

Implementation of Washington State's Healthy Nutrition Guidelines Under Executive Order 13-06 2018 Evaluation

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Prior reports on the 2014, 2015, 2016, and 2017 evaluations can be found here:

<http://www.doh.wa.gov/CommunityandEnvironment/WorksiteWellness/HealthyNutritionGuidelines>



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Executive Summary

Evaluation purpose

In 2013, Washington Governor Jay Inslee signed Executive Order 13-06 (EO), *Improving the Health and Productivity of State Employees and Access to Healthy Foods in State Facilities*, making Washington the first state to adopt a comprehensive approach to increase access to healthier food on state property and facilities.¹ In 2014, Washington State Department of Health (WA DOH) contracted the University of Washington Center for Public Health Nutrition (CPHN) to develop and conduct annual evaluations of progress towards EO implementation throughout the first five years after EO adoption. A key requirement of the EO is that all state executive agencies adopt and implement food service guidelines that meet the WA DOH Healthy Nutrition Guidelines (HNG), which are based on the 2010 Dietary Guidelines for Americans. These guidelines include criteria to ensure that healthy options are available in cafés, on-site retail venues, vending machines, meetings and events, and institutional food service sites. This 2018 evaluation is the final evaluation in this series and was designed to capture progress in the 2018 implementation year, as well as provide a summative description and overview of progress towards EO implementation since 2014.

Methods

In 2018 researchers conducted on-site café assessments of nine cafés and implemented an in-person photo-protocol in nine micro-markets. Researchers worked with partners to gather photographic data of 103 vending machines, and sales data from 30 micro-markets. Researchers additionally conducted ten in-person and phone interviews with café operators and vending stakeholders.

Key findings

From 2014 to 2018 the EO spurred café and vending operators to examine current practices, reduce the presence of high-fat, high-sugar, and high-sodium products, and increase offerings of healthier foods and beverages that align with the Dietary Guidelines for Americans.

Cafés

Throughout the assessment period (2014-2018), all cafés offered whole grain-rich and lean protein options daily, and at least one non-fried fish option per week. In the final year of the evaluation, all cafés reported offering small dessert portions and foods free of trans-fats, and more than half reported purchasing low sodium canned tomatoes and deli meats. Across study years, cafés increasingly offered less than or the same number of SSBs, compared to zero or low calorie beverages. Cafés decreased the practice of automatically including chips with meals each subsequent evaluation year. In 2018, one café achieved full compliance of the HNG associated with the EO. This was the first café to be in full compliance since HNG implementation.

Vending

In 2018, 68% of snack machines were compliant, and 44% of beverage machines were compliant. This was a large increase (of 68%) in compliance for snack machines and a slight decrease (of 10%) in compliance for beverage machines, compared to the previous evaluation year.

Micro-markets

Micro-market food environments have improved over the course of the evaluation period. Vendors attribute this success in part to the increase in variety of foods offered in micro-markets. Since 2016, the proportion of micro-market sales coming from approved items has steadily increased. In 2016, 21% of

sales were from approved items, in 2017, 22% of sales were from approved items, and in 2018, 23% of total sales were from approved items. The same upwards trend is true in the proportion of total items purchased that are approved items under the HNG; in 2016, 26% of total items sold were approved, in 2017, 27% were approved, and in 2018, 28% of total items sold were approved. However, in 2018, only one micro-market was in compliance with the HNG beverage requirements, and no micro-markets were in compliance with the entrée or snack requirements.

Interviews

In interviews, café operators (COs) identified three key challenges from their experiences implementing the HNG: maintaining café profitability, ensuring choice for customers and café operators, and defining clearly the HNG's content and purpose. Because all café operators had made positive, tangible steps towards incorporating approved foods and minimizing not approved foods, nearly all café managers believed that their cafés were in compliance with the HNG. This strong disconnect, between perceived and actual compliance, is an opportunity for WA DOH and those providing technical assistance to café operators to work to clarify and describe the purpose of each HNG criteria, and to develop a plan to come into compliance. In comparison, the large increase in the number of vending machines in compliance is likely due in part to the technical assistance provided to the vendors by WA DOH in early 2018. This is both a strong success, as well as a potential model for how to support other vendors and café operators to increase compliance.

Overall HNG challenges and successes

Successes include positive changes in food service venues' food environments and commitment of café operators and vendors to work toward compliance with the HNG. However, the challenge remains of achieving HNG compliance across all venues.

Key lessons learned

1. Although compliance across food service venues is low, many positive changes have taken place in all state agency food environments.
2. Café and vending operators appreciate and desire technical assistance and support in understanding the HNG, and identifying changes they can make and products they can stock in order to be in compliance.
3. It is crucially important to clearly articulate both the requirements of the HNG, and the purpose of these requirements.
4. While consumer trends and eating habits are becoming healthier, this move towards healthfulness is a slow process, and EO or HNG timelines should take this into account.
5. Café operators and vendors rely primarily on information they received from product sales to determine what types of products consumers and their customers are interested in. Identifying a way to gather more customer input could allow café operators and vendors to understand what types of products people want and would buy, and allow them to potentially make changes more quickly in order to come into compliance.

Recommendations for WA DOH

HNG clarity and purpose

1. Conduct a comprehensive review of the café evaluation tool and edit as needed to enhance clarity and objectivity. For example, “healthier items placed more prominently – closer to customers and at eye level” could be revised to include specific ratios of approved to not approved products on middle vs. bottom shelves.
2. Provide an evidence or best-practice-based rationale explaining why certain foods are promoted or not promoted by the HNG to help communications with COs and vendors and clarify HNG.
3. Clarify recommendations for defining and promoting low-sodium products.
4. Review the requirements for low-fat and healthy milk products with COs to correct any misunderstandings about 2% liquid milk or sweetened milk products counting toward compliance. Determine where nondairy milk products fall within HNG classifications.

Technical assistance and support

5. Develop lists of approved items for cafés and vendors to choose from to stock. For cafés, field this idea at a Business Enterprise Program meeting to foster CO buy-in and ensure they support the idea. Emphasize that there is room for CO choice when choosing HNG-approved products.
6. Continue working with food suppliers and vendors to identify and communicate customer demand for healthier products. Develop a systematic and comprehensive way of receiving customer/employee input about products desired in vending, micro-markets, and cafés; share information with vendors and COs.
7. Work with COs and vendors to provide materials for promotion of HNG-approved options.
8. Provide training and support to COs regarding means of reducing sodium in foods, e.g. food procurement strategies and recipe modification to reduce sodium and enhance flavor.

Communication

9. Work with and build a presence at café Business Enterprise Program meetings that occur four to five times per year. These meetings are an opportunity for WA DOH to provide individualized support to COs, build relationships, and build resilience and sustainability to CO turnover.
10. Create a space for Business Enterprise Program and non-Business Enterprise Program COs to share successful strategies amongst themselves. A helpful specific focus area for these strategies is promotion. A discussion topic could be, ‘How are cafés that carry low-sodium or HNG-approved products promoting those products?’ And, ‘what are strategies that COs can use to offset the costs of procuring low-sodium products that may be more expensive?’
11. Provide ongoing feedback about progress toward compliance in cafés, micro-markets and vending; share evaluation results.

Table of Contents

Executive Summary.....	2
Introduction	7
Background	7
Evaluation purpose	7
Methods.....	8
Cafés.....	8
Micro-markets.....	10
Micro-market site visits	11
Micro-market sales data	12
Vending	12
Interviews.....	14
Café manager interviews	14
Vendor interviews.....	14
Results.....	14
Cafés.....	14
Basic criteria.....	15
Additional criteria: beverages, food components, and behavioral economics strategies	17
Low-sodium products offered.....	22
Healthy versus less healthy criteria compliance.....	23
Placement and promotion	26
Micro-markets.....	28
Micro-market audits	28
Micro-market sales data	32
Vending	42
Overall 2018 vending machine compliance	42
Vending machine compliance over time	43
Vending compliance by individual food and beverage item	45
Case study: Department of Licensing and variation across state	45
Variation across machines	45
Interviews.....	46
Café operator interviews	46
Vending stakeholder interviews	49

Discussion..... 53
 Discussion of evaluation questions..... 53
Recommendations for WA DOH 57
 HNG clarity and purpose..... 57
 Technical assistance and support 57
 Communication..... 57
Limitations 58
References 59
Tables Index: 60
Figures Index: 61

Introduction

Background

In 2013, Washington Governor Jay Inslee signed Executive Order 13-06 (EO), *Improving the Health and Productivity of State Employees and Access to Healthy Foods in State Facilities*, making Washington the first state to adopt a comprehensive approach to increase access to healthier food on state property and facilities.¹ The EO has the potential to affect 46 agencies, boards, and commissions encompassed in the Executive Cabinet and Small Cabinet agencies, and an estimated 73,000 state employees and individuals served in institutional settings. A key requirement of the EO is that all state executive agencies adopt and implement food service guidelines that meet the Washington State Department of Health's (WA DOH) Healthy Nutrition Guidelines (HNG). These guidelines include criteria to ensure that healthy options are available in cafés, on-site retail venues, vending machines, at meetings and events, and in institutional food service sites. The HNG are based on the 2010 Dietary Guidelines for Americans; in 2017 WA DOH updated the vending and micro market HNG to align with the United States Department of Agriculture's Smart Snacks in Schools Guidelines.²⁻⁵ Throughout this report the term 'approved' is used to describe food and beverage products approved under the HNG.

Implementation of the HNG began on July 1, 2014 with full implementation to be achieved by December 31, 2016. The State Employee Health and Wellness Steering Committee, staffed in part by WA DOH, is responsible for EO compliance oversight. WA DOH convened a Food Procurement Workgroup to develop a guide for use by agencies and café operators in implementing the HNG. To facilitate implementation of the guidelines, WA DOH's Healthy Eating and Active Living (HEAL) unit conducts trainings, facilitates outreach efforts, and provides ongoing technical assistance to food service operators, agency leaders, worksite wellness coordinators, and food and beverage providers.

The implementation guide and guidelines may be viewed at:

<https://www.doh.wa.gov/CommunityandEnvironment/WorksiteWellness/HealthyNutritionGuidelines>

Due to the far-reaching effects and unique needs of individual agencies and venues, WA DOH allocates staff time to support successful adoption and implementation of the EO. WA DOH was also awarded a 3-year Sodium Reduction in Communities Program grant by the Centers for Disease Control and Prevention in 2013, which aimed to increase access to lower sodium food options, reduce sodium intake, and continue to build practice-based evidence around effective population-based strategies to reduce sodium consumption at the community level. Although this grant ended in 2016, the overlap of these two initiatives provided an opportunity for collaboration in implementation and evaluation efforts.

Evaluation purpose

In 2014 WA DOH contracted the University of Washington Center for Public Health Nutrition (CPHN) to develop and conduct annual evaluations of progress towards EO implementation throughout the first five years. This 2018 evaluation is the final evaluation in this series and was designed to capture progress in the 2018 implementation year, as well as provide a summative description and overview of progress towards EO implementation since 2014. This report additionally discusses key takeaways as they apply to the sustainability of healthy nutrition guideline implementation in cafés, micro-markets, and vending.

WA DOH will use these results to inform continuing implementation and future evaluation efforts, to assess change in observance of guidelines from baseline (2014), and to make recommendations for ongoing implementation of the guidelines.

Key evaluation questions include:

1. How does Executive Order (EO) 13-06 impact the food environments of affected venues, specifically worksite cafés, micro markets and vending machines? How have these food environments changed since HNG implementation?
2. To what extent are affected buildings observing the HNG across food service venues? How has HNG compliance changed over time?
3. What are the effects of HNG implementation on micro market sales, and what types of foods are selling in micro markets?
4. What were the successes and challenges of HNG implementation?
5. What are the primary lessons learned and suggestions and recommendations for sustaining HNG implementation?
6. What future implementation and evaluation efforts are recommended to encourage and enhance implementation of the HNG across food service venues affected by EO 13-06?

The evaluation plan and logic model that guided the evaluation are included in Appendices A and B.

Methods

This was a mixed-method evaluation that included on-site assessments of cafés, photographic analyses of vending machines and micro-markets, analysis of micro-market sales data, and interviews with café managers and vending key stakeholders. Data collection took place from June through August 2018. The University of Washington Institutional Review Board determined that this evaluation was exempt from review. Table 1 lists the data sources included in this evaluation.

Table 1. Evaluation data sources

Data sources	
On-site café assessments	9 cafés
Photographs of micro-market contents	9 micro-markets
Photographs of vending machine contents	103 vending machines
Micro-market sales data	30 micro-markets
Café manager & vendor interviews	10 interviewees

Cafés

Café compliance with the HNG is assessed on a point scale. To meet the HNG, food service venues of all sizes (small, medium and large) must earn a minimum of 25 points by meeting the basic HNG criteria (criteria available at

<https://www.doh.wa.gov/CommunityandEnvironment/WorksiteWellness/HealthyNutritionGuidelines/Cafeterias>).

Medium and large food service venues must earn an additional 10 and 25 points, respectively, by implementing their choice of optional beverage, food component, and behavioral economic strategies. Small food service venues are also encouraged to implement the additional criteria but are not required to do so.

The assessment tool developed for the baseline evaluation in 2014 has been updated over time to clarify criteria, and help assure consistency in data collection. CPHN developed a detailed café assessment guide to accompany the tool. See Appendix C for the café assessment tool and Appendix D for the assessment guide.

Nine cafés were sampled for assessment based on (1) location within a state agency building in the greater-Olympia area, and/or (2) their involvement in the Department of Services for the Blind's Business Enterprise Program. The Business Enterprise Program provides opportunities for qualified legally-blind adults to operate food service businesses, such as cafés, in state agency buildings. Olympia is the state capitol, and most agencies' administrative offices are located in Olympia and surrounding areas. Eight of the cafés were operated by Business Enterprise Program vendors, and one café (Ecology Café) was operated by a food service management company (non-Business Enterprise Program vendor). The Ecology Café was selected for assessment based on its location within a large state building in the greater Olympia-area.

Once WA DOH staff informed café operators that CPHN researchers would contact them, researchers scheduled on-site assessment visits. One café was remodeled after the 2015 implementation evaluation and was reclassified as a large food service venue for subsequent assessments. Additionally, several cafés changed ownership from baseline (2014) to 2018; these changes are marked in Table 2.

Two researchers visited cafés during the months of June and July 2018. Assessments took place between peak breakfast and lunch hours to help ensure consistency and product availability. After each visit, data were compiled and visually inspected for errors. If a researcher was uncertain of the appropriate response, they first spoke with the café operator or staff (if present) and then discussed the response with the research team. Researchers documented the final decision in the assessment tool comments.

Researchers used REDCap, an electronic database tool hosted at the Institute for Translational Health Sciences, to enter and store all data. REDCap is a secure, web-based application designed to support data capture for research studies.⁶

The primary focus areas of the café analysis were:

1. Café adherence to the HNG basic criteria at the time of the 2018 assessment
2. Trends in café observance of the EO from year to year
3. Café observance of additional HNG criteria, including the proportion and pricing of approved items, and the placement and promotion of approved items as compared to not approved items (when possible, observance of these criteria was also compared between all five evaluation years)

Table 2. Cafés assessed throughout implementation, by year

Agency	Food service venue	Size	Surveyed baseline, 2014 (n=9)	Surveyed 2015 (n=10)	Surveyed 2016 (n=9)	Surveyed 2017 (n=9)	Surveyed 2018 (n=9)
Agencies within the Natural Resources Building	City Picnics	Lrg	✓	✓	✓	✓	✓
Labor and Industries	Bienvenue Café	Lrg	✓	✓	✓	✓	✓
Department of Licensing/Highway Licensing	Taylor Ray's Café¹	Med	✓	✓	✓	✓	✓
Goodrich Building (includes Department of Corrections and Department of Transportation)	Fresh Taste Café² (Tumwater)	Lrg ³	✓	✓	✓	✓	✓
Department of Enterprise Services	Megabites Deli⁴	Med	✓	✓			
Department of Social and Health Services	Oasis Café	Med	✓	✓	✓	✓	✓
Legislative building	Taylor Ray's at the Dome⁵	Med	✓	✓	✓	✓	✓
Department of Ecology	The Ecology Café	Lrg	✓	✓	✓	✓	✓
Department of Social and Health Services	Bobby Jayz	Lrg	✓	✓	✓	✓	✓
Department of Transportation	Fresh Taste Café^{6,7} (Olympia)	Med		✓	✓	✓	✓

¹Formerly named *Hot little Bistro*; changed ownership between the 2016 and 2017 evaluations

²Formerly named *Courtyard Café*; changed ownership between the 2016 and 2017 evaluations

³Formerly classified as a medium-sized café

⁴*Megabites Café* was not included in the evaluation during this implementation year because they have not been actively engaged in implementation of the Healthy Nutrition Guidelines.

⁵Formerly named *Dome Deli*; changed ownership between the 2017 and 2018 evaluations

⁶Former names include *Johnny B's Café* and *R-café*; changed ownership between 2016 and 2017 evaluations, and again between 2017 and 2018 evaluations

⁷The café was not in operation during baseline evaluations

Micro-markets

In the 2015, 2016, 2017, and 2018 evaluations, researchers assessed observed micro-market compliance with the HNG by visiting micro-markets in-person to record the number of approved versus not approved items present for sale (see Appendix E for micro-market assessment protocol). In the 2016-2018 evaluations, researchers additionally assessed the percent of micro-market items sold that were either approved or not approved using sales data shared by the vendor. The top ten snack, beverage and entrée items sold were also reported. There were no micro-markets included in the baseline evaluation (2014), because they did not yet exist.

Micro-market site visits

Micro-markets were compliant if at least 50% of the items available for sale were approved, according to the HNG. In addition to snacks and beverages, micro-markets sell “grab-n-go entrées” which were also classified as approved or not approved under the HNG. The compliance requirement for entrees increased in 2017 from 25% to 50% when the vending and micro-market guidelines were updated.

From June to July 2018, researchers assessed nine micro-markets from five state agencies. Assessments took place close to typical lunch hours. Variability in the time of visit due to scheduling and building access constraints (before or after typical lunch hours, and proximity to restocking days) may have impacted the selection of products observed at each location. Micro-markets included in the evaluation are listed in Table 3.

To assess compliance with the HNG, researchers used a standard protocol to photograph all products available for sale at the micro-markets (see Appendix E for micro-market photography protocol). Research staff analyzed the images from each of the micro-markets and coded all food and beverage items that were available for sale. Researchers matched snack and beverage items, as well as grab-n-go entrées, to a nutrition database in order to determine their approved/not approved status. Researchers calculated the proportion of approved versus not approved snack, beverage, and entrée items as the primary micro-market outcome measure. Items with missing nutrient data were excluded from analyses.

