



Evaluation Report Attachments #1-7:

CalFresh Healthy Living, UC Annual Report

FFY 2019



FFY 2019 Annual Report Evaluation Attachments

Evaluation Report Attachment # 1

Process and Outcome Evaluation: Tracking Policy, Systems, and Environmental Change (PSE) Activities through Program Evaluation and Reporting System (PEARS)

Project: CalFresh Healthy Living, University of California SNAP-Ed Activities in 32 California Counties

Evaluation Report Attachment # 2

Process and Outcome Evaluation: Smarter Lunchrooms Movement (SLM) Self-Assessment Scorecard Data School Year 2018-19

Project: Smarter Lunchrooms Movement of California Collaborative (SLM of CA)

Evaluation Report Attachment # 3

Process and Outcome Evaluation: Process and Outcome Evaluation: Results from Tray Waste Assessments at Schools Implementing Smarter Lunchrooms Movement (SLM) and Nutrition Education

Project: Smarter Lunchrooms Movement and Nutrition Education at an Elementary School in Imperial County

Evaluation Report Attachment # 4

Outcome Evaluation: Measuring CalFresh Healthy Living, UC's Intervention Success via Adult & Youth Evaluation tools

Project: UC CalFresh SNAP-Ed Activities in 32 California Counties

Evaluation Report Attachment # 5

Process and Outcome Evaluation: Shaping Healthy Choices Program (SHCP) Evaluation Report FFY 2019 - Submitted by Center for Nutrition in Schools, UC Davis

Project: SHCP Pilot Counties – Butte, Madera, Merced, Riverside, San Joaquin, Santa Barbara, Sutter, Tulare, Yuba

Evaluation Report Attachment # 6

Process and Outcome Evaluation: Building Together-Developing key partnerships to support youth-led participatory action research in CalFresh Healthy Living, University of California Programming

Project: CalFresh Healthy Living, UC Youth Engagement Initiative

Evaluation Report Attachment # 7a

Process Evaluation: Results from Piloting Physical Activity Evaluation Tools at Preschools, Schools, and Afterschool Programs Implementing CATCH

Project: CalFresh Healthy Living, University of California SNAP-Ed Activities in 3 California Counties

Evaluation Report Attachment # 7b

Process and Outcome Evaluation: Results from Piloting Physical Activity Evaluation Tools at Preschools and Schools with Playground Stencils

Project: CalFresh Healthy Living, University of California SNAP-Ed Activities in 6 California Counties

Evaluation Report Attachment #1:

Process and Outcome Evaluation: Tracking Policy, Systems, and Environmental Change (PSE) Activities through Program Evaluation and Reporting System (PEARS)

Project: CalFresh Healthy Living, University of California SNAP-Ed Activities in 32 California Counties

Project Goals:

This evaluation report most directly assesses the following California SNAP-Ed State Level Goals for FFY2017-2019:

- Goal 4: Increase access to and/or appeal of healthy dietary choices and decrease access to and/or appeal of unhealthy dietary choices where people eat, live, learn, work, play, or shop.
- Goal 5: Increase access to and/or appeal of physical activity opportunities for SNAP-Ed eligible populations.

However, these environmental changes are also intended to impact the additional individual-level SNAP-Ed State Level Goals:

- Goal 1: Increase consumption of healthy foods and beverages and decrease consumption of unhealthy foods and beverages
- Goal 2: Increase physical activity

Evaluation Design:

All CalFresh Healthy Living, University of California (UC) county programs used PEARS to report Policy, Systems and Environmental (PSE) activity implemented during FFY 2019. As described in the PEARS PSE module, “*at the environmental level, the focus of evaluation is not on measuring changes in individuals, but rather changes in settings or venues in low-income areas where nutrition education is [typically] provided*”. In total, 422 sites/organizations worked on PSE activities. Program implementation and data collection occurred in a number of different settings throughout FFY 2019.

Results:

Policy, Systems, and Environmental (PSE) Sites and Reach

CalFresh Healthy Living, UC worked on policy, systems, and environmental (PSE) changes in 422 sites/organizations (at all stages of implementation). When examining only those who reported implementing or maintaining changes, a total of 1,323 PSE changes were adopted reaching an estimated 176,017 SNAP-Ed eligible individuals in 397 sites/organizations across all settings (see Table 1). These results reflect PSE changes adopted in all 32 of the counties served by CalFresh Healthy Living, UC.

Table 1: Total PSE Sites/Organizations and Number with One or More PSE Change Adopted and Reach by County and Statewide

| COUNTY | All Stages of Implementation | Only Implementation & Maintenance Stages | | | | | COUNTY REACH TOTALS |
|---------------------|------------------------------|--|--------------------------------|------------------------------|---------------|------------------------------------|---------------------|
| | Number of PSE Sites/Org | Schools (K-12, elementary, middle, and high) | Early care and education (ECE) | Before/ afterschool programs | Other* | PSE SITES/Org with Changes adopted | |
| Alameda | 35 | 0 | 28 | 0 | 7 | 35 | 2,412 |
| Amador (cluster) | 5 | 4 | 0 | 0 | 0 | 4 | 866 |
| Calaveras | 10 | 7 | 1 | 0 | 2 | 10 | 5,963 |
| El Dorado | 12 | 6 | 4 | 0 | 1 | 11 | 3,988 |
| Tuolumne | 3 | 0 | 0 | 0 | 2 | 2 | 14,811 |
| Butte (cluster) | 1 | 1 | 0 | 0 | 0 | 1 | 450 |
| Colusa | 3 | 3 | 0 | 0 | 0 | 3 | 1,198 |
| Glenn | 1 | 1 | 0 | 0 | 0 | 1 | 517 |
| Sutter | 10 | 1 | 0 | 9 | 0 | 10 | 1,412 |
| Yuba | 6 | 1 | 0 | 5 | 0 | 6 | 1,060 |
| Contra Costa | 1 | 1 | 0 | 0 | 0 | 1 | 453 |
| Fresno (cluster) | 28 | 12 | 4 | 0 | 1 | 17 | 8,129 |
| Madera | 20 | 6 | 0 | 12 | 0 | 18 | 5,523 |
| Imperial | 24 | 7 | 11 | 0 | 6 | 24 | 6,555 |
| Kern | 8 | 2 | 5 | 0 | 0 | 7 | 174 |
| Kings | 26 | 12 | 3 | 10 | 1 | 26 | 13,055 |
| Tulare | 16 | 9 | 2 | 0 | 0 | 11 | 8,032 |
| Merced (cluster) | 3 | 3 | 0 | 0 | 0 | 3 | 14,330 |
| Stanislaus | 9 | 9 | 0 | 0 | 0 | 9 | 19,015 |
| Placer (cluster) | 4 | 2 | 0 | 1 | 1 | 4 | 961 |
| Nevada | 1 | 0 | 0 | 1 | 0 | 1 | 42 |
| Riverside | 26 | 14 | 9 | 0 | 2 | 25 | 38,491 |
| San Francisco | 4 | 0 | 3 | 0 | 0 | 3 | 97 |
| San Mateo | 21 | 10 | 1 | 8 | 2 | 21 | 4,125 |
| Santa Clara | 33 | 13 | 1 | 18 | 1 | 33 | 6,615 |
| San Joaquin | 61 | 9 | 44 | 3 | 4 | 60 | 4,573 |
| San Luis Obispo | 8 | 5 | 1 | 0 | 2 | 8 | 940 |
| Santa Barbara | 11 | 6 | 0 | 0 | 5 | 11 | 2,914 |
| Shasta (cluster) | 13 | 11 | 0 | 0 | 2 | 13 | 6,813 |
| Tehama | 7 | 2 | 2 | 3 | 0 | 7 | 1,209 |
| Trinity | 5 | 4 | 0 | 0 | 1 | 5 | 820 |
| Yolo | 7 | 0 | 0 | 7 | 0 | 7 | 474 |
| STATE TOTALS | 422 | 161 | 119 | 77 | 40 | 397 | |
| STATE REACH | | 146,952 | 5,170 | 5,856 | 18,039 | | 176,017 |

*Other includes community centers, community organizations, family resource centers, farmers' markets, food banks and pantries, public housing, residential treatment centers, shelters, and other places people live/live nearby, learn, and/or work.

PSE efforts in the implementation and maintenance stages were most frequently reported by CalFresh Healthy Living, UC county programs in the three settings where direct education is also most commonly delivered:

1. **161 Schools** (K-12, elementary, middle, and high) with 550 PSE changes reaching 146,952 students,
2. **119 Early care and education** (ECE) sites with 550 PSE changes reaching 5,170 preschoolers, and
3. **77 Before/after school programs** with 133 PSE changes reaching 5,856 youth.

The remaining settings accounted for 40 additional PSE sites in the implementation and maintenance stages (see Table 2) with 15 or fewer PSE sites per setting. Still, well over 15,000 SNAP-Ed eligible individuals were reached by PSE changes adopted in food assistance sites, food banks, and food pantries and over 1,000 at individuals' homes or public housing sites.

Table 2: Number of PSE Sites/Organizations and Reach by Setting for Implementation and Maintenance Stages

| Setting | Number of PSE Sites | Reach |
|--|----------------------------|----------------|
| Schools (preschools, K-12, elementary, middle, and high) | 161 | 146,952 |
| Early care and education | 119 | 5,170 |
| Afterschool programs (includes before school programs) | 77 | 5,856 |
| Individual homes or public housing sites | 15 | 1,045 |
| Emergency shelters and Temporary housing sites | 5 | 127 |
| Food assistance sites, food banks, and food pantries | 4 | 15,687 |
| Other places people primarily go to "eat" outside the home | 4 | 170 |
| Farmers markets | 3 | 400 |
| Residential treatment centers | 3 | 161 |
| Faith-based centers/places of worship | 2 | 274 |
| Youth Organizations (e.g., Boys or Girls Clubs, YMCA) | 1 | 102 |
| Family resource centers | 1 | 46 |
| Community organizations | 1 | 24 |
| Community and recreation centers | 1 | 3 |
| Total | 397 | 176,017 |

Programs, Packages and Initiatives Supporting PSEs

CalFresh Healthy Living, UC county programs incorporated several programs, packages, and initiatives to support their PSEs in an effort to build comprehensive and mutually reinforcing interventions (see Table 3). Counties reported delivering Coordinated Approach To Child Health (CATCH) at 159 sites which represented well over one-third (40%) of the PSE sites. The Smarter Lunchrooms Movement (SLM) was also commonly utilized to support PSE changes at 72 PSE sites (18%). County programs reported working on School/ECE Wellness Policy efforts at 63 PSE sites (16%). Although ‘Gardens’ was not included in the drop down list of programs, packages and initiatives supporting PSEs, county programs reported ‘other’ and added ‘gardens’ at 18 PSE sites, representing the importance of this as a key component of their intervention strategies. As described later, gardens were actually reported as a PSE change for 143 sites. Additional CalFresh Healthy Living, UC programming included Rethink Your Drink work at 46 sites, Harvest of the Month efforts at 40 sites, Farm-to-School at 22 sites, Sports, Play, Active, Recreation for Kids (SPARKs) at 16 sites, as well as EatFresh.org at 12 sites and California Thursdays just below that at 10 sites. Table 3 provides a complete list of the programs, packages, and initiatives used to support CalFresh Healthy Living, UC PSE efforts.

Table 3: Number of Sites/Organizations Delivering Programs, Packages, and Initiatives to Support PSEs*

| Which of the following programs, packages or initiatives were used as part of the PSE efforts? | Number (%) of PSE Sites (n=397) |
|---|--|
| Coordinated Approach to Child Health (CATCH) | 159 (40%) |
| Smarter Lunchrooms Movement (SLM) | 72 (18%) |
| School/ECE Wellness Policy | 63 (16%) |
| Rethink Your Drink (RYD) | 46 (12%) |
| Harvest of the Month (HOTM) | 40 (10%) |
| Farm-to-School | 22 (6%) |
| Sports, Play, Active, Recreation for Kids (SPARKs) | 16 (4%) |
| EatFresh.org | 12 (3%) |
| California Thursdays | 10 (3%) |
| Playground Stencils | 6 (2%) |
| Youth Participatory Action Research Projects (YPAR) | 6 (2%) |
| Safe Routes to School (SRTS) | 4 (1%) |
| Shaping Healthy Choices Program | 4 (1%) |
| Children's Power Play Campaign | 2 (1%) |
| Farm to Preschool | 2 (1%) |
| Others (Garden (18), Senior Quality of Life Program incl garden (7), youth engagement (1)) | 26 (7%) |

*Summary statistics include only those PSEs in the implementation and maintenance stages.

Policy, Systems, and Environmental (PSE) Changes Adopted

The following tables display the PSE changes adopted related to nutrition, physical activity (PA), and both nutrition and PA across all settings reported by CalFresh Healthy Living, UC county programs in PEARS. As previously stated, a total of 1,323 PSE changes were adopted reaching 176,017 SNAP-Ed eligible individuals in 397 sites/organizations across all settings. Over half (58%) of the PSE changes adopted were related to nutrition (n=774), approximately one-third (36%) addressed PA (n=472), and 6% were associated with both nutrition and PA changes (n=77). In total, 267 sites/organizations (63%) in 28 counties made at least one nutrition supports related PSE change reaching 166,462 SNAP-Ed eligible individuals and 223 sites/organizations (53%) in 31 counties made at least one PSE change related to PA or reduced sedentary behavior reaching 112,323 SNAP-Ed eligible individuals. Tables 4a, 4b, and 4c provide statewide summaries across all settings of the nutrition-related, PA-related, and nutrition and PA-related PSE changes reported by CalFresh Healthy Living, UC county programs at 2 or more PSE sites/organizations in FFY 2019.

Table 4a: Nutrition-Related Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

| Type of PSE Changes Selected | Number of Changes |
|---|-------------------|
| Nutrition | 774 |
| Edible gardens (establish, reinvigorate or maintain food gardens) ¹ | 143 |
| Initiated or expanded use of the garden for nutrition education | 111 |
| Used interactive educational display (that will stay at the site), other visual displays, posters, taste testing, live demonstrations, audiovisuals, celebrities, etc. to prompt healthy behavior choices close to the point of decision ² | 64 |
| Initiated or expanded use of onsite garden produce for meals/snacks provided onsite | 48 |
| Improved appeal, layout or display of meal food/beverages to encourage healthy and discourage unhealthy selections ³ | 45 |
| Initiated or expanded implementation of guidelines on use of food/beverages in the classroom, as rewards, or during celebrations or educational programs ⁴ | 37 |
| Improved free water access, taste, quality, smell, or temperature | 32 |
| Initiated, improved or expanded healthy fundraisers | 32 |
| Initiated or expanded farm-to-table/use of fresh or local produce | 30 |
| Initiated or expanded implementation of guidelines for meal foods/beverages | 30 |
| Improved menus/recipes (variety, quality, etc.) ⁵ | 29 |
| Improved child feeding practices (e.g. served family style, adults role model healthy behaviors, staff sit with children, children decide when they are full, etc.) | 27 |
| Initiated or expanded a mechanism for distributing onsite garden produce to families or communities ⁶ | 22 |
| Ensured meal service staff encourage healthy selections ⁷ | 18 |
| Initiated, improved or expanded opportunities for parents/students/community to work in the garden ⁸ | 14 |
| Improve appeal, layout or display of snack or competitive foods to encourage healthier selections ⁹ | 12 |
| Improved or expanded cafeteria/dining/serving areas or facilities | 10 |
| Implemented a system for youth, parent and/or client leadership or involvement in decision-making | 9 |
| Established or improved salad bar | 9 |
| Initiated or improved menu labeling (e.g. calories, fat, sodium, added sugar counts) ¹⁰ | 8 |
| Improved façade/outdoor space | 6 |
| Improved enrollment procedures to increase NSLBP meal participation including universal breakfast/ lunch | 4 |
| Initiated or enhanced limits on marketing/promotion of less healthy options | 4 |
| Initiated or expanded implementation of guidelines for healthier snack options or healthier competitive food/beverage options | 4 |
| Eliminated or reduced amount of competitive foods/beverages | 3 |
| Implemented novel distribution systems to reach high-risk populations, such as home delivery for the elderly, farmers market, etc. | 2 |

| Type of PSE Changes Selected | Number of Changes |
|---|-------------------|
| Improved food purchasing/donation specifications or vendor agreements towards healthier food(s)/beverages | 2 |
| Improved facilities or equipment to accommodate healthier options or make them more convenient/appealing/accessible | 2 |
| Implemented nutrition standards for foods/beverages accepted and distributed | 2 |
| Policy for increasing nutrition education or cooking activities | 2 |
| Improved or expanded kitchen/food preparation facilities that allow for healthier or more appealing options (e.g. refrigeration, appliances that allow for scratch cooking, etc.) | 2 |
| Initiated, improved or expanded use of federal food programs (CACFP, TEFAP, summer meals, NSLBP, etc.) including improvements in enrollment procedures ¹¹ | 2 |

*Table only displays PSE changes reported at 2 or more PSE sites.

1 Includes the following change(s): Reinvigorated or expanded an existing edible garden, Established a new edible garden

2 Includes the following change(s): Initiated or improved point-of-purchase, decision, and/or distribution prompts (information to influence choices at the point of decision, such as offering taste tests or product samples to encourage healthy selection, signs/labels to identify healthy items are "new, special, limited", etc.), Point-of-purchase and distribution prompt, In partnership with food service program, conducted cafeteria taste tests to improve appeal and acceptability of fruits and/or vegetables.

3 Includes the following change(s): Improved layout or display of meal foods/beverages to encourage healthier selections (e.g. Smarter Lunchrooms), Improved appeal, layout or display of foods/beverages to encourage healthier selections, Improvements in layout or display of food (Smarter Lunchrooms)

4 Includes the following change(s): Restrictions on use of food as rewards or during celebrations, Special occasions, including birthdays, are celebrated with healthy food or non-food activities

5 Includes the following change(s): Foods from each food group are available, Improved quality of healthy options, Various forms of fruits and vegetables are available (fresh, canned, frozen, dried, 100% juice), Improved children's menus, Initiated, improved or expanded use of standardized, healthy recipes, Foods for special dietary/cultural needs are available, Various types of fruit and vegetables are available (red, yellow/orange, green, etc.), Change in menus (variety, quality, offering lighter fares), At least one fruit and/or vegetable is served at every meal and snack

6 Includes the following change(s): Initiated, improved or expanded opportunities for parents/students/community to access fruits and vegetables from the garden

7 Includes the following change(s): Meal service staff encourages healthy selections

8 Includes the following change(s): Improvements in parents/caregivers involvement in the school garden

9 Includes the following change(s): Improved appeal, layout or display of healthy competitive foods

10 Includes the following change(s): Menu labeling with calorie, fat, sodium, added sugar counts

11 Includes the following change(s): Offered on-site enrollment in federal food programs

The most frequently reported nutrition changes related to edible gardens, use of gardens for nutrition education, using interactive educational displays to prompt healthy

behavior choices, using garden produce for meals/snacks, and the Smarter Lunchrooms Movement (SLM; see Table 4a).

Overall, 143 PSE sites worked to establish, reinvigorate, or maintain **food gardens** in FFY 2019. Several additional PSE changes were adopted to support garden utilization. These include:

- using the gardens for nutrition education (n=111),
- incorporating garden produce into the meals and snacks served onsite (n=48),
- developing a mechanism for distributing onsite garden produce to families or communities (n=22), and
- providing opportunities for parents, students, and community members to work in the garden (n=14).

SLM changes commonly adopted include improving the:

- point-of-purchase or distribution prompts to influence choices at the point of decision including taste testing (n=64),
- layout or display of 'meal foods/beverages' and 'snack/competitive foods' to encourage healthier selections (n=45 and n=12, respectively),
- menus and/or recipes (variety, quality, offering lighter fares; n=29),
- cafeteria, dining, and/or serving areas or facilities (n=10), and
- ensuring meal service staff encourage healthy selections (n=18).

Some SLM strategies overlap with farm-to-school and farm-to-table efforts, such as expanding the use of fresh or local produce (n=30), and establishing or improving salad bars (n=9).

Several PSE changes reported in FFY 2019 highlighted efforts to support **wellness policies** such as:

- the implementation of guidelines for
 - the use of food and beverages in the classroom (such as for rewards and during celebrations or educational programs; n=37),
 - the 'meal foods/beverages' served onsite and healthier 'snack or competitive food/beverage' options (n=30 and n=4), and
- initiating, improving, or expanding healthy fundraisers (n=32),

As well as, PSE changes related to state requirements such as improved free water access, taste, quality, smell, or temperature (n=32).

