

NUTRITION FACTS PANELS

A Case Report for *Getting Tools Used*

English	French	% Daily Value / % valeur quotidienne
Calories	Calories	220
Total Fat 3 g*	Saturés 1 g	5 %
Saturated 0 g	Trans 0 g	5 %
Polyunsaturated 0.8 g	Oméga-6 0.8 g	7 %
Omega-6 0.8 g	Oméga-3 0 g	9 %
Monounsaturated 0.8 g	Cholestérol 0 mg	0 %
Cholesterol 0 mg	Sodium 55 mg	2 %
Sodium 55 mg	Glucides 42 g	14 %
Carbohydrates 42 g	Fibres 13 g	16 %
Fibres 13 g	Protéines 6 g	

NOTE: THIS IS ONLY A PORTION OF THE GETTING TOOLS USED RESEARCH REPORT. FOR THE FULL DOCUMENT AND OTHER INFORMATION VISIT WWW.CFAH.ORG.

Table of Contents

Foreword by Jessie Gruman.....	1
Executive Summary.....	3
About CFAH.....	7
Table of Contents.....	8
Introduction: 21 st Century Marketplace.....	9
Research Framework.....	17
Case Studies.....	25
<i>Consumer Reports: Car Buying Guide</i>	25
eBay.....	65
FDA Nutrition Fact Panels.....	113
<i>U.S. News and World Report: America's Best Colleges</i>	163
Case Study Commentaries.....	209
Margaret Holmes-Rovner, PhD.....	209
David E. Kanouse, PhD.....	225
Stephen Parente, PhD.....	239
Dale Shaller, MPA.....	250
Shoshanna Sofaer, DrPH.....	263
Lessons Learned: Key Variables of Success.....	275
Advancing Healthcare Decision Aids.....	293
Getting Tools Used Research Team Biographies.....	311
Acknowledgements.....	317

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Table of Contents

Background	116
Sponsor	116
Business Model for NFPs.....	116
Historic Milestones for NFP.....	117
Consumers’ Decision Making on Food Products	117
Federal Objectives for the Nutrition Facts Panel.....	119
Audience and Use	119
Current Use.....	120
Descriptions of Users	122
Descriptions of Nonusers.....	122
Resources	11
Nutrition Labeling Requirements.....	123
Nutrition Labeling Education	124
Oversight and Enforcement.....	125
Other Resources	126
Constraints.....	127
Federal Policy Constraints.....	127
Constraints Requiring Tradeoffs.....	128
Barriers	129
Historic Barriers	129
Facilitators.....	130
Tool Design.....	130
Tool Description	131
Visual Design.....	131
Figure 1. Nutrition Facts Panel for Illustration	132
Information Elements (“Nutritional Declarations”).....	132
Strategies to Reduce Consumer Confusion or Misinterpretation.....	134
Updating	134
Marketing, Promotion and Dissemination	135
Positioning, Placement and Pricing.....	135
Consumer Awareness and Labeling Education Programs	135
Testing and Evaluation.....	137
Data Sources and Measures.....	137
Use of Data	139
Pre-Regulation Format Testing.....	139
Impact on Consumer Behaviors	139
Impact on Food Industry	141

Observations by Insiders143
Observations by Outsiders 144
Appendix A. Key Informants 146
Appendix B. Other History Notes147
Endnotes 148

Background

The Nutrition Facts Panel (NFP) – the box titled “Nutrition Facts” on packaged foods – is the focus of this case study. Across the U.S., NFPs appear on most food processed products found in grocery stores, as required under the federal Nutrition Labeling and Education Act of 1990 (NLEA).

NFPs are the cornerstone of what is called “nutrition labeling.” Other nutrition labeling components are health claims and nutrient content claims, both of which are based on criteria tied to NFP nutrient declarations.

NFPs do *not* include the ingredient listing, producer and distributor information, expiration dates or UPC codes. Food labeling (using such FDA-defined terms as “high fiber,” “low sodium” or “light”) and health claims about a nutrient-disease relationship (such as fat and cancer) are not part of a NFP.

Widespread placement contributes to the majority of American adults (about 60 percent) using NFPs at least occasionally to inform their decisions about food purchases and consumption. Thus, NFPs are a consumer information tool with national scope and scale.

Sponsor

NLEA strengthened the legal authority of the Food and Drug Administration (FDA), U.S. Department of Health and Human Services (HHS), to regulate nutrition labeling for all FDA-regulated processed, packaged foods.¹ FDA is primarily a regulatory agency.

The Food Safety and Inspection Service (FSIS), U.S. Department of Agriculture (USDA) is responsible for parallel labeling regulations for meat and poultry.

Business Model for NFPs

The 1990 NLEA explicitly authorized and instructed FDA to establish a regulatory system that requires food manufacturers to develop and print NFPs on most processed food products. FDA also has authority to enforce the regulations. Each year, Congress appropriates funding to FDA for nutrition labeling oversight. FDA *and* other federal agencies also receive some funding to monitor and research consumer label use, update dietary guidelines, and educate consumers and industry.

Historic Milestones for NFP

- 1974 Federal agencies begin encouraging voluntary nutrition labeling as a way to address nutrient deficiencies; labels became mandatory for products with added nutrients or with nutrient claims.^{ii, iii}
- 1984 FDA adds sodium as a mandatory labeling element; potassium becomes a voluntary element.
- 1988 The Center for Science in the Public Interest convenes an advocacy coalition of health and consumer groups to push for food labeling reform.^{iv}
- 1990 In July FDA proposes a mandatory nutrition labeling system based on existing authorities. In November the first President Bush signed the NLEA into law. Congress incorporated much of the FDA's proposed regulations in crafting the legislation. (See Resources section)
- 1993 New (revised) federal regulations require nearly all processed foods to have nutrition labeling in accordance with new federal standards. Companies had until mid-1994 to comply.^v
- 2003 FDA adds trans fatty acids as a mandatory NFP listing.

Additional background about forces leading up to the NLEA enactment is in Appendix B. Highlights include growing public awareness and knowledge about the role of diet and specific nutrients in their health, expansion of health claims on food products and changes in consumer demand, advocacy by health and consumer groups, and a rise in state efforts to keep food manufacturers from making inappropriate claims.

Consumers' Decision Making on Food Products

Food is a basic necessity. On a weekly basis, if not more frequently, Americans make decisions in selecting and buying many different food products. Most foods are also experience goods in which fully assessing quality requires consumption.

Although the per item cost is often relatively modest, a few dollars or even less, groceries average about 7 percent of U.S. household annual aggregate expenditures, which is just slightly more than is spent on food away from home (6 percent).^{vi} Consumer decision making about food purchases has evolved since the 1970s because of growing awareness of the connections between nutrition, diet and health.^{vii, viii}

When consumers shop for food, they make a set of decisions often in just a few seconds.^{ix} The context is often a supermarket; other shopping venues include convenience and discount stores, farmers markets and online grocery sites, among others. Food selection, especially non-routine items, may entail decisions like these.

- Decide to look for a food item or consider one when passing by a display
- Scan shelf and decide which, if any, items to pick up
- Decide whether to put an item in the cart or to first look at price, nutrition or other labeling information (such as photography, ingredient list, preparation instructions)
- Decide what parts, if any, to read on the NFP or other label information
- Decide whether to consider price, NFP information or other labeling information in their selection decision
- Decide whether to buy that item, compare it to another product or not buy it at all

Nutritional value is only one factor in the complex decision-making that occurs with choosing food. Four factors typically influence consumers' decisions about which food products to buy: price, taste, convenience and nutritional value.^{x, xi, xii, xiii} In the International Food Information Council Foundation's 2008 national survey, 54 percent of respondents said taste has a "great impact" on their food and beverage purchasing, followed by 41 percent describing price as having a great impact, healthfulness with 29 percent, and 27 percent with convenience.^{xiv} The interplay of these factors varies by food item. (For example, taste may drive a candy bar purchase, without consideration of nutritional content.)