Table 3. Micro-markets assessed in 2018

Agency	2018 micro-market code	Inclusion in each evaluation year			
		2015	2016	2017	2018
Department of Health (Town Center 2)	DOH TC2	✓	✓	✓	✓
Department of Health, Labor and Industries, DSHS (Town Center 3)	DOH TC3		✓	✓	✓
Department of Revenue (6300 Building)	DOR 6300			✓	✓
Department of Revenue (6400 Building)	DOR 6400			✓	✓
Department of Revenue (6500 Building)	DOR 6500			✓	✓
Employment Security Authority	ESA	✓	✓	✓	✓
Health Care Authority (621 Building)	HCA 621*			✓	✓
Health Care Authority (626 Building)	HCA 626*		✓	✓	✓
Labor & Industries	LNI	✓	✓	✓	✓

*Previous reports coded HCA 626 as HCA, and coded HCA 621 as HCA2. These codes were updated in 2018 to avoid confusion.

Micro-market sales data

A micro-market operator shared their January 2016-June 2018 micro-market sales data with WA DOH and CPHN researchers. These sales data included product name, product category, quantity sold of each product, dollar amount sold of each product, sales month, and agency where the micro-market was located. The micro-market operator shared data for all micro-markets operating in each year. Since not all micro-markets were operating in each year, the number of agencies included in each year's sales data varies (see Table 12 in the results section for the complete list of micro-markets by year).

To analyze the micro-market sales data, researchers first matched the food and beverage products sold to a nutrition database containing the ingredients and nutrition information for each product. This nutrition database contained approval status under the HNG guidelines for all products sold in previous evaluation years. For products that were not in this nutrition database, CPHN researchers worked with the micro-market operator and WA DOH to retrieve the nutritional information for each product present in this year's evaluation, and added these items to the nutrition database. Researchers were not able to identify the nutritional status of a handful of items (<2%); these items are marked as "missing nutritional information."

The primary sales data analyses include: (1) top food/beverage items sold by year, (2) the percentage of total items sold and total sales that come from approved versus not approved products, (3) the percentage of total beverages sold by beverage type, and (4) the percentage of items approved versus not approved purchased by and across individual state agencies each year. Researchers used Stata (version 14.2) for all analyses.

Vending

The HNG for vending machines includes two categories of foods and beverages: approved or not approved (criteria available at <http://www.doh.wa.gov/Portals/1/Documents/Pubs/140-168-HealthyNutritionGuidelinesVending.pdf>).

To meet HNG compliance, 50% of vending machine products must be approved items. Researchers gathered and analyzed vending machine data via a photo-evidence protocol. CPHN and WA DOH researchers worked with vending companies and state agency wellness coordinators to establish a protocol where vending staff photographed the contents of each vending machine as it was serviced and restocked (see Appendix F for vending machine photograph protocol), and wellness coordinators photographed the contents of vending machines in buildings not serviced by this vending agency. WA DOH staff photographed the beverage machines in the WA DOH Tumwater Campus. Photographs documenting the contents of 103 machines were taken in 60 buildings; representing 35 different agencies (see Table 4 for agencies included in vending machine assessments). Of the machines assessed, 53 were snack machines and 50 were beverage machines. It is important to note that the total number of snack and beverage machines on state agency properties is unknown, so we are unable to report the proportion of machines assessed for this evaluation.

Table 4. Number of beverage and snack vending machines assessed, by agency

Agency	# of snack machines	# of beverage machines
Administration and Office for the Courts (2 buildings)	2	
Capitol Legislative Building (1 building)	1	
Dept of Agriculture (1 building)	1	
Dept of Commerce (1 building)	1	
Dept of Corrections (2 buildings)	2	
Dept of Ecology (1 building)	1	
Dept of Enterprise Services (1 building)	1	
Dept of Fish and Wildlife (1 building)	1	
Dept of Health (6 buildings)	3	11
Dept of Licensing (12 buildings)	12	14
Dept of Natural Resources (1 building)	1	11
Dept of Social and Health Services (6 buildings)	5	7
Dept of Transportation (2 buildings)	2	
Dept of Veteran Affairs (1 building)	1	
Dolliver Building (1 building)	1	
Employment Security (1 building)	1	
Health Care Authority (2 buildings)		3
Industrial Insurance, Board of Industrial Insurance Appeals (1 building)	1	
Insurance Building, Office of Financial Mgmt. (1 building)	1	
Insurance Commission (1 building)	1	
Irv Newhouse Building (1 building)	1	
John A Cherberg Building (1 building)	1	
Labor & Industries (1 building)		3
Legislative Service Center (1 building)	1	
Office of Administration, Office of Admin. Hearings (1 building)	1	
Office of Financial Recovery, Traffic Safety Commission (1 building)	1	
Pritchard Building (1 building)	1	
Services for the Blind (1 building)	1	1
State Library (1 building)	1	
State Office Building #2 (1 building)	1	
Utilities/Transportation (1 building)	1	
WA State Investment Board (1 building)	1	
WA State Patrol (1 building)	1	
WA Student Achievement Council (1 building)	1	
WATECH (1 building)	1	
Total	53	50

Research staff analyzed images of each vending machine by recording the total number of slots stocked with each food and beverage product. Certain beverage machines had an opaque cover and the vending slots were not visible; in these cases researchers recorded the number of each beverage option displayed in the machine's button selections. If an item was not identifiable in a submitted photograph, it was excluded from the analysis. Researchers matched identifiable food and beverage products to a nutrition database that categorized each item as approved or not approved based on the HNG criteria. Researchers then calculated the proportion of approved versus not approved items available in each vending machine as the primary outcome measure.

Interviews

Café manager interviews

Using a list provided by WA DOH, CPHN researchers contacted potential café operator (CO) interviewees by email, and by phone if they did not respond to the initial email, asking if they would be willing to be interviewed. All seven of the COs, representing a total of nine cafés, agreed to participate in the voluntary interviews. Six of the CO interviews were conducted in-person at the café site and one was conducted over the phone. The interviews lasted between 25 and 45 minutes. All interviews were audio recorded and transcribed by researchers. An initial codebook was developed based on interview responses. Three researchers separately coded two of the CO interview transcripts. They met to discuss coding discrepancies until consensus was reached. The codebook was subsequently revised and two of the same researchers coded one other transcript using the revised codebook, as well as the original two interviews. Once a sufficiently high inter-coder agreement was reached, the remaining four transcripts were all double-coded and reconciled.

Of the seven COs interviewed, six were participants of the Department of Services for the Blind's Business Enterprise Program. Program participants meet four to five times per year for ongoing support and training in successful food service facility operation.

Vendor interviews

WA DOH provided researchers with a list and contact information for four key stakeholders from companies that support vending and micro market operations in office buildings covered under the EO. These vending company stakeholders were informed via email message from WA DOH staff to expect an invitation from researchers for a voluntary, confidential telephone interview. Three of the four responded to requests for an interview. The fourth stakeholder received a second invitation, but did not respond. The interviews were 17, 22, and 70 minutes in duration. All interviews were audio recorded and transcribed by researchers. Responses were categorized into seven topic areas (approach, drivers, trends, impact, guidelines, technical assistance, and challenges) and key themes were identified.

Results

Cafés

The 2018 evaluation included nine cafés: four medium and five large. Researchers assessed the same nine cafés in 2015, 2016, and 2017, and eight of these nine in 2014 (note that nine total were assessed in 2014, and ten total in 2015, however, only eight of the same cafés have been assessed in every year). See Table 2 in the methods section for more details on the cafés assessed in each year.

Basic criteria

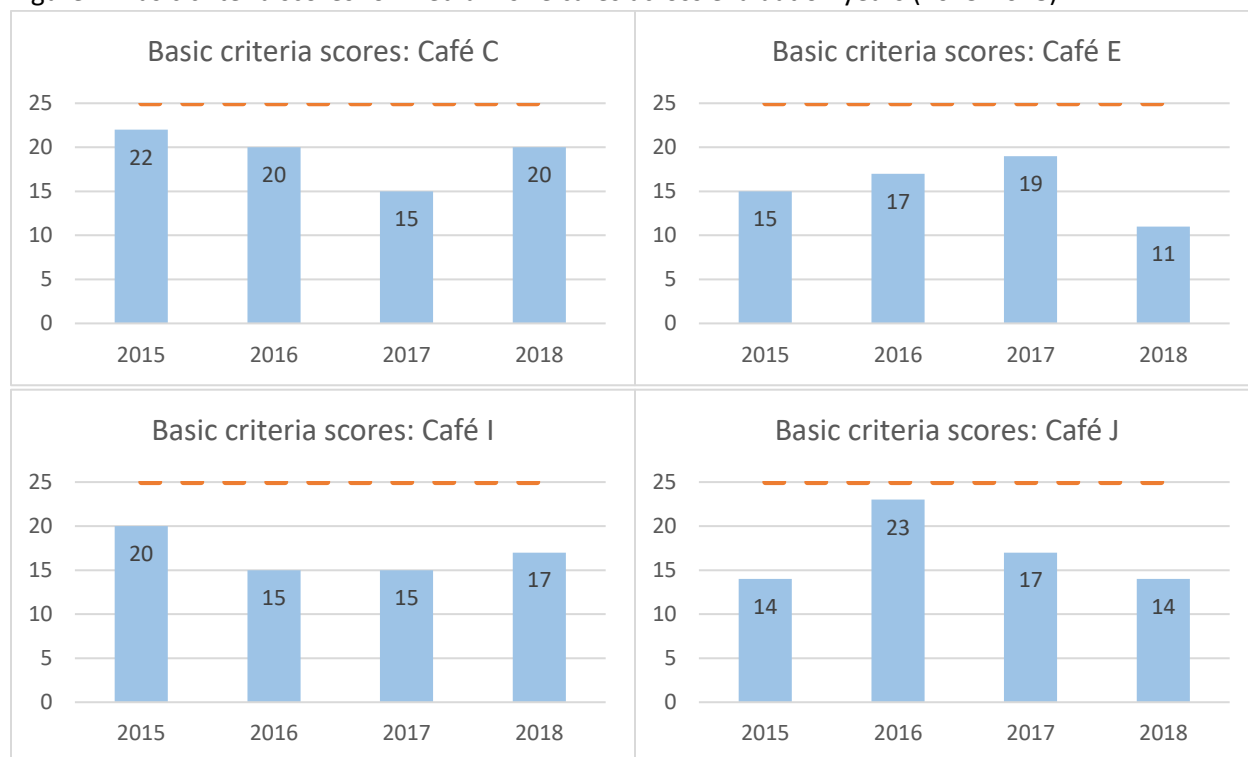
Overall scores for basic criteria

For compliance with HNG basic criteria, cafés of all sizes must earn at least 25 points. In 2018:

- 1/9 cafés met total points needed for basic criteria compliance.
- 2/9 cafés were within three points of the total points needed for basic criteria compliance; meeting the low-sodium entrée criterion would bring them into full compliance.
- More than half of the cafés (n=5) assessed improved their basic criteria scores from 2017 to 2018.
- 1/9 cafés (café H) showed consistent improvement in basic criteria scores over time, ultimately reaching full compliance in 2018. Scores for the remaining eight cafés in 2018 were less than or equal to their baseline scores.

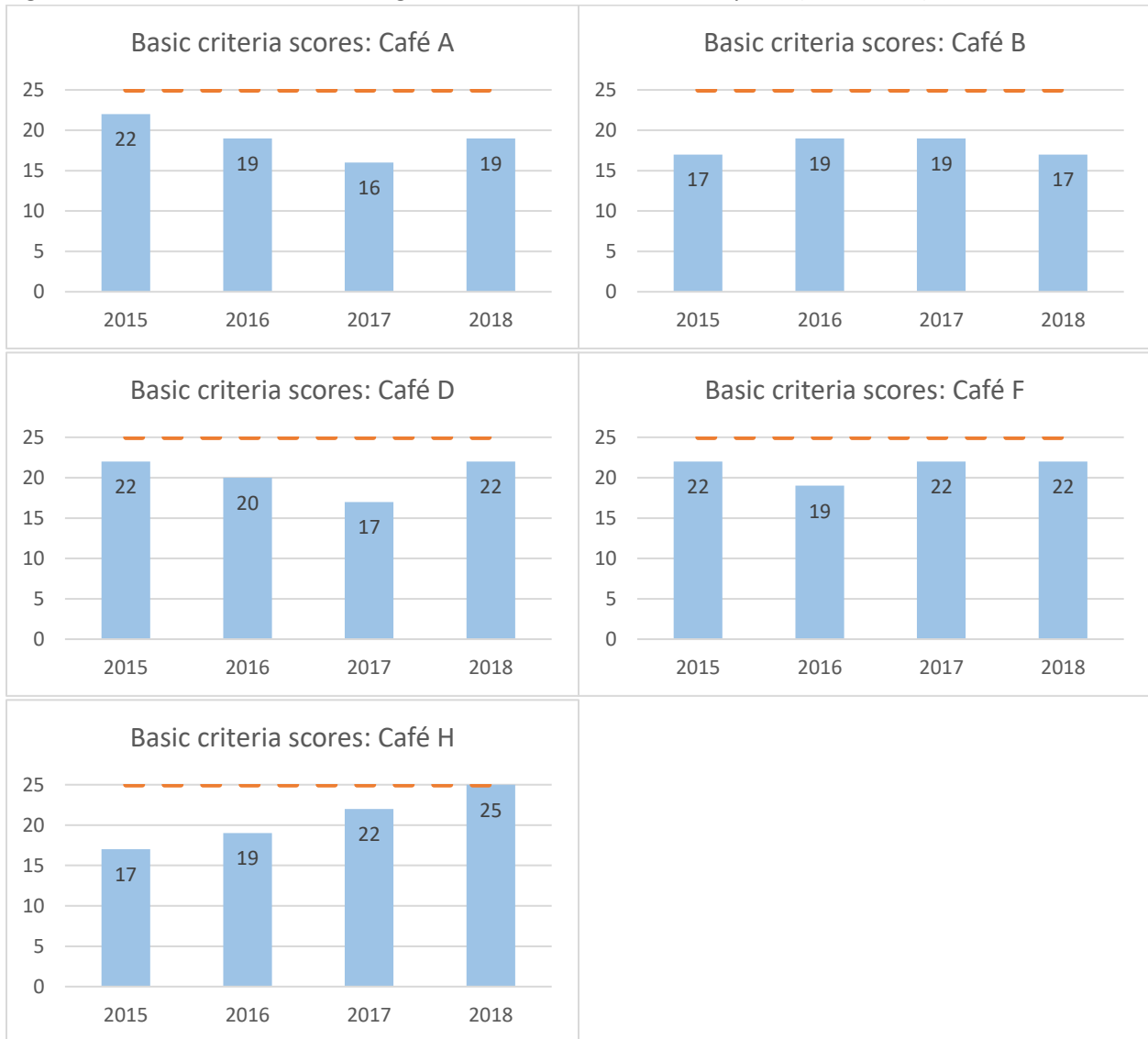
Figures 1 and 2 display compliance with the HNG basic criteria in 2015, 2016, 2017, and 2018 for each of the nine cafés assessed in all years.

Figure 1. Basic criteria scores for medium size cafés across evaluation years (2015-2018)



The orange dashed line shows the total number of points needed for medium café basic criteria compliance.

Figure 2. Basic criteria scores for large size cafés across evaluation years (2015-2018)



The orange dashed line shows the total number of points needed for large café basic criteria compliance.

Basic criteria results by criterion

Table 5 shows the percentage of the cafés assessed that met each of the HNG’s basic criteria across all evaluation years. As in previous implementation years, all nine cafés assessed in 2018 met criteria for whole grains and lean protein options, and all nine cafés continued to report that meals were free of trans-fat or partially hydrogenated oil. Almost all cafés (n=8) met criteria for vegetables and milk products—an improvement from 2017 assessments. Only one café met the criterion for low-sodium entrees, which requires that cafés offer *and promote* low-sodium options. Although several cafés reported that they offer low-sodium options, they typically did not promote these options.

Table 5. Proportion of cafés meeting basic criteria from baseline to 2018.

Basic criteria	% of cafés that meet criteria				
	Baseline (n=9)	2015 (n=10)	2016 (n=9)	2017 (n=9)	2018 (n=9)
Whole Grain <i>Large: Do you offer 2 whole grain rich options daily?</i> <i>Medium: Do you offer at least one whole grain rich option daily?</i>	0%	100%	100%	100%	100%
Vegetable <i>Large: Do you offer at least one raw, salad-type and at least one steamed, baked, or grilled vegetable daily?</i> <i>Medium: Do you offer at least one raw, salad-type vegetable daily?</i>	not assessed	100%	100%	67%	89%
Fruit <i>Large/Medium: Do you offer at least 3 whole or sliced fruits daily?</i>	78%	70%	100%	33%	67%
Lean Protein <i>Large/Medium: Do you offer at least one lean meat option such as poultry, fish, or a low-fat vegetarian option?</i>	100%	100%	100%	100%	100%
Deep-Fried <i>Large/Medium: Do you offer no more than one deep-fried entrée option daily?</i>	89%	70%	56%	89%	56%
Oils (trans-fat, partially-hydrogenated oils) <i>Large/Medium: Are all meal items free of artificial trans-fat or partially hydrogenated oils?</i>	not assessed	100%	67%	100%	100%
Low-Fat and Non-Fat Milk Products <i>Large/Medium: Do you offer at least one low-fat and one non-fat milk product?</i>	56%	70%	44%	78%	89%
Water <i>Large/Medium: Do you offer free water and advertise its availability?</i>	11%	50%	89%	56%	56%
Low-Sodium Entrée <i>Large/Medium: Do you offer one lower sodium entrée and/or meal and do you promote it?</i>	0%	0%	22%	22%	11%

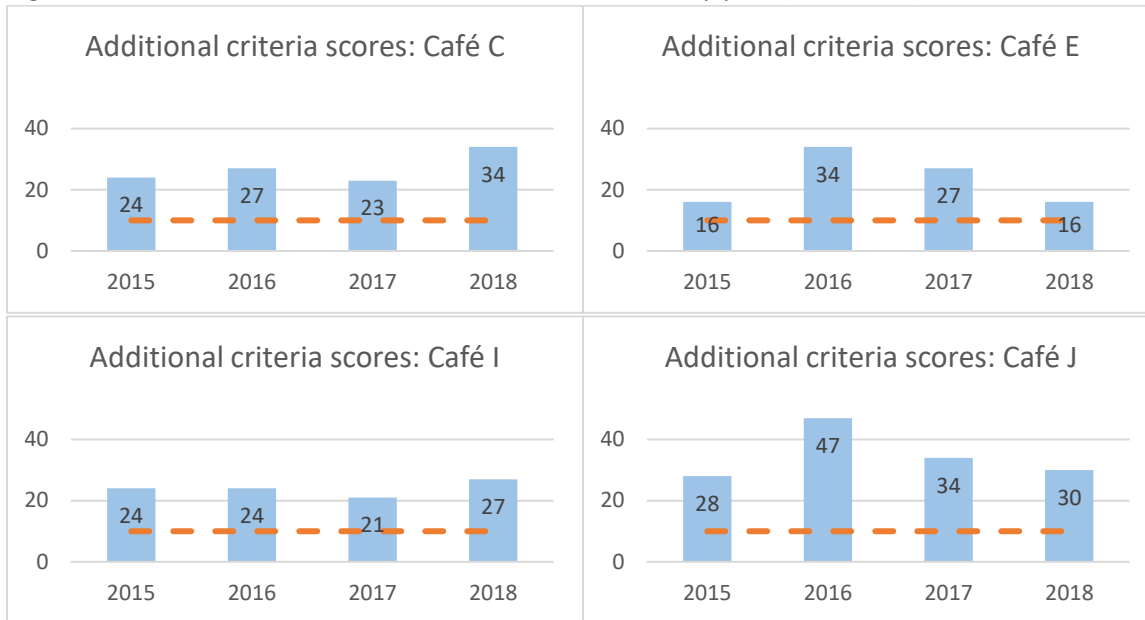
Additional criteria: beverages, food components, and behavioral economics strategies

Overall scores for additional criteria

Compliance with additional criteria requires a score of at least 10 points for medium cafés and at least 25 points for large cafés.

