Protocol

Food Retail – Food Availability in Supermarkets

University of Auckland
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Version: SAMPLE version 1
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1. Version Control

When you **modify** this protocol (e.g., to adapt it for your own country), please enter the following before you share your modified protocol with the INFORMAS group:

- Version used as base protocol:
- Country in which new protocol will be used:
- (aimed) date when data collection will start:
2. Introduction

The World Health Organisation’s (WHO) Global Action Plan for the prevention and control of non-communicable diseases 2013-2020 encourages member states to promote a healthy diet (1). Recommended policy actions include the development of guidelines, recommendations or policy measures that engage different relevant sectors, such as food producers and processors, and other relevant commercial operators, as well as consumers, to increase the availability, affordability and consumption of fruit and vegetables; and the development of policy measures that engage food retailers and caterers to improve the availability, affordability and acceptability of healthier food products (plant foods, including fruit and vegetables, and products with reduced content of salt/sodium, saturated fatty acids, trans-fatty acids and free sugars).

Worldwide, the proportion of adults with a body-mass index (BMI) of 25 kg/m² or greater increased from 28.8% to 36.9% in men, and from 29.8% to 38.0% in women between 1980 and 2013 (2). Dietary risk factors increasingly contribute to the surging global burden of obesity and diet-related non-communicable diseases (NCDs) (2, 3). Since unhealthy diets are driven by unhealthy food environments (4), comprehensive actions by major players, such as governments and the food industry, will be needed to improve the healthiness of food environments and achieve the World Health Organisation (WHO)’s targets to halt the rise in obesity and diabetes, and reduce NCDs by 25% by 2025 (5). Achieving WHO’s risk factor targets will delay or prevent more than 37 million deaths from the main NCDs (6).

The International Network for Food and Obesity/NCDs Research, Monitoring and Action Support (INFORMAS) is a global network of public-interest organizations and researchers that aims to monitor, benchmark and support public and private sector policies and actions to create healthy food environments and reduce obesity, diet-related NCDs and their related inequalities globally (7, 8). Food environments are defined as the collective physical, economic, policy and socio-cultural surroundings, opportunities and conditions that influence people’s food and beverage choices and nutritional status (8). INFORMAS developed 10 modules for which the monitoring frameworks have been designed and the indicators determined (9-18), and which will be translated into detailed measurement protocols. The process modules focus on monitoring the implementation of priority policies and actions on food environments by governments (9) and the private sector (10). The impact modules focus on monitoring key aspects of food environments, including the nutrient composition of foods (11), food labelling (12), exposure of children to unhealthy food promotion (13), nutritional quality of foods in public sector settings (16), the availability and accessibility of healthy and unhealthy foods in communities (15), food prices and affordability of healthy versus unhealthy diets (14) and aspects of foods in trade and investment agreements (17). The outcome modules focus on monitoring population risk factors (including behavioural, physiological and metabolic risk factors), population diet quality (19) and health outcomes. Aspects of these outcome components are being developed by WHO as part of their work on a Global NCD monitoring framework (5).

Protocol aims

Research indicates that there is an association between the availability and promotion of (healthy and unhealthy) foods within retail environments and food purchasing behaviour (15, 22-25). However, the association with dietary outcomes is not consistent perhaps potentially the result of a range of the
variety and complexity of methods that have been used to date (15, 24, 26, 27) (Engler-Stringer ref to add).

This protocol details the approach to monitoring the availability of healthy and unhealthy foods and non-alcoholic beverages in consumer retail environments as they are considered influential in determining dietary behaviours and health outcomes (15, 20, 21). Product availability and product placement of unhealthy and healthy foods within food outlets (specifically medium and large sized supermarkets / grocery stores) is the focus of the data collection in this protocol. Data collection for other retail outlets (e.g., fast food chains, markets, convenience stores, etc.) will be detailed in separate protocols. Likewise, data collections relating to product price, promotion and labelling are investigated within other INFORMAS modules. These protocols are available also available at the INFORMAS website and Google Drive.

The aims of this protocol are to detail the methods for systematically and consistently collecting and analysing information within the countries participating in INFORMAS; and ensure that the data and derived indicators provided are comparable across countries and over time.

