

**IDRC Project Number:** 106885-001

**Project Title:** Monitoring and evaluation of a front-of- package  
labelling strategy in Mexico

**Edited by:** Ángela Carriedo, Claudia Nieto, Carmen Mena, Jaqueline Alcalde, and  
Simón Barquera.

**Report Type and Number:** Final Technical Report

**Period covered by the report:** October 2012 - November 2015

**Date submitted:** December 17<sup>th</sup>, 201

**Mexico, México City and Cuernavaca, Morelos**

**Nutrition and Health Research Center, National Institute of Public Health**

Universidad No. 655 Colonia Santa María Ahuacatitlán,

Cerrada Los Pinos y Caminera C. P. 62100,

Cuernavaca, Mor. México.

Tel. 52(777) 329 3017

**Researcher/Members of Research Team:**

Simón Barquera MD, MS, PhD.<sup>1</sup>, Ángela Carriedo Msc<sup>1</sup>, Juan Rivera-Dommarco, MS, PhD.<sup>1</sup>, Barry  
Popkin<sup>2</sup>.

**Advisors:**

Mauricio Hernández-Avila MD, MS, PhD.<sup>1</sup>, Mary L'Abbe PhD<sup>3</sup>, Laura Irizarry Msc<sup>4</sup>

1 National Institute of Public Health (INSP). 2 University of North Carolina School of Public Health 3 University of Toronto, 4 UNICEF

This work is used with the permission of \_\_\_\_\_  
(name of copyright holder)

\*Copyright \_\_\_\_\_ (year), \_\_\_\_\_ (name of copyright holder)



## **Table of content**

I.	Executive summary	6
II.	The research problem	7
III.	Aim and objectives	8
IV.	Progress towards milestones	9
V.	Methods	11
VI.	Research outputs and outcomes	22
VII.	Problems and Challenges	28
VIII.	Overall assessment	29
IX.	Recommendations	30
X.	Annexes	31

Annex 1. Main results of questionnaires with consumers

Annex 2. Main results of focus groups with consumers

Annex 3. Inventory of food labels for year 2015

Annex 4. Main results of stakeholders interviews

## **Figures and Tables**

Figure 1. Questionnaire with consumers' data collection

Figure 2. Focus Groups' data collection

Table 1. Aims achieved per year and changes during the grant, and compliance with Grant Agreements (GA)

Table 2. Categories for qualitative analysis for focus groups with consumers

Table 3. Sample collected per food group products

Table 4. Additional outputs related to the project

Table 5. Main activities and products of Year 1

Table 6. Main activities and products of Year 2

Table 7. Main activities and products of Year 3

## **Glossary**

<b>AGEBS</b>	<b>Area Geoestadísticas Básicas (Basic geo-statistical area)</b>
<b>COFEPRIS</b>	<b>Comisión Federal para la Protección contra Riesgos Sanitarios Federal</b>
<b>FOPL</b>	<b>Front of Package Labelling</b>
<b>GDA</b>	<b>Guideline Daily Amount</b>
<b>HSES</b>	<b>High Socioeconomic Status</b>
<b>LSES</b>	<b>Low Socioeconomic Status</b>
<b>MOH</b>	<b>Ministry of Health</b>
<b>MOF</b>	<b>Ministry of Finance</b>
<b>MSES</b>	<b>Middle Socioeconomic Status</b>
<b>NSPCOOD</b>	<b>National Strategy to Prevent and Control Overweight, Obesity and Diabetes</b>
<b>SHCP</b>	<b>Secretaria de Hacienda y Crédito Público (Secretariat of Finance and Public Credit)</b>
<b>WHO</b>	<b>World Health Organization</b>

## **I. Executive summary**

The aim of this proposal is to document and better understand the different factors (political, social, legal and financial) that potentially enabled or constraint the implementation of the Front-of-Pack (FOP) nutrition labeling system in Mexico. The FOP main purpose is to help consumers choose healthier foods and to become an incentive to motivate food industry to improve the nutrient content of their products. For the past three years we have been evaluating the changes occurring with the FOP labeling policy in Mexico including changes in product labels, perceptions of consumers, and documenting the policy process.

This report describes: a) the main outcomes achieved, b) the issues that challenged the project implementation and management, c) the main deviations from the original proposal, and d) the dissemination strategy of the results, including the project's impact. Annexes of this report cover the detailed outcomes fulfilled during the three years.

Our main findings suggest consumers prefer simple FOP systems, without the need of using calculations and how this remain as the main preference through time. The current system adopted by the MoH (Ministry of Health) is not well understood and therefore not used among the respondents we interviewed. Also an important outcome was the lack of trust in the information presented on the labels. Findings between data of the interviews and or the focus groups were similar, and did not change much throughout time. This an important finding that reflects some contextual factors, that need consideration when designing policies related to food labelling.

Also, our main findings on regards stakeholders' involvement in the FOP labelling policy suggested it is perceived as advantageous for the food industry, and not very useful to influence consumers. Regarding the effectiveness of the FOP labelling system applied, opinions diverged, but mainly stakeholders suggest it would work better if accompanied with a communication campaign.

The project has been a great opportunity to work with other national institutions, and has provided valuable data values of the population about food packaging, as well as an insight of how the policy process was undertaken and who was involved. Also, having data on the labels changes throughout time, provides information on how the food producers are adapting to the new regulation. To date our team is working on further research and on the dissemination strategy in academic journals and conferences for in depth analysis and further findings.

## **II. The research problem:**

### **2.1 Main rationale of the proposal and changes that occurred in year 1.**

The aim of this proposal is to evaluate the main changes on labeling policy to take place in Mexico in 2013, 2014 and 2015. When drafted, the proposal was designed to adapt and to follow one of two main pathways, depending on the circumstances after the presidential election in 2013. The two main pathways framed at the time the proposal was outlined were:

a) If the new government support the obesity prevention strategy and adopted the FOP labeling system, this proposal was aimed to start the process evaluation and carry out impact evaluations.

b) If the government got caught in a long and protracted struggle with the food industry over the FOP system, we would limit our work to document barriers, opportunities and carry out a situational analysis among consumers and stakeholders of the proposed FOP labeling strategy and the current FOP existing in Mexico using the Guideline Daily Amounts (GDA's).

It should be noted that at the moment of writing the proposal, we were expecting COFEPRIS (the equivalent to the U.S. FDA) to adopt the Institute of Medicine recommendations for FOP labeling, and also the proposed nutritional criteria defined by the Mexican Scientific Committee for a binary system with a logo of "healthy product".

### **2.2 Main policy outcomes after the first year of the Enrique Peña Nieto government:**

The new government accepted to regulate food labeling and outlined the main strategies on the *Estrategia Nacional para la Prevención y Control del Sobrepeso, la Obesidad y la Diabetes* launched on October 2013, a year after our grant started.

In February 2014 a decree was published in the *Diario Oficial de la Federación* that modified the *Reglamento de La Ley General de Salud* will be modified in terms of food marketing, and the *Reglamento de Control Sanitario de Productos y Servicios* will be modified, in terms of the front of pack food labeling. The latter includes:

a) A mandatory FOP label system with the GDA's industry criteria and format, in which the main nutrients (fat, saturated fat, sugar, sodium and fiber) will be presented as a percentage of a daily allowance. The criteria to be used were presented in an official decree on February 2014. The criteria established were based on the GDA's criteria with some changes. They will be disclosed by container and by portion, and will have total calories, sodium, total sugar, saturated fats, and other fats.

b) As a complementary strategy, COFEPRIS in the same official decree, announced a voluntary Front of Pack (FOP) Logo system, very similar to the idea developed by the INSP, called "Sello Nutricional". The aim of this logo is to establish the nutritional value of certain products. If a company wants a product to carry the logo, it needs some nutritional criteria.

### **III. Aim and Objectives:**

#### **Aim**

To document and better understand the factors (political, social, legal, and financial) that enable and constrain the implementation of the FOP nutrition labeling system in Mexico designed to facilitate making healthier choices among the population and as an incentive to promote food industry innovation towards healthier options.

#### **Objectives**

1. To assess changes in consumers' behavior, comprehension, acceptance, and use of the FOP labeling system before and after its implementation.
2. To assess the perceived impact, challenges and opportunities associated with the FOP labeling system among different stakeholder groups such as politicians, consumers, advocates and industry leaders. (Delayed due the political situation and usefulness of our project<sup>1</sup>)
3. To assess the availability of supermarket food products carrying a Ministry of Health logo and new nutrition labelling.



---

<sup>1</sup> The grant was received during the first year of a new president taking office (end 2012 and beginning of 2013). The team, in constant communication with IDRC, decided to postpone the interviews with stakeholders once the new government was settled (in 2014) in order to reflect the views of all stakeholders involved in this changes, including the new government once the transition team was also allocated to permanent positions.



## IV. Progress towards milestones

Table 1. Aims achieved per year and changes during the grant, and compliance with Grant Agreements (GA)

Year/period	Aims and milestones achieved	Changes made	In line with GA
Year 1 (October 2012 to November 2013)	a) Designed and validated quantitative and qualitative tools for focus groups and interview guidelines; b) Obtained a baseline evaluation about perceptions and usage of FOP food labels among consumers; and c) Obtained information about the labelling content of packaged products.	Some changes made in the process that added value to our findings: a) Amplification of the sample size projected for questionnaires with consumers; b) Delays on the stakeholders interviews due the political changes concerning food labeling and suitability for our project aims*.  Some challenges on the process included some minor delays on fulfilling a complete and detailed quantitative and qualitative report to the sponsor by November 2013, due to some administrative changes at the INSP affecting delay on resources for fieldwork and in turn affecting the timeline for the analysis.	
Year 2 (October 2013 to November 2014)	a) Re- survey on a smaller sample of consumers the perception, understanding and usage of FOP labels; b) Performed a second phase of data collection on food labels, to assess changes in labels, packages and price; and c) Completed interviews with stakeholders to document the process of the FOP labeling regulation as part of the NSPCOOD (National Strategy to Prevent and Control Overweight, Obesity and Diabetes.)	Some changes made in the process that added value to our findings: a) Amplification of the sample size projected for questionnaires with consumers. Year 1 considered 3360 subjects, and for year two we considered half the sample (n=1680) and year 3, the final row, the sample equals year 1, with 3360 consumers; b) Some delays on the stakeholders' interviews due the political changes concerning food labeling and suitability for our project aims according to the actual changes. Some challenges on the process minor delays on fulfilling a complete and detailed qualitative report of the stakeholder interviews by the end of 2014, due the delay on the appointments with some actors of the government, due the political context in Mexico.	
In year 3 (October 2014 to November 2015)	a) Final field work for data collection for questionnaires with consumers, food inventory and focus groups; b) Analysis of main outcomes of changes in consumers' behavior, understanding and comprehension of the FOPL systems; c) Manuscript of the final report on stakeholders' participation and insights around the policy design and implementation; d) Report on the short-term impact of the strategy on consumers and reformulation of products; e) Partial results on the impact analysis of prices using a panel sample of products by category.	Some minor changes in the process included: a) Until December 17 <sup>th</sup> 2015 for objective "e" information on the food labels was still in review and agreed to be sent to the agency at the most March 2016 (as agreed with PI and Greg Halen).  Some of the challenges were: a) Lack of motivation of personnel (final payment to be provided with the last payment of the grant); b) Lack of time to complete in 2015 the sample of food products for year 3. The team asked for an extension to complete this task, until March 2016.	<b>Partially completed</b>

## **V. Methods**

### **5.1 Literature Review**

From December 2012 through March 2013 two researchers worked on a literature review which included the examination of scientific publications on: similar strategies done worldwide, development and validation of data collection tools in the Netherlands and other countries and published recommendations on evaluation strategies for food labeling.

From January 2013 through August 2013, the principal investigator (PI) and some co-investigators attended several national and international meetings to discuss the main opportunities, barriers and threats to launch a national policy for obesity prevention that included a FOP labeling strategies with policy makers, numerous researchers (Academia National de Medicine, among others) and advocates. After these meetings, and having carried out an analysis of the political context, the team met several times to discuss the main issues to be covered in each of the tools for data collection and the methods for the analysis of the information collected on the baseline phase.

### **5.2 Consumers' Questionnaires**

The aim of the questionnaire applied to consumers during three consecutive years, was to assess changes in consumers' behavior, comprehension, acceptance, and usage of the FOP labeling system before, during and after the MoH FOP labelling strategy implementation. A description of the main steps and outcomes of each of the stages of the tool development and implementation on the baseline data collection is described ahead.

#### ***Validation and piloting of the tool***

A description of the questionnaire validation process was performed during 2013. This description is part of an abstract submitted for a poster presentation at the Obesity Society Meeting 2013. Unfortunately the abstract was rejected, claiming to have a narrow application, and due to the premature stage of the project as a whole. Later the validation proposal was included as part of the methods on one of our papers.

**Methods:** A self- applicable questionnaire was designed by a group of experts based on the Theory of Planned Behavior (TPB) and piloted (n=10) to review consistency with theoretical framework but adjusted for language and length. It was piloted in an urban adult population (n=80) captured outside four supermarkets in Mexico City. A second pilot was conducted

(n=40) to test for behavior mediators' internal coherence, using the statistic test Alpha Cronbach.

**Results:** For questions about attitudes, beliefs and behaviors when buying foods (items=25) the scale reliability coefficient (SRC) was 0.87, questions about FOPL comprehension, attitude and usage (items=10) had a SRC > 0.84, For the planned behavior on reading and using current FOPL (items=10) and proposed FOPL (items=8), the SRC was 0.97 and 0.70, respectively. For subjective norm (items=24) the SRC was > 0.60.

**Conclusion:** Based on TPB the application of the questionnaire showed a good internal consistency and reliability; therefore it is an adequate tool to conduct quantitative research on consumers' behaviors and FOPL acceptance and preferences.

### ***Sample selection***

A multistage sampling method was used to apply the questionnaire.

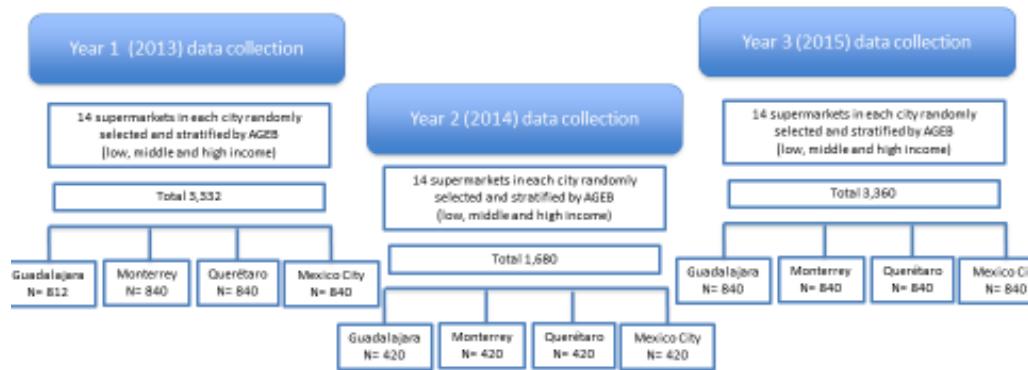
First, we selected the largest and most populated cities of the country (Distrito Federal, Guadalajara, Monterrey and Querétaro). Then we used a list of all supermarkets in each city as our sample frame. The stores were mapped using a geo reference system to determinate the AGEBS (Area Geoestadísticas Básicas, which in English means basic geo-statistical area) of where they were located. AGEBS are specific and delimited urban areas with 25000 inhabitants or more, and are used to locate specific socio-demographic conditions such as living, commercial, industrial usage, among others. They are a proxy estimation of the socio-demographic characteristics of areas in each city. The supermarkets in each AGEBS were selected randomly and proportionally to the distribution of three levels of marginalization defined by the National Institutes of Statistics and Geography (INEGI) on a scale of low, middle and high.

The second state of the process consisted in gathering a convenience sample of consumers at each supermarket when they were exiting the store and gave their consent to participate. The sample was estimated with a significance level (alpha) of 0.50 (5%), a 20% of power and a 50% prevalence considering a design effect of 2 in a simple non-randomized sampling. A total of 816 consumers were to be interviewed per city, with an expected change of 10% on general positive knowledge, attitude and perception (40 to 50%) between each cross-sectional survey. To reduce efficiency losses, the maximum of stores possible per city was considered taking into account costs and logistics for the fieldworkers. A total of 14 supermarkets were selected in each city and 60 participants were selected at each supermarket. The final sample used for the baseline data collection was estimated in 840 per city, with a total of 3360.

