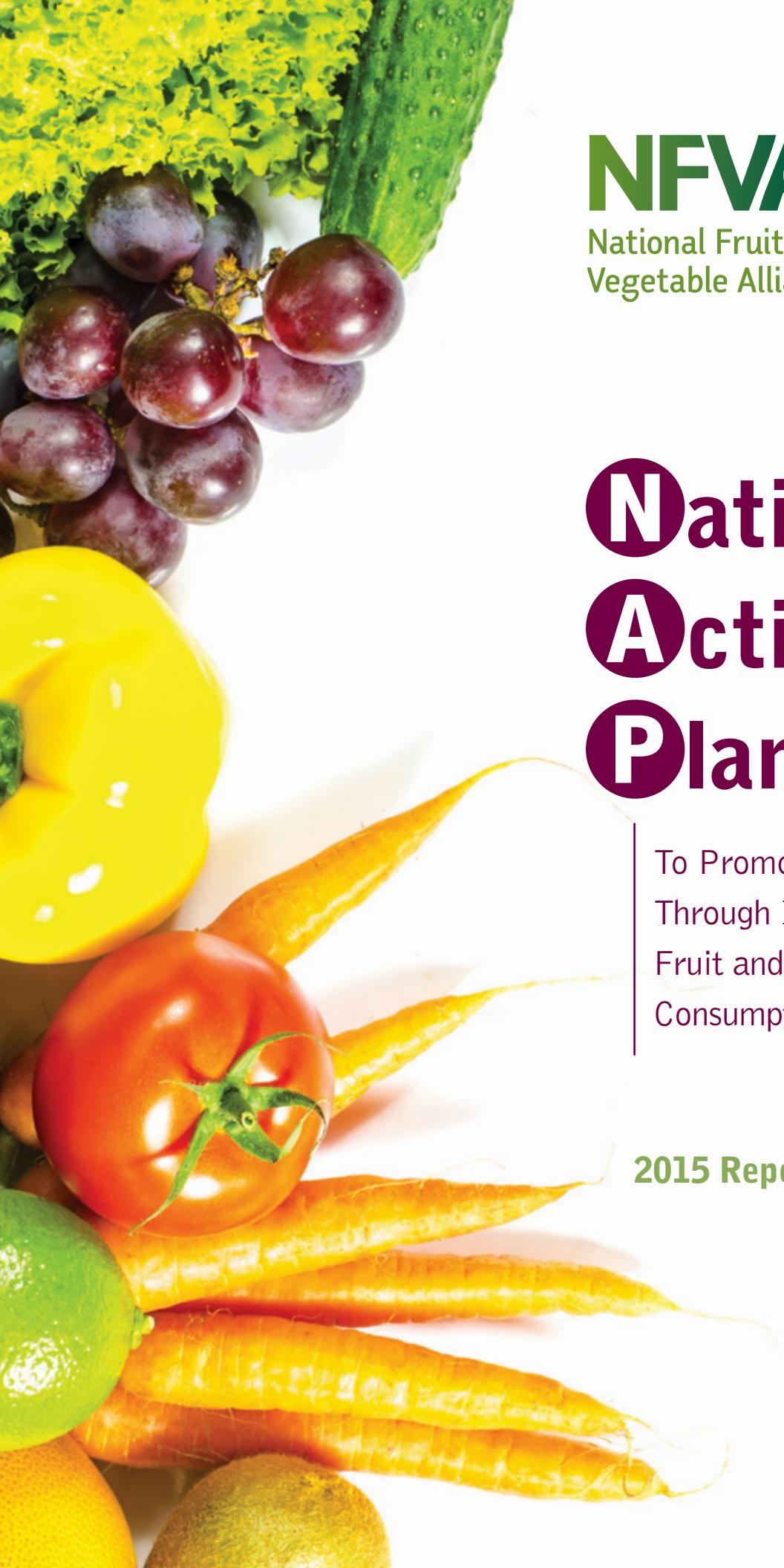

NFVA
National Fruit &
Vegetable Alliance

National Action Plan

To Promote Health Through Increased Fruit and Vegetable Consumption

2015 Report Card

The National Fruit & Vegetable Alliance

The National Fruit & Vegetable Alliance (NFVA) is a national alliance of public and private partners working collaboratively and synergistically to increase nationwide access to and demand for all forms of fruits and vegetables for improved public health. The vision of NFVA is that fruits and vegetables comprise half of the food that Americans eat.

In 1991, a partnership was formed between the National Cancer Institute (NCI) and the Produce for Better Health Foundation (PBH). The 5 A Day for Better Health program was promoted through this partnership. In 2001, the partnership was expanded to include other federal agencies, industry associations, and public health entities as a way to further efforts to increase fruit and vegetable consumption. In October 2005, Centers for Disease Control & Prevention (CDC) replaced NCI as the lead federal agency and national health authority for the 5 A Day program. That same year, extensive consumer research was undertaken to evaluate the 5 A Day message, which resulted in a rebranding of 5 A Day to Fruits & Veggies—More Matters® in 2007. Together, CDC and PBH co-chair the broader partnership, known as the National Fruit & Vegetable Alliance.

Today, members of the National Fruit & Vegetable Alliance include the following organizations who work to increase consumption of fruits and vegetables:

Academy of Nutrition & Dietetics

American Cancer Society

American Diabetes Association

American Frozen Food Institute

American Heart Association

Canned Food Alliance

Centers for Disease Control and Prevention — Co-chair

The Culinary Institute of America

National Council of Fruit & Vegetable Nutrition Coordinators,
Association of State Public Health Nutritionists

National Alliance for Nutrition and Activity

National Cancer Institute

Produce for Better Health Foundation — Co-chair

Produce Marketing Association

United Fresh Produce Association

U.S. Department of Agriculture
Food, Nutrition and Consumer Services

The findings and recommendations in this report are a consensus of the NFVA and do not necessarily represent the official positions of the NFVA member organizations.

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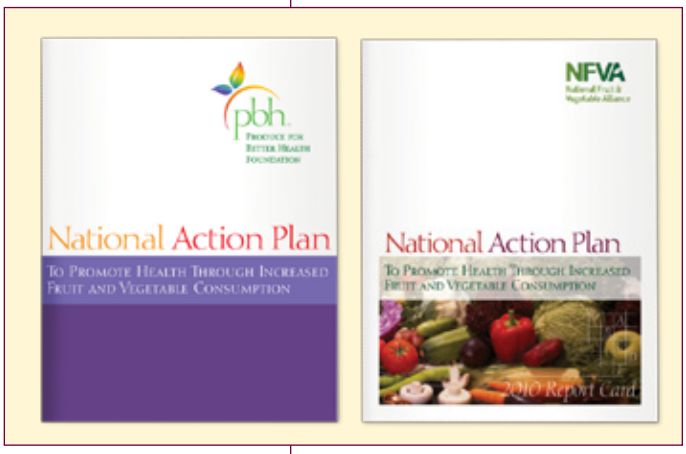
Introduction

For several years, recommendations in public health policy have encouraged an increase in fruit and vegetable consumption by adults and children in the United States.[1,2] The health benefits of increasing fruit and vegetable consumption continue to grow,[3] despite the daily intake of fruit and vegetables remaining well below recommended levels for most Americans.[4-7] Perceived obstacles (including social, personal and economic challenges), intrinsic and or extrinsic motivation, beliefs, confidence in coping with barriers to change behavior (self-efficacy), and self-management are all factors that impact fruit and vegetable intake among adults and children.[8-11]



With the release of the *2005 Dietary Guidelines for Americans* (Dietary Guidelines), which included a large increase in the recommended amount of fruits and vegetables (5-13 daily servings,[12] up from the 5-9 daily servings recommended in the prior Dietary Guidelines), a different approach was needed to increase consumption. So in 2005, a *National Action Plan to Promote Health Through Increased Fruit and Vegetable Consumption* was developed as an outline of a bold, new, and comprehensive approach to increasing consumption.[13] It proposed an integrated framework of policy,[14] marketing, and communication strategies that all large and small entities which produce, provide, serve, or regulate food could use to help Americans obtain, prepare, and consume fruits and vegetables and, in so doing, achieve good health. The plan was developed with input from a variety of food, nutrition, marketing, communications, and policy leaders and included a thorough assessment of the scientific literature. Over 75 strategies, organized in nine different settings, were identified to more aggressively create an environment where Americans can increase their consumption of fruits and vegetables of all forms—fresh, frozen, canned, dried, and 100% juice.

2015 National Action Plan Report Card Overview

The strategies presented in the 2005 National Action Plan spanned a wide range of actions that could be implemented by an array of entities over a broad period of time, from weeks or months to years. This current 2015 National Action Plan Report Card is the second such report card, the first released in 2010.[15] Strategies first outlined in 2005 have evolved over the past 10 years. For each section of this report card, the earlier strategies are identified at the beginning and any updated strategies are offered at the end. Metrics were collected by a thorough review of national public and private surveys as well as the scientific literature.

National Action Plan Goal

Increasing fruit and vegetable consumption on a broad scale requires a comprehensive, multi-component approach. As such, the National Action Plan goal is to: implement, at the national, state and local levels, a set of policy, marketing, business, public health, environmental, and communication strategies that can close the gap between actual and recommended fruit and vegetable consumption.

National Action Plan Objectives

Objectives in 2015 remain the same as those outlined in 2005. They include:

1. Increase the accessibility and desirability of all forms of fruits and vegetables by making them tasty, attractive, convenient, affordable, plentiful, and easily available at all eating and snacking occasions.
2. Offer practical strategies to help increase an individual's ability to obtain and prepare meals and snacks rich in fruits and vegetables.
3. Change Americans' attitudes and habits about including fruits and vegetables at every eating occasion. Key to making this change is identifying, communicating, and delivering the benefits of fruits and vegetables that consumers find most important, in a way that is exciting, enticing, and produces positive behavior change.

National Action Plan Strategies

Key priority strategies to increase fruit and vegetable consumption are outlined on these pages in the following settings::

- Nutrition Promotion and Marketing
- Supermarkets and Other Retailers
- Fruit and Vegetable Suppliers
- Restaurants and Other Food Service Establishments
- Schools, Child Care, and Other Institutions Feeding Children and Adolescents
- Workplaces
- Health Care and Health Organizations
- Research and Evaluation
- State and Federal Policy

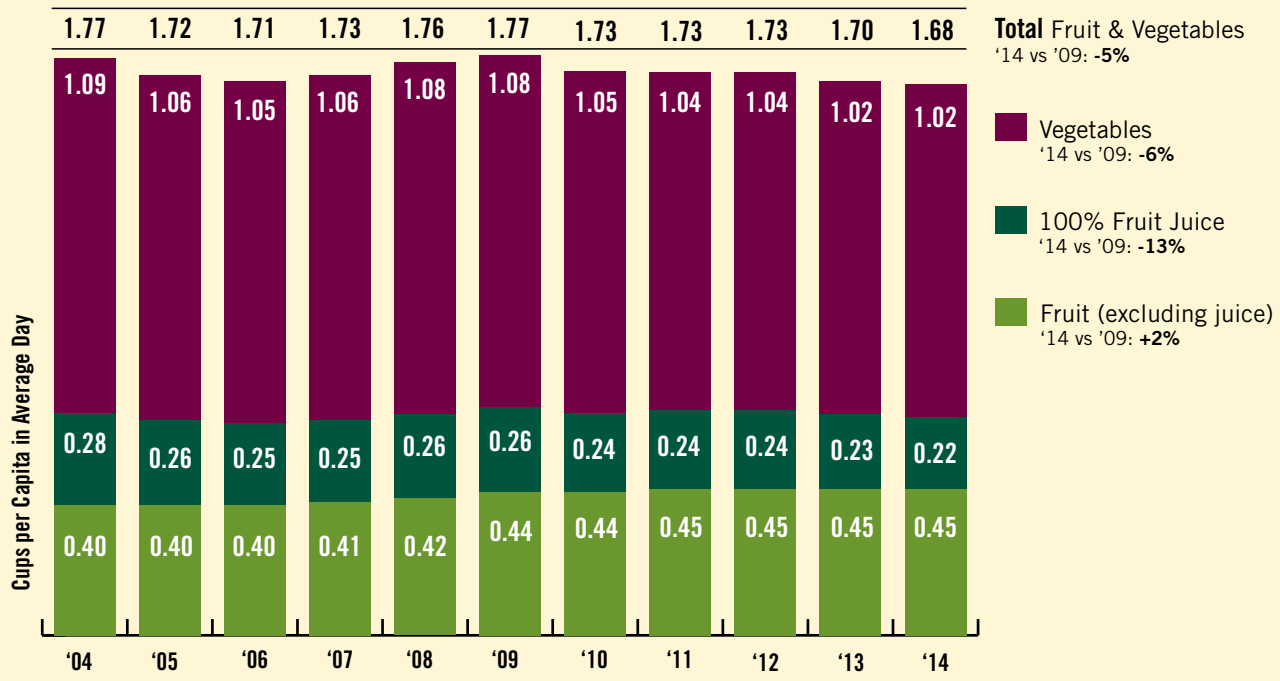
Fruit and Vegetable Consumption

Current Consumption Levels and Trends

The most recent data show that, after a brief rise thru 2009, per capita fruit and vegetable consumption (excluding fried potatoes) declined 5% through 2014, for an average of 1.68 cups per day. This has been driven primarily by decreased consumption of vegetables (-6%) and fruit juice (-13%). Fruit consumption, excluding juice, has increased 2% over the past 5 years (**Chart 1**).[16]

Losses in fruit and vegetable consumption are tied to two big behaviors: a decline in the dinner side dish for vegetables, and reduced consumption of 100% fruit juice at breakfast.

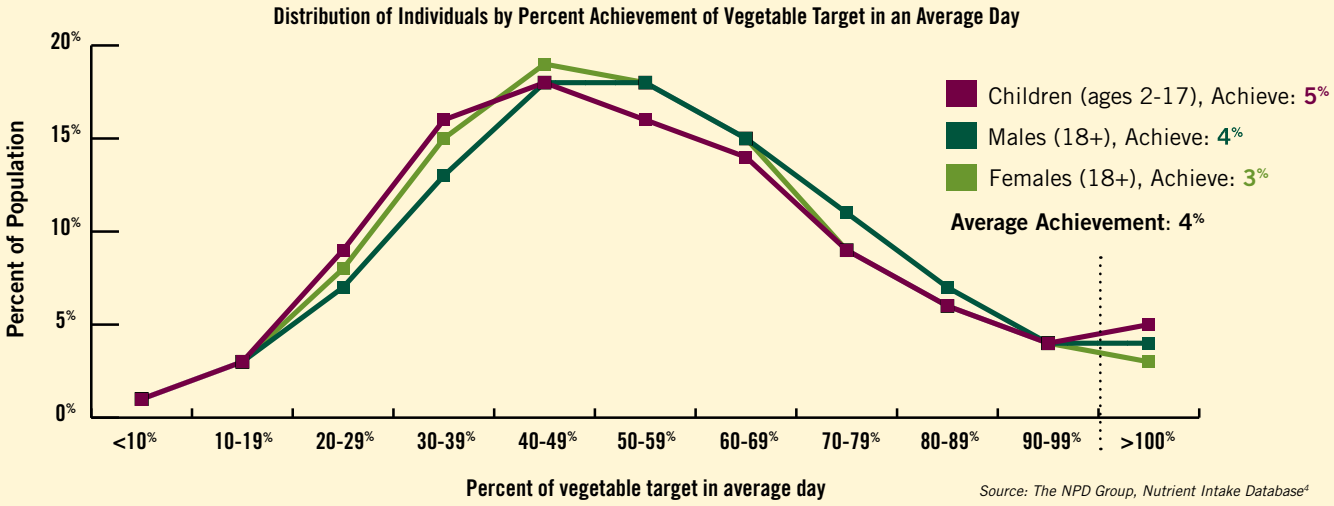
Chart 1: Average Daily Consumption of Fruit and Vegetables: 2004-2014



Source: The NPD Group, Nutrient Intake Database[4]

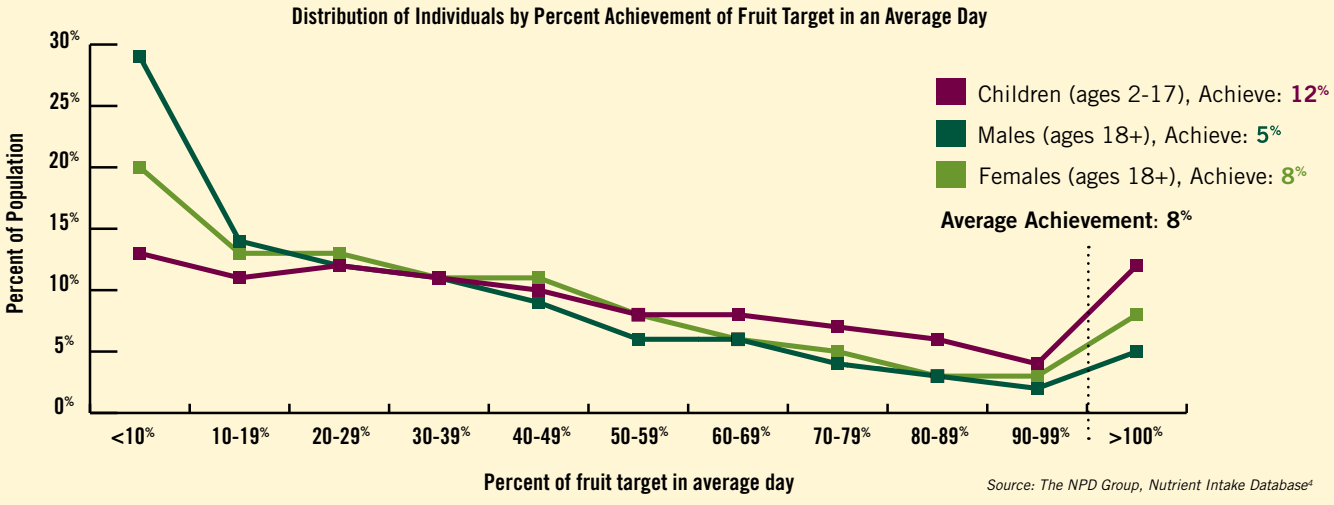
On average, about 1 in 25 children and adults (4%) achieve the national daily target for vegetables, while less than 1 in 10 (8%) achieve their target for fruit (**Charts 2 & 3**). These findings are lower than the most recent nationwide CDC survey of adults.[17] In the 2013 Behavioral Risk Factor Surveillance System (BRFSS), CDC researchers saw differences, by state, in the amount of fruits and vegetables U.S. adults are eating. Study results showed that overall, about 1 in 9 adults (13%) reported getting enough fruit and fewer than 1 in 10 (9%) got enough vegetables. The state-by-state analysis found variations ranging from 8% getting enough fruit in Tennessee to a high of 18% in California and for vegetables, ranging from 6% in Mississippi to the best being 13% in California.

Chart 2: Achievement of Daily Vegetable Consumption Target, 2014



Source: The NPD Group, Nutrient Intake Database[4]

Chart 3: Achievement of Daily Fruit Consumption Target, 2014



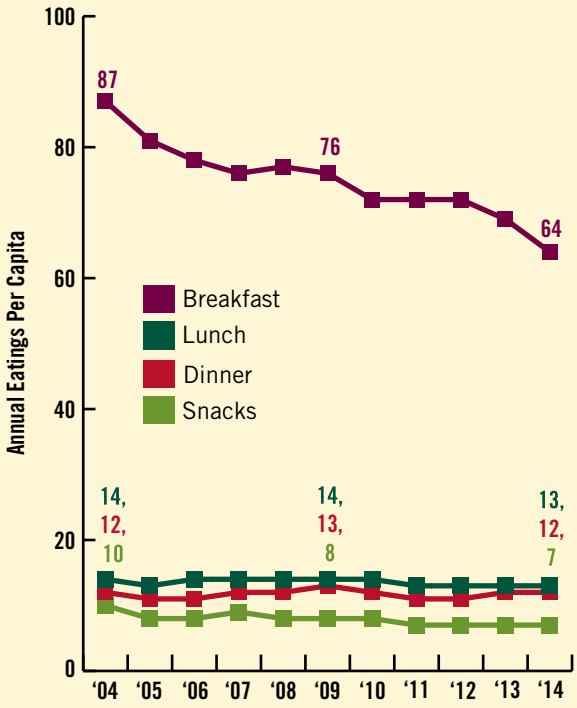
Source: The NPD Group, Nutrient Intake Database[4]

Why Consumption is Lower

Losses in fruit and vegetable consumption are tied to two big behaviors: a decline in the dinner side dish for vegetables, and reduced consumption of 100% fruit juice at breakfast (**Chart 4**). Staples such as orange juice, lettuce/salad, corn, and green beans are consumed less often and have led the decline in fruit and vegetable consumption. Fewer side dish salads also reduces the use of other salad related vegetables such as tomatoes and cucumbers.

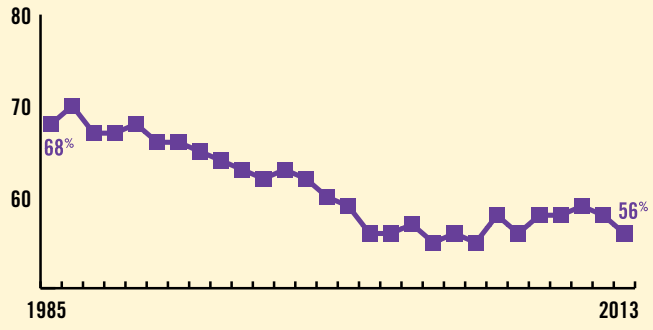
Vegetables have long been affected by shifts occurring at the dinner table. Americans have been looking for convenience at dinner. One way is to include fewer side dishes (**Chart 5**) and do so less often (**Chart 6**). They are also using fewer ingredients to prepare meals. This, along with steady growth in convenient options like ready-to-eat or frozen main dishes, has hurt vegetable consumption.

Chart 4: Fewer Americans Drink 100% Juice at Breakfast



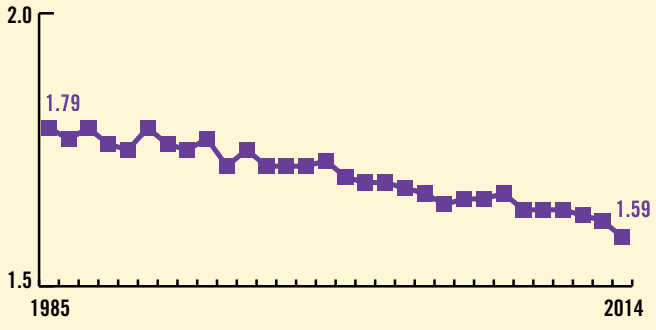
Source: The NPD Group, National Eating Trends®

Chart 5: Percent of In-home Dinners Including At Least One Side Dish



Source: The NPD Group, National Eating Trends®

Chart 6: Number of Side Dishes Served When a Side Dish is Present at Dinner



Source: The NPD Group, National Eating Trends®

Dietary Guidelines for Americans: Fruit and Vegetable Recommendations Over Time

1980
"Eat a variety of foods." and "Eat foods with adequate starch and fiber."

1985
"Eat a variety of foods." and "Eat foods with adequate starch and fiber."

1990
"Choose a diet with plenty of vegetables, fruit, and grain products" (at least 3 vegetable servings; 2 fruit servings).

1995
"Choose a diet with plenty of grain products, vegetables, and fruits" (3-5 servings of vegetable; 2-4 servings of fruit).

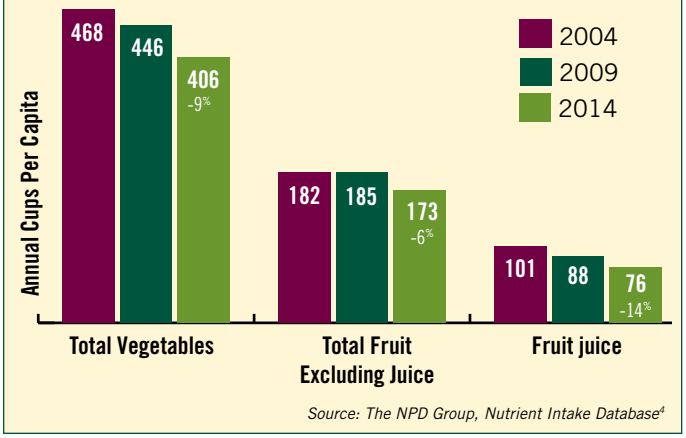
2000
"Choose a variety of fruits and vegetables daily" (3-5 servings of vegetable; 2-4 servings of fruit).

