Access to Healthier Food Retailers — United States, 2011

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Introduction

According to the *Dietary Guidelines for Americans,* persons in the United States aged ≥2 years should increase their intake of certain nutrient-rich foods, including fruits and vegetables (*1*). Fruits and vegetables contribute important nutrients that are underconsumed in the United States (*1*). Higher intake of fruits and vegetables might reduce the risk for many chronic diseases including heart disease (*2*), stroke (*3*), diabetes (*4*), and some types of cancer (*5*). In addition, replacing high-calorie foods with fruits and vegetables can aid in weight management (*1,6,7*). However, most persons in the United States do not consume the recommended amounts of fruits and vegetables and other healthier food groups (e.g., whole grains or fat-free or low-fat dairy foods) (*1,8*).

Persons who live in neighborhoods with better access to retailers such as supermarkets and large grocery stores that typically offer fruits and vegetables and other healthy foods might have healthier diets (*9,10*). However, in 2009, the U.S. Department of Agriculture estimated that 40% of all U.S. households do not have easy access (i.e., access within 1 mile of residence) to supermarkets and large grocery stores (*11*). Although few national studies examining disparities in access exist (*11–13*), research suggests that access is often lower among residents of rural, lower-income, and predominantly minority communities than among residents of other communities (*9,12*). Because of positive associations between the retail environment and diet (*9,10*), a *Healthy People 2020* developmental objective (*14*) is to increase the percentage of persons in the United States who have access to a retailer that sells the various foods recommended in the *Dietary Guidelines for Americans*, including fruits and vegetables, whole-grain foods, and low-fat milk, which are referred to as healthier foods in this report. Improving access to healthier food retailers has also been adopted as a promising strategy to improve dietary quality by philanthropic and governmental entities (*11,15,16*).

Access to healthier foods includes not only proximity to retail locations that offer these types of foods but also the variety, cost, and quality of foods (*17*). However, in this report and in most other studies, access refers to the proximity of food retailers because of the inherent challenges and resource needs in measuring variety, cost and quality of food. Access to supermarkets, supercenters, and large grocery stores is frequently measured because these types of stores tend to offer a wider selection and larger quantity of fruits and vegetables and other healthy foods at affordable prices than other retailers, such as convenience stores and small grocery stores (*18*).

This report is part of the second CDC Health Disparities and Inequalities Report (CHDIR). The 2011 CHDIR (*19*) was the first CDC report to assess disparities across a wide range of diseases, behavioral risk factors, environmental exposures, social determinants, and health-care access. The topic presented in this report is based on criteria that are described in the 2013 CHDIR Introduction (*20*). This report provides information concerning disparities in access to healthier food retailers, a topic that was not discussed in the 2011 CHDIR (*19*). The purposes of this report on access to healthier food retailers are to discuss and raise awareness of differences in the characteristics of areas with access to healthier food retailers across census tracts and to prompt actions to reduce disparities.

Methods

To estimate access to healthier food retailers across the United States and regionally (i.e., places persons live and might shop), CDC analyzed 2011 data from various sources using census tracts as the unit of analysis. In this report, the term access refers to potential access to healthier food retailers, which is where consumers can shop, rather than actual access, which is where consumers actually do shop. Access to healthier food retailers by area demographics of the census tracts also was compared. Access to a retailer was estimated by calculating the percentage of census tracts that did not have at least one healthier food retailer located within the tract or within ½ mile of the tract boundary (*21*). Census tracts are small, relatively permanent subdivisions of counties designed to be similar in population characteristics, economic status, and living conditions. The median tract area size and population was 1.9 square miles and 4,022 people.

A list of 54,666 healthier food retailers was developed from two national directories of retail food stores. One directory was purchased in June 2011 from the commercial data provider InfoUSA (available at http://www.infousa.com).

The other directory was from a list of authorized stores that accept Supplemental Nutrition Assistance Program (SNAP) benefits as of January 2012 (available at http://www.snapretailerlocator.com). Two independent data sources were used to reduce inaccuracies in store operational status and store misclassification (*22–28*). Evidence suggests that secondary data might only capture 55%–68% of food outlets that truly exist in an area (*24,26,27*), and store misclassification is common (*24*).