Among these four factors, consumers are dependent on external sources to inform them about nutritional quality. The International Food Information Council Foundation's research suggests consumers use a wide variety of information to assess nutritional value or healthfulness. Information on the NFP, when considered, is often just a small part of the information that consumers process. They also consider other information on the label and make health-related inferences about packaging and placement.^{xv}

Additional factors influencing food selection can include:

- Past food and market experiences that inform shopping decisions. For example, NFP use may be minimal for routine purchases.
- Brand preference.
- Context, such as the aromas a consumer smells while shopping and amount of time since the prior meal.
- External information sources, such as advertising, nutrition labeling, guidance from health professionals, health organization publications and Web sites, government education programs and general coverage of food, health and diet topics in mainstream media.^{xvi, xvii,}

^{xviii, xix, xx, xxi}

Consumers' personal characteristics influence information search and consideration. Nutrition knowledge is also an influence on food choice and consumption.^{xxii} Gender, education and health-related concerns are established factors in label use (see Audience and Use section).

Federal Objectives for the Nutrition Facts Panel

The 1993 nutrition labeling regulations, in the words of David Kessler, M.D., then-FDA Commissioner, sought to “help millions of Americans make more informed, healthier food choices.”^{xxiii} With a uniform presentation, NFPs would make it quick and easy for consumers to effectively consider nutrition content in their food purchasing. A secondary federal objective was to leverage market forces so manufacturers would “improve the nutritional quality of their products,” according to then-FSIS administrator H. Russell Cross.^{xxiv}

Consumer advocates and the broader public health community heralded the prospect of nutrition labeling requirements. Excitement levels were high because consumers would finally have readily available information to help them make healthy food choices. (Prior to the nutrition labeling mandate, information about calories and fat, for example, were scarce.)^{xxv}

The vision was for nutrition labeling, consumer education and industry changes to reduce the prevalence of chronic disease and allergic reactions to foods.^{xxvi}

Audience and Use

Adult consumers are the intended audience for NFPs, with adolescents as a secondary audience. Taylor and Wilkening (2008) describe FDA as focusing labeling requirements on “information needed by the *general* population to follow *general* dietary recommendations,” which was in keeping with NLEA.^{xxvii} Inside the agency, the focus was slightly more targeted.^{xxviii} Ed Scarbrough, then-acting director of FDA’s Office of Nutrition and Food Sciences was quoted in *Dairy Foods* (1990) as saying:

There are three groups of consumers. We have information seekers, a group that represents 15 percent to 20 percent of the buying public and one that is growing. Then we have the people who couldn't care less, about 10 percent to 15 percent. Finally, we have the group in the middle, people who are interested in the label but who are somewhat confused. We are targeted toward that group.^{xxix}

Because the NFP is free and printed on most processed, packaged foods, consumers of all incomes can access NFPs. The primary cost to consumers, assuming they have literacy and some numeracy skills, is their time to find and read NFPs and apply that information to their food choice.^{xxx}

Current Use

Americans are familiar with NFPs, which appear on virtually all FDA-regulated food products.^{xxxi, xxxii, xxxiii, xxxiv} Further, most American adults use NFPs when shopping occasionally or a more frequent basis.^{xxxv, xxxvi}

In the decade since NFPs appeared on all FDA-regulated food, overall NFP use has tapered off slightly, but significantly, by 3 percent, according to a USDA Economic Research Service analysis using national surveillance datasets. Specifically, although the vast majority of Americans use NFPs, consumers who always/often and sometimes use NFPs declined from 65 percent in 1995-96 to 62 percent in 2005-06. About one in four Americans (27 percent) report they never use NFPs, a rise of 5 percentage points from the baseline survey.^{xxxvii} This 10-year analysis indicates use of NFP serving-size data declined by 9 percent. Consumers today also reported less use of calories, fat, cholesterol and sodium compared to a decade ago. Use of NFP information on fiber increased slightly by 2 percent.^{xxxviii}

In FDA's 2002 Health and Diet Survey, 51 percent of American adults said they had changed a decision to buy or use a food product after reading the nutrition label (broadly defined) in the prior two weeks. Slightly more, 59 percent, indicated they often used "food product labels" in the store or at home primarily for checking calories, salt, vitamin or fat levels. Uses that were less common, but still reported by 44 percent of more of respondents, were for these purposes.

- Get a general idea of nutritional content in the product
- Look for an ingredient that s/he or a family member should avoid
- Compare different food items with each other
- Decide which brand of a particular food item to buy^{xxxix}

These findings mirror other survey research.

- In a 2002 national FDA panel, 69 percent of respondents said they used food labels often or sometimes the first time they bought a food product.^{xi}
- In a 2004 national survey of adults who buy their households' food, 53 percent of respondents said they consistently used NFP information.^{xii}

Descriptions of Users

Groups with a relatively high use rate for nutrition labels are older people, women and people with more education, special dietary needs, or health and nutrition concerns. Studies have produced irregular findings on the influence of age, income, employment and household size and type.^{lxiv, lxv, lxvi, lxvii, lxviii, lxix}

Across demographic groups, research suggests other characteristics influence label use.

- *Nutrition Knowledge.* A couple of studies, including one with Latinas, suggest low-knowledge consumers are less likely to use nutrition labels than people with higher levels.^{lxx, lxxi, lxxii} In contrast, a regional survey of grocery shoppers by Nayga et al (1998) found nutrition knowledge had no significant effect on label use.^{lxxiii} Nutrition knowledge affects consumers' ability to correctly use NFP information.^{lxxiv, lxxv}
- *Motivation to search for and process nutrition information.* Consumers who perceive the information as being useful are more likely than others to use nutrition labels.^{lxxvi} In a small laboratory study, high-motivation shoppers used NFP information, while low-motivation consumers depended on brand and nutrition claims.^{lxxvii} Other studies have found label users tend to be consumers that consider nutrition important.^{lxxviii, lxxix}
- *Numeracy skills and ability to apply nutrition information when choosing foods.* Studies have found many consumers are unable to perform tasks using math skills to apply NFP information.^{lxxx, lxxxi, lxxxii, lxxxiii}
- *Length of grocery shopping visit.* As shopping time increases, label use also tends to rise.^{lxxxiv, lxxxv}

Descriptions of Nonusers

Consumers who do not use regularly NFPs are people who have low literacy or numeracy skills, limited English skills or little interest in health and nutrition. Compared to people with higher incomes, lower income Americans have lower nutritional literacy levels.^{lxxxvi}

The recent Economic Research Service analysis indicates NFP use is disproportionately low for young adults (20-29 years), people with no postsecondary education and predominantly Spanish-speaking consumers. Further, current young adults use nutrition label information 10 percent less than young adults in the mid-1990s. Both young adults and recent immigrants had limited or no exposure to the public awareness campaigns occurring when NFPs became mandatory.^{lxxxvii}

Potential factors in declining young adult use may include:

- The cohort's tendency to frequently eat out or rely on convenience foods at home more than young adults did in the past.
- Preference for online and mobile sources of nutrition information. Web sites like CalorieKing.com offer a comprehensive set of tools that help users manage weight. The tools enable users to obtain information on foods eaten outside the home, look up calorie information for a product based on the FDA serving size or the container size, and track diet and exercise.
- Other label information, such as organic claims and origin, capturing their attention.
- The influence of their social networks that have a pattern of low NFP use. Studies suggest correlations between social networks and obesity and tobacco use in adults.^{lxxxviii, lxxxix}

Resources

In developing and implementing a nutrition labeling system, FDA had clear statutory authority and varying levels of funding and of leadership support from federal policy makers.

Nutrition Labeling Requirements

NLEA renewed FDA's regulatory authorities over food labeling by:

- Mandating that all processed foods regulated by FDA have nutrition labeling.
- Permitting truthful health and nutrition content claims on product labels subject to FDA requirements.

