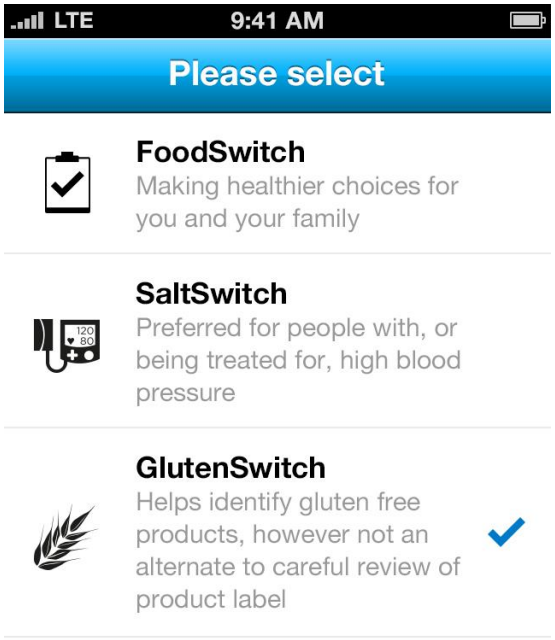
Harnessing the power of crowd-sourcing to collect data

- Originally FoodSwitch Australia was launched with 17,000 products
- When products do not appear in the database, users are asked to help by taking three photographs – one of the front of the product, one of the nutrition information and one of the ingredients list – and send them to us.
- In this way the database can be constantly updated and new products entered.
- 26,000 photos sent in by FoodSwitch users in the first 2 days, and a minimum of 200 photos are sent in every day currently

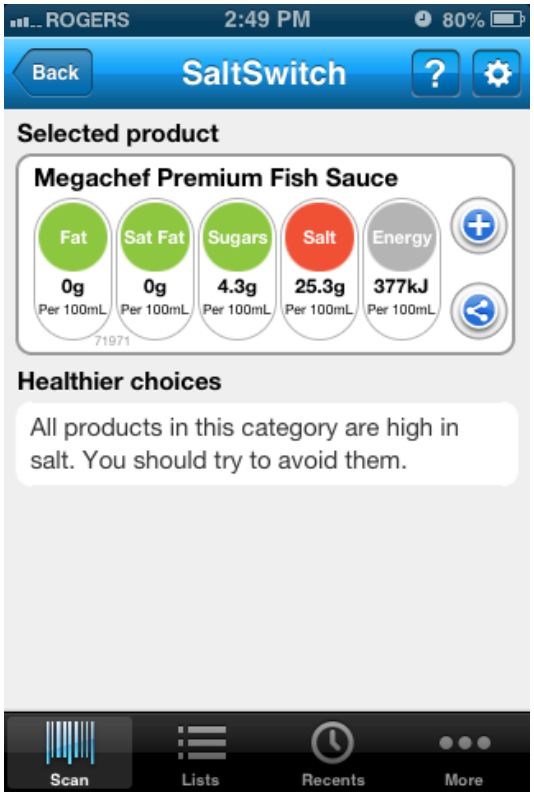
  - Database now includes >50,000 products

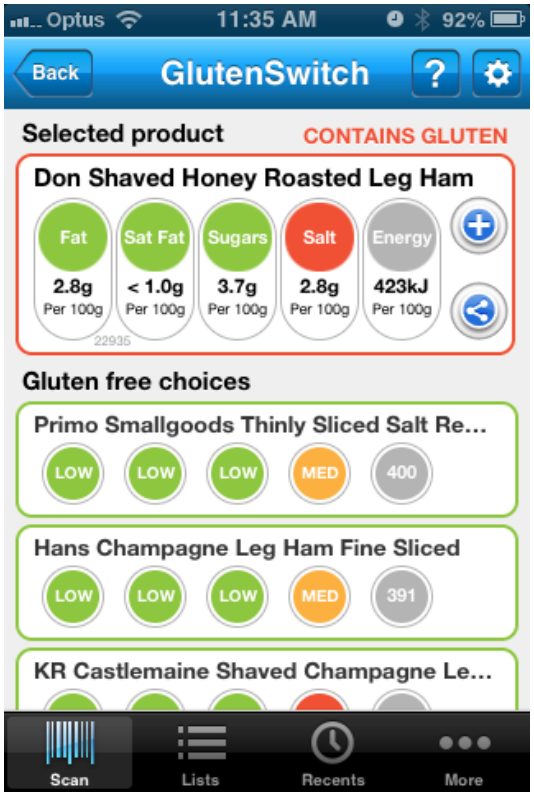


FoodSwitch – new filters added



- SaltSwitch November 2012
- GlutenSwitch May 2013





Countries developing FoodSwitch

New Zealand

- Data for 8,000 products collected, entered and categorised
- Application launched for iPhone and Android in August 2013
- An additional 5,000 products sent in by users in first 2 weeks

UK

- Data entry for 8,000 products complete
- UK-specific food categorisation system developed
- Brandbank data for 200,000+ foods obtained
- Launch date January 2014

China

- Data collection underway
- Launch date June 2014

India

- Data for 8,000 foods complete
- Launch date planned for November 2013

USA, Canada, Argentina and Costa Rica

- In planning phase

Future plans and opportunities

- Build capacity in LMICs to monitor the nutritional composition of processed and fast foods
  - Partnership work with PAHO in Washington DC
  - Training of LMICs to utilise smartphone data collection technology
- Use Global Branded Food Database to examine differences in the nutritional content of processed foods in both high and low income countries
- Identify collaborative projects
  - Meeting of the Food Monitoring Group at the International Congress of Nutrition in September 2013
- Support countries in the adaptation of the FoodSwitch smartphone application
- Data collection planned for South Africa and USA in 2014

The George Institute Contact Details

Elizabeth Dunford

Email: edunford@georgeinstitute.org.au

Phone: +61 2 8507 2529

Bruce Neal

Email: bneal@georgeinstitute.org.au