2005
1-2½ cups fruit; 1-4 cups vegetables, depending on energy needs; 5 vegetable subgroups include dark green, orange, legumes, starchy vegetables, and other vegetables.

2010
1-2½ cups fruit; 1-4 cups vegetables, depending on energy needs; 5 vegetable subgroups include dark green, red and orange, beans and peas, starchy, and other vegetables.

2015
Updated Dietary Guidelines are expected to be released.

Chart 8: Fruit and Vegetable Consumption by Adults Aged 45+, 2004-2014



Source: The NPD Group, Nutrient Intake Database[4]

The decrease in 100% fruit juice consumption could be attributed to any variety of factors, including ongoing interest in consuming low-carbohydrate foods, the ever-increasing competitive set of beverages available to consumers, and to policy recommendations discouraging their consumption.[18]

Do people drink too much juice? Consumption of 100% juice by young children falls within recommended limits.[19] For all Americans, whole fruit provides almost two-thirds of fruit in the diet, while 100% juice provides the remainder.[20] There is no clear evidence that 100% fruit juice replaces whole fruit in the diet. Compared to non-consumers, people who drank 100% fruit juice also ate more whole fruit.[21] NHANES data show that people drinking 100% fruit juice have better quality diets and more fiber, than those who don't drink juice.[22] In addition to providing key under-consumed nutrients and nutrients of concern like vitamin C, potassium, magnesium, vitamin D (fortified) and calcium (fortified), 100% fruit juice contains many naturally occurring phytochemicals and, for some, provides a significant level of these beneficial compounds in the American diet.[23-26]

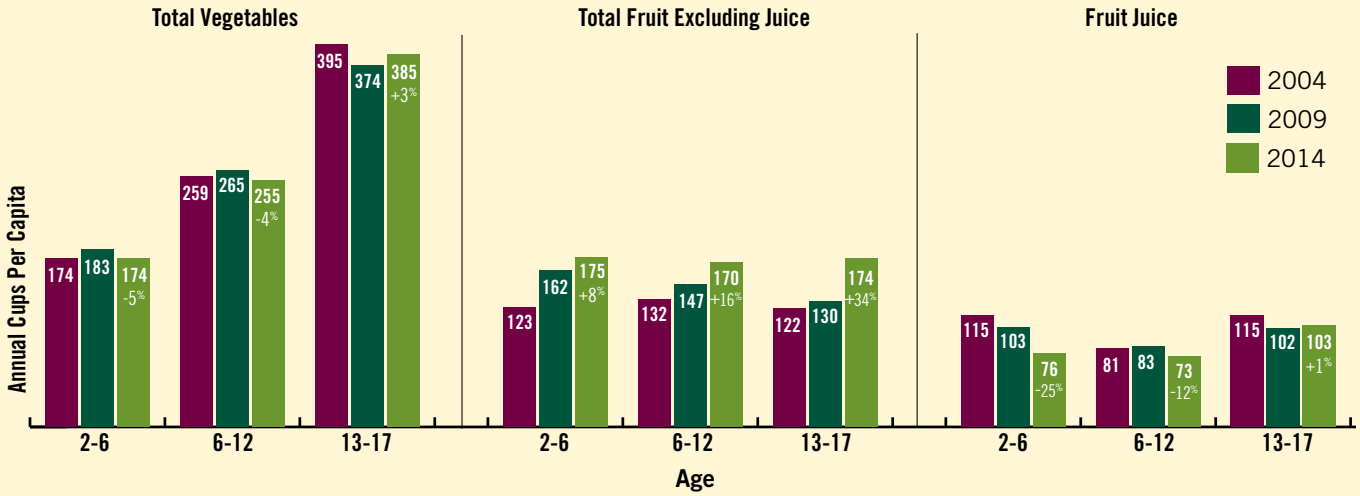
If 100% fruit juice decreases without an increase in whole fruit consumption, the shortfall in total fruit consumption will continue to worsen. The implication is not that 100% fruit juice should be consumed exclusively, but rather that both whole fruit and 100% juice contribute to a healthy lifestyle and should be encouraged.

Shifting Demographics

Over the past 5 years, children's fruit intake increased significantly (18%), while their vegetable consumption decreased slightly (3%) and consumption of 100% juice dropped more significantly (13%). Juice consumption dropped a full 25% among children under the age of 6, while fruit consumption rose the least (8%), compared to older children. Teens increased their intake of fruit and vegetables the most, by 34% for fruit, 3% for vegetables, and 1% for fruit juice between 2009-2014 (**Chart 7**).

Alternatively, both fruit and vegetable consumption has declined among adults over age 45 (**Chart 8**). One reason is that American's are preparing 'center of plate' protein meals *less* often. Instead, consumers are opting for more one dish meals like pizza or sandwiches. This impacts the use of side dishes, of which vegetables are the largest. This shift, combined with the long term trend toward simplifying the dinner meal (fewer sides and desserts), has driven declines for older consumers.

Chart 7: Fruit and Vegetable Consumption by Child Subset, 2004-2014



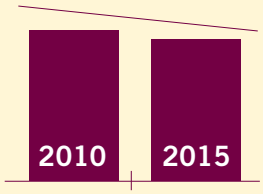
Source: The NPD Group, Nutrient Intake Database[4]

Estimates of Future Fruit and Vegetable Consumption

Consumption of total fruit and total vegetables are expected to grow about 4% in the next 5 years, or at the same rate as population growth, meaning flat per capita consumption.[27] This is in contrast to the higher rates that might be expected with the aging U.S. population who have high rates of diet-related health problems. If current food preparation and consumption behaviors among older consumers persist, the full growth potential of fruit and vegetables will likely not be realized during the coming years. This is due to a negative *generational* (cohort) effect for both fruit and vegetables, which means that 50+ year olds today are consuming fruit and vegetables less often than did their counterparts ten years ago.

Conversely, there is a positive generational effect for both fruit and vegetables for those under the age of 40, which bodes well for the long term future of fruit and vegetables. This group is consuming *more* fruit and vegetables than did their counterparts a decade ago.

Fruit and Vegetable Consumption Overview



Overall per capita consumption is down 5%

This decrease is driven primarily by:

- Vegetable Side Dishes
- Fruit Juice Consumption -13%
- Consumption Among 50+ Year Olds

Not offset by:

- +18% All Fruit (Not Juice) Among Children
- +10% Fresh Vegetables Among Children
- Consumption Among <40 Year Olds

Canned Fruits and Vegetables Help Meet National Goals

In an average week, Americans consume more than five (5.5) cans of fruits and vegetables. Those who receive food assistance through the Supplemental Nutrition Assistance Program (SNAP) and Women, Infant and Children Programs (WIC) consume 7.1 cans of fruits and vegetables, an additional 1.6 cans in an average week. [53]

One quarter (25%) of the fruit consumed in the average American household is sourced from cans; this proportion rises to nearly one-third (32%) of all fruit consumed in SNAP and WIC households. [54]

Just under one third (31%) of the vegetables consumed in the average American household is sourced from cans; this proportion rises to well more than one-third (39%) in SNAP and WIC households. [55]

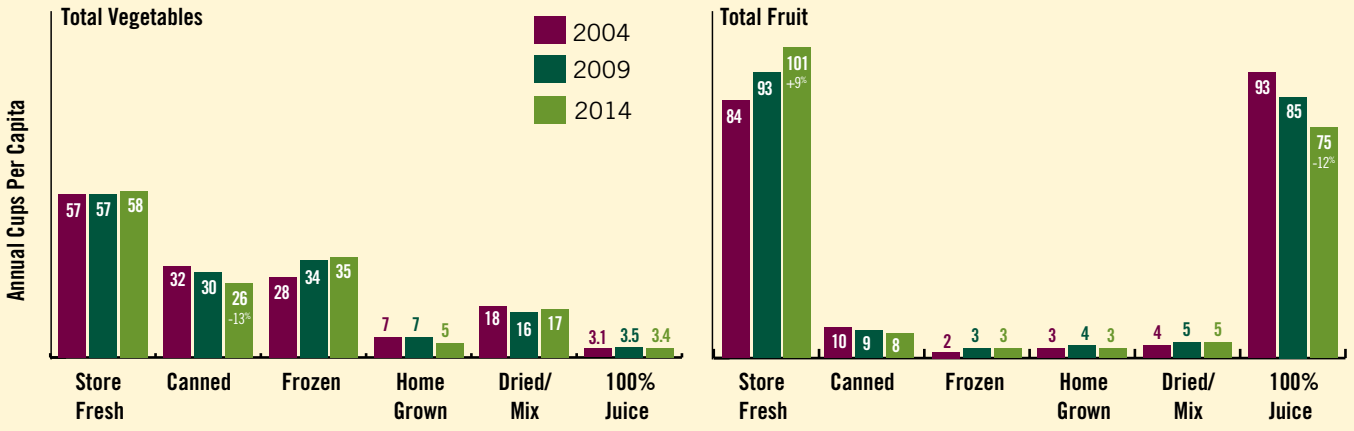
Adults and children who ate 6+ canned food items over two weeks were more likely to meet or exceed their recommended daily allowance for 17 essential nutrients than those who ate 1-2 canned food items over the same two-week period.[56]

Type of Fruit and Vegetable Consumed

Not all forms of fruits and vegetables have fared equally. The eating of fresh fruit from the grocery store or farmers market has grown 4% over the past 5 years (**Chart 9**). Fresh vegetables, while flat overall, have grown among children (10%) and young adults over the past 5 years. In contrast, canned fruits and vegetables, as well as dried fruit and homegrown, have lost favor. Homegrown is down as well, particularly for vegetables, as is dried fruit.

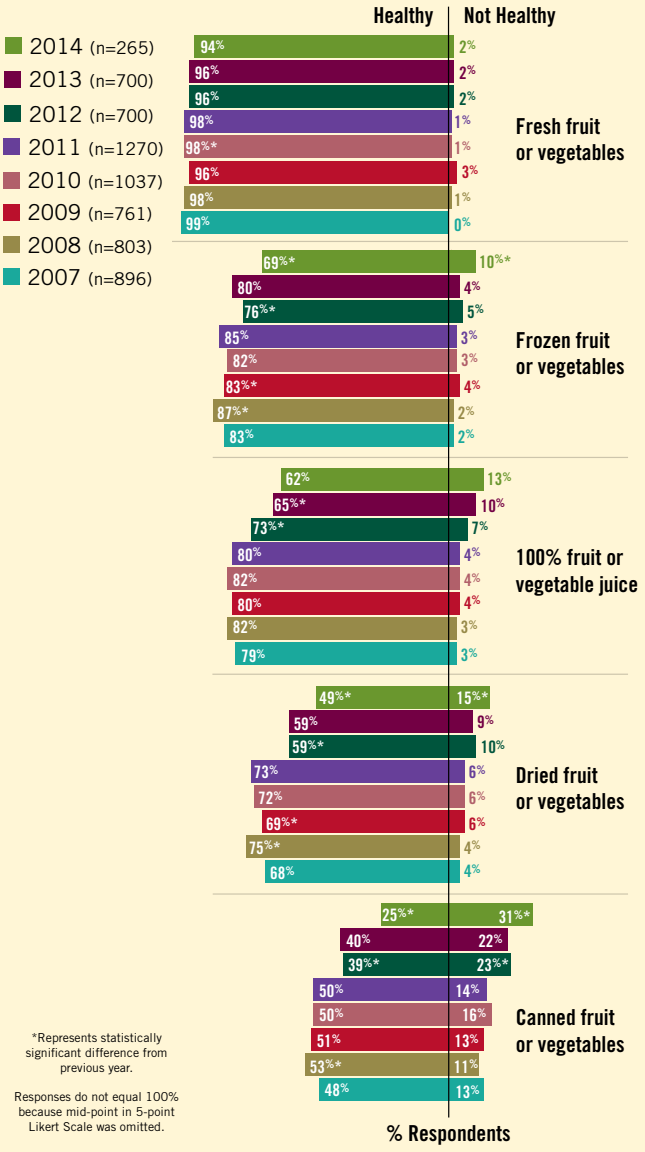
Despite the health benefits of eating more fruit and vegetables, canned, dried, frozen and juice forms are not generally perceived as healthy as fresh, which may explain their drops compared to fresh produce. In fact, mothers' perceptions that frozen, juice, dried, and canned forms are less healthy than fresh has continued to grow over time (**Chart 10**) with 2014 being the first year that more moms rated canned as 'not healthy' than 'healthy.' This is despite national dietary guidance policy. The Dietary Guidelines emphasize fresh, frozen, canned and dried fruits and vegetables, as do the Fruits & Veggies—More Matters brand guidelines, whose criteria were developed by CDC.[49] Walmart and Disney nutrition guidelines, that also include all forms of fruits and vegetables, have received recognition by the *Let's Move* initiative.[50-52]

Chart 9: In-home Consumption of Various Forms of Fruit and Vegetables, 2004-2014



Source: The NPD Group, Nutrient Intake Database[4]

Chart 10: Moms' Perceived Healthfulness of Different Forms of Fruits and Vegetables



*Represents statistically significant difference from previous year.

Responses do not equal 100% because mid-point in 5-point Likert Scale was omitted.

Source: PBH, Moms' Attitudes and Beliefs Related to Fruit & Vegetable Consumption, 2007-2014[78]

Why All Forms of Fruits and Vegetables Count

'All Forms' Link to Better Health: Studies demonstrate the importance of fruits and vegetables to health, but none was specific to the 'form' of the fruits and vegetables, e.g. fresh, frozen, canned, dried or 100% juice.[28-32] Fruit and vegetables, regardless of form, provide under-consumed nutrients important to public health. These include folate, magnesium, potassium, dietary fiber, and vitamins A, C, and K. Fruit and vegetables, regardless of form, contain phytochemicals that appear to play an important role in disease prevention.[33-38]

Packaged Fruit and Vegetables are not the Chief Culprits for Sodium and Added Sugar: Fruit and vegetables are not the main contributors to Americans' sugar and sodium intake, regardless of the form in which they are consumed. All canned, frozen, and dried fruits combined contributed less than 2% of the added sugar in most Americans' diets,[39] and vegetables added less than 1% of the sodium.[40] Most vegetables on the market today meet FDA's 'healthy' definition, even with all of the juice in the can, which must be represented on the Nutrition Facts box. Draining vegetables can reduce sodium by nearly 40%.[41] Draining heavy syrup from canned fruit can also reduce sugar content, though the quantity has not yet been determined.

'All Forms' Improves Self-Efficacy: Mothers feel they can help their families eat more fruit and vegetables when they know that all forms (canned, frozen, fresh, dried, 100% juice) help them meet their daily goals.[42] When mothers feel guilty or that they are a 'bad mother' if they don't feed their family fresh fruit and vegetables (or 'without added salt, fat, or added sugars'), they simply 'give up.'[43] For example, three out of four moms (76%) say canned fruit and vegetables help them get produce into their kids' diet[44] and more than half of Americans (56%) feel canned fruits and vegetables are extremely or very important in helping them prepare convenient, nutritious and affordable meals. This fraction rises to two-thirds (67%) of those using federal food assistance (Supplemental Nutrition Assistance Program (SNAP), and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).[45]

'All Forms' Correlates with Greater Consumption: Shoppers with all forms of fruit and vegetables available in their home report eating more fruits and vegetables overall.[46] Likewise, adults and children who eat canned fruit and vegetables eat more fruit and vegetables overall.[47,48] Exclusively recommending one form of fruit or vegetable over another ignores the benefits of each form and limits consumer choice.

D- Summary of Progress

Fruit and Vegetable Consumption

Per capita fruit and vegetable consumption (excluding fried potatoes) declined 5% since our 2010 Report Card, for an average of 1.68 cups per day. Though fruit consumption increased slightly, the overall decline has been driven primarily by decreased consumption of vegetables and fruit juice. This is due to a decline in the dinner vegetable side dish to help simplify meals and reduced consumption of 100% fruit juice, especially at breakfast.

Over the past 5 years, children's fruit intake increased significantly (18%), while their vegetable consumption decreased slightly (3%) and consumption of 100% juice dropped significantly (13%). Alternatively, both fruit and vegetable consumption declined among all adults over age 45.

Not all forms of fruits and vegetables have fared equally. Fresh fruit and vegetables consumption has grown while canned has lost favor. Despite the health benefits of eating more fruit and vegetables, canned, dried, frozen and juice forms are not perceived as healthy as fresh, a perception that has worsened over time.

Nutrition Promotion and Marketing

Food choices are affected by many factors, but one key area impacting food choice—especially among children—is food marketing. Foods high in calories and low in nutrients are often marketed extensively, but there are significantly fewer marketing initiatives that promote the consumption of fruits and vegetables. Strategies that were identified in 2005 and continue to be viewed as critical to changing the marketing environment include:

- Encourage food, beverage, restaurant, and entertainment companies to shift the mix of their marketing to children to encourage the consumption of fruits and vegetables.
- Promote fruit and vegetable intake through the federal nutrition assistance programs, including use of social marketing approaches through the Supplemental Nutrition Assistance Program (SNAP-Ed), and strengthening and increasing funding for the Team Nutrition Network.
- Support the dissemination of a behaviorally-focused communication, policy, and environmental change strategy and toolkit-like products that can be used consistently by all federal, state, nonprofit, business, and community organizations in their efforts to encourage consumption of fruits and vegetables. A clear, actionable, and consistent core message/call to action that consumers view as achievable should be used.

Current Children's Food and Beverage Advertising Initiative Members

American Licorice Company
(joined May, 2015)

Burger King Corp.

Campbell Soup Company

ConAgra Foods, Inc.

Ferrero USA, Inc.
(joined September, 2013)

General Mills, Inc.

Kellogg Company

Kraft Foods Group, Inc.

Mars, Incorporated

McDonald's USA, LLC

Mondelez Global, LLC

Nestlé USA

PepsiCo, Inc.

Post Foods, LLC

The Coca-Cola Company

The Dannon Company

The Hershey Company

Unilever United States

Progress Since 2010

Food Marketing Policies

In 2006, the Institute of Medicine (IOM) concluded that food and beverage advertising targeted at children influences their product preferences and food choices, and that food and beverage marketing practices geared to children and youth "contribute to an environment that puts their health at risk."[57] Several food and entertainment companies pledged that same year, in partnership with the Council of Better Business Bureaus' (CBBB) Children's Food and Beverage Advertising Initiative (CFBAI), to voluntarily improve the nutritional quality of foods advertised to children.[58]

A recent study examined TV ads before and after the launch of CFBAI, reflecting the years 2007 vs. 2013.[59] Major food and beverage companies were each meeting their own pledge to advertise healthier products to children, but these efforts did little to shift food advertising to children to genuinely healthy food products. In fact, by 2013, three out of four products advertised to children on TV did not meet government guidelines for what constitutes a healthy diet for children, and no ads promoted products in the healthiest food category. Researchers in this study believed that CFBAI companies' standards for which foods are considered healthy were not high enough, and almost a third of the ads measured came from companies that were not CFBAI members, limiting the overall impact of the effort.

An additional cause for concern is that CFBAI's protections do not ensure that all children are protected from other, increasingly prevalent forms of unhealthy food marketing. CFBAI's definitions exclude child-and youth-targeted product packaging, in-store promotions, and toy premiums. In 2015, an expert panel convened by Healthy Eating Research recommended expanding the scope of CFBAI standards.[60] They urged CFBAI to include adolescents, ages 12-14, and to define media and other venues as "child-directed" if children constitute 25% or more of the audience, rather than the current 35% threshold, or if the marketing strategies, techniques, characteristics, or venue suggest that children are the target demographic for the marketing message.

Chart 11: Total Youth-Directed Marketing Expenditures for Reported Brands and Percent of Total Marketing Expenditures, By Food Category (2006 vs 2009)

	2006			2009		
Food Category	Expenditures Meeting Youth (2-17) Criteria ($1000)	Total Marketing Expenditures ($1000)	% of Total Marketing Expenditures Meeting Youth (2-17) Criteria	Expenditures Meeting Youth (2-17) Criteria ($1000)	Total Marketing Expenditures ($1000)	% of Total Marketing Expenditures Meeting Youth (2-17) Criteria
Restaurant Foods	732,644	2,529,445	29.0	714,298	2,959,566	24.1
Carbonated Beverages	526,370	3,132,150	16.8	395,128	2,470,781	16.0
Breakfast Cereal	236,553	792,042	29.9	186,085	718,988	25.9
Snack Foods	138,713	852,342	16.3	123,285	802,138	15.4
Juice & Non-carbonated Beverages	146,601	1,340,266	10.9	121,156	1,029,864	11.8
Candy/Froz. Desserts	117,694	456,677	25.8	79,006	534,651	14.8
Dairy Products	54,645	265,887	20.6	78,457	459,433	17.1
Prepared Foods & Meals	64,143	424,858	15.1	65,987	547,552	12.1
Baked Goods	62,549	153,393	40.8	16,893	67,127	25.2
Fruits & Vegetables	11,563	46,769	24.7	7,160	55,915	12.8
TOTAL	**2,091,474**	**9,993,829**	**20.9**	**1,787,455**	**9,646,016**	**18.5**

Source: FTC, A Review of Food Marketing to Children and Adolescents. Follow-Up Report[64]

In late 2013, CFBAI's uniform nutrition criteria went into effect so that each member company is now following the same standards.[61] The uniform standards represent an effort by CFBAI to strengthen the criteria for defining a healthy product.

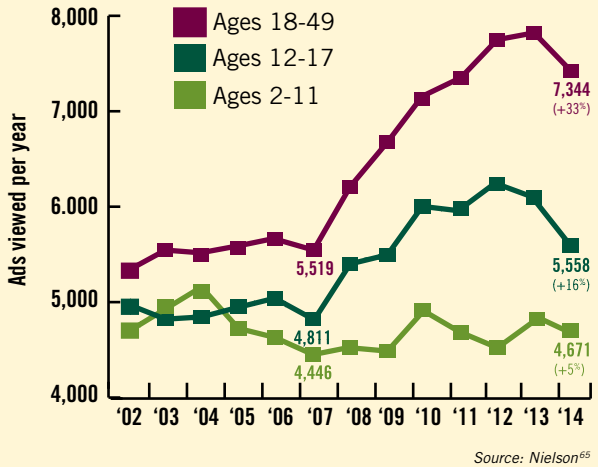
Finally, a 2010 report of companies that market food to children revealed that two-thirds (68%) did not have a policy for food marketing to children.[62] Food and beverage manufacturers were more likely to have such food marketing policies. Overall, 64% of food and beverage manufacturers, 24% of chain restaurants, and 22% of entertainment companies had guidelines for marketing food to children. Of the companies with these policies, 94% of the food and beverage manufacturers, 50% of the restaurants, and 46% of the entertainment companies surveyed had nutrition standards or policies not to market any of their products to children under the age of 12. This 2010 report continues to serve as a baseline for the purposes of monitoring such changes in corporate policies over time, but was not yet updated at the time of this report card.

Marketing Expenditures for Fruits and Vegetables

A Federal Trade Commission (FTC) congressional report reviewed leading food industry expenditures marketing to children in 2006 and found that of the $2B spent on marketing to youth, about $11M—0.6%—was spent on fruit and vegetable marketing (excluding 100% juice) to youth.[63] A 2009 follow-up report shows that, while overall food marketing to youth dropped almost 20% to $1.8B, only $7M—0.4%—was spent on fruit and vegetable marketing.[64] This is down 50% from just three years earlier (**Chart 11**).

It is reported that children ages 2-11 saw nearly 4,700 food ads in 2014, 5% more than they did in 2007 when most companies implemented their CFBAI pledges (**Chart 12**).[65] Advertising for fruits and vegetables increased, but numbers were small (**Charts 13-15**). Children saw an estimated 39 ads for fruits and vegetables in 2014 compared to 22 in 2007. Adolescents' exposure to fruit and vegetable ads rose by the same number between 2007 to 2014. In 2014, children saw 14 candy ads and 31 fast-food ads for every fruit or vegetable commercial.[66] Despite some positive movement, advertising for fruits and vegetables represents no more than 1% of food and beverage ads viewed by children and teens.