Lastly, nutrition-related PSE efforts to improve child feeding practices (served family style, adults role model healthy behaviors, etc.) were also commonly reported (n=27), but exclusively in the ECE settings. To examine nutrition-related changes reported less frequently but more than once, please refer to Table 4a.

Table 4b: Physical Activity-Related Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

| Type of PSE Changes Selected | Number of Changes |
|---|-------------------|
| Physical Activity | 472 |
| Increased or improved opportunities for structured physical activity ¹³ | 154 |
| Improved quality of structured physical activity | 129 |
| Implemented new or expanded restrictions on use of physical activity as punishment ¹⁴ | 44 |
| Increased or improved opportunities for unstructured physical activity time/free play | 43 |
| Improved or expanded physical activity facilities, equipment, structures, or outdoor space | 33 |
| Improved quality of physical education | 19 |
| Initiated or improved playground markings/stencils to encourage physical activity | 17 |
| Increased or improved opportunities for physical activity during recess | 12 |
| Initiated or expanded incorporation of physical activity into the school day or during classroom-based instruction (not recess/free play or PE) ¹⁵ | 10 |
| Increased school days/time spent in physical education | 4 |
| Increased access or safety of walking or bicycling paths ¹⁶ | 4 |

*Table only displays PSE changes reported at 2 or more PSE sites.

13 Includes the following change(s): Increased access/opportunities for structured physical activity before/after school, New or improved access to structured physical activity programs, Increased access/opportunities for structured physical activity off-site

14 Includes the following change(s): Physical Activity is not to be used as a punishment

15 Includes the following change(s): Incorporating physical activity into the school day or during classroom-based instruction

16 Includes the following change(s): Improvements in access to safe walking or bicycling paths, or Safe Routes to School or work

When examining PA-related PSEs reported in FFY 2019, the changes most frequently reported were improvements in opportunities for structured PA (n=154) and in quality of structured PA (n=129). CalFresh Healthy Living, UC county programs also worked to implement new or expanded restrictions on the use of PA as punishment (n=44), as well as to improve opportunities for unstructured PA or free play (n=43); improve PA facilities, equipment, or structures, or outdoor space (n=33). Table 4b includes additional PA-related PSE changes reported.

Table 4c: Nutrition and Physical Activity-Related Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

| Type of PSE Changes Selected | Number of Changes |
|---|-------------------|
| Nutrition & Physical Activity | 77 |
| Established or improved food/beverage, physical activity and/or wellness-related policies | 40 |
| Established or improved a monitoring or reporting system for food/beverage, physical activity, and/or wellness related policy | 13 |
| School wellness or child care wellness policy | 12 |
| Initiated, improved or expanded professional development opportunities on nutrition and physical activity | 4 |
| Initiated, improved, or expanded opportunities for parents to participate in decision making through a wellness committee ¹² | 4 |
| Installed healthy eating and active living mural | 2 |

*Table only displays PSE changes reported at 2 or more PSE sites.

12 Includes the following change: A wellness committee is established with parent participation

At the site level, improvements in food/beverage, PA, and/or wellness-related policies (n=40), monitoring wellness policy progress (n=13), and school/child care wellness policy efforts were the most commonly reported PSE changes related to both nutrition and PA. Table 4c includes additional nutrition and PA-related PSE changes reported in FFY 2019.

As presented for the first time in FFY 2018, Table 4d displays a summary of the PSE changes (n=85) reported at the organization level by 16 organizations or districts having multiple sites. These represent a subset of the PSE changes statewide (n=1,323). Organization and district-wide PSE efforts most frequently aimed to improve food and beverage, PA and/or wellness-related policies and promotion, which included both guidelines on the use of foods and beverages in the classroom (as rewards, during celebrations, or for educational programs) and for healthier snacks or competitive food and beverage options. Specific examples of wellness areas targeted by organizations/districts related to nutrition include establishing edible gardens, using them for nutrition education, and engaging parents/students/community to work in the garden; improving appeal, layout and/or display of foods to promote healthy choices; expanding the use of fresh and local produce; incorporating healthy fundraisers; and improving menus/recipes and menu labelling along with enrollment procedures to increase participation in school meals. Areas targeted by organizations/districts that related to PA include improving the quality of physical education; increased opportunities for and quality of structured PA before; improving PA facilities, equipment, or structures; and restricting the use of PA as punishment.

Table 4d: Organization/District Level Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

| Type of PSE Changes Selected | Number of Changes |
|---|-------------------|
| Nutrition | 45 |
| Edible gardens (establish, reinvigorate or maintain food gardens) ¹ | 5 |
| Initiated or expanded implementation of guidelines on use of food/beverages in the classroom, as rewards, or during celebrations or educational programs ² | 5 |
| Improved appeal, layout or display of meal food/beverages to encourage healthy and discourage unhealthy selections ³ | 3 |
| Eliminated or reduced amount of competitive foods/beverages | 2 |
| Initiated or enhanced limits on marketing/promotion of less healthy options | 2 |
| Initiated or expanded farm-to-table/use of fresh or local produce | 2 |
| Initiated or expanded use of the garden for nutrition education | 2 |
| Initiated, improved or expanded healthy fundraisers | 2 |
| Improved menus/recipes (variety, quality, etc.) ⁴ | 2 |
| Improved facilities or equipment to accommodate healthier options or make them more convenient/appealing/accessible | 2 |
| Initiated, improved or expanded opportunities for parents/students/community to work in the garden ⁵ | 2 |
| Initiated or improved menu labeling (e.g. calories, fat, sodium, added sugar counts) ⁶ | 2 |
| Nutrition & Physical Activity | 18 |
| Established or improved a monitoring or reporting system for food/beverage, physical activity, and/or wellness related policy | 7 |
| Established or improved food/beverage, physical activity and/or wellness-related policies | 4 |
| School wellness or child care wellness policy | 4 |
| Initiated, improved or expanded professional development opportunities on nutrition and physical activity | 2 |
| Physical Activity | 22 |
| Increased or improved opportunities for structured physical activity ⁷ | 5 |
| Improved quality of physical education | 3 |
| Improved or expanded physical activity facilities, equipment, structures, or outdoor space | 3 |
| Implemented new or expanded restrictions on use of physical activity as punishment ⁸ | 3 |
| Improved quality of structured physical activity | 2 |
| Increased school days/time spent in physical education | 2 |
| Initiated or expanded incorporation of physical activity into the school day or during classroom-based instruction (not recess/free play or PE) ⁹ | 2 |
| Grand Total | 85 |

*Table only displays PSE changes reported at 2 or more PSE sites.

1 Includes the following change(s): Reinvigorated or expanded an existing edible garden, Established a new edible garden

2 Includes the following change(s): Restrictions on use of food as rewards or during celebrations, Special occasions, including birthdays, are celebrated with healthy food or non-food activities

3 Includes the following change(s): Improved layout or display of meal foods/beverages to encourage healthier selections (e.g. Smarter Lunchrooms), Improved appeal, layout or display of foods/beverages to encourage healthier selections, Improvements in layout or display of food (Smarter Lunchrooms)

4 Includes the following change(s): Foods from each food group are available, Improved quality of healthy options, Various forms of fruits and vegetables are available (fresh, canned, frozen, dried, 100% juice), Improved children's menus, Initiated, improved or expanded use of standardized, healthy recipes, Foods for special dietary/cultural needs are available, Various types of fruit and vegetables are available (red, yellow/orange, green, etc.), Change in menus (variety, quality, offering lighter fares), At least one fruit and/or vegetable is served at every meal and snack

5 Includes the following change(s): Improvements in parents/caregivers involvement in the school garden

6 Includes the following change(s): Menu labeling with calorie, fat, sodium, added sugar counts

7 Includes the following change(s): Increased access/opportunities for structured physical activity before/after school, New or improved access to structured physical activity programs, Increased access/opportunities for structured physical activity off-site

8 Includes the following change(s): Physical Activity is not to be used as a punishment

9 Includes the following change(s): Incorporating physical activity into the school day or during classroom-based instruction

Needs and Readiness Assessments

Out of the 422 sites working on PSEs, 83 sites completed needs assessments or environmental scans and 1 assessed organizational readiness in FFY 2019. The most common needs assessments completed in coordination with PSE site staff were the Smarter Lunchrooms Scorecard (n=64) and the Playground Stencil Assessment (n=9), followed by an "other" category assessment, the UCCE Alameda Community Garden assessment (n=7). At some sites reassessments were conducted to track changes adopted. The CalFresh Healthy Living, UC county program who conducted a readiness assessment utilized principal interviews (n=1).

Table 5: Number of PSE Sites/Organizations with Needs and/or Readiness Assessments*

| Number sites/organizations with PSE Assessments | # of Sites (n=422) |
|--|---------------------------|
| At least 1 Needs assessment/environmental scan (9 sites reported two or more) | 83 |
| Smarter Lunchrooms Scorecard | 64 |
| Other - UCCE Alameda Community Garden assessment (7) , Plate Waste assessment (1), Site Level Assessment Questionnaire (SLAQ) Elementary School (1), Key Informant Interviews (1) | 10 |
| Playground Stencil Assessment | 9 |
| Shaping Healthy Choices School Health Check (SHC ²) | 4 |
| Walkability Assessment - Save Routes to Schools | 3 |
| Youth Participatory Action Research (YPAR) | 1 |
| Organizational Readiness | 1 |
| Principal Interview | 1 |

*Reported for all PSEs.

Complementary Strategies Implemented

The PEARS PSE data provide CalFresh Healthy Living, UC with the ability to examine the layering of complementary strategies to achieve multi-component interventions. In total, 389 (98%) of the 397 sites/organizations in the implementation, maintenance, and follow-up assessment stages reporting PSE changes incorporated at least one complementary strategy during FFY 2019. As shown in Table 6, evidence-based education (91%) and staff training (68%) were the two complementary approaches most frequently incorporated as part of the CalFresh Healthy Living, UC multi-component PSE interventions. Nearly half (47%) of these sites also reported parent and community involvement to support the PSE efforts. These findings illustrate the layering of CalFresh Healthy Living, UC direct education with one or more PSE approaches to achieve more comprehensive nutrition and PA programming to facilitate healthy lifestyle changes among SNAP-Ed eligible individuals. Overall, 160 (40%) of the 397 sites/organizations reporting PSE changes implemented three or more complementary strategies in coordination with their PSE efforts to enhance the likelihood of impact and sustainability.

Table 6: Number of PSE Sites/Organizations Implementing a Multi-Component Intervention*

| Of Those Implementing or Maintaining PSE Changes Adopted | Number (%) of Sites (n=397) |
|---|------------------------------------|
| Evidence-based education | 363 (91%) |
| Staff training | 271 (68%) |
| Parent/ community involvement | 187 (47%) |
| Marketing | 62 (16%) |

*Summary statistics include only those PSEs in the implementation and maintenance stages.

Sustainability Plans

In total, 278 (70%) of the 397 sites/organizations in the implementation, maintenance, and follow-up assessment stages reported that efforts had been taken to support the sustainability of the PSE changes adopted (see Table 7). In these sites, at least one of the five sustainability mechanism was reported as having a “Plan to Adopt”, “In Process”, or “In Place”. When examining the PSE sites with sustainability mechanisms, nearly all of the sites reported multiple sustainability mechanisms (99%; n=276) with the vast majority (64%; n=179) reporting a plan to adopt, efforts in process, or already in place for all five of the sustainability mechanisms. The sustainability mechanisms most commonly reported by sites were indicating that another organization or group (not SNAP-Ed) has assumed responsibility for sustaining the PSE (96%), reporting that support from stakeholders is in place to ensure the sustainability of the PSE (90%), and identifying dependable, on-going (not SNAP-Ed) sources of funding and/or support (90%). Additional sustainability efforts reported less often are included in Table 7.

Table 7: Number of Sites/Organizations that Implemented Mechanisms to Support Sustainability of the PSE Changes*

| PSE Sites Reporting a Sustainability Plan | Number (%) of Sites* (n=397) |
|---|---|
| Sites/organizations reporting sustainability efforts/ planning - with at least one sustainability mechanism reported as “Plan to Adopt”, “In Process”, or “In Place” | 278 (70%) |
| Of Those Reporting Sustainability Plans: Number (%) of Sites Reporting "Plan to Adopt", “In Process” or “In Place” for Each Sustainability Mechanism | |
| Organization or group not dependent on SNAP-Ed funding has assumed responsibility for sustaining the efforts | 268 (96%) |
| Support from stakeholders is in place to ensure the sustainability of this PSE work | 251 (90%) |
| A dependable, on-going source of funding and/or support (other than SNAP-Ed) has been identified | 250 (90%) |
| A monitoring and reporting system has been implemented | 219 (79%) |
| One or more policies was adopted, requiring the changes to be maintained | 205 (74%) |

*Summary statistics include only those sites with PSE changes in the implementation, maintenance, and follow-up assessment stages.

Note: In FFY 2019, no cases that marked 'yes' to sustainability reported 'no plans to adopt' for the follow-up sustainability mechanisms.

Conclusions and Next Steps:

In summary, CalFresh Healthy Living, UC county programs reported considerable achievement in both the number of sites implementing and maintaining PSE changes as well as the number and variety of PSE changes adopted in FFY 2019. The number of PSE sites in all implementation stages and the total PSE changes and reach statewide grew from 404 sites/organizations with 1,126 changes reaching 142,028 SNAP-Ed eligible individuals in FFY 2018 to 422 sites/organizations with 1,232 changes reaching 176,017 SNAP-Ed eligible individuals in FFY 2019. Overall, CalFresh Healthy Living, UC PSEs tended to be implemented in school, ECE, and afterschool settings mirroring those where direct education is typically delivered and therefore primarily reached children and youth.

Key PSE accomplishments supported improvements in both nutrition and PA integration and continue to be in areas the State Office has focused efforts with training and technical assistance to strategically build capacity in CATCH, SLM, edible gardens, and school wellness. In addition to site level changes, CalFresh Healthy Living, UC expanded its work at the organizational level in FFY 2018, primarily through engaging with school districts on improving and implementing wellness policies and improving PA and physical education access and quality. Furthermore, nearly all PSE sites incorporated at least one complementary strategy to support their PSE efforts and the majority also reported having a sustainability plan underway or already in place to

maintain the PSE changes adopted. However, two areas identified for improvement in FFY 2020 include expanding the proportion of PSE sites (1) implementing three or more complementary strategies to support their PSE efforts (currently 40%) and (2) reporting sustainability planning/efforts are underway (currently 70%).

In FFY 2020, CalFresh Healthy Living, UC will continue to track PSE progression using the new PEARS reporting system and aims to explore and establish common metrics for comprehensive programming. We are looking forward to the further development of the PEARS Indicator Metrics tables, which would greatly assist providing timely PSE summary results aligned with the SNAP-Ed Evaluation Framework. Our team will also be exploring the variety of intervention approaches used by county programs and exploring potential relationships between survey outcomes and intervention dose, if sample size allows. Focus will continue to be placed on providing technical assistance to county programs to improved PEARS quality control. To achieve this, the State Office will conduct quarterly reviews of the program, PSE, and survey data entered into PEARS and follow-up with county programs to ensure the integrity of the data.

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Evaluation Report Attachment # 2:

Process and Outcome Evaluation: Smarter Lunchrooms Movement (SLM) Self-Assessment Scorecard Data School Year 2018-19

Project: Smarter Lunchrooms Movement of California Collaborative (SLM of CA)

Project/Intervention description:

The Smarter Lunchrooms Movement (SLM) developed by the Cornell Center for Behavioral Economics in Child Nutrition Programs (BEN Center) provides schools with low-cost and no-cost lunchroom changes designed to encourage students to make healthier food choices. Lunchroom makeovers that improve the convenience, attractiveness, and normativeness of healthy options help to increase the selection and consumption of fruits and vegetables. CalFresh Healthy Living, University of California (CFHL, UC) participates in the Smarter Lunchrooms Movement of California (SLM of CA) together with the Dairy Council of California (DCC), California Department of Education (CDE) and California Department of Public Health (CDPH). In partnership with the BEN Center, the SLM of CA Collaborative provides training and support to disseminate the SLM intervention in California.

Since 2014, trained CFHL, UC and DCC SLM Technical Assistance Providers (TAPs) have reported SLM Scorecard data into a single online portal. UC CalFresh TAPs are community educator staff of the University of California Cooperative Extension (UCCE) funded through the California SNAP-Ed Program. Dairy Council of California (DCC) TAPS are employees of the non-profit agency who provide nutrition education services to schools and other community partners. The SLM Self-Assessment Scorecard is a useful tool for identifying specific behavioral economic strategies that might be adopted in the cafeteria. The original SLM Scorecard included 100 items; however, an updated version released in FFY18 streamlined the environmental scan to 60 items.

Project Goals:

Working together with food service staff, TAPS use the scorecard to

- assess whether evidence-based strategies for food service operations, cafeteria layout and design are observed and being practiced,
- identify specific changes for potential improvement
- conduct reassessments to identify areas of improvement and changes in scores over time.

This evaluation-related work most directly pertains to the following California CalFresh Healthy Living State Level Goal for FFY2017-2019:

- **Goal 4:** Increase access to and/or appeal of healthy dietary choices and decrease access to and/or appeal of unhealthy dietary choices where people eat, live, learn, work, play, or shop.

However, the environmental changes are also intended to impact the individual-level SNAP-Ed State Goal:

- **Goal 1:** Increase Consumption of Healthy Foods and Beverages and Decrease Consumption of Unhealthy Foods and Beverages

Evaluation Design and Methods:

The SLM scorecard is one of the environmental scans recommended in the SNAP-Ed Evaluation Framework Interpretive Guide for measuring the following two Framework indicators:

- Short Term (ST): Needs and Readiness – ST5b. Number of sites with an identified need for improving access or creating appeal for nutrition and physical activity supports
- Long Term (LT): Nutrition Supports Implementation – LT5c: Number of sites or organizations that made at least one Policy System or Environment (PSE) change and show improved food environment assessment scores using a reliable and, if possible, valid environmental assessment tool.

In collaboration with their school partners, TAPS trained in SLM principles and strategies conduct SLM assessments at schools throughout the state. This report summarizes the SLM Scorecards reported by TAPs and entered into the SLM of CA's online data collection portal during FFY2019. The SLM assessments are intended to help identify at the specific school site practices for improvement. Still, comparison of the average sub-scores across schools also highlights which category of strategies is showing relatively higher and lower adoption in the school cafeterias and food service programs. For schools assessed more than once, the degree and areas of improvement can also be summarized.

Beginning with the 2017-18 School Year, the SLM of CA transitioned to the shorter 60-item SLM scorecard that focuses on strategies found to be especially promising. It also introduces new strategies such as offering taste tests and self-serving spices and seasoning stations aimed at improving the acceptability of fruits and vegetables. The updated version is more user friendly and reduces item redundancy. While an overall improvement, the adoption of the new 60-item scorecard undermines the ability to track change over time for school sites previously assessed with the 100-item scorecard. For this reason, the results here are limited to just the 60-item SLM scorecards collected during the past two years without comparison to the previous 100-item assessments possibly conducted at the same school.

This report focuses on SLM scorecards collected during the 18-19 School Year. However, if a school was assessed for the second or greater time, previous year 60-point scores were also included in the analysis for a more robust assessment of the SLM score changes over time.

This report by no means captures all the SLM assessments conducted throughout the state. For example, CDPH CalFresh Healthy Living funded contractors have participated in various SLM trainings and are using the SLM scorecard at their school

sites; however, since they are not consistently participating as TAPS, very few report through the online portal. Similarly, over the last several years, hundreds of district and school-level food service staff have also participated in SLM of CA trainings; but, since they are not part of the TAPS infrastructure, their scorecards data is also not available for summary.