The protocol covers the underpinning aims and rationale for the monitoring, data definitions, sampling design and methods, data collection, data collection templates, data coding frameworks, data formats, data storage, data analysis, derived indicators and reporting.

Scope
The food retail outlets covered by this protocol are medium and large supermarkets / grocery stores. These are defined as primarily self-service grocery stores selling food and other household items with a minimum of 2 or more checkout stations/aisles.

In some countries, other retail outlets might be (more) important to include; for example, street markets, train/metro station shops, convenience stores, take-away shops, or indoor markets. We recommend that each country starts by examining what the most important points of purchase are for food (see details below) and anticipate that countries write separate protocols for these different outlets (using this supermarket protocol as basis) as the INFORMAS research progresses.

Terms and conditions
Use of this protocol is subject to terms and conditions. Please refer to Appendix 1 for these terms and conditions.
3. Objectives

The monitoring aims for this protocol are to determine a nationally (or regionally) representative estimate of the in-store availability and prominence of healthy and unhealthy foods and non-alcoholic beverages within consumer food environments (that is within food retail outlets).

Overall the monitoring aims to:

- Determine the relative availability (shelf space) and prominence (location visibility) allocated to healthy and unhealthy food products and non-alcoholic beverages in food retail outlets using a validated indicator.
- Compare changes over time within countries
- Compare estimates across countries
- Provide an evidence base to inform the development of appropriate and effective policy responses

Based on a validation study (see below) we defined the particular measures as:

- length of shelf space and prominence (location) of fresh fruit and vegetables and frozen fruits and vegetables (healthy) within food retail outlets (here medium and large supermarkets); and
- length of shelf space and prominence (location) of placement of soft drinks, crisps, sweet biscuits and confectionary (unhealthy) within food retail outlets (here medium and large supermarkets).

The primary indicator is a ratio of unhealthy to healthy food product shelf space (floor length x number of shelves) taking into account the location (visibility and access) of the products.

Validation study

In 2016, we conducted a validation study (in New Zealand)\(^1\) to develop simple and valid indicators to assess the relative availability of healthy versus unhealthy foods in supermarkets. Results of this study showed that:

- Sampling: There was a significant difference in the ratio of healthy versus unhealthy product availability between different supermarkets. It is therefore important to include an equal number of supermarkets across different brands.
- Included products: Measurement of the shelf space of fresh fruit and vegetables and frozen fruits and vegetables (healthy) versus soft drinks, crisps, sweet biscuits and confectionary (unhealthy) is representative of the total ratio of the healthiest and unhealthiest foods in supermarkets

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\(^1\) Mackenzie, T. Development of a simple and valid indicator to assess the relative availability of healthy versus unhealthy foods in New Zealand supermarkets. Masters of Health Science in Nutrition and Dietetics. The University of Auckland, 2016.
• Product counts (as opposed to shelf space) are likely to be less useful as a measure of the in-store availability of healthy versus unhealthy foods, as there is much less variation between stores compared to shelf space.

These findings form the basis for the foods to be included and excluded when surveying retail food environments as described in this protocol. However, it might be important for other countries (particularly when it is expected that they have very different retail environments from New Zealand) to conduct a similar validation study prior to the main study.
4. Methods

The methods include a multi-stage stratified sample survey of food retail outlets to obtain nationally (or regionally) representative estimates of the in-store availability of healthy and unhealthy foods and non-alcoholic beverages. The availability of healthy and unhealthy foods are to be weighted by the in-store prominence of the products, determined on the basis of location within store.

Types of retail outlets to include

This protocol focuses on medium and large supermarkets / grocery stores because these are the most important points of purchase for foods in most developed countries. However, for some countries, other retail outlets (for example street markets) might be more important to include. We recommend that each country starts by examining what the most important points of purchase are for food (see details below) and anticipate that countries write separate protocols for these different outlets (using this supermarket protocol as basis) as the INFORMAS research progresses.

‘Medium’ sized (included) versus small (excluded) supermarkets are differentiated on the basis of the number of staffed check out stations/aisles. Using this definition, supermarkets with 2 or more staffed checkout aisles/cash registers are included and those with less excluded. If, during data collection, a sampled retail outlet is found to be ineligible based on number of staffed checkout aisles, then the outlet should be replaced in the sample.