The change in sample size from the original proposal was considered and changed. The team find out the opportunity to increase the sample size to make it representative for each city and by socioeconomic stratum, without any further cost and resources to be invested. The increase in the sample size, would allow us to have a robust and comprehensive study about the main views and opinions about labelling by city and by stratum, increasing the power of our results.

| The main changes in the sample are outlined in figure 1,- and details on the analysis and main results are outlined in Annex 1.

**Figure 1: Questionnaire with consumers data collection**



### 5.3 Focus Groups

#### *Design of the tool*

The aim of the discussion guide used during the focus groups was to collect complementary qualitative data on food labels. It was designed to collect a broad set of opinions and views about the current nutritional labeling, claims on packages and GDA\_FOP (General Daily Allowance Front of Package) labelling voluntary system existing in 2013 (before the regulation was enforced). For year 3, the discussion guide was modified and included questions regarding the mandatory FOP and the voluntary logo, designed by COFEPRIS (Comisión Federal para la Protección contra Riesgos Sanitarios, or Federal Commission for the Protection against Sanitary Risk).

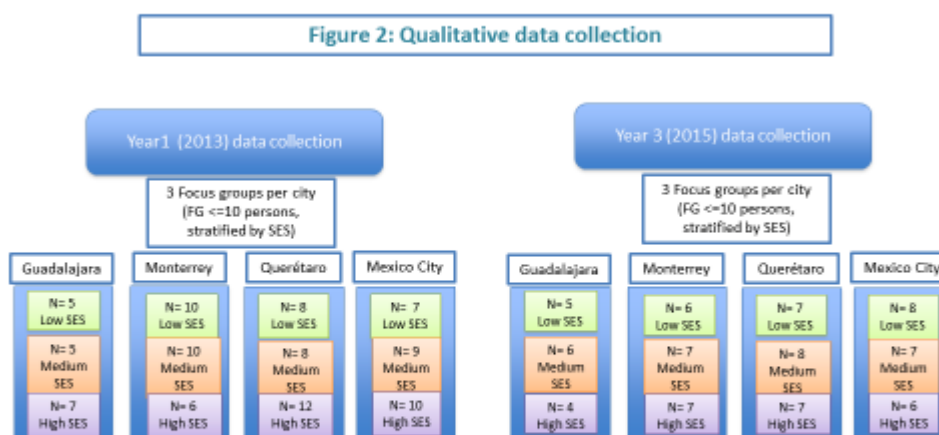
The focus group guidelines were designed by the research team and piloted in order to review questions and reformulate them when necessary.

#### *Sample*

A total of twelve focus groups, with a maximum of 10 participants per group, were carried out. The sample for this first set of focus groups was categorized according to the socioeconomic status of families into three groups: low, middle and high. These categories were defined in line with the strata defined for the quantitative component of the study

(Table 1).

People interviewed at the supermarkets were invited to participate in the focus groups discussions. However, given that recruitment was not successfully enough to conduct the focus groups inter-institutional participation was required. In Guadalajara students from Universidad de Guadalajara helped fieldworkers to gather participants, in Monterrey academics from the Universidad Autónoma de Nuevo León, also helped in the process. Finally, in Querétaro we received help from the local Department of Health Promotion; and in Mexico City INSP employees helped us to gather participants for all groups though their contacts. The sample of each focus groups is described in Figure 2



## Analysis

The focus groups were analyzing using a thematic analysis both for year 1 and year 3. The results where then compared between years to see if some of the opinions and perceptions changed from one year through the other. The main categories used for the cattery analysis are outlined in Table 1. A triangulation technique was used to validate the data. Two analyst performed the analysis, and a third member of the staff reviewed the main findings. The approach was a deductive analysis with the predefined themes. The thematic qualitative analysis continued with a framework strategy for policy analysis, looking at particular patterns on the discourse and connections between them. Main details about the focus groups analysis and findings are on Annex 2.

Table 2. Categories for qualitative analysis for focus groups with consumers		
Dimensions	Categories for analysis	Operational Concept
<b>Attitudes towards labeling.</b>	Knowledge about labeling	Knowledge of consumers about the existence of labels in food products
	Attitude towards labeling	Behavior of consumers towards selected food products labels
<b>Understanding: Ability to understand labeling information.</b>	Simplicity of the information	Consumers' perception towards the simple/complex information on the labels selected when buying foods.
	How clear is information to consumers	Consumers' perception and behavior towards the message on the labels of foods.
	Amount of the information on labels	Consumers' perception towards amount of information of food products.
<b>Decision making when buying food. (what are the most valued characteristics of the product when selecting them)</b>	Credibility of the labels	Consumers' beliefs on credibility of the information on food labels.
	Behavior when buying foods	How the consumers make decisions when buying foods.
<b>Participation: aspects that the user perceives as facilitators or barriers to participate in food labeling.</b>	Opportunities	Identified opportunities by the client to participate in food labeling
	Barriers	Barriers identified by the costumer to participate in food labeling

## 5.4 Inventory of Foods

### *Development of the tool*

The aim of the Food Inventory Tool is to assess the availability of processed food products at supermarkets carrying a FOP label (voluntary GDAs or any claim on the FOP) and for year 2 and 3 to compare which products have already included the MoH FOP logo or the new mandatory GDA's FOP label.

## ***Main data collected***

Table 5 describes the Food Groups selected for that a collection as categorized by the Mexican Scientific Committee (Mexico, 2011).

<b>Table 3. Sample collected per food group products</b>				
	<b>Food Group</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
1	Processed meats	110	287	
2	Dressings and sauces	174	668	
3	Butter, margarine and spread fats	78	268	
4	Beverages and juices	469	529	287
5	Snacks			
	Sweet snacks	448	370	71
	Salty snacks	201	291	115
6	Breakfast cereals	163	161	80
7	Processed fruits and vegetables	123	203	
8	Milk and dairy products	337	235	200
9	Salted Bread	114	220	
10	Biscuits and cookies	193	183	
11	Cheese	204	195	
12	Soups and Pasta	70	70	
13	Tortillas and corn products	49	71	20
14	Beans and legumes	90	80	
	<b>Total</b>	<b>2823</b>	<b>3831</b>	<b>773</b>

The main process of data collection for food inventory is outlined on Annex 3. Database of year 1 and year 2 are ready and we are still working on year 3 database. The human resources and time has been limited. Data on the priority food groups will be collected until the end of January 2016, with personnel at the INSP working as well in other projects. When ready it will be shared with the North Carolina group to analyze the panel sample and prepare a paper for publication as mentioned ahead.

## **5.5 Stakeholders' interviews**

### ***Interview guideline***

From July 2013 to October 2013 the team drafted the interview guideline for stakeholders and as agreed with IDRC, this part of the project was postponed for 2014, in order to allow the new administration to settled in office, and give enough time to identify key



stakeholders staying at the MoH and directly involved on the health policy changes related to FOP food labeling to be interviewed.

During the first semester of 2014, the team modified and drafted the Interview Guideline for Stakeholders according to the political context, as mentioned. Then the Ethics Committee at the INSP approved the interview guide. The first set of interviews were performed by two qualitative researchers from October to December 2014. According to the findings the team was to consider a second set of interviews for the next year. This was not the case, as most of the information required came out with the interviews performed on 2014.

Interviews were taped and transcribed verbatim by an external transcriber. An inductive thematic context analysis was defined *a priori*. The emerging themes were identified based on: a) defined themes by the team based on knowledge, participation and views on the FOP labeling strategy, and b) the health policy analytical model proposed by Walt and Gilson, including actors, context, content and process related to the main themes (point a). Annex 4 has a complete description and rationale of the themes defined.

Stakeholders interviewed in this period included:

- a) Four members of Non-governmental organizations
- b) Three members of the academia
- c) Four members of the food industry
- d) Two members of the Ministry of Health
- e) One senator and one deputies
- f) One member of COFEPRIS

## **5.6 Activities supported by the project during the reporting period**

### **Year 1**

**Literature review:** during the first four months of the grant, our team conducted a literature review and reviewed journals, reports and the most relevant literature available regarding FOP initiatives implementation, pilot studies and reviews about impact of strategies implemented globally.

**Design of data collection tools:** after the literature review was performed, the team decided which tools would be used for data collection. A quantitative questionnaire to consumers, a focus group guideline for consumers, an interview guide for stakeholders and an inventory of food products were designed. A pilot test and a validity analysis were performed for questionnaires and FG guidelines before fieldwork. Interview guidelines have been drafted and revised by the advisory group, but have not been piloted, nor approved by

the Ethics Committee. The timeline of the stakeholder interviews represents one of the main changes faced since the project was designed, and is explained later in this report.

**Baseline data collection and analysis:** Data collection and analyses of questionnaires, inventory of foods and FG transcripts has started. Some delays occurred, since we increased the sample size for the questionnaires during the design phase, in order to have a representative sample of consumers of the main cities in Mexico, and of three family income strata defined.

## **Year 2**

**Interim data collection and analysis of questionnaires with consumers:** Data collection and analyses of questionnaires and inventory of foods for year 1 and year 2.

**Interim data collection and analysis of inventory of foods:** Data collection and analyses of food labels for year 1 and year 2.

**Stakeholders' interviews and analysis:** Data collection and analysis of interviews transcripts.

**Attendance to a conference to present baseline results:** the project manager went to the conference "World Public Health Nutrition 2015" to present two posters with the interim results of the project.

## **Year 3**

**Final data collection and analysis of questionnaires with consumers:** Data collection and analyses of questionnaires and inventory of foods for year 1 and year 2.

**Final data collection and analysis of inventory of foods:** Data collection and analyses of food labels for year 1 and year 2.

**Stakeholders' analysis:** Data collection and analysis of interviews transcripts.

**Writing final reports and draft of two papers.**

## **VI. Research outputs and outputs**

### **6.1 Research findings**

#### **Questionnaires with consumers for three consecutive years**

Our main objective for applying the questionnaires was to evaluate if several perceptions and opinions about the use of food labels changed throughout time. It is important to mention that from 2012 to 2014 no regulation on labeling was enforced, although the decree and several modifications to the regulations occurred and an important debate with high media coverage occurred among stakeholders. It was until January 2015 that the regulation changed.

This study shows there is an important change in how people value the type of foods they choose at the time of purchase. In 2015 it was less frequent among our respondents to value a product because it will help to maintain their weight, while price is still relevant for most of the people regardless the point in time interviewed.

Generally we found a positive effect of change in perceptions and attitudes of consumers when buying foods. Participants in 2015 reported more frequently they understood and use the NP (Nutritional Panel) on labels. Regarding the proportion of participants that “totally agree” and “agreed” that they trust the GDA-FOP, we found the proportions changed as followed: 38.3% for 2013, 48% for 2014 and 24.3 % for 2015. Also the proportion of people who mentioned to understand and agreed that they would use the “O.k” logo increased during the last year. For this same year, the proportion of people who mentioned they understand the GDA-FOP labelling decreased. This is a relevant finding regarding the implications on the changes made of such scheme, as the regulation implemented was a modified GDA-FOP, which was less well understood than the original voluntary GDA-FOP labeling existing in 2013. Details about the results are described in Annex 1.

## **Focus groups with consumers**

Our main objective with the focus groups was to have a deeper understanding of the changes in perceptions and opinions throughout time.

Mainly we observed that participants didn’t change much their attitude and opinion about the food labelling throughout time compared to the findings reported in year one. One main difference was people expressed more suspicious attitudes towards the reliability of information displayed on food labels. Furthermore, even though people are aware of the health hazard of eating industrialized food high in fats, sugars and sodium, they mentioned it is a challenge to identify which one is better for them with the system implemented by the government. Participants mention they prefer something easy and quickly to read, without complicated language or numbers that need mathematical skills. Using labels is not the main driver for participants to choose a product, it is mainly it’s the price, flavor and quality.

Our findings of both, baseline and final qualitative research, point that there is a huge gap on nutrition and health education, and therefore the general population isn’t ready to assess food products using the front-of package label implemented by the government. Details about our results from the focus groups for year 3 are described in Annex 2.

This study shows that people are changing perceptions about the main attributes of foods towards healthier options when buying them. As this is not an intervention, but an

observation of shifts throughout a period of policy change, we can only describe these changes, without any attribution to a specific program or policy.

## **Inventory of Foods**

The main results of the food inventory analysis are outlined on Annex 3. To date the team is revising the databases and matching the products obtained, cleaning the database and when ready it will be shared with the North Carolina group, to comply the objective 3 of this proposal for the journal paper in March 2016.

## **Stakeholders' interviews**

Our main objective with this part of the research was to assess the perceived impact, challenges and opportunities associated with the FOP labeling system among different stakeholder such as politicians, academics, advocates and industry leaders.

During 2015 an exhaustive analysis of the interviews was performed. The emerging themes were identified based on: a) defined themes by the team based on knowledge, participation and views on the FOP labeling strategy, and b) the health policy analytical model proposed by Walt and Gilson, including actors, context, content and process related to the main themes (point a). Annex 4 has a complete description and rationale of the themes defined.

The main discourses of stakeholders involved in the policy design and implementation of the FOPL strategy in Mexico reflect the personal and institutional positions and views about the strategy. Some arguments are divergent among actors coming from the same type of institution.

Our main finding suggest the following:

First, the polarized arguments were related to: a) the actors involved in its design; and b) the idea of an unclear labelling system among industry, academia and civil society members. Secondly, the main convergent and recurrent arguments included: a) the need of policies to address the obesity issue, such as the FOPL initiative, b) the negative speculations about the effectiveness of it to help consumers understand better what they eat, c) the need of convergent food policies to support this one, as well as alignment with other policies; and d) the importance of transparency when implementing and monitoring how it is implemented.

Finally, all actors are willing to participate if the MoH is willing to accept any change on the FOPL strategy. Members of the NGOs recognize their role as advocates for a better system, academia members recognize themselves as reference to be considered and the persons who should evaluate the progress and impact of the strategy. The food industry members support

this strategy not only by saying this will help consumers, but that this will shift the market and will have marketing benefits. On the other hand, the authorities reaffirm their will to continue this initiative by involving all the actors, including the civil society and the food industry. Detailed results of the stakeholders' interviews are presented on Annex 4.

## 6.2 Research outputs and dissemination plan

All our results and further analysis would be part of some publications in peer review journals. To date we have submitted one and we are waiting for reply. We are still working on the other papers mentioned on Table 3. We would need to search for further funding for publishing with open access.

Table 4. Additional outputs related to the project		Date
1.	Journal article with results of the panel of consumer's analysis for 2013, 2014 and 2015.	March 2016
2.	Draft article of main results of the focus groups pre and post FOPL regulation.	May 2016
3.	Draft article of main results with stakeholders' interviews.	April 2016
4.	Article with panel sample of food products comparing changes in labels and price pre and post FOPL regulation.	June 2016
5.	Policy brief on main results for the INSP data and to disseminate among policy actors.	April 2016

Currently we are working on drafts of the papers 2-5 mentioned in table 3. As it is expected, sometimes authors take time to review and comment manuscripts so this needs to be considered in the timing. We would need further communication with IDRC for this regards.

Other materials are also available to the scientific community. They could be used as an example for further research or could be adapted for similar contexts such as Chile, Ecuador or any Latin-American country who is going through a food labelling policy transition. All of them have been provided in previous technical reports and could be requested to the authors.

- a) Questionnaire with consumers about food labelling use and practices when buying foods.
- b) Topic guide of focus groups with consumers.
- c) Topic guide of interviews with stakeholders.
- d) Databases of data collected on the past years of questionnaires with consumers and inventory of foods.

During the lifetime of the project, the interim results and outcomes were shared in several forums. Details are mentioned in Table 4.