Results:

2018-2019 School Year

Table 1 summarizes the SLM scorecard assessments reported for the 2018-2019 School Year – from August 2018 to August 2019.¹ A total of 106 SLM scorecard assessments were reported for 73 schools. Only a quarter (25%) of the schools were assessed only for the first time during the year. Fifty five schools were assessed two or more times. Thirty five TAPS entered scorecard results with UCCE TAPS entering the greater number. Six of the DCC reported assessments were reported as having been conducted in partnership with a UCCE TAP. Based on SY18-19 California Department of Education (CDE) data, all but one of the 56 UCCE schools were low-income SNAP-Ed eligible schools meaning that at least half the students were eligible for the Free or Reduced Priced Meal Program. (The one exception was SNAP-Ed eligible based on previous year’s data.) Half of the DCC schools were also SNAP-Ed eligible. Across schools completing the SLM Scorecard, the potential reach is over 43,000 students enrolled at these schools.

| Table 1: SLM assessments conducted 2018-2019 School Year | Total | DCC¹ | UCCE |
|---|--------------|------------------------|-------------|
| Total # of SLM scorecard assessments conducted | 106 | 28 | 78 |
| Total # of TAPs reporting assessments | 35 | 6 | 29 |
| Total # of schools assessed | 73 | 17 | 56 |
| # of schools assessed 1 time only | 18 | 4 | 14 |
| # of schools assessed 2 times | 36 | 9 | 27 |
| # of schools assessed 3 times | 10 | 4 | 6 |
| # of schools assessed 4 times | 9 | 0 | 9 |
| Total # of students enrolled at schools assessed | 43,577 | 9,008 | 34,569 |
| Total # of SNAP-Ed Eligible schools (≥50% Free or Reduced Price Meal) based on SY18-19 CDE data | 69 | 14 | 55 |
| Total # of students at SNAP-Ed eligible schools (≥50% Free or Reduced Price Meal) | 40,851 | 6,795 | 34,056 |

1. 6 assessments at three schools entered by a DCC TAP, but reported as conducted in partnership with UCCE.

All but two assessments were completed by June 2019. However, SLM-related assessments and strategies were adopted at one school as part of the SY 18-19 summer school session.

First SLM Assessment

Of the 73 unique schools, just over half 38 (52%) were assessed for the first time during the 18/19 School Year with the 60-point scorecard. Summarized in Table 2 are these first assessment total and sub-category scores.

| Table 2: SLM first time assessments - 2018-2019 School Year | Total | DCC | UCCE |
|--|--------------|------------|-------------|
| Total # of schools assessed for the 1st time (with 60-point scorecard) | 38 | 11 | 27 |
| Average First Total Assessment Score (max=60) | 27.3 (46%) | 27.8 | 27 |
| Focusing on Fruits (max=6) | 2.7 (45%) | 2.7 | 2.9 |
| Vary the Vegetables (max=8) | 4.1 (51%) | 3.8 | 4.2 |
| Highlight the Salad (max=4) | 1.6 (40%) | 2.5 | 1.2 |
| Move More White Milk (max=5) | 3.1 (62%) | 2.7 | 3.3 |
| Boost Reimbursable Meals (max=11) | 2.9 (26%) | 3 | 2.9 |
| Lunchroom Atmosphere (max=10) | 6.6 (66%) | 5.7 | 6.1 |
| Student Involvement (max=6) | 2 (33%) | 2.4 | 1.9 |
| School Community Involvement (max=10) | 4.8 (48%) | 4.8 | 4.9 |

Across the 38 schools, the first assessment score was on average 27.3 which is 46% of the maximum possible score of 60. The schools assessed by both the DCC and UCCE TAPS had very similar average first total scores.

Based on these first 60-point assessments, the 38 schools were more likely to be practicing the SLM practices related to “Lunchroom Atmosphere” and “Move More White Milk” with two thirds or almost two thirds of the strategies in these areas observed during the first assessment. SLM strategies related to Lunchroom Atmosphere represent 10 of the scorecards 60 items. SLM strategies in this category include factors such as staff greeting students, clear traffic flow, lighting, trash, menu boards and cafeteria decoration. There are only half as many milk related SLM strategies (n=5) with an example being whether white milk is displayed in front in all coolers.

“Student Involvement” and “Boost Reimbursable Meals” were the two sub-categories with relatively lower initial performance. The 38 schools had an average first assessment “Student Involvement” score of 2 or just 33% of the maximum 6 points. Examples of strategies in this category are displaying student artwork, having students provide feedback for menu development and involving students in the creative names of menu items. “Boost Reimbursable Meals” was the category with the fewest strategies

observed on average just 2.9 or 26% of the 11 possible strategies. Strategies in this sub-category pertain to factors such as staff prompting, creative naming, positing of menu items as well as other specific strategies such as offering a grab-and-go meals, pre-ordering lunches and offering student taste tests of new entrées. Additional support materials and technical assistance might be developed to further support TAPS technical assistance in these areas identified from the first assessments as relatively low performing.

Second or Higher SLM Assessment

Summarized in Table 3 are the second or higher assessment total and sub-category scores for the 55 schools assessed for the second or greater time during the school year.

| Table 3: SLM 2nd or higher assessments - 2018-2019 School Year | Total | DCC | UCCE |
|---|--------------|------------|-------------|
| # of schools assessed for the 2nd or higher time | 55 | 13 | 42 |
| Average Assessment number | 2.5 | 2.2 | 2.6 |
| Average Second or Higher Score (maximum score=60) | 32.5 (54%) | 35.0 | 31.7 |
| Focusing on Fruits (max=6) | 3.3 (55%) | 3.6 | 3.2 |
| Vary the Vegetables (max=8) | 5 (63%) | 5.4 | 4.9 |
| Highlight the Salad (max=4) | 2 (50%) | 2.4 | 1.9 |
| Move More White Milk (max=5) | 3.5 (70%) | 3.6 | 3.5 |
| Boost Reimbursable Meals (max=11) | 3.7 (34%) | 3.9 | 3.7 |
| Lunchroom Atmosphere (max=10) | 7.2 (72%) | 7.5 | 7.1 |
| Student Involvement (max=6) | 2.6 (43%) | 2.9 | 2.6 |
| School Community Involvement (max=10) | 5.2 (52%) | 5.6 | 5.1 |

Across all 55 schools, the average score of the most recent – either 2nd, 3rd, or 4th – assessment was 5.2 points higher than the average initial score with 54% of the 60 SLM strategies observed compared to 46% for first time assessments. Each sub-category score was also higher for the 55 schools assessed more than once than the initial scores for the 38 schools assessed for the first time during the SY 18-19.

Change in SLM scores from First to Most Recent Assessment

Determining actual change since the first assessment; however, requires limiting analysis to the schools assessed two or more times. Of the 55 schools assessed for the second or greater time in SY 18-19, 35 were first assessed with the new 60-point

scorecard in the SY17-18. SLM scorecard data from the previous school year was incorporated into the analysis of score changes. Table 4 includes a summary of the first and most recent total scores for the 55 schools assessed for the second or greater time during the 18-19 School Year.

Overall the total SLM Assessment scores increased by 6.3 points from the first to the most recent assessment. On average, scores increased somewhat higher for the twelve DCC schools than the 43 UCCE schools with an increase of 6.9 and 6.1 points respectively. The average length of time between the first and most recent assessments was almost a year – on average 11.3 months – and relatively shorter for the DCC than UCCE schools 8.4 and 12.2 months respectively.

| Table 4: First and most recent - 2nd or higher -SLM assessment scores for schools assessed more than once over the last two school years 2017-2019 | Total | DCC | UCCE |
|---|--------------|------------|-------------|
| # of schools assessed more than once | 55 | 12 | 43 |
| Average length of time btw first and most recent scorecard (in months) | 11.3 | 8.4 | 12.2 |
| Average Second or Higher Score (maximum score=60) | 32.5 | 35.0 | 31.7 |
| Average First Score (maximum score=60) | 26.2 | 28.1 | 25.7 |
| Average Change in Total Score | 6.3 | 6.9 | 6.1 |

The average values in Table 5 mask the considerable variability across the 55 schools in the magnitude of change from the first to the most recent assessments. The school that showed the greatest improvement had a 18 point increase from 24 points in February 2018 to 42 points the following April. On the other end of the spectrum, seven schools had either no improvement or even a lower total score when assessed the second time. Table 5 indicates that the pattern of score changes is relatively similar for the UCCE and DCC TAPS. A quarter of the schools showed considerable increases of 10 or more points while 13% of schools showed no improvement. It would be useful to follow-up with TAPS to better understand why some schools were able to achieve a high degree of improvement while others did not.

| Table 5: Change in Total Score from First to Most Recent - 2nd or 3rd - SLM assessment - over the last two school years - 2017-2019 | Total | DCC | UCCE |
|--|--------------|------------|-------------|
| # of schools assessed more than once | 55 | 13 | 42 |
| Increase 10 or more points | 14 (25%) | 3 (23%) | 11 (26%) |
| Increase 5 - 9 points | 23 (42%) | 6 (46%) | 17 (40%) |
| Increase 1 - 4 points | 11 (20%) | 3 (23%) | 8 (19%) |
| No increase or a decrease in points | 7 (13%) | 1 (8%) | 6 (14%) |

Table 6 presents the change in sub-category scores for schools (n=58) assessed for the second or greater time in SY 18-19. On average, the greatest improvement was seen for the “Focus on Fruits” sub-category with a 0.9 point or 15% increase followed by the “Lunchroom Atmosphere” and “Vary the Vegetables” sub-categories which showed 14% and 13% improvement respectively. The sub-category showing the least improvement was “Highlight the Salad” with only a 5% increase in score followed by “Boost Reimbursable Meals” and “School Community Involvement” both with a 7% increase.

| Table 6: Change in sub-category scores for schools assessed more than once - 2017-2019 School Year | Total | DCC | UCCE |
|---|--------------|------------|-------------|
| Change in Focusing on Fruits score (max=6) | 0.9 (15%) | 1.3 | 0.8 |
| Change in Vary the Vegetables score (max=8) | 1 (13%) | 1.2 | 1 |
| Change in Highlight the Salad score (max=4) | 0.2 (5%) | 0.1 | 0.3 |
| Change in Move More White Milk score (max=5) | 0.4 (8%) | 0.4 | 0.4 |
| Change in Boost Reimbursable Meals score (max=11) | 0.8 (7%) | 0.7 | 0.9 |
| Change in Lunchroom Atmosphere score (max=10) | 1.4 (14%) | 1.7 | 1.3 |
| Change in Student Involvement score (max=6) | 0.7 (12%) | 0.5 | 0.9 |
| Change in School Community Involvement score (max=10) | 0.7 (7%) | 0.8 | 0.7 |

Conclusion

The SLM of CA Collaborative and the UCCE and DCC Technical Assistance Providers (TAPS) have successfully transitioned to the new 60-item SLM scorecard which is evident by the over 100 assessments conducted at 73 schools throughout the state during the last school year. “Student Involvement” and “Boost Reimbursable Meals” were two sub-categories identified as having relatively lower initial performance. Additional support materials and technical assistance might be especially beneficial to further support TAPS technical assistance in these areas. For schools assessed more than once, the change in SLM scores was highly variable. An important next step would be to follow-up with TAPS to better understand why over the course of the school year some schools were able to achieve a high degree of improvement while others did not. Many of the schools were only assessed one time during this past school year so it will really be into this current school year when it will be possible to have a better picture or longer view on SLM strategies changes schools are adopting.

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This material is funded through a joint agreement among the USDA/FNS, CDSS CalFresh Healthy Living Section, UC Davis and the UC Cooperative Extension (UCCE). These institutions are equal opportunity providers and employers. CalFresh Food provides assistance to low-income households and can help buy nutritious foods for better health. For information, call 1-877-847-3663

Evaluation Report Attachment # 3:

Process and Outcome Evaluation: Results from Tray Waste Assessments at Schools Implementing Smarter Lunchrooms Movement (SLM) and Nutrition Education

Project: Smarter Lunchrooms Movement and Nutrition Education at an Elementary School in Imperial County

Background

During the 2016-2017 School Year (SY), UC CalFresh Nutrition Education Program State and Imperial County UC Cooperative Extension (UCCE) staff conducted tray waste observations during lunch for a total of four days – two days in the fall and two days in the spring. The objective was to evaluate the impact of Smarter Lunchrooms Movement (SLM) changes to the cafeteria setting, nutrition education, and student engagement activities on students' lunchtime plate waste and menu item selection.

The assessment was conducted at an elementary school in Imperial County in collaboration with Food Service Program (FSP) staff at the school and district level. The school was awarded a Team Nutrition Grant by California Department of Education (CDE) to assist with the adoption of Smarter Lunchrooms Movement (SLM) strategies at two school sites. UCCE community educators in Imperial County have worked for many years with the school district to deliver nutrition education with funding from the US Department of Agriculture's (USDA) Supplemental Nutrition Assistance Program Education (SNAP-Ed). During SY 2016-2017, their technical assistance also included a closer relationship with the school district and school site to support SLM adoption as well as a closer linkage between nutrition education and the FSP through taste tests of a new menu item. The UC Davis Office of Research Institutional Review Board (IRB) approved the protocol for the tray waste assessment.

Intervention

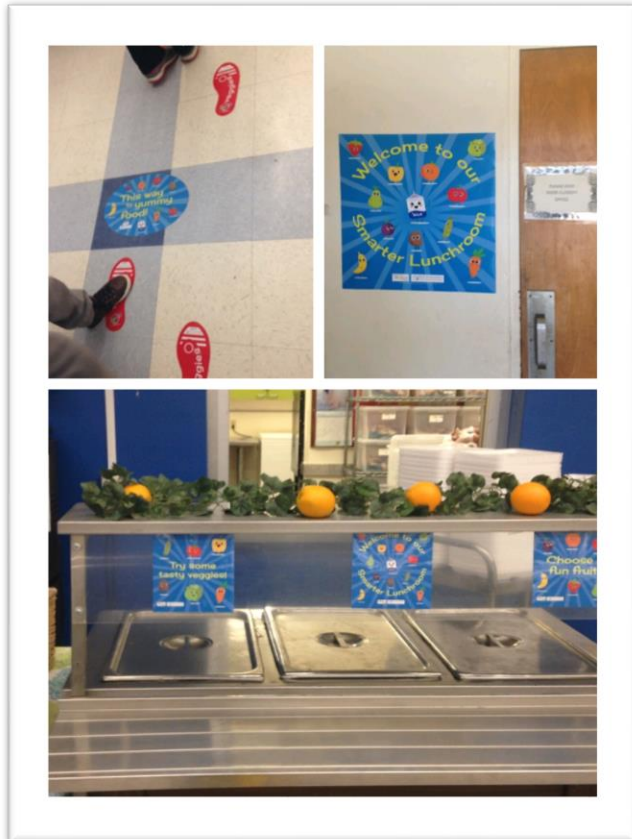
During the year, FSP staff participated in and conducted a number of trainings to support the adoption of SLM strategies. Specific SLM strategies adopted at the school site during the school year included:

- Displaying SLM posters in the cafeteria and on the service line
- Adding SLM footprint decals to the floor guiding students into the cafeteria and along the service line
- Displaying a variety of fruit and vegetable pre-packaged options in attractive containers together with a variety of condiments

- Adding a popular seasoning – Tajín® – to encourage the consumption of vegetable and fruit items
- Conducting taste tests of carrots and Tajín® in every classroom in partnership with the UCCE UC CalFresh program

The Food Service Director (FSD) also had plans to adopt additional SLM strategies,

such as adding an electronic menu board for displaying menu items together with nutrition-oriented information and messages. The informational displays would be available both in the cafeteria and on the district website so parents would have actual photos and information about the foods their students were eating at school. Creative naming signage had also been developed, as well as plans for adding an additional banner with the school mascot to “brand” the cafeteria, in addition to other signage developed with student input. However, these changes were not in place during the post-assessment tray waste data collection. For the post-assessment period, the main observed differences were the display of the SLM signage and floor decals, both developed by the SLM Collaborative of California, and the new containers purchased by the FSD for displaying fruit and vegetable menu items. The effects on student selection and tray waste of the newly introduced Tajín® seasoning and school wide taste testing activity of Tajín® with raw baby carrots were also evaluated.



*SLM Floor Decals and Signage on Display —
Post-Assessment Only*

In reviewing the pre-assessment plate waste results, the Food Service Director, school principal, and UCCE program manager and educators were struck by the relatively high percentages of waste, especially for the vegetable menu items. For example, while students commonly selected the small bags of raw baby carrots, the majority were observed to have been uneaten with the bag often unopened. In an effort to make the carrots and other vegetable and fruit items more appealing, the FSD utilized the recommended SLM strategy of offering students self-serve spices and seasoning to add flavor. Tajín® is a popular seasoning mix consisting of dried and ground red chilies, salt and dehydrated lime juice. A product of Mexico, Tajín® is often eaten with citrus fruits but also on foods like cucumbers and watermelon and a wide variety of snacks, fruits, and vegetables. The FSD was able to locate a low salt version that met school meal standards and, together with the UC CalFresh educators, taste tests of Tajín® with carrots were conducted with every classroom with over 350 students. As part of the UC CalFresh regular program evaluation IRB-approved protocol, students were asked as a group to respond to a questions related to the taste test experience. Fewer than a quarter (22%) of the students reported that they had previously tried carrots with Tajín®, but 98% were willing to try the combination. Educators captured a range of student comments from “too spicy” and “makes carrot taste bad!” to “tastes great” and “I want more!” Overall, three quarters of the students reported that they would be willing to ask for carrots with Tajín® at home and 76% said they would eat it again at school (see Table 1).



Table 1: Taste Test Tool Results – Carrot with Tajín® (low salt)

| Grade | Number of students | Before today's class, how many of you have tasted this food before? (# and %) | How many students ate (or tasted) the food today? (# and %) | How many of you are willing to eat the food at school again? (# and %) | How many of you are willing to ask for this food at home? (# and %) |
|-------------------|--------------------|---|---|--|---|
| Kindergarten | 50 | 20 (40%) | 46 (92%) | 30 (60%) | 30 (60%) |
| 1 st | 69 | 12 (17%) | 69 (100%) | 45 (65%) | 45 (65%) |
| 1-3 rd | 37 | 5 (14%) | 37 (100%) | 37 (100%) | 37 (100%) |
| 1-3 rd | 53 | 8 (15%) | 53 (100%) | 44 (83%) | 44 (83%) |
| 4 th | 42 | 14 (33%) | 42 (100%) | 42 (100%) | 35 (83%) |
| 4-6 th | 44 | 6 (14%) | 44 (100%) | 41 (93%) | 41 (93%) |
| 6 th | 58 | 14 (24%) | 56 (97%) | 31 (53%) | 31 (53%) |
| TOTAL | 353 | 79 (22%) | 347 (98%) | 270 (76%) | 263 (75%) |

Prior to SY2016-2017 and the CDE Team Nutrition funding, the school district FSP had already begun adopting SLM strategies such as displaying fruits and vegetables in attractive baskets that were easily accessible and highly visible. Additionally, UCCE had a partnership with the district to host hundreds of students each year at the Desert Research and Extension Center for interactive nutrition and agriculture education. During the SY 2016-2017, UCCE more closely coordinated with FSP staff to link the nutrition education and taste tests to the cafeteria offerings. The FSD also had plans to increase the classroom-based nutrition education so that all grades received at least two lessons each year.

Lunch Operations

At the elementary school site, the lunch service is organized in four staggered 45-minute shifts over a 95-minute period, as follows:

- Group 1: Transitional Kindergarten and Kindergarten students enter the lunchroom at 11:10 and exit by 11:55 AM.
- Group 2: Students in 1st and 2nd Grades enter the lunchroom at 11:30 AM and exit by 12:15 PM.
- Group 3: Students in 3rd and 4th Grades enter the lunchroom at 11:45 AM and exit by 12:30 PM.
- Group 4: Students in 5th and 6th Grades enter the lunchroom at 12 noon and exit by 12:45pm.

Organized in single file, the students take a tray, pick-up utensils, and walk first past the serving station, at which they select one of two entrées served to them by a cafeteria staff member. The students then walk past an immediately adjacent table with self-service fruit and vegetable menu options, followed by a refrigeration case with milk options, and finally, to the checkout cashier. The fruit and vegetable options are arranged in baskets or attractive containers and were pre-packaged items (in either plastic cups or bags) or whole fruits. Condiments such as ranch dressing and, depending on the entrée of the day, ketchup are also available on the table. In the post-assessment period, Tajín® was also available on the table and at the checkout station. In both the pre and post periods, the staff person managing the checkout process was observed checking trays and prompting students when the school lunch was incomplete (e.g. lacking a fruit or vegetable).

The lunch items are prepared at a central kitchen and delivered daily by truck in large hot or cold transport containers. While the kitchen has a sink and workspace, most of the lunch items are pre-cooked or pre-packaged so that little onsite preparation is necessary. For example, sliced oranges were a menu item served during both the pre and post assessment periods. The oranges were quartered and bagged at the central kitchen using a slicer designed for this purpose. The school site cafeteria staff arrange the service line to be attractive and easily accessible to students. Cafeteria staff individually serve students the entrée item of their choice; but the fruit and vegetable selections and milk options are “self-serve”. The elementary school has highly experienced bilingual cafeteria staff. Just three kitchen staff prepare, serve, and “checkout” almost 350 students in just over an hour and a half. Several lunch monitors and often, the school principal, assist with the service flow and student supervision during the lunch period by responding to dozens of requests for assistance with packaging, table dynamics, or visits to the restroom. Lunch monitors also collect menu items students do not want in a “share box” which is used to redistribute food to other students. A single custodian has chief responsibility for transforming the auditorium to a cafeteria and back again for both the breakfast and lunch services as well as bagging and disposing of all trash.