These authorities enable FDA to periodically adjust the NFP as new research and information warrant as long as the changes fit with detailed NLEA parameters.

The first President Bush directed USDA, though not subject to NLEA, to voluntarily issue parallel regulations for meat and poultry under its existing authorities. He wanted consistency for food manufacturers and consumers regardless of agency jurisdiction. The FDA/USDA coordination expanded the range of food products on which consumers could expect to find nutrition information. The two federal departments worked out many design issues through discussions, but did need the president to resolve an impasse over whether to base daily values on a 2,000-calorie diet (FDA/HHS) or the amount of the recommended nutrient and let consumers calculate their own actual daily caloric intake (USDA). The president personally mediated a departmental compromise on what is now the NFP footnote (see Tool Design).^{xc, xci}

To enable FDA to develop the new nutrition labeling regulatory system, Congress appropriated some additional staffing and budgetary resources to FDA. Even with this supplement, the agency had to draw on laboratory and regional staff in order to meet the short timeline in NLEA. More than 200 full-time equivalent employees contributed to the nutrition labeling regulations. Contractors helped organize public comments and another firm, Greenfield Belser Ltd., assisted with graphic design.^{xcii} In addition, Kessler provided considerable internal and external leadership.

Fiscal and staffing resources for the FDA Office of Nutritional Products, Labeling and Dietary Supplements declined between 1997 and 2007, according to a Government Accountability Office report in 2008.¹ The FDA Office of Nutritional Products, Labeling and Dietary Supplements in 2007 had an \$8.2 million budget and 65 full-time equivalent staff, down from a peak of \$10 million and 88 full-time equivalents.^{xciii} During this time, the office's workload grew with new programmatic and regulatory responsibilities.^{xciv} In 2007, the section responsible for food labeling had a \$1.3 million budget and 10.5 full-time equivalent staff.^{xcv} Based on its resource analysis, the Government Accountability Office concluded that FDA's fiscal, budget, science base and information management infrastructure for food safety and food labeling is inadequate. It suggested that with additional statutory authorities (such as requiring companies to pay a re-inspection fee), FDA could strengthen food oversight.^{xcvi}

FDA has a small amount of funding (much less than \$500,000 per year) for ongoing consumer research on NFP use. These funds primarily enable the agency to monitor nutrition labeling use, but are insufficient to conduct extensive consumer research or to widely explore NFP alternatives.^{xcvii}

Nutrition Labeling Education

NLEA also directed the Secretary of Health and Human Services to educate consumers about nutrition labels. However, Congress appropriated only a small amount of initial funding, which many considered inadequate.^{xcviii, xcix} Two former FDA officials, Taylor and Wilkening (2008), indicate that "virtually nonexistent funding" stymied the reach of consumer education programs.^c

Under Kessler's leadership, FDA publicized the rulemaking process with the intent of simultaneously educating the public about the forthcoming new labels through earned media coverage. Consumers started becoming familiar with the overall NFP visual and learned they could expect to see it on most grocery store items and would be able to use the NFP

¹ The Office of Nutritional Products, Labeling and Dietary Supplements is responsible for developing policy and regulations, including scientific evaluations, for dietary supplements, nutrition labeling and food standards. It does not conduct inspections or enforcement activities.

information to aid shopping.^{ci} Also, coverage of health, diet and nutrition issues in the mainstream media helped get Americans ready to use the NFP (see Appendix B).

In subsequent years, Congress did not renew the labeling-education funding. FDA continues to leverage its relationships with other federal and state agencies to incorporate labeling into nutrition education programs. The agency also encourages labeling education in industry, public health and disease management education initiatives.^{cii, ciii} (Congress has increased spending on Food Stamp Nutrition Education, one of several federal programs in which labeling education as a component.^{civ})

Oversight and Enforcement

Because of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, domestic and foreign facilities that manufacture, process, pack or hold food for U.S. consumption must register with the FDA. Companies that plan to import food must file a “prior notice” with FDA.

FDA has the authority to conduct food labeling inspections and testing and to undertake enforcement actions for false or misleading labeling. The main deterrent is the threat of criminal prosecution with related potential penalties of fines, imprisonment or both. Seizures, injunctions and import refusal are additional enforcement actions.^{cv, cvi}

The FDA Office of Regulatory Affairs is responsible for inspections and enforcement of food safety and labeling requirements. Commonly used oversight tools are requests for voluntary recalls; “untitled letters,” which are informal notices that the company needs to correct its labeling; and warning letters of potential enforcement actions if violations continue.^{cvii} In 1994 and 1996, Kessler had FDA officials test a randomized sample of 300 food products for nutrition labeling compliance and accuracy. The samples indicated about 90 percent of nutrients had accurate listings.^{cviii, cix}

Manufacturers have wide discretion in how they determine the nutrition labeling information (such as whether to do it in-house or outsource it to a laboratory). Their “reporting” is the nutrition labeling information that they print on food packaging.^{cx}

Most food companies have been careful to comply with nutrition labeling requirements. They have paid for expensive assay tests. To minimize nutrient variation, which naturally occurs, companies have standardized recipes, and some have also taken steps to homogenize ingredient sources. Their motivation? First, companies want consumers to trust the information on their packaging and to avoid negative publicity that could accompany FDA

enforcement actions. They also are wary that competitors could bring noncompliant labeling to FDA's attention.^{cxix}

FDA inspectors focus first on food safety and secondarily on food labeling compliance. The agency currently only tests a targeted set of foods for nutrition labeling accuracy; the targets are product lines and companies that have a history of noncompliance.^{cxii} Between 2000 and 2006, FDA tested 1,651 food samples, of which 24 percent had nutrition labeling violations; common problems were failure to meet health or nutrient content claim standards or noncompliance with nutrition information format and content requirements. In its 2008 report, the Government Accountability Office characterized the testing of products for accuracy and compliance as "limited." It also suggests not all violations received follow-up attention.^{cxiii}

The Government Accountability Office described FDA expenditures for food oversight (both safety and labeling compliance) as falling short of the growing number of food companies, addition of new food products and changes in public consumption. The Center for Science in the Public Interest reports that FDA had only four people assigned to identify and stop deceptive food labeling in 2006. Both sources indicate that as the number of full-time equivalent staff declined, a similar decrease occurred in FDA food-labeling enforcement actions.^{cxiv, cxv}

Other Resources

Prior history was another resource used to design the NFP. Based on the pre-NLAA experience with voluntary labeling, FDA recognized several problems and attempted to resolve them in the new mandatory system. These lessons included:

- Consumer confusion and misunderstanding about nutrient measures. (For example, some consumers interpreted a food with 250 milligrams sodium per serving as having more than another food with 2 grams per serving.) In contrast, consumers made fewer errors with some listings in the voluntary labels that presented nutritional content as percentages of U.S. recommended daily allowances.^{cxvi, cxvii}
- Inconsistent serving sizes hampered product comparisons and made it easier for companies to mislead consumers.^{cxviii}

Constraints

Revamping the nation's nutrition labeling system was a complex, laborious task (for example, FDA published more than 4,000 pages in the *Federal Register*). Over a six-year period, which began before enactment of the NLEA, FDA made thousands of difficult decisions that:

- Grounded labeling regulations in available scientific evidence and consensus reports. (For example, FDA had to set a quantitative amount of each nutrient for the daily value that corresponds with the diverse nutritional needs of Americans ages four and older. With minimal precedent, the agency also had to establish serving sizes for products in 139 categories.)
- Complied with the detailed NLEA and other federal policy, including the Dietary Supplement Act of 1992 in which Congress temporarily barred FDA from issuing new recommended-daily-allowances regulations.
- Were mindful of the burden on industry, yet tried to anticipate how companies might manipulate the new system in ways that would confuse or mislead consumers.
- Carefully connected decisions to develop an integrated labeling system.
- Considered consumers' needs, abilities, preferences and behaviors.^{cxix, cxx, cxxi}

Burkey Belser, the graphic designer of the NFP, described many challenges that made the design process quite difficult.

