

SOUTH DAKOTA DEPARTMENT OF HEALTH: HEALTHIER VENDING AND SNACK BAR POLICY PROJECT

2017-2018 Grantee Evaluation

Revised 10.11.2018

EXECUTIVE SUMMARY

PROJECT BACKGROUND

The primary objective of the Healthier Vending and Snack Bar Project is “to provide businesses with guidelines for incorporating healthier food and drink options in vending machines and snack bars at their workplaces¹.” The project guide for worksites serves two purposes:

- 1) Inform employees about what they are eating and which choices are healthier.
- 2) Increase choice, not restrict choice. The policy is designed to make healthy choices more accessible, more appealing, and more affordable. It is not designed to restrict choices.

The project relies in part on the Munch Code, which classifies foods by color; green indicates foods and drinks that are the healthiest options and can be enjoyed often; yellow indicates foods and drinks that have added sugar, fat, and calories and should be eaten occasionally; and red indicates foods and drinks that are the highest in sugar, fat, and calories and the least healthy, which should be eaten sparingly¹.

EVALUATION

The project has currently completed its fifth year of implementation, and the objective of this report is to evaluate the program’s extent of success using three approaches:

- Final Progress Reports: Each of 7 worksites completed a final progress report requesting outcomes, successes, whether the worksite implemented a Healthier Vending and Snack Bar Policy, future plans, and any additional feedback.
- Strategies to Increase Sales of Healthier Products: Eight questions were asked to the 7 worksites, each asking about specific changes and improvements the site may have implemented.
- Vending Machine and Snack Bar Analysis: The 7 worksites completed a vending machine and snack bar analysis to determine how the items offered are distributed across the Munch Code color categories.

Final Progress Reports

Of the 7 worksites, 5 (71.4%) have implemented a Healthier Vending and Snack Bar Policy. The other two worksites both indicated that they are working toward this goal; one has further points to address, while the other has submitted a draft policy to their overseeing body and they are waiting for approval. The most common challenges were related to working with vendors. At least one vendor was unwilling to help out, while it took some time to get buy-in from some other vendors. One vendor was having difficulty following through with the new labeling system; another simply did not have many green items available in their inventory that would work at the site.

¹South Dakota Healthier Vending and Snack Bar Policy Implementation Guide; retrieved from http://goodandhealthysd.org/content/uploads/2014/09/ModelPolicy_HealthyVendingSnackBar_ImplementationGuide.pdf

Other comments: one site had a learning curve with a new piece of equipment purchased, while another has had difficulty getting their policy approved by the Human Resource Department. Generally, however, the worksites found ways to work around these challenges. One group who has been having difficulty with their vendor is currently planning to purchase their own vending machines that they can stock themselves. Every worksite commented that they would be continuing with their same efforts in the future to stock healthier items, and many commented that they would still work on areas they had not been able to accomplish yet. Five of the 7 worksites specifically mentioned that the employees had been enthusiastic about the changes, and they had been impressed with the number of employees who were participating in the healthier vending options. One additional worksite commented that the people with access to vending and snack areas had adapted with no complaints.

Strategies to Increase Sales of Healthier Products

Areas that were very successful with respect to positive changes include changes related to visual appeal of healthier vending products: all sites made changes to improve product placement and attractiveness, and also provided point of purchase information; all but one site (85.7%) improved their stickers or signs. Roughly half of the worksites made changes that reached out to the staff directly to make them more aware of healthier vending items: they changed prices (42.9%), conducted staff surveys (57.1%), and/or conducted taste tests (57.1%). Finally, none of the sites with outside vendors made contractual changes with their vendors.

Additionally, 4 out of 7 (57.1%) sites made additional changes besides the ones listed on the survey. The changes were varied, and related to

- Including new types of vending machines to provide access to healthier options
- Running a contest to encourage buying healthier options
- Adding a free fruit program for employees

Vending Machine and Snack Bar Analysis

From the vending and snack bar analysis, all 6 sites that had vending machines or snack bars before the intervention made positive shifts toward greater percentages of green and yellow Munch Code items; five of the worksites made statistically significant, positive shifts in their vending and/or snack bar locations. This is evidence for the effectiveness of the Healthier Vending and Snack Bar Project, and as in years 3 and 4 shows unequivocally that these worksites are willing and able to make positive changes regarding the food choices they offer to their employees.