Table 5. Work presented at international conferences 2014-2016

Title	Authors	Conference
Process Evaluation Of The Front Of Pack Labelling Strategy In Mexico: Baseline Results Of Consumers' Behaviours Towards Food Labels.	Carriedo , A., Mena, C.; Nieto, C., Alcalde, J., Barquera, S.	XIII International Congress on Obesity (ICO), Kuala Lumpur, 2014
Understanding Main Motives In Food Choices In The Mexican Urban Settings.	Alcalde-Rabanal, J., Carriedo, A., Nieto, C., Mena, C., Barquera, S.	XIII International Congress on Obesity (ICO), Kuala Lumpur, 2014
A baseline evaluation of the front-of-package labels, nutrient content and price of packaged food in Mexico	Carriedo , A., Mena, C.; Nieto, C., Alcalde, J., Barquera, S.	World Public Nutrition Congress, Gran Canaria 2014
Consumers' knowledge and understanding of nutrition labelling of packed food: a qualitative evaluation in Mexican urban settings.	Carriedo , A., Mena, C.; Nieto, C., Alcalde, J., Barquera, S.	World Public Nutrition Congress, Gran Canaria 2014
Mexican Consumers' Comprehension And Interpretation Of The Front Of Pack Labelling (FOPL) System Using The Guideline Daily Amount (GDA)	Nieto, C., Alcalde, J., Castillo, A., Mena, C., Barquera, S., Carriedo, A.	XIV International Congress on Obesity (ICO), Vancouver 2016
Process Evaluation Of The Front Of Package Labelling Strategy In Mexico: Interim Results Of Consumers' Comprehension And Use Of Food Labels	Alcalde, J., Nieto, C., Mena, C., Castillo, A., Barquera, S., Carriedo, A.	XIV International Congress on Obesity (ICO) , Vancouver 2016

## 6.3 Research outcomes

### Main contributions, gaps of research addressed and knowledge generated

Food labeling has been a topic of research for years as it is one of the main policy recommendations to tackle obesity. Most of the observational or experimental research has been done in high-income countries. To date, Latin-American is going through some policy changes to address obesity, including changes in the labelling regulation. Such is the case of Chile, Ecuador and Mexico. Mexico, as one of the leading countries undertaking regulations on FOP labelling, is in need of novel research on the usefulness and impact of the FOP labelling system implemented to be improved, or replicated in the region.

Our work is a novel piece of research about the perceptions and use of labelling on a middle income country, which, in contrast with high- income counties, contextual factors about

consumers and practices of being foods might differ. For example, mathematical skills, values attributed to certain characteristics of foods may differ from high income countries. This is reflected in our finding, mainly in the focus groups by SES (Annex 2).

Other important contribution of this project is the documentation and insight of stakeholders involved in the policy change, as it enables to identify the weaknesses and strengths of the policy, in order to communicate them, and therefore improve them.

One of the main findings includes the nature of some networks and coalitions against and in favor of the food labelling system implemented. Some argue that it is a policy that is advantageous to the food industry and serves their interests, and is useless to the consumers, and others share it as a major political change that will gave important impact on consumers 'choices, and therefore improved health.

The main results, methods and discussion about pour findings will be better outlined in manuscripts for scientific journals. One of the main aim of this project is to share the Mexican experience of the current policy change with colleagues in other countries, and the academic community. The main plan for the following publications is described in Table 3.

Table 4, 5 and 6 summarizes the main activities and its implications on capacity building, knowledge creation, institutional relationships and research.

Several strengths are mentioned ahead:

- a) Our project open an opportunity for an Inter-institutional collaboration to work at different states of Mexico. The National Institute of Public Health is well known institution in the country, so the opportunity of an interactive process of training and learning was build during the project implementation.
- b) One of the researchers, PhD candidate Angela Carriedo, is at the time completing a PhD in Public Health and Policy at the London School of Hygiene and Tropical Medicine, and this give her the opportunity to learn and apply some of the insight and developments to her own career building.
- c) PhD candidate Mayra Rascón at the University of California, at the Centre for Latino Community Health, Evaluation and Leadership, stayed in Mexico during the summer of 2015 and was helping with the field work.
- d) Several undergraduate students at the University of Guadalajara and University of Nuevo Leon were trained to help with fieldwork and collect photographs of products in the supermarkets and to conduct the questionnaires with the consumers.
- e) Personnel trained for fieldwork, specifically the application of questionnaires, focus groups and inventory of foods, and are now part of a regular team at the CInyS (Centro de Investigación y Nutrición y Salud) of the INSP for other projects aimed to continue the evaluation of the food policy in Mexico.



- f) Two undergraduate students, Daniela Torres from Universidad Autónoma de Durango, and Alejandra Castillo, from Universidad Autónoma de Sonora, were also helping with the project data collection in year 2 to complete their social work hours to obtain their degree. This collaboration was very significant for the project, since we were able to provide them a good insight on nutrition research, and we had the opportunity to have human resources.

**Table 6. Main activities and products of Year 1**

Main Activities	Products	Dissemination	Knowledge creation	Capacity-building	Training	Institutional reinforcement	Increased research	Comments
1. Design of quantitative and qualitative tools.	1. Validated and piloted tools.	✓	✓	✓	✓	✓	✓	Personnel trained for the baseline fieldwork, networking with Guadalajara and Monterrey Universities for implementation of FG and local research support. Inventory tool and questionnaire are been evaluated for further expansion of data collection as part of other IDRC grant. One researcher involved is completing her Phd with some outputs of these project and one research assistant is completing her MSC in Nutrition.
2. A baseline evaluation among consumers of:	2. Baseline evaluation results.							
a) Packaged and processed foods sold in supermarkets.	a) Information partially completed (finished by the end of January), cross-check with UNC Euromonitor Data.	✓	✓	✓	✓	✓	✓	
b) First set of interviews, focus groups and questionnaires with consumers.	b) Results on the FG analysis and questionnaires. Interviews will be performed on the first semester of 2014. Results will be presented in the WNHC 2014	✓	✓	✓	✓	✓	✓	
c) Document the implementation process, industry reaction, barriers and opportunities during the first months of the FOP strategy.	c) Documentation on the launch of the program. Seminars and conferences attended by PI.	✓	✓	✓		✓	✓	
d) Documents main implementation advantages and disadvantages perceived by consumers and by other stakeholders.	Further dissemination strategies in forthcoming international conferences in March 2014 (IOC), April 2014 (Experimental Biology), November 2014 (WPHNC).	✓		✓		✓	✓	

**Table 7. Main activities and products of Year 2**

Main Activities	Products	Dissemination	Knowledge creation	Capacity-building	Training	Institutional reinforcement	Increased research	Comments
1. Presentations on congresses with baseline information. Including: a) Findings on focus groups b) Findings on consumers questionnaires, and c) Descriptive information on processed food labels of first year's dataset.	a) Conferences: Three posters and one oral presentation. March 2014 (IOC), November 2014 (WPHNC) and Obesity Society Week.  b) Draft of the first paper with baseline results. The co-authors and the main researchers are working on a first draft, and will be ready to send to the journal by the end of February 2015.	√	√	√	√	√	√	The PI and the research team has exposed several findings on international forums. This year researchers and students from Guadalajara, Monterrey and Querétaro participated with the fieldwork team in collecting data and photos of the food labels inventory. One researcher involved is completing her PhD with some outputs of these project and one research assistant has completed her MSC in Nutrition. Four fieldworkers were trained in data collection and in main identification of themes and qualitative analysis with the interview transcripts.
2. Data collection of the second phase (process evaluation) with consumers about understanding and usage of FOPL system	2. Two main products: a) Database of Year 1 and Year 2 on questionnaires with consumers. b) First approach to descriptive data on changes about consumers' views and perceptions for Year 1 and Year 2.		√	√	√	√	√	
3. Data collection of the food inventory data for Year 2.	3. Dataset of food products labels (nutritional content, type of labels, price)*		√	√	√	√	√	
4. Data collection of the first set of interviews with stakeholders.	4. Main transcripts of interviews and thematic analysis (partially complete).		√	√	√		√	
5. Analysis of the implementation process, the main advantages and disadvantages perceived by consumers and by other stakeholders.	5. Report on the preliminary outcomes.	√	√	√	√	√	√	
*Information partially completed, the cross-check with UNC Euro monitor will be done February 2015.								

**Table 8. Main activities and products of Year 3**

Main Activities	Products	Dissemination	Knowledge creation	Capacity-building	Training	Institutional reinforcement	Comments
1. Writing abstracts and producing Scientific papers.	<p>a) Abstract submitted to an international congresses with interim information Conferences: World Obesity Federation Congress, Vancouver, Canada 2016 (Annex 4)</p> <p>b) Draft of a journal paper with baseline results. The co-authors and the main researchers are working on a first draft, and will be ready to send to by the end of 2015 (Annex 5).*</p> <p>c) Draft of factorial analysis on food choices results. The co-authors and the main researchers are working on a first draft, and will be ready to send to the journal by the end of February 2015 (Annex 6).*</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>The PI and the research team has exposed several findings on international forums. This year we also had students from Guadalajara, Monterrey and Querétaro participating with the fieldwork team in collecting data and photos of the food labels inventory. One researcher involved is completing her PhD with some outputs of these project. Two interns participated with data collection one from University of Los Angeles and one from the Universidad de Durango.</p> <p>Three fieldworkers were trained in data collection and in main identification of themes and qualitative analysis with the interview transcripts.</p>
2. Data collection of the final phase (process evaluation) with consumers about understanding and usage of FOPL system	<p>2. Two main products:</p> <p>a) Database on questionnaires with consumers for three consecutive years for panel analyzing.</p> <p>b) Dataset of 24 focus groups (Y1 and Y3) to compare changes in views and perceptions about FOPL</p>		<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>	
3. Data collection of the food inventory data for Year 3.	3. Dataset of food products labels (nutritional content, type of labels, price) of three consecutive years		<p>✓</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>	
4. Analysis of the implementation process, the main advantages and disadvantages perceived by consumers and by other stakeholders.	<p>4. Two main products:</p> <p>a) Main transcripts of interviews and thematic analysis (partially complete).</p> <p>b) Report on main outcomes.</p>		<p>✓</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>	

## VII. Problems and Challenges

Several challenges were faced during the project and are listed ahead.

- a) **Budget restriction due to exchange rate and timing.** The budgeted money and the funds received were different, as the exchange rate affected the amount. Also, the budget was first submitted to IDRC in 2011, so inflation, change in prices and costs increased during the time the budget was approved and the actual expense.
- b) **Safety of fieldworkers.** In the past years Mexico has suffered from extreme violence periods, especially in cities outside Mexico City. To ensure the security of our fieldworkers, we invested more of our budget on their security. They traveled by plane and not by bus, and moved in taxis in the cities instead of a rented car. Hours of work were restricted only to daylight.
- c) **Difficult to work with the supermarkets to allow entrance of the personnel.** The negotiation with the main supermarket chains to work at their stores delayed the fieldwork. Each year a renewal of access authorization was needed for at least 4 different chains of supermarkets, and a lot of paperwork and communications with each one were needed, implying several delays on fieldwork dates.
- d) **Paper based data collection due institutional restricted funds to buy equipment.** Fieldworkers did not have a tablet or novel technologies to apply questionnaires and to take photographs of food labels at the supermarkets. Paper based questionnaires and cameras were provided. Data management was affected in timing: input in computers and data cleaning.
- e) **Changes in administrative personnel at the INSP.** The administration personnel at the INSP changed in 2013 and therefore some of the administrative issues were delayed.
- f) **Changes in SOPs at the INSP on the administrative procedures with expenses of international agencies funds and impact on timings for paying services and personnel.**
- g) **Problems with the last payment of IDRC.** One of our main problems with the funding was the last payments. The payment of 4 members of our team was compromised for two months, due a lack of cash flow. The payments will be completed when the last payment comes through. This generated discomfort among the researchers involved. Adding to this limitations, the institutional delays in assigning administrative personnel to revise the observations, gave us a span unexpected span of time that impacted negatively on the timing of the funds.

## **VIII. Overall assessment**

To date all the phases of our proposal are almost finished. A complete set of quantitative and qualitative data are ready for further analyses, and publication on peer reviewed papers. These achievements will help us in producing evidence and presenting our results in forthcoming events, to push for better policy actions on the field of food labelling.

The delays reported were the main pitfalls of the project, due de lack of time and overload of work due to data management problems, administrative problems and all the constraints mention on the previous section, we asked for an extension to submit results of the databases of foods. Also we believe that the specific results and findings will be better reflect in the papers submitted for publication, and will enable more comprehensive methodological approaches and findings for the IDRC community and international colleagues.

We acknowledge a delay on finalizing drafts for publications in peer review journals do the delays experienced during the execution of the project. There was some lack of time to prepare such drafts, as the data collection took more than expected according to the observations mentioned on section VII.

Dissemination of the project process, interim results and final results have been crucial to identify loopholes and contextual factors that shape and have impact on the food labelling policy in Mexico, and will be further described in forthcoming publications.

The interviews performed this year and the main findings on the discourse of stakeholders will be a major contribution of the situational analysis and the policy process regarding the FOP labeling strategy. Changes on the food labels information during these first years of the strategy implementation is one of the immediate outcomes that will also become a major contribution for process evaluation. Also, changes in consumers' opinions, attitudes and perceptions about FOP labeling throughout the time period will be curtail for drafting our conclusions and recommendations.

We believe our project gives an important contribution to improve knowledge on the political process and decisions made to address obesity in the country. It gives also an important insight of the people thoughts and needs regarding food selection and diet improvement. Most of research of this kind, has been performed in high-income countries, thus the relevance of our work.

Further plans for further research on the topic of food labelling are considered in our team, and will be grounded on the main methodologies and findings of this research. For example, currently Mexico is being part of a multi-national project aimed to evaluate food and nutrition policies designed to tackle obesity that would give a broad frame of the

progress made globally. IDRC, is contributing with our team at the INSP to conduct this project Mexico.

## **IX. Recommendations**

Our main recommendation to IDRC is to support the research with the pending publications, which are outcomes of this research but due limitation of resources and time we still haven't been able to submit for publication.

We recognize our own institutional limitations, especially with the delay in submitting the interim reports and slow processes with the financial reports. These delays are partially due the internal institutional procedures to comply with the MoH regulations and institutional regulations before submitting.

We recommend that to improve motivation and outputs of the project IDRC accepts drafts of papers as a report of findings, with a complementary checklist and observations questionnaire or template report, to be completed in less time. Writing reports is time consuming and this time would be worth spending on concrete paper drafts. This will improve a) the quality and detail of the methods and rationale, b) the presentation of figures and graphs and b) a reflection (as discussions sections in papers) of the limitations and challenges of the research.

Finally, we suggest that for future agreements, the only compromised funds at the end of the project, would be restricted only for publication and institutional fees (overhead). Amounts budgeted for personnel salaries and fieldwork should be provided before the final phase, to allow for work to be executed properly and with a motivated team.

# Annexes

## Annex 1: Main Results of Questionnaires with Consumers

### Aim and objectives

The aim of the questionnaire applied with consumers was to assess changes in consumers' behavior, comprehension, acceptance, and usage of the FOP labeling system before and after the MoH FOP strategy was implemented in January 2015.

Since the regulation was fully executed in 2015 and not before, for 2014 we expected that some, but not all products changed their labels in 2014. Though, the interim evaluation allowed us to have a panel sample in three points in time, and assess changes on perception, usage and understanding on the food labels. The regulatory changes were highly broadcast and criticized publicly by different actors (also reported in the interviews), and this might have influenced the consumers' perceptions and thoughts throughout the year.

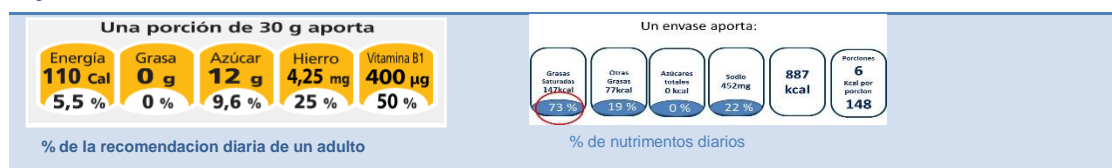
### Methodology

#### a) Data collection:

Questionnaires were applied at the entrance of several supermarket stores at the four cities selected. People were asked to participate by a member of the INSP staff explaining the purpose and the ethical approval and implications of participating. A member of the staff read the questions and showed the corresponding images of the labels to be evaluated. For year 3 the team modified the image of the label corresponding in year 1 and 2 to the GDA-FOPL of the voluntary system to the GDA-FOPL adopted for the regulation, as showed ahead.