- A significant portion of Americans have low literacy levels, English as a second language or visual impairments.
- Some companies use label papers that could blur small print.
- The tested symbols and pie charts were inadequate because consumers had different interpretations of symbols (a rising vs. a setting sun), visual acuity and geometry skills to understand pie charts.
- Spatial limits of a few square inches.^{cxxii, cxxiii}

Federal Policy Constraints

In recent years, FDA leaders have been focused on food safety and also have faced pressure to address problems with the agency's oversight of pharmaceuticals. Nutrition labeling and consumer use appear to be less of a priority.^{cxxiv}

FDA decisions had to comply with many NLEA requirements. For example, the law identified which nutrients to list in the NFP. It also established the goal of providing the public with information about a product in the context of total daily diet, thereby sidestepping alternative foci of therapeutic labeling or labeling to support individual dietary recommendations. It also

set a very tight deadline for FDA development of the regulations, which if not met, would establish FDA's initial 1991 proposal as the final rule.^{cxxv, cxxvi, cxxvii}

NLEA generally maintained FDA's jurisdiction over processed foods. Several food categories are not subject to nutrition labeling requirements: foods sold for immediate consumption or prepared on site as ready-to-eat, alcoholic beverages, therapeutic foods and foods that have no or trace nutrient contents, such as coffee or spices. Although USDA has jurisdiction for meat and poultry, FDA has a voluntary program for fish and best-selling meat cuts.^{cxxviii} Fresh produce is also exempt from the mandate but encouraged to participate in FDA's voluntary labeling program.^{cxxix, cxxx}

NLEA did not change oversight of food advertising, which the Federal Trade Commission controls. Thus, FDA is unable to regulate nutrition information in food advertising, a key source of information for consumers.^{cxxxi}

Because NLEA was prescriptive about the new labeling requirements, FDA has had limited discretion in the ways it can update or even redesign the nutrition-labeling approach and system. Any major revision in the mandatory disclosure of nutrition content would likely require an act of Congress. This may be one factor in why there have been few changes to the NFP.^{cxxxii}

FDA and USDA had to adhere to federal rulemaking procedures in developing and finalizing the labeling regulations; further, the regulations had to be very detailed (such as providing chemical definitions of nutrients). The agency received 40,000 written comments.^{cxxxiii, cxxxiv}

Constraints Requiring Tradeoffs

In the design phase, FDA made many tradeoffs for what became a complex nutrition labeling system. Belser recalls that "The FDA indicated to me that their first goal was manufacturer/consumer acceptance; their second goal, policing."^{cxxxv} Additional tradeoffs included attempts to balance:

- The amount of information on the NFP with:
- Consumer willingness and ability to consider a large information set.
- Space constraints on many food labels.
- The agency attempted to address these tradeoffs by keeping NFP information elements to only the essential.^{cxxxvi}
- Giving consumers a uniform NFP visual design and yet reasonably accommodating manufacturers who have a wide assortment of products and packaging types. As a result, the agency developed alternate NFP formats for foods with small packaging, food labels

with minimal space, variety-pack foods and products that require additional preparation, such as dry cake mixes.^{cxxxvii}

In the implementation phase, FDA reports a primary challenge is balancing its limited resources for direct investigative activities (for food safety and labeling compliance) against the time and effort required to collect, effectively manage and routinely analyze investigative and compliance data. The Government Accountability Office has recommended several initiatives to strengthen FDA's information systems, which it describes as essential to making risk-based decisions, including resource allocation.^{cxxxviii}

Barriers

Possible explanations for the small decline in NFP use between 1995-96 and 2005-06 (see Audience and Use section), as identified by USDA analysts and others, may include:

- Nutrition information in NFP is difficult to correctly use even for adults with literacy and numeracy skills; thus, consumers are less likely to use NFP information when they perceive the time and effort costs to use it are less than the potential benefits of use.
- Consumers now have more sources of nutrition information, including Internet-based sources.
- The growing volume of information about diet and health may overwhelm and frustrate Americans, especially if the messages appear conflicting. They may be unsure of how to assess the relative reliability or importance of different messages.
- Advocacy groups and the mainstream media can influence what labeling information, such as country of origin, consumers seek and consider.^{cxxxix, cxi, cxli, cxlii, cxliii}

Since the early 1990s, Americans have been eating more foods outside the home. Without regulatory authority over restaurant foods, FDA has had to persuade industry leaders to voluntarily develop point-of-sale information about nutrient content.^{cxliv}

Historic Barriers

Developing the new labeling requirements would have been a significant challenge to any organization. FDA estimated nutrition labeling compliance would cost the food industry \$1.4 to \$2.3 billion in the first 20 years. To soften the economic impact, FDA delayed the compliance date by nearly 15 months.^{cxlv}

An equal or greater challenge for federal agencies was educating consumers how to find and use the new label.^{cxlvi} Nutrition label use depended on consumer confidence that the

information is factual or reliable. FDA officials and others also believed consumers needed some basic guidance to get started using the nutrition label information. The agency knew developing the nutrition label was just the beginning: public education and active FDA enforcement could not be shortchanged.^{cxlvii, cxlviii, cxlix}

The science base of nutrition and health sciences is always evolving. FDA sometimes faced a lack of scientific consensus. This occurred with the definition of “complex carbohydrates,” which are not part of NFP, and also with standardized serving sizes, which FDA had to create.^{cl}

Facilitators

Formative data and expert opinion suggest consumers perceive NFP information to be accurate and trustworthy. Consumers also may view the NFP requirement as curbing manufacturers from making inappropriate claims. The NFP visual design looks official, as if it could be from the government. Consumers are much more likely to be skeptical of health and nutrient content claims because they do not realize FDA regulates the claims.^{cli, clii}

Media coverage and food advertising can influence general NFP use as well as use of specific nutrient listings. The Economic Research Service analysis found more Americans were using fiber content information and using this information more frequently than 10 years ago, even as attention to most other nutrients declined. The authors suggested press coverage of “low-carb” diets and the health benefits of fiber and whole grains may have contributed to these gains.^{cliii}

Appendix B discusses the historical context leading up to NLEA, including the publication of the National Research Council's *Diet and Health: Implications for Reducing Chronic Disease Risk* (1989). In developing this report, the National Research Council's committee assessed the scientific evidence and built consensus among stakeholder groups on dietary guidelines for protecting health and preventing chronic disease. These guidelines served as the basis for which nutrients would be listed on the proposed mandatory label. The consensus enabled FDA to concentrate on visual design and format instead of also conducting the laborious task of vetting listings.^{cliv, clv}

Tool Design

NFPs, along with other nutrition labeling requirements and regulations, seek to encourage informed food choices that contribute to a healthy diet, according to FDA.^{clvi} The following NLEA and agency objectives shaped the NFP design.

- Provide the public with easy to read and understandable information from which they could readily use to infer a food's significance in a total daily diet
- Create a consistent visual presentation would help consumers both quickly locate NFPs and easily use the information in it (recognizing that sizable populations have visual impairments or low literacy levels)
- Enable nutrient declarations to be readily comparable
- Provide the information at the point of purchase^{clvii, clviii}

Prior to finalizing the NFP design, FDA tested different presentation options from Belser: bar and pie charts, numeric and percentage listings, tabular formats, and adjectival descriptors such as high and low.^{clix, clx} Focus groups revealed consumers had concerns about using and interpreting pie charts, bar graphs, and adjectival descriptor formats. They preferred formats that contained both actual nutrient content listings and a way to assess that content in relation to dietary recommendations (such as either as a percentage of an overall diet or the numeric value of the recommended intake for a given nutrient).^{clxi}

FDA ultimately based the final design choice on “consumers’ abilities to use and comprehend, rather than on stated consumer preference,” according to Scarbrough (1995).^{clxii}

Tool Description

NFP is a standardized format for presenting comparable nutrition information that consumers can quickly find, read and use. Beyond the NLEA mandatory set of nutrient listings, FDA considered two criteria in deciding which listings would be mandatory vs. voluntary.

