Improving the Healthfulness & Sustainability of UC Vending Machines

Isa Harrison & Janice Kao
California Higher Education Sustainability Conference
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Roadmap

1. Background & Context (Janice)
2. Research Questions and Methods (Janice)
3. Results (Isa)
4. Implications & Next Steps (Janice)
Our project roles

Janice Kao
- Chair of UC GFI Healthy Vending Working Group
- Researcher at the UC Nutrition Policy Institute
- Expertise in program and policy evaluation

Isa Harrison
- Student at University of Wisconsin, Madison
- 2019 CHORI Summer Student Research Program; placed at NPI
- Data management and analysis of healthy vending data
UC Healthy Vending: Project Background

Started as a UC Global Food Initiative project

• Working group formed

• Main goals:
  1. Develop a set of system-wide standards for vending machines at all UC locations to ensure the availability of healthy options.
  2. Create a toolkit of best practices to assist UCs and other institutions with implementing healthy vending programs.
Why work on healthy vending?

- University of California has approximately 530 food vending machines and 780 beverage vending machines
- Vending is sometimes all that is available or is the most convenient option
- “Traditional” vending offerings are low in nutritional value and high in calories, fat, salt, and sugar
- Many vending machines offer few, if any, healthy options
- Many consumers prefer healthier options, when they are given a choice
- Improving access to healthy options encourages and supports a healthy lifestyle
- Working on vending can provide a toe-hold; lead to other health/wellness
Why work system-wide?

- UC locations have previously participated in large variety of healthy vending programs -- wide variation in implementation and definition of “healthy”
- System-wide standards provide consistency and ensure meaningful baseline – campuses are welcome to go above and beyond
- Utilize existing system-wide structures, like procurement and sustainability
- Eventual goal is to create UC system-wide policy
- Institutionalize healthy vending practices, makes sure that healthy changes are sustained
## Development process

<table>
<thead>
<tr>
<th>Category</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Working Group</strong></td>
<td>UC Nutrition Policy Institute, UC Nutritionists &amp; Operators</td>
</tr>
<tr>
<td><strong>Advisory Committee</strong></td>
<td>Dietitians &amp; Vending Operations from each campus, UCOP/Legal/Purchasing</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Student groups, Vendor Partners, Sustainable Foodservice WG</td>
</tr>
</tbody>
</table>
Dissemination & Current Status

• Policy adoption not straightforward
• Finalized materials as UC Healthy Vending Guidelines (HVG)
• Asked same stakeholder groups and Healthy Campus Network to help disseminate for voluntary implementation at campuses
• Opportunity to collect baseline vending sales data to see how UCs are already doing with healthy vending
• Continuing to try different options to get HVG adopted as policy
• Health and sustainability connections – campus and system-wide
UC HVG Materials
Available at: http://npi.ucanr.edu/Resources/UC_Healthy_Vending_Policy/
Healthy vending guidelines (HVG)

**Healthy snacks:**
- First ingredient must be a fruit, vegetable, low-fat dairy, protein, or whole grain
- No more than 250 calories
- Fat: ≤35% of calories and ≤10g
- Saturated fat: ≤10% calories and ≤3g
- Trans fat: none
- Sodium: ≤ 360mg
- Sugar: ≤35% of total weight and ≤20g

_Snacks made up of only nuts, nut butters, seeds, beans, eggs, cheese, fruits and vegetables with no added sugar or fat are exempt from fat/sugar limits_

**Healthy drinks:**
- Water: unflavored, with no added sweeteners (caloric or non-caloric); includes still, carbonated, and mineral waters
- Low-calorie beverages: ≤40 calories per 12 oz
- Juice: 100% fruit or vegetable juice or juice blends, with no added sweeteners; vegetable juices with ≤230 mg sodium; can add water
- Milk: plain, 1% or less
- Plant-derived or non-dairy milk: plain, Vit D and calcium fortified
- Supplemental nutrition beverage: no added caloric sweeteners
- Tea/Coffee: unsweetened
- No added caffeine
Implementation Toolkit