FINAL PROGRESS REPORTS

The final progress report focuses on four areas: outcomes (specifically challenges or barriers experienced), implementation of a Healthier Vending and Snack Bar Policy, future plans, and feedback.

Outcomes/Challenges or Barriers

The most common challenges were related to working with vendors. One site reported that their vendor was unwilling to help out at all, and this worksite is concentrating on their snack bar instead, which they stock themselves. One site reported the vendor was having difficulty adapting to the new labeling system, while one other site reported that it took some time to get buy-in from their vendor (demonstrating that the healthier items would sell was an important turning point). Finally, one additional vendor did not have a large number of green products to choose from, and taste tests showed that only a limited number of those items would be popular with the staff.

Additional challenges that were not vendor-related were varied, and are included below:

- One worksite has yet to re-fill their machine in accordance with their new policy, and suspects that finding appropriate healthy choices will be time-consuming but possible
- One worksite bought a new refrigerated machine and reports a strong learning curve with respect to programming and filling it
- One worksite has moved part of their operation to a new location and the vending machine has not followed yet, so they haven't been able to make changes there
- One worksite is having difficulty getting their policy approved by their Human Resource Department, although it has not been denied

Implementation of Healthier Vending and Snack Bar Policy

Of the 7 worksites, 5 (71.4%) have implemented a Healthier Vending and Snack Bar Policy. The other two worksites both indicated that they are working toward this goal; one has further points to address, while the other has submitted a draft policy to their HR group and they are waiting for approval.

Future Plans

Every worksite indicated that they would be continuing their efforts, and working toward some of the improvements they had not yet been able to make. This is very similar to the results from worksites in years 3 and 4, indicating that the project was generally successful in introducing sustainable changes.

Other specific future efforts are listed here:

- One worksite is putting together a business plan for their owners on purchasing their own vending machine to allow them more choices in purchasing healthier snacks
- One worksite is planning to conduct taste tests, staff surveys, and create fun ways to implement education (they have not yet done these)
- One worksite plans to increase their healthier options as more options become available
- One worksite is considering installing a micro market, if they can find an appropriate vendor

Feedback

This year there was not as much general feedback as there has been in previous years, although the feedback that was received was quite positive, as in the past. Five of the worksites commented that their employees were very happy to have healthier choices. Some specific quotes include:

- *“Our staff have enjoyed having a cost friendly, healthy option for snacks available to them.”*
- *“Many employees have made comments about how great it is to have easy access to healthier choices.”*

Regional Health, which has vending machines available for individuals who are not necessarily employees, commented that their caregivers, visitors, and patients have adapted with no concerns to the healthier vending options. The worksite that implemented a competition to encourage buying healthier products commented that this was a quite successful approach. One other worksite commented that they really appreciated the information and tips that were provided to them through technical assistance.

Finally there was one suggestion—one worksite said that they *“would love to see a sustainability grant that allows for additional education, taste tests, vending upgrades, etc.”*

STRATEGIES TO INCREASE SALES OF HEALTHIER PRODUCTS

Eight questions were posed to each of the worksites, under the heading of one main question: **Did your worksite make the following changes/improvements to increase sales of healthier products?** Table 1 provides an overall summary of the responses to these 8 questions.

Table 1. Summary of Responses to Change/Improvement Questions

Did your worksite make the following changes/improvements to increase sales of healthier products?	Yes	No	%Yes
Product Placement/Attractiveness	7	0	100.0%
Pricing Changes	3	4	42.9%
Stickers or Signs	6	1	85.7%
Point of Purchase Information	7	0	100.0%
Conduct Staff Survey	4	3	57.1%
Conduct Taste Test	4	3	57.1%
Contractual Changes with Vendor	0	3	0.0%*
Additional Changes	4	3	57.1%
* 4 worksites responded with "N/A"			

From Table 1, all sites made changes to improve product placement and attractiveness, and also provided point of purchase information. All but one site improved their stickers or signs. These were all changes that improved the visibility/visual information provided surrounding the healthier vending items. Roughly half of the worksites changed prices, conducted staff surveys, conducted taste tests, or made additional changes. Generally, these were efforts that reached out to the staff directly, and made them more aware of the availability of the healthier items (or more likely to buy them). Finally, none of the sites made contractual changes with their vendors—some did not have outside vendors, but those who did have outside vendors did not make this change. This may relate back to difficulties working with vendors.