- Public health significance of various nutrients and food substances, based on major scientific consensus reports.
- Consumers’ information needs so they could follow national dietary recommendations.^{clxiii}

Visual Design

NFPs are a distinct visual on food packages. Graphic and content uniformity, along with a boxed border, help consumers to quickly find nutrition information. Figure 1 provides the common tabular format. A linear NFP format, not shown, is available for packaging with certain constraints.

The agency informed its approach by reviewing research on legibility – including the needs of persons with visual impairments and considerations for older consumers. The resulting design regulations specify mixed-case lettering, lines between nutrient labels and daily values, minimal punctuation and bolding of some information elements as visual cues of importance.

The agency also tapped research regarding reading comprehension and literacy and had Belser, a graphic designer and communications expert, create the visual design.^{clxiv, clxv} A few format variations are available to use on foods in small packaging or other packaging constraints.^{clxvi}

Figure 1. Nutrition Facts Panel for Illustration

Nutrition Facts			
Serving Size 1 cup (228g)			
Servings Per Container 2			
Amount Per Serving			
Calories 250	Calories from Fat 110		
% Daily Value*			
Total Fat 12g	18%		
Saturated Fat 3g	15%		
Trans Fat 1.5g			
Cholesterol 30mg	10%		
Sodium 470mg	20%		
Total Carbohydrate 31g	10%		
Dietary Fiber 0g	0%		
Sugars 5g			
Protein 5g			
Vitamin A	4%		
Vitamin C	2%		
Calcium	20%		
Iron	4%		
* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs:			
	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

In 1997 FDA officials received the Presidential Design Achievement Award for the modern nutrition facts panel, besting 400 other entries in a competitive process for exemplary design achievements.^{clxvii}

Information Elements (“Nutritional Declarations”)

Federal regulations govern the presentation order of mandatory and voluntary nutrient declarations in a tabular format. Manufacturers cannot put in any other content into the NFP.^{clxviii}

-
- “Nutrition Facts” title
 - Serving size, in both grams and household volume measures (such as cups, ounces), and number of servings per container
 - Amount of calories and calories from fat per serving (voluntary: calories from saturated fat)
 - Percent of daily value and number of milligrams or grams of:
 - Total fat, along with saturated fat and trans fat (voluntary: calories from polyunsaturated fat, monounsaturated fat)
 - Cholesterol
 - Sodium
 - (Voluntary: potassium)
 - Total carbohydrate, along with dietary fiber and sugars (voluntary: soluble fiber, insoluble fiber)
 - (Voluntary: sugar alcohol)
 - (Voluntary: other carbohydrate)
 - Protein
 - Vitamins A and C, calcium and iron as a percent of daily value (voluntary: percent of Vitamin A present as beta-carotene)
 - (Voluntary: other essential vitamins and minerals)
 - This statement: “Percent Daily Values are based on a 2,000 calorie diet.”
 -
 - Depending on packaging and label size, NFPs have a full or partial footnote.
 -
 - This statement: “Your daily values may be higher or lower depending on your calorie needs.”
 - A list of suggested recommended daily values of some nutrients, such as total fat, for both a 2,000- and a 2,500-calorie diet. (This listing is the same regardless of the food item).
 - Provision of the number of calories per gram of fat, carbohydrate and protein.

NFP declarations are in two groupings. One is nutrients that most people should limit (such as trans fat and sodium). The other group has nutrients of which they need to consume sufficient amounts (such as protein and calcium). The black-and white panel lacks corresponding headings or another design feature (such as a different font) to imply the groups. The colored version of NFP uses yellow shading for nutrients to limit and green shading for positive nutrients.

Strategies to Reduce Consumer Confusion or Misinterpretation

FDA took steps in the NFP design and labeling regulations to reduce the likelihood that NFP information could confuse, mislead or be misinterpreted.^{clxix, clxx}

- To facilitate comparisons of foods, industry must calculate and present nutrient declarations based on FDA’s standardized serving sizes.
- Nutrient reference values – expressed as “percent daily values” – help NFP readers consider how a specific food fits with a total daily diet. Percentages help keep users from misinterpreting weight amounts. (For example, 140 milligrams of sodium could appear excessive by itself, but its daily value of 6 percent helps provide context from a daily diet.)
- For simplification, NFP uses “Daily Value,” a term that brings together two dietary standards – Daily Reference Values and Reference Daily Intakes.
- Foods for young children have special labeling rules because children’s dietary needs for fats, fiber, protein and other nutrients are different from adults.
- Industry can only include approved elements in NFPs because FDA was concerned that unlimited information elements could make consumers vulnerable to being misled.^{clxxi, clxxii, clxxiii, clxxiv, clxxv}

FDA created definitional linkages between NFP declarations and health and nutrient content claims. As described by agriculture economist Brian Roe and FDA officials Alan Levy and Brenda Derby (1999): “Health claims on the front label both highlight and augment information available from the Nutrition Facts panel.”^{clxxvi}

Nonetheless, Belser has noted that the design “assumes all consumers understand percentages and daily values, what their usual calorie intake is and should be, and how to convert the information on the label to their needs.”^{clxxvii}

Updating

In recent years, with some pressure from external groups, FDA has sought input on potential changes to NFP and nutrition labeling.

- It conducted focus groups in 2003 on food label use, nutrition information preferences for foods at restaurants, and messaging for promoting label use.
- The FDA Obesity Working Group recommended several strategies to foster greater use of nutrition labels. Based on these recommendations, FDA invited public comments on two proposals: changing the display of calories per serving so it is more prominent and adding a percent daily value for total calories.
- In a separate effort, FDA held a public hearing to explore front-panel symbols or traffic-light coloring to highlight nutrition values.^{clxxviii, clxxix, clxxx}

Marketing, Promotion and Dissemination

Positioning, Placement and Pricing

Consumers can view NFPs at the point-of-purchase, that is, when considering which item among a group to buy. Most manufacturers print NFPs on the back or side of packaging, which requires picking up the potential selection to access it. In contrast, health and nutrition content claims tend to appear on the front panel.

As a print tool, NFP requires consumers to visually inspect each package to locate the panel and search a relatively long list of nutrients to find the information they want. Consumers can use NFP information to help decide whether or not to buy an item or to compare it against another item.

The amount of time needed to use NFPs depends on how many labeling elements interest to the consumer and whether the nutrient declarations contain the information s/he needs or if NFP information must be converted for application. Lower literacy and numeracy skill levels can increase the amount of time needed to read and interpret NFP information.

ConAgra, and perhaps other food manufacturers, enable consumers to access NFP images on its Web site. Visitors can find specific products by name or photograph, then click on “nutrition information” to view a fixed NFP graphic for a specific item. ConAgra also has a product finder tool on its Web site that lets visitors search for products by a variety of nutritional criteria (such as low fat). The product finder does not let visitors sort items by nutrient content or generate head-to-head comparisons of NFP declarations.^{clxxxi}

Consumer Awareness and Labeling Education Programs

As stipulated by NLEA, FDA planned a multi-year consumer awareness and education campaign, but it had scarce financial resources for outreach (see prior section, Nutrition Labeling and Education). The agency also had limited consumer education experience.^{clxxxii} These resource gaps meant FDA, with USDA, had to create a campaign that relied on a host of partners to reach the diverse American population. The agencies engaged an extensive array of stakeholders, including consumer and industry groups, in developing and implementing a nationwide campaign, called “The New Food Label – Check It Out!”