Chart 12: Total Exposure to Food-related Advertising on TV



Source: Nielson[65]

Chart 13: Change in Average Number of Ads Viewed for Children (2-11 years)

Category	Ads viewed per year				Change in ads viewed, 2014 vs.		
	2004	2007	2013	2014	2004	2007	2013
Foods and Beverages	3847	3036	3021	2874	-25%	-5%	-5%
Fruits and vegetables	4	22	32	39	864%	75%	22%
Restaurants	1252	1410	1700	1796	44%	27%	6%
Grand Total	5099	4446	4787	4671	-8%	5%	-2%
Percent of Ads as fruit and vegetables	.08%	.05%	.7%	.8%			

Source: Nielson[65]

Chart 14: Change in Average Number of Ads Viewed for Adolescents (12-17 years)

Category	Ads viewed per year				Change in ads viewed, 2014 vs.		
	2004	2007	2013	2014	2004	2007	2013
Foods and Beverages	3200	2883	3636	3283	3%	14%	-10%
Fruits and vegetables	6	22	36	36	505%	65%	0%
Restaurants	1629	1928	2370	2276	40%	18%	-4%
Grand Total	4829	4811	6007	5558	15%	16%	-7%
Percent of Ads as fruit and vegetables	.1%	.5%	.6%	.7%			

Source: Nielson[65]

Chart 15: Change in Average Number of Ads Viewed for Adults (18-49 years)

Category	Ads viewed per year				Change in ads viewed, 2014 vs.		
	2004	2007	2013	2014	2004	2007	2013
Foods and Beverages	3453	3221	4562	4237	23%	32%	-7%
Fruits and vegetables	14	43	66	57	308%	33%	-14%
Restaurants	2031	2298	3137	3107	53%	35%	-1%
Grand Total	5484	5519	7699	7344	34%	33%	-5%
Percent of Ads as fruit and vegetables	.3%	.8%	.9%	.8%			

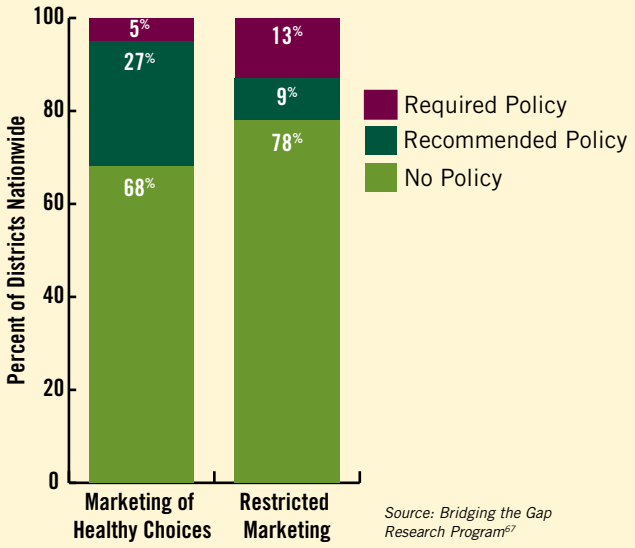
Source: Nielson[65]

Food Marketing to Children at School

Marketing of food and beverages of poor nutritional quality often appears throughout schools in the form of posters, vending machine fronts, in-school television advertisements, school newspapers, textbook covers, sports equipment, and scoreboards. Through the Child Nutrition and WIC Reauthorization Act of 2004, and more recently the Healthy, Hunger-Free Kids Act of 2010, school districts are required to have a school wellness policy that includes goals for nutrition promotion and education, while still permitting local flexibility. Bridging the Gap (BTG) summarizes some of the policy actions taken by public school districts in the 2012-2013 school year.[67] As seen in **Chart 16**,

- 68% of districts had no policy regarding the promotion of healthy food choices in schools.
- Only 5% of districts required and 27% recommended the marketing and promotion of healthy choices (e.g., pricing strategies to encourage healthy items, labeling healthy foods and beverages, posting nutrition education material in the cafeteria).
- 13% of districts required and 9% recommended restricting the marketing of all forms of advertising and promotion of unhealthful items on school grounds. 78% of districts did not have a policy at all.

Chart 16: District Wellness Policy Strategies for Food and Beverages Marketing and Promotion, SY 2012-2013



Source: Bridging the Gap Research Program[67]

Special Initiatives for Children

Since the 2010 Report Card, two new efforts to market fruit and vegetables to children are underway:

Sesame Street

In October, 2013, Sesame Workshop and the Produce Marketing Association (PMA) joined the Partnership for a Healthier America (PHA) in a two-year agreement to help promote fresh fruit and vegetable consumption to kids through the Eat Brighter! program.[68] The agreement allows growers, suppliers and retailers to take advantage of the Sesame Street brand without a licensing fee, using characters like Big Bird and Elmo to help deliver messages about fresh (only) fruits and vegetables. Initially the agreement existed through the end of 2016, but a two-year extension was recently announced to allow use of characters without a licensing fee through the end of 2018.[69] As of July 2015, nearly 60 suppliers have licensing agreements. Those participating in the program for about six months are reporting positive sales lifts of 1-2% on Eat Brighter! branded items.[70]

FNV

In 2015, Partnership for a Healthier America (PHA) and a collaboration of companies, celebrities, athletes and foundations launched FNV—a brand focused on increasing consumption and sales of fruits and vegetables among teens and moms.[71] The premise of the effort is to use big brand marketing tactics to encourage consumption of fruits and vegetables.[72] The campaign's first year includes a launch in two lead markets—Fresno, California and Hampton Roads, Virginia. In-market activations include digital, print and out-of-home advertising; sponsorships of youth sports leagues and teams; local business and retail activations; and activations at local events. Additionally, a robust research plan will accompany FNV, measuring sales of fresh, frozen, canned and dried in the lead markets, consumption in both markets as well as nationally, and awareness, recall and resonance testing. Success in the two lead markets could help justify additional spending by industry and government partners for the marketing of fruit and vegetables.

Fruit and Vegetable Marketing to Adults

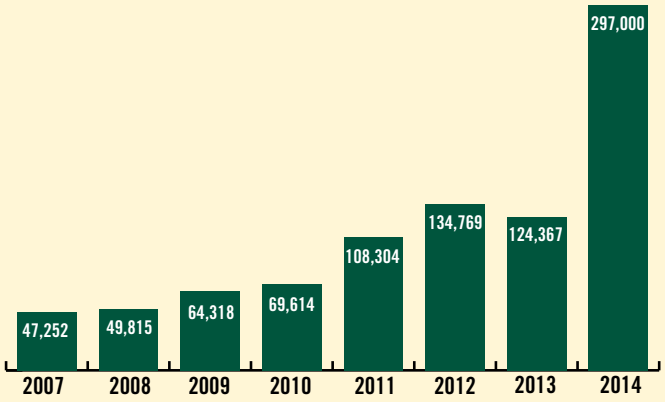
Fruits & Veggies—More Matters®

With the large increase in the amount of fruits and vegetables recommended in the *2005 Dietary Guidelines for Americans*, public health and private organizations recognized the need to revisit the 5 A Day messaging which had been in place at the national level since 1991 and in California since 1988.[73, 74] Extensive formative research was conducted, including interviews, ethnographies, focus groups and an on-line survey. Fruits & Veggies—More Matters®, the successor identity for 5 A Day, was introduced to the public in 2007.[75]

Fruits & Veggies—More Matters provides information through a consumer website, FruitsAndVeggiesMoreMatters.org (**Chart 17**), and through a variety of intermediaries, including supermarkets, packaging, educators, health professionals, and social media.[76] To date, nearly 400 private sector entities are licensed to use the brand in their marketing materials. More than 3,100 intermediaries link their websites to FruitsAndVeggiesMoreMatters.org (**Chart 18**), and total media impressions, inclusive of social media, has risen significantly in recent years (**Chart 19**). Overall, of moms familiar with the campaign, 39% say that it motivates them to help themselves and/or their family to eat more fruits and vegetables (**Chart 20**), and 70% say it is a reminder to do so.[77]

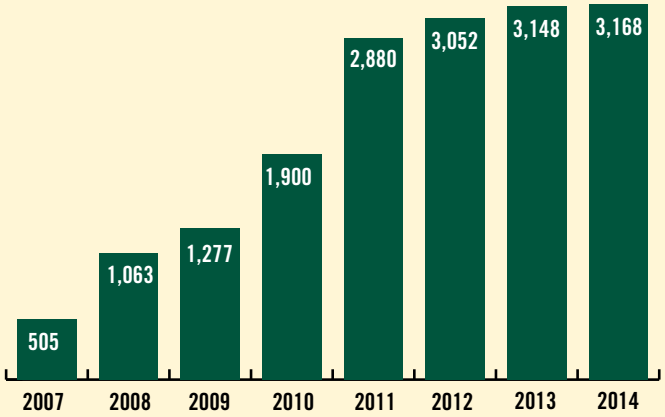
fruits & veggies more matters®
FruitsAndVeggiesMoreMatters.org

Chart 17: Average Monthly Visits to FruitsAndVeggiesMoreMatters.org



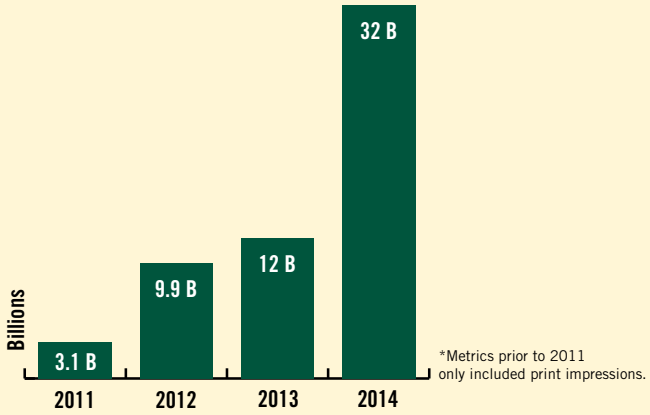
Source: PBH Annual Reports (Google Analytics)[76]

Chart 18: All Site Referrals/Links to FruitsAndVeggiesMoreMatters.org



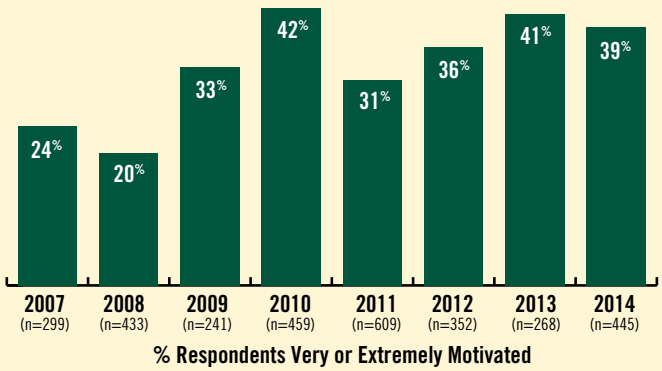
Source: PBH Annual Reports (Google Analytics)[76]

Chart 19: Total Fruits & Veggies—More Matters Impressions for Print and Online Media Outlets



Source: PBH Annual Reports (Meltwater)[76]

Chart 20: How Well Fruits & Veggies—More Matters Motivates Moms



Source: PBH, Moms' Attitudes and Beliefs Related to Fruit & Vegetable Consumption, 2007-2014[78]

Mom as Gatekeeper

- Moms with children ages 10 and under report that the main barriers to increasing their family's fruit and vegetable consumption are different family preferences, the need for new preparation ideas, and cost.
- These moms are most likely to consult the Internet first, followed by family, for information on how to get her family to eat more fruits and vegetables.
- Learning from other moms' approaches to increasing their family's fruit and vegetable consumption can also prove useful. Often the approaches that are reportedly most successful are not the ones tried by many moms. Setting out a fruit bowl, involving children in growing, selecting, or preparing fruits and vegetables, having vegetables cut up and ready to eat, hiding fruits and vegetables in other foods, and providing tangible rewards when a child tries a new dish are the most successful approaches, yet no more than half of all moms have tried these approaches.

Source: PBH, Moms' Attitudes and Beliefs Related to Fruit & Vegetable Consumption, 2007-2014[78]

Marketing of Canned and Frozen Fruits and Vegetables

Concern over a decline in canned and frozen fruit and vegetable consumption, in part, led the Can Manufacturers Institute to launch a *Cans Get You Cooking* campaign in early 2013 and the American Frozen Food Institute to launch a similar campaign, *Frozen. How Fresh Stays Fresh*, to promote frozen fruits and vegetables in 2014.[79, 80]

Cans Get You Cooking is a multi-year, fully-integrated campaign funded by the food can manufacturers of the Can Manufacturers Institute. It builds on the insights from consumer research revealing strong, positive associations with canned food including nutrition, quality and convenience. The campaign is designed to increase awareness about the many benefits of canned foods and show how they easily fit into dietary guidance. It includes partnerships with national brands and retailers to engage, inform and inspire consumers to cook with confidence and make more, healthy homemade meals. Since its inception, the campaign has partnered with 30 retailers representing more than 6,110 stores and with branded and private label companies to reach more than 1.3 billion people through media partnerships.

The American Frozen Food Institute's (AFFI) *Frozen. How Fresh Stays Fresh* is a comprehensive, multi-year national advertising, social media and public relations campaign designed to change the way consumers think and feel about the frozen food category. The initial phase of the campaign launched in November 2013 with a public relations initiative to promote the findings of a multi-year study conducted by the University of Georgia which found the nutrient profile of frozen fruits and vegetables to be equal, and often superior, to fresh fruits and vegetables.

The campaign is engaging consumers where they work, live and shop to inform that freezing is a natural 'pause button' that locks in the nutrients and flavor of just picked fruits and vegetables. The campaign emphasizes that freezing is how fresh foods stay fresh. As of July 2015, its reach is estimated to be 2.2 billion media impressions.

MyPlate

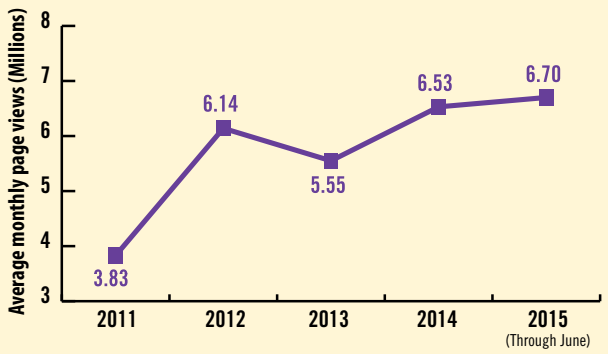
Released in June of 2011, MyPlate is the latest in over 120 years of nutrition guides from USDA. The USDA's first dietary guidelines were published in 1894 as a farmers' bulletin.[81] Following the release of the first recommended Dietary Allowances in 1941, USDA has provided a variety of nutrition guides for the public, including the Basic 7 (1943–1956), the Basic Four (1956–1992), the Food Guide Pyramid (1992–2005), and MyPyramid (2005–2011).

MyPlate has key messages, including "make half your plate fruits and vegetables," which offers the most prominent fruit and vegetable message of any of the past nutrition guides. Tools to support MyPlate, healthy eating, and key messages can be found through ChooseMyPlate.gov. They include **SuperTracker**,

through ChooseMyPlate.gov. They include **SuperTracker**, to help individuals plan, analyze, and track their diet and physical activity and **What's Cooking? USDA Mixing Bowl**, an interactive tool for healthy meal planning, cooking and shopping. As of July 2015, MyPlate has 80,000+ @MyPlate Twitter followers and 61,000+ MyPlate Facebook likes.

MyPlate messages are carried in all federal nutrition assistance programs. USDA's Center for Nutrition Policy and Promotion (CNPP) works with 100 National Strategic Partners and more than 7,700 Community Partners who actively help support the MyPlate messages at the national or local level.[82] Downloaded materials from ChooseMyPlate.gov have steadily risen, from more than 24 million in 2012 to 45 million in 2014.[83] In fact, as of June 2015, there have been more than 9 million total downloads from the 10 Tips Series, with 17% of these (1,546,000) specific to fruit and vegetables. Average monthly ChooseMyPlate.gov page views have also steadily increased since its 2011 launch (**Chart 21**).

Chart 21: Average Monthly Page Views on ChooseMyPlate.gov



Source: USDA, CNPP[84]

Nutrition Education in Federal Nutrition Assistance Programs

In recognition of the need to promote healthier diets, the federal government has, for decades, developed and implemented nutrition education programs. Most, but not all, of those programs are administered in conjunction with federal nutrition assistance programs. Four USDA programs, administered through the Food and Nutrition Service (FNS), dominate the federal nutrition education landscape. These are:

SNAP-Ed

SNAP-Ed, the nutrition education arm of the Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program, which enables all SNAP agencies to fund comprehensive approaches to nutrition education and physical activity for a low-income audience of nearly 80 million individuals. The Healthy Hunger-Free Kids Act of 2010 transformed SNAP-Ed into a Nutrition Education and Obesity Prevention Grant Program, explicitly adopting obesity prevention as a major emphasis and embracing comprehensive community-based and public health approaches. Today, evidence-based policy, system and environmental strategies are being incorporated into SNAP-Ed programming to supplement existing educational strategies.[84]

Team Nutrition

Team Nutrition, which is responsible for school nutrition education efforts accompanying the school meals programs, provides training and technical assistance for foodservice staff, nutrition education for children and their caregivers, and school and community support for healthy eating and physical activity. Team Nutrition targets 50 million school children in more than 98,000 public schools nationwide. It utilizes a network of communication channels to deliver nutrition messages via classroom activities, school-wide events, home activities, community programs, and media events and coverage.

The WIC Nutrition Education Program

The WIC Nutrition Education Program, which provides nutrition education to women in the Special Supplemental Program for Women, Infants, and Children (WIC), is available to all WIC participants. Local WIC agencies must offer to participants no less than two nutrition education sessions every six months. The program is designed to improve the health, dietary habits, and nutritional status of program participants. Each month the program reaches 8 million women, infants, and children, with 75% of participants under age 5.[85] WIC serves 53% of all infants born in the United States.

EFNEP

EFNEP, the Expanded Food and Nutrition Education Program, reaches over half a million low-income adults and low-income families each year. Using a peer-to-peer education model, EFNEP graduates improve their diets, improve nutrition practices, stretch their food dollars farther, handle food more safely, and increase their physical activity levels. Unlike the other programs, EFNEP does not provide food assistance.

Chart 22 shows that nutrition education spending represented a very small percentage, less than 1%, of the amount spent on nutrition assistance programs in Fiscal Year (FY) 2012/2013.[86] The primary objective of these programs is, and has always been, to improve access to food for low-income U.S. residents. More recently, emphasis on nutrition and dietary quality has grown. Given the extent to which Dietary Guideline goals are not being met, especially among low-income Americans, and the costs of diet-related diseases, robust nutrition education programming would seem to be a wise investment. Instead, nutrition education spending for the nutrition assistance programs represents only about 1% of total spending for these programs.

Chart 23 and 24 reports data for nutrition education spending in Fiscal Year (FY) 2008 and FY 2000.[87] A comparison of FY 2008 and FY 2000 data with FY 2013 data in **Chart 22** illustrates that, in terms of nominal dollars, federal spending on nutrition education has increased significantly for each of the nutrition assistance programs. Total federal nutrition education spending in these programs grew from $325 million in FY 2000 to $685 million in FY 2008 to $765 million in FY 2012/2013.

The comparison also shows, however, that, as a percent of total nutrition assistance spending, total nutrition education spending has declined. In other words, nutrition education appears to remain an afterthought relative to other food spending priorities. While overall nutrition assistance spending in these programs increased by $45 billion between FY 2008 and the average of FY 2012/2013, nutrition education spending grew by only $79 million.

History of Nutrition Education in SNAP

1981

Farm Bill authorized nutrition education in Food Stamps (FSNE) as an optional State Administrative Expense, qualifying states to claim federal cost-share (matching funds).

1992

7 states conducted FSNE.

1995-97

22 states received USDA planning grants to establish FSNE social marketing nutrition networks through federal cost-share.

2004

50 states and DC conducted FSNE.

2008

Farm Bill changed Food Stamps to the Supplemental Nutrition Assistance Program (SNAP). FSNE became SNAP-Ed.

2010

Healthy, Hunger-Free Kids Act established SNAP-Ed as the Nutrition Education and Obesity Prevention Grant Program in the Farm Bill, eliminated the cost-share; aligned eligibility with other means-tested assistance programs; added physical activity, community and public health approaches; and required evidence-based interventions.

2014

124 SNAP-Ed State Implementing Agencies ran statewide initiatives as partners with their SNAP State Agency.

45,000+ low-resource community sites received SNAP-Ed service. State Implementing Agencies include Cooperative Extensions, non-profit organizations, state and local health departments, universities, and Indian Tribal Organizations.

Chart 22: Nutrition Education for Nutrition Assistance Programs, FY 2012/2013

Program	Nutrition Education Spending ($Millions)	Food Assistance Program Spending ($Billions)	Nutrition Education as a % of Total Spending
EFNEP	65.3	Not Applicable	Not Applicable
SNAP	342.5	79.170	0.4%
Team Nutrition	16.5	15.306	0.1%
WIC	405.8	6.639	6.1%
Total	**764.8**	**101.115**	**0.7%**

Source: Rosenfeld A. 2015 Gap Analysis[86]

Chart 23: Nutrition Education for Nutrition Assistance Programs, FY 2008

Program	Nutrition Education Spending ($Millions)	Food Assistance Program Spending ($Billions)	Nutrition Education as a % of Total Spending
EFNEP	66	Not Applicable	Not Applicable
SNAP	314.1	37.642	0.8%
Team Nutrition	13.3	11.698	0.1%
WIC	358	6.476	5.5%
Total	**685.4**	**55.816**	**1.2%**

Source: Rosenfeld A. 2015 Gap Analysis[86]

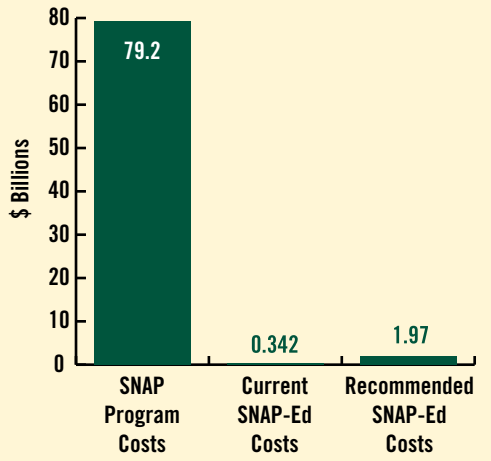
Chart 24: Nutrition Education for Nutrition Assistance Programs, FY 2000

Program	Nutrition Education Spending ($Millions)	Food Assistance Program Spending ($Billions)	Nutrition Education as a % of Total Spending
SNAP	99	18.8	0.5%
Team Nutrition	5.2	9.856	0.1%
WIC Nutrition Education	220.8	4.153	5.3%
Total	**325**	**32.809**	**1.0%**

Source: Rosenfeld A. 2015 Gap Analysis[86]

Adequately funded, effective education programs can help close the consumption gap. From FY 2008 to FY 2013, for example, the Expanded Food and Nutrition Education Program (EFNEP) for low-income families led to consumption increases that filled about 55% of participants' consumption gap for fruits and 26% of the gap for vegetables. However, despite EFNEP's success, USDA's commitment to nutrition education remains weak. Annual spending per program participant varied greatly from program to program, from $48.50 for the high-impact EFNEP to $7.28 for SNAP, which reaches 47 million individuals, and $.53 for the school meals programs, which reach 31 million youth.

Chart 25: Cost of Bringing SNAP Education to an Effective Level



Source: Rosenfeld A. 2015 Gap Analysis[86]

For SNAP and school meals programs, spending averaged just 15% and 1% of EFNEP spending per participant, respectively. WIC, which spends nearly as much as EFNEP on nutrition education per participant, allocated about 6% of total program spending for nutrition education. SNAP allocated only 0.4%, while school meals programs allocated 0.1%.

The added cost of bringing nutrition education funding to more effective levels in SNAP was estimated to be $1.63 billion for the FY 2012/2013 period. Filling that spending gap would have required a nearly six-fold spending increase from $342 million to $1.97 billion. That increase in spending would be equal to only 2.1% of the $79.2 billion average annual cost of the SNAP program in the FY 2012/2013 period (**Chart 25**).

Given the stagnation of fruit and vegetable consumption and surging costs associated with diet-related diseases, this lack of commitment to nutrition education is a troubling symptom of our nation's inability to make the nutrition health of Americans a top spending priority.

F Summary of Progress

Nutrition Promotion and Marketing

Despite modest improvement since the 2010 Report Card, exposure to TV advertising of fruits and vegetables continues to represent no more than 1% of food and beverage ads viewed by children, teens, and adults.