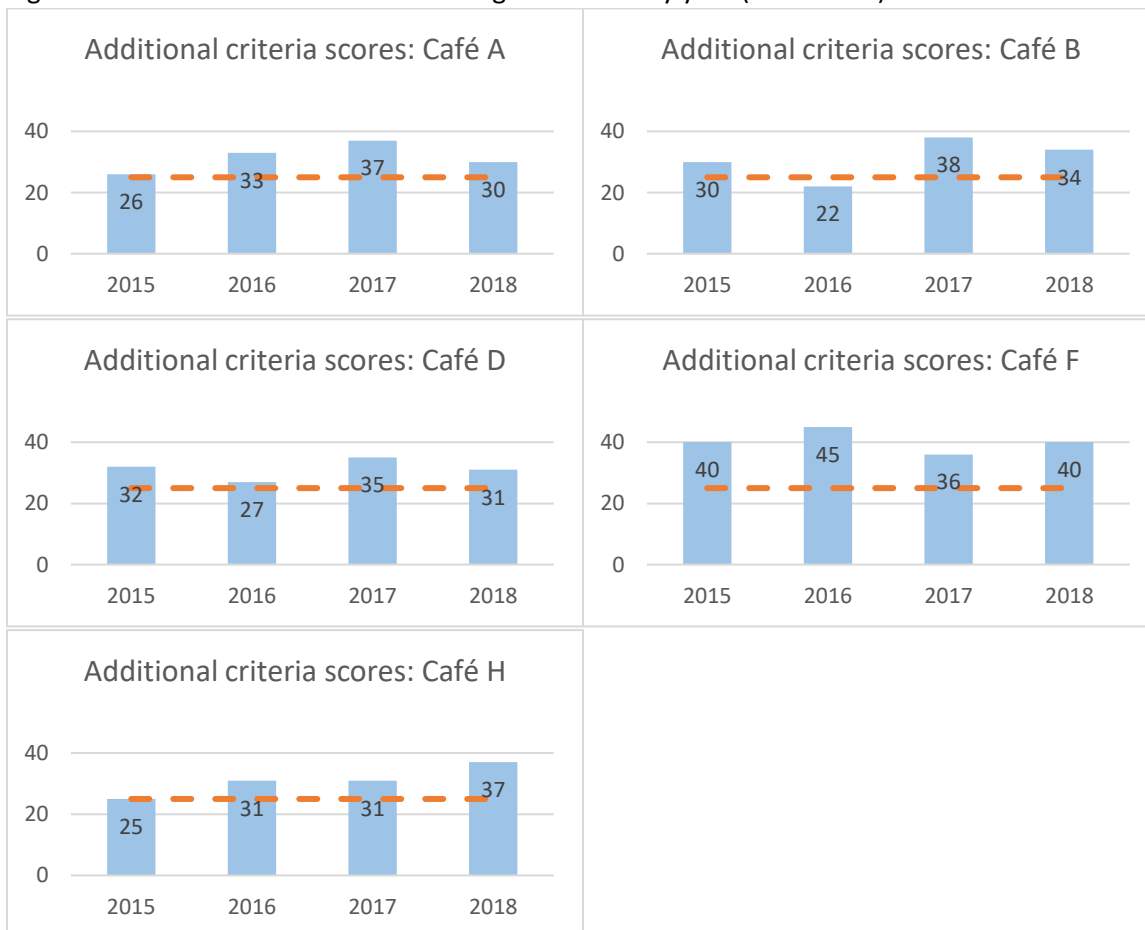
As in previous years, with the exception of Café B in 2016, all nine cafés assessed met the requirement for compliance with the additional criteria. More than half of the cafés assessed (n=5) received fewer points for additional criteria in 2018 compared to 2017. Additional criteria scores for six of the nine cafés were greater than baseline scores. The Figure 3 and 4 show additional criteria scores for individual medium and large cafés, respectively, across implementation years.

Figure 3. Additional criteria scores for medium size cafés by year (2015-2018)



Target scores for compliance are represented by the orange dashed line.

Figure 4. Additional criteria scores for large size cafés by year (2015-2018)



Target scores for compliance are represented by the orange dashed line.

Additional criteria: food and beverages

In 2018, all nine cafés assessed offered at least one non-fried fish or seafood option per week, and small portions of desserts (2 ounces or less).

In 2018 more than half of the cafés assessed offered:

- a salad bar
- condiments, sauces, and dressings on the side
- healthy options for bread in place of butter
- at least one oil and vinegar based salad dressing that is low in sodium
- fruit in close proximity to dessert options
- no free refills of sugar-sweetened beverages
- at least an equal number of zero/low-calorie beverages, when sugar-sweetened beverages were offered
- small portions of muffins, quick breads, and bagels (3 to 3.5 ounces) for breakfast foods
- at least one Washington-grown product

In 2018 none of the nine cafés:

- exclusively offered yogurt without added sweeteners
- allowed *and promoted* substitution of non-fried vegetable sides at no extra charge
- offered vegetable juice with 230 mg of sodium or less
- offered 1% or non-fat milk as default options

Table 6 below lists the percentage of cafés that earned points for each of the additional criteria for food and beverages. Because not all criteria were relevant to each café, and the denominators differ for each criteria, these percentages are shown as proportions in Appendix G.

Table 6. Percentage of cafés meeting additional criteria for food and beverages, by year (2015-2018)

Additional criteria for food and beverages	% cafés that meet criteria*			
	2015	2016	2017	2018
Beverages				
Cup sizes ≤16 oz.	13%	0%	0%	11%
No free refills of SSBs	100%	100%	75%	88%
Offer only low-fat (1%) and non-fat fluid milk	0%	0%	0%	13%
Low-fat (1%) or non-fat milk are default milk option	13%	11%	25%	0%
Milk is default for coffee service (cream or half and half by request only)	0%	11%	11%	38%
# of SSBs ≤ # of zero- and low-calorie beverages	10%	11%	44%	67%
Offer only 100% fruit juices with no added sugar	0%	11%	22%	13%
Vegetable juices contain ≤230 mg sodium/serving	13%	14%	17%	0%
Vegetables and Fruits				
Non-fried vegetables or fruit are the default side dish	0%	75%	67%	50%
Allow & promote substitution of non-fried vegetable side for no extra charge	71%	71%	63%	0%
Offer a salad bar	60%	67%	56%	67%
Fruit is located in close proximity to dessert options	50%	78%	78%	56%
Condiments				
Offer ≥1 low-sodium oil and vinegar salad dressing	78%	100%	89%	89%
Offer condiments, sauces, and dressings on the side	100%	100%	100%	89%
Offer healthy option with bread in place of butter	20%	89%	100%	78%
Other Foods and Food Components				
1 meal/day provides ≥3 of the following: 1 serving of fruits, vegetables, beans, or whole grains	70%	100%	11%	44%
Whole grain is the default for ≥50% of meals w/ grains	0%	25%	0%	29%
Offer low-sugar, high fiber cereals	50%	0%	75%	20%
Low- and non-fat milk products (cheese, yogurt, etc.) are default options	0%	0%	11%	11%
Only offer yogurt without caloric sweeteners or reduced/less	0%	11%	13%	0%
Offer ≥1 non-fried fish or seafood option/week**	100%	100%	100%	100%
≥1 Washington-grown product is available	70%	33%	67%	89%
Portion Size				
Half-size portions available & promoted for ≥50% entrées	40%	78%	56%	33%
Offer small portions of muffins, quick breads, and bagels	30%	33%	22%	78%
Desserts are offered in small portion sizes (2 oz.)	90%	67%	78%	100%

*The denominator for some criteria is less than the total number of cafés evaluated because not all criteria were relevant to each café. For example, a café may not have offered a default side or may not have coffee service. See appendix for more details.

**Includes tuna sandwiches

Additional criteria: behavioral economics

Cafés can earn points for implementing additional behavioral economics strategies to encourage healthy choices. In 2018, most cafés assessed (n=8) did not promote deep-fried options as the special of the day. More than half of the cafés (n=5) promoted approved items (e.g., through signs, advertising), and none of the nine cafés listed healthier options first on each category of the menu, or trained employees to prompt customers to choose low-calorie beverages when ordering.

Table 7 shows the percentage of cafés observing these behavioral economics criteria. Because not all criteria were relevant to each café, and the denominators differ for each criteria, these percentages are shown as proportions in Appendix H.

Table 7. Percentage of cafés applying additional behavioral economics strategies

Additional criteria for behavioral economics	% of cafés that meet criteria*			
	2015	2016	2017	2018
Healthy options priced at or below less healthy options	90%	11%	56%	22%
Healthier items placed closer to customers & at eye level	60%	44%	44%	11%
≥75% of promotional signage for healthier items	50%	78%	67%	63%
No marketing of deep-fried options as the special or feature of the day	80%	78%	100%	89%
Employees trained to prompt non-fried vegetables	10%	14%	33%	29%
Employees trained to prompt zero- and low-calorie beverages	0%	33%	n/a**	0%
Healthier options listed first for each menu category	0%	22%	29%	0%
Zero- and low-calorie beverages listed before SSBs on the menu	0%	33%	50%	20%

*The denominator for some criteria is less than the total sample size because not all criteria were relevant to each café. For example, a café may not have offered a default side or may not have coffee service.

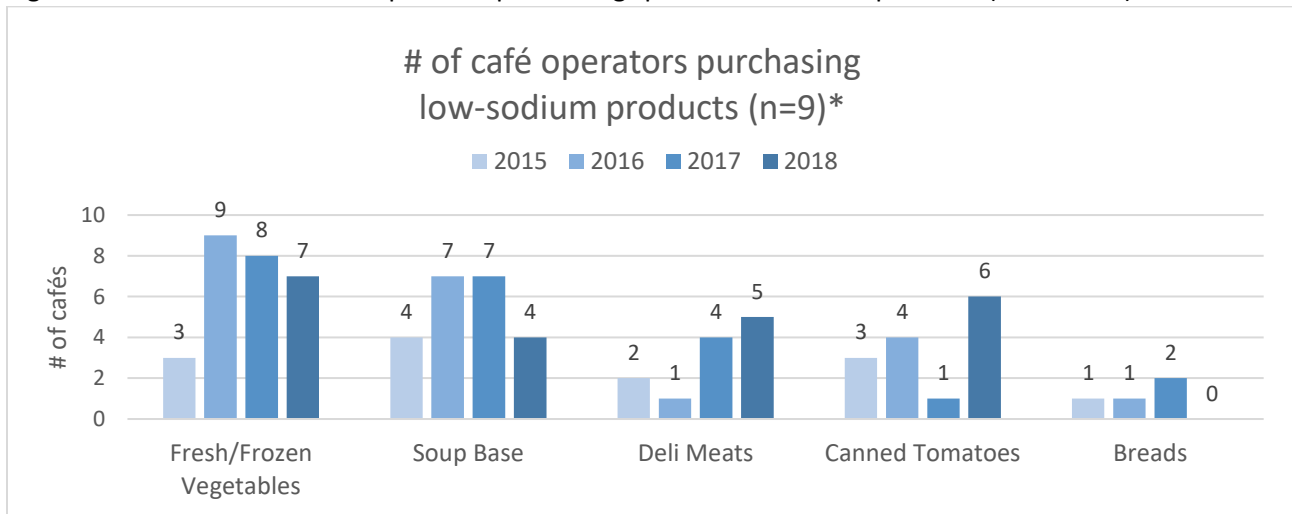
**In 2016 the majority, and in 2017 all café beverages were self-serve or grab-and-go. This category does not include coffee service.

Low-sodium products offered

During café visits, researchers asked the café managers or operators if they purchased low-sodium soup bases, deli meats, canned tomatoes, fresh/frozen vegetables, or grain products. In 2018, café operators reported increased use of low-sodium deli meats (n=5) and canned tomatoes (n=6) compared to previous years. More than half of café operators (n=7) reported using fresh/frozen vegetables low in sodium.

Figure 5 below shows the number of café operators purchasing each low-sodium product. Café operator comments about the cost of low-sodium products are discussed in the interview results section.

Figure 5. Total number of café operators purchasing specific low-sodium products (2015-2018)

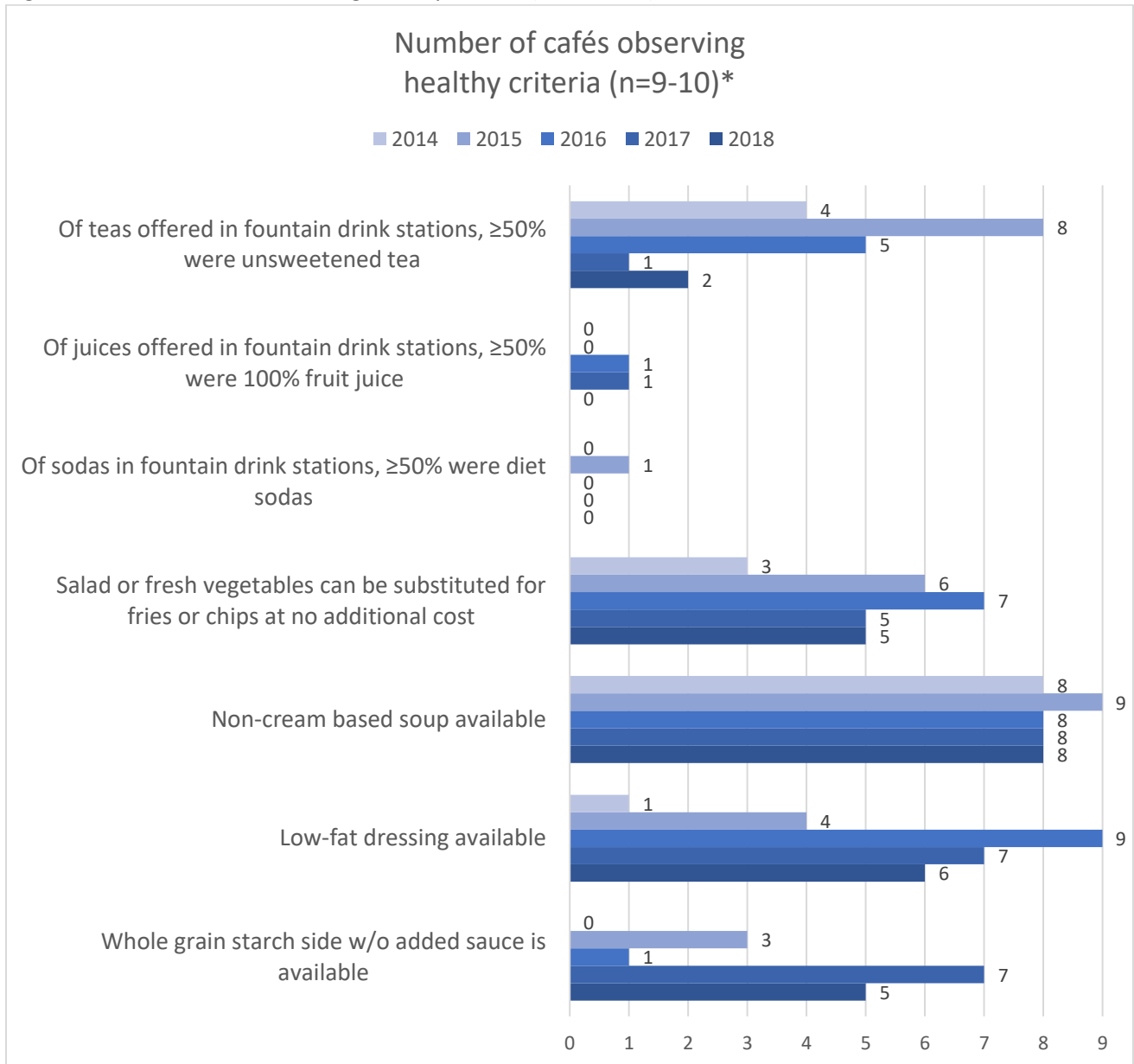


*Data were self-reported by café operators

Healthy versus less healthy criteria compliance

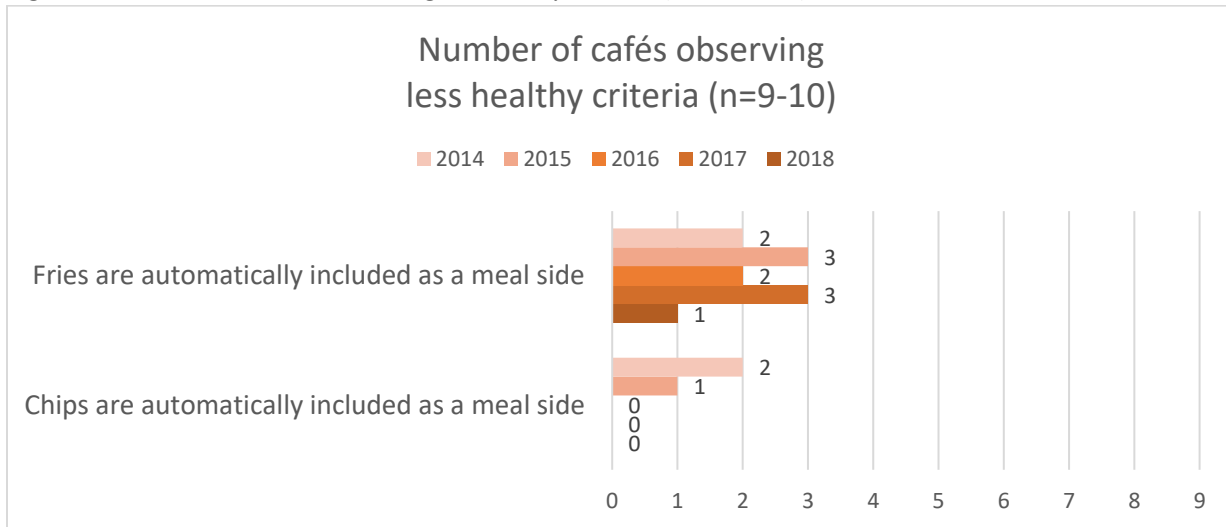
Researchers assessed and compared the proportion and price of healthy and less healthy food and beverage products offered in each café, as defined by the HNG. Figure 6 below shows the number of cafés that meet each of the healthy criteria, while Figure 7 shows the number of cafés that observe unhealthy criteria. In 2018, the number of cafés that observed unhealthy criteria decreased compared to 2017; of the cafés that offer sides with entrees, only one automatically included fries as a side and none automatically included chips.