Methodology

The Quarter-Waste observation method was used to estimate the amount of uneaten edible food or beverages that were discarded by students. With this method, a workstation is set up where students are asked to deposit their trays at the end of lunch period. Only students who brought a lunch from home dispose of their lunch trash themselves. Working in pairs, a trained observer looks at the tray and estimates whether none, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, or all of an item was wasted. A recorder notes the estimates in prepared sheets listing each menu item using the following “scores”: no waste equals 0, $\frac{1}{4}$ waste equals 1, $\frac{1}{2}$ waste equals 2, $\frac{3}{4}$ waste equals 3, and all wasted equals 4. The

observation team determines whether a menu item was taken based on the packaging and food residue left on the tray. In a few cases, two servings of a menu item were observed on a single tray. In those cases, the waste for each item was recorded and a code assigned for the overall waste observed for that item. In addition, on the observation days, the “share box” system was maintained but items were only added after being recorded by the observation team.

The intent was to serve the same menu items during the “pre” assessment in the fall as the “post” assessment. However, due to post-assessment scheduling challenges, it was only possible to closely match the menu items for one of the two days. Table 2 summarizes the entrée, fruit, and vegetable items served each day for the pre and post periods. Menu items offered in only one period are indicated in ***bolded italics***. Overall, only 6 food menu items were offered in both the pre and post assessment periods and 11 food menu items were offered only in one of the two periods.

Table 2. Food Menu items by Food Category in Pre and Post Assessment Days

| Menu Items | Entrées Pre | Entrées Post | Vegetables Pre | Vegetables Post | Fruits Pre | Fruits Post |
|------------|--|---|--|--|--|---|
| Day 1 | 2 items <ul style="list-style-type: none"> Taco Snack (burrito) <i>Chicken Nuggets</i> | 2 items <ul style="list-style-type: none"> Taco Snacks (burrito) <i>Tamales</i> | 3 items <ul style="list-style-type: none"> Mexicali Corn (cooked) Carrots (raw) Celery (raw) | 3 items <ul style="list-style-type: none"> Mexicali Corn (cooked) Carrots* (raw) Celery (raw) <i>Tajín® seasoning*</i> | 2 items <ul style="list-style-type: none"> Pineapple Tidbits Orange – (sliced in a bag) | 2 items <ul style="list-style-type: none"> Pineapple Tidbits Orange – (sliced in a bag) <i>Tajín® seasoning*</i> |
| Day 2 | 3 items <ul style="list-style-type: none"> <i>Chili Beans</i> <i>Tostito Scoops</i> Taco Snack (burrito) | 2 items <ul style="list-style-type: none"> <i>Chicken Tender</i> Taco Snack (burrito) | 2 items <ul style="list-style-type: none"> <i>Garden Salad</i> Carrots (raw) | 2 items <ul style="list-style-type: none"> <i>Spiral Seasoned Fries (cooked)</i> Celery (raw) <i>Tajín® seasoning*</i> | 3 items <ul style="list-style-type: none"> Pineapple Tidbits <i>Apple Bites (sliced in a bag)</i> <i>Mixed Fruit Cup</i> | 4 items <ul style="list-style-type: none"> Pineapple Tidbits Orange – (sliced in a bag) <i>Amazin Raisins</i> <i>Pear (whole)</i> <i>Tajín® seasoning*</i> |

*Item was featured in a classroom taste testing. Items in ***bolded italics*** were offered only in just the pre or post assessment period but not both.

For Day 1, six of seven menu items were identical during the two periods. The only exception being Tamales, rather than Chicken Tenders, were a second entrée option on Day 1 during the post. All of the fruit and vegetable menu options were the same. Another difference for Day 1 of the post assessment period was the availability of

Tajín® as a possible seasoning in addition to other condiments like ranch dressing. Tajín® packets were displayed in a basket near the fruits and vegetables and at checkout, the cafeteria staff member offered students a Tajín® packet. As previously described, taste tests of Carrots with Tajín® had been conducted in every classroom in March approximately a month prior to the post assessment observations.

Unfortunately, for Day 2, due to scheduling challenges and the menu rotation plan, it was not logistically feasible to match pre and post menu items. One of the two entrées was different in the follow-up period, specifically, Chicken Tenders instead of Chili, typically served with the Tostito Scoops, which was a popular item among students. Also popular with students were Spiral Seasoned Fries, which were offered as one of two vegetable menu items on Day 2 of the post assessment only but not during the pre-assessment. Since cooked potato has very different attributes than the other vegetable items offered - raw Baby Carrots and raw Celery or cooked Mexicali Corn – two Vegetable Categories were created to compare the tray waste observations - one with Fries and one without. The Tajín® seasoning was also available to students on Day 2; however, packets were placed on the table with the checkout staff member less actively promoting them. A greater variety of fruit options were offered on the post Day 2 – four instead of three or just two on Day 1. Amazin' Raisins infused with lemon flavor was one of the relatively new additional fruit options that the FSD hoped would appeal to students. The other new item was a whole pear. In general, the school district FSP makes a concerted effort to serve sliced rather than uncut whole fruit. They have purchased several slicers for the central kitchen to accommodate this. However, on this second day, both a whole uncut fruit (Pear) and a sliced whole fruit (quartered Oranges) were observed.

Milk options were very similar for the pre and post periods. On Day 1, students could choose either Low-fat 1% White Milk or Fat Free Chocolate Milk. Fat Free White Milk was also available on Day 1 of the post period but very few were selected. On Day 2 during both periods, students could choose either Low-fat 1% White Milk or Fat Free White Milk.

The Quarter-Waste “scores” were analyzed in two ways.

- **Average Waste:** First, an estimated average percent waste for the item was calculated based on all the observations recorded. This is truly an “estimated” average since waste observations were only recorded in 25% increments (i.e. 0%, 25%, 50%, 75%, and 100%).
- **Majority Waste:** Second, the percentage of trays having 75% or greater waste observed for a specific menu item was also calculated. For example, if 50 trays were observed as having Taco Snacks, and ten trays had 75% or greater waste, then 20% of the trays would be reported as having 75% or greater waste.

Student selection of menu items was also assessed. Many of the SLM strategies are designed to “nudge” or influence students’ selection of the healthiest menu items. Selection was measured by the total number of items observed. Since each student has a tray, reporting the number of trays with a waste observation for a given item is very similar to reporting the number of students selecting the item. However, there were a few cases when a single student selected more than one of the same item. For example, a tray might have been observed to have two bags of carrots – one completely eaten and one-half eaten. For the waste analysis, 50% would be assigned to reflect the fact that overall 50% of a bag of carrots was observed as discarded on this tray. However, for the selection analysis, two carrot menu items would be counted for this single tray. The frequency that multiple servings of the same menu item was observed on the same tray is not great (only 26 times in the pre and 30 times in the post period) and only approximately 1% of the menu item observations recorded.

Results

For the “pre” and “post” data collection periods, a similar number of trays were observed - 688 and 636 respectively. Most days, just over 340 trays were recorded. However, approximately 50 fewer trays were observed on Day 2 of the post-assessment period because some classes were on a field trip to the UC Cooperative Desert Research and Extension Center. During the 2016-17 SY, the teams observed 1,324 lunch trays over four days (see Table 3)

Table 3: Number of Trays Observed by Day

| | PRE – November 9 th & 10 th | POST – April 26 th & 27 th |
|---------------------------------------|---|--|
| Day 1 | 344 | 346 |
| Day 2 | 344 | 290 |
| Total Number of Trays Observed | 688 | 636 |

Average Waste Comparison by Food Category

For the pre-assessment period, all menu items were categorized into four groups – Entrées, Fruits, Vegetables, and Milk. For the follow-up period, an additional fifth category was created to allow for a distinction between Vegetables with and without Spiral Seasoned Fries. Spiral Seasoned Fries’ popularity and attributes are markedly different from the other Vegetable menu items such as Baby Carrots (raw), Celery (raw), and Mexicali Corn (cooked). During the pre-assessment period, students could select two entrée items — Chili beans and Tostito Scoops —often eaten together but whose waste measures were recorded separately. As a result, the number of entrée items observed exceeds the number of trays observed during the pre-assessment period. Summarized in Table 4 are the estimated average waste across all the menu items in a given Category observed during the two-day pre and post periods.

Overall, between the pre and post periods, the estimated average waste changed the least for the Fruit and Entrée Categories and decreased the most for Vegetables (without Fries). The average waste for menu items in the Fruit Category **decreased** by 3.1 percentage points from the pre to the post while it **increased** by a similar amount, 3.3 percentage points, for the Entrée Category. The change was somewhat higher for the Milk Category, which had a 5.8 percentage point **decrease** in average waste from the pre to post period. However, the Vegetable Category (excluding Spiral Seasoned Fries) showed the greatest overall change with a 9.1 percentage **decrease** in average waste from the pre to post period.

In both periods, the Food Category rankings of the relatively lowest to highest average waste remained relatively consistent. Entrées had the lowest average waste (45.3-48.6%) and Vegetables (without Fries) the highest average waste (78.7-87.8%). When the Spiral Seasoned Fries waste observations are included in the Vegetable Category, the overall average waste (47.3%) was similar to the Entrée Category. Almost 95% of the trays on Day 2 had Spiral Fries and the average waste for this individual item was only 19.4%. However, since Spiral Seasoned Fries were not served in the pre assessment period, no comparison is possible for this Vegetable Category. In both periods, the average waste for the Milk and Fruit Categories is close to two thirds and relatively similar, (65-70.8%) and (66.4-69.5%), respectively.

Table 4: Average Waste Comparison

| Food Classification | PRE (N=688 Trays) | | POST (N=636 Trays) | | % Point Change From Pre to Post |
|--|---------------------------|-----------------|---------------------------|-----------------|---------------------------------|
| | Total Observed (two days) | Average % Waste | Total Observed (two days) | Average % Waste | |
| Entrées* | 899 | 45.3% | 622 | 48.6% | 3.3% |
| Fruits | 662 | 69.5% | 592 | 66.4% | -3.1% |
| Vegetables (without Spiral Seasoned Fries) | 306 | 87.8% | 244 | 78.7% | -9.1% |
| Vegetables (with Spiral Seasoned Fries) | n/a | n/a | 519 | 47.3% | - |
| Milk | 605 | 70.8% | 597 | 65.0% | -5.8% |

*More than one entrée item could be selected on Day 2 of the pre-assessment period.

Average Waste Comparison by Individual Menu Item

As previously described, only six of the food menu items and two of the milk items were offered in both the pre and post-periods and, therefore, were the only items compared in observed waste differences over the year. The estimated average waste of some individual menu items demonstrated even larger percentage point changes between the

pre and post periods than the larger Food Categories. For example, the following individual menu items had average waste changes of 5% points or greater:

Decrease

- Orange (sliced) served 1-day in the pre and 2 days in the post period had a **decrease** of 18.5 percentage points
- Carrots (raw) served 2-days in the pre and 1 day in the post period had a **decrease** of 13.1 percentage points
- Chocolate Milk (Fat Free) served 1 day in both the pre and post period had a **decrease** of 6.9 percentage points
- Pineapple Tidbits served 2-days in both the pre and post periods had a **decrease** of 6.3 percentage points
- White Milk (Fat Free) served 1 day in the pre and 2 days in the post period had a **decrease** of 5 percentage points

Increase

- Taco Snacks (burrito) served 2-days in both the pre and post periods had an **increase** of 7.2 percentage points

Additional detail is available that provides the estimated average waste measures and changes for all menu items for either a single day or over two days, depending on how often they were served. It is interesting to note that carrots were the individual menu item with the greatest percentage point **decrease** in average waste from 91% in the pre (based on two days of observations) to 77.9% in the post (based on only one day of observation). Raw carrots, paired with Tajín®, was featured in taste tests conducted in every classroom a month prior to the post-assessment observations. Tajín® was also observed on several other menu items such as Oranges and Pineapple Tidbits, which also demonstrated a reduction in average waste of 18.5 percentage points and 6.3 percentage points, respectively. In several cases (n=9) during the post period, an uneven number of orange quarter peels were observed and noted. While this did not influence the waste measures recorded, even when these cases are removed from the analysis the average waste for oranges decreased by 17.9 percentage points based on one day of observation in the pre and two days during the post.

In the post-assessment period, the observation teams also recorded if Tajín® was observed on trays. On Day 1, when cafeteria staff more actively promoted the Tajín® seasoning packets at checkout, 146, or 42.2%, of the observed trays included evidence of Tajín® compared to just 35 trays, or 12.1%, on Day 2. The menu items were also different on the two observation days, with Carrots only served on Day 1, but Pineapple

Tidbits and Oranges offered on both days. Over the two days, 28.5% of the trays were observed as having Tajín®.

Majority Waste Comparison by Food Category

Similar to the average waste results, the majority waste results showed the greatest decrease for the Vegetable (without Spiral Seasoned Fries) and the Milk Categories between the pre and post assessment periods (see Table 5). “Majority” waste refers to waste observations of 75% or greater or the percentage of observations where the majority of the menu item was not eaten. While still relatively high, the percentage of Vegetable menu items (excluding Fries) observed to have the majority of the item wasted decreased by 8.1 percentage points from 85.6% to 77.5% in the post assessment period. The Milk Category has relatively lower majority waste observed in both periods but it also decreased from 63.1% to 57.1% or 6 percentage points. The Fruit Category had a similar overall percentage majority waste as the Milk Category and also demonstrated a decrease between the two periods, but by a more modest 1.8 percentage points. The Entrée Category had the relatively lowest majority waste observed in both periods, but this category showed an increase from 37.2% to 43.4% majority waste, or 6.2 percentage points.

Table 5: Majority Waste Comparison

| | PRE (N=688 Trays) | | POST (N=636 Trays) | | |
|--|---------------------------|-----------------------------------|---------------------------|-----------------------------------|---------------------------------|
| Food Classification | Total Observed (two days) | % Trays with 75% or Greater Waste | Total Observed (two days) | % Trays with 75% or Greater Waste | % Point Change From Pre to Post |
| Entrées* | 899 | 37.2% | 622 | 43.4% | 6.2% |
| Fruits | 662 | 64.5% | 592 | 62.7% | -1.8% |
| Vegetables (without Spiral Seasoned Fries) | 306 | 85.6% | 244 | 77.5% | -8.1% |
| Vegetables (with Spiral Seasoned Fries) | n/a | n/a | 519 | 44.1% | - |
| Milk | 605 | 63.1% | 597 | 57.1% | -6.0% |

*More than one entrée item could be selected on Day 2 of the pre-assessment period.

Majority Waste Comparison by Individual Menu Item

Again, due to inconsistent menu offerings between the pre and post periods, it was only possible to compare change in majority waste for six individual food menu items and two of the milk options. Several individual menu items demonstrated larger percentage point changes in percentage majority waste between the pre and post periods as compared to the Food Categories. For example, the following individual menu items had majority waste changes of 5% points or greater:

Decrease

- Orange (sliced) served 1-day in the pre and 2 days in the post period had a **decrease** of 18.3 percentage points
- Carrots (raw) served 2-days in the pre and 1 day in the post period had a **decrease** of 16.3 percentage points
- Chocolate Milk (Fat Free) served 1 day in both the pre and post period had a **decrease** of 6.9 percentage points
- Pineapple Tidbits served 2-days in both the pre and post periods had a **decrease** of 6.1 percentage points
- White milk (1% low fat) served 2 days in both the pre and the post had a **decrease** of 5.3 percentage points

Increase

- Celery (raw) served 1-day in the pre and 2-days in the post had an **increase** of 14.9 percentage points
- Taco Snacks (burrito) served 2-day in both the pre and post periods had an **increase** of 9.8 percentage points

Additional detail is available that provides the estimated majority waste measures and changes for all menu items for either a single day or over two days depending on how often they were served. Again, it is interesting to note the relatively greater reduction of Baby Carrot majority waste in the post assessment period. While Baby Carrots were only served on Day 1 of the post assessment period, 73.8% of the observed trays had a majority of the item wasted compared to 90.1% across both days in the pre-assessment period. Oranges also demonstrated a notable decline in majority waste by 18.3 percentage points. Again, even when the flagged cases (n=9) having fewer than 4 or 8 quarter peels were removed from the analysis, the majority waste for oranges decreased by 17.4 percentage points. Pineapple Tidbits were served on both days during both periods and their majority waste measure dropped from 71.8% to 65.5% in the post assessment period. Since all three items were observed with the Tajín® seasoning, these waste reductions provide some potential evidence of the benefit of offering this new seasoning in the cafeteria as a strategy for increasing the consumption of vegetables and fruit menu items.

Selection Comparison

Another outcome of interest is the frequency by which menu items are selected by students. As mentioned above, this number is very similar to - but not the same as - the number of trays with a waste observation since in some cases a student selected more than one of the same menu items. Table 6 summarizes the total number of menu items observed by Food Category. This number is also presented as a percentage of trays observed since fewer trays were observed during the post-assessment period due to a field trip as previously mentioned.

Table 6: Selection Comparison

| Food Category | PRE (N=688 Trays) | | POST (N=636 Trays) | | % Point Change From Pre to Post |
|--|--|------------------------------|--|------------------------------|---------------------------------|
| | Total Number Observed/ Selected (two days) | % Selected of Trays Observed | Total Number Observed/ Selected (two days) | % Selected of Trays Observed | |
| Entrées* | 915 | 133.0% | 639 | 100.5% | -32.5% |
| Fruits | 670 | 97.4% | 604 | 95% | -2.4% |
| Vegetables (without Spiral Seasoned Fries) | 307 | 44.6% | 245 | 38.5% | -6.1% |
| Vegetables (with Spiral Seasoned Fries) | n/a | n/a | 520 | 81.8% | - |
| Milk | 607 | 88.2% | 599 | 94.2% | 6.0% |

*More than one entrée item could be selected on Day 2 of the pre-assessment period.

In comparing the number and percentage of menu items selected by Food Category between the pre and post assessment periods, several differences are notable. The relatively large decrease (32.5%) for the Entrée Category is explained by the fact that for one of the pre-assessment days, three different Entrée menu items were served and many students selected both the Chili Beans with Tostito Scoops. As a result, the number of Entrée menu items observed relative to the total number of trays was greater than 100% in the pre assessment period, since many students selected two entrée items. In the post-assessment period, just two Entrée menu items were served each day, so the number of Entrée menu items observed was very similar to the overall number of trays observed.

In both periods, the number and percent of Fruit menu items observed was relatively high, 95% or higher, and relatively similar for both time periods with a difference of just 2.4 percentage points. Between the pre and post periods, the Vegetable Category decrease was somewhat greater 6.1 percentage points. This might be at least in part explained by the relative popularity of the Spiral Seasoned Fries menu item. When Fries are included in the Vegetable Category, the percentage of observed Vegetable menu

items increases from just over a third of the total trays to over 80%. However, since Fries were not served during the pre-assessment period no comparison can be made for this category between the two periods.

The Milk Category was the only one that demonstrated an increase in selection between the two periods by 6.0 percentage points. For one of the post-assessment days, three rather than two types of milk were available to students; however, few students (only 5) selected this third option - Fat Free White Milk. While no other intentional cafeteria strategies were observed pertaining to milk, review of the weather conditions on the tray waste assessment dates did indicate that the two post-assessment days might have been relatively warmer. For the pre-assessment period, the recorded high temperature was 92°F on Day 1 and 85°F on Day 2 compared to a high of 94°F for both post-assessment days.¹

The number of specific Vegetable Category menu items selected by day is summarized in Table 7. The Spiral Seasoned Fries were clearly the most popular Vegetable item across all four assessment days with 275 servings observed on just one day. The next most frequently selected Vegetable items was raw Carrots by close to 100 students on the three days they were offered. Celery Sticks were the least popular item on days when other uncooked Vegetable options were available; but, on days when it was the only uncooked vegetable option the number select exceeded 50 which was more similar to the number of Garden Salad and Mexicali Corn (cooked) items selected.