Sections

1. Introduction & Background
2. UC Healthy Vending Policy Nutrition Standards
3. Implementation Requirements and Schedule
4. Recommended Vending Machine Products
5. Forming Partnerships
6. Meeting with Your Vendors
7. Marketing and Promotion
8. Anticipating Barriers
9. Monitor, Evaluate, Review
The green bar is location of Choice Plus Clip and Choice Plus Snack.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PLACEMENT</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doritos</td>
<td>Cheetos</td>
<td>Fritos</td>
</tr>
<tr>
<td>$1.50</td>
<td>$1.50</td>
<td>$1.50</td>
</tr>
<tr>
<td>Baked Ruffles CSC</td>
<td>Special K BBQ</td>
<td>Smartfood Popcorn</td>
</tr>
<tr>
<td>$1.50</td>
<td>$1.50</td>
<td>$1.50</td>
</tr>
<tr>
<td>Mr Nature Unsalted Trail Mix</td>
<td>Zoo Animal Crackers</td>
<td>Baked Flaming Hot Cheetos</td>
</tr>
<tr>
<td>1.65</td>
<td>1.65</td>
<td>$1.50</td>
</tr>
<tr>
<td>Grandma's Brownie Cookie</td>
<td>Knott's Strawberry</td>
<td>Jack Links Jerky</td>
</tr>
<tr>
<td>$1.50</td>
<td>$1.50</td>
<td>$2.25</td>
</tr>
<tr>
<td>Hostess</td>
<td>Grandmas Mini Vanilla</td>
<td>PopTart Strawberry</td>
</tr>
<tr>
<td>$1.65</td>
<td>$1.65</td>
<td>$1.65</td>
</tr>
</tbody>
</table>
## Appendix C. Products that meet HVG

*Also meet UC Sustainability Guidelines (these products are all organic)*

<table>
<thead>
<tr>
<th>Pepsi</th>
<th>Coke</th>
<th>Canteen/First Class</th>
<th>United Natural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquafina water</td>
<td>Coke Zero, Diet Coke</td>
<td>Baked Cheetos - flamin’ hot</td>
<td>Lilly’s classic hummus &amp; crackers</td>
</tr>
<tr>
<td>Diet Pepsi</td>
<td>Dasani sparkling</td>
<td>Corn Nuts</td>
<td>Mamma Chia Squeeze Vitality Snack*</td>
</tr>
<tr>
<td>G2 (Gatorade)</td>
<td>Dasani water</td>
<td><em>Clif Z bar</em></td>
<td>Peeled Snacks* - Peas Please</td>
</tr>
<tr>
<td>Muscle Milk – 100 cal</td>
<td>Fairlife Non-Fat Milk</td>
<td>Kind healthy grains bar</td>
<td>Suja* pressed probiotic water</td>
</tr>
<tr>
<td><em>Naked Juice – Coconut Water Organic</em></td>
<td><em>Honest Fizz</em></td>
<td>Lara bars</td>
<td>Wilcox Farms* - Hard Boiled Egg</td>
</tr>
<tr>
<td>Pure Leaf iced tea - diet or unsweetened</td>
<td><em>Honest Tea</em> (some flavors)</td>
<td><em>Peeled Snacks</em> – Mango</td>
<td></td>
</tr>
<tr>
<td>Schweppes sparkling waters</td>
<td>Odwalla 100% juices</td>
<td>Planters Peanuts</td>
<td></td>
</tr>
<tr>
<td>Sobe Life Water,</td>
<td>Powerade Zero</td>
<td>Whole grain rice krispie treats</td>
<td></td>
</tr>
<tr>
<td>Tropicana 100% juices</td>
<td>Smart Water</td>
<td>General Mills cereal bars (Trix, Cocoa Puffs, etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin Water Zero</td>
<td>Kellogg’s whole grain Pop Tart</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zico natural</td>
<td>Nature Valley Granola Bar - oats and honey</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Popcorners – salt of the earth</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Welch's Fruit Snacks</td>
<td></td>
</tr>
</tbody>
</table>

*Also meet UC Sustainability Guidelines (these products are all organic)*

![UNIVERSITY OF CALIFORNIA](https://example.com/logo)
Research Description
Research Questions:

1. What are the baseline levels of sales of healthy vending machine items?
2. Are sales of healthy products related to certain aspects of campus-level programs/initiatives?
3. Does an increase in healthy vending purchases improve sustainability efforts?
Methods

Collected annual vending sales data and information about healthy vending programs:
- 6 UCs
- 2016 - 2019

Coded vending snacks/drinks into: healthy vs unhealthy using HVG criteria and broad snack and beverage categories

Calculated total unit sales by category and by campus and year

Results are presented as the percent of total unit sales for each campus and year or as averages

Looked up estimated GHG emissions for healthy vs unhealthy food/drink categories
Results
## Campus-Level Healthy Vending Programs (2016-2019)