The campaign goals were to not only heighten awareness but also to develop Americans’ ability to effectively use the new NFP and other labeling components. The campaign also sought to promote healthful food choices that followed the Dietary Guidelines for Americans.^{clxxxiii, clxxxiv} Some of the consumer messages were:

- “You can believe the claims on the package.”
- “You can more easily compare products because serving sizes will be more comparable for similar food products.”
- “By using the percent Daily Value, you can quickly determine if a product is high or low in a nutrient.”
- “By consulting Daily Values, you can determine how much (or how little) of the major nutrients you should eat on a daily basis.”^{clxxxv}

To reach as many Americans as possible, FDA engaged government agencies, community-based organizations, food companies and trade groups as partners. Even with FDA coordination, the campaign still had a piecemeal nature but did support targeted outreach to older adults, racial and ethnic minorities, children and youth, low-literacy populations, and consumers with special dietary needs.^{clxxxvi, clxxxvii}

FDA and USDA developed print and video informational products for widespread use with consumers. The campaign logo, various handouts and public service announcements were also available in the public domain via the Internet or the campaign’s clearinghouse. A set of print and video materials helped inform stakeholder organizations and groups working with consumers. These partner-focused materials also provided campaign messages and suggested educational activities.^{clxxxviii}

The campaign convened national conferences to secure stakeholder buy-in and keep them informed. It encouraged joint nutrition education projects by connecting potential partners and created a clearinghouse for food labeling education materials and programs. FDA and USDA officials presented at consumer, health and industry gatherings. The campaign partnership with KIDSNET, a private group, sought to reach children through the media. Some food industry groups encouraged customers to use NFPs.^{clxxxix, cxc}

The campaign’s many partners, albeit through disperse efforts, did inform many Americans about the new nutrition label. According to FDA, during the initial six months of the campaign, three million pamphlets, including some in Spanish and large print, were distributed.^{cxci, cxcii}

FDA’s current Web site has information and educational tools about NFPs, such as:^{cxci}

- Make Your Calories Count interactive learning tool (launched in 2006).^{cxci}
- Spot the Block campaign for youth ages 9-13 years, with parents as a secondary audience (launched in 2007). The goal is to encourage NFP use when they select foods. In addition to the Spot the Block Web site, the campaign has the Cartoon Network as a partner to advance the brand and deliver messages via its television and online interactive media channels. Video, online and print media feature popular Cartoon Network characters.

Examples of messages include “For the real facts on nutrition, go to spottheblock.com” and “Getting the most nutrition from the calories you eat will help you with healthy weight management.”^{cxcv}

- Downloadable consumer information brochures, including a few in Spanish, on the FDA Web site. Topics include the new trans fat NFP listing, use of NFPs with an emphasis on calories and serving size, calcium intake and information on saturated fat and cholesterol on NFPs.
- Food labeling education video (circa 1996).
- High school toolkit for food labeling education (circa 1994).

To publicize the nutrition labels in mainstream media, FDA had a multi-media public relations initiative with public service announcements for television, radio and print.

FDA has also worked with federal agency partners to integrate label education into other consumer information Web sites and programs. (Labeling education programs, for example, seek to help consumers use NFP information, including percent daily value, to compare products and or to gauge the relative significance of product in their total daily diet.^{cxcvi}) One example is the Powerful Bones, Powerful Girls Web site for adolescent girls. It has a page on using NFPs to identify calcium values and apply that information to meet their need for 130 percent daily value.^{cxcvii} Nutrition labeling education is also part of federal nutrition education and services targeting lower income families, such as the Expanded Food and Nutrition Education Program, Food Stamp Nutrition Education Program and WIC Nutrition Services.

To encourage the development and testing of grassroots models, FDA currently offers some grant funding to organizations with food safety, food defense or nutrition education projects.^{cxcviii}

Testing and Evaluation

FDA has a history of working with other federal agencies and private organizations to track consumers’ awareness of, use of nutrition labeling, and potential effects on consumption.^{cxcix} Through the National Nutrition Monitoring and Related Research Program, federal agencies have coordinated efforts to track food and nutrient consumption.

Data Sources and Measures

To obtain baseline data on consumers’ use of food labels, FDA, USDA and the HHS Office of the Assistant Secretary conducted a national telephone survey.^{cc} Currently, FDA obtains data

from a variety of sources to monitor nutrition labeling practices, use of nutrition labeling by consumers, and marketplace trends.

- The FDA's periodic Food Label and Package Survey to track manufacturers' labeling practices every three years
- Periodic FDA national surveys to gather information about consumer knowledge and attitudes about dietary guidance, food selection and diet (titles of this survey have changed)
- Market data and trend analyses from government, nonprofit and commercial sources
- Public-health surveillance data (such as the National Health and Nutrition Examination Survey by the Centers for Disease Control and Prevention)
- Use of the federal rulemaking process to obtain comments on proposed changes
- Internal and external scientific consensus statements about diet, nutrition and health, such as those by FDA's Obesity Working Group, the 2005 Dietary Guidelines Advisory Committee, and the National Academy of Sciences

FDA also conducts its own consumer research when resources permit. For example, it recently had funding for focus groups and an Internet-panel experiment on front-package symbols.^{cci}

Primary measures are consumer use of NFP and other nutrition labeling elements, including frequency of use when shopping, use when buying products for first time and use in selecting foods to eat. Some studies and surveys ask consumers about specific NFP elements that they consider in their decision making. Some data sources track trends in NFP use. As possible, NFP use is examined for different population groupings (such as health status, income, education levels, age, race/ethnicity).

Other data (from various sources, mostly outside FDA) pertain to:

- Impact of label use on purchasing decisions, often using survey instruments asking consumers to recall past decisions and NFP influence on food consumption.
- Consumer comprehension and understanding of NFPs.
- Consumer decision making on and behavior with buying and consuming food.
- Market penetration of NFPs as well as health and nutrient content claims.
- Comparisons of how consumers use NFPs in relationship to other information that the manufacturer includes on the food label.
- Research on diet, health, nutrition and more.
- Processed and packaged food industry trends.
- Food consumption.

Use of Data

The food industry is dynamic, and U.S. consumption patterns are continually evolving. To keep pace, FDA officials monitor trends and, as needed, draft new regulations for comment, revision and finalization. For example, the popularity of “single-serving” packaging has grown in recent years. These are any packaged foods with less than 200 percent of the FDA single-serving definition. Because consumers quickly scanning the NFP may not notice that the declarations are for a portion of the package, FDA has solicited comments on the benefits of updating serving-size regulations.^{ccii} (See the Barriers and the Potential Future Changes sections for other examples.)

FDA uses the results of its Food Label and Package Survey and other studies to inform policy and regulatory decisions.^{cciii}

Pre-Regulation Format Testing

In 1991, FDA sponsored two experimental studies to examine consumers’ ability to effectively use a couple of alternatives labeling formats. The findings affirmed FDA’s plans to express nutrient declarations as a percentage of a reference value. The agency also drew on published research. FDA conducted consumer research to develop effective messages for the public information campaign.^{cciv, ccv}

Impact on Consumer Behaviors

NFP and related labeling requirements aim to provide Americans with a reliable, standardized set of information about nutrient content, in relation to their daily diet, to aid their food decisions.^{ccvi} Taylor and Wilkening, retired FDA officials (2008), describe nutrition labeling as an “essential link between the motivation to make dietary changes and the ability to do so.”^{ccvii}

By supporting the overhaul of labeling, NLEA had the *prima facie* effects of:

- Increasing the number of products that had an NFP (by making the system mandatory).^{ccviii} In 1997, FDA estimated that NFPs appeared on more than 300 billion food product containers.^{ccix}
- Expanding the range of nutrition information on each food product.^{ccx}
- Improving the potential usefulness of information in nutrition labeling.^{ccxi}
- Enabling consumers to directly compare products for nutrition content.^{ccxii}
- Providing consumers with some assurance – and a way to directly assess on their own through the NFP declarations – that health and nutrition content claims on a product are justifiable.^{ccxiii}