Figure 6. Number of cafés meeting healthy criteria (2014-2018)



*Note that in 2015 ten cafés were surveyed; nine were surveyed in all other years.

Figure 7. Number of cafés observing unhealthy criteria (2014-2018)



**Note that in 2015 ten cafés were surveyed; nine were surveyed in all other years.*

Table 8 below compares the prices of healthy and less healthy equivalents for each year. Compared to previous years, fewer cafés offered healthier chips, milk, and tea at a price less than or equal to the price of less healthy versions. More cafés offered healthier options for yogurt at a price less than or equal to that of less healthy versions. The milk category was variable in selections available among cafés assessed; six cafés offered only less healthy versions ($\geq 2\%$ or flavored milk), one café offered only healthier versions (unflavored 1% or skim milk), and one café offered no milk of any kind.

Table 8. Number of cafés offering healthy products at more, less, or equal price compared to unhealthy products, by product and year (n=9)

Chips pricing	# of cafés (n=9)				
	2014	2015	2016	2017	2018
\$ healthy < \$ unhealthy	1	0	0	1	0
\$ healthy = unhealthy	5	6	4	7	6
\$ healthy > unhealthy	0	0	0	1	0
<i>Total # cafés offering healthy and unhealthy options</i>	6	6	4	9	6
Yogurt pricing	# of cafés (n=9)				
	2014	2015	2016	2017	2018
\$ healthy < \$ unhealthy	0	3	2	0	2
\$ healthy = unhealthy	4	2	2	3	4
\$ healthy > unhealthy	1	0	0	0	0
<i>Total # cafés offering healthy and unhealthy options</i>	5	5	4	3	6
Milk pricing	# of cafés(n=9)				
	2014	2015	2016	2017	2018
\$ healthy < \$ unhealthy	0	2	0	0	0
\$ healthy = unhealthy	4	1	9	7	1
\$ healthy > unhealthy	0	0	0	0	0
<i>Total # cafés offering healthy and unhealthy options</i>	4	3	9	7	1
Soda pricing	# of cafés (n=9)				
	2014	2015	2016	2017	2018
\$ healthy < \$ unhealthy	1	0	0	0	0
\$ healthy = unhealthy	6	10	7	8	8
\$ healthy > unhealthy	0	0	0	0	0
<i>Total # cafés offering healthy and unhealthy options</i>	7	10	7	8	8
Juice pricing	# of cafés (n=9)				
	2014	2015	2016	2017	2018
\$ healthy < \$ unhealthy	1	4	1	3	0
\$ healthy = unhealthy	7	6	7	4	7
\$ healthy > unhealthy	1	0	0	0	1
<i>Total # cafés offering healthy and unhealthy options</i>	9	10	8	7	8
Tea pricing	# of cafés (n=9)				
	2014	2015	2016	2017	2018
\$ healthy < \$ unhealthy	0	1	1	3	1
\$ healthy = unhealthy	5	6	6	6	4
\$ healthy > unhealthy	0	1	0	0	1
<i>Total # cafés offering healthy and unhealthy options</i>	5	8	7	9	6

Table 9 lists the proportion of cafés that offered a greater percentage of healthy food (cereal, chips, and yogurt) and beverage (milk, soda, and juice) choices across all evaluation years. Fewer cafés offered healthy juice options (100% fruit juice or low-sodium vegetable juice) in 2018 compared to 2017. More cafés offered low- or reduced-fat yogurt options in 2018 compared to 2017.

Table 9. Proportion of cafés offering >50% healthy options by food category, by year

Category	2014 (baseline)	2015	2016	2017	2018
Low-sugar, high-fiber cereal	1/5*	0/4*	0/4*	1/4*	1/5*
Low-fat chips	0/9	0/10	0/9	0/9	0/9
Low- or reduced-fat yogurt	1/7*	7/8*	1/7*	1/9	2/9
Skim or 1% milk	0/9	0/8*	2/9	2/9	2/8*
Diet soda	0/7*	1/9	1/7*	1/8*	1/9
100% or low-sodium juice	2/9	5/9	4/9	7/9	4/8*

*The denominator for some criteria is less than the total number of cafés assessed because not all criteria were relevant to each café. For example, a café may not have offered cereal, yogurt, or juice and were therefore not included in this analysis.

*Note that in 2015 10 cafés were surveyed. Nine were surveyed in all other years.

Placement and promotion

The final section of the café assessment evaluated the placement and promotion of healthier items in the café. Although these are not part of the scored HNG criteria, the results help to further describe the café food environment. Table 10 lists the number of cafés that observed each of the placement and promotion criteria.

Positive indicators that increased from 2017 to 2018 included:

- information about promotions or pricing strategies
- menu items identified as healthy or light
- nutrition information posted on menu boards or displayed elsewhere in the café/eating area
- availability and promotion of Washington-grown products

Among negative indicators, the only change from 2017 to 2018 was a decrease in signage that encourages less healthy choices (i.e. in 2018 there were fewer signs encouraging unhealthy choices compared to 2017).

Table 10. Café placement and promotion criteria, by year

Placement & promotion criteria	# Cafés				
	2014 (n=9)	2015 (n=10)	2016 (n=9)	2017 (n=9)	2018 (n=9)
Positive indicators					
Café has signs or other displays that encourage general healthy eating or healthy food choices (posters on wall, signs, table tents, etc.)	22%	80%	89%	78%	67%
Feature of the day or special combination meal is promoted	89%	100%	100%	89%	89%
Café has other information about promotions or pricing strategies (farmers markets, discounts on healthy items, locally grown, etc.)	0%	0%	22%	22%	44%
Brochure/nutrition information is on the intranet/internet	44%	10%	0%	0%	0%
Healthier options are indicated on salad bar (Go, Slow, Whoa icons or other systems)	0%	0%	22%	22%	0%
Café identifies menu items as "healthy" or "light"	22%	10%	33%	0%	11%
When terms "healthy" or "light" are used, standards are listed for these items	11%	0%	0%	0%	0%
Nutrition information is posted on menu boards, brochures, or in other display areas	11%	10%	33%	11%	33%
Fruit is well lit	100%	70%	100%	100%	89%
Fruit is appealing in appearance (looks fresh, not bruised, etc.)	67%	90%	78%	100%	89%
Some fruit is located near the register/point of purchase	78%	40%	56%	89%	67%
Vegetables are well-lit	78%	80%	89%	100%	89%
Vegetables are appealing in appearance (looks fresh, not discolored, etc.)	89%	100%	100%	100%	89%
Some vegetables are located near the register/point of purchase	22%	20%	22%	56%	56%
Washington-grown products are available	11%	70%	44%	67%	89%
Washington-grown products are promoted/marketed	0%	0%	22%	11%	22%
Negative indicators					
Café has signs or displays that encourage less healthy eating or less healthy food choices	33%	40%	22%	56%	0%
Café has signs or displays that encourage overeating (supersizing, all you can eat, etc.)	11%	0%	0%	0%	0%
Unhealthy items are located near cash register/point of purchase	100%	100%	100%	100%	100%

Micro-markets

Researchers assessed nine micro-markets in-person for HNG compliance. The HNG require that 50% of all grab-n-go entrées, snacks, and beverages must meet the approved HNG criteria to be compliant. The micro-market nutrition criteria for snacks and beverages are the same criteria used for vending machine compliance, and are aligned with the USDA Smart Snacks for Schools guidelines. Items are categorized as approved or not approved based on calorie, sugar, fat, whole grain, and sodium criteria. Grab-n-go entrées are also categorized as approved or not approved based on nutrient content.

Micro-market audits

The nine micro-markets assessed in 2018 were the same micro-markets assessed in 2017. Among these, five were also assessed in 2016. See Table 3 in the methods section for more details.

- In 2018, one micro-market (DOH TC2) was compliant with HNG for beverages, with 50% approved options.
- No micro-markets were compliant with the 2018 HNG for snacks or entrees; the proportion of approved items in these categories was below 50% across all micro-markets.
- The overall proportion of approved items for snacks, beverages and entrées in 2018 was 26%, 45% and 19%, respectively.
- As in 2017, beverage guidelines are complied with more often than snacks or entrées, while grab-n-go entrée items are frequently the least compliant foods.
- Six micro-markets were $\leq 5\%$ away from meeting beverage compliance criteria, and eight micro-markets were $< 15\%$ away from meeting beverage compliance criteria.
- All micro-markets were $> 20\%$ away from meeting HNG compliance criteria for snacks and entrees.

Table 11 shows the percentage of approved snacks, beverages, and entrées observed in each micro-market for 2016-2018. Figure 8 Series shows the average percentage for each category compared to the goal in each year. Data from 2015 are excluded from these figures because the compliance analysis process for micro-markets evolved from 2015 to 2016. For example, in 2015 products were divided into three categories (healthiest, healthier, and limited), whereas in subsequent evaluation years products were divided into just two categories (healthy and approved, or limited and not approved). Furthermore, only three of the micro-markets included in the 2018 evaluation were assessed in 2015.

Table 11. Percentage of approved food items observed at agency micro-markets, by year (2016-2018). Micro-markets that met requirements for compliance are highlighted.

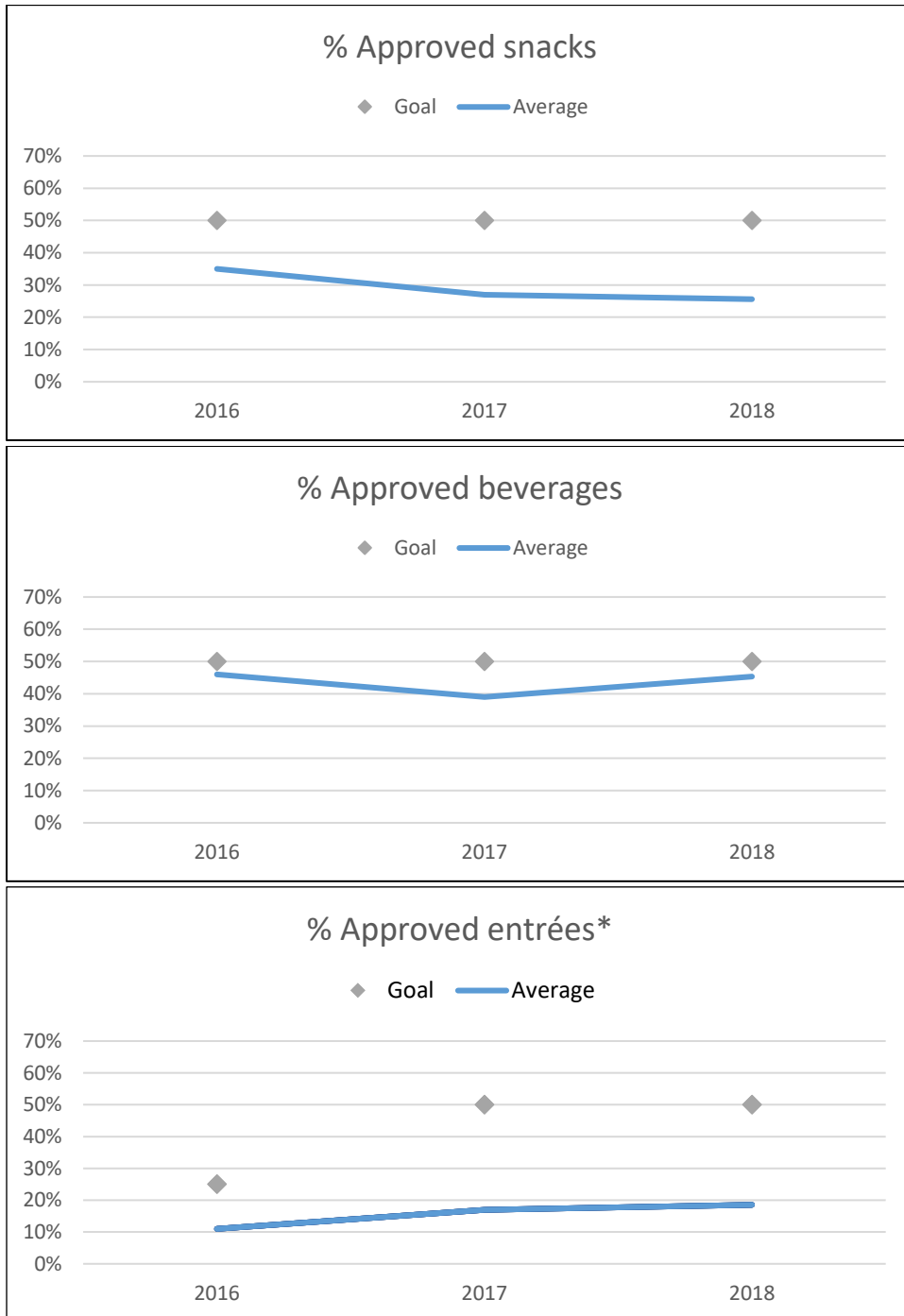
Agency	2016*	2017	2018
% Approved snacks			
ESA	29%	28%	25%
LNI	34%	28%	26%
DOH TC2	49%	31%	28%
DOH TC3	31%	33%	25%
HCA 626**	33%	27%	28%
HCA 621**	--	25%	24%
DOR 6300	--	24%	27%
DOR 6400	--	24%	23%
DOR 6500	--	24%	25%
Overall	35%	27%	26%
% Approved beverages			
ESA	58%	24%	38%
LNI	61%	49%	47%
DOH TC2	50%	48%	50%
DOH TC3	30%	37%	39%
HCA 626**	30%	33%	39%
HCA 621**	--	38%	47%
DOR 6300	--	38%	45%
DOR 6400	--	40%	47%
DOR 6500	--	41%	47%
Overall	46%	39%	45%
% Approved entrees			
ESA	10%	26%	17%
LNI	13%	15%	17%
DOH TC2	3%	24%	18%
DOH TC3	23%	23%	26%
HCA 626**	8%	12%	23%
HCA 621**	--	13%	16%
DOR 6300	--	17%	17%
DOR 6400	--	14%	25%
DOR 6500	--	13%	16%
Overall	11%	17%	19%

* Micro-markets in HCA, HCA2, DOR 6300, DOR 6400, DOR 6500 were installed after the 2016 assessment.

**Previous reports coded HCA 626 as HCA, and coded HCA 621 as HCA2. These codes were updated in 2018 to avoid confusion.

The Figure 8 illustrates the change in the average percentage of approved items observed in each micro-market over time compared to the target percentage. The target percentage of approved items for compliance was not consistent across all evaluation years; the entrée category required only 25% approved items for compliance prior to 2017.

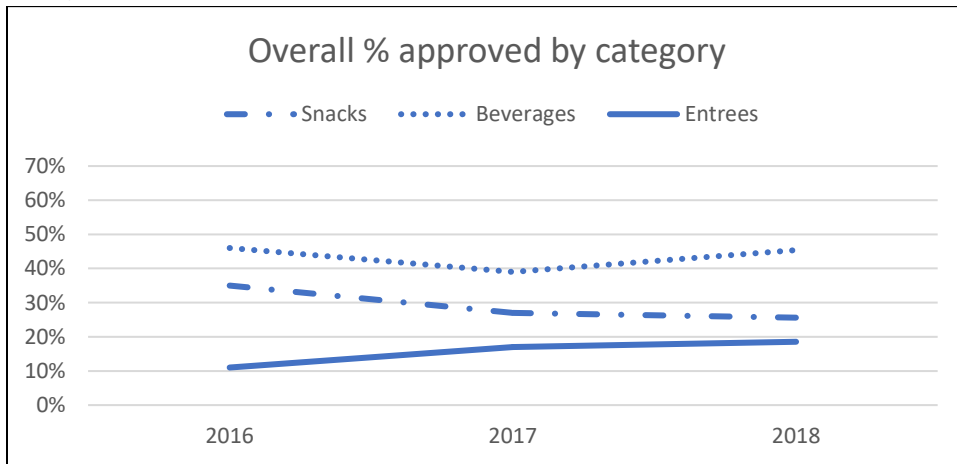
Figure 8. Average percentage of approved food and beverage items observed in micro-markets by category and year (2016-2018), compared to goal



*Note that compliance changed from 25% to 50% between 2016 and 2017

Figure 9 provides a side-by-side comparison of the overall proportions of approved products observed in each category. This chart illustrates the decrease of approved snacks present in micro-markets from 2016-2018, the relatively unchanged presence of approved beverages, and the increase in approved entrees.

Figure 9. Overall percentage of approved items observed in micro-markets by category and year (2016-2018)



Micro-market sales data

Researchers analyzed micro-market sales data from 2016, 2017, and January-June 2018. Table 12 displays which micro-markets were present in each year, and included in the analysis; in 2016 there were 20 micro-markets, in 2017 there were 28, and in 2018 there were 30.