STEP 1
Each country should start with a detailed examination of their retail landscape. This should include market shares or percentage of food products purchased at different outlets (e.g., in NZ, 86% of household food is purchased at the supermarket). Countries should make sure that the most important food retail outlets are included in the sample.

STEP 2
The sampling design should consider stratification by retail outlet size or major chain. This is particularly important where there is heterogeneity in the retail outlet market (for example in supermarket sizes and chains) because we found such heterogeneity is associated with differences in the proportion of healthy versus unhealthy food products that are stocked. The decision on which supermarket chain to include should be based on market share information.

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2 Establishing the number of staffed checkout aisles/locations should be straightforward and does not require any intrusive measurement or questioning.
Details on sampling supermarkets

For details please request access to full protocol

STEP 3
To help ensure a representative sample of food outlets nationally or regionally within different types of localities, the sampling design takes into account the:

- Number of supermarkets by chain and size (minimal approach)
- locality, whether a location is urban or rural (related to population density and likely density of retail outlets) (expanded approach); and
- area level socio-economic deprivation measures of the locality (optimal approach).

Minimal approach

For details please request access to full protocol

Expanded approach

For details please request access to full protocol

Optimal approach

For details please request access to full protocol

Seasonality effects

STEP 4
To avoid seasonality effects in the estimates, it is recommended that data collection is conducted:

- equally across the four seasons – to obtain a yearly estimate; or
- during one season only and use the same season for any data collections in subsequent years
- Outside times of significant national holidays where the promotion of specific products is high (e.g., Christmas, Thanksgiving)

Food product groups: Food Classification system
The products selected for inclusion in the ‘healthy’ and ‘unhealthy’ categories were determined by a recent New Zealand validation study.
5. Data collection in supermarkets

Data collection in supermarkets will involve:

- Measurement of the floor length allocated to particular products
- A count of shelves allocated to the products
- Categorisation of the location of the products.

Before you start data collection

**STEP 5**

Researchers will need to consult with their local ethics committee regarding the requirements (informed consent/participation/etc.) for entering a supermarket for data collection.

Researchers should obtain approval from the supermarket manager before entering the store for data collection. Depending on the type of supermarket (independent, franchise, chain) approval might be needed from the head office. We advise to first ask local store managers and only consult the head office if local managers don’t have the authority to approve the data collection.

It is advised that supermarket managers are notified of the research by letter (or in person). If in person, a letter of introduction, information sheet and consent form (if applicable) should be provided to the retail outlet manager. Minimising any potential disruption to retail outlet operations is advised. This might mean that the data collection is conducted at a time of day when there are few customers in-store.

**Measurements dimensions – supermarkets**

**STEP 6**

Measure the supermarket in-store environment following the minimal or expanded approach.

**Minimal approach:**

For details please request access to full protocol

**Expanded approach**

For details please request access to full protocol
Figure #: Example form for in-store assessment of shelf space and display location

<table>
<thead>
<tr>
<th>Supermarket name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection date &amp; time</td>
<td></td>
</tr>
<tr>
<td>Data collector (name)</td>
<td></td>
</tr>
</tbody>
</table>

**Number of staffed checkouts**

(NB: if less than 2 staffed checkouts, exclude from data collection and replace with next on list)

**Consent obtained/ refused**

Signed consent obtained – yes ☐; Verbal consent obtained – yes ☐
Consent refused – yes ☐

**Type of food:**

<table>
<thead>
<tr>
<th>Location</th>
<th>Prominent location</th>
<th>Product in location</th>
<th>Lateral shelf space (cm)</th>
<th>Number of shelves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrance</td>
<td>Medium</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endcap A</td>
<td>High</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endcap B</td>
<td>Medium</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aisle</td>
<td>Medium</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edge</td>
<td>Low</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Island</td>
<td>Medium</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checkout side</td>
<td>High</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checkout edge</td>
<td>High</td>
<td>Yes / No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Quality control – data collection, coding and entry process

**STEP 7**
To ensure the results are reliable, quality control checks should be conducted during data collection, coding and data entry processes.