---

#### a) GDA-FOP used for the voluntary system      b) GDA-FOP used for the regulation





## **b) Sample selection**

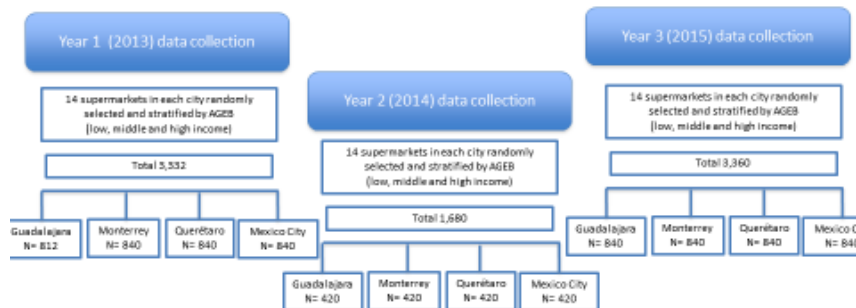
A multistage sampling method was used to apply the questionnaire. First, we selected the largest and most populated cities of the country (Distrito Federal, Guadalajara, Monterrey and Querétaro). Then we used a list of all supermarkets in each city as our sample frame. The stores were mapped using a geo reference system to determinate the AGEBS (Area Geoestadísticas Básicas, which in English means basic geo-statistical area) of where they were located. AGEBS are specific and delimited urban areas with 25000 inhabitants or more, and are used to locate specific socio-demographic conditions such as living, commercial, industrial usage, among others. They are proxy estimations of the socio-demographic characteristics of areas in each city. The supermarkets in each AGEBS were selected randomly and proportionally to the distribution of three levels of marginalization defined by the National Institutes of Statistics and Geography (INEGI) on a scale of low, middle and high.

The second state of the process consisted in gathering a convenience sample of consumers at each supermarket when they were exiting the store and gave their consent to participate. The sample was estimated with a significance level (alpha) of 0.05 (5%), a 20% of power and a 50% prevalence considering a design effect of 2 in a simple non-randomized sampling. A total of 816 consumers were to be interviewed per city, with an expected change of 10% on general positive knowledge, attitude and perception (40 to 50%) between each cross-sectional survey. To reduce efficiency losses, the maximum of stores possible per city was considered taking into account costs and logistics for the fieldworkers. A total of 14 supermarkets were selected in each city and 60 participants were selected at each supermarket. The final sample used for the baseline data collection was estimated in 840 per city, with a total of 3360.

For year two a sub-sample accounting for half the original sample was selected. The process was the same, and the supermarkets were the same as the first year, as shown on the following chart. For year three a total of 14 supermarkets were included in each city (except on Distrito Federal and Queretaro) due to closure of the stores. The distribution of the sample is showed ahead and in Figure 1.

Sample size distribution according to socioeconomic status of AGEB and location of supermarket by city for year 2013,2014 and 2015									
Year	SES	Guadalajara		Monterrey		Distrito Federal		Querétaro	
		Supermarkets	Subjects	Supermarkets	Subjects	Supermarkets	Subjects	Supermarkets	Subjects
2013	HIGH	6	300	5	300	7	420	3	180
	MEDIUM	5	346	3	180	4	180	6	180
	LOW	3	166	6	360	3	240	6	240
	TOTAL	14	812	14	840	14	840	14	600
2014	HIGH	7	210	8	240	9	270	5	150
	MEDIUM	6	180	4	120	3	120	4	120
	LOW	1	30	2	60	1	30	4	150
	TOTAL	14	420	14	420	14	420	14	420
2015	HIGH	6	360	5	300	7	480	3	240
	MEDIUM	5	300	3	180	2	120	3	240
	LOW	3	180	6	360	4	240	4	360
	TOTAL	14	840	14	840	13	840	10	840

Figure 1: Questionnaire with consumers data collection



### c) Analysis

To compare results between 2013, 2014 and 2015 for our descriptive variables the ratios for each variable were considering according to the Likert scale. To identify the comparability of samples a Chi square test was performed according to socio-demographic information of the participants in the years 2013, 2014 and 2015. In order to see the average change observed in the variables of interest we used the propensity score to match the sample for variables of age, sex and socioeconomic condition. All the analysis were performed in STATA Version 13.1 Copyright 1986-2014 StataCorp LP.

### Results:

Table 1 describes the main descriptive data per year and tables 2, 2.1 and 2.3 the average age, weight, height of participants per year. .

Table1. Descriptive data of the sample 2013, 2014 and 2015							
Variables		2013		2014		2015	
		n	%	n	%	n	%
Sex	male	1030	30.44	702	42.00	844	25.12
	female	2354	69.59	975	58.00	2516	74.88
	Total	<b>3384</b>		<b>1677</b>		<b>3360</b>	
State	Guadalajara	812	23.94	420	25.00	840	25
	Mexico City	840	24.76	420	25.00	840	25
	Monterrey	900	26.53	420	25.00	840	25
	Querétaro	840	24.76	420	25.00	840	25
	Total	<b>3392</b>		<b>1680</b>		<b>3360</b>	
Civil state	Single	2637	79.28	745	44.4	856	25.48
	Married	309	9.29	625	37.25	1817	54.08
	Widow	295	8.87	80	4.77	220	6.55
	Other	85	2.56	228	13.59	467	13.89
	Total	<b>3326</b>		<b>1678</b>		<b>3360</b>	
Studies	No instruccions	59	1.76	7	0.42	51	1.52
	Primary	475	14.14	133	7.97	328	9.76
	Secondary	843	25.10	248	14.86	645	19.2
	High School	729	21.70	339	20.31	848	25.24
	Tecnicalschool	380	11.31	135	8.09	271	8.07
	Undergraduate	814	24.23	737	44.16	1119	33.3
	Post graduate	59	1.76	70	4.19	98	2.92
	Total	<b>3359</b>		<b>1669</b>		<b>3360</b>	
Ocupation	Employee	1294	38.56	788	47.96	1199	35.68
	House work	1108	33.03	60	3.65	1161	34.55
	Student	367	10.94	294	17.89	353	10.51
	Own Bussines	222	6.62	280	17.04	235	6.99
	Other	264	10.85	221	13.45	412	12.26
	Total	<b>3255</b>		<b>1643</b>		<b>3360</b>	
Children	None	1288	38.35	765	45.73	889	26.46
	One	685	20.34	279	16.68	390	11.61
	Two	680	20.20	253	15.12	848	25.24
	More than two	714	21.21	376	22.47	1233	36.7
	Total	<b>3367</b>		<b>1673</b>		<b>3360</b>	

Table 2. Weight, height and IMC of participants by sex							
		N	Minimum	Maximum	Media	SE	Std. Deviation
Men	weight	1025	47.00	120.00	76.68	0.40	12.80
	height	1029	1.42	1.95	1.70	0.00	0.08
	IMC	1029	16.22	46.99	26.47	0.15	4.66
	AGE	1031	18.00	83.00	36.60	0.47	15.00
Women	weight	2323	36.00	120.00	66.88	0.26	12.59
	height	2327	1.33	1.86	1.58	0.00	0.07
	IMC	2327	15.23	51.24	26.65	0.11	5.41
	AGE	2324	18.00	85.00	39.30	0.31	15.00

Table 2.1 Weight, height, IMC and age by sex 2014							
		n	Minimum	Maximum	Media	SE	Std. Deviation
Men	Weight	691	45.00	168.00	75.95	0.46	11.98
	Height	699	1.52	1.95	1.72	0.00	0.08
	IMC	690	16.96	53.62	25.65	0.14	3.68
	Age	699	18.00	81.00	34.77	0.58	15.26
Women	Weight	946	40.00	124.00	65.96	0.36	11.04
	Height	942	1.20	1.90	1.60	0.00	0.07
	IMC	927	14.40	53.47	25.61	0.13	4.09
	Age	974	18.00	95.00	37.32	0.49	15.24

Table 2.2 Weight, height, IMC and age by sex 2015							
		n	Minimum	Maximum	Media	SE	Std. Deviation
Men	Weight	843	33.00	120.00	77.69	0.39	11.35
	Height	842	1.45	1.94	1.71	0.00	0.08
	IMC	842	10.19	40.09	26.73	0.14	3.92
	Age	844	18.00	85.00	40.68	0.55	15.85
Women	Weight	2509	38.00	179.00	67.13	0.24	12.13
	Height	2512	1.20	1.89	1.59	0.00	0.06
	IMC	2507	14.84	66.55	26.51	0.09	4.72
	Age	2516	18.00	83.00	39.63	0.29	14.79

#### a) Difference in beliefs and attitudes when selecting foods at the supermarket

Figure 2 shows the main differences according to the attitude of consumers when buying foods per year. For 2013, 46% of respondents considered it is not important that the product is labeled as light, for 2014 33% and for 2015 45.6% considered not important ( $p < 0.05$ ). On the other hand, in 2013 87% of participants, 81% of

participants in 2014 and 94.3% in 2015 considered important and very important that foods are healthy for their family ( $p<0.05$ ). When considering the affordability of foods, 83% of participants considered that food price was relevant 2013, for 2014 it decreased to 75% and for 2015 83%. In the same terms of price, 73% of participants in 2013, 68% in 2014 and 66% in 2015 considered very important that the products they buy are on sale. Finally, 72% of participants in 2013, 76% in 2014 and 63% in 2015 considered as important and very important that the products they buy help maintaining their current weight.

When looking at the nutritional characteristics of the products, specifically when focusing in lower content of sugar and lower content of sodium, the proportion of people considering those were important factors to consider when buying foods, increased by 2015. In 2013 27.7% and in 2015 47.4% ( $p<0.05$ ) of people mentioned it was important that the products had a lower content of sugar. When considering sodium the change of proportion of people who considered important changed from 25.7% in 2013 to 44.7% in 2015 ( $p<0.05$ ), but as with sugar, the pooled data of interviewees that answered it was somewhat important to very important stayed in 60% both years.

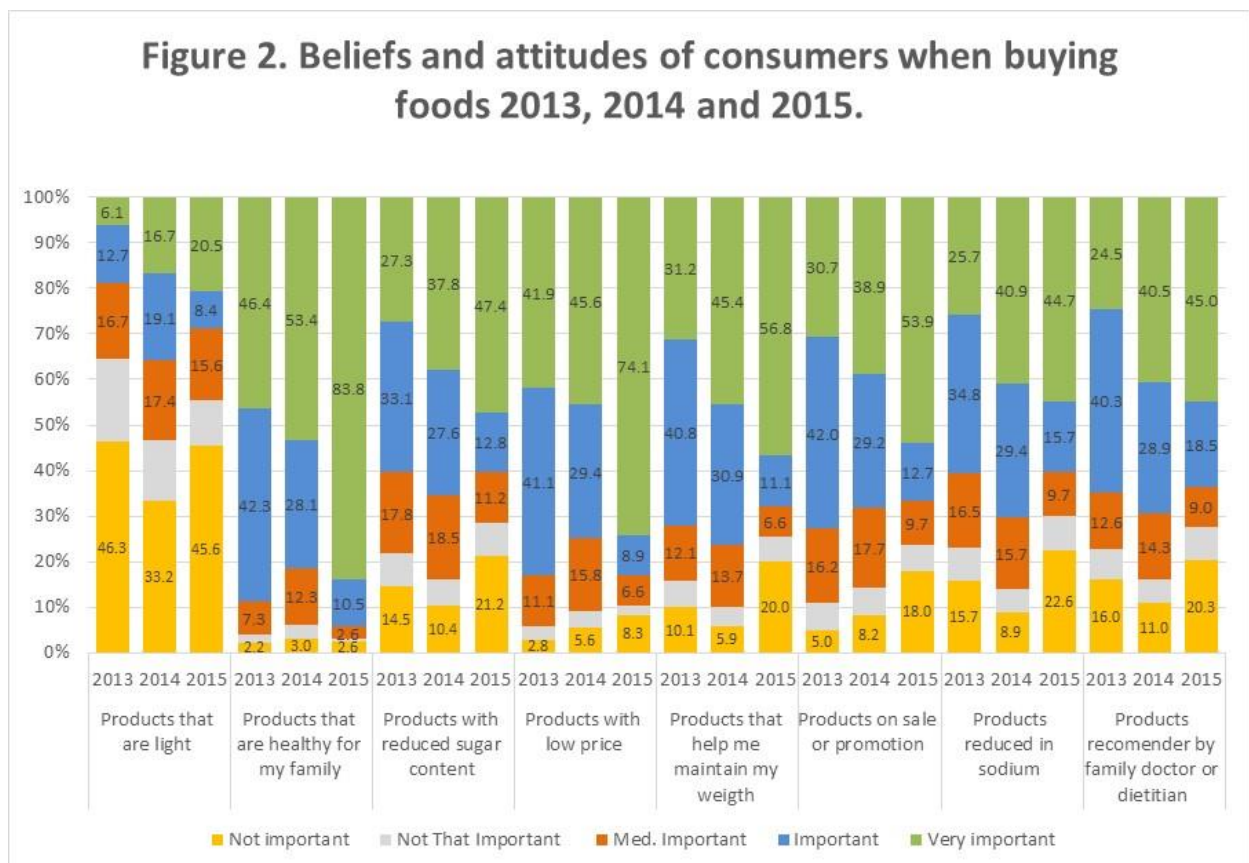


Table 3 shows the estimated average effect of change on the beliefs and attitudes when buying foods adjusted for age, sex and state. A positive effect of change in perceptions and attitudes of consumers to make the decision when buying foods was made in all the cities we conducted the study. The attributes that had a statistically significant change between 2013-2014 were a) buying light products, b) select food with low content of sugar, c) select foods with reduced content of sodium and d) products that are recommended by a physician. The attributes that had a statistically significant change between 2013-2015 were a) buying light products, b) select healthy products for my family c) select foods with low price d) select products on sale or promotion .

Beliefs and attitudes	2013-2014			2013-2015		
	attnd	IC		attnd	IC	
Products that are light	0.6014281	0.4680438	0.7348124	0.3508182	0.3058893	0.395747
Products that are healthy for my family	-0.0230318	-0.0990107	0.0529472	0.4203171	0.3541167	0.4865174
Products with reduced sugar content	0.2939957	0.14311	0.4448815	0.0343857	-0.0284414	0.0972129
Products with low price	-0.0721033	-0.1991853	0.0549787	0.1891783	0.1086838	0.2696729
Products that help me maintain my weigth	0.3339286	0.2104817	0.4573756	-0.0114386	-0.0857498	0.0628726
Products on sale or promotion	0.0221675	-0.0969666	0.1413015	-0.1130437	-0.1697482	-0.0563393
Products reduced in sodium	0.4711137	0.4052865	0.5369409	0.0436421	-0.0197357	0.10702
Products recomender by family doctor or dietitian	0.3836898	0.2490528	0.5183268	0.0825804	-0.041047	0.2062079
Propensity score adjusted by sex, age and state.						

## **b) Understanding, trust and use of nutritional labels**

From 2013 to 2015 we observed an increase of the proportion of people that responded that they understand and trust the information on the conventional labels (the nutritional panel on the back), as shown on Figure 4. Also in 2015, a higher percentage of people considered this information supported their decision to select a product when buying foods than 2013.

Regarding the GDA-FOP labels, we observed an important change on the proportion of people that reported to understand the GDA-FOP label. When adding the proportions of people that answered that they “totally agree” and “agree” that they understand the information the change was from 35% in 2013, to 62% in 2014 and 58.3% in 2015. Regarding the proportion of participants that “totally agree” and “agreed” that they trusted the GDA-FOP, we found the proportions changed as followed: 38.3% for 2013, 48% for 2014 and 24.3 % in 2015. As for the logo OK, most of participants in 2013, 2014 and 2015 agreed that it will help them to buy foods, reaching more than 80% of participants when pooling together the answers for “totally agree” and “agree”(Figure 3). Finally, participants suggested that the logo “OK should be supported for an institution different at Health Ministry, and the proportion increased substantially between 2013 and 2015.

.