Healthier food retailers are defined as supermarkets, large grocery stores, supercenters and warehouse clubs, and fruit and vegetable specialty stores (*21*). These retailers were identified from the InfoUSA directory by using several criteria, including 2007 North American Industry Classification System (NAICS) codes (available at http://www.census.gov/eos/www/naics/), annual sales volume, annual employees on payroll, and chain store name lists. Large grocery stores and supermarkets were defined as retailers with the appropriate NAICS code (NAICS 445110: grocery stores/supermarkets) with either ≥10 annual payroll employees or ≥$2 million in annual sales or whose company name matches a chain name list (*21*). This list of 228 national and regional supermarket, supercenter, and warehouse club chain stores was developed from 2000 and 2005 data from the commercial data provider Nielsen TDLinx (*29*) and 2011 InfoUSA data and includes stores that have at least eight to 10 locations nationwide and were verified as having a full line of groceries. Supercenters and warehouse clubs were defined as retailers with the appropriate NAICS codes (NAICS 445, 452112, 452910: supercenters and warehouse clubs) or included if their company name matched the national chain name list. Fruit and vegetable specialty food stores were defined as retailers with the appropriate NAICS codes (NAICS 445230: fruit and vegetable specialty food stores).

The second directory of stores included retailers who had actively processed SNAP benefits as recently as January 3, 2012, and had store classifications through the SNAP application process consistent with the definition of healthier food retailers as described in this report (*30*). The healthier food retailers included from SNAP were those categorized as supermarkets, supercenters/warehouse clubs, large grocery stores, or fruit and vegetable specialty stores (*30*).

To estimate national and regional percentages of census tracts that had at least one healthier food retailer, stores from the two directories were assigned to one or more tracts if they were located within the tract's boundaries or within ½ mile of the boundary using geocodes provided by InfoUSA or SNAP and ArcGIS 10 (available at http://www.esri.com/software/arcgis/index.html). Boundaries for the 72,531 census tracts in the 50 U.S. states and the District of Columbia (DC) with a population of >0 were obtained from 2010 U.S. census TIGER/ Line shapefiles (available at http://www.census.gov/geo/maps-data/data/tiger-line.html). Sixty-three percent (n = 22,359) of the healthier food retailers identified in InfoUSA were also in SNAP. Name, address, location, and store classification type matched in these two sources for this subset of stores (referred to as verified retailers). The remaining 32,307 stores appeared only in one data source (7,549 InfoUSA stores and 19,418 SNAP stores) or appeared in both but store classification types were inconsistent (n = 5,340). Previous evidence indicates that if a store is open, the probability that a secondary data source lists it as operational ranges from 55% to 89% (*24,27,31,32*). The use of secondary data to accurately classify store type (e.g., grocery store, supermarket, or supercenter) has been estimated to be 49%–85% (*24*). One study estimates that if a store is in the InfoUSA list, the likelihood that the store is operational and correctly classified as a supermarket, grocery store, or specialty store is 34.4%–44.5% (*32*). Because the operational status, store presence, and store type of the retailers that only appeared in one directory could not be verified by a second data source, tracts that only contained two or more of these stores were counted as having a healthier food retailer. If a tract has two or more unverified stores, evidence indicates that it is reasonable to assume that at least one is operational and appropriately classified (*24,27*). Nine percent of tracts (n = 6,563) were counted as having a healthier food retailer because two or more unverified stores were present. Twelve percent of tracts (n = 8,343) had only one unverified store from either source and therefore were counted as not having any verifiable healthier food retailers. Nineteen percent of tracts did not have stores from either directory present (n = 13,761 tracts).

To estimate percentages of access to healthier food retailers by area demographics, CDC obtained demographic information on educational attainment and per capita income at the census tract level from the 2006–2010 American Community Survey. Information on age and race/ethnicity were obtained from the 2010 U.S. census. Tracts were categorized into two groups (low and high) for each demographic characteristic by dichotomizing at the mean of the distribution. A census tract was considered urban if the geographic centroid of that tract was located in an area designated by the 2010 U.S. census as an urbanized area or urban cluster (available at http://www.census.gov/geo/www/ua/2010urbanruralclass.html). All other tracts were classified as rural. Median tract size and population density for urban tracts was 1 square mile and 3,852 persons per square mile versus 42 square miles and 100 persons per square mile in rural tracts.