New efforts to market fruit and vegetables are underway. First, in 2011, USDA's MyPlate replaced MyPyramid, with a key message to "make half your plate fruits and vegetables." More recently, Sesame Street characters are being placed on produce packaging; a new teen-focused FNV brand with heavy activation in two test markets is underway; and national *Cans Get You Cooking* and *Frozen: How Fresh Stays Fresh* campaigns include the promotion of canned and frozen produce. These new efforts are in addition to the national Fruits & Veggies—More Matters campaign noted in the last report card, which replaced 5 A Day in 2007. With a combined annual budget of less than $20 million, most of these marketing and promotion activities do not include paid media. Instead they rely on 'earned' media, in-store activation, social media, and working through influencers like media, bloggers, industry, and dietitians.

In contrast, the nutrition education efforts within federal nutrition assistance programs (SNAP-Ed, Team Nutrition, WIC Nutrition Education Program, and EFNEP) are supported by a combined budget of $765 million, which has increased over the past 5 years. However, when viewed as a percent of total nutrition assistance spending, nutrition education spending has declined from 1.2% to 0.7% of spending during that time. In other words, overall nutrition assistance spending in these programs increased by $45 billion in 5 years, but nutrition education spending grew by only $79 million. In SNAP alone, bringing nutrition education funding to more effective levels would require a nearly six-fold spending increase from $342 million to $1.97 billion. Given the extensive cost of diet-related diseases, much of it born by government programs, robust and adequately funded nutrition education programming and/or marketing would be a wise investment.

Updated Strategies

Add new strategy: Increase nutrition education funding within federal nutrition assistance programs to more effective levels; include education and marketing approaches about all forms of fruits and vegetables.

Supermarkets and Other Retailers

Supermarkets and other retailers offer an unprecedented opportunity to increase consumers' access to fruit and vegetables, and to provide them with the knowledge and skills they need to increase their purchases and consumption. Given that there are more than 37,000 supermarkets nationwide,[88] such venues have the potential to deliver more than 500 million messages each week, through advertising and in-store impressions that promote eating more fruits and vegetables. Lack of access to healthy food retailing has also been linked with low fruit and vegetable consumption.[89] Addressing this need was added as a key strategy to the 2010 National Action Plan Report Card. Priority strategies now include:

- Enhance and expand the use of supermarket media, marketing, and promotional strategies such as coupons, point-of-purchase signage, loyalty marketing, product sampling, billboards, and radio ads throughout the store and in the local community to promote increased consumption of fruits and vegetables. Also, increase access and expand the fruit and vegetable message beyond traditional grocery retail venues—such as into convenience stores and corner stores.
- Work to increase availability of retail outlets in center cities and other food deserts.

Progress Since 2010

Supermarket Marketing

Given the prevalence of obesity in the nation and that 80% of all meals are home prepared,[90] with most of this food coming from grocery stores,[91] grocers are in a prime position to have an impact on food consumption. In the past 5 years, grocers have increasingly employed more dietitians to educate shoppers, implemented shelf-labeling programs, continued to support Fruits & Veggies—More Matters, and have even increased healthy checkout lines.

Supermarket Dietitians

Supermarkets are hiring more dietitians at the corporate, regional, or in-store level[92] and a growing number of resources are available to dietitians who work in this arena.[93] Aggressive promotions, sampling, demonstrations, and increasing the activities and visibility of supermarket registered dietitians are all ways to impact consumer point-of-sale purchases. Because consumers respect and see dietitians as the nutrition expert, these efforts should prove helpful to increasing fruit and vegetable sales and consumption. Supermarket dietitians, however, continue to have to justify their value to the grocer. A new Supermarket Business and Industry Skills to Thrive: Certificate of Training program was developed by the Academy of Nutrition and Dietetics. It includes a focus on The Metrics of Success: ROI (Return on Investment) to help justify their value to employers.[94]

In 2011, peaches in light syrup ranked lower (7) than chocolate brownies (10) in the NuVal system. After PBH discussions with NuVal, canned fruit and vegetables now score 15-20 points higher than they did in 2011.

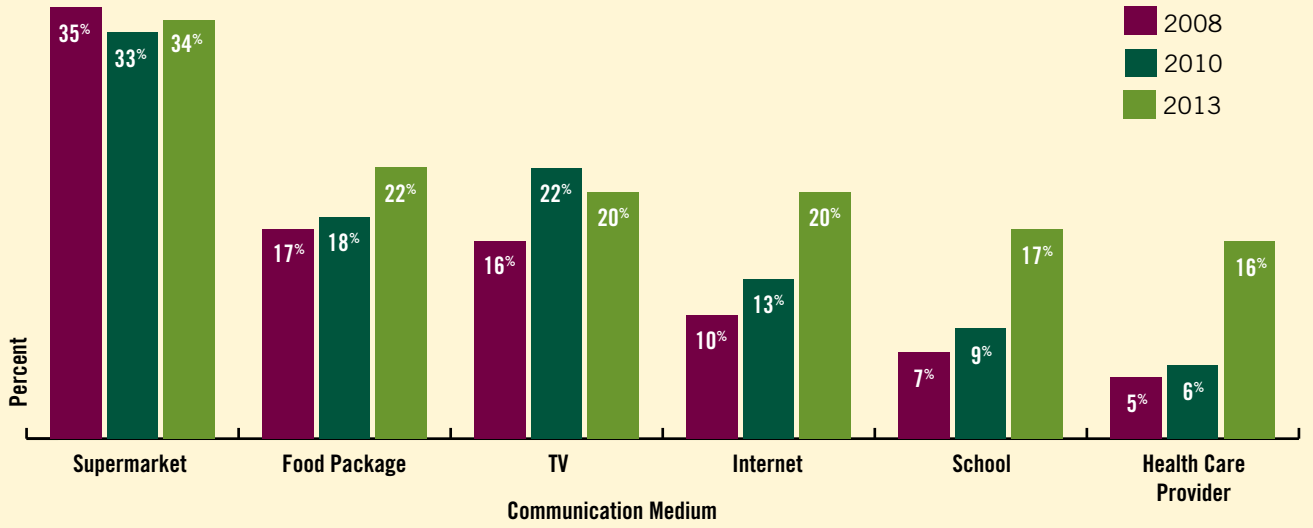
Shelf Labeling

The use of shelf labeling or food labeling programs like NuVal,[95] Guiding Stars,[96] or Facts Up Front[97] has expanded over the past 5 years, some with controversy given their proprietary nature.[98] The programs appear useful to health-conscious shoppers, but they may not influence people not yet ready to change.[99] There is concern that these rating systems may disadvantage processed fruit and vegetables, possibly contributing to the decrease in consumer perception about their healthfulness (**see photo at left**). These programs rank foods according to algorithms; any fruit or vegetable that has added sodium or sugar is scored significantly lower than its fresh counterparts, despite the fact that these fruits and vegetables still contain beneficial flavonoids, carotenoids, fiber, vitamins, minerals and other phytochemicals that work synergistically to benefit health.[100, 101] The algorithms rely only on 'nutrients' and give no credit to the 'food' that is provided. How FDA's proposed changes to the Nutrition Facts panel will impact these shelf labeling programs, if at all, remains to be seen.[102]

Grocery Marketing of Fruits & Veggies—More Matters

In 2010, a PBH metric that measured the supermarket industry's collective use of the Fruits & Veggies—More Matters campaign messaging and logo in marketing circulars was used. Since then, the cost of monitoring circulars has become prohibitive and was discontinued. Instead, in some years of its annual mom research, PBH asks consumers how they became aware of the Fruits & Veggies—More Matters message.

Chart 26: How Moms Have Become Familiar with the Fruits & Veggies—More Matters Logo



Source: PBH Annual Mom Tracking Survey, 2013[103]

According to the 2013 annual survey, supermarkets continue to be the primary channel in which moms become familiar with the Fruits & Veggies—More Matters logo, either through an in-store display, an ad, or seeing the logo on packaging (**Chart 26**).[103] Keeping in mind that most fruit and vegetables consumed in the U.S. are purchased through grocery stores and that supermarkets are reported as the most efficient food communication method to influence primary shopper purchases,[104] grocers are key to increasing fruit and vegetable sales and consumption.

Healthy Checkout

Displaying items at checkout is a powerful form of impulse marketing that prompts people to purchase products that they otherwise might not. Most of the food and beverages frequently marketed at checkout—including non-food stores such as hardware, bed and bath, toy, and drug stores—are unhealthy. The majority of food and beverage checkout offerings are candy, gum, energy bars, chips, cookies, soda, and other drinks containing added sugar.

Researchers at the University of Illinois examined food and beverages at checkout in food stores of varying types and sizes (e.g. supermarkets, drug stores, convenience stores, and dollar stores) in approximately 150 communities throughout the United States in 2010, 2011, and 2012. They found that only 13% sold fresh fruits or vegetables.[105] They did not assess availability of other forms of fruits and vegetables at checkout.

In a smaller July 2014 study of 30 chain stores in the Washington DC area, all forms of fruits and vegetables were measured at checkout.[106] The number of facings of foods, beverages, and non-food merchandise items were recorded for each checkout. A facing was defined as the display of a single product and did not include items stacked behind it. Not surprisingly, the majority of foods and beverages at checkout were of poor nutritional quality, with candy as the most common food offering, followed by gum, energy bars, chips, and cookies. There were 13 facings of fresh fruit, 4 facings of dried fruit, and 16 facings of 100% juice, for a total of 33 facings of fruits and vegetables out of a total of 8,786 food, beverage, and merchandise facings recorded in the study. Expressed as a percentage, this represented 0%.

The University of Illinois dataset will serve as a baseline metric for continued monitoring of healthy checkout aisles.

The Hy-Vee supermarket chain, with 235 stores in eight Midwestern states, is implementing The Blue Zones Project, which includes nudging people toward healthy choices by changing the environment where people spend their time.[107] Hy-Vee began testing a grocery store blueprint for the Blue Zones Project in 2009. There are 15 Blue Zones communities in Iowa and Hy-Vee has 28 stores, 2 Mainstreets, and 7 drug stores in these communities, with a healthy checkout lane in each location.[108] They offer granola bars, fruit, nuts and water. The store dietitian also helps customers learn how to choose, store and prepare Blue Zone foods with classes and food demonstrations.[109] Additional case studies about healthy checkout are available elsewhere.[110]

Retail Outlets in Food Deserts

Having adequate access to fruits and vegetables, through access to supermarkets, convenience stores, corner stores, and other fruit and vegetable markets, has been associated with increased fruit and vegetable consumption.[111, 112]

In 2009, a campaign was launched to raise public awareness and educate policy makers about the limited and inequitable access to supermarkets and grocery stores in America. By 2013, the Healthy Food Access Portal was created to help support communities seeking to launch healthy food retail projects.[113] In 2010, the $400 million Healthy Food Financing Initiative (HFFI) was announced as an initiative between the Departments of Treasury, Agriculture, and Health and Human Services. It is designed to support projects that increase access to healthy, affordable food in communities that currently lack these options.[114, 115] Since 2011, HFFI has expanded the availability of nutritious foods like fruits and vegetables through a wide range of projects, including the construction of new and renovated grocery stores, farmers' markets, corner stores, food hubs, mobile markets, kitchen incubators, and cafes. [116]

As a result of all of these efforts, USDA estimates that local food sales have grown from about $5 billion in 2008 to $11.7 billion in 2014, with the largest share as fruit and vegetables. More than 4,000 local and regional food businesses and projects have participated to benefit low-income communities.[117] An analysis of areas with limited supermarket access between 2005 and 2014 suggests that 20 million people (7% of the population) nationwide still live in areas with limited supermarket access. This is 16 million fewer people than in 2005, when 36 million people (or 12% of the population) lived in such areas.[118]

C Summary of Progress

Supermarkets and Other Retailers

In the past 5 years, grocers have increasingly employed more dietitians to educate shoppers, which should prove helpful to increasing fruit and vegetable consumption. More grocers are adding healthy checkout aisles. In fact, 13% of all food stores, including drug stores and convenience stores, sell fruits or vegetables at checkout. Grocers continue to deliver the Fruits & Veggies—More Matters message through in-store displays, ads, or on packaging and consumers report that this is a main way they became familiar with the message. The use of shelf labeling programs has also expanded, though their scoring algorithms often rate non-fresh forms of fruits and vegetables lower than is justifiable, possibly contributing to the decreased perception about the healthfulness of other forms.

Since the last report card, the availability of nutritious fruits and vegetables has expanded through a wide range of projects, including the construction of new and renovated grocery stores, farmers' markets, corner stores, food hubs, mobile markets, kitchen incubators, and cafes. Local food sales are estimated to have doubled, with the largest share as fruit and vegetables. Ten years ago, 36 million people (or 12% of the population) lived in areas with limited supermarket access; today 20 million people (7% of the population) live in such areas.

Fruit and Vegetable Suppliers

Fruit and vegetable growers, shippers, and processors can increase demand for fruits and vegetables by focusing on increasing product appeal and packaging products so that consumers can use them easily and cost-efficiently. Strategies that were identified in 2005 and continue to be viewed as critical today include:

- Developing affordable, effective technologies for selling pre-cut and conveniently packaged fruits and vegetables at venues such as convenience stores, food kiosks in transportation centers, sports venues, and in vending machines.
- Using packaging, stickers, or social media to provide consumers with easy recipes and serving suggestions, health messages, and product information about handling and storage.

Progress Since 2010

Convenient Packaging and Technology

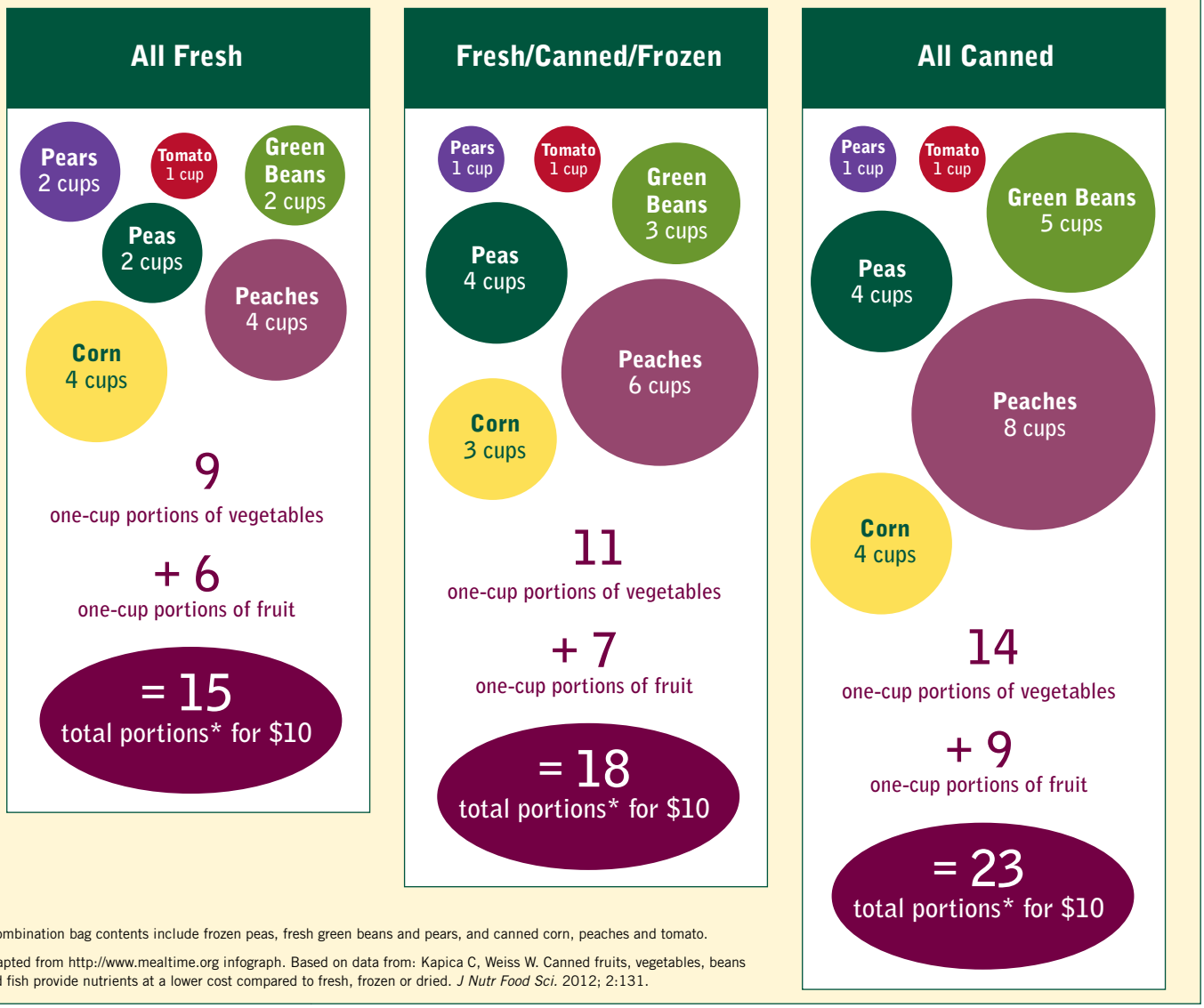
Improvements to increase product appeal and packaging have been made over the past 5 years. As in our last report card, steamable bag technology continues to expand. The packaging allows vegetables to go from freezer or produce aisle, to microwave, to table. Single-serve, multi-serve, and family-size frozen fruit and vegetable packets are more common. Frozen meal kits featuring protein, starch, and increased vegetable serving sizes (for skillet or steam-in-microwave preparation) continue to expand. Reformulations have included new frozen vegetable products based on children's preferences,[119] and more vegetables have been added to frozen meals.[120] Some packaged foods promote fruits and vegetables as accompaniments.[121]

Many varieties of canned fruits, vegetables and beans are currently available that enhance their appeal. These include low sodium, no salt added, light syrup fruit, and fruit packed in juice. By 2010, most private label store-brands of canned vegetables had gone to 300 mg of sodium/serving on vegetables, with supersweet corn even lower. Canned beans (e.g. pinto/kidney) were lowered in 2013. Most canners use these ranges to align with private label store brands that have 300 mg sodium/serving as their standard, with a low sodium option at 140 mg/serving.[122]

Even for potatoes, innovations in food chemistry, preparation and processing are improving the nutritional profile of French fries by limiting their fat absorption. [123] This technology allowed Burger King to introduce a lower-fat French fry (though most Burger King franchises have stopped offering the lower fat fry, which was indistinguishable from the regular fry.)[124] Other companies have a "never fried" French fry.[125] All potato manufacturers have lower fat potato products for their school customers to comply with guidelines established by Alliance for a Healthier Generation and USDA; the technologies are generally proprietary.[126]

Finally, demand for convenient, fresh-cut produce continues to increase, with fresh-cut produce accounting for 16% of total retail produce sales.[127] For example, watermelons bred for low purge (loss of water when cell walls have been cut) have allowed for expanded fresh-cut melon programs.[128] Escalating labor costs are prompting more restaurants to purchase fresh-cut, which accounts for 60% of all fresh-cut sales.[129, 130] The shoppers most likely to choose fresh-cut produce are more affluent, college-educated, and primarily Caucasian.[131] Barriers to consumers' purchases of fresh-cut include price and limited shelf life.

Chart 27: Example of Quantity of Fruits and Vegetables That Can Be Purchased With $10



*Combination bag contents include frozen peas, fresh green beans and pears, and canned corn, peaches and tomato.

Adapted from http://www.mealtime.org infograph. Based on data from: Kapica C, Weiss W. Canned fruits, vegetables, beans and fish provide nutrients at a lower cost compared to fresh, frozen or dried. *J Nutr Food Sci.* 2012; 2:131.

Cost

In response to consumer concerns about the price of fruit and vegetables, USDA research found that the cost of eating the recommended number of cups of fruits and vegetables each day was about $2.50, or 50 cents per cup.[132] The calculation included a combination of fresh, canned, and frozen items. As seen in **Chart 27**, it makes financial sense to choose multiple forms of fruits and vegetables. If the cost of preparation time is factored in, canned and frozen fruit and vegetables are an even better value.[133, 134]

Seeds and Breeding

More growers and seed companies are investing in developing vegetable and fruit varieties with improved consumer traits, such as flavor, size, shape, culinary characteristics or color to increase product appeal, in addition to the traditional production characteristics like yield and disease resistance.[135] Virtually all of this is being done through seed breeding, with very little through transgenetic modification (e.g. GMOs or genetic engineering).[136] Instead, technology is being used as a diagnostic tool to determine the presence of a trait before and after seeds are bred in a traditional manner. While not as fast as transgenetic engineering, it significantly cuts down the time needed to develop new produce varieties.

With high regulatory costs and challenges in consumer acceptance, transgenetic engineering is underutilized in produce,[137, 138] despite multiple agencies acknowledging its safety.[139] Some virus-resistant squash and insect-resistant sweet corn varieties were bred using genetic engineering, and this technology was critical to saving the Hawaiian papaya crop from a devastating ringspot virus which threatened to wipe out the entire crop. The use of genetic engineering to prevent specific branded apples and potatoes from browning when cut or bruised was recently deregulated, which will allow non-browning "Arctic Apples" and "Innate" potatoes into the market.[140, 141] Other uses of genetic engineering are currently under review, including protecting plums and beans from viruses, and citrus groves from a devastating bacterial disease.

Consumer Concerns

Negative messaging about the safety of produce, like "The Dirty Dozen,"[146] has left some consumers uncertain about what they should be eating. Fears about pesticide residues may be another barrier to increasing fruit and vegetable consumption, especially among low-income populations.[147] This may lead some to think that only organic produce is safe, when in fact there is a common misconception that organic produce is pesticide or chemical free. That is not necessarily the case. By definition, the term "organic" means that pesticides, if used,

Case Study: Citrus Greening

Citrus greening, a disease that sours oranges and leaves them half green, reached the citrus groves of Florida in 2005 after ravaging other citrus crops around the world. Florida growers chopped down or burned thousands of infected trees to help contain the spread of the disease, with no success. The disease has spread west to Texas and California, the nation's other major citrus growing areas.[142] The use of genetic engineering may be the only possible avenue to defeat the citrus disease.[143, 144] Trees altered with a spinach gene appear to be able to resist the disease and are currently in test phase.[145]

Food Safety Risk Hierarchy

High Risk	Diet (sufficiency, adequacy, over-nutrition)
	Food borne illness
	Untested (organic food, dietary supplements)
	Natural toxicants
Moderate Risk	Food allergy
	Chance additives
	Pesticide and herbicide residues
	Food ingredients and additives
*No Risk	Genetically modified foods

* All foods can have certain associated risks. Genetically modified foods are as safe as or are safer than their conventional counterparts.

Bruce M. Chassy, PhD, Professor Emeritus of Food Science, Professor Emeritus Nutritional Sciences, University of Illinois at Urbana-Champaign

National Fruit & Vegetable Research & Promotion Board

Because fruits and vegetables are out-promoted by other food products, Produce for Better Health Foundation initiated an extensive dialog with fruit and vegetable industry members in 2009 about the possibility of a National Fruit & Vegetable Research & Promotion Board to raise funds to better promote fruits and vegetables.

Economic evidence favors such generic promotions, which average a benefit-cost ratio of 10-16.[154] That is, for each dollar spent, there is a $10-$16 dollar return on investment. The objective of the proposed National Fruit & Vegetable Research & Promotion Board was to increase consumption of all forms of fruits and vegetables for better health through implementation of a comprehensive, $30-million health marketing, communications, and education effort. The effort would have been funded by a proposed 0.046% assessment of the FOB (wholesale) price of all fruits and vegetables at the 1st handler or importer level, or 46 cents of every $1,000.

In order for an assessment to be initiated, those who would pay the assessment would participate in a referendum. The majority of those voting would determine referendum results. Following discussions with the industry in 2009, further work on the proposal was discontinued due to lack of industry support. Concerns were expressed that $30 million wasn't enough funding to have an impact; any additional assessment would have been too onerous in an industry that already suffers from very slim profit margins; and, there was no guarantee that different commodities would have benefitted equally, despite everyone paying their fair share.