Also from Table 1, 4 out of 7 sites implemented additional changes. Here are notes indicating the additional changes described by these sites:

- Granite Automotive: *“Currently we are running a ‘Stay Healthy Be Active’ campaign until July 2018. When they purchase a green vending machine snack and it has a green sticker on the back of the wrapper, they will be entered in a drawing to win a FitBit. We will be giving away two!”*
- Midwestern Mechanical: *“We added a free fruit program for employees. We also increased options greatly by adding in our own cold vending machine. We have added numerous healthy items in this machine!”*
- Wicoicaga Otipi Community Center: *“1) We changed the vending machine’s cover from a ‘Coca-Cola’ logo to an ‘Aquafina’ logo to promote water. 2) We encouraged our vending machine supplier to change some*

selections to more green/yellow items. 3) We educated the community with a taste test and posted information about the nutrition program we are offering.”

- City of Winner: *“We also added a drink vending machine. This has been a great addition! We love having access to juice!”*

VENDING MACHINE AND SNACK BAR ANALYSIS FOR 7 WORKSITES

Each worksite reviewed the content of their vending machines or snack bars to determine the percentage of items that fell into the Munch Code categories of green, yellow, and red. All sites performed this review before and after implementing changes related to the Healthier Vending and Snack Bar Grant.

Each site is analyzed individually in the following sections. Note that of the 7 sites, 1 of them (Health Management Partners) did not have vending machines/snack bars prior to the project, and is therefore missing information related to changes in Munch Code categories. All 6 sites that had vending machines or snack bars before the intervention made positive shifts toward greater percentages of green and yellow Munch Code items; five of the worksites made statistically significant, positive shifts in their vending and/or snack bar locations.

BANKWEST - MITCHELL

Vending Machine and Snack Bar:

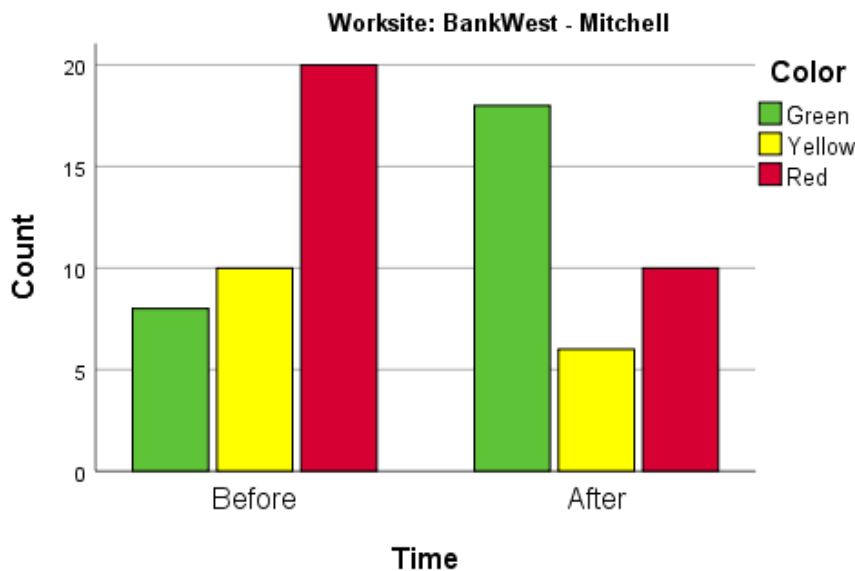
Table 2 shows the distribution of items of each Munch Code color category at BankWest before and after implementation; Figure 1 shows this distribution visually in a bar chart. The percentage of green items increased from 21.1% to 52.9%, while the percentage of red items decreased from 52.6% to 29.4%. **This shift was positive and was statistically significant¹.**

Table 2. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	8	10	20	38
	% within Before	21.1%	26.3%	52.6%	100.0%
After	Count	18	6	10	34
	% within After	52.9%	17.6%	29.4%	100.0%

$\gamma = 0.486, p = 0.005$

Figure 1. Bar chart of distribution of items by Munch Code color, before and after implementation



¹ The gamma statistic, shown at the bottom of the frequency table, is a correlation-type statistic that determines whether the change in the time period is related to a shift in the ordered Munch Code categories, to an extent that would be unlikely to occur due to random changes in items. A positive gamma indicates a shift toward a greater percentage of green items; a negative gamma indicates a shift toward a greater percentage of red items. The accompanying P-value is compared to a common significance level of 0.05; if the p-value is less than 0.05, the gamma statistic indicates a statistically significant shift toward green items.