**Training**
All data collectors should receive training prior to collecting data and their first data collection should be supervised and the measurements checked. If there are discrepancies, further training and clarification should be provided.

**Audit and reliability checks**
Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

For details please request access to full protocol
7. Data analysis

**STEP 8**
Calculate the lengths and ratios using (1) a stratified approach and then (2) a weighted approach by determining:

- Shelving length (or cm²) for each healthy product type in total and by visibility strata
- Shelving length (or cm²) for all healthy product types in total and by visibility strata
- Shelving length (or cm²) for each unhealthy product type in total and by visibility strata
- Shelving length (or cm²) for all unhealthy product types in total and by visibility strata

The final indicator of:

- A ratio of all unhealthy to all healthy products by visibility strata

Two different reporting options are recommended:

XXX

For details please request access to full protocol
8. Data sets for INFORMAS

**STEP 9**
The INFORMAS group will store, oversee and monitor the data collection from all countries. Therefore, we ask all researchers using this protocol to send their data to the INFORMAS core team.

The data will be managed in two datasets:

Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

For details please request access to full protocol
9. References


5. World Health Organisation. Follow-up to the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. Draft resolution proposed by the delegations of Australia, Bahrain, Barbados, Belgium, Brazil, Canada, Chile, China, Colombia, Costa Rica, Cote d’Ivoire, Denmark, Djibouti, Finland, Ghana, Iraq, Libya, Malaysia, Mexico, Monaco, Mongolia, Nigeria, Norway, Pakistan, Panama, Russian Federation, Singapore, South Africa, Spain, Suriname, Sweden, Switzerland, Thailand, United Republic of Tanzania, United Kingdom of Great Britain and Northern Ireland, Uruguay, United States of America and Zimbabwe. Sixty-sixth World Health Assembly Agenda item 13. Geneva: World Health Organisation, 2013.


10. APPENDIX 1 – INFORMAS PROTOCOLS Terms & Conditions

The undersigned:
INFORMAS Secretariat (represented by Prof Boyd Swinburn) at the University of Auckland, New Zealand (hereinafter referred to as INFORMAS Secretariat).

And

Party interested in using the INFORMAS protocols, hereinafter referred to as INFORMAS party. INFORMAS party can be an institution, department, group or individual researcher.

INFORMAS party becomes an INFORMAS user after signing this document.

A. Definitions

INFORMAS (International Network for Food and Obesity / non-communicable Diseases Research, Monitoring and Action Support) is a global network of public-interest organisations and researchers that aims to monitor, benchmark and support public and private sector actions to create healthy food environments and reduce obesity and non-communicable diseases (NCDs) and their related inequalities. INFORMAS serves as a capacity building platform for sharing tools, methods, experiences, support and data for monitoring and benchmarking food environments and policies globally and is supported by/seeking support from a wide range of different funding sources.

INFORMAS Secretariat is the INFORMAS core team at the University of Auckland coordinating the INFORMAS globally represented by Professor Boyd Swinburn, INFORMAS Research Fellows and senior secretariat members.

INFORMAS Module leader teams are assigned INFORMAS researchers to lead one of the 10 modules within INFORMAS.

INFORMAS researcher is a researcher who belongs to the INFORMAS network, providing input through module leadership or data and analysis contributions and signed the INFORMAS data use and sharing Terms and Conditions.

INFORMAS users are researchers linked to INFORMAS who use INFORMAS protocols and materials and who signed this INFORMAS Protocols Terms and Conditions form.
**INFORMAS group** is INFORMAS Secretariat and INFORMAS researchers and INFORMAS Module leader teams.

**INFORMAS research** is projects using (any of) the available INFORMAS resources, methods and / or protocols for data collection and analysis.

**INFORMAS resources** is the protocols and data collection methods as available on the INFORMAS website ([www.informas.org](http://www.informas.org)), published in peer reviewed journals and accessible on the INFORMAS Google Drive (where INFORMAS party will receive access to after signing this agreement). This does not cover INFORMAS data which is part of a separate agreement.

**INFORMAS user** is parties who signed this document and are using INFORMAS protocols or resources, but are not necessarily contributing to or making use of INFORMAS data (this is part of a separate agreement).