In a follow-up effort to understand the components of the PBH proposed promotion board that could be altered for greater industry acceptance, Cornell researchers came to the conclusion that the possibility of a single USDA-administered promotion board representing all fruits and vegetables is highly improbable.[155]

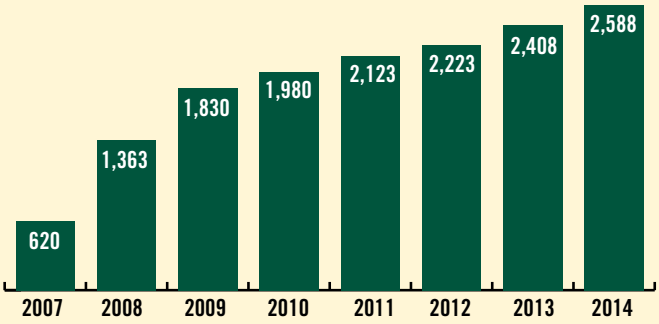
come from natural resources, not synthetic products. In fact, there are even some synthetic pesticides that are allowed on organic products.[148] When organic certification was being considered years ago, then Secretary of Agriculture Dan Glickman said, "Let me be clear about one thing, the organic label is a marketing tool. It is not a statement about food safety. Nor is 'organic' a value judgment about nutrition or quality."[149, 150] A new website was developed and launched by the Alliance for Food and Farming in 2010, safefruitsandveggies.com, to serve as a source of scientific information about produce safety for consumers, the media, dietitians, and others. This key resource has helped reduce once dominant, one-sided media coverage about the safety of produce to something that is much more balanced.[151]

The U.S. food supply is considered one of the safest in the world. EPA, FDA and USDA set limits on how much pesticide can be used on farms and monitor pesticide residue on produce reaching the consumer. According to the latest findings from USDA's Pesticide Data Program released in 2014, "Overall pesticide chemical residues found on the foods tested are at levels below the tolerances established by the EPA and do not pose a safety concern."[152] The bottom line is that organic, conventionally grown, and genetically engineered produce all represent safe choices for consumers.

Product Messaging

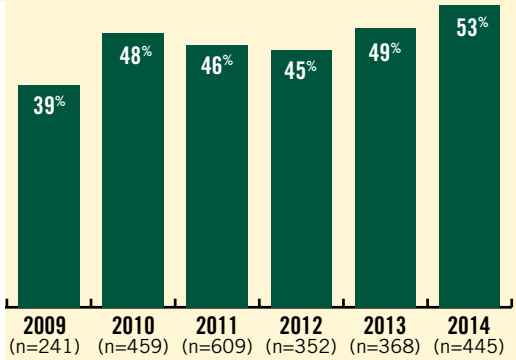
The best metric that currently exists to measure industry wide marketing efforts by fruit and vegetable growers, shippers, or processors in support of fruits and vegetables is through measurement of their collective use of the Fruits & Veggies—More Matters message. Since the launch of the Fruits & Veggies—More Matters initiative in 2007, more than 2,500 labels have met the stringent nutrition criteria to carry the brand logo (**Chart 28**). The criteria by which a product can carry the logo is defined by CDC and outlined in the Fruits & Veggies—More Matters® Brand Guidelines.[153] In 2014, 53% of mothers surveyed online said they were more likely to purchase a product with the Fruits & Veggies—More Matters logo on it, up 14% since 2009 (**Chart 29**).

Chart 28: Cumulative Number of Fruits & Veggies—More Matters Approved Labels



Source: PBH Annual Report[76]

Chart 29: Moms' Likelihood of Purchasing Products Carrying the Fruits & Veggies—More Matters Logo



*Represents top 2 box scores in 5-point Likert Scale.

Source: PBH, Moms' Attitudes and Beliefs Related to Fruit & Vegetable Consumption, 2007-2014[78]

C Summary of Progress

Fruit and Vegetable Suppliers

Several changes in product appeal and packaging improvements have been made over the past 5 years. Packaging technology has aided the convenience that shoppers are looking for, including steamable bags, varying package sizes, meal kits, and more fresh-cut produce. Additionally, the availability and variety of lower sodium vegetables and fruit packed in either light syrup or 100% juice have increased. Innovations are also improving the nutritional profile of French fries by limiting their fat absorption. New seed traits have improved shelf-life, taste, and reduced waste. A new website has been developed to combat negative messaging about the safety of produce; negative messaging has declined in recent years as a result.

Finally, growers, shippers, and processors collectively support the Fruits & Veggies—More Matters message. Since its launch in 2007, more than 2,500 labels carry the brand logo, with more than 600 new in the past 5 years. Today, 53% of mothers surveyed online said they were more likely to purchase a product with the Fruits & Veggies—More Matters logo on it, 14% more than 5 years earlier.

Restaurants and Other Food Service Establishments

As Americans increasingly eat more food prepared away from home, the role of cafeterias, restaurants, and other food service establishments becomes increasingly important. While some operators have made strides in offering more fruits and vegetables, an enormous gap remains. Food consumed away from home makes up about a third of the average American's daily calories, yet it accounts for just a fifth of all fruit and vegetable consumption (**Chart 30**). Food establishments can attract customers who are looking for healthy food options and improve their bottom line by using more fruits, vegetables, and beans on the plate, with smaller amounts of higher-priced protein foods. One key strategy identified in 2005 that remains in this 2015 report:

- Increase the number of fruit and vegetable menu items and fruit- and vegetable-rich entrées in restaurants, cafeterias, and vending machines. Include fruits and vegetables as part of "value meals" and as default side dishes with children's meals.

Progress Since 2010

28%

Increase in the Use of Fruits and Vegetables Between 2012 and 2014 on Healthy Menus R&D Collaborative Operator Members' Menus

Fruits and Vegetables on Menus

Assuring that fruits and vegetables on menus taste good is critical if Americans are to choose them. With this in mind, The Culinary Institute of America initiated a Healthy Menus R&D Collaborative in 2010. This initiative brings together the most influential culinary and nutrition R&D leaders from volume foodservice operations, contract management companies, and campus dining. Collectively, they feed more than 100 million Americans daily. Their purpose is to collaborate on ways to expand the availability and sales of tasty, nutritious menu choices that meet consumer demand and drive profitability. Members of the collaborative include Aramark, Compass Group, Darden, McDonald's, Panera Bread, Sodexo and many others. A key focus is to increase fruits and vegetables on menus. Between 2012 through 2014, CIA reports a 28% increase in use of fruits and vegetables on Healthy Menus R&D Collaborative operator members' menus specifically.[156]

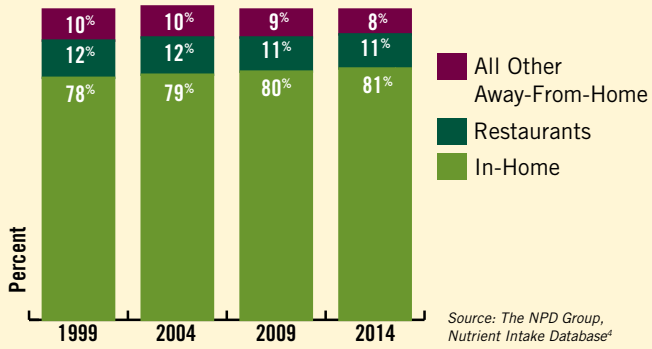
While not an indicator of what was ordered or what was consumed, Datassential's MenuTrends tracks what is available on menus nationwide. The number of menu items that included vegetables (excluding French fries) increased from 39.9% in 2005 to 45% in 2014 (see **Chart 31**).[159] The number of menu items that included fruit increased from 7.2% in 2005 to 10.4% in 2014. In 2010, vegetables were offered on menus 5 times more often than fruit; by 2014, the differences were less pronounced, with vegetables on menus 4.3 times more often than fruit.

Consistent with the increased availability of fruits and vegetables on menus, moms' reported ease in getting her family to eat *fruit* at restaurants and at fast food establishments improved over time (**Chart 32**).[160] Her reported ease in getting her family to eat *vegetables* improved more in fast food establishments than at restaurants over time, although she was still 2½ times more likely to find it easy to eat vegetables at restaurants than fast food establishments.

In July 2011, the National Restaurant Association teamed up with Healthy Dining, a third party verifier, on the *Kids LiveWell* program.[157] It is a first-of-its-kind voluntary industry program involving over 42,000 restaurant locations nationwide who are committed to helping parents identify a growing selection of healthful menu choices for children. Among other things, participating restaurants commit to offering more fruit and vegetables on menus.

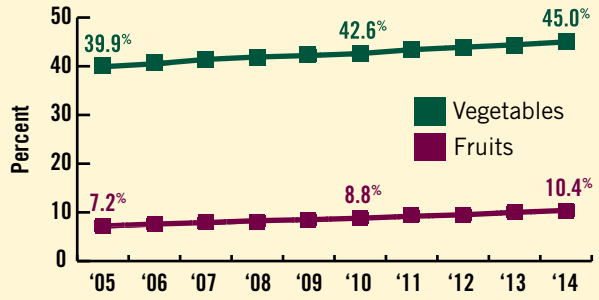
The American Heart Association and Aramark, the largest U.S.-based food service provider, recently announced *Healthy for Life 20 by 20*.[158] This is a five-year initiative with a commitment to, among other things, increase fruits and vegetables on menus by 20%. Changes will impact more than 2 billion meals that Aramark serves annually at thousands of schools and universities, businesses, hospitals, sports and entertainment venues, parks and other destinations. The expected impact is 10 billion meals by 2020.

Chart 30: Proportion of Fruits and Vegetables Consumed in Restaurants Over Time



Source: The NPD Group, Nutrient Intake Database[4]

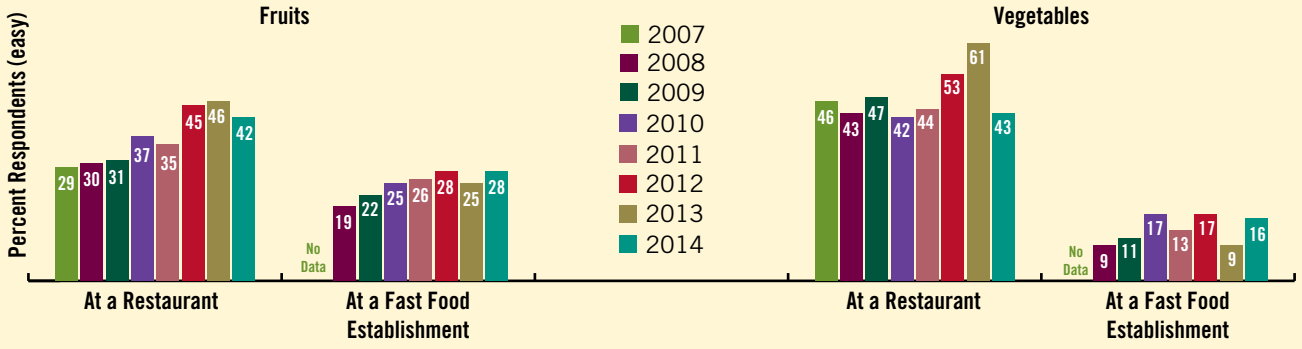
Chart 31: Over Time Comparison of Menu Items that Include Fruits and Vegetables



Excludes French fries

Source: Datassential MenuTrends 2014[159]

Chart 32: Moms' Reported Ease at Getting Her Family to Eat Fruits and Vegetables at Restaurants and Fast Food Establishments



Source: PBH, Moms' Attitudes and Beliefs Related to Fruit & Vegetable Consumption, 2007-2014[78]

Despite positive trends indicating that more fruits and vegetables are being offered and moms' reported ease in finding these healthy foods on menus, the proportion of fruits and vegetables consumed in restaurants compared to in-home dining or other away-from-home dining remains relatively flat over time (**Chart 30**). Though most fruits and vegetables are sourced from the home, vegetables have a stronger presence at commercial restaurant outlets than fruit (**Chart 33**).

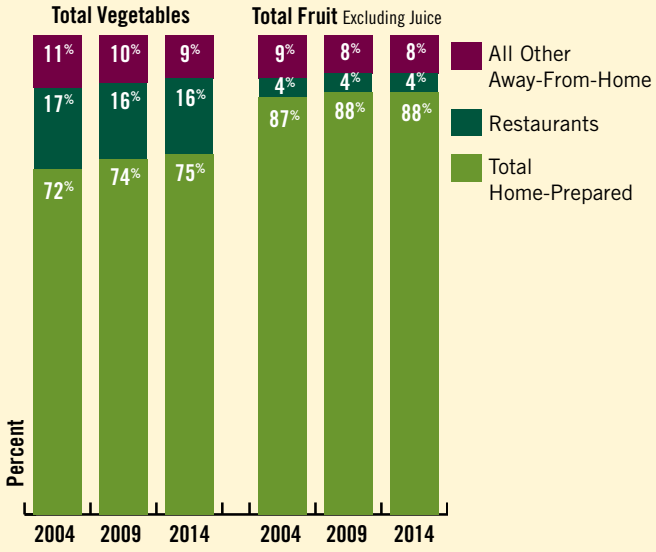
Menu Labeling

The Patient Protection and Affordable Care Act, passed on March 23, 2010, included a provision that requires all chain restaurants with 20 or more locations to provide labeling with calorie counts of their standard menu items. Upon request they must also supply written nutrition information listing calories, fat, cholesterol, sodium, carbohydrates, sugars, fiber, and protein amounts. Similar requirements are also in place for calorie content of food items in vending machines, when owners operate 20 or more vending machines.

Though menu labeling became law in 2010 and FDA issued a proposal the following year for how it should be put into effect, the final rule wasn't published until December 1, 2014. The final rule is effective December 1, 2015, but FDA granted a one-year extension for compliance, to December 1, 2016, given numerous requests seeking clarification on acceptable practices that could meet compliance.[161] The final rule covers food in amusement parks, movie theaters, certain prepared foods in supermarkets, and alcoholic beverages that are marketed on menus. The compliance date for calorie labeling of foods and beverages in vending machines is also December 1, 2016.

Nutrition information is important. Several studies found that consumers who see calorie content prior to ordering their food will choose meals with fewer calories.[162-164] Two recent systematic reviews have summarized evidence of the impact of menu labeling on calories consumed. The first suggests that labeling of menus with calories alone had no effect on calories selected unless contextual or interpretive information (e.g. a recommended total daily energy intake is provided) was added to the menu label, as is required by the national menu labeling law.[165] The second review suggests that menu calorie labeling is associated with a significant 18 calorie reduction ordered per meal.[166] In addition, the new menu labeling law appears to be spurring reformulation of existing food items and the introduction of nutritionally improved items.[167-170] The addition of fruits and vegetables to menu items can improve their nutritional profile.

Chart 33: Proportion of Vegetables and Fruit Excluding Juice Consumed in Restaurants Over Time



Source: The NPD Group, Nutrient Intake Database[4]

Flavor

Taste also impacts food choices. Humans have an innate preference for sweet and reject bitter tasting compounds, though there appear to be genetic differences; some people perceive bitter compounds more intensely than others. About one-quarter of Americans taste bitter compounds very intensely, and are known as supertasters. Another quarter are non-tasters. About half are regular tasters where thresholds follow a continuum between supertasters and non-tasters.[171]

The very plant compounds in vegetables and some fruits that are beneficial to health — phenols, flavonoids, terpenes, glucinolates, sulfamides and others — are almost always bitter, acrid, or astringent. There is evidence that supertasters report more dislike for some vegetables than non-tasters.[172]

Given the number of Americans who are supertasters, it is important to consider food preparation techniques that make these foods palatable to consumers. For example, salt or sugar helps block bitterness or astringency and can therefore be important additions for acceptability of fruit and vegetables like cruciferous vegetables, green beans, cranberries, grapefruit, lemons, limes and many other vegetables. Combining fruit with vegetables in a smoothie or juice drink is a common way for the sweetness of fruit to block the bitterness in vegetables. Salting eggplant and allowing it to drain for an hour is thought to draw out excess moisture and bitterness.[173] Blanching broccoli rabe is recommended to help reduce bitter flavors.[174] Massaging dark leafy greens, which break down cell walls and releases enzymes that split apart bitter-tasting compounds, also seems to be a common suggestion.[175] Use of these and other simple culinary techniques by chefs can help increase the palatability of bitter, but healthy, fruits and vegetables. As consumers are exposed to a wider variety of great-tasting dishes prepared by culinary professionals, they may be more inclined to prepare these same dishes at home.

B- Summary of Progress

Restaurants and Other Food Service Establishments

Since the last report card, a new collaborative brought together volume foodservice operations, contract management companies, and campus dining, who collectively feed more than 100 million Americans daily. Their purpose is to collaborate on ways to expand the availability and sales of tasty, nutritious menu choices that meet consumer demand and drive profitability, with a key focus on fruits and vegetables. Between 2012 through 2014, a 28% increase in use of fruits and vegetables on the menus of operator members of the collaborative was reported.

The number of menu items that included fruit increased 44% over the past 5 years; the number of menu items that included vegetables (excluding French fries) increased 13%. In 2010, vegetables were offered on menus 5 times more often than fruit; by 2014, the differences were less pronounced, with vegetables on menus 4.3 times more often than fruit. Moms' reported ease in getting her family to eat fruit and vegetables at restaurants and fast food establishments also improved over time.

Despite these positive trends, the proportion of fruits and vegetables consumed in restaurants compared to in-home dining or other away-from-home dining remained relatively flat over time.

Schools, Child Care, and Other Institutions Feeding Children and Adolescents

Providing ample fruits and vegetables and encouraging their consumption is critical to establishing healthy eating habits in children, teens, and young adults. There are several steps that schools and other institutions feeding children can take to promote fruits and vegetables and provide greater access to these products. Key priority strategies identified in 2005 and 2010 included the following:

- **Nutrition Standards:** Increase the availability of fruits and vegetables in school lunches and breakfasts by revising the National School Lunch Program (NSLP) and School Breakfast Program (SBP) meal pattern and nutrient-standard requirements based on the 2010 Dietary Guidelines for Americans. Also, implement nutrition standards for foods and beverages served or sold on the whole school campus (including in vending machines, school stores, and a la carte) for the extended school day.
- **School Wellness Policies:** Ensure that school district wellness policies include provisions to promote fruits and vegetables throughout the school day and across the school campus.
- **Salad Bars:** Introduce new fruit and vegetable offerings in fun and innovative ways to increase the appeal of offerings. For example, offer salad bars or pre-plated salads and share best practices with schools.
- **Fresh Fruit and Vegetable Program:** Expand this snack program to more elementary schools nationwide to increase fruit and vegetable consumption among low-income students.
- **Child Care:** Update nutrition standards for the Child and Adult Care Food Program (CACFP); strengthen nutrition standards as part of state child care licensing requirements, inspections, and quality ratings; and train Head Start, CACFP, and other child care providers to promote and serve more fruits and vegetables.

History of Fruits and Vegetables in School Meals

1946
National School Lunch Program (NSLP) authorized as a permanent program.

1966
School Breakfast Program (SBP) established.

1980
Evaluation found NSLP participants consume more of most nutrients, but also more calories. SBP mixed nutrient results, including low in iron.[176]

1989
SBP made nutrition improvements and 'offer versus serve' meal planning concept was initiated.

1990
U.S. Dietary Guidelines quantified amount of fruit and vegetables and limits on total fat for the first time.

1993
School Nutrition Dietary Assessment Study (SNDA-I) found NSLP too high in fat and saturated fat.

1995
USDA issued sweeping changes in school meals: School Meals Initiative for Healthy Children, which created both food component and nutrient standards for reimbursable meals.

1996
New Department of Defense (DoD) Fresh Fruit and Vegetable Program allowed schools to use USDA Foods entitlement dollars to buy fresh produce.

2001
SNDA-II found improvements in meals meeting fat standards, but still exceeded recommendations.

2002
Farm Bill authorized Fresh Fruit and Vegetable Pilot in 4 states and 1 Indian Tribal Organization.

2004
Fresh Fruit and Vegetable Pilot becomes a permanent program in some states.

2005
U.S. Dietary Guidelines added 5 subgroup recommendations for vegetables (dark green, orange, legumes, starchy, and other vegetables).

2007
SNDA-III found further improvements in meals meeting saturated fat standards, but not fat standards.

2008
Fresh Fruit and Vegetable Pilot expanded to all 50 states.

2008
USDA contracted with Institute of Medicine (IOM) to review school meals and provide recommendations.

2010
IOM report recommended school meals adopt a new set of nutrient targets and standards for meal planning.

2010
The Healthy Hunger-Free Kids Act gave USDA legal authority to regulate 'competitive foods' sold in schools and directed USDA to update school meal nutrition standards to align with the 2010 Dietary Guidelines. USDA Farm to School Program was also established.

2012
USDA issued new nutrition standards for NSLP and SBP, including twice the amount of fruits and vegetables in meals.

SY 2012-13
Schools began to implement new nutrition standards in NSLP.

2012
SNDA-IV offers a baseline for measuring future improvements under the new nutrition standards.

SY 2014-15
Schools began to implement new nutrition standards in SBP and Smart Snack nutrition standards (for competitive foods) go into effect.

Progress Since 2010

Nutrition Standards

In the last report card, a 2010 Institute of Medicine report that recommended the National School Lunch Program and the School Breakfast Program adopt a new set of nutrient targets and standards for menu planning was noted.[177] The report's recommendations were to bring school meals in line with the latest Dietary Guidelines for Americans. Since that time, the Healthy, Hunger-Free Kids Act of 2010 was signed into law, including a number of provisions to improve the nutritional quality of meals served in child nutrition program.[178] These provisions include:

- Giving USDA authority to set nutrition standards for all foods sold in school during the school day, including vending machines, the 'a la carte' lunch lines, and school stores in schools that participate in the National School Lunch Program.
- Providing additional funding to schools that meet 2012 nutritional standards for federally-subsidized lunches ($0.06 per meal).
- Funding for establishing farm to school programs and policies on geographic preference for sourcing school foods.
- Setting basic standards for school wellness policies.
- Promoting nutrition and wellness in child care settings through the Child and Adult Care Food Program.

Bridging the Gap

In a recent report of a national survey of school administrators, we see that availability of fruit or vegetables in National School Lunch Program meals has been near 100% in both middle schools and high schools between 2007 and 2013 (**Chart 34**).[179] At least 80% of middle and high school students were able to access pre-made main course salads in 2013, but only 41% of middle and 47% of high school students could do so using a salad bar. Access to salad bars in high schools decreased significantly, from 55% in 2007 to 47% in 2013.

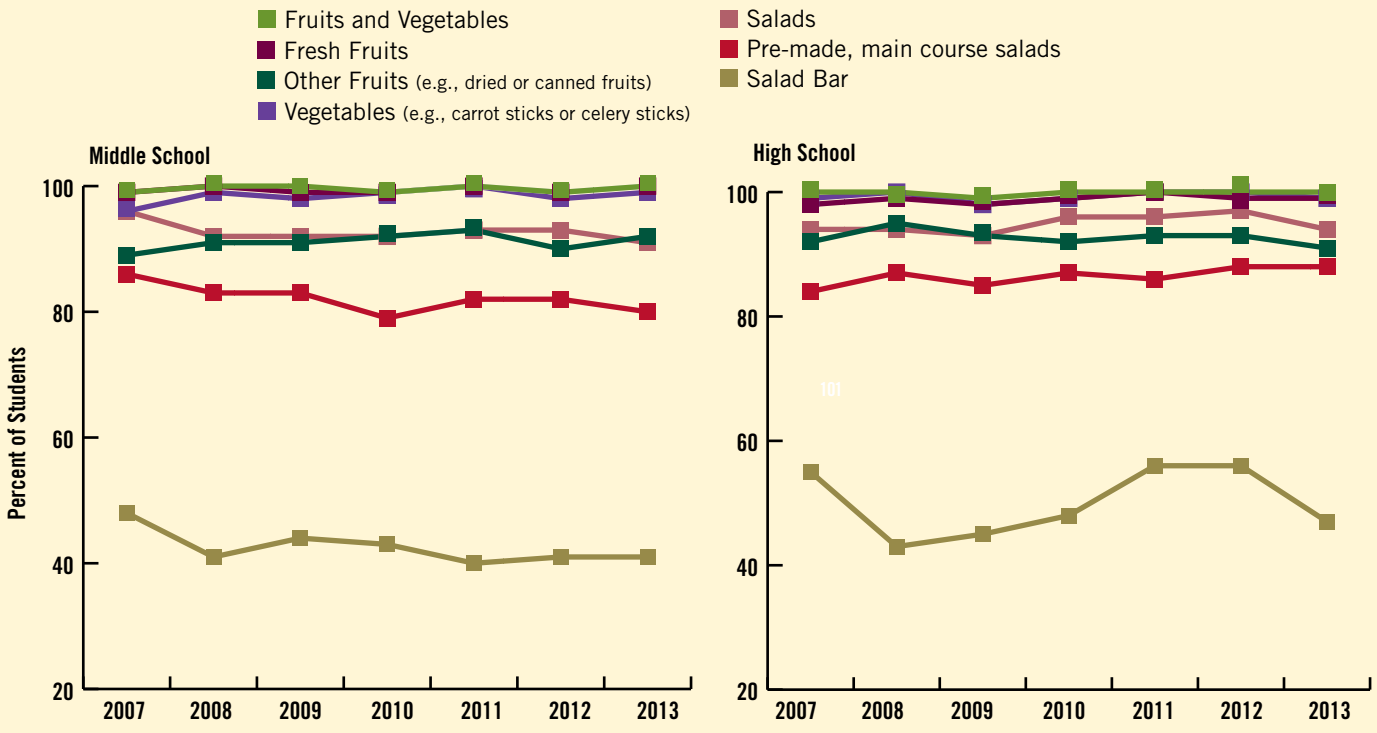
In contrast, the availability of fruits and vegetables in competitive venues dropped between 2007 to 2013 in middle and high schools (**Chart 35**), with significant differences between middle and high schools. There was a significant decrease in salad bars for high school students, from 46% in 2007 to 34% in 2013.