GRANITE AUTOMOTIVE

Vending Machines:

Table 3 shows the distribution of items of each Munch Code color category at Granite Automotive before and after implementation; Figure 2 shows this distribution visually in a bar chart. The percentage of green items increased from 2.9% to 22.1%, while the percentage of red items decreased from 76.9% to 50.0%. **This shift was positive and was statistically significant.**

Table 3. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	3	21	80	104
	% within Before	2.9%	20.2%	76.9%	100.0%
After	Count	23	29	52	104
	% within After	22.1%	27.9%	50.0%	100.0%

$\chi^2 = 0.553, p < 0.001$

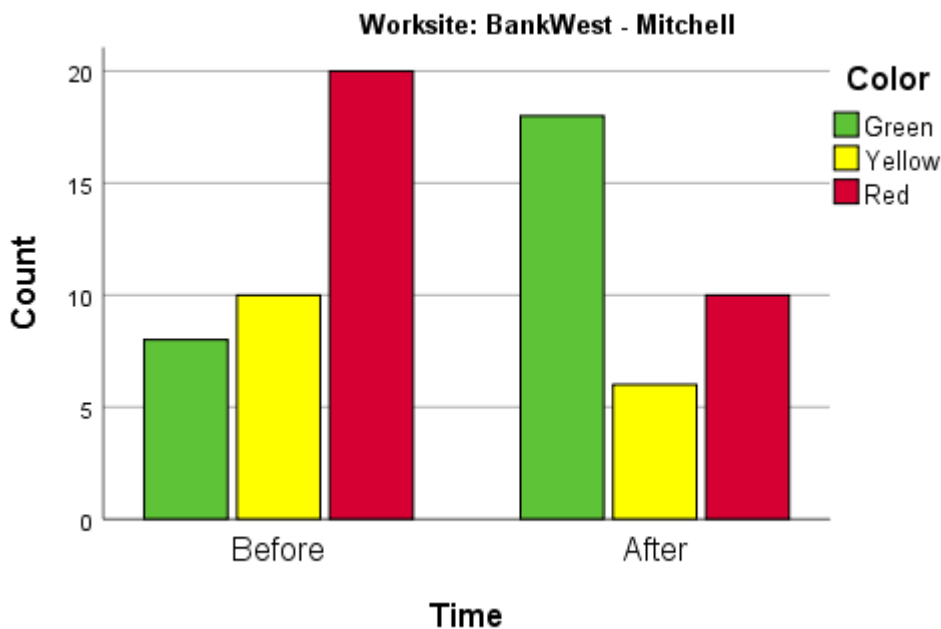


Figure 2. Bar chart of distribution of items by Munch Code color, before and after implementation

HEALTH MANAGEMENT PARTNERS

Vending Machine:

Table 4 shows the distribution of items of each Munch Code color category at Health Management Partners after implementation; Figure 3 shows this distribution visually in a bar chart. This snack bar was not present before the project began, therefore before and after comparisons cannot be made.

Table 4. Distribution of items by Munch Code color, after implementation

Time		Color			Total
		Green	Yellow	Red	
After	Count	13	13	6	32
	% within After	40.6%	40.6%	18.8%	100.0%

