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Written comment from global nutrition scholars for Reagan-Udall public meeting on front-of-package food labeling

We are a network of global scholars from (Mexico, Chile, Peru, Brazil, Colombia, South Africa, India, Uruguay others) who have been working on front-of-package labeling design, implementation, and evaluation for the last decade. We commend FDA and its pursuit of interpretative front-of-package labels that will provide American consumers about information about what is in their food. While back-of-package nutrition facts panels offer important information about products' ingredients and specific nutritional content, they are not an effective tool for guiding most shoppers towards healthier choices. Most people spend less than 10 seconds selecting each item while they shop — not enough time to review complicated, back-of-the-pack nutrition labels, which are ineffective for most consumers.[1-3] In contrast, front-of-package labels (FOPLs) offer a more accessible way to deliver information to consumers.

We believe it is critical that FOPLs are quick and easy to use so that they reach all segments of the American population, including those with low levels of education or low English literacy. A large body of research shows that these consumers are less likely to use and understand the nutrition facts panel.[1,4-7] They are also less likely to use and understand certain types of FOPL, including labels such as the "Facts up Front"/Guideline Daily Allowance (GDA) or labels using traffic lights to color-code the labels. Moreover, the use of servings size data confuses people and can be terribly misleading.

Based on our collective experience working across the globe on research studies to design and evaluate FOPL systems, we describe the following recommendations:

Nutrient warnings are the only FOPL with real-world evidence of impact.

While a variety of FOPL types can be found on packages worldwide, the strongest evidence to date supports **simple nutrient warning labels** as most effective for discouraging food and beverage choices that do not support health. They are the only FOPL with evidence of real-world impact.

- **Warning labels can reduce purchased calories, sugar, saturated fats, and sodium:** Chile's FOP nutrient warning label policy was associated with a 24% drop in sugary drink purchases[8] and declines in sodium (–37%), total calories (–24%), calories from sugar (–27%), and calories from saturated fat (–16%) purchased from all foods and beverages during Phase 1 of the law.[9]
- **Warning labels can lead to improvements in children's diets:** Children in Chile consumed significantly less sugar, saturated fat, and sodium at school three years after the country's warning label law (which also banned warning label products from being sold or promoted in schools) took effect.[10]
- **Consumers understand the labels and use them:** In Chile, focus groups with low- and middle-income mothers suggest profound changes in attitudes toward food purchases, driven both by knowledge gained from seeing the labels and by children telling their parent not to purchase unhealthy products with warning labels.[11,12]

- Consumers in Chile report understanding that a greater number of warning labels on a package means that product is less healthy and a poorer choice than options with fewer or no warning labels.[13]
    - Our research (under review) in Chile found that for foods, the labeling policies led to a shift in purchases of foods with two labels to foods with one or zero labels.
    - Six months after Mexico began requiring warning labels, a survey of middle- and high-income parents found that most (86%) correctly identified that a product with fewer warning labels is a healthier option than a product with more warning labels, and roughly two-thirds of respondents reported making this comparison sometimes to very often while shopping.[14] A quarter of parents surveyed said they stopped buying products with warning labels for their children, and 63% reported buying fewer warning-label products.
    - National surveys of adolescents in Mexico, Chile, and several countries *without* mandated FOP warning labels found that Mexican and Chilean teens' self-reported awareness, understanding, and use of the countries' mandated warning labels was substantially higher than for voluntary traffic light labels (among teens in the UK), health star ratings (in Australia), and nutrition facts tables (in the UK, Australia, Canada, and the US).[15]
- **Qualitative evidence that even children understand WL:** National surveys of adolescents in Mexico, Chile, and several countries *without* mandated FOP warning labels found that teens' self-reported awareness, understanding, and use of mandated warning labels was substantially higher than for voluntary traffic light labels (in the UK), health star ratings (in Australia), and nutrition facts tables (in the UK, Australia, Canada, and the US).[15]
- **FOP warning labels Incentivize reformulation without increasing costs:** In Chile, companies reformulated many products to avoid carrying FOP warning labels, most often by reducing sugar or sodium content.[16] In the first 18 months of regulation, the proportion of food and beverage products with any "high-in" warning label dropped 7 percentage points across the food supply. These nutritional improvements were achieved without any changes in costs/product pricing for consumers.[17]
- **No impact on wages and employment:** The food and beverage industries have repeatedly argued that mandatory FOP labeling and other public health policies would cause job loss and economic harm. On the contrary, real-world evaluations from countries that have implemented these policies show that employment, wages, and profits are largely unaffected by these regulations:
    - Eighteen months after Chile's Law of Food Labeling and Advertising began, researchers found no significant drops in employment or average wages in the food and beverage sector compared to other sectors not impacted by the law.[18]
    - Another study found that three years after Chile's warning label law began, there was still no evidence of any negative impact on aggregate employment and only negligible effect on real wages.[19] The average size of firms was not affected and gross profit margins (as a proportion of total sales) were not affected.
    - In Peru, research shows that in the year after the country began requiring warning labels on the front of unhealthy food and beverage packages (two years after implementation of a sugary beverage tax), the manufacturing sector as a whole and