Table 7: Vegetable Menu Items Selected per Day

| Vegetables | PRE Veg Menu Items Observed Day 1 | PRE Veg Menu Items Observed Day 2 | POST Veg Menu Items Observed Day 1 | POST Veg Menu Items Observed Day 2 |
|---|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|
| Carrots (raw) | 109 | 94 | 103 | - |
| Celery Sticks (raw) | 17 | - | 29 | 54 |
| Garden salad (w/ tomatoes, olives) | - | 49 | - | - |
| Mexicali Corn (cooked) | 38 | - | 59 | - |
| Spiral Seasoned Fries (cooked) | - | - | - | 275 |
| TOTAL (with Fries) | 307 | | 520 | |
| TOTAL (without Fries) | 307 | | 245 | |

In both periods, the most popular Fruit menu item was Oranges (sliced into quarters) with over 200 observed on a single day. Fewer were selected – only 59 - on Day 2 of the post-assessment period. This may have been the results of fewer oranges being offered that day. Fruit and vegetable items remaining at the end of the lunch period

¹ AccuWeather Actual Temperatures for 11/9/16, 11/10/16, 4/26/17 and 4/27/17

might be refrigerated and served again on the following day. This practice likely explains why a greater variety of fruit items was available on some days.

Pineapple Tidbits were the most consistently offered Fruit option observed on each of the four assessment days but the number selected varied considerably by day with a high of 138 and a low of 33. Apple Bites and Mixed Fruit Cup were only offered on a single day but the number selected 151 and 136 respectively was similar to the Pineapple Tibits relatively “high” day. Amazin Raisins was a relatively new Fruit menu item that the Food Service Director hoped would be popular since it was infused with a sour lemon flavor. However, more whole Pears were actually selected than Amazin Raisins on the one day it was available. Interestingly, the total number of Fruit items selected was not greater when a greater variety was served. In both the pre and post periods, the total number of Fruit items observed was greater on days when only two options were offered. However, the post assessment comparison of absolute numbers is complicated by the fact that approximately 50 fewer student trays were observed on Day 2 of the post assessment due to a field trip.

Table 8: Fresh Fruit Menu Items Selected per Day

| Fruits fresh | PRE Fruit Menu Items Observed Day 1 | PRE Fruit Menu Items Observed Day 2 | POST Fruit Menu Items Observed Day 1 | POST Fruit Menu Items Observed Day 2 |
|-------------------------------|--|--|---|---|
| Pineapple Tidbits | 138 | 33 | 92 | 56 |
| Orange (sliced in bag) | 212 | - | 235 | 59 |
| Apple Bites | - | 151 | - | - |
| Mixed Fruit Cup | - | 136 | - | - |
| Raisins (Amazin) | - | - | - | 69 |
| Pear (whole) | - | - | - | 91 |
| Daily Total | 350 | 320 | 327 | 276 |
| TOTAL | 670 | | 602 | |

Conclusion

Two methodological limitations – the inability to consistently match the menu items offered during the pre and post assessment periods, especially for Day 2, together with the approximately 50 fewer students away from school that same day on a field trip – influence the ability to draw definitive conclusions. Still, several promising findings emerge from this preliminary analysis.

Menu items in the Vegetable Category (not including Fries) demonstrated the greatest decrease in observed tray waste for both estimated average waste and majority waste with reductions of 9.1 and 8.1 percentage points respectively. All classrooms in the school had participated in a taste test of carrots with Tajín® seasoning a month prior to

the post-assessment. So, it is interesting to see even greater waste reduction for raw Carrots (13.1 percentage points average waste and 16.3 percentage points majority waste) than the Vegetable (without Fries) Category overall. Especially when promoted at checkout by cafeteria staff, the popularity of Tajín® (low salt) was evident in that over 40% of the trays were observed to have the seasoning.

Since Tajín® seasoning can be used on any number of fruits and vegetables; it was interesting to see that average and majority waste decreased for Oranges (18.5 and 18.3 percentage points) and for Pineapple Tidbits (6.3 and 6.1 percentage points). These results provide support for three SLM strategies 1) offering seasoning to improve the acceptability of vegetables and fruits, 2) promoting menu items through taste test opportunities, and 3) suggestive selling by cafeteria staff.

The Milk Category menu items also demonstrated waste reduction, although to a lesser degree – a decrease in average waste by 5.8 percentage points and majority waste by 6 percentage points. The SLM and nutrition education strategies adopted during the year did not focus on milk-related changes or strategies beyond general messaging regarding MyPlate and the benefits of the various food groups including dairy. The Milk Category was also the only one that demonstrated an increased student selection as measured by the number of menu items selected relative to the total trays observed. One contributing factor might have been the weather, especially for students who had free play prior to their lunch period, since the average high temperature during the two post assessment days was 5.5°F higher than the two pre assessment days.

Other than the Milk Category and popularity of Spiral Seasoned Fries (only offered in the post assessment period), little difference in student selection was evident between the two periods. In part, this might be explained by the relatively high percentage of trays observed as having a Fruit menu item (over 90%) even in the pre-assessment period.

Further analysis should apply statistical tests as well as explore differences by grade levels and scheduling such as free play before versus after lunch. However, this preliminary analysis does provide some evidence that the introduction of the Tajín® seasoning together with the Carrot and Tajín® school wide taste tests may have helped to reduce food waste for the Vegetable Category (not including Fries), specifically for carrots and, to a lesser degree, Pineapple Tidbits.

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Evaluation Report Attachment #4:

Outcome Evaluation: Measuring CalFresh Healthy Living, UC's Intervention Success via Adult & Youth Evaluation tools

Project: UC CalFresh SNAP-Ed Activities in 32 California Counties

Project Goals:

All CalFresh Healthy Living, UC Cooperative Extension (UCCE) county programs conduct outcome evaluation of their education activities applying the CalFresh Healthy Living, UC Evaluation Taskforce recommended evaluation tool(s) and Specific, Measurable, Agreed Upon, Realistic, and Time-Based (SMART) objectives assigned to the specific curricula or workshop topic they are implementing. The project goals for these evaluation activities are as follows:

- Clearly define the healthy eating, food resource management and physical activity behaviors program services are aiming to promote,
- Recommend evaluation tools for assessing these behaviors appropriate to the intervention strategies being implemented and the age of participants,
- Set SMART targets for expected improvements for the various commonly used evaluation tools,
- Assess progress towards these promoted behaviors and targets among program participants,
- Program teams review county-specific evaluation results to identify areas for further strengthening and/or emphasis.

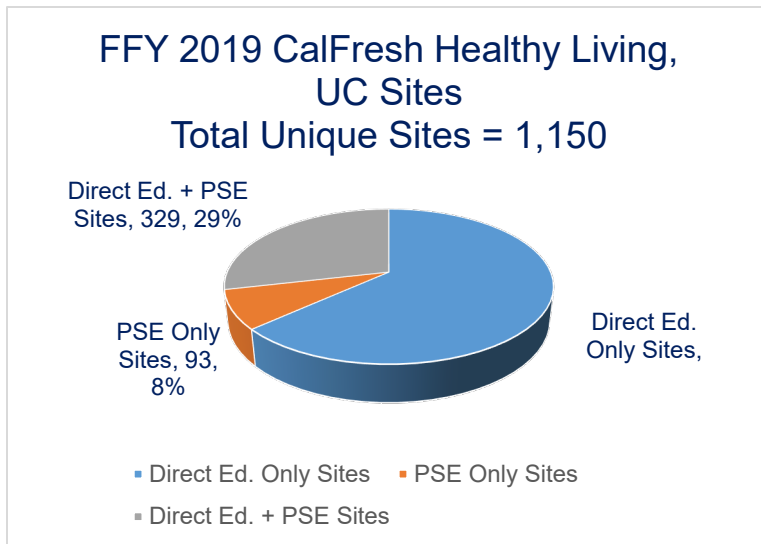
This evaluation-related work most directly pertains to the following California SNAP-Ed State Level Goals for FFY2017-2019:

Goal 1: Increase Consumption of Healthy Foods and Beverages and Decrease Consumption of Unhealthy Foods and Beverages

Goal 2: Increase Physical Activity

Goal 3: Improve Food Resource Management

The CalFresh Healthy Living, UC's (CFHL, UC) statewide evaluation was originally developed to evaluate the performance and effectiveness of the direct education services. Recommended evaluation tools align with specific curriculum. Additionally, UCCE teams have worked hard to make their programming more comprehensive by incorporating evidence-based policy, systems and environmental (PSE) changes strategies. As partners are being supported to adopt nutrition and physical activity related changes at the same sites where education is being delivered the evaluation tools are increasingly capturing the combined effects of direct education and PSE-related work.



In FFY2019, CFHL, UC programs provided services to over 1,100 unique site settings. Nearly 30% were receiving both direct education as well as PSE-related services. CFHL, UC has moved collection of several surveys to PEARS which will allow better analysis and comparison of the specific services received and evaluation results.

Evaluation Design:

Depending on the direct education curricula and/or education format being delivered, UCCE county programs complete the recommended evaluation tool and enter the data throughout the year into statewide data entry portals. The CFHL, UC state office analyzes and shares back with the UCCE county/cluster programs county and aggregated state-level evaluation results relative to the SMART objectives.

A variety of practitioner-oriented evaluation methods are used including brief surveys administered at the end of single session workshops, pre/post surveys, retrospective surveys and teacher observations. Most of the evaluation instruments are administered in written form – paper and pencil or pen – but some such as the Taste Test Tool is administered for a small group with responses most commonly collected through a show of hands. Many, but not all, of the evaluation results collected align with the SNAP-Ed Evaluation Framework indicators. Those that do not assess important precursors to the behavior change including food preference, feeding practices or implementation quality and/or fidelity.

The FFY 2019 CFHL, UC direct education evaluation results are summarized below with the Youth program findings presented first and followed by the Adult program findings.

Results:

Evaluation of Youth Programming

The majority of CFHL, UC nutrition education is provided to preschool and school age children. This summary includes results from the two youth evaluation tools most commonly used across multiple direct education curricula (Teacher Observation Tool and Youth Taste Test Tool) and a new youth physical activity evaluation tool piloted in FFY 2019 (Physical Activity Teacher Observation Tool). In addition, several curricula such as *EatFit* and *Hunger Attacks* have curricula specific evaluation tools. However, in

FFY 2019, these were only used by a single county and so the summary results are not reported here.

Teacher Observation Tool (TOT)

The TOT tool was developed to create a retrospective evaluation measure that could be used with the various curriculum delivered by CFHL, UC youth programs. Teachers, youth program leaders, and other extenders at the participating sites are trained to deliver UCCE nutrition curricula such as *Happy Healthy Me*, *Eating Healthy from Farm to Fork*, *My Amazing Body*, *Good for Me and You*, and *It's My Choice*. The TOT collects information on teachers' perceptions and observations related to the changes in knowledge and behavior among students as well as changes in their own nutrition and physical activity related practices after delivering UC developed nutrition curricula. The TOT is especially appropriate for the lower grade levels when student pre/post surveys is not feasible.

In FFY 2019, 629 teachers completed the retrospective TOT questions on behalf of their 14,196 students across 24 counties. Thirty percent of these students were preschool students, 17% were Kindergarten-2nd graders, 37% were 3rd-5th graders, and 17% were 6th-8th graders. Over one-third (39%) of these TOTs were collected in urban settings, 36% in rural settings, and the remaining 25% in suburban settings.

As a result of CalFresh Healthy Living, UC nutrition education, the following percentage of teachers "Strongly Agree" or "Agree" that compared to the beginning of the year more students now:

- 96% - Are able to identify healthy food choices,
- 93% - Are willing to try new foods offered at school,
- 86% - Wash hands more often before handling food,
- 77% - Choose fruits and/or vegetables in the cafeteria or during classroom parties, and
- 65% - Bring fruit and/or veggies as a snack.

Furthermore, compared to the beginning of the school year teachers also reported changes in their own behaviors. Some highlights include teachers who report "A lot more often" engaging in the following:

- 57% - Encourage students to be physically active,
- 56% - Encourage students to eat breakfast,
- 47% - Make healthier personal food choices,
- 39% - Remind families to bring healthy snacks for school parties, and
- 34% - Offer healthy food choices to students (at parties, snacks, rewards).

Many of these positive changes in teacher and child behaviors move beyond the individual factors of the Socio-Ecological Model (SEM) and are affecting environmental settings. Additionally, these findings are supported by county reports, which highlight changes in access to structured PA, and classroom PA breaks, closer collaboration between classroom and cafeteria through coordinated tastings, staff wellness efforts,

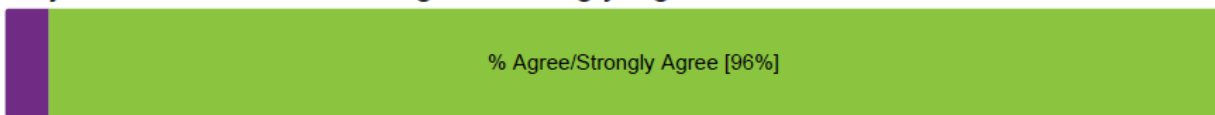
and Smarter Lunchrooms Movement strategies as well as CFHL, UC staff participation on school and district School Wellness Committees.

Statewide and county specific TOT results are examined against **two SMART objectives**:

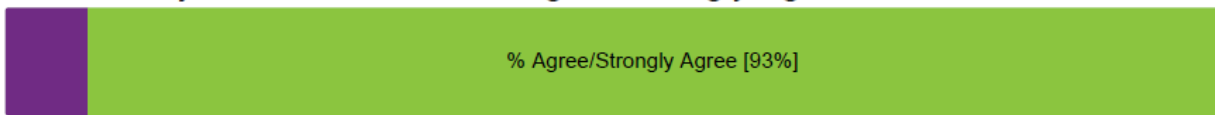
1. $\geq 75\%$ Agree or Strongly Agree that compared to the beginning of the school year, more students can now identify healthy food choices, and
2. $\geq 75\%$ Agree or Strongly Agree that compared to the beginning of the school year, more students are now willing to try new foods offered at school.

In FFY 2019, over ninety percent of teachers statewide either “strongly agreed” or “agreed” that more students now can **identify healthy food choices** and are **willing to try new foods offered at school** compared to the beginning of the school year. These findings surpass both of the SMART Objectives set at 75% or more.

More Students Now Can Identify Healthy Food Choices: Met SMART Objective if 75% or more Agree/Strongly Agree



More Students Now Are Willing to Try New Foods Offered at School: Met SMART Objective if 75% or more Agree/Strongly Agree



Youth Taste Test Tool (TTT)

In collaboration with the UCCE Evaluation Taskforce members, CalFresh Healthy Living, UC has developed and validated a simple TTT to evaluate youth response to food tastings that are coupled with classroom nutrition education. These findings are included in a paper that has been published in *the Journal of the Academy of Nutrition and Dietetics*¹.

Exposure to healthy foods is particularly important for children in low-income households where availability of fruits and vegetables is low, and limited resources discourage parents from experimenting with new foods that their children might reject. A goal of the CFHL, UC youth program is to increase willingness to try new healthy foods and encourage children to ask for these foods at home. Other studies have shown

¹ Kaiser LL, Schneider C, Mendoza C, George G, Neelon M, Roche B, Ginsburg D. Development and Use of an Evaluation Tool for Taste Testing Activities by School-Aged Children, *J Acad Nutr Diet* 2012; 112:2028-2034

willingness to try fruits and vegetables and children asking parents to buy these foods are associated with greater household purchases of fruits and vegetables² and fruit and vegetable consumption in school-aged children³.

Overall, 2,552 tastings were conducted with 53,096 students from 30 counties in FFY 2019. These numbers are compiled from multiple tastings in the classrooms sometimes with the same students. Across all categories of healthy food items tasted in the CalFresh Healthy Living, UC youth program:

- 46% of youth reported having tasted the target food before,
- 42% of youth reported having tasted the target food recipe or form before,
- 93% actually tried the food featured for the tasting,
- 71% reported willingness to eat the food again at school, and
- 66% reported being willing to ask for the food at home.

The results are promising in determining the students' willingness to try the targeted foods and their willingness to ask for this food at home. The findings also underscore the great variety of taste testing opportunities the program is providing. County programs can use their TTT results to make informed choices about which foods and food groups to target next year. Findings can also be used to increase the variety of food preferences by pairing foods less desired or novel with those generally considered as highly appealing for food tastings to reinforce the nutrition education messages delivered. Additionally, county programs can use their TTT results to inform PSE opportunities on the school campus such as foods offered in the cafeteria on the salad bar or other ways to partner with food services

Statewide and county specific TTT results are examined against **three SMART objectives**:

1. 40% or less will have not tasted the food before,
2. More than 75% will be willing to eat the food again at school, and
3. More than 60% will be willing to ask for this food at home.

In FFY 2019, the findings surpass two of the SMART Objectives focused on youth intentions related to eating the foods tasted again and asking for them at home. One of the SMART objectives for this evaluation tool is to have less than 40% of students report ever trying the target food before. This objective was not achieved in FFY 2019. Historically, the intent of this objective was to ensure youth were exposed to a variety of novel foods (such as fruits and vegetables that are not commonly eaten). However, in practice, some counties intentionally expose students to the same target on multiple

² Busick DB, Brooks J, Pernecky S, Dawson R, Petzoldt J. Parent food purchases as a measure of exposure and preschool-aged children's willingness to identify and taste fruit and vegetables. *Appetite* 2008; 51(3): 468-473.

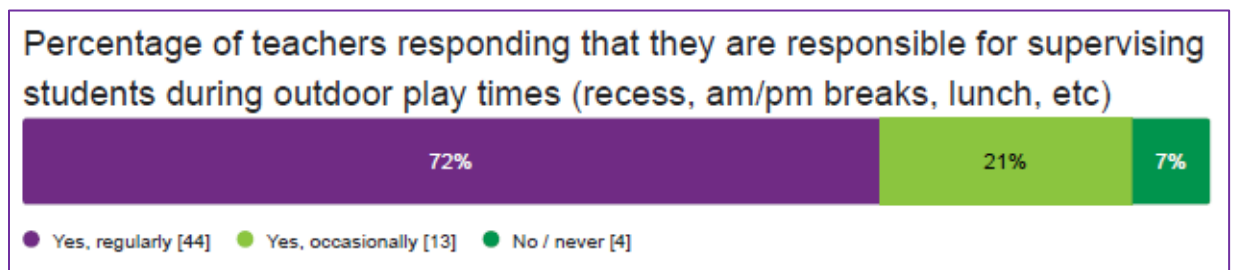
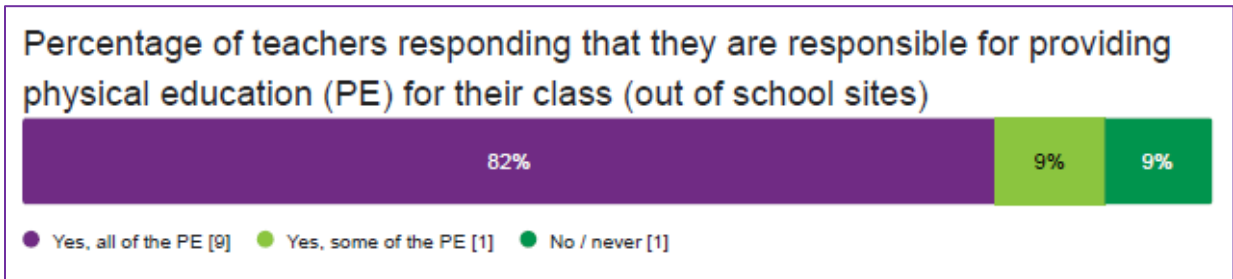
³ Sandeno C, Wolf G, Drake T, Reicks M. Behavioral strategies to increase fruit and vegetable intake by fourth- through sixth-grade students. *J Am Diet Assoc.* 2000;100(7): 828-830.

occasions using different forms (fresh avocado, guacamole, avocado and lime salad, etc.), as the literature shows that it often takes multiple exposures to increase the appeal of new foods among children. This tasting approach conflicts with the current SMART objective. To address this and ensure the TTT contributes to meaningful evaluation of youth programming, this objective may be dropped or reworked in FFY 2020. The State Office will work with county teams to explore and add new SMART objectives that inform youth programming, if appropriate, taking advantage of the two additional questions recently added to the TTT that capture the variety of food recipes and forms intentionally provided to improve youth preferences for healthy foods.