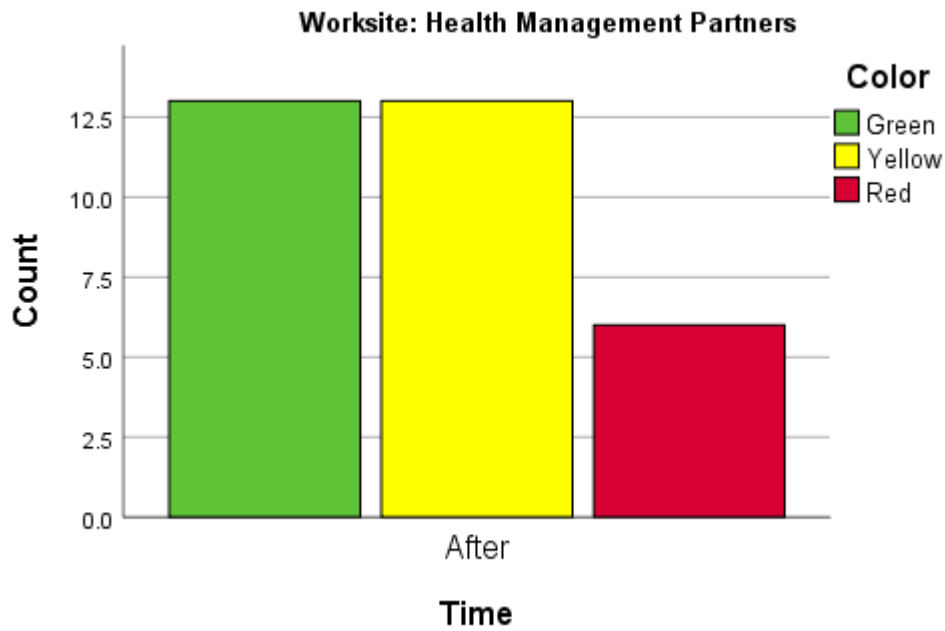


Figure 3. Bar chart of distribution of items by Munch Code color, after implementation

MIDWESTERN MECHANICAL

Vending Machine and Snack Bar:

Table 5 shows the distribution of items of each Munch Code color category at Midwestern Mechanical before and after implementation; Figure 4 shows this distribution visually in a bar chart. The percentage of green items increased from 4.3% to 29.0%, while the percentage of red items decreased from 74.5% to 46.8%. **This shift was positive and was statistically significant.**

Table 5. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	2	10	35	47
	% within Before	4.3%	21.3%	74.5%	100.0%
After	Count	18	15	29	62
	% within After	29.0%	24.2%	46.8%	100.0%

$\chi^2 = 0.559, p < 0.001$

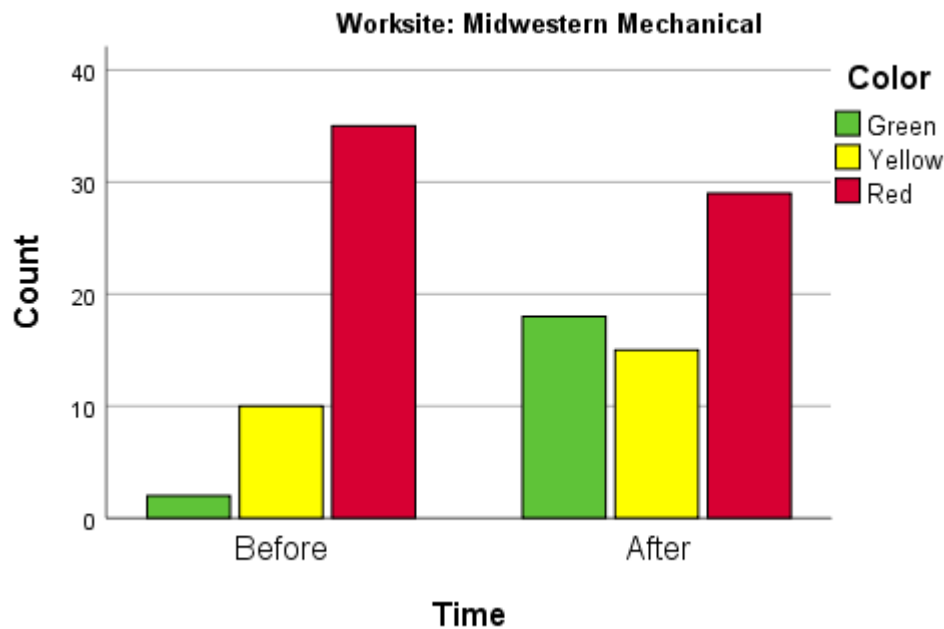


Figure 4. Bar chart of distribution of items by Munch Code color, before and after implementation

REGIONAL HEALTH

Vending Machine and Snack Bar:

Table 6 shows the distribution of items of each Munch Code color category at Regional Health (combined across three separate Regional Health locations: Custer, Lead/Deadwood, and Sturgis) before and after implementation; Figure 5 shows this distribution visually in a bar chart. At the time of evaluation, Custer Regional Health was moving into a new facility and the vending machines had not been moved; therefore, no *after* data is included for this location in the below statistics.