Comparisons of percentages by demographics among national and U.S. Census regions (available at http://www.census.gov/geo/maps-data/maps/pdfs/reference/us_regdiv.pdf) were assessed using chi-square tests, with significance set at p<0.05.

Odds ratios and 95% confidence intervals (CIs) were estimated using logistic regression to characterize national and region-specific odds of not having access to a healthier food retailer by each demographic characteristic separately. Significant differences in access to healthier food retailers described in this report are those in which the 95% CIs do not include 1.0; thus, the odds of access are significantly higher or lower. Tracts that had either no sample observations or too few sample observations for computing demographic estimates were excluded (n = 404; 0.6%).

Disparities were measured as the deviations from a referent category rate or prevalence. Referent groups in all analyses were as follows: tracts with a low proportion of youths (≤23.4% of the population aged ≤18 years), a low proportion of seniors (≤13.6% of the population aged ≥65 years), a high per capita income (>$27,269 per capita income adjusted to 2010 dollars), a high proportion of non-Hispanic whites (>63.9% non-Hispanic white population), and a high proportion of college-educated persons (>27.0% of the population with a college degree or higher). Absolute difference was measured as the simple difference between a population subgroup estimate and the estimate for its respective reference group.

Results

In 2011, 30.3% of census tracts did not have at least one healthier food retailer within the tract or within ½ mile of tract boundaries. This represents 83.6 million persons, representing approximately 27% of the 2010 continental U.S. population. The percentage of census tracts without at least one healthier food retailer ranged from 24.1% in the West to 36.6% in the Midwest. Overall, access to healthier food retailers varied by each of the demographic characteristics examined, although these disparities were not always consistent by region (Tables 1, 2, and 3). Persons in rural census tracts were approximately 4 times as likely to lack access to a healthier food retailer than persons in urban tracts. This pattern was consistent across regions. Sensitivity analyses using national models stratified by urban status found similar relationships only for race/ethnicity. Other associations were mixed. For example, persons in urban areas with a youth population of >23.4% had a higher odds of lacking access than those in rural areas with the same proportion of youth. Education was significantly associated with access in rural areas but not in urban areas.

Overall, tracts where seniors comprised >13.6% of the population were 1.3 times as likely not to have a healthier food retailer than tracts with a lower proportion of seniors, a pattern that was similar across regions. Nationwide, tracts with <64% of non-Hispanic whites were about half as likely to lack access to a healthier food retailer than tracts with a higher percentage of non-Hispanic whites. This pattern was also similar across regions, with up to an approximately 75% reduction in the odds of no access among tracts in the Northeast with a low versus high percentage of non-Hispanic whites.

Other associations were not as consistent across regions. Nationwide, persons in tracts with an income of ≤$27,269 were 1.2 times as likely to lack access to a healthier food retailer than tracts with higher income. This association differed by region, with no association in the Midwest and a stronger association in the South. However, in the Northeast and West, persons in low-income tracts had a lower odds of lacking access to a healthier food retailer (OR: 0.91 [95% CI: 0.85–0.98]) and 0.88 [95% CI: 0.82–0.94], respectively). Similarly, nationwide, persons in tracts where ≤27.0% had a college education were significantly more likely to lack access to a healthier food retailer than persons in a tract with a higher proportion of college-educated persons; the association was not significant in the Northeast and West.

Nationwide, persons living in tracts where youths comprised >23.4% of the population had slightly higher odds of lacking access to a healthier food retailer than persons living in tracts with low proportions of youths (OR: 1.06 [95% CI: 1.03–1.09]). Regionally, persons living in tracts in the Midwest with a higher proportion of youths were 1.2 times as likely to lack access as persons in tracts with a low proportion of youths, with no additional associations by region.