Table 12. Micro-markets included in the sales data analysis, by year

Agency	2016	2017	2018
Dept. of Health (DOH)	x	x	x
Labor and Industries (LNI) Tumwater	x	x	x
Health Care Authority (HCA) 626	x	x	x
Dept. of Social and Health Services (DSHS) DCS	x	x	x
Attorney General (AG)	x	x	x
Employment Security Division (ESD) 640	x	x	x
Maple Park	x	x	x
Dept. of Social and Health Services (DSHS) EAS	x	x	x
Liquor & Cannabis (L&C)	x	x	x
John L Obrien (JLO)	x	x	x
Dept. of Health (DOH) Town Center 3	x	x	x
Employment Security Division (ESD) 670	x	x	x
AGO Ecology	x	x	x
Dept. of Labor (DOL) Bristol	x	x	x
Dept. of Financial	x	x	x
Dept. of Revenue (DOR) 6500	x	x	x
Health Care Authority (HCA) 621	x	x	x
WA Lottery	x	x	x
Dept. of Revenue (DOR) 6300	x	x	x
Dept. of Revenue (DOR) 6400	x	x	x
Dept. of Enterprise Services (DES)		x	x
Dept. of Labor (DOL) Black Lake		x	x
Dept. of Social and Health Services (DSHS) 4450		x	x
Dept. of Social and Health Services (DSHS) 4500		x	x
Dept. of Social and Health Services (DSHS) Shelton		x	x
WA State Board for Community and Technical Colleges (SBCTC)		x	x
Superintendent of Public Instruction (SPI)		x	x
WA State Patrol		x	x
Dept. of Retirement			x
Parks and Rec			x
Total included	20	28	30

Top products sold in micro-markets

The Table 13 series displays the top 15 items sold in micro-markets in 2016, 2017, and the first half (January-June) of 2018. The top purchased items were similar across all years, including: cheese and egg snacks, milk, diet and regular sodas, and chips and crackers. No grab-and-go entrees were among the top-selling items in any year. Despite many similarities in top-selling items across years, top-sellers have become increasingly approved over time. Water was the number six top sold item in both 2017 and 2018; water was not a top-selling item in 2016. Additionally, in 2016 only five of the top-selling items were approved under the HNG, while seven were approved in 2017, and eight were approved in 2018. In all years these 15 top-selling items represented only approximately 20% of total items sold in micro-markets.

There were few differences in top-selling items by seasonality; each sales quarter, while the order varied slightly in terms of which item sold more, the overall top 10-15 items sold remained the same across seasons. See Appendix I for top-selling items by sales quarter.

Table 13a. Top 15 items sold in **2016** (January-December)*

Product	# of items sold	% of all items sold
Cheddar Cheese Squares	9,263	4%
String Cheese Mozzarella	5,590	2%
Hard Boiled Eggs	3,321	1%
2% Half Pint White Milk	3,216	1%
20 oz. Diet Soda	2,986	1%
Chips 2oz	2,942	1%
Chips 1.5oz	2,773	1%
Organic Hard Boiled Eggs 3 oz.	2,552	1%
Chips 2 oz.	2,378	1%
Cottage Cheese	2,248	1%
Chips 2 oz.	2,217	1%
Chips 1.5oz	2,212	1%
12 oz. Soda	2,152	1%
20 oz. Soda	1,838	1%
Crackers 2oz	1,818	1%
Grand Total	47,506	20%

**Items in bold are approved under the HNG*

Table 13b. Top 15 items sold in **2017** (January-December)*

Product	# of items sold	% of all items sold
Cheddar Cheese Squares	12,927	4%
20 oz. Diet Soda	11,646	3%
String Cheese Mozzarella	9,164	3%
20 oz. Soda	6,519	2%
Hard Boiled Eggs	5,061	1%
20 oz. Water	4,612	1%
2% Half Pint White Milk	4,341	1%
Chips 2oz	4,331	1%
20 oz. Soda Zero	3,935	1%
Chips 1.5oz	3,864	1%
20 oz. Soda Zero	3,847	1%
Organic Hard Boiled Eggs 3 oz.	3,623	1%
Chips Regular 2 oz.	3,453	1%
Chips Regular 1.5 oz.	3,168	1%
Chips 2 oz.	2,968	1%
Grand total	83,459	23%

*Items in bold are approved under the HNG

Table 13c. Top 15 items sold in **2018** (January-June)*

Product	# of items sold	% of all items sold
20 oz. Diet Soda	8,075	3%
Cheddar Cheese Squares	7,857	3%
String Cheese Mozzarella	6,640	3%
20 oz. Soda	4,737	2%
20 oz. Diet Soda	3,750	2%
20 oz. Water	3,233	1%
2% Half Pint White Milk	2,848	1%
20 oz. Soda Zero	2,791	1%
Hard Boiled Eggs	2,615	1%
16 oz. Energy Drink Zero	2,570	1%
12 oz. Flavored Water	2,528	1%
20 oz. Soda	2,017	1%
Cottage Cheese	1,929	1%
Chips 2 oz.	1,872	1%
12 oz. Soda	1,865	1%
Grand Total	55,327	22%

*Items in bold are approved under the HNG

Approved versus not approved items sold

Most items sold in micro-markets do not meet the HNG approved criteria. In 2016, 26% of total items sold were approved, in 2017, 27% were approved, and in 2018, 28% of total items sold were approved. While low, these numbers show a slight upward trend; over time the total proportion of items sold has become increasingly healthier.

This upward trend is also present in the proportion of total sales that come from approved items. In 2016, 21% of sales were from approved items, in 2017, 22% of sales were from approved items, and in 2018, 23% of total sales were from approved items.

Note that in 2017 and 2018 researchers were not able to obtain nutrition information and determine approval status for 1% of items sold. Figure 10 and Figure 11 show the percent of total items sold and total sales by HNG approval status. Note that these figures exclude all items with missing nutrition information; the total percentage is based on all known items.

Figure 10. Percent of total approved vs. not approved **items sold** by year

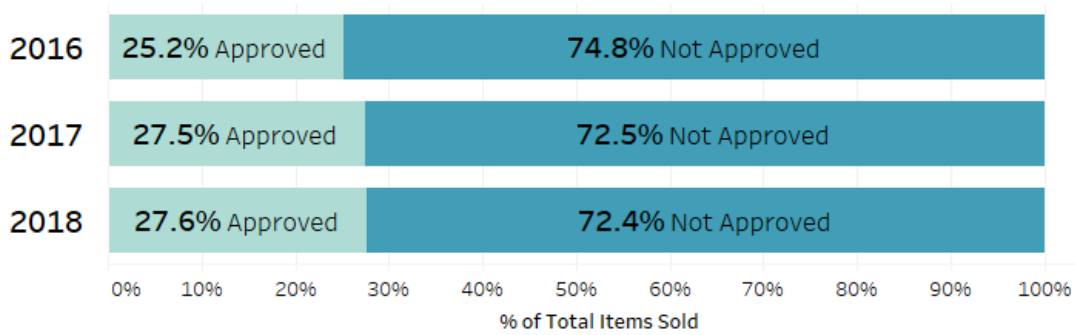
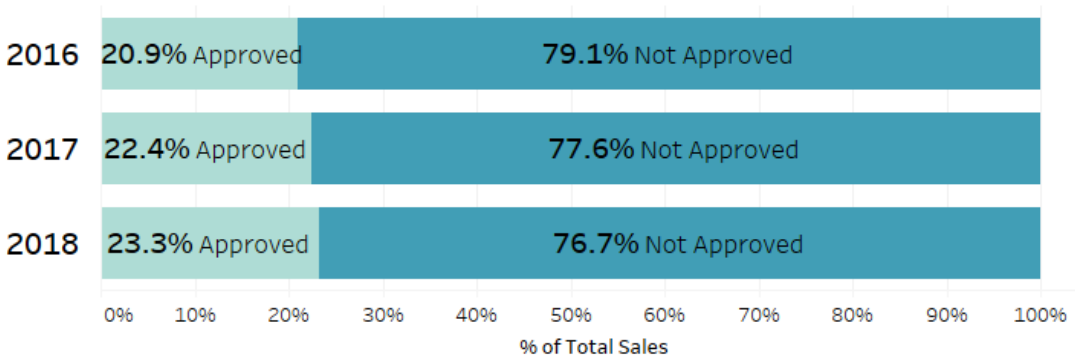
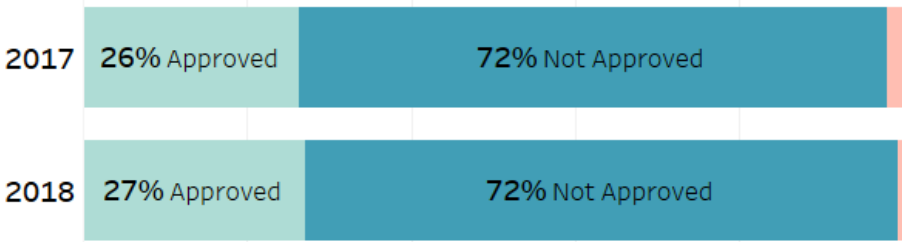


Figure 11. Percent of **total sales** from approved vs. not approved items by year



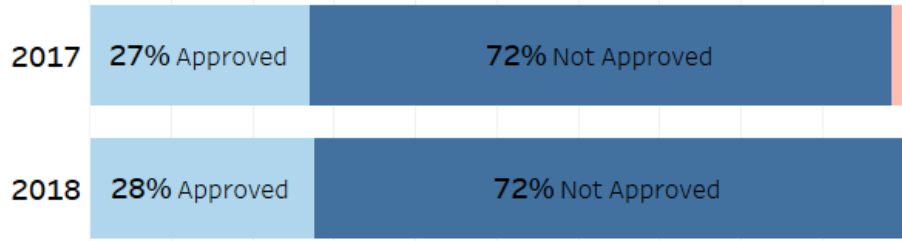
The figures below illustrate how the proportion of approved versus not approved items available in a café mirror the proportion of sales of approved versus not approved items. Figure 12 displays the percent of items observed during the June 2017 and June 2018 micro-market in-person visits that were approved versus not approved; Figure 13 displays the percentage of purchases from approved versus not approved items in the same month, in the same markets visited in-person.

Figure 12. Percent of total approved vs. not approved items **sold** in June 2017 and June 2018*



*Sales data only include the same markets observed during in-person site audits
 *The pink rightmost bar denotes items for which we were not able to determine approval status

Figure 13. Percent of total approved vs. not approved items **observed** in June 2017 and June 2018



In June 2017, 27% of items observed were approved, and 26% of items purchased were approved, while in 2018, 28% of items observed were approved, and 27% of items purchased were approved. These figures support the behavioral economic theory that purchases will reflect what is present in a store, and that increasing the proportion of healthy items in a store may result in the increased purchasing of healthy items.

Approved versus not approved status of all items sold by agency

Figure 14 shows the distribution of state agencies in 2016, 2017, and 2018, by the percent of all items purchased that were approved (i.e. the dot at 40% represents one agency, where in 2017, nearly 40% of their items purchased were approved). The trend line illustrates the on average increasingly approved purchasing behaviors across all state agencies.

Figure 14. State agencies' percent of total purchases that were approved under the HNG

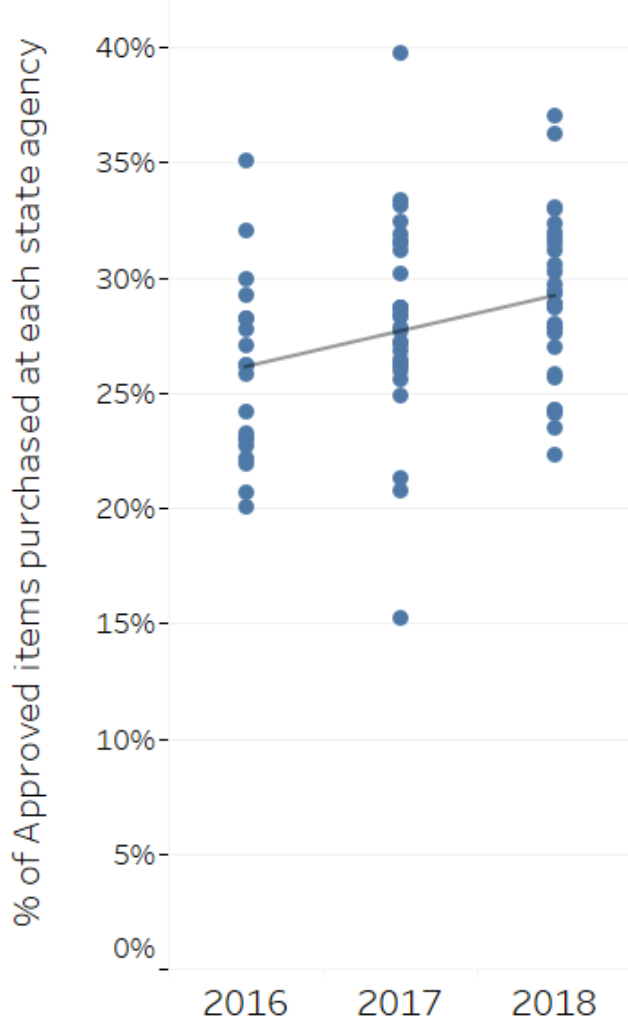


Figure 15 series below provides a more granular view of approved sales at the agency level, displaying the percent of approved versus not approved items sold within each state agency by year. Note that we excluded items with missing nutrition information from these charts (0% of items sold in 2016, and 1% of items sold in 2017 and 2018). Each chart is sorted with the agency purchasing the largest proportion of approved items listed first. To see how the proportion of approved versus not approved purchases has changed *within* each agency year over year, see Appendix J.

Figures 15 series legend:

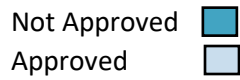


Figure 15a. Total approved vs. not approved in each state agency with a micro-market in **2016**

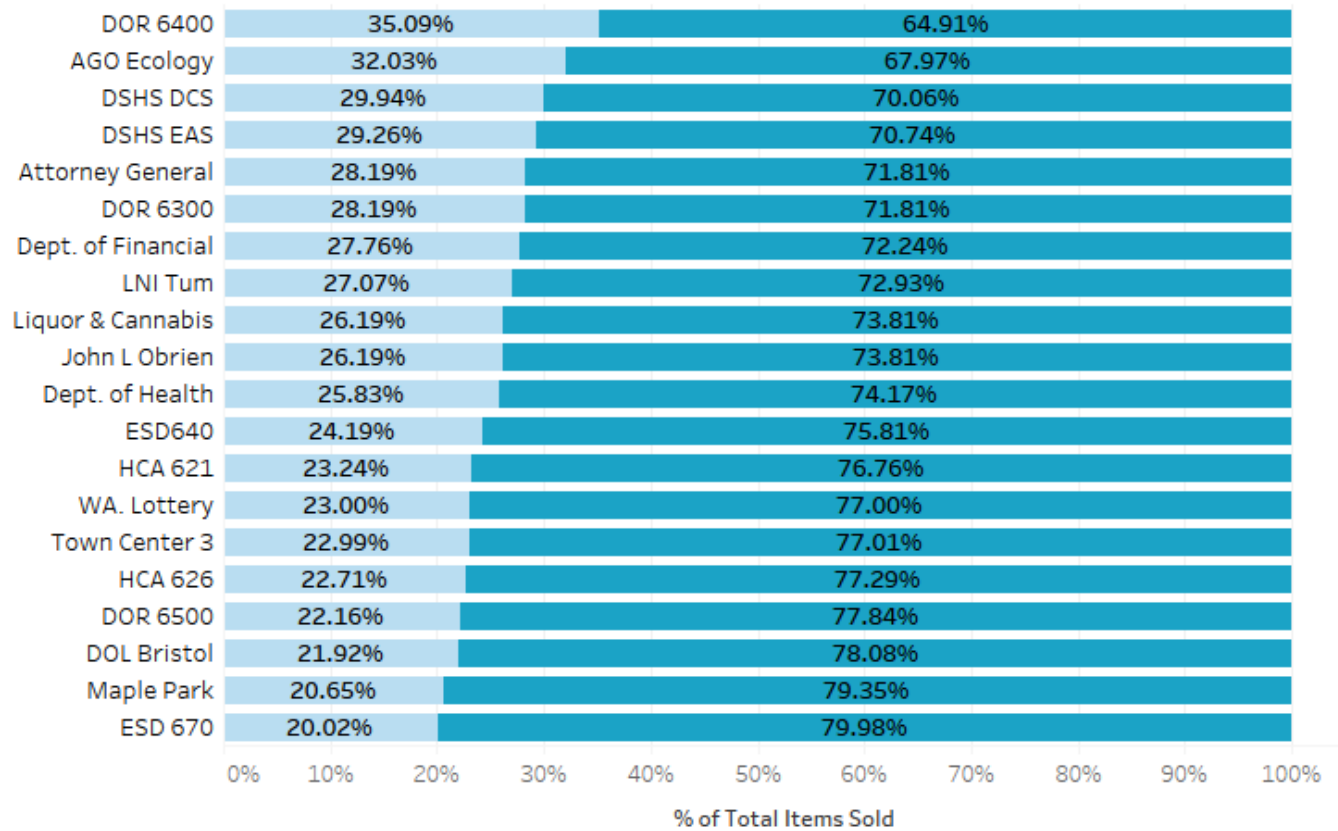


Figure 15b. Total approved vs. not approved sales in each state agency with a micro-market in 2017