The percentage of green items increased from 10.0% to 23.8%, while the percentage of red items decreased from 62.3% to 52.4%. **This shift was positive and was statistically significant.**

Table 6. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	23	64	144	231
	% within Before	10.0%	27.7%	62.3%	100.0%
After	Count	39	39	86	164
	% within After	23.8%	23.8%	52.4%	100.0%

$\chi^2 = 0.242, p = 0.007$

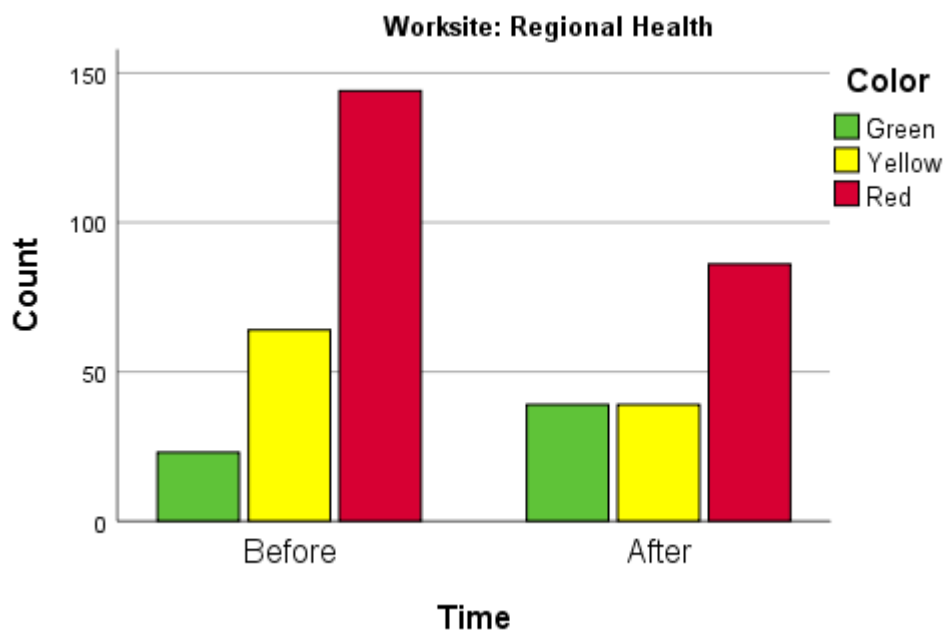


Figure 5. Bar chart of distribution of items by Munch Code color, before and after implementation

WICOICAGA OTIPI COMMUNITY CENTER

Vending Machine:

Table 7 shows the distribution of items of each Munch Code color category at Wicoicaga Otipi Community Center before and after implementation; Figure 6 shows this distribution visually in a bar chart. The percentage of green items increased from 4.9% to 17.9%, while the percentage of red items decreased from 85.4% to 61.5%. **This shift was positive and was statistically significant.**

Table 7. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	2	4	35	41
	% within Before	4.9%	9.8%	85.4%	100.0%
After	Count	7	8	24	39
	% within After	17.9%	20.5%	61.5%	100.0%

$\chi^2 = 0.551, p = 0.010$

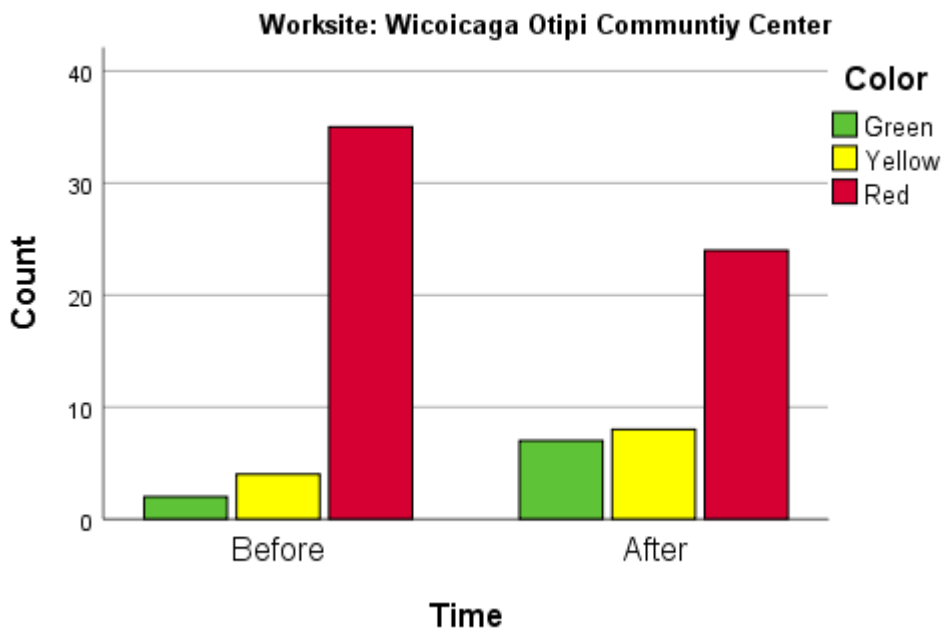


Figure 6. Bar chart of distribution of items by Munch Code color, before and after implementation