Fresh fruits and vegetables were most commonly offered through à la carte sales in the cafeteria. Fresh fruit was available to two out of three middle and three of four high school students in à la carte cafeteria sales, but fewer had fresh fruits available through school stores and snack bars/carts. Only 3% of middle and 10% of high school students had access to fresh fruits in vending machines.

Compared to fruit, vegetables were available to lower proportions of middle and high school students through à la carte cafeteria sales, school stores and snack bars/carts. A similar 3% of middle and 8% of high school students had access to vegetables in vending machines.

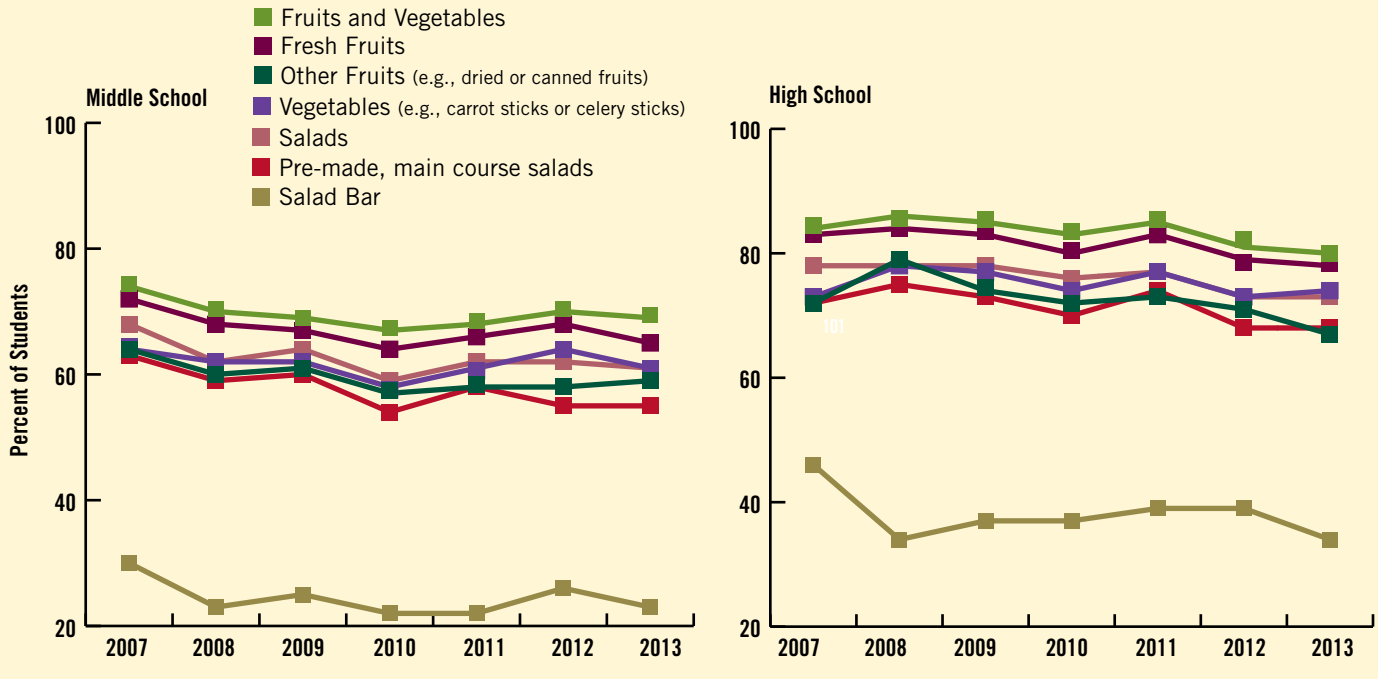
For both middle and high school students, the availability of fresh fruits, vegetables, and salads was significantly lower for students in low-SES schools than for students in high-SES schools ($p<.001$). These differences appear to be due to the variability of a la carte

Chart 34: Percentage of Students with Selected Healthy Items Available at Lunch Meals



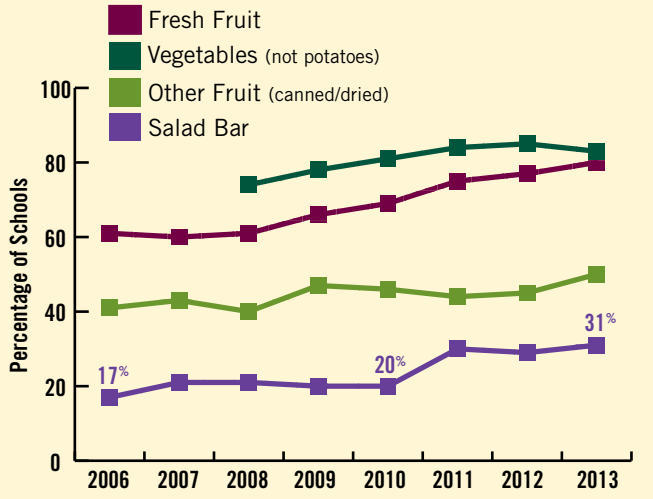
Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2014[179]

Chart 35: Percentage of Students Having Access to a Healthier Item in Any Competitive Venue



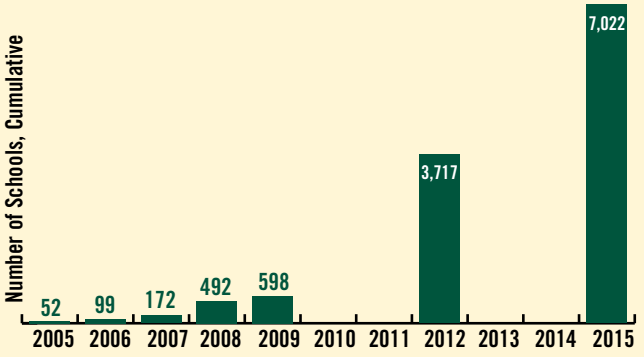
Source: Bridging the Gap, Institute for Social Research, University of Michigan, 2014[179]

Chart 36: Regular Availability of Healthier Items in Lunches, U.S. Public Elementary Schools



Source: Bridging the Gap, Institute for Health Research and Policy, University of Illinois at Chicago, 2015[180]

Chart 37: Over Time Comparison of Schools that Meet Healthier U.S. Schools Challenge



Source: USDA, FNS[182]

sales in schools. For example, in middle schools, à la carte sales were available to 62% of students in low-SES schools, compared to 89% in high-SES schools. In high schools, à la carte sales were available to 69% of students in low-SES schools compared to 94% in high-SES schools.

In elementary schools, significantly more were regularly offering fruits and vegetables in lunches in 2014 than in 2007, with a sizeable jump in salad bars (**Chart 36**).[180]

Department of Defense Fresh Fruit and Vegetable Program (DoD Fresh)

In the mid-1990s, USDA and the Department of Defense (DoD) collaborated on the formation of the DoD Fresh Fruit and Vegetable Program (DoD Fresh). This program makes use of military distribution channels to increase the availability of fresh produce to schools as USDA commodities. In the most recent SNDA-IV report released by the Food and Nutrition Service, almost a third (31%) of school food directors report participating in the DoD Fresh program in SY 2009–2010.[181] This is almost double the proportion that reported participation in the DoD Fresh program in SY 2004–2005.

Healthier U.S. Schools Challenge

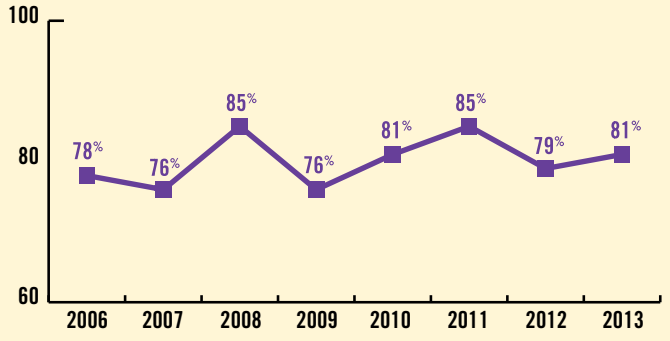
USDA initiated the Healthier U.S. Schools Challenge (HUSSC) in 2004. It is a voluntary initiative that recognizes schools participating in the National School Lunch Program (NSLP) that have created healthier school environments through promotion of nutrition and physical activity. In order to meet the challenge, schools need to meet rigorous standards. For example, reimbursable lunches must meet the USDA nutrition standards and must allow students the opportunity to select a different vegetable and a different fruit every day of the week. There are also standards for nutrition education, school wellness policies, school fundraising, and physical activity requirements. A school applies for certification and can be approved for a four-year period. Schools can reapply at the end of each certification period or can apply for a higher award level one year after initial certification. Award levels are: Bronze, Silver, Gold, and Gold Award of Distinction.

Between 2005 and 2009, the number of schools that met HUSSC increased from 52 to 598 (**Chart 37**). USDA's goal was to have 1250 schools meet the challenge by June of 2011. Through the launch of First Lady Michelle Obama's *Let's Move!* initiative, with its goal of eliminating childhood obesity in a generation, the HUSSC has far surpassed its 2011 goal. By July 2012, there were over 3,700 HUSSC-certified schools nationwide, and by June 9, 2015, over 7,000 were certified.[182] This represented slightly more than 7% of the more than 98,000 public K-12 schools in the United States.[183] A separate analysis shows that in 2013, 7% of middle schools and 9% of high schools were HUSSC-certified, up significantly from 2010 when 3% and 4%, respectively, were certified.[184]

School Wellness Policies

The Child Nutrition and WIC Reauthorization Act of 2004, and more recently the Healthy, Hunger-Free Kids Act of 2010, required all school districts that participate in federally subsidized child nutrition programs to develop wellness policies by the beginning of the 2006-2007 school year. Wellness policies must include goals throughout the campus for five wellness policy elements: nutrition education, school meals, physical activity, implementation and evaluation, and competitive foods. Findings from a national sample of schools in a series of Youth, Education, and Society (YES) surveys show that 81% of schools reported having a school wellness policy by 2013 (**Chart 38**).[185] A separate analysis suggests that the comprehensiveness and strength of wellness policies as of the 2010-11 school year improved over the 2006-07 school year, but were relatively weak, primarily because many districts had not yet adopted competitive food and beverage guidelines.[186] A new question in the 2010-11 school survey asked about whether the school wellness policy specifies the number of fruits and/or vegetable served at meals.[187] In the 2010-11 school year, only 14% of elementary and 8% of secondary students in public school districts nationwide were in schools with a 'strong' policy; 85% of elementary and 91% of secondary students were in school districts with no policy at all.

Chart 38: Percent of Schools that Report Having a School Wellness Policy



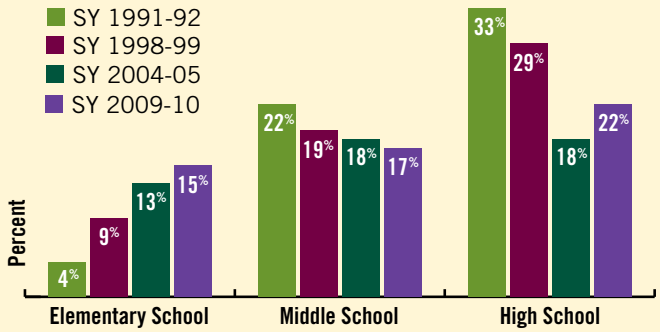
Source: YES[185]

Salad Bars

Salad bars can provide students a wide variety of vegetables and fruits that can then be self-selected by preference. **Chart 39** shows that the number of salad bars offered daily in elementary and high schools appears to be increasing, while the number of salad bars offered daily in middle schools is flat.[188]

As Congress currently debates the reauthorization of child nutrition programs, opponents of the new school nutrition standards are trying to repeal the requirement that school meals contain at least 1/2 cup of fruits and vegetables. Research shows that the current standard increases consumption of fruits and vegetables.[189, 190] In addition, salad bars have been recognized as a successful, cost-effective strategy to help schools offer a greater amount and variety of fruits and vegetables to comply with federal regulations[191, 192] though more peer-reviewed research is desirable.[193] The Salad Bar in Schools Expansion Act was introduced in the House of Representatives in June, 2015 to establish a new program to provide training, technical assistance and placement of salad bars in elementary, middle and high schools across the country.[194, 195]

Chart 39: Salad Bars Offered Daily in National School Lunch Program by School Type



Source: SNDA IV[188]

Let's Move Salad Bars to Schools

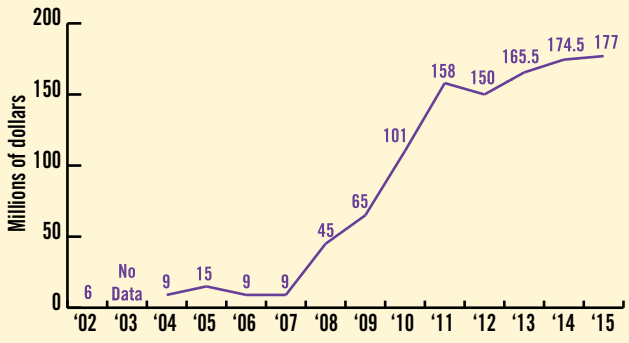
First Lady Michelle Obama has challenged America to put an additional 6,000 salad bars into schools. In response to Mrs. Obama's challenge, United Fresh Produce Association, Chef Ann Foundation, Whole Foods Market and others have stepped up to help support salad bars in schools through *Let's Move Salad Bars to Schools.* Since the establishment of this initiative in 2010, it has secured donations to support 4,000 new salad bars nationwide, benefiting more than 2 million children.[196]

Results of a survey of recipient school districts suggest that school salad bars increase student access to fruits and vegetables, student participation in the school lunch program, school district purchasing of fruits and vegetables, and health promotion activities (including classroom education, taste testing, and cooking classes).[197] The survey also reports that school administrators, teachers, staff, and parents are supportive of school salad bars.

Fresh Fruit and Vegetable Program (FFVP)

The 2002 Farm Bill created an innovative pilot program, Fresh Fruit and Vegetable Program (FFVP), that tested the impact of providing fruit and vegetable snacks free to students in participating schools.[198] Distinct from the schools' meals programs, the snack program is intended to increase children's fruit and vegetable consumption for their better health. This is done, in part, by exposing younger children to new fruits and vegetables, since repeated exposure in childhood helps increase overall liking and lifelong consumption of fruits and vegetables.[199]

Chart 40: Funding Available Over Time for Fresh Fruit and Vegetable Program



Source: USDA, FNS[200]

The original FFVP started as a pilot program in 2002 in four states (25 schools each) and in one Indian Tribal Organization. It became a permanent program in a limited number of states in 2004 and was expanded to all 50 states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands in 2008. The program operates nationwide in elementary schools with a high proportion of low-income. One of the most successful measures for increasing children's consumption of fruits and vegetables over the past decade, this program funding has increased as a result of the 2008 Farm Bill (**Chart 40**).[200] It is estimated that 7% to 10% of all public elementary school children benefit each year, or 2.3 to 3.4 million of them.

FFVP has been found to increase children's fruit and vegetable consumption (both fresh and total) in school, on days when the program is offered, by one-third of a cup.[201] It also increases fresh fruit and vegetable consumption outside of school. FFVP additionally increased student preferences toward and familiarity with fruits and vegetables, which may account for the increased consumption outside of school.

FFVP Pilot for Canned, Frozen, and Dried Fruits and Vegetables

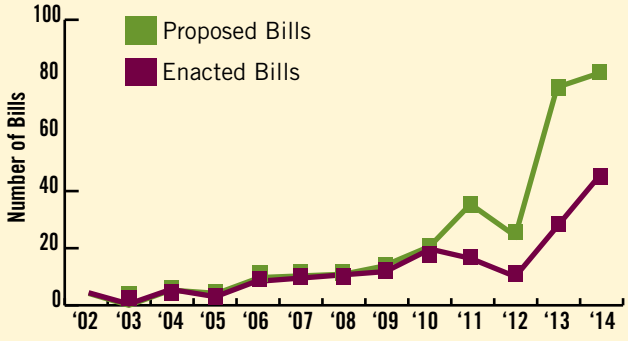
The Agriculture Act of 2014 (Farm Bill) authorized a $5 million, five-state pilot program in the 2014-2015 school year to evaluate the impact of allowing schools to offer canned, frozen, or dried fruits and vegetables as part of FFVP.[202] Consistent with the Dietary Guideline recommendations to eat more fruit and vegetables including canned, frozen, and dried, this pilot program works to ensure that children receive the maximum nutritional benefits, while schools receive maximum value for their program dollars. Alaska, Delaware, Kansas, and Maine were selected to participate in the pilot. An interim report outlining current progress was submitted to the USDA Secretary in early 2015. A final report is expected in the fall of 2016.

Farm to School

Farm to school initiatives offer students in K-12 access to healthy, local foods as well as educational opportunities such as school gardens, cooking lessons and farm field trips. Farm to school empowers children and their families to make informed food choices while strengthening the local economy and contributing to vibrant communities. Specific farm to school implementation differs by site but always includes one or more of the following: procurement (local foods are purchased, promoted and served in the cafeteria or as a snack or taste-test); education (students participate in education activities related to agriculture, food, health or nutrition); and school gardens (students engage in hands-on learning through gardening). Leading organizations that support growth of farm to school programs include state agriculture departments, family farmers, cooperative extensions, and the National Farm to School Network (NFSN).[203]

In the 2011-12 school year, USDA distributed the first Farm to School Census to 13,133 public school districts in the United States, achieving a 75% response rate.[204] Findings from the Census showed that more than 4,300 districts operating over 40,000 schools (44% of U.S. schools) and 23 million students are bringing farms to school. Spending on local food was approximately $385 million;[205] fruits and vegetables were by far the largest expenditure categories. Over 75% of districts reporting purchasing fruits and vegetables locally.[206]

Chart 41: State Farm to School Legislation, 2002-2014



Source: State Farm to School Legislative Survey 2002-2014[208]

At the same time, a third of districts reported sponsoring school gardens.[207] The USDA Farm to School grant program, which was authorized by the Healthy, Hunger-Free Kids Act of 2010, awards up to $5 million in competitive grants annually to eligible entities for training, supporting operations, planning, purchasing equipment, developing school gardens, creating partnerships, and implementing farm to school programs. The non-profit National Farm to School Network (NFSN), representing over 12,000 members, is an information, advocacy and networking hub for communities working to bring local food sourcing and food and agriculture education into school systems and preschools. The NFSN's *State Farm to School Legislative Survey: 2002-2014* found that 40 states and D.C. have passed state policies supporting farm to school programs in those states (**Chart 41**).[208] USDA and NFSN are also supporting expansion of the farm to school concept into early care and education, after school and summer feeding programs, and other child nutrition programs.

Child Care

Child-care centers provide an opportunity to impact the diets of preschool-aged children since an estimated 60% of U.S. children between ages 3-5 attend center-based child-care programs.[209] On January 9, 2015, the USDA's FNS released a proposed rule to update the Child and Adult Care Food Program (CACFP) meal patterns.[210] Under the proposed changes, children and adults in day care will receive meals with a greater variety of fruits and vegetables, more whole grains, and less sugar and fat. These proposed changes will help ensure children have access to healthy, balanced meals throughout the day and may serve as a foundation for healthy choices for life. This is the first time the CACFP meal patterns have been significantly revised since the program was created in 1968. FNS is proposing incremental changes that are achievable and do not increase costs for providers. The public comment period closed May 27, 2015 and a final rule is being prepared.

In addition, over the past five years, states have made significant strides in adopting better nutrition standards for early care and education (ECE) programs, including standards for fruits and vegetables, through state licensing regulations and inclusion in ECE Quality Rating and Improvement Systems (QRIS).[211] The licensing standards of three states fully meet national recommendations for serving vegetables, while eight states fully meet recommendations for serving fruits (as of December 2014). Regulations for an additional 33 states partially meet recommendations for vegetables, while 30 states partially meet recommendations for fruit. Four states have incorporated specific standards related to the provision of fruits and/or vegetables into their QRIS.[212]

Let's Move! Child Care (LMCC) is a national, web-based initiative that supports ECE programs which voluntarily commit to a variety of obesity prevention best practices, including increasing fruit and vegetable consumption. As of July 2015, over 16,000 ECE providers across the nation have pledged to meet best practices for food, beverages, breastfeeding support, physical activity, and screen time through participation in *Let's Move Child Care* (LMCC). Of these, 11,287 ECE providers have completed the online LMCC Checklist Quiz to report how well they are meeting the LMCC best practices. Of these, 77% reported that they serve fruit (not juice) and/or a vegetable to toddlers and preschoolers at every meal. To better support ECE providers to meet LMCC best practices, a series of six online professional development training modules were launched in 2014. As of July 1, 2015, a total of 1,294 lessons on the Healthy Food module, which includes content for fruits and vegetables, have been completed for 2,588 training hours.[213]

The overall impact of strong nutrition standards and nutrition education in child-care centers has been shown to substantially increase low-income children's at-home daily consumption of vegetables as well.[214]

B Summary of Progress

Schools, Child Care, and Other Institutions Feeding Children and Adolescents

Significant progress has been made over the past 5 years at improving the nutritional quality of meals served in child nutrition programs, including:

- Amount of served fruit and vegetables doubled, from ½ cup to 1 cup per day, in school breakfast.
- School lunch now has separate fruit and vegetable requirements, which have also doubled. What was ½-1 cup of fruits or vegetables per day is now ¾-1 cup of vegetables per day and ½-1 cup of fruit each day, with weekly requirements for vegetable subgroups. Fruit juice can be no more than half of the daily fruit that is offered.
- In elementary schools, significantly more were regularly offering fruits and vegetables in lunches, with a sizeable jump in salad bars.
- Schools that meet the Healthier U.S. Schools Challenge increased from 598 to more than 7,000, representing more than 7% of public K-12 schools in the U.S.
- Since establishment of the *Let's Move Salad Bars to Schools* initiative in 2010, donations have supported 4,000 new salad bars nationwide, benefitting more than 2 million children.
- The Fresh Fruit and Vegetable Program (FFVP), providing fruit and vegetable snacks free to students in participating schools, is benefitting an estimated 2.3 to 3.4 million school children each year. It increases children's fruit and vegetable consumption in school on days when the program is offered by one-third of a cup. A pilot program is underway to evaluate the impact of allowing schools to offer canned, frozen, or dried fruits and vegetables as part of FFVP.
- More than 4,300 districts representing 44% of U.S. public schools and 23 million students are bringing farms to school and 1/3 of districts reported sponsoring school gardens.
- A final rule is being prepared to update the Child and Adult Care Food Program meal patterns, which haven't been revised since the program was created in 1968, to include a greater variety of fruits and vegetables.

Updated Strategies

Edit all strategies to 'retain strides that have been made over the past 5 years.'

Workplaces

Worksites provide many opportunities to reinforce and promote healthy lifestyle behaviors. Whether through a broad worksite wellness program or through specific initiatives, employers can create a workplace environment that provides many occasions to increase employees' motivation, opportunity, and ability to choose fruits and vegetables. Strategies include implementing healthy catering and vending policies, including a wide variety of fruit and vegetable menu options in cafeterias; implementing pricing strategies that favor healthy foods like fruit and vegetables; and providing social support and education through worksite efforts. Promoting and facilitating healthy eating at work is an excellent investment. Over time, it can save costs from diet-related diseases and lost productivity, while boosting overall employee health and morale. Key priority areas in 2005 and 2010 include:

- Develop a regular national surveillance system, similar to the school SHPPS surveillance system, which measures worksite activities and tracks successful worksite programs and policies.
- Implement foodservice guidelines for all company and/or government food purchases, events, and conferences, and food served on company and/or government property to require plentiful fruits and vegetables that are prepared healthfully.