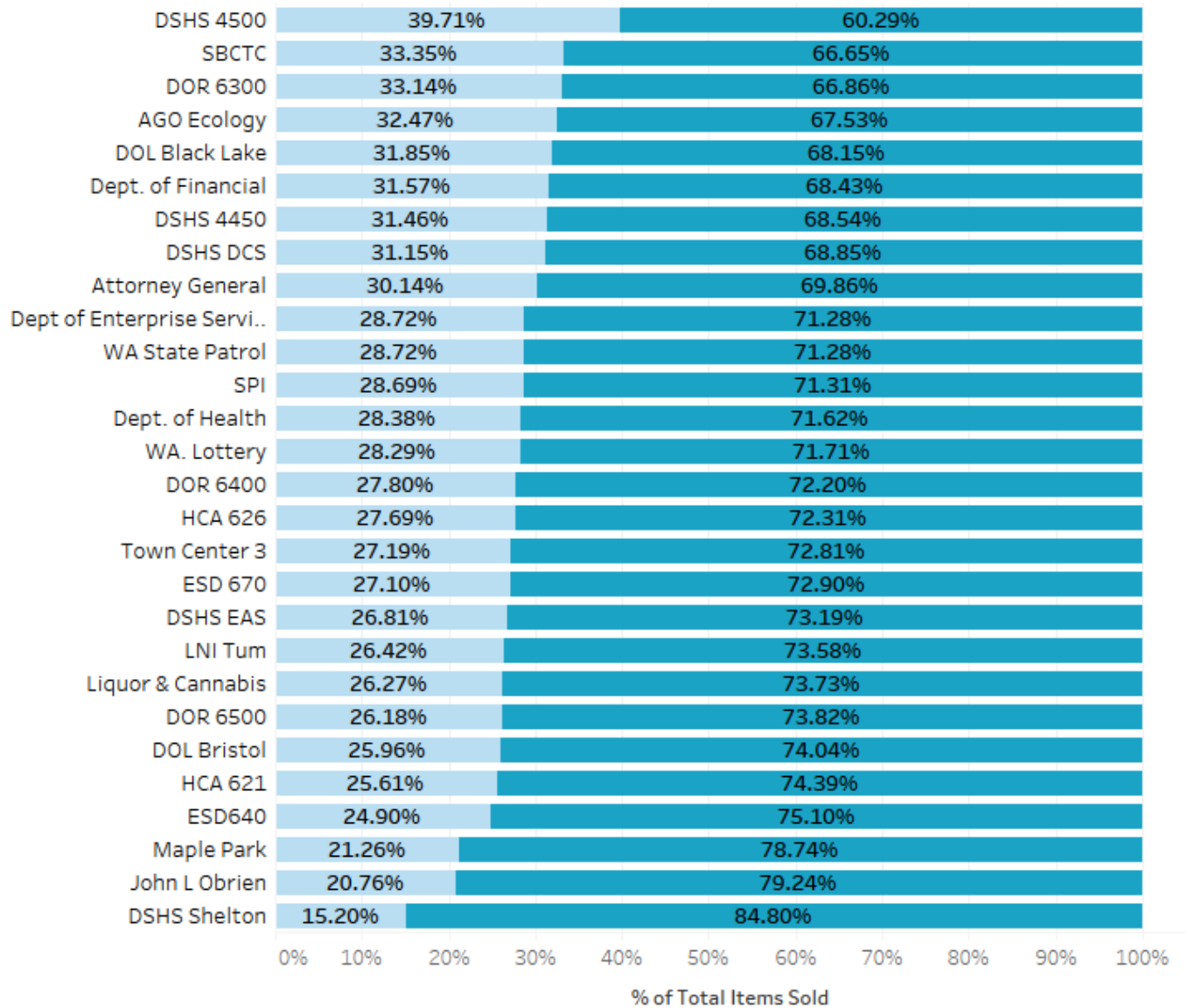
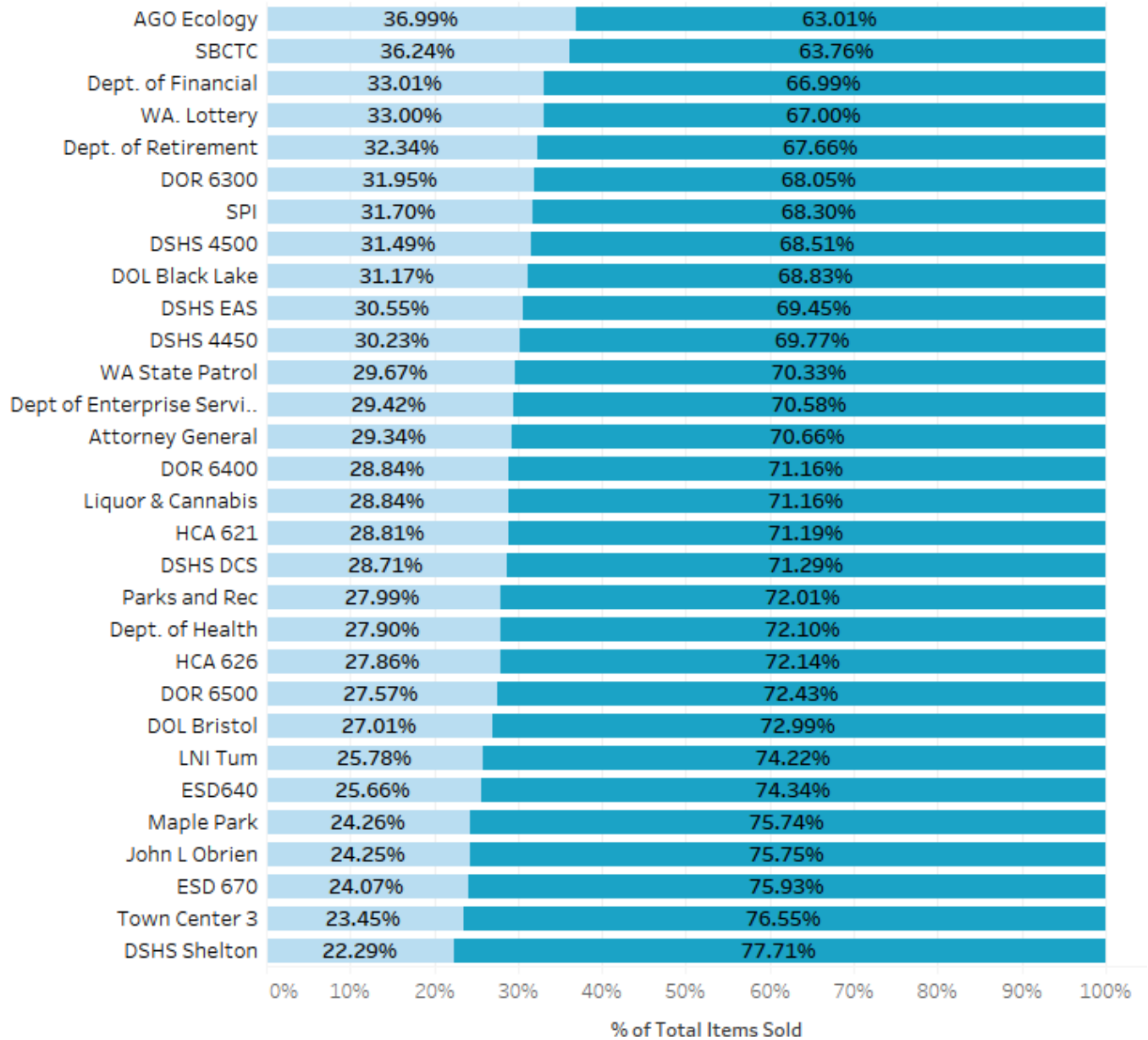


Figure 15c. Total approved vs. not approved sales in each state agency with a micro-market in **2018** (January-June)



Beverages sold in micro-markets

The Figure 16 series below displays the proportion of total beverages sales from the following categories: sugar sweetened beverages (SSBs), diet, zero, and no calorie beverages, water, non-approved milks, and approved juices and milks, as well as the percent of total beverages sold that were either approved or not approved. From 2016 to 2018, there has been a decrease in the proportion of SSB sales in relation to the other beverage categories. In 2016, 41% of items sold were SSB, compared to 38% in 2017, and 36% in 2018. At the same time, the proportion of diet, zero, and no calorie beverages sold has increased in relation to the other beverage categories. In 2016, 21% of beverages sold were diet/zero/no calorie, compared to 31% in 2017, and 33% in 2018. The proportion of water, non-approved milks, and approved juices and milks sold has decreased slightly from 2016 to 2018.

Note that 2018 data are from January-June, while 2016 and 2017 are January-December. Additionally, new in 2018 were four kombucha drinks; the approved kombucha drinks were categorized with the diet/zero/no calorie beverages, and the non-approved kombucha drinks were categorized with the SSBs.

Figure 16a. Percent of total beverages sold by beverage category and year

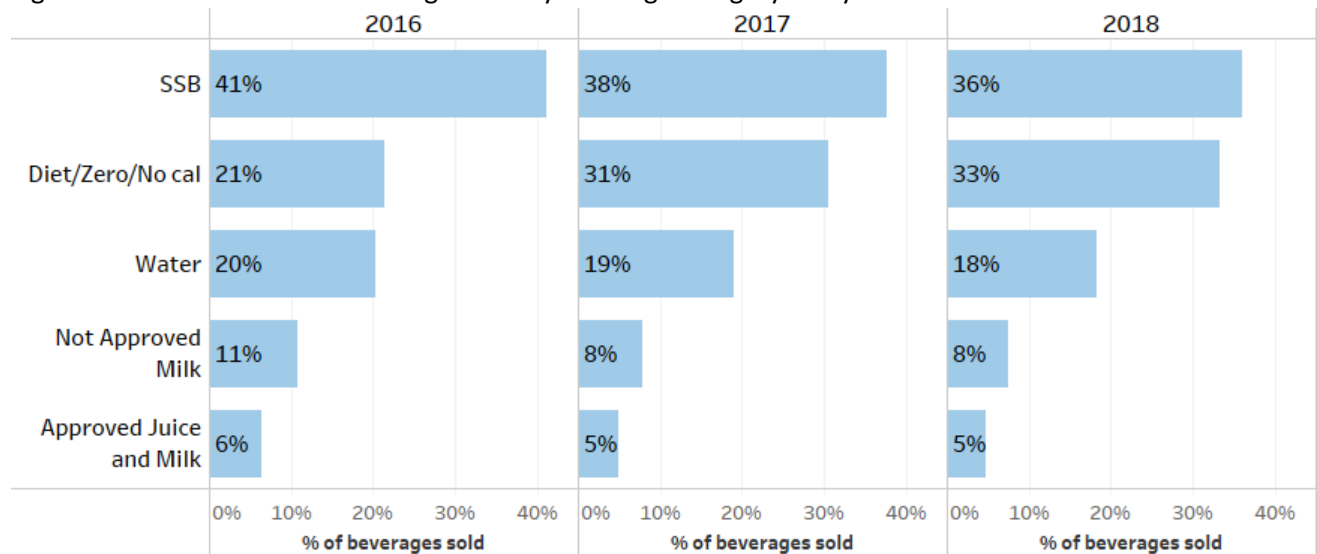
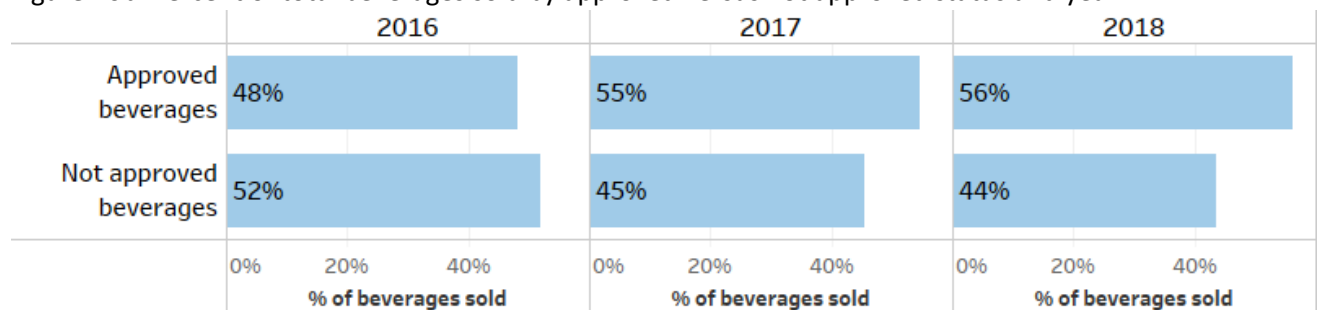


Figure 16b. Percent of total beverages sold by approved versus not approved status and year



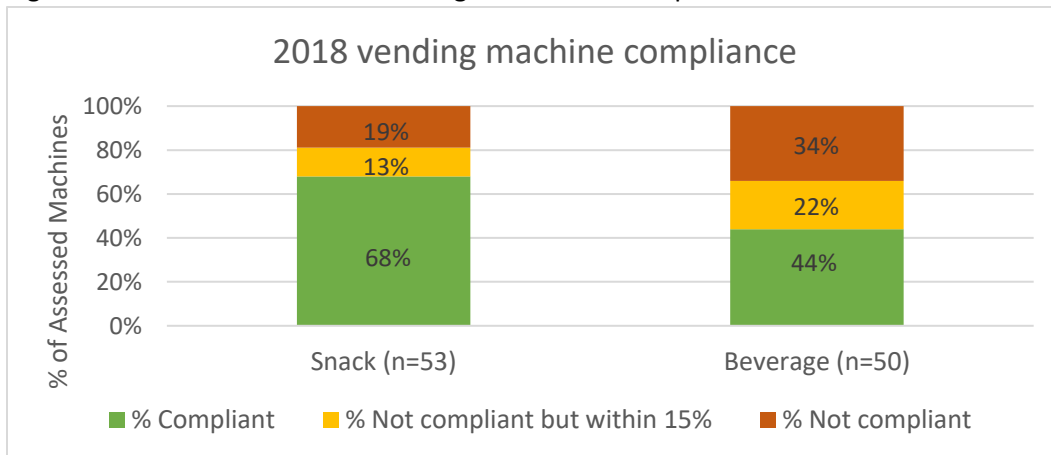
Vending

Researchers assessed 53 snack machines and 50 beverage machines for compliance with the HNG. Researchers categorized products as approved or not approved based on calories, sugar, fat, whole grain, and sodium criteria, as specified in the HNG and in line with the Smart Snacks for Schools guidelines. At least 50% of vending products must be approved for the machine to be considered in compliance. Machines that were not compliant but had over 35% of approved vending products, in other words within 15% of compliance, were categorized as “near compliance,” or “not compliant but within 15%.”

Overall 2018 vending machine compliance

Of the 53 assessed snack machines, 36 (68%) were compliant and a further seven (13%) were near compliance (i.e. 35%-49% of known products in machine were approved under the HNG). Of the 50 assessed beverage machines, 22 (44%) were compliant and a further 11 (22%) were near compliance (see Figure 17). Detailed tables of compliant machines by agency can be found in Appendix K.

Figure 17. Percent of assessed vending machines in compliance with the HNG 2018



Compliant = 50% or more of known products in machine are approved by HNG Criteria

Not Compliant but within 15% = 35%-49% of known products in machine are approved by HNG Criteria

Not Compliant = Less than 35% of known products in machine are approved by HNG Criteria

Vending machine compliance over time

Table 14 reports the number of compliant assessed vending and snack machines over the last five years. Compliance increased for snack machines in 2018 compared to 2017, and went down by 9% for beverage machines. It is worth noting that only 13 beverage machines were assessed in 2017. Figures 18 and 19 display this information while including an upward trend line.

Table 14. Total vending machines assessed and compliant over time

	# Machines Compliant / # Total Machines (%)				
	2014	2015	2016	2017	2018
Snack	0/8 (0%)	0/45 (0%)	2/29 (7%)	0/59 (0%)	36/53 (68%)
Beverage	2/14 (14%)	20/52 (38%)	23/51 (45%)	7/13 (54%)	22/50 (44%)

Figure 18. Snack machine compliance over time

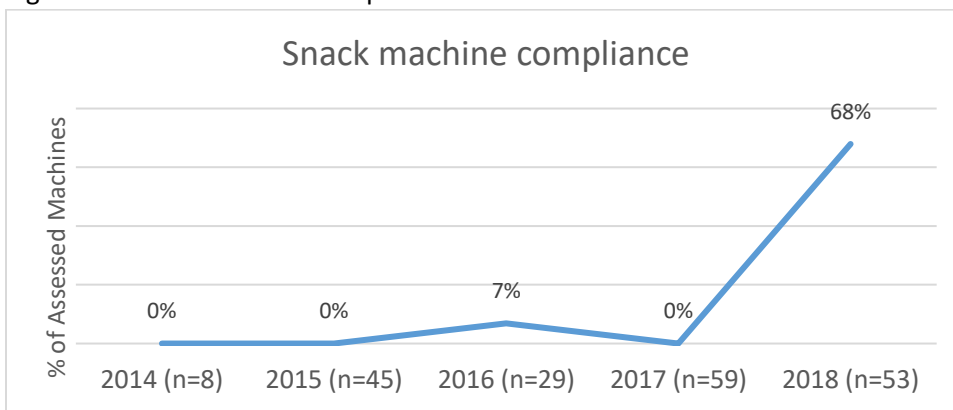
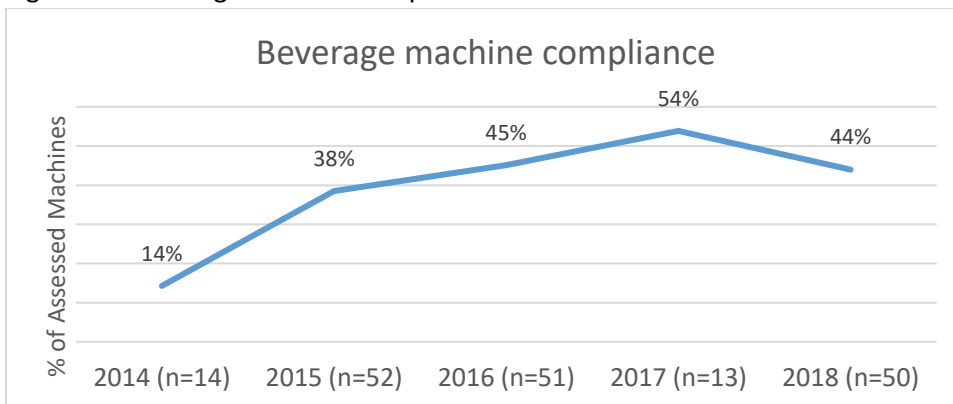


Figure 19. Beverage machine compliance over time



To further illustrate changes, researchers examined machines near compliance across assessment years. Figures 20 and 21 display the percentage of assessed machines in compliance, near compliance, and not compliant over time. Even though zero of the assessed machines were compliant in 2017, more than 60% were near compliance. In 2018, more than 60% of assessed machines (many of the same ones assessed in 2017) were now compliant.

Figure 20. Snack machine compliance status over time

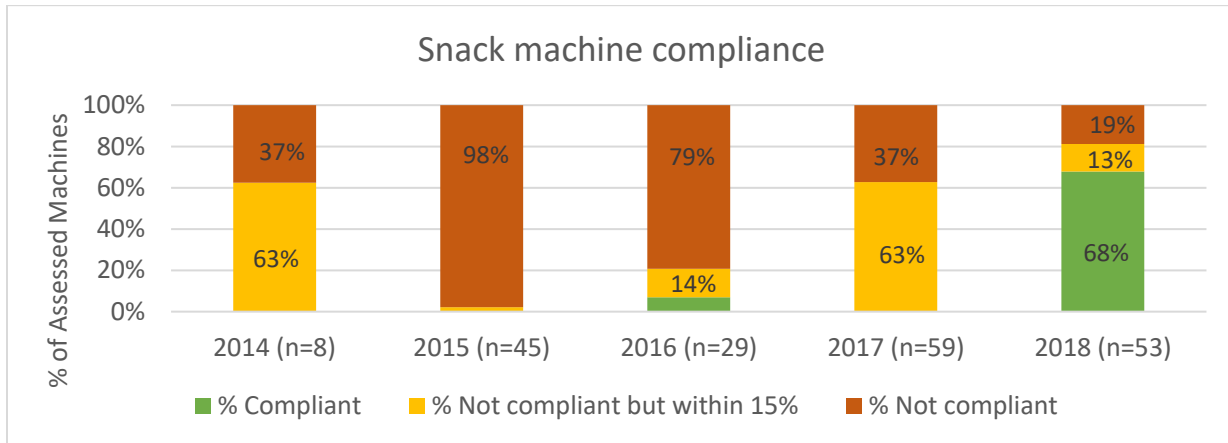
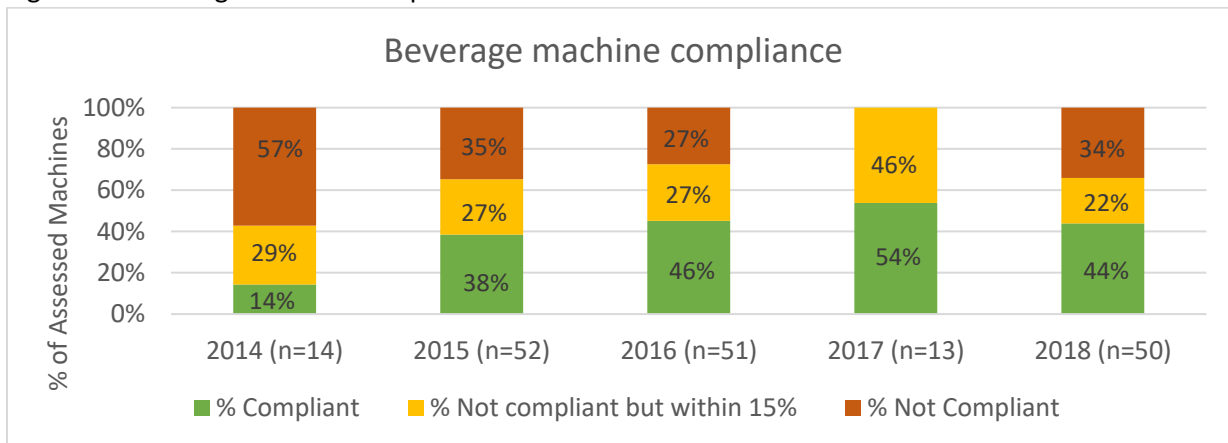


Figure 21. Beverage machine compliance status over time



Details about vending machine compliance overtime by agency can be found in Appendix L.