Figure 3. Perceptions of consumers about type FOL label presented (conventional, GDA and "Ok" logo) by year

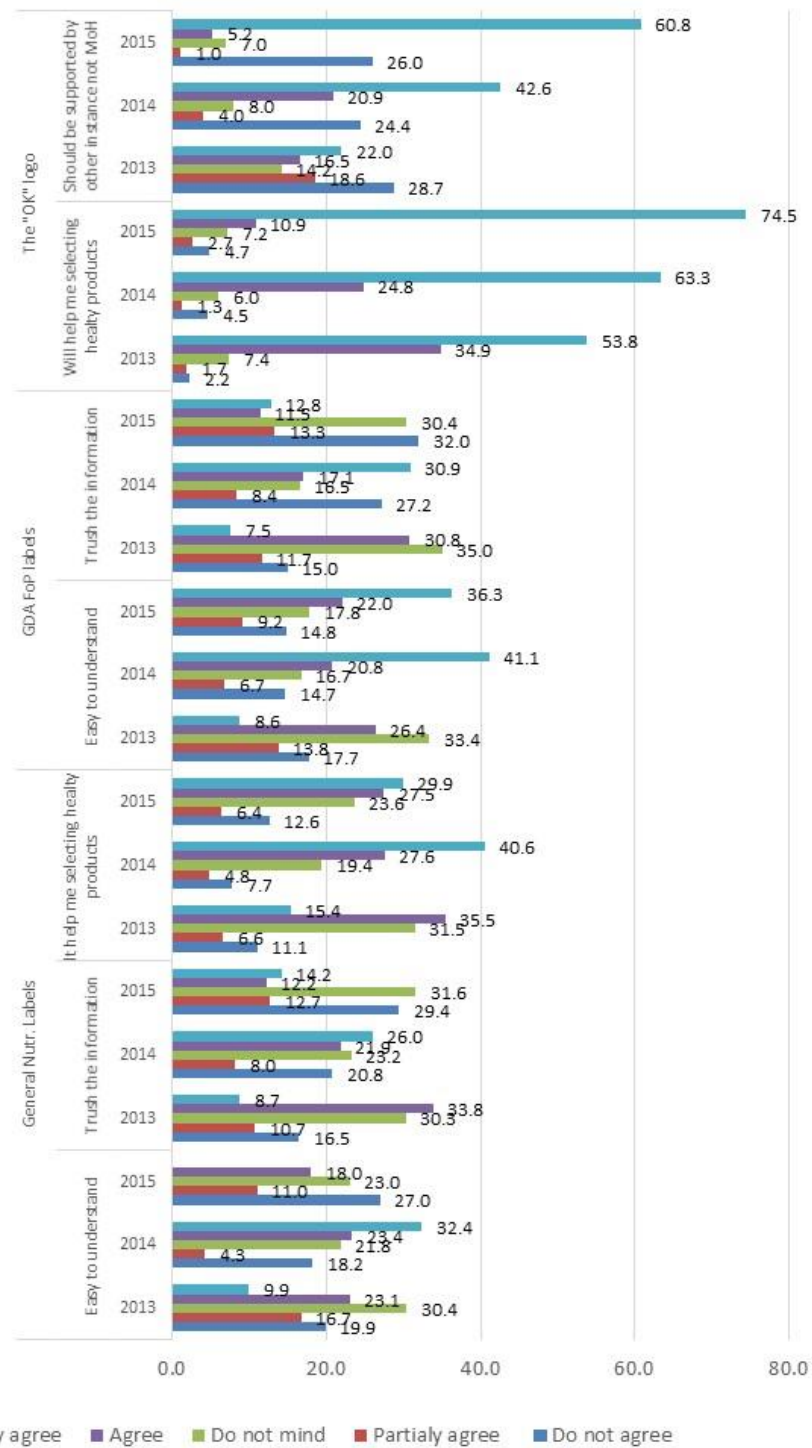




Table 4 shows the estimated average effect of the change on participants perceptions about how easy to understand and trust on the information of each type of label adjusted for age, sex and state. Change from 2013 and 2014 show a statistically significant increase in understanding, trusting and using conventional labels and helpful to select foods (0.58, 0.14, 0.52), but the change for 2015 showed that participants trusted less the information on the nutritional panel (-0.36). On the other hand, the change observed about trusting the information of the GDA-FOPL information was similar, as it decreased for 2015 (-0.43). For the the logo "OK" usage to select healthy products, there were no statistically significant changes.

Table 4. Overage effect of change about perception of consumers about FOL label presented by year							
		2003-2014			2013-2015		
Label	FOL label perceptions	attnd	IC		attnd	IC	
General Nutr. Labels	Easy to understand	0.5840025	0.4706114	0.6973936	0.0903132	0.0008193	0.1798071
	Trush the information	0.1426462	0.0460645	0.2392279	-0.3625495	-0.4793566	-0.2457424
	It help me selecting healty products	0.5208359	0.378951	0.6627208	0.1866233	0.0842802	0.2889664
GDA FoP labels	Easy to understand	0.7098681	0.626844	0.7928922	0.6305482	0.5177182	0.7433782
	Trush the information	0.1064595	-0.0008851	0.213804	-0.4328558	-0.5210432	-0.3446685
The "OK" logo	Will help me selecting healty	0.0749572	-0.0356876	0.1856019	0.0985822	-0.0155984	0.2127629
	Should be supported by other instance not	0.6361952	0.4186018	0.8537887	0.9571875	0.8851401	1.029235
Propensity score adjusted by sex, age and state.							

#### a) Preference for a traffic light format or a green "OK" logo

As for the preference of type of FOP labeling to identify products as healthier, the logo "OK" was preferred by 59.5% in 2013 and by 64.4% in 2014.

**Figure 4. Perceptions of consumers about the type FOL label on foods by year**

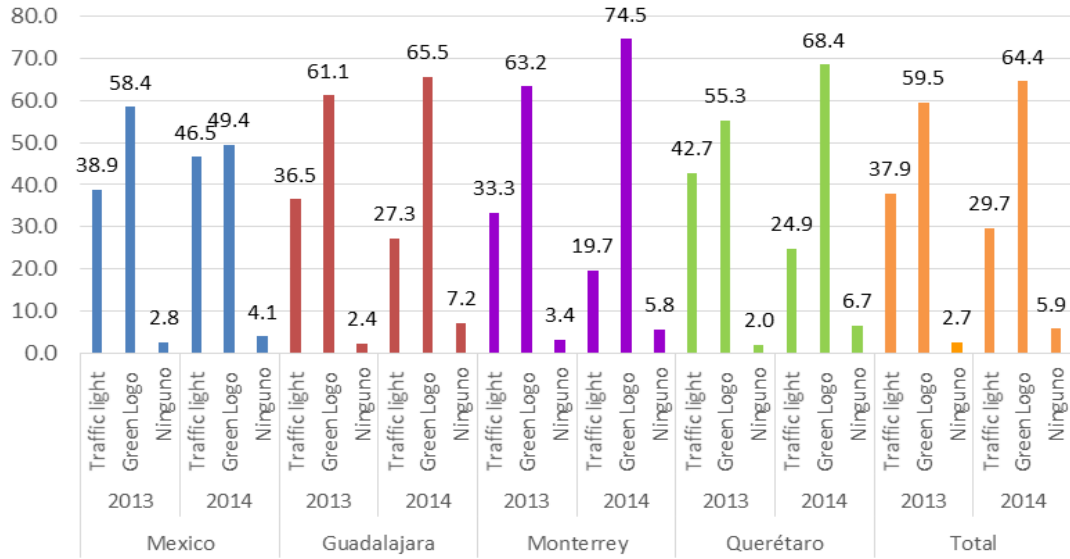
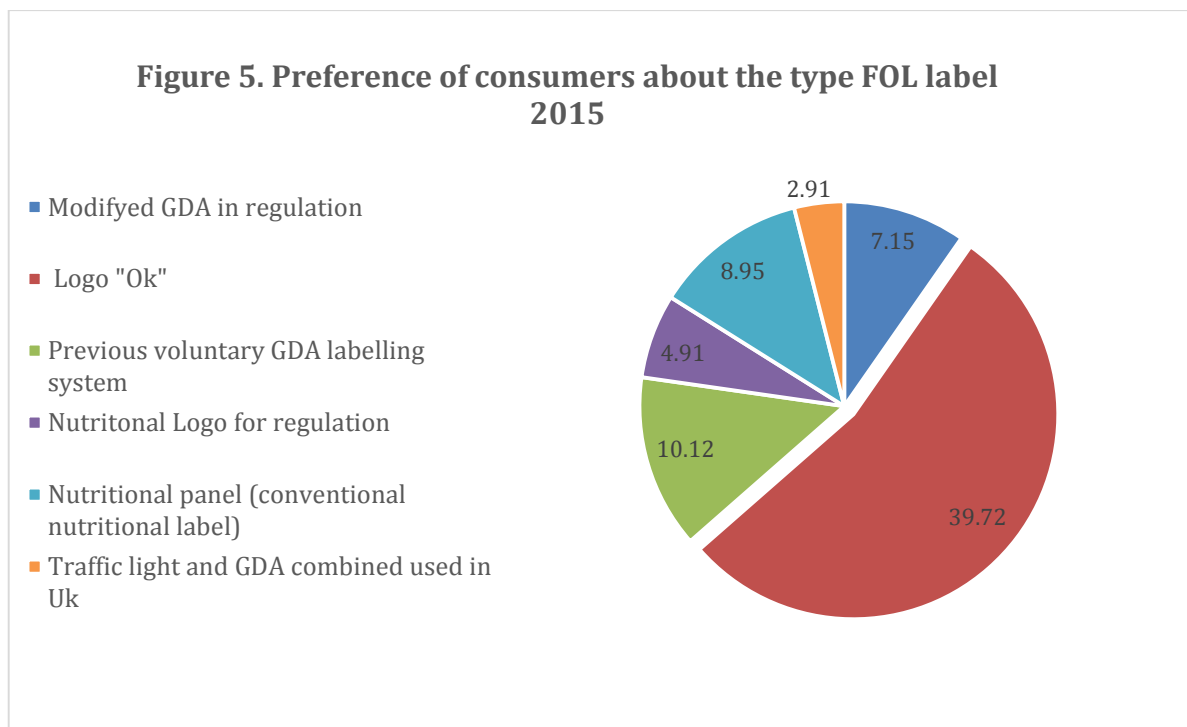


Table 5 shows the estimated effect of the change in perception about the type of FOP labeling preferred by participants in 2013 and 2014 per city. The change was statistically significant in most of the cities we conducted the study.

Table 5. Average effect of change about perception of consumers about FOP labels presented by year.							
City	Year	Type of label	porcentaje	n	attnd	Intervalo de confianza	
Mexico	2013	Traffic light	38.9	826	<b>-0.0810532</b>	<b>-0.2115678</b>	<b>0.0494613</b>
		Green Logo	58.4				
		Ninguno	2.8				
	2014	Traffic light	46.5	419			
		Green Logo	49.4				
		Ninguno	4.1				
Guadalajara	2013	Traffic light	36.5	794	0.1795661	0.1259218	0.2332103
		Green Logo	61.1				
		Ninguno	2.4				
	2014	Traffic light	27.3	403			
		Green Logo	65.5				
		Ninguno	7.2				
Monterrey	2013	Traffic light	33.3	816	0.182088	0.0247698	0.3394062
		Green Logo	63.2				
		Ninguno	3.4				
	2014	Traffic light	19.7	416			
		Green Logo	74.5				
		Ninguno	5.8				
Querétaro	2013	Traffic light	42.7	839	0.2227368	0.1562201	0.2892536
		Green Logo	55.3				
		Ninguno	2.0				
	2014	Traffic light	24.9	418			
		Green Logo	68.4				
		Ninguno	6.7				
Total	2013	Traffic light	37.9	3275	0.1246825	0.0781352	0.1712297
		Green Logo	59.5				
		Ninguno	2.7				
	2014	Traffic light	29.7	1656			
		Green Logo	64.4				
		Ninguno	5.9				

Figure 5 shows the preference of type of FOP labeling for consumer to select products, the logo "OK" was preferred by 39.72% However only 9% of consumer recognize Nutritional Label Logo Regulation, 3% know that it means and 1.5 % reported used it.. Likewise 99 % of respondents did not recognize differences between GDA-FOP used for the regulation and the GDA –FOPL used before as a voluntary strategy.



## Conclusions

This study shows there is an important change in how people value the type of foods they choose at the time of purchase. In 2015 it was less frequent among our respondents to value a product because it will help to maintain their weight, while price is still relevant for most of the people regardless the point in time interviewed. On the other hand, values such as sodium and sugar are becoming more important attributes when selecting foods. We found a decrease of the proportion of people who trusted the GDA-FOP, but we found that participants answered they used more in 2015. Clearly, most of the participants preferred that other institution rather than the MoH endorses the FOP labeling, and we see a clear preference for a traffic light or logo format that the numeric one. And almost all participants in 2015 mentioned

they did not recognize the differences between the GDA –FOP labeling used for the regulations and the GDA system used previously on the voluntary system.

This study shows that people are changing perceptions about the main attributes of foods towards healthier options when buying them. As this is not an intervention, but an observation of shifts throughout a period of policy change, we can only describe these changes, without any attribution to a specific program or policy.

## **Annex 2. Main results of focus groups with consumers**

### **I. Introduction**

Nutritional labeling has been signaled worldwide as a strategy aimed to reduce and prevent overweight and obesity by informing the population about the contents of industrialized and prepackaged food products. As part of the National Strategy to fight Obesity, the front of package label was modified and changed, and regulated.

Following up the research project, this report intends to collect the perceptions, attitudes and behavior towards nutritional labels in the Mexican population, including those of the current label system and the proposed Nutritional logo “Sello Nutritional” for those products that according to their nutritional characteristics are healthier.

### **II. Methods**

#### **Sample selection**

The selection of the sample was the same as year 1. Participants were recruited in four to the largest cities in Mexico: Querétaro, Monterrey, Guadalajara and Mexico City. Participants of three different socioeconomic groups (high, middle income and low income) were selected through a purposive sampling. Researches from the University of Guadalajara, University of the State of Nuevo Leon, the Health Promotion Department of the Ministry of Health at Queretaro City and by our team in Mexico City helped recruiting the sample.

#### **Methodology**

People were invited to participate mainly through an open invitation the researchers made at their work places for the medium socioeconomic status, high socioeconomic status neighborhoods and health centers for low socioeconomic status groups. The same process applied in year one was applied in year 3. A series of questions were added refereeing to the new FOPL regulations applied in Mexico.

#### **Changes in labels affecting the methodology**

Derived from the initiative in 2013 led by the consortium CONMEXICO of displaying a FOP that discloses the main content of energy, fat, saturated fat, sodium and sugar

of products; COFEPRIS modified the current regulation for nutritional labels adopting the GDA format based on the EUPledge criteria and proposed a “Nutritional stamp” for those products that meet certain criteria.

To determine whether people understand, use and find out general perceptions about the previous GDA’s labelling and the regulation, with a modified GDA, we provided images (Figure 1, 2,3). Participants were asked to seek out changes between the information provided on each one, and to talk about them.

Figure 1. GDA label format 2015



Figure 2. GDA label format 2013



## Analysis

We use the use the same thematic analysis as year one and the themes and categories were defined a prior using the Theory of Planned Behavior, used as well to design the data collection tool. The information gathered during the focus groups add in depth information to data obtained with questionnaires. Data were transcribed and reviewed, discussed and codified by two members of the team.

The final categories and sub-categories of data current issues are shown in table1. The software NVivo10 was used for analysis support.

<b>Table 1. Definition of categories and subcategories defined a prior and during the thematic analysis.</b>			
<b>Categories</b>		<b>Subcategories</b>	
<b>Name</b>	<b>Definition</b>	<b>Name</b>	<b>Definition</b>
Motivation when buying foods	Reasons for purchasing particular foods (sales, pricing, flavor, health, etc.)	N/A	N/A
Attitudes towards nutrition labeling and perceived behavioral control	This refers to the degree to which a person has a favorable or unfavorable evaluation (perception) about using nutritional labels. Is all that a person considers about the outcome (benefits or constraints) of reading the labels.  Refers also to the perceived power that contributes to a person's perceived behavioral control over each of those factors.	Perceived barriers when using labels	Answers about the factors that limit the use and understanding of food labels.
		Perceived advantages of using labels	Answers about the factors that might improve the use and understanding of food labels.
		Perception about the need/or not to examine the information on nutritional labels.	Careful examination of the nutrient content declared on the label.
		Perception about the ease or difficulty of assessing information on nutritional labels.	Fixing the value of a labeling system by the participant. Understanding labels, applying their understanding to choose foods.
		Opinion about the current presentation and the accuracy of the nutrition information on the label.	People judgment on the presentation, appearance and beliefs about accuracy of the information.
Beliefs/opinion about nutritional claims on the FOP labels	Opinions and views about the nutritional claims and the accuracy of the information.	Usefulness and perception	Perceptions about how useful claims are.
Beliefs/opinion about the FOP-GDA labeling	Perceptions about reliability of the GDA FOP labeling system, usefulness and comprehension of the information displayed.	Accuracy of information.	Perceptions of how accurate and truthful claims are.
		Reliability and accuracy of information	Acceptance of the information displayed on the GDA label.
		Presentation (font size, colors, placement on the package)	Judgment about the color, appearance and amount of information of the GDA label.
		Usefulness	Perception of the applicability and practicality of the GDA label when choosing foods.
		Comprehension	Clear assimilation of the meaning of the GDA labels.
Beliefs/opinion on "Nutritional Stamp" on the front of the package.	Personal judgment on the understanding, utility and reliability of the Nutritional Stamp.	Perceived changes in GDA format	Changes observed in the GDA label during the past year.
		Color interpretation	Judgment about the color, meaning, accuracy and appearance of the Nutritional Stamp.
		Usefulness	Perception of the applicability and practicality



Beliefs/opinion on OK logo on the front of the package.	Personal judgment on the understanding, utility and reliability of the OK logo.	Comprehension	of the Food Stamp when choosing foods. Clear understanding of the meaning of the Nutritional Stamp.
		Application	Opinion about what type of foods should carry the Nutritional Stamp.
		Suggestions	Expressed ideas to improve the Nutritional Stamp.
		Color interpretation	Judgment about the color, meaning, accuracy and appearance of the OK logo.
		Usefulness	Perception of the applicability and practicality of the O.K. logo when choosing foods.
		Comprehension	Clear understanding of the O.K. logo meaning
		Application	Opinion about what type of foods should carry the OK logo.
		Suggestions	Expressed ideas to improve the OK logo.
		Preferred label	Expressed preference for the O.K. logo or the Nutritional Stamp.
Beliefs/opinion about nutritional labels endorsement	Views about what institution/organization should support a FOP label logo or nutritional information.	Minister of Health and/or other governmental institutions NGOs (consumers NGO/ nutrition organizations).	Acceptance of the government assertions as true.  Acceptance of the NGOs assertions as true.

