Nutrient profiling to develop a model for front-of-pack labeling: Current issues and considerations

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Background

- Increasing rates of chronic disease related to diet\(^1\)
  - Responsible for 60% of all worldwide deaths\(^2\)

- Poor diet is a modifiable risk factor
  - Individuals and populations should restrict intake of\(^{1,3}\):
    - Total energy
    - Saturated and trans fats
    - Sugar
    - Sodium

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Nutrition labeling

- Describes nutrient content of food\(^1,2\)
- Aims to assist consumers in making food choices consistent with public health objectives\(^1,2\)
- Encourage manufacturers to reformulate products\(^1,2\)

Types of nutrition information on packaged foods

- Diverse forms of information exist:
  - Nutrition Facts Table\(^1\)
  - Claims\(^1\)
  - Front-of-pack (FOP) labeling\(^2\)

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Front-of-pack (FOP) nutrition labeling

- Provides simplified nutrition information about product’s key nutritional characteristics

### Types or Categories of Front-of-Pack Nutrition Labelling Systems

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<th>Nutrient-specific</th>
<th>Summary indicator</th>
<th>Food group info</th>
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<td><img src="image1" alt="Nutrient-specific Labels" /></td>
<td><img src="image2" alt="Summary Indicator Labels" /></td>
<td><img src="image3" alt="Food Group Info Labels" /></td>
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**Nutrient-specific**
- Calories: 218 (11%)
- Sugars: 6.3g (7%)
- Fat: 3.2g (5%)
- Saturates: 1.4g (7%)
- Salt: 0.2g (3%)

**Summary Indicator**
- Sensible Solution
- Healthy Choice
- NuVal
- Smart Choices
- 1-100
- 250 Calories/Bottle
- Snack Wise
- Health Check

**Food Group Info**
- Whole Grain
- 4 Points Value
- 1 Serving Portion
- High in Fat
- High in Sodium
- High in Sugar

![Image of Food Group Info](image4)
Nutrient profiling models (NPMs)

- Global evaluation of a product’s overall healthfulness based on nutritional composition

- Allows comparison between products when some nutrient levels are higher and others are lower:
  - e.g. one product is higher in saturated fat but lower in sodium than another

Basis Underlying different Front-of-Pack nutrition labelling systems

- Fact-based information on nutrient or food group content, OR

- Meets a nutritional standard*
  - Qualifying or disqualifying threshold criteria
  - Relative criteria, i.e. “reduced” compared to reference, OR

- Evaluative or Interpretative*
  - Ordinal rating scale, or
  - Classification – e.g. traffic light

* A Nutrient Profiling system needed
Nutrient profiling systems are used for decisions

- Summary indicator or evaluative systems evaluate products against a nutritional standard

- Products meeting the standard are permitted to carry the FOP

Yes or No?

Which colour? How many stars?
Regulatory uses of NPMs

- Regulation of food labeling and marketing\(^1\)
  - Set nutritional standards to determine which products are permitted to carry claims and **front-of-pack systems**
  - Determine which products can be marketed to children or served in hospitals, schools, daycares etc.

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Considerations when developing a NPM for a FOP
1. Purpose of the FOP

- Who is the intended target audience of the FOP?
  - General public
  - Parents
  - Population with medical condition (e.g. diabetes)

- Which health outcomes is this FOP striving to achieve?
2. Single vs. multiple nutrient focus

Rating a product on individual nutrients vs. Summary rating of the product based on a combination of nutrients

3. Reference amount

- How much of each food will be evaluated?
  - Serving size
  - Predetermined amount
    - 100 g
    - 100 kcal
    - Other
  - Allows consistent approach to similar products of different serving sizes

4. Scoring system

- Binary threshold: a product can fail ("less healthy" products) or pass ("healthier" products)

- Graded: a product can fall into a number of levels
  - Categorical scores:
    - Traffic lights (red, amber, or green)
    - Guiding Stars (0, 1, 2, or 3 stars)
  - Numerical scores:
    - Nuval (1 to 100, where higher scores are healthier)
4. Scoring system – cont’d

- Algorithm – how will the score be calculated?
  - Nutrient values chosen should be based on scientific evidence for health outcomes in target population

- Focus on nutrients to limit (e.g. sodium), or nutrients to encourage (e.g. fibre) or both

5. Number of categories

- Will all types of products be scored in the same way?
  - Across-the-board system\(^1\)
    - Same scoring regardless of food category

- If not:
  - Will foods be scored differently from beverages?
  - How many food categories should be used?
    - How will they be selected?
5. Exemptions

If an across-the-board model is chosen, will there be any foods or food groups with special considerations?

For example, in the FSANZ model, edible oils, edible oil spreads and some cheeses have their own scoring category, separate from other foods. 

6. Validation of the model

How well does the model classify foods?

Difficult without a gold standard to determine “healthfulness” of a food

Compare model’s food classifications to classifications by:

- Nutrition experts¹
- An established classification system, such as a national food guide²

7. Importance of choosing an appropriate model

- Models with similar purposes can produce extremely varied results.

- Scarborough et al. compared 8 models that aim to regulate food marketing to children\(^1\)
  - Models ranged from 2-9 nutrients and 2-20 food categories.
  - 2.1% to 47.4% of television commercials would be permitted depending on which model was used.

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It is important to carefully consider all aspects when developing a nutrient profiling model for a front-of-pack labeling system.
Thank You!

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