the food and beverage industry in particular experienced no significant job or wage losses.[20]

In addition to this evidence of positive impact in real-world settings, warning labels have outperformed other common FOP label types in experimental studies, as well.

- A 2020 meta-analysis of 14 experimental studies found that out of all the major FOPL systems in use, **only "high in" warning labels significantly reduced the calorie and sugar content of purchased products** compared to a no label control.[21] Warning labels also significantly reduced the sodium content of purchases, as did traffic light labels, but **Health Star Ratings, Nutri-Score, and "Facts up Front"/Guideline Daily Amount labels had no effect on purchases**.
- A 2021 meta-analysis of over 100 studies examining the effects of color-coded and warning labeling schemes found that nutrient **warning labels work better than traffic lights and Nutri-Score labels to discourage unhealthy product purchases** and lower purchases of calories and saturated fat.[22]
- A survey of white and Latino adults in the U.S. and Mexico compared consumers' understanding of four FOPL types — warning labels, guideline daily amounts, multiple traffic lights, and Health Star Ratings — and a nutrition facts table. **Warning labels were the easiest for subjects to understand:** They were nearly 5 times more likely to report understanding the warning label compared to the nutrition facts table, whereas subjects who saw the traffic light and Health Star Rating labels were only 0.56 and 0.34 times more likely, respectively.[23]
- A 2017 study comparing different labels found that traffic light labels and guideline daily amounts performed worse than warning labels at helping consumers identify products with high content of unhealthy nutrients.[24] Consumers perceived products with warning labels as less healthy than the same products with traffic light or guideline daily amount labels.
- A South Africa randomized controlled trial comparing FOP nutrient warning labels to guideline daily amounts and traffic light labels found that the probability of participants correctly identifying products high in nutrients of concern or unhealthy products was highest for those who saw the warning labels.[25]
- In the United States, a randomized trial in a virtual convenience store found that parents who saw sugar warning labels on high-sugar snacks were less likely to buy those items for their child compared to participants who saw no warning label.[26] The warning labels led to lower perceptions of healthfulness, appeal, and intentions to buy or consume the high-sugar product.

Interpretive warning labels will help consumers more than any FOPL that requires numeracy (math ability):

- Many consumers have difficulty understanding and applying nutrition information as presented in non-interpretive nutrition facts panels and "Facts up Front"/Guideline Daily-Amounts-style labels. Understanding serving sizes and calculating or converting nutrient amounts is time-consuming for all consumers and challenging for those with lower education, lower income, and increased age.[1,6,27]