## Results

### A) Participants' characteristics

Table 2 describes the demographic characteristics of the participants per socioeconomic group and city. It is important to mention that the educational level doesn't necessarily correlates with the socioeconomic status, because some of the participant recruited for the high socioeconomic group only attended high school, and are mainly staying-home mothers, and on the other hand, some participants in the low socioeconomic groups are students of high school or of a bachelor degree.

Table 2. Participants' demographic characteristics				
City	Socio economic level	Average age	Average level of education among participants	Main occupation of participants
Guadalajara	Low	38	Junior high school	Housewife
	Medium	34	College	Student
	High	57	College	Employee
Querétaro	Low	64	Primary school	Housewife
	Medium	34	College	Employee
	High	28	College	Employee
D.F.	Low	30	Primary school	Housewife
	Medium	69	High school	Housewife
	High	65	High school	Housewife
Monterrey	Low	20	College	Student
	Medium	28	College	Student
	High	49	Degree	Employee

## B) Motivations when buying foods

The main motivation when buy foods is the price of products among all groups, other criteria like flavor, quality and health were mentioned, being the most common answer in the HSE focus groups, while the health criteria appeared to be more important in the LSES groups as exemplified ahead:

*"[...] well I don't read how many calories products) have, but I always try to buy more natural foods and what is cheaper" (LSES)*

*"[...] sometimes I read the labels but it (my decision mainly) depends more on the money" (HSES)*

Participants who reported buying foods based on health benefits do this because there is a member of their family with a special health issue, such as Diabetes, or because they attend nutrition workshops or consult a nutritionist. This was consistent with findings from year 1.

*"Well my mom went to a nutrition workshop and she knows what to buy" (LSES)*

*"My father in law has Diabetes so I have to read everything to avoid buying sugary things" (MSES)*

### **C) Attitude towards labeling and perceive behavioral control on using nutritional labels**

As signaled by Armitage and Conner (2001) attitude is the favorable or unfavorable perception a person has about performing a certain action. In the case of reviewing nutritional labels people attitude hasn't changed much in these 3 years.

In general, they perceived labels confusing and useless because people can't understand them correctly: *"If someone knows about this maybe he can understand but if not is very misleading" (HSES)*, and *"They are useless, we don't understand them" (LSES)*

Lack of understanding was the main reason people do not read labels, though some people do review labels, mainly among participants of focus groups on the high and medium socioeconomic characteristics, as exemplified ahead: *"Sometimes when I buy new products I review the panel, the information is more complete" (MSES)* and *"Lately I've been trying to review sodium contents, before I just reviewed calories" (HSES)*

Few people in the low socioeconomic groups declared to read them, and if they read them is because they had a health condition: *"I have to pay attention to this, how much sodium, sugar, calories because of my health" (LSES)*

Also the idea that the portion declared in the food labels differs from the total content of product in the package was a topic highly discussed in most of the groups, regardless the socioeconomic status of the participants: *"It says per portion but you don't know the whole content" (LSES)*, and *"It gives the information but then you notice that it is just for one cookie, so if you eat the whole package I think it is confusing" (MSES)*

Despite the fact, they notice the difference they value the information as important and potentially useful: *"It is important to know what you are getting into your body" (MSES)*, and *"It is important because at certain age you begin to value more your health and taking care of what has the food you eat" (HSES)*

When reviewing the information about the current nutritional labels design we found that people continue to think the information is too technical and the font size is barely readable as exemplified ahead in some quotes:

*"It is difficult to understand and the information has very small fonts" (HSES)*

*"I think most of the times they use other names, more technical names of the ingredients and then people gets confused and doesn't know what it really is" (MSES)*

Credibility and trust on the information provided in the labels, seems to be compromised, as expressed by several participants, for example: *"Sometimes the content is real but many other times it is altered and you can't know" (LSES)*

#### **D) Beliefs and opinion about nutritional claims on the FOP labels**

Similar to our results in year one, people declared to buy products which carry nutritional claims, specially people from high socioeconomic status groups. In contrast, participants of the low and middle socioeconomic groups mentioned they don't buy products with claims, because they don't trust the information: *"I think they are fake, at the end what they want is to sell" (MSES)*, and *"I don't trust them, when they say zero fats we know it isn't true because they need to have even a small amount" (LSES)*; and *"Maybe it isn't true but it helps you when buying because you only notice that characteristic" (MSES)*.

#### **E) Beliefs and opinions about changes on the GDAs format**

Most of participants despite their SES weren't aware of these changes. The most mentioned change, perhaps because of its obviousness, was the color and font size.

Other participants, principally from HSES and MSES noticed the changes in the calories presentation and the portion size information: *"It says total calories but it doesn't say how much per portion" (MSES)*, and *"It change, above it has what is more important, the calories and their percentage" (HSES)*.

Many others, mainly from low socioeconomic groups, recognized they haven't even noticed that now this label appears in all products: *"Well I'm not sure if it is the same, but I see them identical" (LSES)*.

#### **F) Usefulness, comprehension and reliability**

When asked about their opinion on the GDA label, participants from the HSES think it is simpler but more difficult to interpret due to the percentages: *"what I don't like about them is the percentage, it doesn't say anything and it is standardized" (HSES)*.

Participants on the MSES and LSES believe it is more attention calling and easier to read: *"It's more attention calling than the panel"* (LSES), *"Seems simpler"* (MSES).

In these two groups, their first impression changed when they were asked to interpret a GDA label. In MSES most participants understand the calorie information, however they didn't know how to interpret the information about sugar, fats and other fats, this last one because they don't know which are the other fats:

*"Other fats content is that these aren't natural or are more saturated..."* (MSES)

For people in the LSES groups the interpretation was even more difficult. Most of them mentioned that the only thing they know is that a portion is the amount of product they should eat at one meal. Some of them have been attending nutrition workshops for Diabetes care and have an idea of the sugar content, however they can't tell how many grams the product should contain to be consider low in sugar:

*"That is has too many calories to be eaten at once but with less sugar, but if you use just one portion it has much sugar"* (LSES)

People in the HSES groups had a better interpretation of the calorie and fats content, although they said the portions size is a little confusing:

*"Apparently it doesn't have many calories but it says 6 portions...when it says calories per porion you may think that 6 is the whole package, or grams or I don't know"* (HSES)

Due to the lack of ability to interpret this information correctly most participants in all groups declared they wouldn't take into account the GDA label to make a decision when buying foods because they don't understand it completely:

*"Unless I fully understand it I wouldn't use it"* (HSES)

*"Sincerely no because if you don't trust it you don't use it"* (LSES)

Also, most of them think it could be used to make food choices when you already know the amounts you can eat of each nutrient disclosed on the label but not if you don't have a parameter to compare it.

*"If decide to eat things without fats maybe it could help"* (HSES)

*“well if you see it has sugar and you already know you can’t eat it yes” (LSES)*

### **E Beliefs and opinion about the black “Nutritional Stamp” logo**

The new regulations include a “Nutritional Stamp”, intended to be placed in those products that due to reformulation have achieved lower levels of sugar, fats and sodium. At the moment no product has shown this stamp and the population hasn’t been informed of this.

We showed the image that the COFEPRIS proposed for this stamp (Figure 3) and asked people what they think about it and how they interpret it.

Figure 3. Nutritional Stamp proposed by COFEPRIS



### **G) Usefulness, comprehension and reliability**

Opinions about the color were divided. In the HSES groups most participants agreed the color should be more attention calling and they suggested to use different colors to create a color code according to the product: *“It should have different colors, depending of the product, like Alpura that you identify each kind of milk according to a color” (HSES).*

Participants think the color should be different, for them a red or orange would be more attention calling and contrasting to be noticed: *“I would use a more attention calling color, red or orange” (LSES)*

Only some participants in the MSES like it black. Most of them said is fine because it contrast with all the colors in the packages: *“I think it’s fine because it contrasts with everything” (MSES)*

As for its interpretation, most participants in all focus groups found it as a reminder of the nutritional label used for nutritional orientation in Mexico, therefore they assume it is talking about nutritional food: *“I see it like something that is good and healthy” (HSES); and “For me it means it is inside the nutritional plate, it is good” (LSES)*

Some participants in the MSES think it is very similar to the design used to signalize restaurants zones: *“with the cutlery I think in restaurants” (MSES)*

Despite that it reminds them of a tool used for nutritional advice, participants in HSES and MSES think it could be difficult to understand what it means because doesn't say anything by itself. *“It's easy but it doesn't means anything” (MSES); and “It's difficult, it's senseless and says nothing” (HSES)*

On the other hand, participants of the low socioeconomic group think it is easy to interpret because it has the word “nutritional” on it: *“It's easy, there it says it is something nutritive” (LSES)*

When we asked about which kind of foods they thought should get the stamp, participants in HSES said prepared foods, canned foods and food for kids, while participants in MSES and LSES said healthy foods. Some participants in all groups couldn't mention any food because they didn't know what the stamp actually means.

All participants despite their SES agreed it could be an easy and simple way of identifying healthier foods, they only suggest people should be informed of its meaning: *“It helps because of the nutritional plate” (LSES); and “It is a good idea to distinguish a healthier product, easy and quick” (HSES)*

#### **H) Beliefs and opinion about the green “O.K.” logo**

Finally, we tested again the O.K. logo (Figure 4) as in year 1. The logo was designed by a team of the INSP and appears endorsed by the MoH.

Figure 4. O.K. Logo



Participants were asked the same questions as the ones used for the testing the Nutritional Stamp.

About the color of the logo, participants suggested it should contain more colors, some participants suggested a traffic light: *"Maybe it should be on more colors, by nutrients, like red for protein, blue for carbs, something like that" (HSES);* and *"It could be according to the food pyramid with all the rainbow colors" (MSES)*

Participants in LSES groups think the color is fine, most of them agreed with it because they think green means life: *"I think it is fine, green is life afterall" (LSES)*

When asked about their interpretation of the logo, almost all participants despite their SES concluded that it signals that it is O.K. and you can eat that product on a regular basis. For example: *"I think it is saying that something you eat every day is fine" (LSES), "That it is a healthy product" (MSES);* and *"That if you consume this regularly it won't harm you" (HSES)*

All participants think this logo could be helpful for identifying healthier foods, however for HSES it is important to know the criteria used to place it on a food package, and for people in LSES the logo should specify the portion size that is healthy.

Improvements suggested included: *"The green says go ahead and another color that says warning" (HSES)* and *"There could be a green logo and a red one" (LSES).*

LSES groups also mentioned that it lacks formality, therefore the design should be more serious in order to be trustworthy: *"I think it looks very informal, like they didn't make an effort" (LSES)*

The MSES participants agree with this, some mentioned they would changed the O.K. word for a correct mark or a like sign as in Facebook: *"It would be better a like sign instead of O.K., O.K. is an English word" (MSES)* *"A correct mark instead of O.K." (MSES).* Among with this, some suggest the logo should include recommendations by age group: *"It should focus on age groups because there are different needs in each group" (MSES)*

To close the focus groups, participants were asked whether they preferred the Nutritional Stamp or the O.K. logo to appear on the front of the package of foods.

Participants on HSES and LSES preferred the O.K. logo: *"I like the green better" (LSES), "The O.K. is better" (HSES).* While participants in the MSES were divided, some preferred the O.K. logo and others think the Nutritional Stamp would be easier to understand.

## **I) Beliefs and opinions about nutrition and labels endorsement**



Another important issue was that about the endorsement. Despite the institution is public or not, there's a general mistrust about this due to corruption. For year 1 many participants mentioned PROFECO, (Federal Consumer's Attorney), which is a Federal organism in charge of evaluating products and services quality as well as following up on consumers complaints, should endorse the logo. However this year PROFECO didn't came up, probably because in the past years this institution hasn't appeared as a stakeholder.

Only participants in LSES would trust a public institution like de MoH, participants in HSES would trust better an NGO or an international institution, and participants in the MSES wouldn't trust any of them.

*"An NGO is the example of most corruption, because they live of donations" (MSES)*  
*"It would be a good thing if we could trust our governmental institutions" (MSES)*

*"It is difficult to believe in a NGO because they don't assess everything like the government" (LSES)*

*"A NGO would be better because corruption is unreliable, or an international institute would be better"(HSES)*

Despite their mistrust, all participants agreed that having a label endorsed would make it more reliable.

For comparative results among year 1 groups and year 3 see Anex1. Comparative table of qualitative research data: differences between year 1 research and year 3.

### **Limitations and contributions of the study**

As in year 1, our main limitation is that the focus groups had a low participation rate, as well as the locations that in some case make it difficult to understand what people were saying because of the noise.

Also, due to logistics and resources issues, there were 2 focus groups facilitators, if well both were members of the research team and received the same capacitation, the way some questions were asked varies from person to person.

Due the changes in food labeling regulation, new advertising and promotion of the food labels is being released on radio and television, however this research was carried on before this new publicity was released.

One of the most important contributions of the research is the fact that despite the changes recently made to the regulation of the nutritional labels, people continues to believe the information is misleading, difficult to understand and unpractical for their lives.

## **Conclusions**

Few changes have been observed in people attitudes and behavior towards food labeling in the past 18 months. Comparing to year one, during year 3, people answered more often not to trust the nutritional information displayed in the packages of foods.

Although people is aware of the health hazard eating industrialized food high in fats, sugars and sodium, implies, they find it difficult to know which one is better for their health because of the lack of reference values for each nutrient for each age group.