WINNER CITY HALL

Vending Machine:

Table 8 shows the distribution of items of each Munch Code color category at Winner City Hall before and after implementation; Figure 7 shows this distribution visually in a bar chart. The percentage of green items increased from 15.8% to 33.3%, while the percentage of red items decreased from 63.2% to 50.0%. **This shift was positive but was not statistically significant (most likely due to the overall small number of items).**

Table 8. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	3	4	12	19
	% within Before	15.8%	21.1%	63.2%	100.0%
After	Count	6	3	9	18
	% within After	33.3%	16.7%	50.0%	100.0%

$\chi^2 = 0.294, p = 0.294$

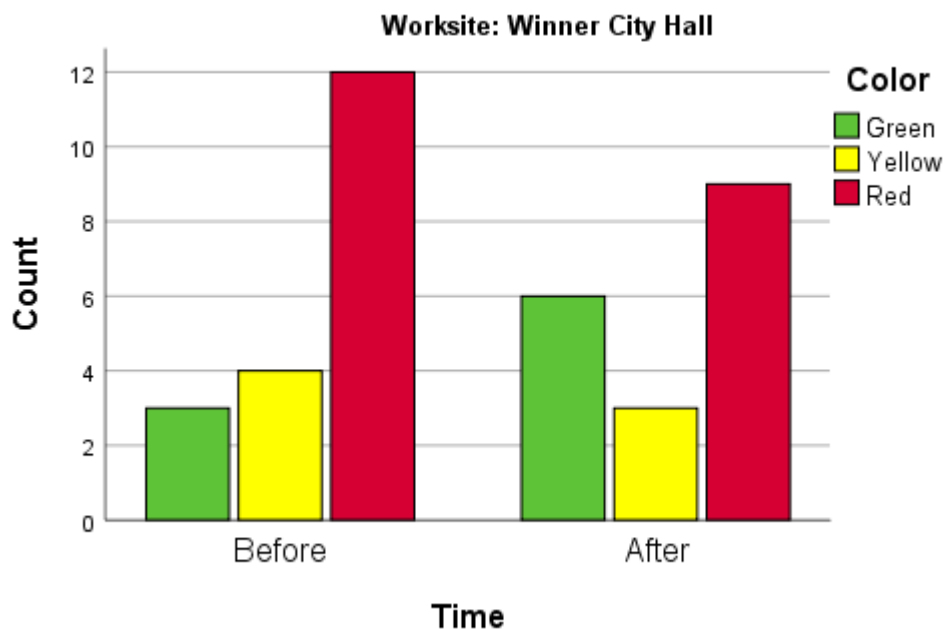


Figure 7. Bar chart of distribution of items by Munch Code color, before and after implementation

OVERALL ANALYSIS

Vending Machines and Snack Bars, All Worksites:

Table 9 shows the distribution of items of each Munch Code color category over all worksites before and after implementation; Figure 8 shows this distribution visually in a bar chart. The percentage of green items increased from 8.5% to 27.4%, while the percentage of red items decreased from 67.9% to 47.7%.

This shift was positive and highly statistically significant.

Table 9. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	41	113	326	480
	% within Before	8.5%	23.5%	67.9%	100.0%
After	Count	124	113	216	453
	% within After	27.4%	24.9%	47.7%	100.0%

$\chi^2 = 0.413, p < 0.001$



Figure 8. Bar chart of distribution of items by Munch Code color, before and after implementation

Finally, Table 10 provides a summary across the 7 worksites, rather than the 480 “before” and 453 “after” items. As an example of how to interpret this table, across the 7 worksites, the average worksite had 9.8 % green items before the project, and 31.4% green items after the project.

Table 10. Average % Green, Yellow, and Red Items Across 7 Worksites

Time	Munch Code Color		
	Green	Yellow	Red
Before	9.8%	21.1%	69.1%
After	31.4%	24.5%	44.1%

YEAR 3, 4, AND 5 COMBINED OUTCOMES SUMMARY

For the combination of year 3 (15 worksites), year 4 (17 worksites), and year 5 (7 worksites), 25 out of 39 worksites (or 64.1%) have implemented a Healthier Vending and Snack Policy.