Vending compliance by individual food and beverage Item

An average of 49% of all *items* within each snack vending machines were approved by HNG Criteria. Snack item approval within each machine ranged from 0-59% across all 53 machines. This was an increase from the 15% average approved snack items in 2016, and the 32% average approved snack items in 2017. These data demonstrate a continued upward trend towards improved snack compliance.

For beverage machines, the proportion of approved beverage *items* within each machine ranged from 13-88% across all 50 assessed machines with an average of 46% approved beverage items. In the past, the number of approved beverages within machines has improved year over year, from 39% in 2015, to 43% in 2016, and 45% in 2017. Of note, only 13 machines of these were assessed in 2017 (13 of the same machines 50 assessed in 2018). Details of the percentage of approved items by agency can be found in Appendix M.

Case study: Department of Licensing and variation across state

As in previous years, the majority of the machines assessed in this evaluation are located in western Washington near the state capital and maintained by the same vending company. This year, the Department of Licensing provided us with photos for machines in 10 different cities, several in other regions of the state. For this agency, the only compliant machines were located in the capital. Those in other cities (and often maintained by vending companies other than the vendors serving the Olympia area) were not near compliance. As this is the only agency that provided the researchers with several photos from other parts of the state, Table 15 shows detailed results as a case study.

Table 15. Department of Licensing geographic case study

	Snack machines	Beverage machines
	# machines compliant / # machines assessed (%)	
Olympia	3/3 (100%)	3/6 (50%)
Elsewhere in WA	0/9 (0%)	0/8 (0%)
Total	3/12 (25%)	3/14 (21%)
	average % of approved items within machines	
Olympia	52%	44%
Elsewhere in WA	11%	24%
Total	21%	33%

Variation across machines

As a strategy to increase snack vending machine compliance, in 2017 and early 2018 WA DOH staff collaborated with a state contracted vendor to identify approved items for vending machines. The vendor developed a single plan-o-gram (a diagram that indicates placement of specific products in a machine) with an EO-compliant mix of approved versus not approved items to implement across all vending machines. The goal of this standardization was to simplify vending machine stocking and support compliance across all machines.

To further assess the impact of a single plan-o-gram for all snack vending machines, researchers examined the number of unique items offered in snack machines in 2017 versus 2018. To do this, researchers looked specifically at the number of unique items that appeared in at least 80% of machines

in 2018 compared to the number of unique items in at least 80% of machines in 2017. This analysis only includes machines assessed in both 2017 and 2018. See Table 16.

Table 16. Item variation across snack machines

	# of unique items in snack machines		# of unique items that appeared in at least 80% of snack machines	
	2017	2018	2017	2018
Approved	24	29	6	15
Not approved	69	52	14	8
Total	93	81	20	23

**Includes only machines assessed in 2017 and 2018; 59 snack machines in 2017, 41 snack machines in 2018.*

There is a slight decrease in the total count of unique items offered between 2017 and 2018, going from 93 unique items in 2017 to 81 unique items in 2018, while the number of unique approved items increased from 24 in 2017 to 29 in 2018. The number of unique approved snack items appearing in at least 80% of machines increased from six in 2017 to 15 in 2018. This is the result of the move to a single plan-o-gram for multiple machines, and the strategy to identify approved items, and stock these approved items in multiple locations.

Interviews

Café operator interviews

Researchers interviewed seven café operators (COs), representing nine different cafés. All of the COs interviewed were able to detail specific healthy changes that they had made in their cafés as a result of the implementation of the HNG, such as providing more fresh fruit and offering approved side dishes as their default options. Although café profitability was a significant concern to all of the COs, no COs said that the implementation of the HNG had negatively affected their financial bottom line. A key barrier to implementation was the perception by some COs that the HNG restricted choice for themselves and for their customers. Other barriers included insufficient information for COs on HNG requirements, the reason for HNG requirements, and the healthfulness of specific food products. All of the COs interviewed were interested in and willing to continue their work with the EO and HNG. Additional technical support with HNG-approved product identification, customer relations and communication with EO stakeholders could help support COs working with the HNG under the EO.

We identified four key themes from CO interviews:

1. Café profitability
2. The importance of ensuring choice for customers and café operators
3. Successes and sustainability in implementing positive healthy changes in cafés
4. Lack of clarity around HNG content and purpose

Café Profitability

All of the COs indicated that their main priority is maintaining a profitable business. These cafés are the COs' livelihoods and therefore need to be profitable to continue to operate. One CO noted, *"I'm here to make money. I'm here to serve customers and that's what we do."* –CO 7. It is important to ensure cafés are profitable throughout the implementation of the HNG. Another CO stated that *"I want Dept. of*

Health to understand that these cafés are all we have, that as a blind vendor, this is it... We want to make these [HNG] work but we're just trying to survive, we're only humans here." –CO 4.

The majority of COs described that they use café sales data as feedback for what their customers want and do not want, rather than verbal feedback from customers. Customer purchases directly influenced the product choices for all COs, and some COs specifically identified their businesses as “customer driven organizations.” The COs followed customer purchasing trends to support their bottom line even if the products were not in line with the HNG. COs mentioned that it can be difficult to balance the HNG changes with what customers value. As one CO said, *“That’s the thing, trying to figure out what part is the directive and what part is the customer demand driving it.”* –CO 2.

Some COs felt societal trends towards healthfulness moved more slowly than the timeline of the HNG evaluation allowed. One CO stated, *“I think the executive order wanted us to move too fast and we need to stay in line with what people want.”* –CO 5. All of the COs were willing to buy-in to the HNG if they saw that their customers were repeatedly buying the HNG-approved products and their profits remained steady. One CO described this sentiment, *“I have plans to try to cooperate as much as I can but I can only do so much. I want to cooperate but I mean, there’s only so much that I’m going to do without affecting my bottom line.”* –CO 1.

The majority of COs shared the perspective that the demographics of employees at their specific state agency building actively played a role in what the employees were willing to purchase. COs had been advised to charge more for premium products, but their perception was strong that employees wouldn’t pay for “premium” products. *“I don’t think they really understand who our customers are. These customers will fight you over a nickel.”* –CO2

Choice for customers and café operators

The desire and need for choice under the HNG requirements emerged as a key theme in all of the interviews with COs, both for their customers and for themselves as business managers. First, COs felt parts of the HNG took away customer choice. COs expressed feelings that customers wanted the less healthy options available in the cafés. In an effort to maintain this choice for their customers, COs reported that they were more likely to add healthy options than they were to take away less nutritious options because the latter limited the variety that their customers wanted. Furthermore, because many COs felt their customers preferred less healthy products and were not willing to purchase the more expensive, “premium” products, COs wanted to maintain a high level of variety of foods in their cafés.

Some COs also mentioned that they felt like the HNG took away their own personal choice and ability to choose what is in their cafés. One CO stated, *“I don’t have a problem serving nutritional food, I don’t. I have a problem with people telling me not to serve something. That’s different in my opinion.”* –CO 7. Some COs perceived that the HNG dictated how they should cook, and impinged on their freedom. Others felt that the HNG told them how to run their business. Some COs mentioned that trends in the food industry also determined what they could procure and sell in their cafés.

Successes and sustainability

Positive healthy changes

All COs interviewed had made healthy changes in their cafés. Café operators’ process of trial and error to bring in new HNG-approved products ultimately facilitated overall success as they found products and healthy changes that worked for their cafés. All COs additionally said that their bottom line was not

negatively affected by the HNG. However, CO's buy-in with the HNG was negatively affected when they brought in products that did not sell well. Many COs mentioned that when they introduced new items, there was no set formula for what would and would not sell.

However, COs also noted that it was possible to find affordable, healthy products that they could work with and make profitable: *"You don't have to have everything be really healthy, but there are things that are affordable that you can work with."*-CO 4. Specific successful healthy changes included offering fresh fruit, using herbs and spices to reduce sodium, and making default options healthier. Fresh fruit specifically was a salient example of a healthy change that was worth the effort/higher cost for COs because it sold well. This trend was represented in the café on-site assessments, which found eight of the nine cafés had fresh fruit available. The COs worked these healthy changes into what they were already doing in the café. Some changes, like making default options healthier, were perceived as easier to make than others, such as creating new healthy menu items. One CO noted, *"I tried to keep all of my defaults as the low fat thing and if customers want to ask for something different I'll keep it around."* – CO 6. This again is reflected in the results of the café assessments, which found that four of the nine cafés offered non-fried vegetables or fruits as the default side dish with meals.

Personal support for HNG vision

Overall, the majority of COs had positive personal views of serving healthy products. These personal values were a facilitator for their interest in and willingness to continue with the HNG. COs felt that their personal healthy habits helped the HNG not be overwhelming. For example, as one CO mentioned, *"I don't use a lot of salt, I don't use a lot of salt at home so that's just something that I don't do in the café."* –CO 3.

Clarity of HNG content and purpose

COs stated that a key challenge to HNG implementation was insufficient communication and lack of practical information from WA DOH. This resulted in feelings of confusion for COs and misinterpretations of HNG requirements and café compliance status. This additionally resulted in tepid buy-in and a need for more technical assistance to clarify certain aspects of the HNG.

While the majority of COs reported good relationships and/or open communication with WA DOH and Department of Services for the Blind, many COs felt there was insufficient communication regarding the HNG. Some COs cited receiving and hearing differing opinions and direction from the many entities supporting HNG implementation (WA DOH, Wellness Coordinators, and Department of Services for the Blind) of what strategies to follow. Other COs had not read through all of the information initially sent regarding the HNG, feeling that there was too much information to sift through. Some COs felt that the HNG overlooked the nutritional value of certain foods and food groups.

This inconsistent communication led to general feelings of confusion among COs and led some to believe that their cafés were in compliance with the HNG when café assessments conducted by CPHN researchers found that they were not. For example, many COs mentioned bringing in items that they thought would be healthier, but many of these products were not approved in the café site assessments. This lack of clarity regarding which products were HNG approved and which were not also extended to other aspects of the HNG, such as promotion. Low-sodium promotion, specifically, was a source of confusion for many COs who were frustrated by having received differing recommendations on low-sodium promotion from TA-providers (the café site assessment results showed that only one of the nine cafés promoted a low sodium entrée).

The uncertainty felt by many COs negatively affected their buy-in with the HNG. Many perceived healthier products to be more expensive and harder to find, which also negatively affected buy-in. One CO mentioned how ordering HNG-approved products from purveyor websites was not straightforward, saying, *“It’s difficult to choose the healthy options to buy from the purveyors online. Healthier items often do not have a proper description online or on order guides from purveyors. Labeling is often misleading as far as actual ingredients and content.”* –CO 4.

Other COs stated that it was difficult to find a variety of approved options to bring into the cafés, especially if they wanted to maintain the profitability of their cafés.

COs expressed a desire for more technical assistance to clarify these uncertainties. Some COs felt inadequate support was given around topics that were already confusing, such as low-sodium promotion. One CO stated, *“So I mean that low sodium Hormel ham that we brought in was almost twice as expensive as what we normally brought in and we couldn’t work with it. That’s not to say that we couldn’t ever bring in any of those products but in order to make it more compelling, DOH should have some other justifications or some other solutions for it [besides advocating to charge more for it].”* –CO 2.

Further, the majority of COs didn’t have their own system in place to track their café’s HNG compliance status, and instead used the annual evaluation results from WA DOH as the primary way to track their status. One CO noted, *“The information from DOH has been given but it doesn’t really play into what we’re doing.”* –CO 2. This annual feedback was how the majority of COs communicated and interacted with WA DOH

Vending stakeholder interviews

CPHN researchers interviewed three vending key stakeholders, representing the two primary vendors for Western WA state agencies. One of the interviewees had been in their position for about one year and was unable to provide a historical perspective on working with the HNG beyond that time period. The other two stakeholders, however, were able to provide longer-term perspectives. Interview results are categorized into four over-arching topic areas: (1) approaches to meeting the guidelines; (2) consumer trends; (3) perceived impact of HNG compliance on consumer purchases and company operations; and, (4) experiences and challenges with implementation.

Approaches to meeting HNG

Vendors reported trying a variety of approaches to meet the HNG, including increasing vending slots, considering approved and not approved slots separately when planning, and testing new items. All interviewees indicated that although customers had already been requesting more approved foods and beverages prior to the EO, they would not have set a goal of 50% approved items in vending machines and micro-markets without the EO and the requirements of the HNG. Prior to adoption of the HNG, vendors began looking at increasing healthy options, and lacking a standard definition of “healthy,” they applied their own company standards.

Prior to the EO, vendors’ focus was on including a few approved items, while leaving the not approved items in place. In order to comply with the HNG, vending companies increased the amount of vending skews (slots) in the machines in order to add approved products without removing the not approved products. This change was made first in the snack machines, and more recently in beverage machines. In stocking machines since the EO, vending companies look at the approved and not approved slots as two

different machines. For snacks, decisions about which items to stock center on identifying best-sellers in each section, and including more like-items. Vendors will test new items in a small number of locations prior to stocking them widely. With regard to beverages, vendors reported adding more no and low-calorie beverages like unsweetened ice teas and, zero calorie sports drinks and vitamin-enriched beverages. Products referred to as “fillers” are used to fill some of the approved slots. Filler items (e.g. zero-calorie vitamin-enriched water) meet the guidelines, but are not necessarily strong sellers. Vendors also reported stocking more water in vending and micro-markets, and making efforts to mirror all vending machines in buildings not covered under the EO with those that must comply with the HNG.

Popularity of items are also considered for fresh foods such as salads and sandwiches in micro-markets, however these foods must change frequently because customers expect more variety in these types of foods compared to snacks or beverages.

Vendors reported that an estimated 60% of employees who frequent micro-markets utilize a Market Card. Vendors use these purchasing records to directly provide promotional and other credit for future market purchases, and to evaluate shopping patterns and product requests from frequent shoppers. These customer shopping data are an important tool for vendors in determining how to stock vending machines and micro-markets.

Consumer trends

Vendors reported that, increasingly, consumers seek variety and convenience. This trend has led to the dramatic increase in the placement of micro-markets as an alternative to traditional vending machines because, due to micro-markets’ size, it is easier for vendors to offer more variety as compared to vending machines. Vendors are innovating to make micro-markets smaller and more accessible so that previous vending locations can become small micro-markets. While vending machines will continue to serve a need for some smaller locations (e.g., rest stops), vendors are promoting micro-markets to new accounts and are more discriminating in their placement of new vending machines. Currently, vendors estimate the proportion of micro-markets to vending machines in buildings at 70%/30%, respectively.

Vendors described a new generation of consumers who are more aware of health risks in products they are eating and much more knowledgeable about food ingredients. One stakeholder described them as “...pickier than baby boomers” –VS3. Vendors felt that customers are requesting “clean” food, which one vendor defined as being able to pronounce everything on the label.

Vendors stated that customers continue to request “low carb” and “low sugar” items, however sugary beverages are still the number one beverage seller. “–there’s a younger generation buying it, and they are buying less of it. By that I mean it’s more of a treat vs an everyday occurrence. It might be one Coke vs three Cokes.” -VS1.

Vendors described increased sales in lower calorie energy drinks and items like sparkling water. Another trend seen was for beverages with natural sweeteners like stevia and xylitol. Tall, thin cans and “retro” items like Classic Coke in a bottle with real sugar were also described as popular.

Perceived impact of implementation of guidelines

The changes required to comply with the HNG required a large investment of time, effort, and resources by the vendors. One interviewee addressed this issue by stating “it’s costing money to make changes, but change is inevitable and we are absorbing it... we did this based on contracts and commissions

without any extra work. Now that it's causing extra work, we should renegotiate some of those percentages" – VS3. In spite of the effort required to make the changes, vendors agreed that overall the change toward providing more healthful items was good.

Vending companies see the trend toward providing healthier options as successful, in that approved items are some of the top selling items in the markets. Vendors felt that initially, the changes were not resulting in increased sales because consumer choice was driven by a desire for "pleasure food" (items not approved under the HNG guidelines). Vendors stopped replacing these items every time they ran out and eventually customers began purchasing approved products. Providing more approved options helped – vendors aimed to provide more variety for both not approved and approved products. One interviewee reported that *"More healthy stuff is selling because we made them try it. Now it's kind of a good balance for what they're buying – every year we're getting closer to being even-even for sales, rather than selling more pleasure items"* – VS3. Vendors noted that the increase in sales was especially observed in micro-markets where customers see a large variety healthy approved choices that are offered.

Implementation of the HNG was not reported to negatively impact profitability of vending or micro-markets. With regard to beverages, the requirement to stock healthier items has not affected profitability. One reason is because the "offset" is that customers will buy water, which is one of the most profitable beverage items for vendors. One interviewee indicated that vending profitability is probably higher within the last five years partially due to the fact that machines have switched to cashless options (e.g. Apple Pay), with ease of use being an important factor in both vending and micro market use. Micro-markets are more profitable over time also because factors such as theft and providing the right mix of fresh and shelf-stable products have been worked out.