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**B. Aims of the document**

Large collaborative projects that include many participants can have unique challenges to determine levels of ownership and contribution. This document therefore aims outline the terms and conditions (i.e., expectations) with regard to the use and sharing of INFORMAS resources. The goal is to facilitate collaboration between researchers (not between institutions).

This is not a legally binding agreement between institutions, but merely a mutual understanding between researchers outlining the expectations relating to INFORMAS. The INFORMAS party can add additional conditions to this agreement as appropriate (see section C).

After signing this document, the INFORMAS party will become an INFORMAS user and will receive full access to the latest INFORMAS resources as hosted on the INFORMAS Google Drive.

In the first instance, INFORMAS Secretariat aims to work with one contact person for each INFORMAS party. This agreement will need to be signed by that contact person, but please also provide contact details for other researchers in your INFORMAS party so we contact you in case the contact person leaves.

The main goals of this agreement are to:
- Safeguard consistency of INFORMAS resources (e.g., protocols and data collection methods) within and between different countries (for example to allow multi-country analysis)
- Safeguard the quality of INFORMAS resources (e.g., protocols and the collected data)
- Safeguard version management for INFORMAS resources (e.g., protocols, databases and publications)
- Encourage collaboration between INFORMAS researchers who are using INFORMAS resources.

1. General Principles
   - **Copyleft**: The INFORMAS research follows the principle of ‘copyleft’ where INFORMAS researchers receiving INFORMAS resources have the same rights for using and sharing INFORMAS resources as the authors of the original documents and INFORMAS Secretariat, with the condition that they follow the same copyleft principles when distributing the work
   - **Reciprocity**: The INFORMAS research follows the principle of ‘reciprocity’ where there is expected mutual benefits from contributing and sharing to INFORMAS research. Here it is expected that when the INFORMAS party or INFORMAS researcher benefits from the INFORMAS resources, they repay by contributing resources and skills of their own.

This document does not relate to any financial agreements between institutions (e.g., when you pay or get paid to use particular INFORMAS resources) which will need to be covered in separate agreements.

2. General terms and conditions

By signing this document, you agree to:
   - Adhere to the INFORMAS resources as outlined in each document
   - The INFORMAS party communicates with INFORMAS Secretariat about any changes they (are planning to) make to the INFORMAS resources (e.g., when they adapt a protocol for their own country or for a specific setting) and share the final protocol within the INFORMAS group (which can be in the INFORMAS party’s own language)
   - The data the INFORMAS party collects using the INFORMAS resources will be owned by the INFORMAS party. However, there is an expectation that the INFORMAS party shares the cleaned data with the INFORMAS group (i.e., copyleft principle). For further details please refer to the INFORMAS Data Use & Sharing Terms & Conditions.
   - Not share INFORMAS resources outside your INFORMAs party without informing the INFORMAS group.
   - Agree to the principles as outlined in the INFORMAS Publications and Authorship Terms and Conditions
Not directly or indirectly exploit the INFORMAS resources in any way for the
INFORMAS party his/her own or any other person’s benefit, profit or advantage.
- Have in place adequate security measures to protect any Personal Information and
Confidential Information against unauthorised access, modification, use, disclosure
or loss.
- Agree to the copyleft principles.

C. Additional conditions
   INFORMAS party can specific terms and conditions here for use of their data by
   INFORMAS if applicable.

D. Please provide the following details:
   a. INFORMAS party contact person name:
   b. Institution:
   c. Country:
   d. Email address:
   e. INFORMAS party involved researchers
      i. Researcher name 1:
      ii. Researcher institution 1:
      iii. Researcher email 1:
      iv. Researcher name 2:
      v. Researcher institution 2:
      vi. Researcher email 2:
      vii. Researcher name 3:
      viii. Researcher institution 3:
      ix. Researcher email 3:
      x. Please expand as necessary
   f. INFORMAS modules you are most interested in:
      □ Public sector policies and actions
      □ Private sector policies and actions
      □ Food composition
      □ Food labelling
      □ Food promotion
      □ Food provision
      □ Food retail
      □ Food prices
      □ Food trade and investment
      □ Population diet
11. **Appendix 2 – Data collection sheets for supermarkets**

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For details please request access to full protocol