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

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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

<table>
<thead>
<tr>
<th></th>
<th>Boys&lt;sup&gt;1&lt;/sup&gt; 14-16yrs</th>
<th>Girls&lt;sup&gt;1&lt;/sup&gt; 14-16yrs</th>
<th>Men&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Women&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kJ)</td>
<td>11,598</td>
<td>8,436</td>
<td>11,041</td>
<td>7,481</td>
</tr>
<tr>
<td>Total fat (g)</td>
<td>99.7</td>
<td>73.1</td>
<td>98.5</td>
<td>67.6</td>
</tr>
<tr>
<td>Saturated fat (g)</td>
<td>44.2</td>
<td>31.7</td>
<td>39.0</td>
<td>26.7</td>
</tr>
<tr>
<td>Sugar (g)</td>
<td>163.1</td>
<td>126.3</td>
<td>133.5</td>
<td>97</td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>3,672</td>
<td>2,624</td>
<td>&gt;2,300*</td>
<td>&gt;2,300*</td>
</tr>
</tbody>
</table>

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

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1. 2007 Australian National Children’s Nutrition and Physical Activity Survey
Food Industry Support
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.
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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving size</td>
<td>g or mL</td>
</tr>
<tr>
<td>Energy</td>
<td>kJ / 100g</td>
</tr>
<tr>
<td>Protein</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Total fat</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Saturated fat</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Trans fat</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Monounsaturated fat</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Polyunsaturated fat</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Total carbohydrate</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Total sugars</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Total dietary fibre</td>
<td>g / 100g</td>
</tr>
<tr>
<td>Sodium</td>
<td>mg / 100g</td>
</tr>
<tr>
<td>Calcium</td>
<td>mg / 100g</td>
</tr>
<tr>
<td>Potassium</td>
<td>mg / 100g</td>
</tr>
</tbody>
</table>
### Other variables to be collected

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

<table>
<thead>
<tr>
<th>Food category</th>
<th>Mean sodium (mg/100g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread and bakery products</td>
<td>467</td>
</tr>
<tr>
<td>Cereal and cereal products</td>
<td>206</td>
</tr>
<tr>
<td>Meat and meat products</td>
<td>846</td>
</tr>
<tr>
<td>Dairy</td>
<td>353</td>
</tr>
<tr>
<td>Edible oils</td>
<td>419</td>
</tr>
<tr>
<td>Fish and fish products</td>
<td>512</td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td>211</td>
</tr>
<tr>
<td>Snackfoods</td>
<td>797</td>
</tr>
<tr>
<td>Convenience foods</td>
<td>301</td>
</tr>
<tr>
<td>Sauces and spreads</td>
<td>1283</td>
</tr>
</tbody>
</table>
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)
Global branded food database was used to compare sodium levels in UK and Australia

### Western Pacific Region vs Australia

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

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
The George Institute
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