Physical Activity Teacher Observation Tool (PA TOT)

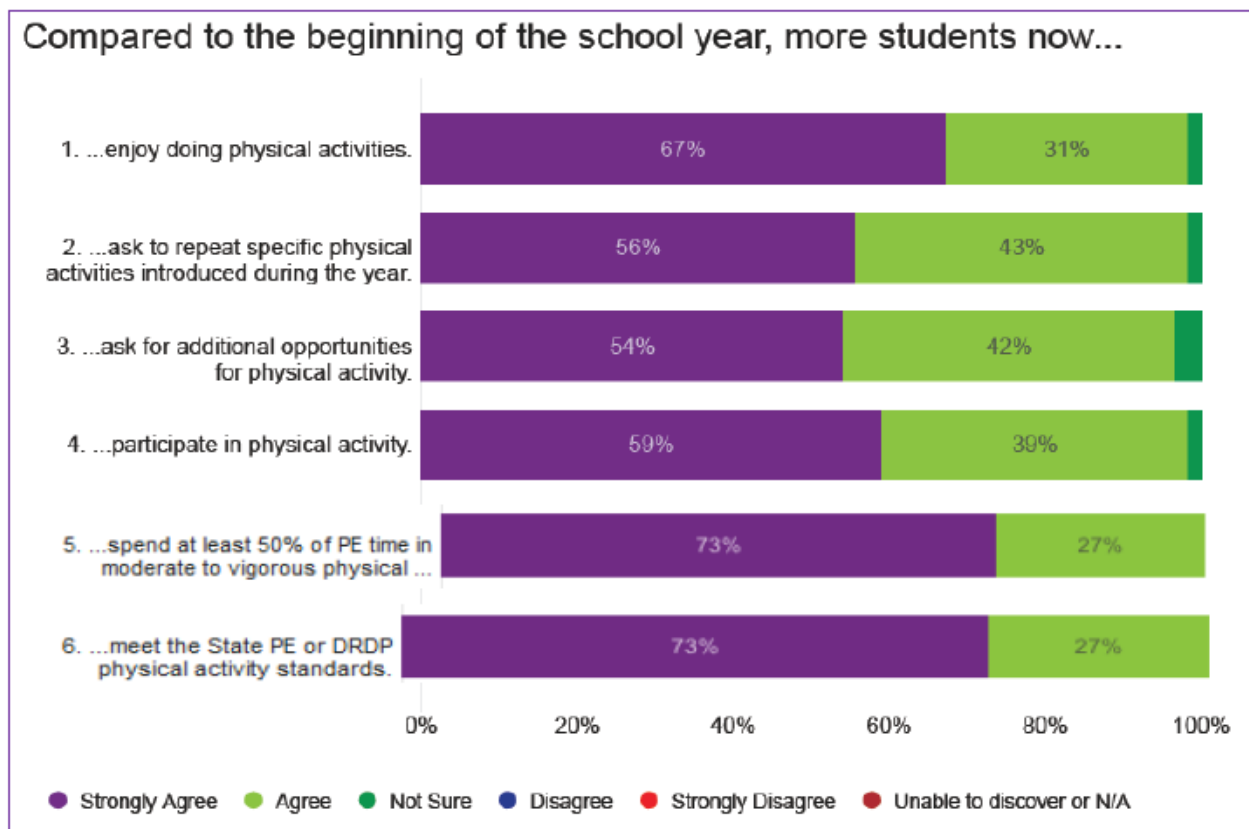
The PA TOT evaluates structured physical activity interventions (such as CATCH or SPARK) that aim to improve youth physical activity behaviors and opportunities at ECE, school, and afterschool sites. CFHL, UC county programs began piloting this new tool in FFY 2019, so there are currently no SMART Objectives established.

The PA TOT results speak to the various physical activity (PA) related behavior changes teachers are observing in their students as well as changes in their own behaviors. In FFY 2019, 61 PA TOTs were collected from teaching staff in ECE, school, and afterschool sites representing observations of 1,715 youth from 7 counties. Most of the teaching staff surveyed delivered structured PA through CATCH (n=44), while others implemented SPARK (n=17). Teaching staff indicated being largely responsible for PE for their class and/or supervising outdoor play times “regularly” or “occasionally”.



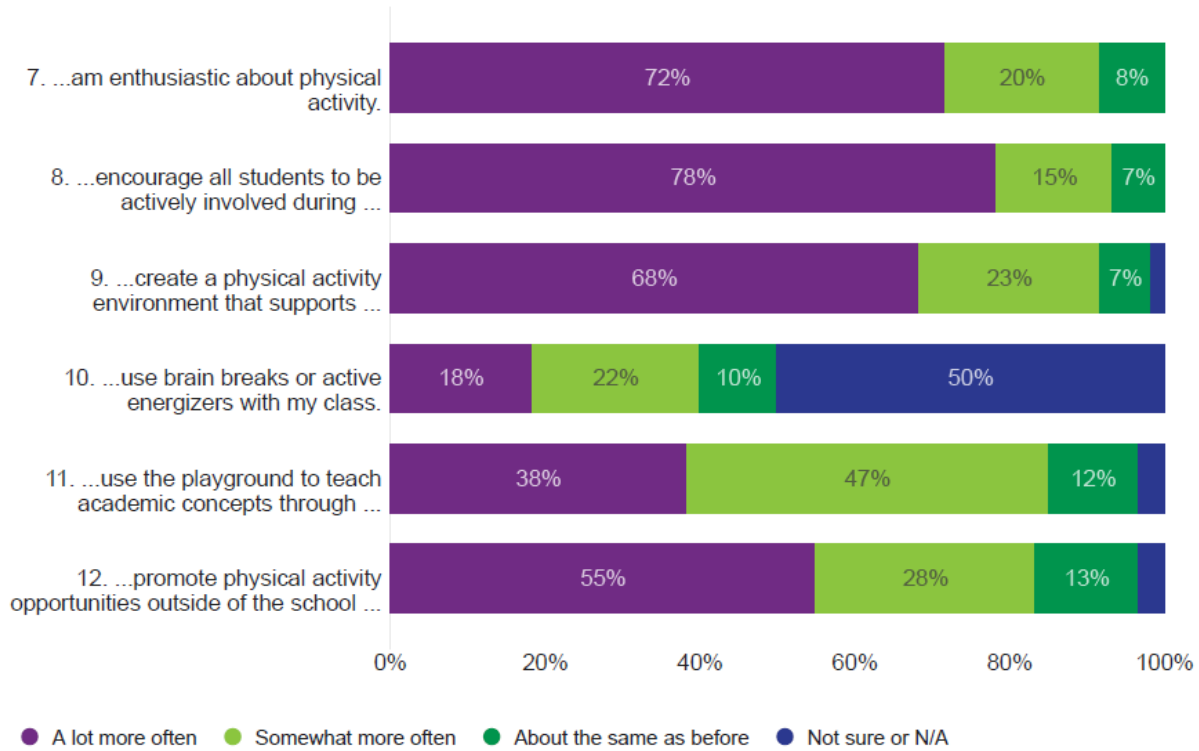
Over ninety percent of teaching staff statewide either “strongly agreed” or “agreed” that more students now enjoy and participate in PA, as well as **ask to repeat specific physical activities** introduced during the year and **for additional opportunities for PA** compared to the beginning of the school year. For PA TOTs collected at schools (n=11), all of the teachers surveyed either “strongly agreed” or “agreed” that more students now spend at least 50% of physical education (PE) time in moderate or vigorous PA

(MVPA). All of the participating teaching staff at school and ECE sites (n=39) “strongly agreed” or “agreed” that more students now meet State PE or Desired Results Developmental Profile (DRDP) PA standards.



Over ninety percent of teaching staff reported differences in their behaviors compared to the beginning of the school year that support student physical activity. These include teacher’s reporting “I now: ...am **enthusiastic about PA**, ...**encourage all students to be actively involved during PE/structured play times**, and ...**create a PA environment that supports students at all ability levels**” either “A lot more often” or “Somewhat more often”. The majority of teaching staff were also more likely (e.g. reporting “A lot more often” or “Somewhat more often”) to **use the playground to teach academic concepts** through movement and **promote PA opportunities outside of the school day**. At school and afterschool sites, the teaching practice least likely to improve was **using brain breaks or active energizers with my class** (73% reporting “A lot more often” or “Somewhat more often”; N/A for ECE sites).

Compared to the beginning of the school year, I (the teacher) now...



Evaluation of Adult Programming

CalFresh Healthy Living, UC adult education focuses on healthy eating, food resource management (FRM), physical activity (PA), and family-centered education including child feeding practices. For the healthy food and beverage behaviors, adult evaluation results come from three evaluation tools (Intent to Change, Adult Taste Testing Tool, and Food Behavior Checklist). FRM education is one of the most requested educational trainings that UCCE county/cluster programs offer eligible adults. Successfully procuring healthy foods throughout the month while reducing instances of food insecurity can be positively influenced by an individual's ability to assess nutritional values of available food resources, their ability to budget their limited food dollars, and their ability to critically assess the impact of food marketing on their buying behaviors. UCCE county/cluster programs deliver FRM education using *Making Every Dollar Count* and *Plan, Shop, Save, & Cook*. They include curriculum-specific evaluation tools that assess FRM behaviors. In addition, adult education focused on child feeding practices is delivered using the *Healthy Happy Families* curriculum and evaluated using a curriculum specific pre/post parent survey. Lastly, a new Adult Physical Activity Survey was piloted in FFY 2019 to begin measuring physical activity behaviors.

Intent to Change (ITC) Surveys

ITC surveys are used to evaluate either single session or short duration (< one month) education. The findings can be used to report against the SNAP-Ed Evaluation

Framework short-term goal and intention indicators related to healthy eating, food resource management and physical activity.

The brief – only three question – survey focuses on a single behavior. Collected at the end of the lesson, participants are asked about their current or recent practices related to the behavior e.g. During the past week, did you drink a sweet beverage (regular sodas, sports drinks, fruit punches, teas or other drinks sweetened with sugar) every day? The next question asks about participants’ “intention” e.g. Within the next week, how often will you drink a sweet beverage? Same as before or Less often. The final question asks participants to share how the workshop will help them and their families.

While not designed to measure change in participants’ behaviors, the ITCs do provide useful information about participants’ current behaviors and their readiness to change. Examining the intention responses for just those participants not currently practicing the promoted or desirable behavior is especially valuable for identifying potential for improvement. Additionally, asking participants to reflect upon and report their intentions regarding a specific behavior can help to “nudge” or encourage participants to take action. Finally, responses to the open-ended question provide insight into the aspects of the workshop participants found most valuable to allow for further program strengthening. Participant observations and quotes are also useful for program materials and reports.

ITC statewide results (n=7,092) across 24 counties have been organized into summary tables reporting:

- the number of participants surveyed,
- the percentage not currently practicing the desirable behavior, and
- of those not currently practicing the desirable behavior, the percentage who reported the intention to practice the desirable behavior “more often” in the next week.

Table 1. Intent To Change for Behaviors Related to Increasing the Consumption of Healthy Foods and Beverages

| Current Behavior | | | Intended Behavior – Of those not currently practicing the desired behavior | | |
|---|-------|---|--|-----|--------------------------|
| During the past week, ate [or drank]... | N | % not practicing the desirable behavior | Within the next week, will eat [or drink] | N | % reporting “more often” |
| whole grains or whole grain products every day | 86 | 37% | whole grains or whole grain products | 32 | 94% |
| lower-fat milk products at least 2 times a day | 171 | 34% | lower-fat milk products | 58 | 40% |
| a breakfast that included at least 3 food groups | 126 | 33% | a breakfast that includes at least 3 food groups | 41 | 88% |
| foods from all 5 food groups each day | 1,975 | 28% | foods from all 5 food groups each day | 550 | 78% |
| fruit at least 2 times a day | 93 | 26% | Fruit | 24 | 100% |
| more than 1 kind of vegetable each day | 660 | 21% | more than 1 kind of vegetable each day | 138 | 84% |
| <u>choose a smaller amount</u> of food or beverages at least 1 time | 325 | 18% | <u>choose a smaller amount</u> of food or beverages | 58 | 59% |

Of the seven ITC healthy eating behaviors (Table 1), eating whole grains or whole grain products had the highest percentage of participants (37%) reporting that they **did not** practice the desirable behavior during the past week. Of those participants not already practicing the healthy eating behaviors, 40-100% reported the intention to do so “more often” in the next week. For two ITC topics – eating more than 1 kind of vegetable a day and choosing a smaller amount of food or beverage at least 1 day during the past week – almost 80% or more of participants report already practicing the desirable behavior. These results suggest either spending less time on those workshop topics, or changing the questions to better reflect the targeted behavior intended to measure.

In general, participants were much more likely to report practicing the less or undesirable behaviors (62-72%, Table 2) than to report not practicing the desired behaviors (18-37%, Table 1). Almost three quarters of participants reported drinking sugar sweetened beverages every day and almost two-thirds ate fast food at least once and ate fried food two or more times in the last week (Table 2). Although widespread, of those who had practiced these less desirable behaviors in the past week, over three quarters (77-83%) reported the intention to do this “less often” within the next week.

Table 2. Intent To Change for Behaviors Related to Reducing the Consumption of Less Healthy Foods and Beverages

| Current Behavior | | | Intended Behavior – Of those not currently practicing the desired behavior | | |
|--|----------|--|---|----------|---------------------------------|
| During the past week, ate [or drank]... | N | % practicing the undesirable behavior | Within the next week, will eat [or drink]... | N | % reporting “Less Often” |
| a sweet beverage (regular sodas, sports drinks, fruit punches, teas or other drinks sweetened with sugar) every day | 1,172 | 72% | a sweet beverage | 844 | 77% |
| fast food | 192 | 63% | fast food | 120 | 83% |
| fried foods 2 or more times | 47 | 62% | fried foods | 29 | 83% |

Close to half of participants reported that they did not practice food resource management such as using the Nutrition Facts, comparing unit prices or making a list the last time they shopped or bought food. Planning meals before going to the store was more commonly practiced with only about a third of participants reporting that they hadn’t done so the last time they bought food (Table 3). Of those not currently practicing these behaviors, the majority – from 51 to 70% intended to do so the next time they shopped or bought food.

Table 3. Intent To Change for Behaviors Related to Food Resource Management

| Current Behavior | | | Intended Behavior – Of those not currently practicing the desired behavior | | |
|--|----------|--|---|----------|--------------------------|
| The last time shopped or bought food, | N | % not practicing the desirable behavior | The next time go shopping or buy food, will... | N | % reporting “yes” |
| used the “ Nutrition Facts ” on the food label to choose foods? | 1,152 | 56% | use the “ Nutrition Facts ” on the food label to choose food | 648 | 62% |
| compared unit prices before choosing foods | 349 | 50% | compare unit prices before choosing foods | 173 | 70% |
| made a list before going to the store | 401 | 47% | make a list before going to the store | 190 | 59% |
| planned meals before going to the store | 222 | 36% | plan meals before going to the store | 79 | 51% |

Table 4. Intent To Change for Behaviors Related to Physical Activity

| Current Behavior | | | Intended Behavior – Of those not currently practicing the desired behavior | | |
|---|----|---|--|----|--------------------------|
| During the past week... | N | % not practicing the desirable behavior | Within the next week, will ... | N | % reporting “more often” |
| engaged in moderate physical activity for at least 2 ^{1/2} hours | 56 | 21% | engage in moderate physical activity | 12 | 100% |
| Was physically active for at least 30 minutes most days | 65 | 28% | be physically active for at least 30 minutes a day | 18 | 83% |

During this past year (FFY 2019), two new ITC surveys were piloted focusing on participants’ physical activity (PA). Because the PA recommendation can be described in two ways – minutes per day or hours per week – two separate ITCs were developed depending on the specific PA messaging in the education materials being used. As shown in Table 4, a similar percentage of participants — approximately a fifth — reported not meeting the moderate PA recommendation for either 2½ hours per week or at least 30 minutes most days. However, a relatively high percentage of the participants (83-100%) reported their intention to engage in moderate PA more often after the workshop which itself included PA.

Adult Taste Test Tool (Adult TTT)

Many of the UCCE delivered lessons and workshops include food tastings in an effort to increase exposure, willingness, and ultimately consumption of healthy foods such as vegetables. The Adult TTT was developed to capture adults’ response to the taste test.

This evaluation tool aims to capture adult responses to food tastings to demonstrate increases in exposure to new foods and healthy recipes, as well as willingness to try again and serve healthy foods at home. UCCE educators fill out the Adult TTT by asking participants five questions about their taste testing experience.

In FFY 2019, 15 counties utilized this tool during 292 tastings with 3,298 adult participants and found the following:

- 21% had ever tried the target food prior to the tasting,
- 97% actually tried the target food in the tasting,
- 93% would be willing to try the food again, and
- 91% were willing to serve the target food at home to their families.

These results demonstrate that a large majority of adults (over 90%) introduced to novel, healthy foods (only one out of five had ever tried previously) find them acceptable

enough to try again in the future and over 90% would serve them to their families. Successful food tastings offer a means of increasing the quantity and variety of foods recommended on USDA's MyPlate to the CalFresh population. Sharing recipes featuring the target food provides information and skills required to incorporate the food into the household. In each county, CFHL, UC strives to use vegetables and fruits grown locally in taste testing and to encourage planting a garden with region/climate appropriate fruits and vegetables. In FFY 2019, county programs worked to incorporate the promotion of local farmers' markets that accept CalFresh EBT and Market Match. These aspects of the CFHL, UC program help to create important linkages within the community and environmental spheres of the Socio-Ecological Model (SEM).

Food Behavior Checklist (FBC)

The visually enhanced FBC pre/post survey is the evaluation tool used for outcome evaluation of several curricula e.g. *Eating Smart Being Active*, *Eat Smart Live Strong*, *Learn at Home* and *MyPlate for My Family*. This tool measures reported behavior change in food and dietary practices. Of the curricula which use the FBC as the evaluation tool, the *Eating Smart Being Active* curriculum is the most commonly delivered adult series.

The FBC pre/post survey includes 16 questions. For the pre- and post-surveys, participants are asked to report the frequency that they ate or drank a variety of foods and beverages as well as respond to questions about their food security and general health. Results were analyzed in two ways:

- Percentage of participants showing improvement from pre- to post-survey: First, the percentage of participants with any increase or improvement in their responses from pre to post is reported. We defined the percent with improved behavior as the percentage of participants with any increase in the reported frequency of desirable behaviors and with any decrease in the frequency of undesirable behaviors. For example, an increase in a desirable behavior would be if a participant responded "no" to the question "Do you eat fruits and vegetables as snacks?" for the pre-survey but for the post-survey responded either yes - sometimes, yes- often, or yes- everyday. An example of an improvement in an undesirable behavior would be a participant who responded "yes - everyday" to the question "Do you drink regular soda?" in the pre-survey and then at the post-survey responded "yes-sometimes".
- Statistically significant change from pre- to post-survey: Analysis was also done to compare matched pre and post surveys for statistically significant differences set at $p < .05$.

In addition, statewide and county specific FBC results are examined against **four SMART objectives** as a reference for gauging program performance. These include:

1. At least 50% will increase their frequency of using the "Nutrition Facts" on the food label to choose foods,
2. At least 40% will increase the variety of fruit consumed daily,

3. At least 40% will increase the variety of vegetables consumed daily, and
4. At least 20% will report greater food security (not running out of food at the end of the month).

In FFY 2019, eight counties collected matched surveys from 674 adult participants. Of these participants, a majority (66%) self-identified as Hispanic/Latino and were mostly (83%) female. Participants making improvements in any of the desirable eating or drinking behaviors ranged from just one in ten (9% drink milk or use milk on cereal in the past week) to nearly two-thirds (64% increase cups of fruits and vegetables eaten in a day) of the FBC survey respondents. The percentage of participants who reported improved frequency of desirable eating behaviors are presented below in declining order:

- 64% - Increase in daily fruit and vegetables eaten (in cups),
- 56% - Increase in daily vegetables eaten (in cups),
- 54% - Increase in daily fruit eaten (in cups),
- 43% - Eat more than one kind of vegetable each day,
- 42% - Eat more than one kind of fruit each day,
- 46% - Eat 2 or more vegetables at main meal,
- 37% - Eat fruits or vegetables as snacks,
- 34% - Drink milk,
- 33% - Take skin off chicken,
- 19% - Have fish (in past week),
- 16% - Eat citrus or drink citrus juice (past week), and
- 9% - Drink milk or use milk on cereal (past week).

Both SMART objectives in this area were exceeded (e.g., more than 40% of participants increased their reported frequency for eating more than one kind of vegetable and more than one kind of fruit each day).

The percentage of participants who reported improvement by reporting less frequently practicing or experiencing the undesirable behaviors were:

- 35% - Drank regular soda less frequently,
- 34% - Drank fruit drinks, sport drinks or punch less frequently, and
- 24% - Ran out of food before the end of the month less frequently.

With nearly one-quarter of survey participants reporting improved food security (less likely to run out of food), the SMART objective that 20% or greater participants would report improved food security was also exceeded. The FBC also includes a single FRM question, which showed 51% of participants reporting improvement in using the “Nutrition Facts” labels when they shop. This exceeds the at least 50% criterion set for this FRM SMART objective.