TABLE 1. Percentage of census tracts* without at least one healthier food retailer within the tract or within ½ mile of the tract, by geographic region[†] — United States, 2011

	United States	Northeast	Midwest	South	West
Total no. of tracts	**72,127**	**13,333**	**16,924**	**25,948**	**15,922**
Tracts without at least one healthier food retailer (%)	30.3	27.3	36.6	31.6	24.1

* N = 72,531 census tracts in the 50 U.S. states and the District of Columbia per the 2010 U.S. census. A total of 404 (0.6%) census tracts were excluded because either no sample observations or too few sample observations were available to calculate demographic estimates.
[†] *Northeast:* Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Discussion

The analyses in this report reveal that persons in 30.3% of census tracts in the U.S. do not have access to at least one healthier food retailer. The most substantial disparities were associated with urbanization; persons in rural tracts were four times as likely to lack access than persons in more urban tracts. Persons living in tracts with a high percentage of non-Hispanic whites and those with a high percentage of seniors also had consistently worse access across regions. Access to healthier food retailers among youths and by income and education varied by region. Some of the findings in this study are similar to those of other national studies, including those that assess urban and rural areas, whereas other findings, such as those that assess access to food retailers according to income, are not consistent with previous studies (11,12). However, findings related to race/ethnicity and access vary substantially among studies. One national study found no differential access to healthy food retailers among racial/ethnic groups (11), whereas another national study found a lack of access in minority neighborhoods (12). After controlling for demographic characteristics, one study found fewer chain supermarkets in non-Hispanic black neighborhoods than in non-Hispanic white neighborhoods and fewer chain supermarkets in Hispanic neighborhoods than in non-Hispanic white neighborhoods. However, non-Hispanic black neighborhoods were found to have more nonchain supermarkets and grocery stores than white neighborhoods (12). The definition of healthier food retailers in this particular study was chain vs. nonchain supermarkets. This distinction was used because chain supermarkets tend to have more healthy, affordable foods than nonchain supermarkets. CDC conducted a sensitivity analysis of the data in this report to explore access to chain supermarkets only among tracts with predominantly (>50%) non-Hispanic black residents compared with predominantly non-Hispanic white residents, adjusting for region and urbanization. This sensitivity analysis revealed that access to chain supermarkets was lower in census tracts with predominantly non-Hispanic black residents than in tracts with predominantly non-Hispanic white residents, results that are similar to those of another study (12).

Limitations

The findings in this report are subject to at least four limitations. First, the estimates of access to food retailers reflect potential access, which indicates retailers where consumers are able to shop, but do not reflect actual access, which is where consumers actually decide to shop, or other aspects of access, such as affordability, selection, and quality of foods within stores or modes of transportation to stores. Neighborhoods identified as not having at least one healthier food retailer might still have access to healthier foods if their local convenience stores and corner stores provide a wide selection and adequate quantity of affordable produce and other items. Although some studies have shown these types of retailers typically do not stock healthier foods (9,18), others have reported improved food selection because of recent changes implemented in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) that require that healthy foods be stocked at stores that accept vouchers (33). However, because no systematic way exists at a national level to identify small retailers offering healthier foods, they are not counted as a healthier food retailer. In addition, although residents might have additional access to produce in their neighborhoods through farmers markets and farm stands, these venues are not included in this analysis. Second, only

TABLE 2. Percentage of census tracts* without at least one healthier food retailer within the tract or within ½ mile of the tract, by census tract demographic characteristics — United States, 2011

Demographic characteristics[†]	%	Absolute difference (percentage points)	OR[§]	(95% CI)[§]
Urbanization				
Rural	51.5	30.9	4.10	(3.96–4.24)
Urban[¶]	20.6	Ref.	—	—
Youths aged ≤18 yrs (%)				
High: >23.4% of population	30.9	1.2	1.06	(1.03–1.09)
Low: ≤23.4% of population	29.7	Ref.	—	—
Adults aged ≥65 yrs (%)				
High: >13.6% of population	33.6	6.0	1.33	(1.29–1.37)
Low: ≤13.6% of population	27.6	Ref.	—	—
Whites, non-Hispanic (%)				
Low: ≤63.9% of population	21.2	15.0	0.48	(0.46–0.49)
High: >63.9% of population	36.2	Ref.	—	—
Per capita income in 2010 dollars (%)				
Low: ≤$27,269	31.4	2.9	1.15	(1.11–1.18)
High: >$27,269	28.5	Ref.	—	—
Persons with college degree (%)				
Low: ≤27.0% of population	33.3	7.5	1.43	(1.38–1.48)
High: >27.0% of population	25.8	Ref.	—	—

Abbreviations: 95% CI = 95% confidence interval; OR = odds ratio; Ref. = referent.