In 1995, about half of Americans indicated that reading the food label had changed their food-buying decision. A baseline study in 1990, when nutrition labeling was voluntary for many foods, found one third of consumers reported this impact.^{ccxiv}

In a study with 1,400 adults who buy half or more of their households' food, researchers found these consumers tended to rely on health or nutrition content claims for informing their buying decisions. The presence of claims truncated their search for additional product information, including NFPs, on package sides or back panel. Roe, Levy and Derby (2008) interpret these findings as consumers' preference for composite information (i.e., a piece of information comprising multiple data points), the availability of which is associated with reduced information search. They also note that claims appear on the front where consumers can readily see them.^{ccxv} A separate study found summary information assisted consumer comprehension about nutrition content when study participants had only one brand. When participants had multiple brands for comparison, the summary information had less of an impact or no effect.^{ccxvi}

A few studies suggest consumers tend to pay more attention to negative (often unhealthful) attributes than to positive (often healthful) attributes.^{ccxvii, ccxviii} In various surveys, consumers indicated they changed a decision to buy a particular item because of information in nutrition labels; this influence tended to occur when consumers wanted to minimize negative nutrients.^{ccxix} Label use can affect purchasing behaviors when the information in the label alters how consumers perceive product value, according to a literature review by agricultural economist Andreas Drichoutis et al (2006).^{ccxx}

Some studies of food purchases pre- and post-NFP mandate suggest rising consumer awareness of the differential value of nutrients in their diets.^{ccxxi} Drichoutis et al (2006) found empirical studies have demonstrated that "provision and use of information can significantly change dietary patterns." Positive effects included increased intake of better quality of foods or reduced consumption of lower quality foods.^{ccxxii}

Variyam (2005) explores, but does not reach a conclusion about, whether the governmental nutrition labeling mandate could widen health disparities: "Economic theory suggests that those who use an input most heavily also benefit the most from a reduction in the price of that input."^{ccxxiii} Data from a variety of studies indicate persons with postsecondary education or with health and nutrition concerns have higher rates of NFP use than other consumer groups (see Descriptions of Users section). Others suggest that if the NFP design is effective in minimizing information search and processing costs, such as by a presentation that can be

used without math, it would not necessarily exacerbate disparities and could help lessen them.^{ccxxiv}

The ability to improve diet requires access to useful information and some basic skills to make choices that promote health and reduce disease risk.^{ccxxv} A small set of studies has connected NFP use with improved dietary quality, but some studies have produced different results.

- The Obesity Working Group’s literature summary noted there is some evidence that consumers and family-clinic patients who use food labels are more likely to eat a low-fat diet than nonusers.^{ccxxvi}
- A multivariate analysis of two national datasets found consumers who use food labels, regardless of income, have better dietary quality than non-users; however, label use appeared to have a stronger benefit for higher-income Americans than those with lower incomes.^{ccxxvii}
- A case-control study with Latinas with and without diabetes found label users tended to eat fruits and vegetables frequently and consume salty snacks and sweets less frequently than nonusers.^{ccxxviii} A study with African Americans also found label use correlated with fruit and vegetable consumption and lower fat intakes.^{ccxxix}
- Available evidence indicates few consumers use NFP information to help manage weight.^{ccxxx, ccxxxi}
- In a regional study, patients who had lower fat intake and ate more fruits, vegetables and fiber were more likely to use nutrition labeling information when buying food than other patients.^{ccxxxii}
- Using federal national food, diet and health knowledge surveillance data from 1994-1996, the Economic Research Service found a positive statistical correlation between label use and increased fiber and iron intake. Label use did not appear to mediate fat or cholesterol consumption.^{ccxxxiii}

In its evidence review on food marketing to children, an Institute of Medicine panel determined that “there is little evidence that the information on food labels, at least as currently structured, has a significant impact overall on eating or food purchasing behaviors.”^{ccxxxiv} Information is just one part of engaging people in improving their diets; guidance and motivation to make healthy food choices are also necessary.^{ccxxxv}

Impact on Food Industry

Reflecting on the NFP design process, Belser noted:

Sophisticated manufacturers that value consumers have adopted the [NFP] guidelines wholeheartedly. Others just may not understand the value consistency lends to ease of reading, comprehension and consumer acceptance.^{ccxxxvi}

Some evidence exists that nutritional quality of food improved somewhat after NLEA, but study results were inconsistent. Also, the influence of NLEA, as compared to market and media influences, is unknown.^{ccxxxvii, ccxxxviii}

The addition of trans fat declarations demonstrates how NFP components can affect industry. Prior to the mandate, many products contained trans fat, and manufacturers did not promote the absence of trans fat in products without it. Consumer awareness was low of the risks associated with trans fat. After the NFP required listings included trans fat, nearly 5,500 “no trans fat” product introductions occurred in 33 months.^{ccxxxix}

In recent years, an emerging trend is for food manufacturers to select some NFP data to present on the front panel, along with any health or nutrition content claims. For example, Kellogg created a set of “nutrition at-a-glance” tabs on the upper right of cereal boxes. The tabs display both amount and percent daily value per serving for select nutrients: calories, total fat, sodium, sugars, iron and protein. A different approach is General Mills with its Curves Whole Honey Crunch cereal, which has the visible claim of “28g[rams] whole grain per serving” in the middle of the front label. In a smaller font at the bottom is a note that each serving has 5 grams (20 percent daily value) of dietary fiber.

Grocery chains have also created their own health-oriented labeling, such as Safeway’s new Eating Right brand with bright circles on the front labels to highlight attributes such as “low fat” and “high in protein.” The Center for Science in the Public Interest notes these practices may be helpful to consumers, but also have the potential to “be deceptive, and, because they have differing criteria, taken together, they may end up being more confusing than helpful to consumers.”^{ccxl}

In the Institute of Medicine’s 2006 report, *Food Marketing to Children and Youth: Threat or Opportunity*, the scientific panel concluded that:

The consistency, accuracy, and effectiveness of the proprietary logos or icons introduced by several food companies as positive steps to communicate the nutritional qualities of some of their branded products to consumers have not been evaluated. Without an empirically validated industrywide rating system and approach, efforts to use such graphic portrayals on food labels may fall short of their potential as guides to better food and beverage choices by children, youth, and their parents.^{ccxli}

Front-panel space is highly valuable real estate. Companies would not be giving health and nutrition information prominent placement on front panels if consumers were not using it to guide their food choices. This evolving practice might indicate food industry could be receptive to considering a major change in nutrition labeling requirements.^{ccxlii}

The final sections provide crosscutting insights from former and current FDA officials as well as from outside experts.