Experiences and challenges

Working in state agency buildings

Vendors shared that there was an initial tension between café operators and micro market operators as each group worked on developing profitable businesses in the same state buildings. They believe that café operators were initially concerned that customers would opt to utilize micro-markets instead of cafés. However, vendors report that micro-markets mostly serve overflow due to lines in cafés, and that the fact that a proportion of proceeds from markets goes toward helping the Business Enterprise Program - which supports café operators – also increases café operator support of the micro markets.

The variability of both the customers and the physical configuration of buildings that vending companies must serve under the state contract can present certain challenges. Some vending machines are in covered under the EO are in locations where products move slowly. Vendors stated that when these machines are made compliant with 50% approved items, products move even more slowly. Some buildings house more than one agency, and a mix of profitable and less-profitable machines may exist. *"This is part of the package we get with state accounts. You get the good with the bad"* – VS3. Scenarios also exist where a micro-market is in building with multiple agencies, but employees from one or more agencies do not cross over to the area with a micro-market. While there may be several hundred employees in a building, only a fraction may be able to access the micro-market.

Understanding the HNG

Vendors felt that it was helpful when DOH aligned snack and beverage guidelines with the Smart Snacks in Schools guidelines. Vendors cite using the Smart Snacks Product Calculator¹ and/or seeking assistance from DOH staff when determining whether or not snacks and beverages comply with the HNG. While vendors generally feel that the guidelines are clear, they express that grey areas exist around what is considered “healthy” and is approved. When determining whether or not a product qualifies under the HNG, they believe that different interpretations may take place.

Customer demand

Vendors are interested in meeting customer demand for products, but find that they often request items like non-GMO, locally grown and/or organic foods which they do not purchase, often due to their higher price when compared with their counterpart products. Although comment boxes exist in some locations, vendors lack a systematic way of collecting customer input about products they would like to see in vending and micro-markets, and acceptable pricing for those items.

Obtaining approved products for vending and micro-markets

Vending companies have approached manufacturers to ask for certain products, but often find that even the smallest requested changes (e.g. a submarine sandwich without pastrami) are not readily addressed by manufacturers because of the relatively small demand for fresh items in micro-markets, relative to their other products. If a manufacturer agrees to make a product change, the process can take months. Vendors stated that most large manufactures like General Mills and Kellogg’s are working on snack foods that appeal to the school nutrition market as opposed to meeting the tastes and requests of adults, so meeting the snack needs of vending companies serving buildings covered under the EO is a low priority for them. Another potential challenge is that vending is a relatively small component of some of these companies’ markets, and they may be reluctant to meet upcoming packaging requirements for calorie counts on the front of products sold in vending which go into effect in 2020. Ultimately, vending companies find that they are limited in choice to looking over the full list of items already available and seeing what they can get that works within the guidelines.

Challenges stocking machines

When new products are selected for inclusion in vending machines, sometimes a change in the machine, such as a modification from one kind of slot to a spiral, is required. This change takes someone with specialty skills and the change can take months to implement. One interviewee stated that *“this is a hardship we see that no one asks about”* – VS3.

Stocking products in micro-markets has some unique challenges. Due to the demand for a changing variety of fresh items such as salads and sandwiches, and the shorter shelf-life of these items, vendors generally have a high volume of throw-away items. Micro-markets that look full are more attractive to customers, so this also contributes to their higher volume of food waste. Identifying fresh and frozen items for micro-markets which meet the guidelines can be especially challenging. Some items which are marketed as “healthy” such as Lean Cuisine and Healthy Choice often times are not approved under the HNG. Also, corporate offices have buyers who typically deal directly with sandwich and salad makers. They sometimes make decisions to bring in new “healthy” items which have appeal for the 500-600

¹ The Smart Snacks Product Calculator is a standardized tool for determining if a product meets the USDA Smart Snacks in School nutrition standards: <https://foodplanner.healthiergeneration.org/calculator/>

markets they service, but wind up not meeting the criteria for placement in the relatively small number of micro-markets located in buildings covered under the EO.

Evaluation

Researcher and WA DOH requests for data from vending companies is time consuming and can be a hardship. Still, one interviewee expressed gratitude that evaluators are taking on the task of analyzing and interpreting the data provided. *“I’m glad you guys came in to do data stuff. Between me and the DOH, that was going to be a whole new project. Supplying data costs me a lot of time. If I had to try to digest all that data, it would be even harder.”* - VS3.

Ongoing support needed

Each interviewee expressed gratitude for the help received from WA DOH staff as they work to implement the HNG. There were two specific requests for additional assistance. First, vending companies would like continued follow up from DOH on which machines and micro-markets are in compliance. Second, they would like better information about what consumers in buildings covered under the EO would like to see in products carried in vending machines and in micro-markets.

Discussion

Although most cafés, micro-markets, and vending machines are not in compliance with the EO, from 2014 to 2018, all food service venues have made positive changes to improve the food environment of state agencies.

In-depth interviews with café operators and vendors, as well as the secondary analyses of sales data, illustrate efforts made towards compliance with the HNG, the challenges along the way, and the positive trend in the presence and sale of approved food and beverage items. As described in previous evaluations and discussed by the café operators in their 2018 interviews, the HNG lacked the necessary clarity and accompanying technical support for all cafés to reach compliance.

This lack of clarity resulted in a discordance in café managers’ perceived compliance and their ongoing positive efforts to improve the healthfulness of their cafés, and the specific requirements of the HNG. Additionally, changes in HNG compliance guidelines first in 2016 for cafés, then in 2017 for vending in micro-markets, while positive for alignment with national nutrition standards, made it challenging for operators and vendors to come into compliance, as well as for evaluators to compare compliance results across years. Finally, the café in-person assessment tool, designed to measure compliance with each HNG criteria, also contains several subjective measures which may not fully capture café efforts towards compliance.

Discussion of evaluation questions

As this evaluation report is the final report of the five-year evaluation period, we have framed this discussion by evaluation question as we discuss both the data presented above and the results across all years of evaluation.

How does Executive Order 13-06 impact the food environments of affected venues including worksite cafés, micro markets and vending machines? How have food environments changed since the HNG were implemented?

The EO spurred café and vending operators to examine current practices, reduce the presence of high-fat, high-sugar, and high-sodium products, and increased offerings of approved foods and beverages that align with the Dietary Guidelines for Americans.

Cafés

Utilizing compliance with basic criteria as a primary measure, food environments overall in large cafés were healthier than medium sized cafés, with larger cafés closer to compliance over time than their medium-size counterparts. Basic criteria scores averaged 20/25 in large cafés and 17/25 in medium cafés.

A steady trend upward was seen across the evaluation period in cafés offering less than or the same number of SSBs, compared to zero or low-calorie beverages. Also, cafés decreased the practice of automatically including chips with meals each subsequent evaluation year. Improvement over time was also observed among cafés offering only low fat and nonfat milk; those offering milk as the default for coffee service; and those offering low fat and nonfat dairy products as defaults.

Throughout the assessment period, all cafés offered whole grain-rich and lean protein options daily, and at least one non-fried fish option per week. In the final year of the evaluation, all cafés reported offering small dessert portions and foods free of trans-fats, and more than half are purchasing low sodium canned tomatoes and deli meats.

Vending

Limitations of vending assessment methodology preclude the ability to track individual vending machine compliance across years, as machines and buildings were not matched across the evaluation period. However, vendors have increased the number of approved foods available in vending machines, and in 2018, the primary western WA vendor implemented a program to ensure vending compliance going forward through the use of a consistent plan-o-gram.

Micro-markets

Micro-market food environments have improved over the course of the evaluation period, with an increasing number of approved items among the top 15 items sold each subsequent year (2016-2018). Vendors attribute this success in part to the increase in variety of foods offered in micro-markets. Over this time period, the total number of approved items sold and approved items sold as a percent of total sales increased each subsequent year, and the number of SSBs sold as a percent of beverage sales declined each year.

To what extent are affected buildings observing the HNG across food service venues? How has HNG compliance changed over time?

Despite the positive changes described above, most food service venues in state agency buildings are not yet in compliance with the HNG.

Cafés

In 2018, only one café was in compliance (this was the first café to be in full compliance since HNG implementation). All nine cafés have in all years met the standards for the ‘additional criteria’ section under the HNG, but these criteria are not required or measured as part of compliance.

Micro-markets

In 2018, only one micro-market was in compliance with the HNG beverage requirements, and no micro-markets were in compliance with the entrée or snack requirements. However, over the last two years of the evaluation, when a larger number of the same micro-markets were assessed, small improvements in compliance were seen overall among beverages and entrees.

Vending

In 2018, 68% of snack machines were compliant, and 44% of beverage machines were compliant.

What are the effects of HNG implementation on micro-market sales?

Since 2016, the proportion of micro-market sales coming from approved items (versus not approved items) has steadily increased. In 2016, 21% of sales were from approved items, in 2017, 22% of sales were from approved items, and in 2018, 23% of total sales were from approved items. The same upwards trend is true in the proportion of total items purchased that are approved items under the HNG; in 2016, 26% of total items sold were approved, in 2017, 27% were approved, and in 2018, 28% of total items sold were approved.

Note that while the upwards trend is the same in total items sold and total sales, a lower percentage of total sales come from approved items than the percentage of items sold that are approved. This could potentially mean that healthier items on average are slightly less expensive as compared to not approved items, or that approved items are on average smaller than not approved items, lowering their cost in comparison; entrees are the category with the highest proportion of not approved items, and these items may tend to also be more expensive due to product size, increasing the average cost of not approved versus approved items.

What were the successes and challenges of HNG implementation?

Successes include positive changes in food service venues’ food environments and commitment of café operators and vendors to work toward compliance with the HNG. However, the challenge remains of achieving HNG compliance across all venues.

In interviews, café operators identified three key challenges from their experiences implementing the HNG: maintaining café profitability, ensuring choice for customers and café operators, and lack of clarity around the HNG’s content and purpose. Café operators were concerned about maintaining profits, prioritizing their bottom line over HNG compliance, and were concerned that the HNG limited their ability to choose what foods to serve, and their customer’s ability to choose what food to purchase. Furthermore, the lack of clarity and a lack of seeing the clear purpose for each HNG requirement left a significant disconnect between café operators’ perceived HNG compliance and the evaluator-observed

compliance reported here. Because all café operators had made positive, tangible steps towards incorporating approved foods and minimizing not approved foods, nearly all café managers believed that their cafés were in compliance with the HNG. This strong disconnect, between perceived and actual compliance, is an opportunity for WA DOH and those providing technical assistance to café operators to work to clarify and describe the purpose of each HNG criteria, and to develop a plan to come in to compliance.

The large increase in the number of vending machines in compliance is likely due in large part to the technical assistance provided to the vendors by WA DOH in early 2018. This is a strong success as well as a potential model for how to support other vendors and café operators to increase compliance.

What are the primary lessons learned and suggestions and recommendations for sustaining HNG implementation?

The findings presented here, as well as the findings across all evaluation years, point to several key lessons learned. First, it is crucially important to clearly articulate both the requirements of the HNG, and the purpose of these requirements. Second, café and vending operators appreciate and desire technical assistance and support in both understanding the HNG, and in identifying changes they can make and products they can stock in order to be in compliance. Third, while consumer trends and eating habits are beginning to trend more towards approved items, this is a slow process. The initial EO implementation timeline asked cafés and vendors to change more quickly than consumer demand and trends; this gave operators pause as these businesses are their livelihoods, and therefore must maintain profitable. Fourth, although compliance is low, many positive, healthy changes have taken place in all state agency food environments. Developing a system for acknowledging and tracking these smaller successes, as opposed to simply tracking compliance, will benefit all key stakeholders as we recognize this work and encourage future, ongoing work in this area. And finally, café operators and vendors rely primarily on information they received from product sales to determine what types of products consumers and their customers are interested in. Identifying a way to gather more customer input could allow café operators and vendors to understand what types of products people want and would buy, and allow them to potentially make changes more quickly in order to come into compliance.

Recommendations for WA DOH

HNG clarity and purpose

1. Conduct a comprehensive review of the café evaluation tool and edit as needed to enhance clarity and objectivity. For example, “healthier items placed more prominently – closer to customers and at eye level” could be revised to include specific ratios of approved to not approved products on middle vs. bottom shelves.
2. Provide an evidence or best-practice-based rationale explaining why certain foods are promoted or not promoted by the HNG to help communications with COs and vendors and clarify HNG.
3. Clarify recommendations for defining and promoting low-sodium products.
4. Review the requirements for low-fat and healthy milk products with COs to correct any misunderstandings about 2% liquid milk or sweetened milk products counting toward compliance. Determine where nondairy milk products fall within HNG classifications.

Technical assistance and support

5. Develop lists of approved items for cafés and vendors to choose from to stock. For cafés, field this idea at a Business Enterprise Program meeting to foster CO buy-in and ensure they support the idea. Emphasize that there is room for CO choice when choosing HNG-approved products.
6. Continue working with food suppliers and vendors to identify and communicate customer demand for healthier products. Develop a systematic and comprehensive way of receiving customer/employee input about products desired in vending, micro-markets, and cafés; share information with vendors and COs.
7. Work with COs and vendors to provide materials for promotion of HNG-approved options.
8. Provide training and support to COs regarding means of reducing sodium in foods, e.g. food procurement strategies and recipe modification to reduce sodium and enhance flavor.

Communication

9. Work with and build a presence at café Business Enterprise Program meetings that occur four to five times per year. These meetings are an opportunity for WA DOH to provide individualized support to COs, build relationships, and build resilience and sustainability to CO turnover.
10. Create a space for Business Enterprise Program and non-Business Enterprise Program COs to share successful strategies amongst themselves. A helpful specific focus area for these strategies is promotion. A discussion topic could be, ‘How are cafés that carry low-sodium or HNG-approved products promoting those products?’ And, ‘what are strategies that COs can use to offset the costs of procuring low-sodium products that may be more expensive?’
11. Provide ongoing feedback about progress toward compliance in cafés, micro-markets and vending; share evaluation results.

Limitations

The café and micro-market samples we included may or may not be representative of other café and micro-market compliance with the HNG. The samples of cafés and micro-markets are limited to the greater Olympia-area due to their accessibility for researchers and may not be representative of cafés or micro-markets in other geographic regions.

The timing of visits to cafés and micro-markets could have impacted the assessment results. Micro-market visits took place before, during, or after typical lunch hours, which may have affected the availability of some products; visiting between stocking days may also have affected availability of products. While all café visits took place between peak breakfast and peak lunch hours, the day of the week varied. Café staff frequently mentioned differences in items offered depending on the day of the week. For example, highly perishable items such as fresh fruit may not be fully stocked on a Friday. In addition, researchers scheduled visits with café operators in advance. Accordingly, it is possible that café operators may have altered their offerings for the day of the scheduled assessment. Furthermore, all data collected for cafés, micro-markets, and vending machines were collected at one point in time. The data therefore represent a snapshot of available offerings and may not be representative of the typical offerings for each environment. Moreover, the products present at the time of evaluation may be illustrative of what is leftover or less popular with customers, rather than what is typically stocked. Additionally, beverage machine photos were taken by agency staff and Wellness Coordinators throughout the day, while snack machines were photographed by vending staff at the time of restocking.

Additional limitations stem from subjectivity in some aspects of the evaluation. Although most of the criteria are well-defined, differences in interpretation occurred across evaluation years; different researchers collected data in each evaluation year. In addition, some of the criteria depend on self-reporting from the café operators or staff, without the opportunity for verification.

Finally, changes in the HNG between evaluation years makes it difficult to compare compliance results between years. For example, the number of calories and sodium allowed in food items in vending machines and micro-markets was reduced for the 2017 evaluation, causing fewer products to be classified as approved. Vending machines were not matched across evaluation years, which also makes comparisons between years difficult.

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Tables Index:

Table 1. Evaluation data sources

Table 2. Cafés assessed throughout implementation, by year

Table 3. Micro-markets assessed in 2018

Table 4. Number of beverage and snack vending machines assessed, by agency

Table 5. Proportion of cafés meeting basic criteria from baseline to 2018

Table 6. Percentage of cafés meeting additional criteria for food and beverages, by year (2015-2018)

Table 7. Percentage of cafés applying additional behavioral economics strategies

Table 8. Number of cafés offering healthy products at more, less, or equal price compared to unhealthy products, by product and year (n=9)

Table 9. Proportion of cafés offering >50% healthy options by food category, by year

Table 10. Café placement and promotion criteria, by year

Table 11. Percentage of approved food items observed at agency micro-markets, by year (2016-2018)

Table 12. Micro-markets included in the sales data analysis, by year

Table 13 series. Top 15 items sold

- Table 13a. Top 15 items sold in **2016** (January-December)
- Table 13b. Top 15 items sold in **2017** (January-December)
- Table 13c. Top 15 items sold in **2018** (January-June)

Table 14. Total vending machines assessed and compliant over time

Table 15. Department of Licensing geographic case study

Table 16. Item variation across snack machines

Figures Index:

Figure 1. Basic criteria scores for medium size cafés across evaluation years (2015-2018)

Figure 2. Basic criteria scores for large size cafés across evaluation years (2015-2018)

Figure 3. Additional criteria scores for medium size cafés by year (2015-2018)

Figure 4. Additional criteria scores for large size cafés by year (2015-2018)

Figure 5. Total number of café operators purchasing specific low-sodium products (2015-2018)

Figure 6. Number of cafés meeting healthy criteria (2014-2018)

Figure 7. Number of cafés observing unhealthy criteria (2014-2018)

Figure 8. Average percentage of approved food and beverage items observed in micro-markets by category and year (2016-2018), compared to goal

Figure 9. Overall percentage of approved items observed in micro-markets by category and year (2016-2018)

Figure 10. Percent of total approved vs. not approved **items sold** by year

Figure 11. Percent of **total sales** from approved vs. not approved items by year

Figure 12. Percent of total approved vs. not approved items **sold** in June 2017 and June 2018

Figure 13. Percent of total approved vs. not approved items **observed** in June 2017 and June 2018

Figure 14. State agencies' percent of total purchases that were approved under the HNG

Figure 15 series. Total approved vs. not approved sales in each state agency with a micro-market

- Figure 15a. Total approved vs. not approved sales in each state agency with a micro-market in **2016**
- Figure 15b. Total approved vs. not approved sales in each state agency with a micro-market in **2017**
- Figure 15c. Total approved vs. not approved sales in each state agency with a micro-market in **2018** (January-June)

Figure 16 series. Percent of total approved vs. not approved beverages sold by beverage category and year

- Figure 16a. Percent of total beverages sold by beverage category and year
- Figure 16b. Percent of total beverages sold by approved vs. not approved status and year

Figure 17. Percent of assessed vending machines in compliance with the HNG 2018

Figure 18. Snack machine compliance over time

Figure 19. Beverage machine compliance over time

Figure 20. Snack machine compliance status over time

Figure 21. Beverage machine compliance status over time