- This is evident in studies comparing “Facts up Front”/GDA-style labels with interpretive labels that require less numeracy, which consistently find GDA labels to be the most confusing, take shoppers the most time to evaluate, and are ultimately least effective for encouraging consumers to make healthier choices.[28-39]
- Eye-tracking studies from the United States, Uruguay, and Chile found that compared to warning labels, GDAs are less effective at getting consumers’ attention, harder to process, and worse at helping to identify unhealthy products.[40-42]
- Studies in the U.S. examining the relationship between health literacy (including numeracy skills) and label understanding and use have found that many consumers struggle to understand non-interpretive labels.[43,44] Higher health literacy and label understanding have been correlated with better dietary quality, suggesting that labels relying on numeracy and literacy that are inaccessible to consumers with lower health literacy could exacerbate disparities in dietary quality.
- Labels are more likely to positively influence consumer behavior if they limit or avoid relying on numeric information.[45] Evidence from tobacco research suggests that pictures or symbols with warning labels increases reach to younger consumers, those with less educational attainment, and those who are not proficient in English.[45]
- In addition to providing more useful, accessible information than non-interpretive labels that require numeracy skills, FOP warning labels are less likely to contribute to price inequities on healthier products:
    - A “healthy” endorsement FOP label can make foods more appealing and lead to increased prices on those products. In the Netherlands and Denmark, “healthy” endorsement FOPLs (Choices and Keyhole labels, respectively) have been associated with higher food prices, leading the World Health Organization to issue a report expressing concern that a “healthy” endorsement FOPL may trigger a price premium — further exacerbating the dietary divide between high and low socioeconomic groups.[46,47]
    - Warning labels, by contrast, will make certain foods less desirable and have not been associated with food price changes that would make healthier foods less accessible to lower-income populations.[17,48]

Other FOPL systems that the FDA is considering are not supported by real-world evidence.

There is mixed global evidence that color-coded traffic light labels work to improve the nutritional quality of the food supply or consumer purchases. One reason that color-coded traffic labels may not work well is because they often present conflicting information to consumers with different colors displayed for different nutrients on the same product.[45] For example, a product could have a red label for sodium next to a green label for sugar and a yellow label for saturated fat, sending mixed messages to consumers about whether the product is actually a healthy choice or not. Color-based labeling systems can also be less noticeable if they are placed over background packaging of a similar color.[45]

- In Ecuador — one of the only countries with a mandatory, color-coded traffic light label — evidence to date shows that labeling has not led to healthier purchases:

    - Data from Ecuador's 2018 National Health and Nutrition Survey indicate that while 79% of the survey's nearly 41,000 participants reported being aware of the country's traffic light label, only 21% reported actually using it to inform their purchases.[49]
    - In the first year of Ecuador's policy, one study found evidence of modest product reformulation, with an observed average sugar reduction of less than 1 gram sugar per 100 mL of beverage.[50] This is much less than was observed in Chile, where sugary beverages dropped from a median of 11 g sugar/100 mL to 4 g/100 mL after regulation.[51]
    - Ecuador's Ministry of Health is in the midst of creating regulations and a law to enable a shift to use of warning labels.
- Studies found that introduction of traffic light labeling in Ecuador did not reduce purchases of soft drinks or carbonated soft drinks, in particular—especially those high in sugar.[50,52] In fact, average per capita soft drink consumption only declined by an estimated 0.003 L/month after labeling began.[50]
- Immediately after the UK began recommending use of multiple traffic light labels (a color-coded label combined with non-interpretive nutrition information), researchers found no change in the relative healthiness of consumers purchases of ready-meals or sandwiches — two of the categories targeted by the policy recommendation.[53]

- Another UK study found that in the first two years following label adoption by some retailers, use of the traffic light label was associated with reduced purchases of labeled, store-brand products in households' main shopping trips.[54] **Nutri-Score—another color-coded labeling scheme adopted voluntarily in some European countries—similarly has not demonstrated meaningful health benefit for consumers**. A 2016 field experiment in which Nutri-Score was placed on real foods across 60 French supermarkets found no impact on purchases from less-healthy grocery categories.[55] Nutri-Score's net effect was a modest 2.5% improvement in the average nutritional score of purchases. Notably, effect sizes observed in the study were on average 17 times smaller than those found in comparable laboratory studies, highlighting the importance of evaluating real-world effects of FOP labeling policies.[55]

Recommendations for FDA:

- Use "High-in" approach and have them be separate so consumers can readily see how many nutrients are high in
- Avoid numbers, as consumers don't understand them
- Avoid traffic light labels, as consumers don't understand them

Conclusions:

Based on the global evidence, nutrient warnings are the only FOPL system with real-world evidence on effectiveness. FDA should consider an FOPL design that includes elements of nutrient warnings that have worked well in other countries, including having individual labels for each nutrient, including text and/or images (no numbers), and using labels that provide a binary signal to consumers about which products contain unhealthy levels of nutrients of concern.

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