Progress Since 2010

National Surveillance System

Many worksite wellness programs and resources currently exist.[215] Monitoring their prevalence and success, however, has been more challenging. National worksite health promotion surveys in the United States were conducted in 1985, 1992, 1999, and 2004. Results from the three earlier surveys are not readily available, so the 2004 National Worksite Health Promotion Survey serves as a baseline metric for National Action Plan purposes.[216] Nutrition programs or activities were found in nearly a quarter of the 730 worksites surveyed, as were disease management programs for diabetes, cancer, hypertension, and cardiovascular disease. Obesity management was offered in about 16% of sites. For environmental support, 24% of worksites had cafeterias and almost 80% had food or beverage vending services. Overall, over one-third reported labeling healthy food choices as such and about one in twenty reported conducting promotions for healthy food. About 6% of worksites had policies governing food choices for their catered events. Differences were noted by size of worksite, with larger worksites (750+ employees) offering more diabetes and cardiovascular disease management programs and on-site employee cafeterias.

In a 2009 review of the U.S. workplace wellness market, wellness programs have become very common, as 92% of employers with 200 or more employees reported offering them.[217] The most frequently targeted behaviors are exercise, smoking, and weight loss. Twelve studies evaluated diet, and half found significant improvements, including higher fruit and vegetable consumption and lower fat and energy intake. Programs consisted of counseling, web-based self-help programs, and better access to farmers' markets and health expos. Overall, effects were typically small to moderate, such as consumption of an average of 0.2 fewer fast food meals per week, or a reduction of fat intake by 3 grams (from 51 to 48.1 grams) per day. On the other hand, an average increase of 0.7 servings (from 2.9 to 3.6 servings) of fruits and vegetables per day was found and is considered very significant.

In a 2013 Workplace Wellness Programs Study,[218] approximately half of U.S. employers offer wellness promotion initiatives, including both wellness screening activities and interventions. However, fewer than half of employees (46%) undergo clinical screening or complete a health risk assessment, which is used to identify employees for health interventions. Those who do participate have significant and clinically meaningful improvements in weight control, exercise frequency, and smoking behavior. Participation in a wellness program for over five years is associated with an estimated $157 fewer annual health care costs.

A separate survey of human resource managers reports that 70% of organizations offered employee wellness programs in 2015, up from 60% that did so in 2011.[219] Availability of other benefits also increased by 2015, including nutrition counseling (20%), weight loss programs (33%), and rewards for completing certain health and wellness programs (40%). By 2015, even on-site vegetable gardens were offered by 5% of employers.

CDC is currently developing a National Workplace Health Programs and Practices Survey to assess the organizational structure, characteristics, and practices of workplace health programs.[220] This survey will collect data about health programs, policies, and benefits; environmental supports; leadership; infrastructure; and capacity. It will help establish surveillance and tracking systems that monitor employers' efforts and share information about the design, use, and evaluation of comprehensive workplace health programs. The resulting data can be used to create guidelines, recommendations, and solutions to meet the needs of U.S. employers. The data can also be used to evaluate national health priorities, such as Healthy People 2020 objectives for worksite health promotion programs.

Government Procurement Policies

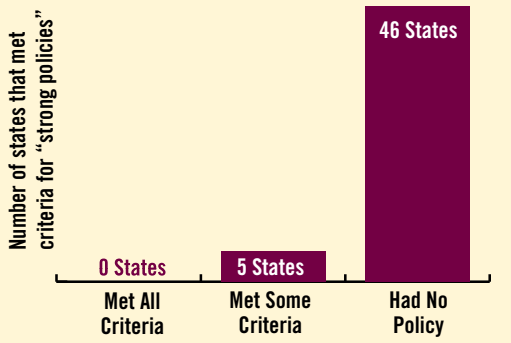
States can create environments that support healthy dietary behaviors by setting nutrition standards for foods and beverages sold or provided by government agencies. The Institute of Medicine recommends that government agencies implement "strong nutrition standards for all foods and beverages sold or provided through the government" and ensure "that healthy options are available in all places frequented by the public."[221]

For purposes of this report, strong policies are those that meet the following criteria:

1. Apply to at least 90% of government agencies in the state executive branch,
2. Cover all food purchased, contracted, distributed, or sold by government agencies in the state executive branch,
3. Provide quantifiable standards for foods or nutrients (e.g., set a maximum for the amount of sodium a food item can include), and
4. Set minimal standards that limit sodium content, fat content, and the availability of high-calorie, low-nutrient foods and beverages.

The status of state policies on nutrition standards for foods and beverages sold or provided by government agencies, is noted in **Chart 42**.[222]

Chart 42: Status of State Policies on Nutrition Standards for Foods and Beverages Sold or Provided by Government Agencies, United States (2012)



State count includes the District of Columbia

Source: CDC[222]

Incomplete

Summary of Progress

Workplaces

Though a national surveillance system to monitor and evaluate employers' workplace efforts was not developed in the last 5 years, CDC has one in progress: the National Workplace Health Programs and Practices Survey. Until that is available, the 2004 National Worksite Health Promotion Survey continues to serve as a baseline metric, where nutrition programs or activities were found in nearly a quarter of worksites surveyed. Since then, wellness programs have become more common with estimates ranging from half of employers to 92% of large employers offering them. Reports suggest that a range of 20-40% of eligible employees participate. Diet was a commonly targeted health behavior, and in 12 studies, half found significant improvements including an average increase in fruit and vegetable consumption of 0.7 servings (from 2.9-3.6) per day, which is considered very significant.

Strong nutrition standards for foods and beverages sold or provided by government agencies can ensure that healthy options are available in places frequented by the public. In the latest data available, however, 46% of states did not have a policy on nutrition standards at all. Those that did have a policy, did not have strong ones.

Health Care and Health Organizations

Many organizations and professionals deliver health messages to individuals via a variety of forums; efforts to increase fruit and vegetable consumption are often consistent with their missions and in many instances may further their goals. Health care providers are uniquely situated to have a significant impact on patient motivation and outcomes. A priority strategy in this area moving forward is:

- Develop a network of health care community providers and policy makers, such as primary care physicians, pediatricians, nurses, dietitians, and other health care professionals, who will help deliver consistent, behaviorally-focused messages, and practical tips about fruits and vegetables for better health outcomes. This same network will be targeted to help in the formation of guidelines, performance measures, and other recommendations that include nutritionally-based outcomes.

Progress Since 2010

Diet or Nutrition Services Provided by Physicians

The 2005 National Ambulatory Medical Care Survey (NAMCS), conducted annually by the National Center for Health Statistics, served as a baseline indicator for this section of this National Action Plan report card.[223] Ambulatory medical care, care that is delivered on an outpatient basis, is the most widely used segment of health care services in the United States. Physician offices comprise about four-fifths of all ambulatory medical care delivered. This indicator represents care given by physicians in private practices and freestanding clinics, including public health clinics and community health centers.

Chart 43: Services Ordered or Provided at Physician Offices

	1995	2000	2005	2010
One or more health education services ordered or provided	N/A	N/A	38.4%	43.4%
Therapeutic and preventive services (non-medication)	34.9%	35%	N/A	N/A
Diet or nutrition services	13.3%	15.4%	14.8%	13.1%
Exercise	10%	N/A	10.9%	9.2%
Weight reduction	4.7%	N/A	N/A	4%

Source: NAMCS[223-236]

In 2010, health education was reported as being ordered or provided at 43.4% of ambulatory medical care visits, up from 2005 (**Chart 43**).[224] The most frequent counseling or education provided or ordered at office visits related to diet or nutrition and exercise, though both decreased over the 5 year period between 2005 and 2010. Overall, very little has changed since 1995.[225, 226]

Nutrition Education Training of Health Care Providers

Over the past 30 years, nutrition training in medical schools has been identified as an essential component of medical education by numerous professional groups, scientific publications, and even a congressional mandate.[227] The amount of nutrition education that medical students receive continues to be inadequate. The scarcity or absence of expert nutrition faculty and lack of time for new courses or additional lectures have been key barriers.

There are at least 2 recent laws, however, that influence providers to increase their knowledge and training to provide nutrition counseling to their patients: the Patient Protection and Affordable Care Act of 2010 (ACA) and the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009.[228] The ACA elevates the prominence of prevention in health care, including new financial incentives for providers to deliver nutrition education to patients. HITECH mandates process and outcomes measurements as part of a pay-for-performance system. Several measures, such as weight assessment and counseling, will encourage more health care providers to address nutrition issues with their patients. Most providers currently feel unprepared to discuss these topics.

History of Nutrition in the Medical Education of Physicians[229]

1963

Council on Foods and Nutrition, American Medical Association (AMA) recognizes the lack of support for nutrition education in medical schools.

1977

AMA survey finds 19% of medical schools have a nutrition course.

1982

The Liaison Committee on Medical Education (LCME) reports that 27% of medical schools have a course in nutrition.

1985

National Academy of Sciences publishes groundbreaking report highlighting the insufficiency of nutrition education in the medical school curriculum.[230] Recommends a minimum 25-hour nutrition instruction.

1995

The Nutrition in Medicine (NIM) Project develops a web-based free, interactive, comprehensive nutrition curriculum for medical students. NIM team also surveys nutrition instructors at U.S. medical schools every few years.

2000-2005

Major funding initiative by the National Heart, Lung, and Blood Institute (NHLBI) creates the Nutrition Academic Award, which is awarded to 21 medical schools to develop and enhance the medical curricula in nutrition and the prevention of chronic disease. Lack of sustained funding slows and eventually halts progress in some schools.

2004

NIM Survey[231] finds 38% of medical schools have a minimum of 25 required hours of nutrition.

2010

NIM Survey[232] finds 27% of medical schools have a minimum of 25 required hours of nutrition.

Fruit and Vegetable Prescription Programs

Community-clinical linkages foster coordination between community and clinical services that promote healthy behavior. One specific community-clinical approach for promoting fruit and vegetable intake is the Fruit and Vegetable Prescription Program. A number of providers are implementing these programs, and one program currently used in multiple sites across the United States is Wholesome Wave's Fruit and Vegetable Prescription Program® (FVRx®). This program partners healthcare providers and local farm to retail businesses, including farmers markets, with the goal to increase fruit and vegetable access in patients from low-income communities.

Patients chosen by healthcare providers are given FVRx vouchers on a monthly basis that can be redeemed at farmers markets and similar enterprises for fresh fruits and vegetables. These programs are designed to support not only the individual patients but their entire household. A survey from 2013 conducted of participants in 6 different FVRx program sites showed that 56% of patients increased their fruit and vegetable consumption in the period from their first to the last visit with their provider under the program (4-6 months).[233] Wholesome Wave is continuing to seek new pilot sites for FVRx to expand the program to new populations, including employers and their employees, health insurers and their members, and additional underserved communities throughout the United States.

D- Summary of Progress

Health Care and Health Organizations

Over the past 30 years, nutrition training in medical schools has been identified as an essential component of medical education. The amount of nutrition education that medical students receive, however, continues to be inadequate. As a result, very little has changed since 1995 in terms of nutrition counseling services ordered or provided by physician offices. In the past 5 years, a new program that fosters coordination between healthcare providers and low-income communities to promote fruit and vegetable intake, in the form of a Fruit and Vegetable Prescription Program, has shown promising results. Changes may occur at a faster rate in the future since two new laws, ACA and HITECH, elevate the prominence of prevention in health care, including new financial incentives for providers to deliver nutrition education to patients.

Research and Evaluation

Federal research efforts should reflect the important role of fruits and vegetables in reducing the risk of chronic disease. There is an urgent need to increase support, and leverage research, especially federally-sponsored research, to overcome actual and perceived barriers to increased consumption of fruits and vegetables. Priority areas identified below primarily pertain to federal fruit and vegetable research efforts, but can be applied more broadly to include other research entities. These priorities were identified in 2005 and continue to be viewed as critical to improving fruit and vegetable consumption:

- Conduct an independent assessment of federal nutrition assistance and health programs and policies, as well as agricultural programs and policies, to determine the extent to which agriculture policy is consistent with health policy; such an assessment should include recommendations on how to better align federal health and agriculture policy.
- Build the scientific evidence base to identify strategies to increase fruit and vegetable consumption. This research can be about the impact on eating behavior when there is greater fruit and vegetable availability, nutrition education, peer counseling, physician recommendations, or changes in food marketing that occur in a variety of settings such as schools, worksites, restaurants, and supermarkets.

Progress Since 2010

Alignment of Health and Agriculture Policies

A new report examined the degree to which the nation's agricultural policy supports national nutrition policy for fruits and vegetables as a public health priority,[234] compared with information obtained in 2010.[235] Scientific reports and recommendations from USDA and HHS continue to confirm the strength of evidence connecting higher fruit and vegetable consumption with health benefits and reiterate the need to commit additional federal resources to close the consumption gap that exists. This review of federal spending, however, found that fruits and vegetables continue to remain a low priority for the federal government, as seen in some of the conclusions from this report:

The Public Health Risks Due to the Fruit and Vegetable Consumption Gap Are Substantial and Avoidable

The results of meta-analyses of scientific studies of the relationship between life-threatening chronic illnesses and consumption of fruits and vegetables indicated that increased consumption significantly reduces the risk of a number of those illnesses. Using that literature, closing the fruit and vegetable consumption gap is estimated to reduce

the risk of cancer by 5.6%, coronary heart disease by 18.6%, and stroke by 22.2%. Those risk reductions would result in widespread enhancement of public health since, when combined, the three diseases accounted for 43% of all U.S. deaths in 2012.

Chart 44: Cost of Fruit and Vegetable Gap for Diet-related Diseases, 2008 and 2012

	$ Billions	
	Estimated Total Economic Costs, 2008	Estimated Total Economic Costs, 2012
Cancer	13.7	15.8
Coronary Heart Disease	28.3	29.6
Stroke	14.2	17.9
Total	**56.2**	**63.3**

Source: Rosenfeld A. 2015 Gap Analysis[86]

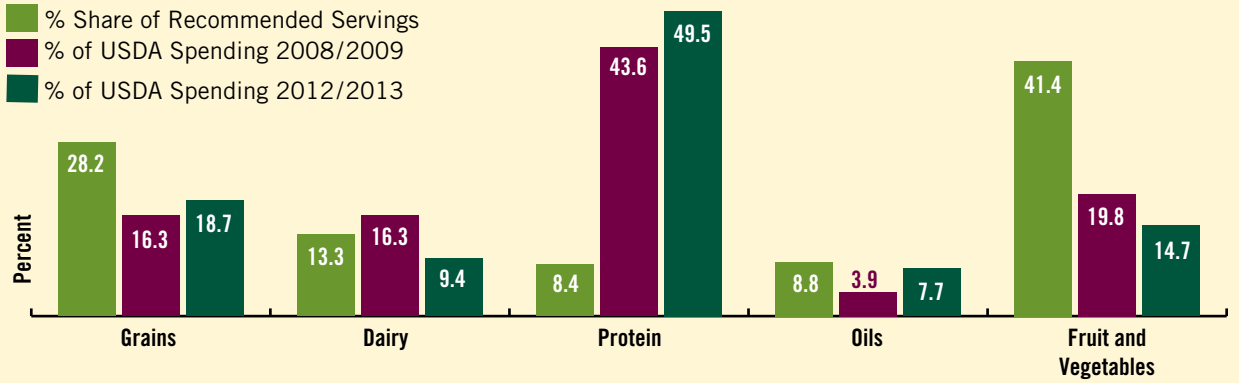
Economic Costs to the Nation Due to the Fruit and Vegetable Consumption Gap Are Very Large and Increasing

The fruit and vegetable consumption gap represents an urgent and growing national challenge. The economic cost of having consumption fall short of recommended levels, known as the fruit and vegetable consumption gap, for three diseases alone in 2012 ($63.3 billion) was larger than the annual spending of 46 states and the GDP of 121 countries in 2012 (**Chart 44**). Between 2008 and 2012, the economic cost of the fruit and vegetable consumption gap for the three chronic illnesses increased by 12.6%. If it were assumed that the total increase occurred in equal amounts each year, the total cost to the nation, for the five years from 2008 through 2012 combined, would have been $298.8 billion.

USDA Spending Contradicts the Priority of Fruits and Vegetables in the Dietary Guidelines

USDA support for each of the major food groups in the Dietary Guidelines, including grains, dairy products, protein foods, oils, and fruits and vegetables has been estimated.[236] Types of spending included: production subsidy programs; promotion programs; research, education and extension; food purchases and consumption subsidies for nutrition assistance programs; and administrative and other program implementation expenses. As shown in **Chart 45**, more than three times the amount of USDA funds support the meat group, which comprises only 8% of the daily servings recommended in the Dietary Guidelines, compared to fruits and vegetables which comprise 41% of the recommended daily food servings. Between the FY 2008/2009 and FY 2012/2013 periods, USDA fruit and vegetable spending as a percentage of its total food-group spending declined five percentage points while the protein group's share grew by six percentage points.

Chart 45: Daily Recommended Servings vs. All USDA Spending Over Time



Source: Rosenfeld A. 2015 Gap Analysis[86]

USDA would have to increase spending on fruits and vegetables by $4.9 billion to $8.4 billion, depending on whether it reallocates existing funds or adds new funds, to bring USDA food group spending in line with Dietary Guideline recommendations. That's between 1.8 and 3.1 times the current annual fruit and vegetable spending of $2.7 billion. This additional spending is equal to only 3.3% to 5.7% of the average annual budget for the entire USDA during the FY 2012/2013 period.

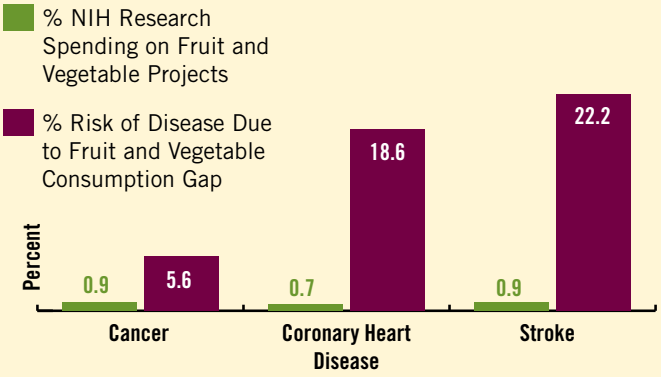
Alignment of Health and Research Priorities

Like USDA, HHS has a critical role to play in addressing the relationship between diet and health. Two HHS agencies, the CDC and the NIH, are at the heart of the federal government's public-health research and disease-prevention complex. Their mix of projects and spending patterns offer two additional lenses through which to view federal priorities regarding the nation's fruit and vegetable consumption gap.

Fruits and Vegetables Are a Low Priority for NIH and CDC Spending Despite the Sizable Health Risks Attributable to the Consumption Gap

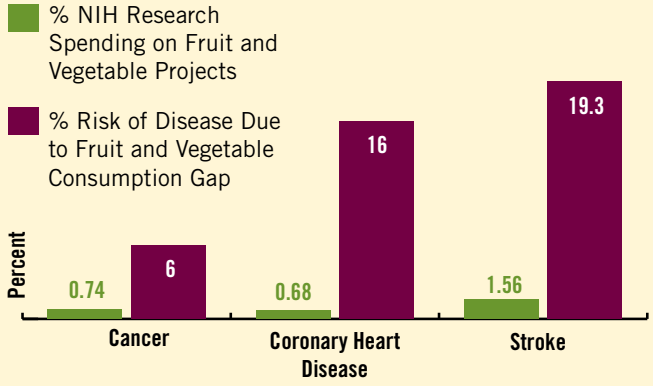
Analysis of multiple aspects of spending by the two agencies during the FY 2012/2013 period revealed that the scope of their fruit-and-vegetable-related activities continues to be inconsistent with the health risks posed by the consumption gap. Only 1% of NIH research projects on cancer, coronary heart disease and stroke focused on fruits and vegetables, even though the fruit and vegetable consumption gap contributes between 5.6% and 22.2% of the risk for those three diseases (**Chart 46**). There has been virtually no improvement since FY 2008 (**Chart 47**).

Chart 46: NIH Fruit and Vegetable Research Spending vs. Risk of Disease, FY 2012/2013



Source: Rosenfeld A. 2015 Gap Analysis[86]

Chart 47: NIH Fruit and Vegetable Research Spending vs. Risk of Disease, FY 2008

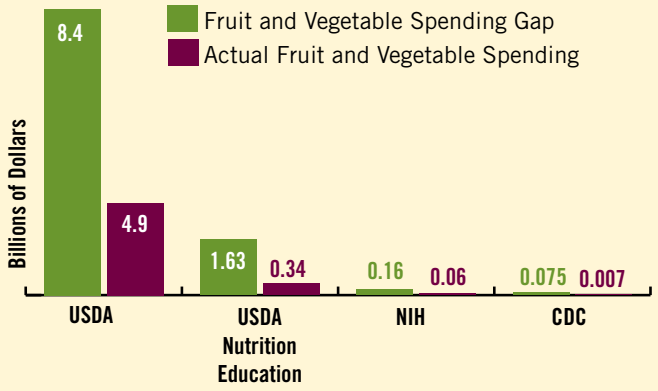


Source: Rosenfeld A. 2015 Gap Analysis[86]

The NIH fruit and vegetable spending gap ($164 million) was 2.9 times as large as actual spending by NIH on fruit and vegetable prevention projects ($57 million) for the three diseases. Closing the NIH spending gap would require an additional expenditure equal to only 0.5% of the NIH budget.

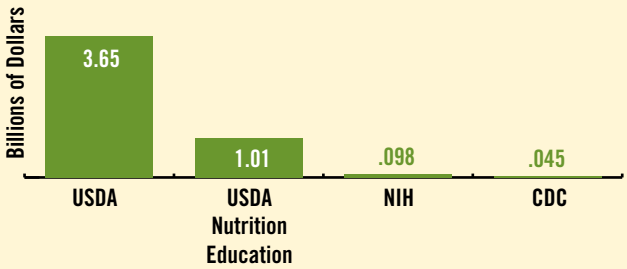
CDC also dramatically under spent on fruit and vegetable projects. Tobacco-prevention spending was 27 times fruit and vegetable spending even though tobacco's contribution to cancer, coronary heart disease and stroke risk was only 2.4 times the disease risk attributable to the fruit and vegetable consumption gap. Using a risk perspective to place CDC's fruit and vegetable spending on par with the agency's tobacco prevention spending produced an estimate of a $75 million spending gap. That's 10 times CDC spending on fruit and vegetables for the FY 2012/2013 period and double the spending gap estimated 5 year ago. The current CDC fruit and vegetable spending gap is equal to only 0.7% of total CDC spending.

Chart 48: Summary of Federal Fruit and Vegetable Spending Gaps, FY 2012/2013



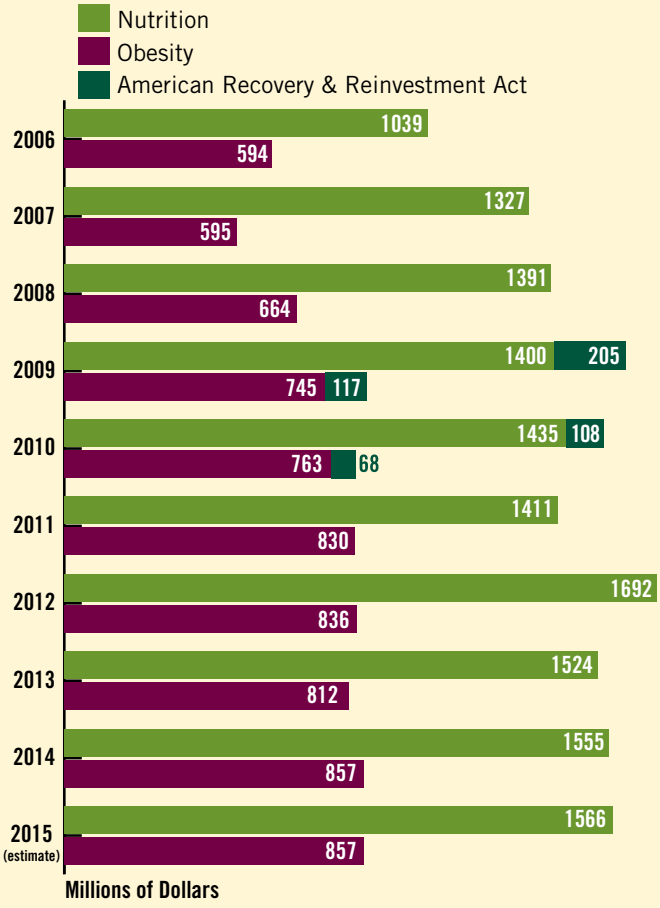
Source: Rosenfeld A. 2015 Gap Analysis[86]

Chart 49: Summary of Federal Fruit and Vegetable Spending Gaps, FY 2008



Source: Rosenfeld A. 2015 Gap Analysis[86]

Chart 50: NIH Funding Available Over Time for Nutrition and Obesity Research



Source: Research Portfolio Outline Reporting Tools (RePORT)[238]

More than $8 Billion in Additional Annual Spending is Needed to Close the Federal Fruit and Vegetable Spending Gap

Closing the fruit and vegetable consumption gap will require closing the fruit and vegetable spending gap. As shown in **Chart 48**, USDA and HHS would have to more than double their spending on fruit and vegetable related projects, an increase of more than $8 billion, to close the total fruit and vegetable spending gap. By comparison, the $63 billion annual economic cost of the fruit and vegetable consumption gap with respect to cancer, coronary heart disease, and stroke is more than 10 times the amount needed to close the fruit and vegetable spending gap. This spending gap for fruits and vegetables has continued to grow since 2008 (**Chart 49**).