* N = 72,531 census tracts in the 50 U.S. states and the District of Columbia per the 2010 U.S. census. A total of 404 (0.6%) were excluded because either no or too few sample observations were available to calculate demographic estimates.

[†] Tracts were categorized into low and high groups for each demographic characteristic by dichotomizing at the mean of the distribution.

[§] ORs and 95% CIs were estimated using logistic regression.

[¶] A census tract was considered urban if the centroid of that tract was located in a 2010 U.S. census–designated urbanized area or urban cluster. All other tracts were considered rural.

TABLE 3. Percentage of census tracts* without at least one healthier food retailer within the tract or within ½ mile of the tract, by census tract demographic characteristics and region[†]— United States, 2011

Demographic characteristics[§]	No. of tracts	Northeast %	Absolute difference (percentage points)	OR[¶]	(95% CI)[¶]	Midwest %	Absolute difference (percentage points)	OR	(95% CI)	South %	Absolute difference (percentage points)	OR	(95% CI)	West %	Absolute difference (percentage points)	OR	(95% CI)
Urbanization																	
Rural	11,675	52.1	32.2	4.37	(4.01–4.76)	53.4	26.4	3.10	(2.90–3.31)	50.6	30.5	4.06	(3.84–4.29)	50.3	34.1	5.26	(4.85–5.70)
Urban**,[††]	10,186	19.9	Ref.	—	—	27.0	Ref.	—	—	20.1	Ref.	—	—	16.2	Ref.	—	—
Youths aged ≤18 yrs (%)																	
High: >23.4% of population	11,535	26.7	0.9	0.95	(0.88–1.03)	38.4	3.9	1.18	(1.11–1.26)	31.8	0.4	1.02	(0.97–1.07)	24.1	0.1	1.00	(0.93–1.08)
Low: ≤23.4% of population[††]	10,326	27.6	Ref.	—	—	34.5	Ref.	—	—	31.4	Ref.	—	—	24	Ref.	—	—
Adults aged ≥65 yrs (%)																	
High: <13.6% of population	10,879	30.8	7.2	1.44	(1.33–1.56)	38.2	3.2	1.15	(1.08–1.22)	34.4	5.1	1.27	(1.20–1.34)	28.5	6.8	1.44	(1.33–1.55)
Low: ≤13.6% of population[††]	10,982	23.6	Ref.	—	—	35..0	Ref.	—	—	29.3	Ref.	—	—	21.7	Ref.	—	—
Whites, non-Hispanic (%)																	
Low: ≤63.9% of population	6,029	11.3	23.6	0.24	(0.22–0.26)	27.7	11.4	0.60	(0.55–0.65)	25.2	11.7	0.58	(0.55–0.61)	18.0	13.2	0.48	(0.45–0.52)
High: >63.9% of population[††]	15,832	34.9	Ref.	—	—	39.1	Ref.	—	—	36.9	Ref.	—	—	31.2	Ref.	—	—
Per capita income in 2010 dollars (%)																	
Low: ≤$27,269 of population	13,990	26.4	1.8	0.91	(0.85–0.98)	37.5	2.7	1.13	(1.05–1.20)	33.6	6.2	1.34	(1.27–1.42)	23.0	2.4	0.88	(0.82–0.94)
High: >$27,269 of population[††]	7,871	28.2	Ref.	—	—	34.8	Ref.	—	—	27.4	Ref.	—	—	25.4	Ref.	—	—
Persons with college degree (%)																	
Low: ≤27.0% of population	14,471	27.8	1.1	1.05	(0.98–1.14)	40.0	9.9	1.55	(1.45–1.66)	35.5	11.2	1.72	(1.62–1.82)	24.5	0.9	1.05	(0.98–1.13)
High: >27.0% of population[††]	7390	26.7	Ref.	—	—	30.1	Ref.	—	—	24.3	Ref.	—	—	23.6	Ref.	—	—

Abbreviations: 95% CI = 95% confidence interval; OR= odds ratio; Ref. = referent.

* N = 72,531 census tracts in the 50 U.S. states and the District of Columbia per the 2010 U.S. census. A total of 404 (0.6%) were excluded because either no or too few sample observations were available to calculate demographic estimates.

[†] *Northeast:* Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[§] Tracts were categorized into low and high groups for each demographic characteristic by dichotomizing at the mean of the distribution.