What they look for regarding the nutritional label, for something easy and quick to read, without technical language, needs of interpretation or to do math's, the simpler the better. Using labels is not the main driver for the participants to choose a product, mainly it's the price, flavor and quality. Our findings of both, baseline and final qualitative research, point that there is a huge gap on nutrition and health education, and therefore the general population isn't ready to assess food products using the front-of package label implemented by the government



**Table 1 . Main themes identified between year 1 and year 3 in the focus groups (four groups per SES)**

Categories	YEAR 1			YEAR 3		
	High SE	Middle SE	Low SE	High SE	Middle SE	Low SE
<b>a) Buying practices:</b>						
Motivation when buying foods	Flavor, health (products with less sugar and fat) and price	Practicality (products that are easy and quick to prepare) and price	Price and brand, what is known in their families	Price above all, quality and flavor	Expiring date and health (products with less sugar and fat)	Price, what they are used too and health (products with less sugar or fat)
Barriers perceived when using labels	Lack of knowledge of their daily requirements for each nutrients	Lack of knowledge of the daily requirements for each nutrients	Not understanding the information and not knowing their daily requirements	Information has to be simple, in the front, in the same place for all products. We don't know why it is light.	The portion sizes are not clear on the package so difficult to use the GDAs	Lack of understanding what a calorie is. We Do not understand what this means.
Opportunities perceived when using labels	It could include the consequences of an excessive consumption.	Could be more attractive and specific.	Present it on a larger font, more attractive and with less information.	More information available, more visual.	The size is larger and the colours change, more catching	The size of the information is larger
<b>b) Attitudes and behaviors towards food labels:</b>						
Reviewing food labels	Reported to review the labels, especially when buying new products	Mentioned not to have time for reviewing labels	They buy products based on recommendations	Reported reviewing sodium, and calorie contents when buying "diet" products	Reported to this occasionally, when buying new products	Only those with a health issue or a sick person at home review labels

Labels as a useful tool to select products	They think it is important to have clear labels to use them, but the current labelling in Mexico is useless.	It is important, but would not use them, they buy the same products all the time	They think it is important for being able to take care of their health	It is useful but if you aren't not instructed to understand it, it seems confusing	It could be useful if they knew what the information means	People don't understand them, we don't understand them.
Opinion on current presentation of food labels.	The information is too technical, has too much information and the font is too small	The font is too small and hard to read	They bring too much information, sometimes it is hidden and the script is too small	The general population can't understand it	They are confusing and difficult to assess, specially portion size	Food labels are confusing, the information is not reliable.
Perceived accuracy of the information of food claims.	It is a marketing strategy and is a misleading information.	It may be truth but these products tend to have more additives.	They aren't sure if the claims are true, although they think these are more practical.	They don't trust this information, they see it as marketing	General mistrust, although some of them buy them because they have fewer calories	They don't trust the information provided
<b>c) Opinion on food labels endorsement:</b>						
Labels to be endorsed by PROFECO	They think PROFECO doesn't have enough power to do this	They think PROFECO should do these assessments.	The PROFECO can assess the quality all kind of products.	PROFECO should be in charge of this instead of the MoH	N/A	N/A
Endorsement of labels by the Minister of health and governmental institutions	They do not believe in public institutions due to corruption	It would be reliable because people already knows MoH	It would be more reliable but they think it could also lead to corruption	Most of them think this could lead to corruption	The majority wouldn't trust the MoH because they have so many interests, some mention COFEPRIS should do it.	Most of them think this could make them trust the products a little more
Endorsement of labels by NGOs	It would be more reliable because they have less interests.	Labels shouldn't be endorsed by an NGO but it could verify the information	It would lack formality.	Most participants think it would be more reliable, others prefer an international institute	Some of them prefer it to the MoH, others say it would lead to more corruption due to the way these institutions are finance.	It wouldn't be reliable because they doubt these institutions make assessments
<b>d) Comprehension and perceptions about GDA format:</b>						

FOP-GDA labels opinion	Is more attention calling and practical	It is a summary of the nutritional facts in the back	It is a summary of the nutritional panel	They are difficult to interpret because of the percentages	They think it is simpler and more specific than the panel.	It is more attention calling and easier to read than the panel
FOP-GDA labels usage	It is useless because you need to do calculations.	It may be useful for people that need to review contents of sugar, fat and sodium.	It is useless because they don't understand it.	Most participants wouldn't use them and very few of them would use them to assess sugar or fat	Some of them said it could help to buy foods with less sugar or fat, others said they wouldn't use it because they don't understand it	They don't use it because they aren't used to review labels
FOP-GDA Comprehension	They don't know what the percentages refer to and don't know which the exact portion is.	What do the percentages mean?	It is very complicated and the percentages are confusing	They only understand the calorie information although the portion size isn't clear to all.	They don't understand, specially the information about other fats and sugars.	They only understand that a portion is what they should eat
FOP-GDA current changes	N/A	N/A	N/A	Many participants haven't notice changes; few of them have saw changes in the calorie and portion presentation.	They mentioned changes in the color, they think the new format is more specific but lacks information about portions.	They noticed that the current format doesn't specify the portion size and shows total calories
<b><i>e) Opinion on the "Nutritional Stamp" and suggestions</i></b>						
Nutritional Stamp color opinion	N/A	N/A	N/A	Color should be more attention calling and depending on the product, few of them like it black	They think the color is good because it contrasts with the colors in the packages, few of them think it should have colors of a traffic light.	It should be a more attention calling and contrasting color, they suggest red or orange

Nutritional Stamp meaning	N/A	N/A	N/A	They have the intuition that it means the product is healthful or safe, but can't be sure	Some of them interpret it as a plate with food, others related it to the nutritional plate and interpret it as nutritional food.	Most participants interpret it as something good because it looks like the nutritional plate.
Nutritional Stamp should be on...	N/A	N/A	N/A	Prepared foods, foods for children, canned foods	Nutritive foods, some said they would need to know the meaning.	Healthier foods, like turkey, milk, meats, pasta or sausages.
Nutritional Stamp comprehension	N/A	N/A	N/A	It's difficult because you can't know what it really means	They think for the way it is presented it means nothing.	It's easy to understand because it says "nutritional"
Nutritional Stamp helps choose healthy foods	N/A	N/A	N/A	It could be more quick and easy to identify healthy foods	No because it means nothing but they think it could be a good idea.	It could help choosing healthy foods.
Suggestion to improve the Nutritional Stamp	N/A	N/A	N/A	Another color and specify it's meaning	Inform people of it's meaning.	Different color and an institution endorsement
<b>f) Opinion on the Logo "o.k." and suggestions</b>						
Opinion on color of logo O.K.	Green means "natural" and is like a sign of "go ahead"	Green is for "natural"	Green means "health" and "freshness"	It should have more colors, like a traffic light or a color code for each nutrient	Green is fine, although it could use more colors to help people choose different foods for a balanced meal.	Green is fine because it means life
O.k. logo should be on...	In less harmful products, with less additives and conservatives	Perceived for healthier products (frozen fruits and vegetables, whole grains,	In healthy products such as dairy, vegetable oil, whole grains and lean meats	In packed meats, fish and fresh food that have a short expiration date.	In healthy food as meats, milk, canned foods, fruits, vegetables, eggs and cheese.	In all foods that are consumed daily, they mentioned kid's foods and milk too.

		canned foods and dairy)				
O.K. Logo Comprehension	That it is a healthy product, however they think “regular consumption” shouldn’t be a recommendation	That it is a good product for health. “Regular consumption” is based on what or who?	That it is a harmless product and they can consume it with more confidence. They don’t understand what is the frequency for “regular consumption”	It is a safe product that you can consume on a daily basis and the MoH endorses it.	That it is O.K. to eat the product on a regular basis, that it is healthy.	That it is a validated product you can eat every day. Some people think it lacks formality.
O.K. Logo helps choose healthy foods	N/A	N/A	N/A	Yes, although they would need to know the criteria used	Most of them think it could be helpful	It could be helpful but it should specify portions.
Suggestions for improving the O.K. logo	Include the frequency of consumption recommendation using colors to identify each frequency and eliminate the “regular consumption” phrase.	Include red color for products with less frequency of consumption and include the calories required per age group	Include the calories and color for frequency of consumption, using red and yellow for warning and green or blue for more frequency	Different colors for each food group, include a preventive color and inform it’s meaning.	Replace the O.K. with a sign such as the facebook like or a correct mark, include recommendations by age group and positioning it among the population.	Include a red one for warning and give it the formality so it can be trusted.
Expressed preference for the O.K. logo or the Nutritional Stamp	N/A	N/A	N/A	Most participants like better the O.K. Logo	Most of them prefer the O.K. logo, very few said the Nutritional stamp would be easier to understand.	Most of them like better the O.K. logo, few of them find the Nutritional stamp more reliable.



## **Annex 3. Main Results of Inventory of Food Labels**

### **Aim**

To assess and monitor the availability of food products at supermarkets carrying a FOP label and type of label they carry, and to compare which ones have included the MoH FOP logo or the new mandatory GDA's FOP label throughout three years.

### **Objectives**

- To develop a comprehensive database of packaged food labels, label promotions, prices and changes on the labels for several type of products highly consumed by the Mexican population.
- To compare nutrient profiling of the selected products throughout the three years of data collection.
- To monitor changes on packed food prices and labelling marketing strategies, and monitor the compliance of the current regulation of FOPL and voluntary logo, as well as the compliance of the previous GDA voluntary strategy and the current FOP labelling new regulation.

### **Data collection**

For the third year of the project, the fieldwork team looked for the same products at supermarkets based on the food inventory list of 2013. The sample was collected in 2 cities, Monterrey and Mexico City; students from the University of Nuevo Leon (UANL) helped with the fieldwork, taking photographs of industrialized products and making a dataset in Excel.

Data for year 3 (2015) was collected from September 15 to December 15. Photographs of industrialized products were taken to capture the type of FOPL they carried, food claims on the label, promotions, price and information about critical nutrients (energy, fat, saturated fats, sugars and sodium) reported on the FOPL and on the nutritional panel on the back.

Only main food categories were collected based on the Mexican consumption (see figure 1); sweetened beverages, milk and dairy products, sweet snacks, salty snacks, breakfast cereals, tortilla and corn products. Most of the products were found and photographed although some products were not on the market any more. Currently,

all the data from photographs of industrialized products is being captured by the INSP team and will be analysed and prepared for publication.

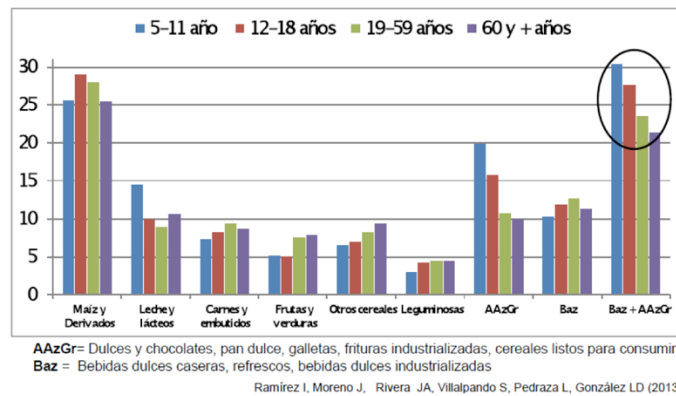


Figure 1: Most consumed food groups by the Mexican population. Data from the National Nutrition Survey of 2012.

The research coordinator asked for the supermarket managers consent to take photographs at the selected stores. Each fieldworker collected data of certain food group (Table 2), locating the aisle at the supermarket and taking photographs with a smartphone of the FOP, GDA labelling, list of ingredients, barcode, price, promotion and the nutritional panel (BOP).

Table 1. Food Categories for inventory data 2015

Breakfast cereals
Tortilla and corn products
Milk and dairy products
Beverages and juices
Carbonated sodas
Sugar sweetened beverages
Beverages with high content of fruit
Snacks
Sweet snacks
Salty snacks

## Analysis

To date we have analysed information of 773 industrialized products. We used STATA for the descriptive analysis. Currently, data of food inventory is under analysis for the panel sample of year 1 and 2 , and finalizing data collection with snacks.

Table 2. Sample collected per food group products (Updated December 15, 2015)				
	Food Group	Year 1	Year 2	Year 3
1	Processed meats	110	287	
2	Dressings and sauces	174	668	
3	Butter, margarine and spread fats	78	268	
4	Beverages and juices	469	529	287
5	Snacks			
	Sweet snacks	448	370	71
	Salty snacks	201	291	115
6	Breakfast cereals	163	161	80
7	Processed fruits and vegetables	123	203	
8	Milk and dairy products	337	235	200
9	Salted Bread	114	220	
10	Biscuits and cookies	193	183	
11	Cheese	204	195	
12	Soups and Pasta	70	70	
13	Tortillas and corn products	49	71	20
14	Beans and legumes	90	80	
	Total	2823	3831	773

### Further analysis:

Data of year one will be compared to data obtained by group for year two and three. Comparisons about main nutrient content, and type of label in each packaged food will be done. Data of prices collected in the fieldwork will be compared to prices and sales from Euromonitor database and estimate the average changes from one dataset to another, as a way of monitoring the shifts throughout time, and as a possible reaction of food producers to policy change (not only the tax and the labelling, but inflation generated by such changes).

## **Annex 4. Main Results of Interviews with Stakeholders**

### **Background**

In February 2014 a new labeling policy was published on a decree as part of the main actions outlined in the National Strategy to Prevent and Control Overweight, Obesity and Diabetes announced on October 2013 by the president. The decree became effective at the beginning of 2015 and includes the strategies described on the main document.

The front of package labeling format, size, font and main nutrients to be disclosed were decided by the COFEPRIS after a public consultancy with actors interested on the policy change. Several recommendations were submitted, including recommendations by the National Institute of Public Health, the National Academy of Medicine, and the National Institute of Nutrition Salvador Zuvirán, several consortiums and associations representing the food industry; and several non-governmental organizations.

However, the political process hasn't been well documented and the degree of participation and power of each actor on the process remains unknown. Also, the advantages and disadvantages perceived by the stakeholders involved have not been documented systematically to further understand the strengths and pitfalls of the regulation considering the Mexican context and actors.

We interviewed actors that could have an interest on this topic in order to describe their perceptions, knowledge, participation in the policy making and attitude towards the FOPL strategy. We included food industry members, policy makers, members of non-governmental organizations and academics and clinical experts on obesity. This paper presents the methodology and main findings of our research.

### **Objectives:**

To assess the influence and power of actors on the policy process, the perceived impact, challenges and opportunities of the FOP labeling regulation to address it as a policy to prevent and control obesity and diabetes.

## Methodology:

We used qualitative research by applying semi-structured interviews. Guidelines for conducting the interviews were developed and revised by the team. Key participants were contacted (via e-mail or phone calls) to get an appointment. Written informed consent approved by the National Institute of Public Health Ethics Committee was presented, and an advanced script of the main purpose of the interview was outlined before the appointment. Two researchers through October, November and December of 2015 applied the interviews. According to the main findings of the analysis a second set of interviews might be programmed for year 3.

Interviews were recorded and then transcribed verbatim by an external transcriber. An inductive thematic context analysis was defined *a priori* (Rabtree, 1992; Boyatzis, R. 1998), and considering four main themes:

1. Knowledge of the mandatory and voluntary FOP labeling strategies.
2. Participation on the design and implementation of the FOP labeling strategy.
3. Perceived influence and power of various stakeholders in the design and implementation of the strategy.
4. Perceived challenges and benefits of: a) compliance by industry, b) monitoring by the authorities, c) understanding by the consumers and d) main reactions of different stakeholders

For interviews, emerging themes were identified based on: a) the *a priori* themes described before, and b) the health policy analytical model proposed by Walt and Gilson (Buse et al., 2005) including: actors, context, content and process related to the main themes (point a). This approach was used due the importance of moving from only looking at the policy document itself, and go beyond by considering other dimensions in the policy, such as the process, the actors and the context into which the policy change was given. Table 1 describes the main themes defined.

For the complete analysis, themes relating to these categories are defined in the transcripts and coded. Some other themes emerged, and were redefined during the analytical process, as it is the nature of the iterative process that qualitative research implies. The exhaustive analysis was performed using the computer software NVivo 10 (2013).

**Table 1. Themes and categories for the thematic analysis**

<b>Health Policy Analytical Model</b> (Giles and Watson, 1994)	<b>Themes of the Topic Guide based on the categories defined</b>	<b>Comments</b>
Context, content and policy process	Knowledge of the mandatory and voluntary FOP labeling strategies and the aim of the FOPL policy.	<p><b>Context:</b> Describes what and how the political circumstances were at the moment of discussing the policy.d</p> <p><b>Content:</b> Denotes what is in the current regulation and why it is there.</p> <p><b>Policy process:</b> Indicates what the intention of the policy is and how it came into the agenda.</p>
Actors, policy process	<p>Participation on the design and implementation of the FOP labeling strategy.</p> <p>Perceived influence and power of various stakeholders in the design and implementation of the strategy.</p>	<p><b>Actors:</b> Describes who has participated in the design and implementation.</p> <p><b>Process:</b> Focuses on how is the policy process framed by the interviewers.</p>
Policy process, context and actors	Perceived challenges and benefits of: a) compliance by industry, b) understanding by the consumers and c) main reactions of different stakeholders.	<p><b>Process:</b> Perceived outcomes of the policy implemented</p> <p><b>Context:</b> Describes what and how the political circumstances around the implementation and monitoring of the strategy are.</p> <p><b>Actors:</b> Describes who has respond and how they have reacted after the implementation.</p>

**Definitions of the Health Policy Analytical Model (Walt and Gilson, 1994)**

- **Actors:** Actors are the center of the framework and are used to denote individuals or organizations that have influence in the policy process.
- **Process:** Refers to the way in which policies are initiated, developed or formulated, negotiated, communicated, implemented and evaluated. The most common approach to understanding policy processes is to use what is called the 'stages heuristic' (Sabatier and Jenkins-Smith 1993). How influence of actors has interacted and affected health policy.
- **Context:** The circumstances within which actors live and work. Context is affected by different factors such as instability or ideology, by history and culture.

- Content: The content of the policy reflects some of the aspects mentioned before (actors, process, context and content).