When examining behavioral changes from the pre- to post-survey, there were statistically significant gains in FBC participants’ mean daily fruit intake (0.39 cups,

p<.001) and vegetable intake (0.4 cups, p<.001) with a total increase of over $\frac{3}{4}$ of a cup (0.8 cups, p<.001) of fruit and vegetables per day. Statistically significant (p<.001) increases were also found in the proportion of FBC participants who reported the intended behaviors such as “Often” or “Always/Everyday” to healthy eating and practicing FRM behaviors, as well as “No” or “Sometimes” to sweetened beverage consumption:

- Up by 29% points for use “Nutrition Facts” labels when shopping,
- Up by 26% points for eat 2 or more vegetables at main meal,
- Up by 24% points for eat more than one kind of fruit each day,
- Up by 23% points for eat more than one kind of vegetable each day,
- Up by 21% points for eat fruits or vegetables as snacks,
- Up by 14% points for drank fruit drinks, sport drinks or punch, and
- Up by 13% points for drank regular soda.

In summary, all four of the FBC SMART objectives were exceeded in FFY 2019. These findings demonstrate the positive outcomes of UCCE adult education including significant gains in healthy dietary behaviors, reductions in the consumption of high sugar, low nutrient beverages, improved FRM practices, as well as the positive impact on food security among FBC participants.

Plan, Shop, Save, & Cook (PSSC)

The PSSC curriculum is a four-lesson FRM education series. Evaluation of PSSC consists of a 7-item FRM behavior pre- and post-test. For the pre- and post-surveys, participants are asked to rate the frequency on a scale of 1 (Never) to 5 (Almost Always) in which they engage in food behaviors related to resource management and meal planning. We defined the percent with improved behavior as the percentage of participants with any increase or improvement on the scale of 1 to 5 from the pre- to post-survey. For example, a participant could indicate “How often do you run out of food before the end of the month?” at pre-survey is “4-Most of the time” and then at post-survey indicate “3-Sometimes”, and that participant would be counted as a participant with an improvement. The distribution of participants’ ratings for both the pre- and post-survey are provided in the table below.

In FFY 2019, 13 counties collected matched surveys from 997 participants who attended the PSSC series. Of these participants, the majority identified as female (81%) and reported an ethnic background of Hispanic or Latino descent (69%). Participants reporting improvements in the six FRM behaviors and a single food security condition question ranged from two out of five (40% improved food security by running out of food less often) to over two-thirds (67% improved frequency of using MyPlate to make food choices) of the survey participants. The percentage of participants who reported improved frequency of FRM behaviors and the food security condition are presented below in declining order:

- 67% - Use MyPlate to make food choices,
- 59% - Use “Nutrition Facts” label to make food choices,
- 53% - Shop with a grocery list,
- 51% - Compare unit prices before buying food,
- 49% - Plan meals ahead of time,
- 47% - Think about healthy food choices when feeding your family, and
- 40% - Run out of food before the end of the month less often.

Statewide and county specific PSSC results are examined against **six SMART objectives** as a reference for gauging program performance. These include:

1. At least 40% will increase their frequency of meal planning,
2. At least 40% will increase their frequency of using a grocery list when shopping,
3. At least 50% will increase their frequency of using the “Nutrition Facts” on the food label to choose foods,
4. At least 25% will increase their frequency of comparing unit food prices,
5. At least 30% will report that when deciding what to feed their family, they think about healthy food choices, and
6. At least 30% will report greater food security (not running out of food at the end of a month).

The FFY 2019 results indicate that all six SMART objectives were met. In addition, the statewide objective that at least 80% of surveyed SNAP-Ed adult participants will report improving at least one FRM behavior was also exceeded. Of the 997 participants completing the PSSC pre/post survey, 88% reported improvement in the frequency of using at least one of the five FRM behaviors (i.e. plan, prices, shop, think, facts)

When examining behavioral changes from the pre- to post-survey, there were statistically significant ($p < .001$) increases in the proportion of participants who reported “Almost always” or “Most of the time” for all six PSSC behaviors:

- Up by 34% points for using MyPlate to make food choices,
- Up by 32% points for using “Nutrition Facts” label to make food choices,
- Up by 26% points for shopping with a grocery list,
- Up by 26% points for planning meals ahead of time,
- Up by 23% points for thinking about healthy food choices when feeding your family, and
- Up by 23% points for comparing unit prices before buying food.

In addition, the percent of participants reporting “almost always” or “most of the time” for all five key FRM behaviors (i.e. plan, prices, shop, think, facts) tripled from about one in ten (9%) at pre to almost one-third (31%) of adults at post ($p < .001$).

Lastly, there was a statistically significant improvement in food security from pre to post with the percent of participants who reported that they “never” or “seldom” ran out of food before the end of the month increasing from 43% to 60% ($p < .001$). Although food

security is impacted by a multitude of factors beyond FRM behaviors, two out of five PSSC participants surveyed (40%) reported greater food security from pre to post, thereby surpassing the SMART objective ($\geq 30\%$) for “not running out of food at the end of a month”. Taken together, these findings demonstrate both the significant gains in FRM behaviors as well as the positive impact on food security among PSSC participants.

Making Every Dollar Count (MEDC)

For this retrospective survey, participants are asked to rate their knowledge and skills on a scale of 1 (Low) to 5 (High) on concepts related to setting goals, resource management, meal preparation, and food advertising both BEFORE and AFTER the program. We defined the percent with improved knowledge as the percentage of participants with any increase or improvement on the scale from pre- to post-program. For example, if a participant indicates BEFORE the program “Knowing simple healthy meals to make” is “1-Low” and then a “2” AFTER the program, then this participant would count as an individual with an increase in knowledge.

A total of 717 adults provided retrospective survey responses representing MEDC participants in ten counties. Over one-quarter (29%) of participants completed the MEDC survey in Spanish, while two-thirds (69%) filled it out in English. A majority (85%) of attendees identified as female. Over half (53%) of the survey participants completed all eight-lessons of the MEDC series.

Overall, approximately three-quarters (77%-90%) of participants made improvements in knowledge and skills for each of the MEDC measures. The **five SMART objectives** for MEDC were provided as a reference for gauging program performance. These include:

1. At least 50% will increase their knowledge of easy ways to save money on food,
2. At least 50% will increase their knowledge of simple healthy meals to make at home, and
3. At least 50% will increase their understanding of food advertisements can influence food purchases.
4. At least 50% will report ‘Yes’ or ‘Plan to’ determine if using a coupon is better than buying the store brand.
5. At least 20% will report ‘Yes’ make food last until you have money to buy more.

In FFY 2019, results for MEDC exceeded all five SMART objectives where 86%, 82%, and 83% of participants demonstrated improvements in knowledge in respect to the first three listed objectives. After the MEDC series, over two-thirds (68%) of survey respondents had already determined if using coupons was better than buying the store brand, while another 26% of participants ‘Plan to’ use this approach, and nearly three-quarters (73%) reported being able to make their food last until they had money to buy more.

In addition, the majority of participants reported that because of the MEDC program they gained skills to change their behaviors and plan to or have already practiced these

behaviors. These include writing personal goals (70% 'Yes' and 26% 'Plan to'), using the choice-making steps with a decision they need to make (74% 'Yes' and 22% 'Plan to'), identifying community resources they can use (71% 'Yes' and 24% 'Plan to'), checking to see if they are eligible for Earned Income Tax Credit (43% 'Yes' and 35% 'Plan to'), and using one of the 'easy ways' to save on food (80% 'Yes' and 17% 'Plan to'). In addition, more than two out of five (43%) participants reported saving money. These findings capture critical positive outcomes in resource management among MEDC participants.

Lastly, out of those who responded to the evaluations, participants provided feedback about the program by answering the question "How much has the MEDC program been worth to you?", a vast majority (90%) rated it 4 or 5 (on a 5-point scale with 5 representing the highest score), indicating it was a valuable program for participants.

Healthy Happy Families (HHF)

The HHF curriculum consists of eight mini-lessons to help parents promote healthy eating habits in preschool-aged children. When delivered over at least four weeks, evaluation of HHF consists of a 10-item pre- and post-test completed by parents regarding their child feeding practices. The questions were adapted from the UCCE "My Child at Meal Time" survey⁴ for 3 to 5-year old children. For the pre- and post-surveys, parents are asked to rate the frequency of their child feeding practices on a scale of 1 (No/rarely) to 4 (Very often). The HHF data were analyzed two ways examining both: (1) the percentage of participants showing improvement from the pre- to post-survey and (2) statistically significant changes from the pre- to post-survey. We defined the percent with improved behavior as the percentage of participants with any increase or improvement on the scale of 1 to 4 from the pre- to post-survey. For example, a parent could indicate "1-No/rarely" to the question "My child sits and eats meals with an adult" during the pre-survey and then at the post-survey mark "2-Sometimes", and that parent would be counted as a participant with an improvement.

In FFY 2019, UCCE administered the HHF in four counties with 109 parents completing a pre and post survey. Of these participants, the majority identified as female (94%) and half reported an ethnic background of Hispanic or Latino descent (50%). Parents reporting improvements in child feeding practices ranged from approximately one out of five (21% - increase how often parent does NOT avoid serving foods the child doesn't like) to over two-thirds (39% - increase how often the child eats snack at the same time every day) of the survey participants. The percentage of participants who reported improved child feeding practices are presented below in declining order:

- 39% - Increase in frequency that child eats snack at about the same time every day,

⁴ Ontai L, Sitnick SL, Sylva K, Leavens L, Davidson C, Townsend MS. University of California Cooperative Extension (UCCE) "My Child at Meal Time" pre/post survey for 3 to 5-year old children.

- 38% - Increase in frequency that parent does NOT warn child of no treat if they don't eat,
- 36% - Increase in frequency that child sees parent eat vegetables,
- 33% - Increase in frequency that parent does NOT beg child to eat food,
- 33% - Increase in frequency that parent does NOT remind child to keep eating food,
- 32% - Increase in frequency that parent prepares at least one food the child will eat,
- 32% - Increase in frequency that child eats dinner at about the same time every day,
- 28% - Increase in frequency that child sits and eats meals with an adult,
- 27% - Increase in frequency that child does NOT skip meals, and
- 21% - Increase in frequency that parent does NOT avoid serving foods the child doesn't like.

Statewide and county specific HHF results are examined against **seven SMART objectives** as a reference for gauging program performance. After participation in at least six lessons or a four-lesson series (selecting among lessons #1-#3 and #6, #7 or #8) parents will show the following improvements:

1. At least 25% of the parents will report that their children eat meals more often with an adult
2. At least 25% of the parents will report that they do not intervene with how much their children should eat by:
 - a. NOT **warning** child no treat if don't eat,
 - b. NOT **begging** child to eat food, or
 - c. NOT **reminding** child to keep eating food.
3. At least 25% of the parents will report that their children eat **a. meals** and/or **b. snacks** on a regular schedule more often.
4. At least 25% of parents will report offering their child novel foods or repeating exposure to previously rejected foods more often.

The FFY 2019 results indicate that six of the seven SMART objectives were met. Although the SMART objective was set at 25%, only 21% of parents showed improvement in NOT avoiding serving foods that their child doesn't like. This can be a particularly challenging child feeding practice for parents to implement when it can result in your child not eating what you make and potentially wasting food, particularly if/when food is limited.

When examining behavioral changes, there were **statistically significant gains** from pre to post in the mean scores **for nine of the ten child feeding practices** targeted by the HHF curriculum – all except for parent does NOT avoid serving foods the child doesn't like.

In addition, statistically significant increases were found in the proportion of parents who answered 'Very Often'/'Often' for the following recommended child feeding practices or 'Sometimes'/'No/Rarely' for less desirable practices:

- Up by 24% points for child eats snack at about the same time every day ($p < .001$),
- Up by 18% points for child sees parent eat vegetables ($p < .001$),
- Up by 16% points for parent does NOT remind child to keep eating food ($p < .01$),
- Up by 15% points for child eats dinner at about the same time every day ($p < .01$),
- Up by 11% points for parent does NOT beg child to eat food ($p < .05$), and
- Up by 10% points for child sits and eats meals with an adult ($p < .05$).

Taken together, these findings demonstrate the significant gains in recommended child feeding practices among HHF participants. Given that parents were not inclined to avoid serving foods their child doesn't like, the State Office will explore this child feeding practice and SMART objective in more depth with UCCE county/cluster teams in FFY 2020 to ensure our family-centered programming supports both healthy eating and potential food security concerns among SNAP-Ed eligible populations.

Adult Physical Activity Survey (APAS)

In FFY 2019, the CalFresh Healthy Living, UC county/cluster programs began piloting the APAS to evaluate series-based direct education and PSE interventions (such as Bailoterapia, walking clubs, etc.) delivered over at least 4 weeks that target improvements in physical activity (PA) behaviors among adults. Examples of SNAP-Ed approved curricula targeting PA behavior include: *Eating Smart, Being Active; Eat Smart, Live Strong; Eat and Play Together!*; and *MyPlate for My Family*.

This pre/post survey is administered before an intervention begins and following the last session. It includes three questions focused on: (1) the number of days (per week) adults exercised for at least 30 minutes (i.e. moderate PA), (2) the number of days (per week) adults work to build and strengthen muscles, and (3) how often adults make intentional, small changes to be more active (e.g. walking instead of driving). Although there are no SMART objectives for the APAS, the data can be analyzed to assess the percent who improve, as well as statistically significant changes from pre to post; while also providing the proportion of adult participants meeting the *Physical Activity Guidelines for Americans*⁵. The two 2018 PA guidelines measured by this tool include:

1. adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity PA and
2. adults should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week.

⁵ U.S. Department of Health and Human Services. *Physical Activity Guidelines for Americans*, 2nd edition. Washington, DC: U.S. Department of Health and Human Services; 2018.

In FFY 2019, UCCE administered the APAS in only two counties with 38 adult participants completing a pre and post survey. Of these participants, the majority identified as female (89%) and reported an ethnic background of Hispanic or Latino descent (97%). Participants reporting improvements in PA behaviors ranged from approximately half (47% - improved the number of days they exercised for 30 or more minutes) to nearly two-thirds (63% - improved how often they made small changes to be more active) of the participants. The percentage of participants who reported improved PA behaviors are presented below in declining order:

- 63% - Increase in frequency of making small changes to be more active,
- 50% - Increase in number of days built and strengthened muscles, and
- 47% - Increase in number of days exercised for 30 or more minutes.

When examining the two *Physical Activity Guidelines for Americans* in the pre-survey results, only one-quarter of adult respondents from these two counties reported exercising for 30+ minutes on five or more days per week, while over two-thirds (71%) reported building and strengthening muscles on 2 or more days per week. Although the proportion of adults achieving these recommendations improved from pre to post (increasing 13% points and 16% points respectively), the differences were not statistically significant, likely due to the small sample size (n=38). Similarly, there were no significant gains statewide in the mean days adults exercised for at least 30 minutes or built and strengthened muscles from pre to post. However, adult participants who completed the APAS were significantly more likely from pre to post to report **making small changes to be more active** ($p < .001$).

In FFY 2020, the State Office will work with the UCCE Kings and Tulare teams to explore differences observed in the APAS findings between the counties and identify how the PA interventions provided to survey participants may have differed. This feedback can inform future APAS administration and help in the development of SMART Objectives by helping the State Office assess what PA intervention activities relate to PA behavior changes and make recommendations or set minimum criteria for when county/cluster programs should use the APAS in the future.

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Evaluation Report Attachment #5:

Process and Outcome Evaluation: Shaping Healthy Choices Program (SHCP) Evaluation Report FFY 2019 - Submitted by Center for Nutrition in Schools, UC Davis

**Project: SHCP Pilot Counties – Butte, Madera, Merced, Riverside, San Joaquin,
Santa Barbara, Sutter, Tulare, Yuba**

Intervention Overview

The Shaping Healthy Choices Program (SHCP) is a multi-component, evidence-based, school intervention that is based upon the Social Cognitive Theory and the Social Ecological Model to improve children's health and nutrition-related behaviors with a long-term goal of reducing childhood obesity. This program integrates activities within four overlapping components to sustain positive health outcomes: Nutrition and Physical Education and Promotion; Family and Community Partnerships; Foods Available on the School Campus; and the School Wellness Policy. Program activities include direct or extender education utilizing the *Discovering Healthy Choices* (DHC) nutrition curriculum and *Healthy Choices in Motion* (HCIM) physical activity curriculum, cooking demonstrations with the *Cooking Up Healthy Choices* (CUHC) curriculum, as well as family newsletters, an instructional school garden, school events such as a community health fair, and encouraging regionally-procured produce in the lunchroom.

CalFresh Healthy Living, University of California (CFHL, UC) partnered with the UC Davis Department of Nutrition Center for Nutrition in Schools (CNS) to initially pilot the SHCP within CFHL, UC-qualifying schools during the 2014-2015 school year. The SHCP pilot implementation was undertaken to better address the need for a multi-level comprehensive delivery of an evidence-based nutrition and health program, and to address the policies, systems, and environmental components of the school community. Since the initial pilot, which took place in four schools in three counties (Butte, Placer, and Santa Barbara), the SHCP has expanded to include nine counties as of FFY2019: Butte, Madera, Merced, Riverside, San Joaquin, Santa Barbara, Sutter, Tulare, and Yuba.

This evaluation report includes the results of five evaluation projects, one of which is still underway. The first of these consists of ongoing evaluation of counties implementing the SHCP, while the remaining four are smaller pilots as a result of interest from CFHL, UC counties in additional flexibility in implementing the SHCP as well interest in using the SHCP curricula in other age groups and settings.

Overall Goals

The intervention most directly aligns to the following two California CalFresh Healthy Living State Level Goal for FFY2017-2019:

- Goal 1: Increase Consumption of Healthy Foods and Beverages and Decrease Consumption of Unhealthy Foods and Beverages

- Goal 2 Increase Physical Activity

Continuing County Evaluation

Project Goals

The goal of this project was to continue monitoring SHCP implementation for efficacy. All counties included in the evaluation had been participating in the SHCP for two or more years.

Intervention

In FFY2019, students from 13 classrooms (not including those that participated in the projects detailed below) in 7 schools from 6 counties received SHCP nutrition education either from CFHL, UC educators or trained teacher extenders with support from CFHL, UC educators. This included inquiry-based, garden-enhanced nutrition education using the DHC curriculum as well as CUHC cooking demonstrations. Additionally, some counties elected to deliver HCIM, an inquiry-based physical education curriculum.

Outcome Measures and Data Collection

Nutrition Knowledge

Nutrition knowledge was assessed using a 20-item knowledge questionnaire adapted from the questionnaire developed and validated by Morris and Zidenberg-Cherr.¹ The adapted questionnaire was revised based on psychometric techniques (internal consistency, item difficulty, and item discrimination) to reduce the number of questions and thus participant burden.

Nutrition and Physical Activity Behaviors

A subset of four questions from the Student Physical Activity and Nutrition (SPAN)^{2,3} assessing food behaviors and one question assessing physical activity were added. Nutrition questions followed the same format, “Yesterday, did you drink/eat any [food/beverage]?” with response options of “No, I didn’t eat/drink any [food/beverage]” and “Yes, I ate/drank [food/beverage] X time(s) yesterday.” “Yes” options ranged from one time to “3 or more times” for milk and up to “5 or more times” for vegetables, fruit, and fruit juice. These data were then weighted to create a “Healthy Foods” latent variable.⁴

The physical activity question asked students to circle all the days they were physically active for at least 60 minutes in the past week. Physical activity data were collected at all sites including those that did not implement HCIM.

Only sites that had both pre and post data were included in analyses, however identifiers were not used and pre and post scores were not individually matched. Data from all sites were combined and analyzed with unpaired t-tests. Statistical analyses did not control for cluster effects.

School Site Assessment

The Shaping Healthy Choices School Health Check (SHC²) questionnaire is a school site assessment used to score a school’s environment based on the Shaping Healthy Choices Program’s components and other health and wellness activities. The SHC² is in

a rubric format and is scored from zero (Nothing currently in place) to three (This school site exceeds criteria).

Curriculum Fidelity

Fidelity observations were collected on educators responsible for facilitating lessons in the classroom. Total fidelity is the sum of the four lesson activity sections that are each assigned two possible points, contributing to a total possible score of eight. The four sections are:

1. **Opening Questions** – Youth respond to these questions in small groups and then share as a class, which introduces the topic and allows educator to assess current level of knowledge and misconceptions
2. **Procedure (Experiencing)** – Youth experience and complete the learning activity
3. **Sharing, Processing, and Generalizing** – Youth share their observations and learn from each other. This phase also contains prompts that allow the youth to engage in thinking about how they went about solving a problem (meta-cognition), which allows for a deeper understanding of the concepts
4. **Concept and Term Discovery/Introduction** – The educator reinforces concepts that have been discovered and defined by the youth, corrects misconceptions, clarifies terms, and introduces terms that have not been discovered.