<table>
<thead>
<tr>
<th></th>
<th>UCB</th>
<th>UCD</th>
<th>UCI</th>
<th>UCLA</th>
<th>UCR</th>
<th>UCSF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Snacks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campus or vendor standards Compared to HVG (+/-0)</td>
<td>Vendor*</td>
<td>Vendor*</td>
<td>Vendor**</td>
<td>Campus</td>
<td>Vendor**</td>
<td>Campus</td>
</tr>
<tr>
<td>Is healthy vending promoted or integrated into other initiatives?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Min healthy in all machines?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Drinks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campus or vendor standards Compared to HVG (+/-0)</td>
<td>Vendor</td>
<td>Vendor*</td>
<td>None**</td>
<td>Campus</td>
<td>None</td>
<td>Campus +</td>
</tr>
<tr>
<td>Is healthy vending promoted or integrated into other initiatives?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Notes:**
- UC HVG sent to each campus for review in 2017; officially disseminated in Fall 2018
- Sustainable Foodservices section added to UC Sustainability policy in 2009; 20% sustainable
* adopted HVG or similar during tail-end of data collection
** adopted HVG or similar after data collection period
Percent Healthy Snacks Sold Per Campus Per Year

UC HVG goal for % healthy “facings”
Percent Healthy Beverages Sold Per Campus Per Year

UC HVG goal for % healthy “facings”
“HM” is “health-modified” – product labels say whole grain, lower in fat, sugar, etc.)
Change in Beverages Types Sold

- unsweetened/diet/low cal
- soda
- water
- Energy/sports/added caffeines
- other sweetened
- 100% juice
- other
- meets healthy criteria

Average percent of total sales

2016-17 (n=5)
2018-19 (n=5)
## Estimated GHG emissions

<table>
<thead>
<tr>
<th></th>
<th>Traditional Vending</th>
<th>Healthy Vending</th>
<th>Healthy snack bar ingredients:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emissions (kg CO2/lb)</td>
<td></td>
<td>Emissions (kg CO2/lb)</td>
</tr>
<tr>
<td>Potato chips</td>
<td>1.65</td>
<td>Pistachios</td>
<td>.6</td>
</tr>
<tr>
<td>Soft drinks</td>
<td>.87</td>
<td>Orange juice</td>
<td>1.06</td>
</tr>
<tr>
<td>Cookies</td>
<td>.68</td>
<td>Organic apples</td>
<td>.18</td>
</tr>
<tr>
<td>Candy bar ingredients:</td>
<td>&gt;3.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sugar</td>
<td>1.89</td>
<td>Almonds</td>
<td>.95</td>
</tr>
<tr>
<td>• Milk</td>
<td>.45</td>
<td>Dates</td>
<td>.29</td>
</tr>
<tr>
<td>• Cocoa liquor</td>
<td>.47</td>
<td>Cherries</td>
<td>.2</td>
</tr>
<tr>
<td>• Cocoa butter</td>
<td>.62</td>
<td>No other ingredients</td>
<td></td>
</tr>
<tr>
<td>• Other stuff!</td>
<td>???</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White flour</td>
<td>.38</td>
<td>WW flour / Rolled oats</td>
<td>.34 / .31</td>
</tr>
<tr>
<td>Butter</td>
<td>.62</td>
<td>Apples / bananas</td>
<td>.2 / .22</td>
</tr>
</tbody>
</table>

Source: [https://www.foodemissions.com/Calculator](https://www.foodemissions.com/Calculator)
Implications & Future Direction
Summary & Implications

• Starting to see small increases in sales of healthy products
• Plenty of room for improvement, especially with snacks

• Campuses that actively worked on healthy vending saw greater sales of healthy snacks and drinks. Efforts included:
  • Increasing access, making sure that each vending machine has healthy options
  • Promoting healthy options, meeting with vendors, integration with campus-wide, comprehensive health initiatives

• Reasons for lower snack sales
  • 1st ingredient rule: main difference between HVG and campus/vendor
  • However, this may have greater impact on health and sustainability
Future Directions

• Continue forward momentum – inclusion in the new health and wellness section of UC Sustainability policy

• Opportunity to use data to revise HVG
  • Which elements help achieve both sustainability and healthy diet goals?
  • Do any have unintentional consequences?

• Find a way to continue collecting and analyzing data, especially given how many campuses started implementing HVG in January 2019 or later

• Additional analyses:
  • Change in calories
  • Change in sales of products that meet sustainability criteria
  • What would you like to see? Tell us in the chat window!
Acknowledgements

- UC Global Food Initiative
- UCSF-Benioff CHORI SSRP
- UC Healthy Vending Working Group and Advisory Committee
- Healthy Campus Network
- UC campus-level vending managers/operators
Questions?

Isa Harrison: isamharrison@gmail.com
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Nutrition Policy Institute, npi.ucanr.edu
University of California, Agriculture and Natural Resources
Download healthy vending materials here:
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