## Sample

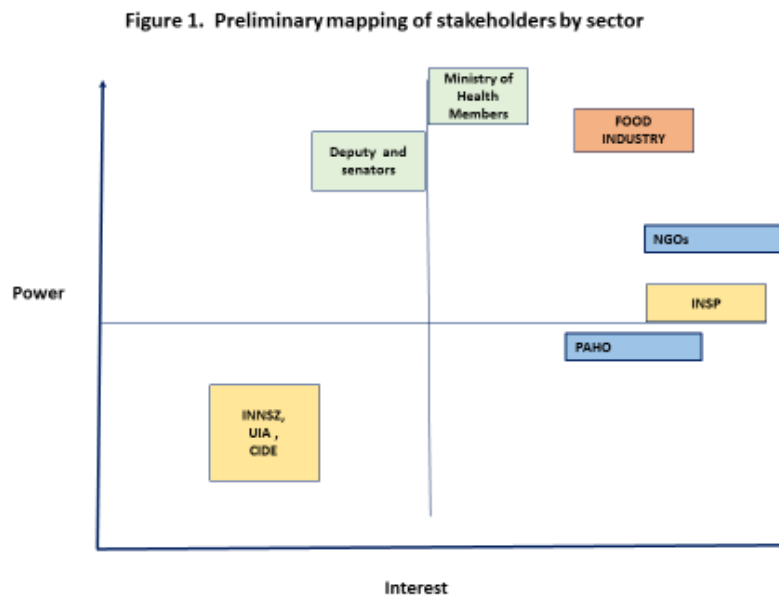
First, we conducted a stakeholder mapping, including all the actors that might be affected by the FOPL changes, and that could have been involved in the development of this policy change. This was made in order to identify stakeholders according to their power and their interest to execute policy, based two sources: a) documentary analyses based on media outputs, agency and corporative reports and declarations; and b) internal knowledge of the process as some of the experts on the topic are part of the research team. The mapping considers their potential interest and power on the FOP labeling policy (Figure 1). With this mapping, a purposive sample of 16 actors was selected. It considered four main type of actors: Non-governmental organizations, food industry actors, academia, and policy makers from both, the Ministry of Health (executive power), and two congressmen (legislative power).

Stakeholders interviewed were the following: a) two actors with high power in the Ministry of Health, b) one member of the food regulatory agency (COFEPRIS), c) four researchers at an academic institution, d) four members of the industry sector (large and medium/small industry), e) two members of the deputy and senator chambers, members of the health commission f) four members of the NGOs that were advocating for several food policy regulations at the time of the policy design and implementation (Table 2). Two members of the media (radio & newspaper) were unable to reach and the food regulatory agency member declined consent to record the interview, therefore this accounts were not considered in the analysis.

The sample frame was based on the first stakeholder mapping using a purposive approach, and a snowballing technique. Snowballing technique means that all the study subjects recruited refer on their acquaintance other actors. As the sample builds up, enough data with a maximum variation sampling (heterogeneous sampling) gains greater insights into a phenomenon, in this case the FOP labeling regulation. Saturation technique was used: recruitment of informants stopped when similar quotations began to emerge. The first set of interviews allowed us to fulfill the saturation technique, so no further recruitment was necessary, though one member of academia who was identified in the review of literature as being influential, was interviewed as the only missing stakeholder relevant to the analysis and was performed in October 2015.

All actors were invited to participate through a written e-mail and were contacted also by phone to arrange the date of the interview. Informed consent was obtained from participants after reading the Participant information sheet, before any interview. All materials were reviewed and approved by the Ethics Committee of the Instituto Nacional de Salud Pública.

Figure one shows the first mapping of the interviews drafted prior to the interviews and revised once the interviews were performed.



## Results

Table 2 summarizes the main findings according to the main three themes defined *a priori*, and provides some examples of the quotes emerging in the interviews. To protect the identity of the participants, the quotes are identified just by the type of institution the stakeholder represents: NOG= non-governmental organization, GOV= policy makers, AC= member of the academia

Stakeholders from different institutions mentioned they were aware of the policy, both the food industry members and the members of the NGOs recognize the regulatory proposal of the GDA-FOPL comes from the previous voluntary action by the food industry. Under this premise, the food industry members recognize they



were very supportive to the MoH, in promoting and advocating for their own proposal, as mentioned in table 2. However, some academics and members of the civil society, describe that such a close relationship between them, and the distant participation of the advocacy groups, resulted in a regulation that leads more to protect interests of large companies that protect the consumer with a more clear and simple labeling, since people do not understand it. Some “en vivo quotes” reflect on this argument are illustrated ahead:

“ I see there a serious conflict of interest, where the industry is the only one endorsing this FOPL system, the main guidelines must outlined by the Mexican’s Health authorities or the organizations in charge of promoting a healthy lifestyle for the population. “ (AC1)

“People do not know what they are eating, because you can say any percentage, even that 50% of a product is sugar and people do not understands what that implies for their health.” (AC1)

“ As we ( civil society) perceive it ( the FOPL system) is more inclined to protect the industry.” (NGO2)

Furthermore, the results shown in table two about the process and participation of actors in the criteria formulation, denote an active role of the food companies’ representatives on the process, while some declarations indicate no participation whatsoever of other members of the society in the policy formulation. Declarations by the policy makers de-antagonize findings about participation, and declared the participation was open to anyone, and a participatory approach of the policy design is the main discourse found. There is no information that denotes a negative connotation to the active participation of the food industry during the policy design, instead, government officials recognize the industry participation and the need to open participation to industry as “you cannot fight them.”(GOV3), you need to include them because they are a “legitimate business”.

E.g, I think it (the involvement of the industry) is necessary, [...] they are a legitimate business, but is not that they are your friends, but it is necessary to work with them.” (GOV1)

Additionally the policy makers’ self-perception is more as a mediator than as an authoritative entity in this particular policy. Some actors mentioned how the participation process in this policy was difficult, as the government didn’t give much time for participation, and designed very quickly the labelling proposal, mainly due

the constant pressure to have it ready and to avoid a big debate on it before it was formally published as a decree.

Regardless the position of the participants the main disadvantages perceived are that the design and information is only for people familiar with knowledge on nutrition and dietetics, and it seems useless for the general public unless it has some more material and a communication strategy that supports the FOPL system.

The main advantages perceived are that the regulation are that it is regcongnized as a step forward from self-regulation to regulation, and that giving information to the population is well accepted and perceived by the population, and some even mention that the logo might be helpful in making choices, but not the GDA-FOPL.

**Table 2. Summary of main findings**

Knowledge of the mandatory and voluntary FOPL	Participation on the design and implementation of the FOPL (perceived influence and power of stakeholders).	Perceived challenges and benefits of the FOP (e.g., understanding by the consumers, implications for the industry)
<ul style="list-style-type: none"> <li>The food industry members reported to be aware of the food labelling regulation and declared to have followed closely the regulatory process and how it was translated from a voluntary strategy to a regulation E.g. "The FOPLS started as a voluntary action, that was more effective [...] we proposed the GDA system and implemented it as a voluntary action." (IND 4). "The objective was to give information to consumers about the characteristics and nutritional content of foods [...] we already had our own proposal." (IND 3). "We took the EU Pledge as a reference and tried to adapt it to the Mexican population [...]." (IND3)</li> <li>Academics from three different institution declared there were not</li> </ul>	<ul style="list-style-type: none"> <li>Food industry members mentioned they were involved in the policy design. "I worked with Cofepris in debates about the criteria for food labeling as well as the classification of food groups." (IM3). "Seven food companies were involved" (IM3). "(The result) was a consensus of the entire industry, we gave our arguments about what should be changed." (IM4).</li> <li>Non-governmental actors have followed the process quite closely despite they haven't been involved. E.G. "The civil society was never consulted." (NGO, 2) "I understand there were people from (sweetened beverage company) and (food company )</li> </ul>	<ul style="list-style-type: none"> <li>Industry actors believe the FOPL regulation will not be useful by itself, since it is not easy to understand. The same argument was found among people from the academia and the NGOs. E.g. "This FOPL (the GDA) is very useful for someone who can interpret a diet, it is an accurate measure of the nutrients that can represent a public health risk, but if you don't understand how to manage a diet, you won't understand the labelling." (IND2) "The labeling will not help normal people because it is for specialists." (IND2).</li> <li>The FOPL nutrient criteria, font and format to be implemented is favorable for food industry as a marketing strategy to identify their products as healthier among other brands. E.g. "We have</li> </ul>

involved in the FOPL regulation, and some mentioned they have not engage closely on following it. E.g. “[...] I have attended some presentations about the National Strategy, but I don’t know much about the design or whenre they took it from” (AC1).

- Members of the NGOs informed that they know about both strategies, and have comments about the criteria used for the FOPL strategy, as the criteria are based on the EU Pledge, and industry proposal used in the European Union for marketing foods for children. “Nowadays, they (the government) are using the European Pledge, and this document has very lax criteria [...]” (NGO1). “The EU Pledge is a way of auto-regulation.” And “Sine 2010 we made public demands that the GDA system used voluntarily was not useful.” (NGO2)

involved.” (NGO2). “Cofepris was in charge of the process, it was not transparent, and civil society was not consulted.” (NGO2), and “We know that Cofepris didn’t have any meetings nor memorandums of this, and they told us that people who worked on the criteria were 3 Cofepris employees, with no experience on food labelling.” (NGO3)

- Academics believe that they don’t have any kind of influence in this policy, except for the generation of scientific information that could support the implementation of the strategy. “I understand that none of my colleagues at my institution, were invited even when we were invited before (to participate in other policies)” (AC3). “I don’t think we could influence this (the food labelling), it is very complex,

always advocate to modify the GDAs, which does not reflect the information that the population needs to understand... labelling must be more visible [...] more useful.” (NGO1) “This labeling does not favours the general population, no one understands it, [...], the true is we see this a little more inclined to favour the industry.” (NGO2). This label is advantageous for the producer if people can identify that your product is the best one of its category.” (IM2). “Products will be treated different, and if there is not a previous definition and classification of what is a family package, or what is a multi-package (...) it will be difficult.” (IND3). “They (the government) didn’t accepted the recommendations form (two academic institutions) nor the recommendations of

<ul style="list-style-type: none"> <li>• Policy makers mentioned the policy was evidence-based and on the EU Pledge, described as “The only existing recommendation” (GOV1), and that the “European values were adjusted for the case of Mexico [...] and it has been criticized particularly on the sugar cut –off.” (GOV2). Others state it was the result of the pressure and previous proposals by the food industry “It was made out of pressure and the previous marketing campaign of “Checka y elige” from the food industry” (GOV3). They also argue that “There is not official recommendation for added sugar limit, and that should come from the WHO or PAHO”(GOV1)</li> </ul>	<p>but research could be powerful” (AC2).</p> <ul style="list-style-type: none"> <li>• People from NGOs mentioned they made public recommendations but were not called to participate with the MoH . E.g. “We asked policymakers to modify the GDA (system) and replace it for a labeling tool that could be clearer and useful for the general population such as the traffic light.” (NGO1) “It was a process that was not cristal-clear, the civil society was never consulted, no participation of the specialized institutes was considered. “ (NGO2)</li> <li>• Policy makers recognize their power to design policies, but argue constantly the approach to design the policy had a participatory approach, open to everyone. They recognizes food industry is needed as partner in the policy formulation. “We invited everyone whom we knew were working on related topics to participate.” (GOV1). “We are the</li> </ul>	<p>international organizations nor expert groups.” (NGO 1).</p> <ul style="list-style-type: none"> <li>• People from non-governmental organizations, as well as some industry members believe this strategy favours the food industry. E.g. “This labelling is very misleading and can induce to a higher consumption of sugar. The stamp has very lax criteria and contradictory because some products with tax, meet the criteria for the stamp.” (NGO3), and “ It has two main huge disadvantages, the firs one is that the criteria are not well defined, and seem arbitrary, not event eh MoH has clarity about them; and the FOPL is not selfexplanatory.” (NGO4)</li> <li>• The academics main point of view, is that there are many other determinants that this strategy is leaving behind and it ignores</li> </ul>
---	---	---

	<p>Mexican State, and we have the authority here.” (GOV1)</p> <ul style="list-style-type: none"> <li>• Food industry representatives’ discourses show a strong belief that their companies have and could have influence in promotion the FOPL on the media, that they need the strategy to promote their products, and that they will help with education campaigns to promote healthy diets. “Front of package was originally a voluntary strategy for us to promote the topic.”(IND1)</li> </ul>	<p>people real needs, reason why they think the strategy won’t be enough to change people’s consuming habits. “ (labelling strategy) is a very sophisticated effort, but it does not address the issue (of informing people) and wont stop a person from eating certain foods.” (AC1) “It only gives information and, giving information does not translates in knowledge.” (AC1)</p> <ul style="list-style-type: none"> <li>• Policy actors believe it is very important to consider all actors in the process of policy making and mention the criteria are open to be modified. Evaluation will be needed to identify if it is working. “If the criteria are bad, they can be adjusted.” (GOV1). “ I think we need to evaluate it when it has enough time of implementation.” (GOV1). “The traffic light has been implemented in other countries but has not been</li> </ul>
--	---	---

implemented in Mexico due to lack of consensus”(GOV4).

- All actors find that the main advantages are the fact that the FOPL is regulated and that it is a well perceived norm. “The main advantage is that the information i son the product and it is well perceived by the society.” (NGO2). “To give some credit to the MoH the voluntary logo accompanied by the GDA-FOPL will help consumers to identify which products are better.” (AC3) “It is a step forward to go from self-regulation to regulation.” (NGO1)
- Members from the food industry mention that it will be useful for nutrition expert and health workers as a tool for health literacy. E.g. “The new labeling has per package specifications, so it is easier to verify nutritional content between products, but it is not addressed to the general population, is mainly for health professionals.” (IND1).

### ***Main reactions of different stakeholders***

- All of the actors approve this policy, arguing it was an urgent matter and that they are open to collaborate with the government.
- Food industry members supported reformulation, consistent with international literature.
- The food industry believes that in order to be effective the policy needs to be aligned with other food policies such as the School Food Guidelines proposed last year (2013). According to this sector the idea is to encourage the consumption of healthier foods, and mentioned that they should be based on evidence: “...all this must part from scientific evidence and with this they should give one single guideline, otherwise is quite difficult to decide under which requirements you can reformulate a product...” (FI2).
- Members of the academia mentioned they would like to be involved closely to the policy design and implementation. They need a call from the authorities to support, but that has not been the case for this matter.
- For academics an important issue is the proposal of the FOPL strategy is evaluated before its implementation, though it was not the case for this strategy. They recognize the FOPL policy represent a progress in tackling obesity, they think “...it is important to consider that obesity, recognized as a public health issue, is also part of deeper social, economic and educational problems, including inequalities prevalent everywhere” (RS1).
- Ministry of Health members mentioned the FOPL strategy success depends on the involvement of all sectors, on inviting the civil society to observe and evaluate the implementation of the strategy, and on the support given to the strategy with other complementary educational campaigns.
- According to the MoH members, for the strategy to be successful in tackling obesity, it needs to be institutionalized. According to one informer, the instrumentation and the results obtained after 5 years of implementation will determinate its success.
- Non-governmental organization actors showed to maintain a conciliating posture between the civil society and the government in order to improve the legislations on food, including FOPL. They said their principal task is to include the topic on the agenda and to continue to advocate for the improvement of the FOPL strategy. Statements showed the idea that the FOPL strategy won't be effective if the nutritional criteria approved is not modified: “...it (the label) should be simpler. They suggest many products should carry a warning label to advise the consumer about the excessive consumption. “...obviously the design (of the label) must have a midpoint taking into account that sometimes it is complicated for the food industry to implement certain kind of graphics in their packages...” (NGO2).



- Finally, most of the actors interviewed mentioned that there is need for other policies to support the FOPL because this alone won't change populations' behaviors when selecting foods.

## **Conclusions**

In this report we outline the main discourses of the different stakeholders involved in the policy design and implementation of the FOPL strategy in Mexico. It reflects the personal and institutional discourses and views about the strategy. Some arguments are divergent among same type of actors, and within them, and some arguments are recurrent among most actors despite their position. First, the polarized arguments were related to: a) the actors involved in its design; and b) the idea of unclearness among industry, academia and civil society members. Secondly, the main convergent and recurrent arguments included: a) the need of policies to address the obesity issue, such as the FOPL initiative, b) the negative speculations about the effectiveness of it to help consumers understand better what they eat, c) the need of convergent food policies to support this one, as well as alignment with other policies; and d) the importance of transparency when implementing it and of monitoring how it is implemented.

All actors reflect a positive motivation to participate on the FOPL strategy implementation, if the MoH calls for action. The NGOs recognize their role as advocates for a better system, academia recognizes itself as a point of reference for evaluation and evidence based tactics to improve its impact, the food industry supports this strategy not only by saying it will help consumers but that this will shift the market and will have marketing benefits, and the authorities of the MoH reaffirm their will to continue this initiative by involving all the actors, including the civil society and the food industry.