[¶] ORs and 95% CIs were estimated using logistic regression.

** A census tract was considered urban if the centroid of that tract was located in a 2010 U.S. census designated urbanized area or urban cluster. All other tracts were considered rural.

[††] Significant difference in percentage across regions using chi-square tests (p<0.001)

tracts that had at least one store that was verified by two independent data sources (60% tracts) or at least two stores that appeared in either directory of stores (9% of tracts) were counted as having a healthier food retailer. Not including tracts with only a single store listed in only one source might have overestimated lack of access if that one store was operational and appropriately classified. A sensitivity analysis showed that demographic estimates using stores identified in either source (not just those that were verified by two sources and those where two or more unverified stores were present) were similar to results shown in this report, with the exception of urbanization. In general, odds ratios were attenuated, although the direction of the associations remained unchanged. Third, only secondary data were available for this national and regional analysis. Secondary data sources have been show to misclassify store type and operational status and both undercount and overcount stores in comparison with direct field assessments (*22–28*). However, the analyses in this report included two sources of secondary data to reduce these inaccuracies. Finally, a national and regional analysis might mask various local and state disparities in access.

Conclusion

This report describes one of the few national studies assessing disparities in access to healthier food retailers by demographic characteristics nationwide and by region. Because the data cannot fully account for the heterogeneity of the U.S. food environment, a more in-depth evaluation is required to determine whether interventions are needed in specific neighborhoods.

Several strategies might improve community access to retailers that sell healthier foods. Such strategies include incentives to bring healthier food retailers into underserved areas, transportation improvements so that residents in underserved areas can reach the food retailers, and upgrading facilities to enable stocking of all forms of fruits and vegetables and to increase shelf space dedicated to fruits and vegetables, ultimately increasing the availability of high-quality, affordable fruits and vegetables in existing venues (*15*).

An example of efforts at the national level to bring healthier food retailers into underserved areas is a collaboration among the U.S. Department of Agriculture (USDA), U.S. Department of Health and Human Services (HHS), and the U.S. Department of Treasury to support projects that increase access to healthier, affordable food and encourage the purchase and consumption of healthier food (available at http://apps.ams.usda.gov/fooddeserts). The state-level pioneer effort called the Pennsylvania Fresh Food Financing Initiative has provided funding for 88 fresh-food retail projects in 34 Pennsylvania counties and improved access to healthier food for approximately 500,000 persons (*34*). Similar efforts have been expanding rapidly across states.

Changes in WIC-authorized stores improve access to healthy food in existing stores. Stores authorized to accept WIC benefits must maintain on their shelves at all times a minimum variety of healthy foods, including fruits, vegetables, and whole grains that align with the 2005 *Dietary Guidelines for Americans* and the American Academy of Pediatrics infant feeding practice guidelines (*35*). Studies have demonstrated that WIC-authorized stores are providing more healthy foods than stores that are not WIC authorized (*33,35,36*). Additional ways to bring healthier foods to persons living in underserved areas without changing existing retailers include establishing farmers markets, farm stands, and green carts (*15*). For example, in New York, the New York City Green Cart Initiative provides fruits and vegetables to underserved neighborhoods (information available at http://www.nyc.gov/html/doh/html/diseases/green-carts.shtml), and the Veggie Mobile delivers fruits and vegetables to low-income seniors in upstate New York (information available at http://www.cdcg.org/programs/veggie/veggie). Fruits and vegetables also can be delivered through drop-off boxes to churches, community centers, and other central locations (*15*).

Although the precise number of healthy food retailers that need to be in a particular area to allow adequate access to fruits and vegetables and other healthy foods is not known, ensuring that all persons in the United States have access to at least one retail venue that offers healthier foods is an important step toward supporting healthy choices and diets in communities. Improving access to healthy food retailers is important but unlikely to be sufficient to improve overall diet quality. Even in communities that have sufficient access, strategies such as store promotions and shelf labeling that help consumers identify healthy options, education on health benefits of particular foods, and information about preparation, storage, and cooking skills can encourage persons to purchase healthy foods in retail venues and might improve diet quality. The combined efforts of interventions that improve knowledge and skills, as well as increase the affordability, selection, and quality of foods in many settings are needed to encourage healthier choices among persons in the United States.

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