Table 11 shows an overall summary of the responses to the questions regarding changes and improvements to increase sales of healthier items for the combination of years 3, 4, and 5.

Table 11. Summary of Responses to Change/Improvement Questions

Did your worksite make the following changes/improvements to increase sales of healthier products?	Yes	No	%Yes
Product Placement/Attractiveness	34	5	87.2%
Pricing Changes	13	26	33.3%
Stickers or Signs	36	3	92.3%
Point of Purchase Information	37	2	94.9%
Conduct Staff Survey	19	20	48.7%
Conduct Taste Test	25	14	64.1%
Contractual Changes with Vendor	8	18	30.8%*
Additional Changes	24	14	63.2%^
*Twelve worksites responded with "N/A," and one worksite did not respond to the question			
^One worksite did not respond to the question			

Table 12 shows the distribution of items of each Munch Code color category for all year 3, 4, and 5 worksites combined, before and after implementation. Note that only 12 of the 15 year 3 worksites completed this analysis, for a total of 36 worksites. Figure 9 is a bar graph of these numbers. Overall, the percentage of green items has increased from 8.3% to 15.9%; the percentage of red items has decreased from 74.6% to 64.9%. **This is an overall positive change, and is highly statistically significant.**

Table 12. Distribution of items by Munch Code color, before and after implementation

Time		Color			Total
		Green	Yellow	Red	
Before	Count	337	696	3040	4073
	% within Before	8.3%	17.1%	74.6%	100.0%
After	Count	737	889	3006	4632
	% within After	15.9%	19.2%	64.9%	100.0%
$\chi^2 = 0.231, p < 0.001$					

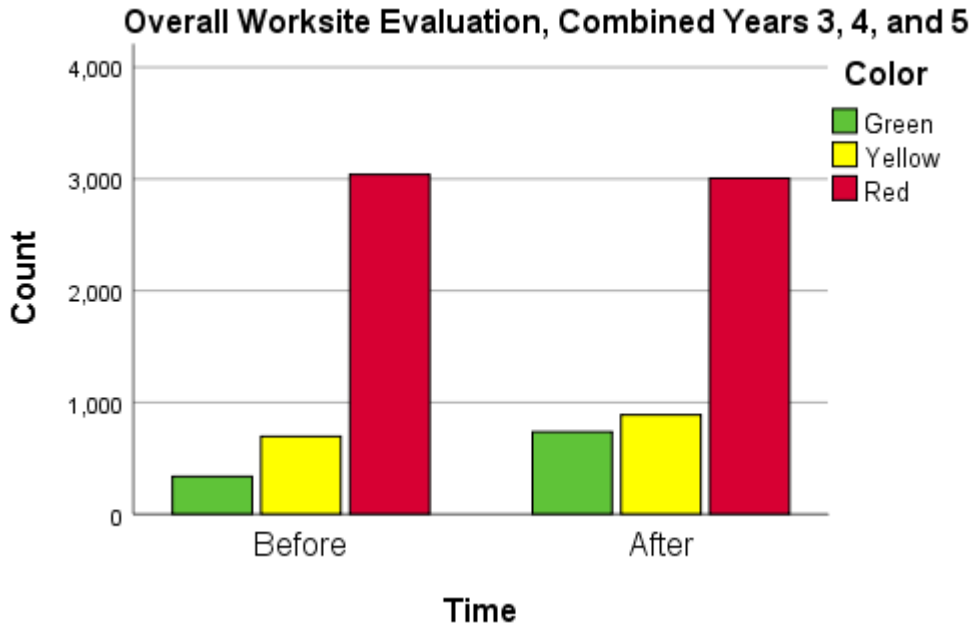


Figure 9. Bar chart of distribution of items by Munch Code color, before and after implementation

Finally, Table 13 provides a summary across the 36 worksites. As an example of how to interpret this table, across the 36 worksites, the average worksite had 9.9% green items before the project, and 24.9% green items after the project.

Table 13. Average % Green, Yellow, and Red Items Across 36 Worksites

Time	Munch Code Color		
	Green	Yellow	Red
Before	9.9%	22.9%	67.2%
After	24.9%	27.6%	47.5%