Observations by Insiders

- Visual consistency and extensive placement makes NFP a highly recognized image. FDA adapted the NFP visual design for use as the standardized “Drug Facts” panel that drug manufacturers must include on many over-the-counter medications.^{ccxliii} Similar panels have appeared as appliance energy facts and in vision tests in optometrists’ offices.^{ccxliv}
- According to Belser, four graphic design elements were essential to NFP success.
 - “By defining the point size, we defined a sizable chunk of real estate on each product package – considerably more than had been used before. It’s visible to the naked eye!
 - “By giving the label a boldfaced title, we ensured scanning readers would know how to recognize the label immediately.
 - “By putting a one point rule around the label, we defined its territory, making certain manufacturers could not encroach on public property and disguise your nutrition information as something else.
 - “By using bold rules to separate sets of information, we ultimately gave the reader an easy roadmap through the label.”^{ccxlv}
- Taylor and Wilkening (2008) focus on the benefits stemming from the design decision of what came to be percent daily values (see Tool Design section; also the Audience and Use section summarizes study findings on consumer ability to understand and use percent daily value):

[A] consistent system of percentages makes it possible for virtually all of the nutrients on the label to be declared in equivalent units and therefore to be readily comparable. A list of nutrients declared in equivalent units has the unique property that the list of values is self-anchoring; that is, values in the list can serve as references for one other. A low value on the list is likely to be a “true” low value within the context of the diet, a high value on the list is likely to be a “true” high value.^{ccxlvii}
- Levy (1998), a senior FDA expert on nutrition labeling and consumer communications, describes the NFP as a “good tool for making product selections and confirming (i.e.,

reminding people of) popular nutrition beliefs.” The NFP, according to Levy, is an “inadequate tool for helping people to plan diets, and it is unlikely to contribute itself to a better or more critical understanding of nutrition principles.” He specifically notes “consumer inability to use math ... present[s] a significant barrier to following dietary recommendations based on quantitative tasks.”^{ccxlvii}

- The rarity of changes to the NFP design, contents and structure may contribute to public perception that nutrient declarations are reliable and accurate.^{ccxlviii}
- Commenting on the need for a public education campaign in 1993, Scarbrough, then-director of the Office of Food Labeling in FDA, observed: “The food label of the future will have more information and be more complicated. Its usefulness will be diminished unless consumers are taught what to do with the information.”^{ccxlix}
- Taylor and Wilkening (2008) note nutrition labeling by itself is unlikely to produce significant improvements in Americans’ diets. They call for an organized infrastructure that brings together dietary guidance, consumer education and ongoing, robust research.^{cc}
- In contrast, few nutrition labeling education resources may be needed. The NFP provides information in a way that minimizes the need for consumers to do their own computations, as it was designed to do. The NFP was not designed nor intended to be an educational tool to develop consumers’ knowledge about a healthy diet.^{ccci}
- Taylor and Wilkening (2008) argue effective enforcement is crucial:

Unless consumers can be assured that the statements are truthful and monitored appropriately, confidence in label statements, and in turn their use by consumers, is impacted negatively.^{cccli}

Observations by Outsiders

- Laura Sims, former administrator of the USDA Human Nutrition Information Service, calls attention to the contributions of Kessler, whom she describes as the “most supportive actor” in policy circles:

Kessler was vocal, active, and supportive throughout the rule-making procedure, and undeniably enthusiastic about the results in his press conferences and publicity tours, a real “champion” of the food labeling reform efforts.^{cccliii}
- Economic Research Service analysts Golan, Kuchler and Krissof (2007) and others note that prior to mandatory labeling, consumers had little information about calories, fats or sodium levels in processed foods. Consumer advocates, public health, and even some manufacturers heralded the new nutrition disclosure requirements as a significant, exciting advancement.^{cccliv, ccclv}
- The uniform presentation that appears on most packaged foods and the thoughtful ordering of information help consumers identify and use the NFPs. The uniform design facilitates FDA oversight and aids manufacturer compliance with the mandate.^{ccclvi}

-
- Providing information or a new tool does not assure use. As characterized by Todd and Variyam (2008) in the Economic Research Service report on declining nutrition label use:
Increasing access to and quality of information, however, can only go so far in achieving improvements in diet quality and public health. Achieving long-term changes also requires that consumers are motivated to use the information.^{cclvii}
 - Golan et al (2007) summarize their recent research findings:
Mandatory food labeling is usually more successful at filling information gaps than at addressing externalities such as environmental or health spillovers associated with food production and consumption.^{cclviii}
 - FDA added trans fat as a mandatory NFP declaration, but had little funding to devote to educating consumers. This education gap contributed to at-risk consumers having problems with correctly interpreting trans fat levels in terms of their daily diet. Howlett et al (2008) note “maximizing the effectiveness of incremental additions to the panel depends on a coordinated attempt at educating consumers about the dangers and levels of a high-trans fat diet.”^{cclix}
 - The current NFP design may be fundamentally flawed, according to some experts who note that consumers do not understand percent daily value and have trouble with percentages and applying the FDA serving size with the packaging and consumption habits. NFP is not a consumer-centric information tool.^{cclx}
 - Increasing resources for nutrition labeling education would not necessarily increase NFP use or healthful food choices because the tool design is ineffective, in part because the NLEA parameters are inflexible. Even changing the NFP-related regulations would take a lot of effort.^{cclxi}

Appendix A. Key Informants

The perspectives in this case study have been synthesized from the wide-ranging comments of the people interviewed, the literature and other data sources. They do not necessarily represent the views of the Center for Advancing Health.

With gratitude, CFAH acknowledges the following individuals who participated in key informant interviews.

- Sue Borra, RD, President, International Food Information Council Foundation
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- Wendy Reinhardt Kapsak, International Food Information Council Foundation
- Amy Lando, MPP, Center for Food Safety and Applied Nutrition, U.S. Food and Drug Administration
- Alan S. Levy, PhD, Chief, Consumer Studies Branch, Center for Food Safety and Applied Nutrition, U.S. Food and Drug Administration
- Christine Lewis-Taylor, PhD, RD, Scholar, Institute of Medicine, National Academies of Science, and former director of the Office of Nutritional Products, Labeling and Dietary Supplements, U. S. Food and Drug Administration
- Barbara Moore, PhD, President and CEO, ShapeUp America!
- Jessica Todd, Economic Research Service, U.S. Dept. of Agriculture
- Jayachandran Variyam, PhD, Chief of the Diet, Safety, and Health Economics Branch, Economic Research Service, U.S. Dept. of Agriculture
- Virginia L. Wilkening, MS, RD, formerly deputy director of the Office of Nutritional Products, Labeling and Dietary Supplements, U. S. Food and Drug Administration

Appendix B. Other History Notes

Between 1974 and 1990, the following forces helped marshal support for policy changes, which led, in time, to the NLEA.

- Longitudinal epidemiological and clinical research produced a growing evidence base connecting diet, disease and health. (Some of these studies began in the mid-20th century after health professionals observed correlations between cardiovascular and other chronic disease trends that seemed to parallel changes in the national diet before, during and after World War II.)^{cclxii}
- Publicized findings on the connection between diet and health contribute to Americans' growing understanding about nutrition, diet, and chronic diseases.^{cclxiii, cclxiv}
- The food industry began to use health and nutrition content claims on food labels, and Americans started buying more foods that they perceived as healthful.^{cclxv, cclxvi}
- Some pre-NLEA food labels and packaging made questionable claims. Public confidence in the food labeling system eroded. Consumers complained to elected officials and consumer agencies. Some food manufacturers and consumer groups urged governmental actions to curb misleading labeling. State attorneys general started suing food manufacturers, and state lawmakers began pushing for their own food labeling requirements.^{cclxvii, cclxviii, cclxix, cclxx}
- In the late 1980s, the Surgeon General and the National Research Council issued separate reports that summarized strong evidence that diet affects chronic disease risk; the latter also issued specific dietary guidance. Both reports helped highlight the mismatch between the current voluntary label structure and dietary recommendations.^{cclxxi}
- The Center for Science in the Public Interest engages more than 20 health and consumer groups in an advocacy coalition to press for food labeling reform. The coalition played an instrumental role in shaping and building support for the NLEA. During the subsequent rulemaking process, the coalition continued to apply pressure on FDA.^{cclxxii}
- In 1989, with pressure from the public health community and consumer groups, FDA began a proposed rulemaking process to align nutrition labeling with the new dietary guidelines and reduce unjustifiable health and nutrition content claims.^{cclxxiii, cclxxiv}
- Although many in the food industry initially opposed a mandate to disclose nutrient content, this position softened as state attorneys general began suing food companies for making inappropriate claims. State policy makers also explored regulatory options. By 1990, industry was ready to drop its prior opposition to a federal mandate that would:
- Preempt state regulation of nutrition labeling (thus enabling manufacturers to comply with one consistent set of requirements).
- Enable them to make health and nutrient content claims that met FDA standards.^{cclxxv}

Endnotes

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