In FY 2008, USDA, NIH, and the CDC spent a total of about $126 billion. Less than 3% of those combined budgets was spent on programs and projects related directly to fruits and vegetables. For the FY 2012/2013, these agencies spent an average of $190 billion per year with less than 2% of those combined budgets spent on fruits and vegetables.[237]

Evidence Base Development

Increasingly, public programs are focusing on 'evidence-based' programming. This requires an investment in program-relevant research. One metric that can help determine the growth in evidence-based research surrounding best strategies to increase fruit and vegetable consumption is to measure funding allocated to nutrition and obesity research. **Chart 50** outlines National Institutes of Health (NIH) funding for nutrition and

obesity research since 2006.[238] While there has been an increase in nutrition and obesity research funding, the combined nutrition and obesity funds represented only 6% of total NIH spending in 2006 and 8% in 2009, dropping even lower to 1.6% in 2011 and 1.5% in 2015.[239] With fruits and vegetables playing such a strong role in disease prevention and health promotion, research funding is insufficient.

C- Summary of Progress

Research and Evaluation

The degree to which the nation's agricultural policy supports national nutrition policy for fruits and vegetables as a public health priority, compared with information obtained in 2010, shows that fruits and vegetables continue to remain a low priority for the federal government.

The annual economic costs to the nation due to the fruit and vegetable consumption gap are very large, $63.3 billion, an increase of 12.6% since the last report. USDA spending contradicts the priority of fruits and vegetables in the dietary guidelines, and this too has worsened over time: lower-priority foods like meat dominated USDA spending, with six times its share, while USDA spending on fruits and vegetables was only about one-third their share. USDA spending for nutrition education continues to remain far short of levels needed to encourage substantial increases in fruit and vegetable consumption.

Fruits and vegetables also remain a low spending priority for NIH and CDC despite the sizable health risks attributable to the consumption gap. For example, similar to the last report, only 1% of NIH research projects on cancer, coronary heart disease and stroke focused on fruits and vegetables, despite the fact that the fruit and vegetable consumption gap contributes between 5.6%-22.2% of the risk of those three major diseases.

Updated Strategies

Add an additional strategy: Request that the General Accountability Office (GAO) conduct an analysis to determine fruit and vegetable funding priorities, engage stakeholders in the process, and begin to close the $6-10 billion fruit and vegetable funding gap.

State and Federal Policy

Federal and state governments play a critical role in promoting the health and well-being of all Americans. They have powerful tools at their disposal that can help address our Nation's most pressing health challenges of poor diet and inactivity. Nutrition assistance programs alone reach one in five Americans in the course of a year, providing food benefits—and in some cases—nutrition education. It is imperative that federal, state, and local agencies include fruit and vegetable messaging and procurement practices consistent with the Dietary Guidelines for Americans in all major policies and programs. In addition to schools, child care, research, surveillance, and nutrition education discussed earlier in this report, these policies include USDA's food guidance system; Special Supplemental Nutrition Program for Women, Infants and Children (WIC) food packages; government health targets; other nutrition assistance programs; and National Institutes of Health programs and communication efforts including clinical treatment guidelines. Aligning nutrition and agriculture policies with health policies will be essential in helping consumers meet fruit and vegetable consumption goals. Priority strategies that were identified in 2010 continue to be critical to increasing fruit and vegetable consumption. These strategies include:

- **Supplemental Nutrition Assistance Program (SNAP):** Encourage greater emphasis on and promotion of increased consumption of fruits and vegetables. For example, pilot projects should be conducted to assess the dietary impact of bonus benefits within the SNAP program when purchasing fruits and vegetables. Also, SNAP nutrition education guidance should emphasize the promotion of fruits and vegetables in state education efforts.

- **WIC:** Implement and promote use of new fruit/vegetable vouchers as part of WIC food packages to provide greater access to all forms of fruits and vegetables, and assure that nutrition education guidance is provided to WIC operators to promote fruits and vegetables.

History of Fruits and Vegetables in SNAP[240]

1933
Federal Surplus Relief Corporation bought farm commodities at discount prices and distributed them among hunger relief agencies.

1939
Food Stamp Plan created. For every $1 orange stamp purchased by participants, a $0.50 blue stamp was issued for commodity surplus foods.

1943
Food Stamp Plan ended as World War II and economic boom ensued.

1961
President Kennedy signs Executive Order to initiate the food stamp pilot programs.

1964
President Johnson makes the Food Stamp Program permanent by signing the Food Stamp Act (a provision to limit the purchase of soft drinks and 'luxury' foods was eliminated from the final bill).

1973
The Agriculture and Consumer Protection Act allows purchase of seeds to grow food.

1974
The Food Stamp Program expands to all 50 states and territories.

1981
Nutrition education, now SNAP-Ed, was established as an optional program in states.

2004
Nutrition education was being conducted in all 50 states and District of Columbia.

2008
The Food Stamp Program is renamed the Supplemental Nutrition Assistance Program (SNAP) to place greater emphasis on nutrition.

2008
Healthy Incentives Pilot (HIP) Program to offer incentives to purchase fruits and vegetables was established in 2008 Farm Bill.

2010
Healthy, Hunger-Free Kids Act changed SNAP-Ed funding and guidelines to improve program effectiveness.

2014
HIP demonstrates success at increasing fruit and vegetable consumption.

2014
2014 Farm Bill establishes $100 million for Food Insecurity Nutrition Incentive (FINI) Program to test various ways to incentivize SNAP participants at point of purchase to increase fruit and vegetable purchases.

Progress Since 2010

Supplemental Nutrition Assistance Program

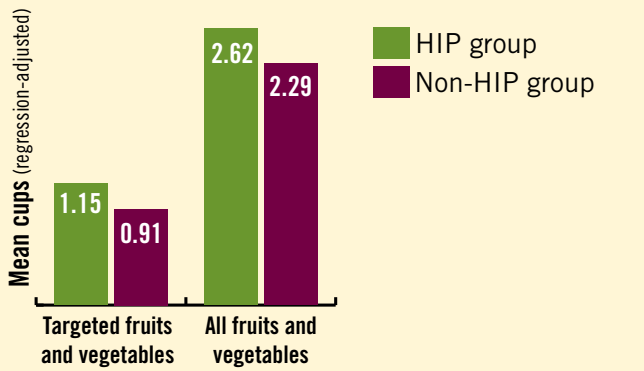
Healthy Incentives Pilot (HIP)

The 2008 Farm Bill provided funding for a pilot project to offer incentives at point of purchase to encourage participating SNAP households to purchase fruits, vegetables, or other healthful foods and to conduct a rigorous evaluation that measures the impact of the pilot program on health and nutrition. This effort is referred to as the Healthy Incentives Pilot (HIP.)[241] The $4.4 million project began with the release of a request for application for a contractor in 2009, which was awarded by USDA in 2010, and implemented on schedule in Hampden County, western Massachusetts, from November 2011 through December 2012. Each of the 7,500 randomly selected Hampden households participating in the pilot received a financial incentive to purchase fruits and vegetables for 12 months. For every dollar of SNAP benefits they spent on targeted fruits and vegetables at participating retailers, SNAP households received a 30-cent incentive on their SNAP

Electronic Benefit Transfer (EBT) card. The incentive could be spent on any SNAP-eligible foods and beverages. An interim report was published in 2013, with a final report completed in 2014. Findings included: [242]

- HIP statistically significantly increased fruit and vegetable consumption 26% among participants over non-HIP participants (**Chart 51**). HIP participants consumed almost a quarter of a cup more targeted fruits and vegetables than non-HIP participants. HIP participants also had higher Healthy Eating Index scores than non-participants.
- HIP households spent more SNAP benefits than non-HIP households on targeted fruits and vegetables—$12.05 versus $10.86 each month — an increase of $1.19 or 11%. HIP households earned average incentives of $3.65 each month.
- HIP participants responded to the price incentive and used their SNAP benefits to purchase more targeted fruits and vegetables. However, the amount of fruit and vegetables they purchased with their SNAP benefits in HIP participating stores was insufficient to account for their entire increased intake. This suggests that HIP affected consumption through other mechanisms as well, such as informational and attitudinal effects.
- Individuals who experienced larger HIP impacts did not differ based on gender, age, education, race/ethnicity, employment status, household composition, WIC status, or SNAP benefit amount. Instead, stronger preferences for fruits and vegetables at baseline predicted stronger HIP impacts. This suggests that HIP may have been more successful in increasing intake among those who already enjoyed fruits or vegetables, relative to those who did not already enjoy these foods.
- The experience in Hampden County demonstrated that HIP was both technically and operationally feasible. Projected start-up costs to expand HIP nationwide are estimated to be $89.8 million. The projected value of incentives with nationwide expansion, based on plausible scenarios about SNAP households' fruit and vegetable spending, ranges from $0.8 billion to $4.5 billion annually.

Chart 51: HIP Participant Daily Consumption of Fruits and Vegetables



Source: Evaluation of the Healthy Incentives Pilot (HIP): Final Report, 2014[242]

Food Insecurity Nutrition Incentive (FINI) Program

As seen through HIP, incentivizing purchases of fruits and vegetables increases their affordability and consumption. Supported with $100 million in mandatory funding in the latest 2014 Farm Bill, the Food Insecurity Nutrition Incentive (FINI) program is a new initiative to support programs that incentivize SNAP participants at point of purchase to increase their purchase of fruits and vegetables. [243] In April 2015, FINI announced its first round of funding, $31.5 million, awarded to 31 projects in 26 states. Three types of grants were awarded: pilot projects, multi-year community-based projects, and multi-year large-scale projects. The remaining $65 million will be awarded between 2016-2018. Most FINI projects, among a variety of requirements, must participate in the FINI comprehensive program evaluation. This evaluation will attempt to answer the question of what approach works best (and when or where) at increasing fruit and vegetable consumption. In this way, SNAP can test the influence of setting nutrition guidelines similar to other nutrition assistance programs like WIC, National School Lunch Program, and USDA's Child

and Adult Care Food Program. Whereas WIC serves a large population of infants and children, 48% of SNAP participants are children and SNAP encompasses three times more children than WIC.[244]

WIC

After many years of advocacy, the WIC program now includes vouchers for the purchase of fruits and vegetables. Previously, only carrots and fruit juice could be purchased with WIC vouchers. Effective October 1, 2009, the program gave $10 per month vouchers to all mothers, not just those who were breastfeeding, and $6 per month vouchers to children for the purchase of any variety of fruit or vegetable. Based on comments, implementation of the final rule in 2014 included $10 per month cash value vouchers for all mothers and an increase to $8 per month for all children.[245] Effective in 2015, this also includes white potatoes.[246] With more than half of all infants in the U.S. participating in WIC, the program reached an estimated 7 million women and children in FY 2014, representing an estimated value of $746 million in new fruit and vegetable purchases, an increase over the $600 million available in FY 2009.

Total funding and coupon redemption rates were previously identified as indicators of success in this program. According to the latest data, mean and median coupon redemption rates were estimated to be near 80%, with wide variations by region, ranging from 17%-98% redemption.[247] Despite the ability to do so, not all states authorize frozen fruits and vegetables, only half authorize canned, and even fewer authorize dried fruit and vegetables. If states were to authorize both fresh and processed fruits and vegetables, coupon redemption could be maximized by allowing for differences in cultural, practical, and financial needs, while also promoting health. This may also improve WIC program participants' consumption of fruits and vegetables, which was found to increase only minimally in a recent systematic review measuring the impact of the program.[248] In light of continued low fruit and vegetable consumption, the need for greater convenience at mealtime, and keeping food costs low, it is more important than ever to emphasize that all forms—canned, frozen, fresh, dried, 100% juice—will increase the amount of fruits and vegetables in the diet.

The FNS-sponsored *WIC Infant and Toddler Feeding Practices Study* (WIC ITFPS-2), expected in late 2016,[249] is a follow-up to a similar 1997 study and will include an assessment of WIC Food Packages on outcomes. The *Feeding Infants and Toddlers Study* (FITS), funded by Nestle/Gerber, conducted in 2002 and again in 2008, outlined concern about the lack of fruits and vegetables at every age.[250] A follow-up study is expected to be available in 2017.

History of Fruits and Vegetables in WIC

1972
Congress authorized a two-year pilot project to serve pregnant and lactating women, infants, and children up to age four.

1975
WIC (Women, Infants, and Children) officially became a permanent national health and nutrition program.

2003
Institute of Medicine (IOM) panel was appointed to review WIC food package.

2005
IOM report to USDA recommended changes to WIC food package.

2006
USDA sought public comment on proposed changes to WIC food package.

2007
Interim final rule proposed by USDA on new WIC food packages: $8 fruit and vegetable voucher/month for moms; $6 fruit and vegetable voucher/month for kids; $10 fruit and vegetable voucher/month for fully breastfeeding moms.

2009
All states implementing fruit and vegetable vouchers; $10 cash value vouchers/month for all moms; $6/month for children.

2014
USDA final rule: $10 cash value voucher/month for all moms; $8 cash value voucher/month for children.

2015
A review of the WIC Food package is due, as required by the Healthy Hunger Free Kids Act.

B Summary of Progress

State and Federal Policy

In the past 5 years, the Healthy Incentives Pilot (HIP), funded through the 2008 Farm Bill, was completed and found that it significantly increased fruit and vegetable consumption 26% among participants over non-HIP participants. Since then, the 2014 Farm Bill has offered $100 million to initiate the Food Insecurity Nutrition Incentive (FINI) program to support programs that incentivize SNAP participants to increase their purchase of fruits and vegetables. In 2015, FINI announced its first round of funding, $31.5 million, awarded to 31 projects in 26 states. A comprehensive program evaluation will attempt to determine what approach works best at increasing fruit and vegetable consumption.

After many years of advocacy, the WIC program now includes vouchers for the purchase of fruits and vegetables. Effective October, 2009, the program gave $10 per month vouchers to all mothers and $6 per month cash value vouchers to children for the purchase of any variety of fruit or vegetable. Today, vouchers are $8 per month for all children and all women receive a cost of living adjustment. The WIC program reached 7 million women and children in FY 2014, representing an estimated value of $746 million in new fruit and vegetable purchases, an increase over the $600 million available in FY 2009.

Updated Strategies

Add as additional strategies:

- Develop a federal inter-agency implementation plan to increase fruit and vegetable consumption through all nutrition assistance programs, research efforts, and state outreach.
- Encourage all states to authorize both fresh and processed fruits and vegetables for purchase with WIC vouchers to maximize differences in cultural, practical and financial needs, while also promoting health.
- Using evaluation data from FINI grant program, identify best strategies to incentivize SNAP recipients to eat more fruits and vegetables. Take appropriate steps to expand successful strategies.

NFVA Priorities

The National Fruit and Vegetable Alliance believes that increasing fruit and vegetable consumption for better health requires a cultural shift such that Americans eat them not because they 'have to' but because they 'want to.' We envision an America where half the plate as fruits and vegetables is simply the norm. For this to happen, a comprehensive, multi-component approach — including the strategies outlined in this report — needs to occur. As an alliance, our priority strategies to help create a cultural shift in support of fruits and vegetables include:

1. **Align Nutrition Assistance Programs with Dietary Guidelines:** Continue to assure greater emphasis of all forms of fruits and vegetables in federal nutrition assistance programs in alignment with Dietary Guidelines.

2. **Expand Nutrition Education/Marketing:** Ensure nutrition education funding within federal nutrition assistance programs is more effective; include education and marketing approaches about all forms of fruits and vegetables. Encourage industry and NGO's to expand their marketing and education efforts to increase consumption of all forms of fruits and vegetables.

3. **Expand Salad Bars:** Increase use of salad bars in schools.

4. **Use Menus as Trendsetters:** Increase use of flavorful fruit and vegetable dishes on restaurant and cafeteria menus that consumers will want to emulate in their home kitchens.

Conclusion & Recommendations

Positive changes since our 2005 National Action Plan have occurred. In our last 2010 Report Card, these included expansion of the Fresh Fruit and Vegetable Program, inclusion of new fruit and vegetable vouchers in the WIC program, the development and launch of the Fruits & Veggies—More Matters communications campaign, and increased funding for nutrition and obesity research at NIH. Other, less sizeable but equally notable progress occurred in other areas, including greater availability of fruits and vegetables on restaurant menus, a modest shift of advertising away from low nutrition foods, and better alignment of school foods with the Dietary Guidelines for Americans.

We see additional progress over the past 5 years, as outlined in this 2015 Report Card. Particularly noteworthy is the passage of the Healthy, Hunger-Free Kids Act of 2010, resulting in the doubling of fruits and vegetables in school meals. Also noteworthy, the Healthy Incentive Pilot program demonstrated strong positive results at increasing fruit and vegetable consumption among SNAP households, and a new FINI grant program is testing other methods of incentivizing SNAP participants to purchase fruits and vegetables. In other areas, expansion of food hubs, mobile markets, corner stores, salad bars, and farmers' markets has resulted in a significant increase in access to fruits and vegetables nationwide; a new collaboration among large foodservice operators reported a sizeable increase in fruits and vegetables on menus; and additional fruit and vegetable marketing efforts were begun, with one campaign in the process of measuring impact in two key markets.

In spite of good progress in several areas, one glaring problem remains: agriculture policy still does not align with health policy in this nation; in fact, it has worsened. The percent of USDA spending on fruits and vegetables relative to other foods and their importance in nutrition policy is less aligned than it was 5 years ago, as has the percent of NIH research dollars spent on fruits and vegetables; nutrition education as a percent of nutrition assistance programs is lower than it was a decade ago. Similarly, while advertising may be shifting away from low nutrition foods, it has not been replaced with advertising for fruits and vegetables, and producers still cannot afford to do so themselves.

Despite significant strides made in some strategic areas, overall per capita consumption of fruits and vegetables declined 5% during the past five years, largely driven by a big decrease in 100% juice consumption and a smaller decline in canned vegetable consumption. There were differences in consumption by age, with positive momentum in whole fruit consumption among all children and vegetable consumption among teens, at least partially a result of the collective efforts outlined in this report. In contrast, consumers over age 45, who typically eat the most fruits and vegetables, are trending downward in their consumption over time.

To continue the steps toward increasing fruit and vegetable consumption, the prioritized strategies outlined in this report must be implemented. Strategies include increasing accessibility of fruits and vegetables in communities, schools, worksites, and on menus; effective nutrition education and promotion efforts that give consumers the skills and motivation they need to make better choices; and better alignment of federal policy and funding priorities with the Dietary Guidelines. This 2015 National Action Plan Report Card continues to provide an outline of initiatives that together will create an environment where the healthy choice is the easy and desirable choice, and fruits and vegetables are center stage in producing a healthier America.

Grades

METRIC	BASELINE	2010 REPORT CARD	2015 REPORT CARD	GRADE*
I. Current Fruit & Vegetable Consumption[4]	cups	cups	cups	D-
Adult consumption	1.92	1.87	1.75	F
Children 2-6 Years Old	1.06	1.22	1.17	D
Children 6-12 Years Old	1.33	1.36	1.37	D
Children 13-17 Years Old	1.72	1.66	1.81	D
II. Nutrition Promotion & Marketing				F
Food Marketing				
Percent of all food marketing directed at youth that is about fruits and vegetables (excluding juice)[64]	0.60%	0.40%		F
Percent of all food marketing directed at children ages 2-11 that is about fruits and vegetables[65]	0.08%	0.05%	0.80%	F
Percent of all food marketing directed at adolescents ages 12-17 that is about fruits and vegetables[65]	0.10%	0.50%	0.70%	F
Percent of all food marketing directed at adults ages 18-49 that is about fruits and vegetables[65]	0.30%	0.80%	0.80%	F
Companies with child food marketing policies[62]	32%			
Of companies with child food marketing policies, the percent with nutrition standards or that do not allow marketing of any foods to children under age of 12[62]	94% of food & beverage manufacturers, 50% of restaurants, 46% of entertainment companies			
USDA Nutrition Education				
Funding for nutrition education in nutrition assistance programs[86]	$325,000,000	$687,000,000	$831,100,000	D
Nutrition education spending as a percent of total nutrition assistance spending[86]	1%	1.20%	0.70%	F
III. Supermarkets & Other Retailers				C
Number of food stores that sell fruits and vegetables at checkout[105]			Baseline: 13%	
Population living in areas with limited supermarket access[117, 118]	-12%		-7%	C
IV. Fruit & Vegetable Suppliers				C
Number of Fruits & Veggies—More Matters approved labels[76]	620	1980	2588	C
V. Restaurants & Other Food Service Establishments				B-
Healthy Menus R&D Collaborative increased use of fruit & vegetables on menus[156]	-	-	28.00%	A
Restaurant items that include *veggies*[159]	39.90%	42.20%	45.00%	C
Restaurant items that include *fruit*[159]	7.20%	8.50%	10.40%	C

*A = Met or exceeded goal; B = Substantial progress toward goal (66%+); C = Some progress toward goal (33-66%); D = Minimal progress (0-33%); F = Moving away from goal

METRIC	BASELINE	2010 REPORT CARD	2015 REPORT CARD	GRADE*
VI. Schools, Child Care, and Other Institutions Feeding Children & Adolescents				B
Increased fruit and vegetable requirements in new school breafast standards.	0.5 cup	0.5 cup	1 cup	A
Increased fruit and vegetable requirements in new school lunch standards.	1 cup	1 cup	2 cups	A
Number of schools that meet Healthier US School Challenge[182]	52	598	7022 (7% of public K-12 schools)	C
Percent of grade schools that offer salad bars some or most every day[180]	17%	20%	31%	B
Percent of schools that report having school wellness policies[185]	78%	76%	81%	A
Funding available over time for Fresh Fruit and Vegetable Program (FFVP)[200]	$15,000,000	$110,300,000	$177,000,000	C
Number of students served per year in FFVP[200]	200,000	1,300,000	2,850,000 (8% of public elementary school children)	C
VII. Workplaces				Incomplete
National surveillance system to monitor/evaluate employers' workplace efforts in place	-	-	In process at CDC	
Strong state nutrition standards for foods and beverages sold or provided by government agencies[222]	-	-	Baseline: 0%	
VIII. Health Care and Health Organizations				D-
Health education ordered or provided at doctor visits[223-236]	38.40%	43.40%		D
Diet or nutrition services ordered or provided at doctor visits[223-236]	14.80%	13.10%		F
IX. Research & Evaluation				C-
Assessment of Ag and Health policies[86]				
USDA percent share of spending on fruits and vegetables	7.70%	19.80%	14.70%	D
NIH projects on fruits and vegetables as a percent of NIH nutrition projects	4.10%	6.10%	5.40%	D
Evidence Base Development[238]				
Change in funding for NIH nutrition research	$1,039,000,000	$1,543,000,000	$1,566,000,000	C
Change in funding for NIH obesity research	$594,000,000	$831,000,000	$857,000,000	C
X. State & Federal Policy				B
Supplemental Nutrition Assistance Program				
Healthy Incentives Pilot[242]		Baseline in process	Test completed. Increases Fruit/Veg Consumption 26%	A
Food Insecurity Nutrition Incentive Program[243]			$100 million for tests	
WIC				
Total funding available for fruit/vegetable vouchers	Vouchers did not exist	$600 million (estimate)	$746 million (estimate)	A
Fruit/vegetable redemption rates[247]			Baseline: 80%	

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