Full fidelity is considered to be achieved when the following occurs: all components of the lesson are fully delivered, youth are interested and engaged in the lesson (Youth Engagement I), youth are attentive and actively participate in the discussion (Youth Engagement II), youth are engaged in peer-to-peer discussion for more than 75% of the lesson (Youth Participation), and the lesson concepts are discovered by the youth (Concept Discovery/Introduction).

All quantitative analyses were completed using SPSS 25.0. Significance was set at $p < .05$.

Results

Nutrition Knowledge

A total of 321 students completed nutrition knowledge pre-assessments and 285 completed post-assessments. Nutrition knowledge significantly increased (pre = 9.45, post = 12.14, $p < .001$).

Nutrition and Physical Activity Behaviors

No change was observed between pre and post for milk, vegetables, fruit, or consumption of all four foods/beverages combined (weighted or unweighted). (Table 10). There was a significant decrease in juice consumption ($p = .03$).

Table 10: Number of times students consumed four different foods/beverages the previous day (MT1: Healthy Eating).

| | Pre n | Pre Times/Da y | Post n | Post Times/Da y | P Value |
|---------------------------------------|----------|----------------------|-----------|-----------------------|---------|
| Milk | 237 | 1.29 | 212 | 1.28 | .97 |
| Vegetables | 237 | 1.36 | 212 | 1.33 | .76 |
| Fruit | 237 | 1.89 | 212 | 1.71 | .19 |
| Juice | 234 | 1.20 | 212 | 0.96 | .03 |
| Combined (Unweighted) | 234 | 5.77 | 212 | 5.28 | .12 |
| Latent Variable (Weighted) | 234 | 5.87 | 212 | 5.32 | .103 |

A total of 236 students completed pre-assessments and 212 completed post-assessments for physical activity. As data were unmatched, all pre and post-assessments were included in analysis, provided the site had collected both pre and post data. There was a statistically significant increase in number of days physically active for more than 60 minutes (pre = 3.34; post = 4.06; $p < .001$).

School Site Assessment

SHC² assessments were collected at eight sites, including one school participating in the Three-Year Pilot and one school that had previously participated in the SHCP, but was no longer using SHCP curricula. Data indicate small but steady increases in SHC² over the last two years (Figure 2). These data were cross-referenced with policy, systems, and environmental (PSE) change FFY2019 data in the Program Evaluation And Reporting System (PEARS) for each school site. Collectively, the assessed school sites engaged an average of four PSE changes per site, the majority of which fell under the SHC² category of Nutrition and Physical Activity Education and Promotion (Table 11). The most common were garden-related or physical activity-related. Also relatively common were PSE changes associated with the SHC² Wellness Policy category.

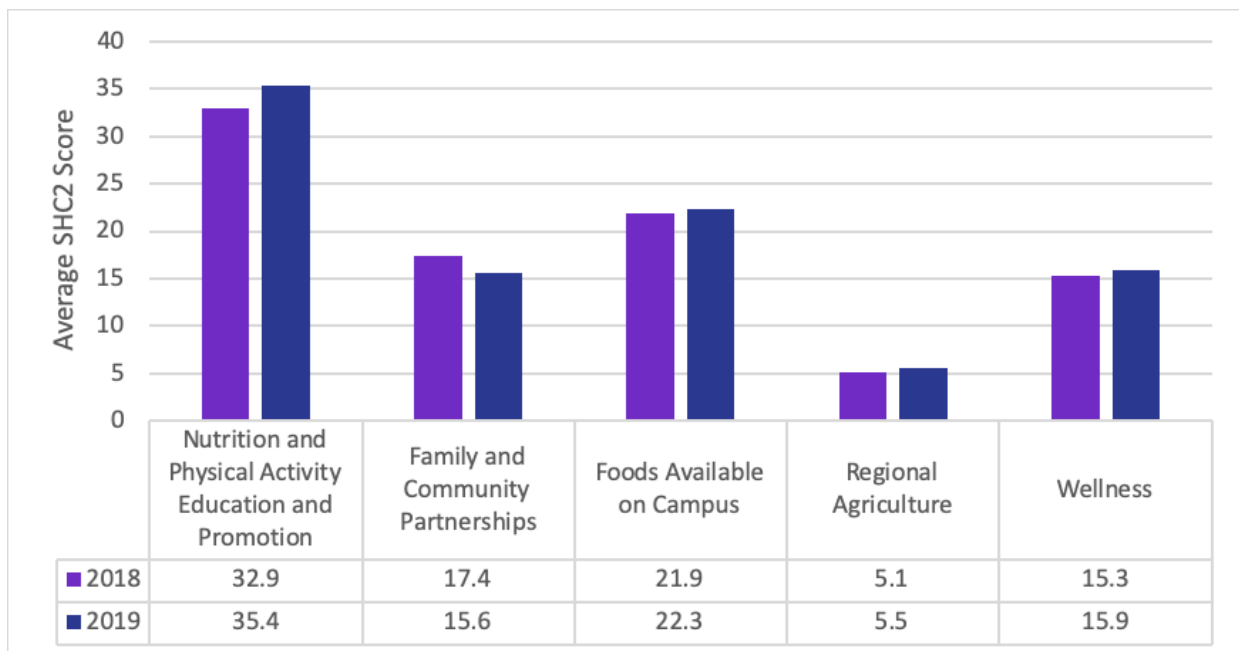


Figure 2: Average SHC² scores for each component by year (MT5: Nutrition Supports).

Table 11: PSE changes reported as adopted or actively maintained in FFY2019 and the associated SHC² category (MT5: Nutrition Supports).

| SHC ² Category | PSE Change | Number of Sites (n 8) |
|---|--|-----------------------|
| <i>Nutrition and Physical Activity Education and Promotion</i> | Edible gardens (establish, reinvigorate or maintain food gardens) | 7 |
| | Initiated or expanded use of the garden for nutrition education | 6 |
| | Increased or improved opportunities for structured physical activity | 2 |
| | Improved quality of physical education | 1 |
| | Increased access or safety of walking or bicycling paths | 1 |
| | Initiated or expanded incorporation of physical activity into the school day or during classroom-based instruction (not recess/free play or PE) | 1 |
| <i>Foods Available on Campus</i> | Initiated or expanded implementation of guidelines on use of food/beverages in the classroom, as rewards, or during celebrations or educational programs | 1 |
| | Initiated, improved or expanded healthy fundraisers | 1 |
| <i>Regional Agriculture</i> | Initiated or expanded farm-to-table/use of fresh or local produce | 2 |

| SHC ² Category | PSE Change | Number of Sites (n 8) |
|---------------------------|--|-----------------------|
| Wellness Policy | Established or improved food/beverage, physical activity and/or wellness-related policies | 2 |
| | Improved appeal, layout or display of meal food/beverages to encourage healthy and discourage unhealthy selections | 2 |
| | Improve appeal, layout or display of snack or competitive foods to encourage healthier selections | 1 |
| | Improved façade/outdoor space | 1 |
| | Increased or improved opportunities for physical activity during recess | 1 |
| | Initiated or improved playground markings/stencils to encourage physical activity | 1 |
| N/A | Ensured meal service staff encourage healthy selections | 2 |

Curriculum Fidelity

Eleven observations in five counties were collected by a CNS staff member. Fidelity to the curriculum varied depending on the activity component. While adherence to the sections “Opening Questions” and “Sharing, Processing, and Generalizing” was high, fidelity was somewhat lower for “Procedure” and “Concept, Term Discovery.” Despite this, observations indicated high student engagement.

Table 12: Fidelity of implementation by activity component.

| | Number of Observations | Fully Delivered (%) | Partially Delivered (%) | Not Delivered (%) |
|--|------------------------|---------------------|-------------------------|--------------------|
| Total fidelity^a | 11 | 18.2 | 81.8 | 0 |
| Opening Questions | 11 | 90.9 | 9.1 | 0 |
| Procedure (Experiencing) | 10 | 40.0 | 60.0 | 0 |
| Sharing, Processing, & Generalizing | 10 | 70.0 | 10.0 | 20.0 |
| Concept, Term Discovery/ Introduction | 11 | 45.5 | 45.5 | 9.1 |
| Open-Ended Questioning^b | 11 | 36.4 | 63.6 | 0 |
| | Number of Observations | High Engagement (%) | Partial Engagement (%) | Low Engagement (%) |
| Youth Engagement I^c | 11 | 90.9 | 9.1 | 0 |
| Youth Engagement II^d | 11 | 81.8 | 18.2 | 0 |
| Youth Participation^e | 11 | 27.3 | 63.6 | 0 |

Notes:

^aTotal fidelity is the sum of the four activity sections: opening questions; procedure (experiencing); sharing, processing, and generalizing; and concept and term introduction/discovery.

^bOpen-ended questioning: Fully Delivered = More than 75% of questions; Partially Delivered = Between 25 and 74% of questions; Not Delivered = Less than 25% of questions

^cYouth are interested and engaged: High Engagement = 75% or more of youth; Partial Engagement = 50% of youth; Low Engagement = Less than half of youth.

^dOverall, youth look: High engagement = youth look attentive and engaged in discussion; Partial Engagement = youth are attentive but silent; Low Engagement = youth look bored and/or preoccupied.

^eYouth participation compared to leader participation, youth talked: High Engagement = more than 75% of the time; Partial Engagement = about 50% of the time; Low Engagement = less than 25% of the time

Summary

The FFY2019 SHCP implementation resulted in a statistically significant increase in nutrition knowledge as well as an increase in the number of days physically active for at least 60 minutes. While no increase in one-day consumption of fruits, vegetables, milk, or juice was observed, the SPAN questions reflect only on the previous day, which may not be reflective of general intake. Furthermore, intake can vary throughout the week, particularly when comparing weekdays to weekends. If, for example, students were asked to reflect on their intake for a weekday during pre but a weekend during post, this may impact results. This questionnaire has been replaced by the EATS questionnaire for FFY2020, the instructions for which recommend against collecting data on Monday for this reason. SHC² results suggest that schools that participate in the SHCP are maintaining or continuing to improve their adherence to wellness policy requirements, while fidelity observations indicate varying adherence to activity components. The

majority of the time, all components were at least partially delivered, with only “Sharing, Processing, and Generalizing” and “Concept, Term Discovery” to be rated as not delivered at least once by the observer. Anecdotally, when this occurs it is usually due to the educator running out of class time as these take place at the end of the lesson. Despite this, positive outcomes were observed.

Description of how evaluation results will be used

Evaluation results will be used in a variety of ways. Results of several outcome assessments, such as nutrition knowledge, have demonstrated fairly consistent positive results. These results are shared with LIAs to be used for recruitment of schools and teachers. These data will also be used to identify areas for improvement. Currently in development is a truncated version of the DHC curriculum. These results will be used as a benchmark for comparison when implementing this version to ensure positive outcomes are maintained despite fewer hours of required classroom time.

Two-Year SHCP Pilot – FFY18-19

Project Goals

This project evaluated the effectiveness of improving nutrition knowledge and body mass index (BMI) percentile-for-age when students receive SHCP curricula split over two years (Year 1 in fourth grade and Year 2 in fifth grade). An additional goal was added in Year 2 to assess improvements in healthy eating and physical activity behaviors (MT1: Healthy Eating, MT3: Physical Activity and Reduced Sedentary Behavior).

Intervention

Five fourth grade classrooms in one school in Butte County participated in Y1 of the pilot (FFY18) and received four DHC modules as well as three cooking demonstrations from CUHC and all five HCIM modules. This pilot continued in FFY19 in five fifth grade classrooms at the same school, which received the remaining four DHC modules and two CUHC cooking demonstrations. In all other respects, the intervention included the same components as described above in the Intervention Overview.

Outcome Measures

Nutrition Knowledge

During Year 1, nutrition knowledge was assessed using the 35-item knowledge questionnaire developed and validated by Morris and Zidenberg-Cherr. Between Years 1 and 2, this questionnaire was revised to contain 20 items and was used in Year 2. Knowledge data from Year 1 were aligned with the revised questionnaire by recalculating total scores based on retained questions to allow for comparisons spanning both years. Repeated measures Analysis of Variance (ANOVA) was conducted to assess changes in nutrition knowledge over time.

Body Mass Index Percentile-for-Age

Height and weight data were collected in both years and used to calculate body mass index (BMI) percentile-for-age. Repeated measures Analysis of Variance (ANOVA) was conducted to assess changes in BMI percentile over time.

Nutrition and Physical Activity Behaviors

Nutrition and physical activity behaviors were assessed as described above. Paired t-tests assessed changes between timepoints.

Data Collection

Nutrition knowledge and anthropometric data were collected at four timepoints, pre- and post-programming for each year. Nutrition and physical activity behaviors were assessed pre- and post-programming in Year 2 only.

All quantitative analyses were completed using SPSS 25.0. Significance was set at $p < .05$.

Results

Nutrition Knowledge

Twenty-seven students completed nutrition knowledge assessments at all four timepoints. A repeated measures ANOVA determined that there were statistically significant differences in mean nutrition knowledge between time points ($F(3, 81) = 28.191, p < .001$). Post hoc tests using the Bonferroni correction determined that nutrition knowledge increased significantly in a step-wise fashion between timepoints (Table 1), with the exception of between Timepoints 2 and 3 ($p = 1.00$), which bracketed the summer months when nutrition knowledge would not be expected to increase.

Table 1: Differences in mean nutrition knowledge by timepoint (ST1: Healthy Eating Motivators: Knowledge, Intentions, Skills, and Goals).

| Timepoint | Mean Nutrition Knowledge (95% Confidence Interval) | P value when compared to Timepoint 1 | P value when compared to Timepoint 2 | P value when compared to Timepoint 3 |
|-----------------|--|--------------------------------------|--------------------------------------|--------------------------------------|
| 1 (Fall 2017) | 8.14 (7.29, 8.99) | -- | .001 | <.001 |
| 2 (Spring 2018) | 10.18 (9.01, 11.34) | .001 | -- | 1.00 |
| 3 (Fall 2018) | 10.36 (9.24, 11.47) | <.001 | 1.00 | -- |
| 4 (Spring 2019) | 12.64 (11.32, 13.97) | <.001 | .001 | .001 |

BMI Percentile-for-Age

Thirty-one students completed anthropometric assessments at all four timepoints. A repeated measures ANOVA with a Greenhouse-Geisser correction determined that there were statistically significant differences in BMI percentile between time points ($F(2.39, 71.75) = 7.41, p = .001$). Post hoc tests using the Bonferroni correction determined that there were significant differences between Timepoint 2 (69.31) and Timepoint 4 (76.69; $p = .001$) as well as between Timepoints 3 (72.02) and 4 (76.69; $p = .028$). (Table 2).

Table 2: Mean BMI percentile-for-age of participating students by timepoint. (R9b: Number or percentage of SNAP-Ed eligible persons at healthy weight, children and teens)

| Timepoint | Mean BMI Percentile (95% Confidence Interval) | P value when compared to Timepoint 1 | P value when compared to Timepoint 2 | P value when compared to Timepoint 3 |
|-----------------|---|--------------------------------------|--------------------------------------|--------------------------------------|
| 1 (Fall 2017) | 71.74 (62.06, 81.43) | -- | .441 | 1.00 |
| 2 (Spring 2018) | 69.31 (59.58, 79.04) | .441 | -- | .197 |
| 3 (Fall 2018) | 72.02 (62.87, 81.16) | 1.00 | .197 | -- |
| 4 (Spring 2019) | 76.69 (68.19, 85.20) | .097 | .001 | .028 |

Nutrition and Physical Activity Behaviors

No change was observed between pre and post for milk, vegetables, fruit, or consumption of all four foods/beverages combined (weighted or unweighted) during Year 2 (Table 3). There was a significant decrease in juice consumption from 1.07 at pre to 0.69 at post ($p=.023$).

Table 3: Mean number of times students consumed four different foods/beverages the previous day. (MT1: Healthy Eating).

| | n | Pre Times/Day | Post Times/Day | P Value |
|----------------------------|----|---------------|----------------|---------|
| Milk (MT1i) | 46 | 1.52 | 1.46 | .718 |
| Vegetables (MT1m) | 46 | 1.30 | 1.41 | .657 |
| Fruit (MT1l) | 46 | 1.80 | 1.76 | .867 |
| Juice | 45 | 1.07 | 0.69 | .023 |
| Combined (Unweighted) | 44 | 5.52 | 5.28 | .606 |
| Latent Variable (Weighted) | 44 | 5.46 | 5.28 | .714 |

There was statistically significant increase in days physically active for more than 60 minutes (MT3a) from 3.76 days at pre-data collection to 4.91 at post-data collection ($p = .023$, $n = 46$).

Summary

A consistent challenge to implementing or sustaining the SHCP is the extensive number of hours of classroom time required to implement the full curricula. These results suggest that implementation of SHCP curricula over two years is effective at improving nutrition knowledge. There were no significant improvements observed in healthy eating behaviors and juice consumption decreased. A significant increase in the number of

days students are physically active for more than 60 minutes suggest that students were more active. The Two-Year Pilot implemented HCIM during Year 1 of the pilot; in addition the DHC curriculum includes a module on the importance of physical activity and opportunities for goal setting to increase physical activity for both the student and the family. These may be related to the observed changes in number of days physically active. Changes in BMI percentile-for-age significantly increased during Year 2 of the pilot, although did not differ significantly from pre-intervention BMI percentile. At all timepoints, mean BMI percentile was within the normal range.

Description of how evaluation results will be used

The goal of this pilot was to determine effectiveness of the SHCP curricula when implemented over two years. Data suggest this method results in a sustained, step-wise increase in nutrition knowledge, demonstrating success. As a result, this method of implementation will be offered as an option during planning meetings to other LIAs within CFHL, UC that struggle to implement the full curricula within a single school year.

Three-Year SHCP Pilot (FFY 2018-2020) – Interim Findings

Project Goals

This project is evaluating the effectiveness of improving nutrition knowledge, as well as food and physical activity behaviors when students receive the *Nutrition to Grow On* (NTGO) curriculum in third grade, followed by SHCP curriculum split over two years (fourth and fifth grades). This pilot was also used as an opportunity to pilot Veggie Meter™ (Longevity Link Corp., Salt Lake City, UT, USA) use in SHCP schools and refine methodology for use in elementary-aged youth in a school setting. The Veggie Meter™ uses reflection spectroscopy (RS) to detect carotenoids in the skin and is a non-invasive, objective indicator of approximately 30 days of fruit and vegetable intake.⁵ In brief, many fruits and vegetables contain carotenoids, a pigment that provides red, orange, and yellow coloring. When consumed, carotenoids are deposited in the skin; greater consumption of fruits and vegetables is associated with higher amounts of detectable skin carotenoids.

As this project is ongoing, interim results from Year 2 (FFY2019) only are presented below.

Intervention

Six third grade classrooms in two schools in Sutter and Yuba Counties participated in Y1 of the pilot (FFY18) and received the curriculum *Nutrition to Grow On*. This pilot continued in FFY19 in five fourth grade classrooms at the same schools, which received the first four lessons from DHC as well as three cooking demonstrations from CUHC. In all other respects, the intervention included the same components as described above in the Intervention Overview.

Outcome Measures

Nutrition and physical activity behaviors, nutrition knowledge, height and weight were assessed as described above.

Skin Carotenoids

A subsample of one participating school completed Veggie Meter™ assessment in addition to nutrition knowledge and anthropometrics.

Data Collection

Timepoint 1 data were collected on Oct. 2, 2018 and Timepoint 2 data were collected on Feb. 19, 2019. Only students with data for both timepoints were included in the analysis. Change was measured by subtracting Timepoint 1 measurements from Timepoint 2. Paired t-tests were used to determine differences in RS score and BMI percentile between timepoints. Pearson correlation was calculated between change in BMI percentile and change in RS score to determine if these were related.

All quantitative analyses were completed using SPSS 25.0. Significance was set at $p < .05$.

Results

Nutrition Knowledge

A total of 68 fourth grade students completed nutrition knowledge assessments at both timepoints. Nutrition knowledge did not significantly increase (pre = 8.84, post = 9.52, $p = .052$). When schools were analyzed separately, a significant increase was detected at School A (pre = 9.33 ± 2.86 ; post = 10.33 ± 3.14 ; $p = .033$), but not School B (pre = 8.0 ± 1.96 ; post = 8.12 ± 1.94 ; $p = .812$).

BMI Percentile-for-Age

A total of 80 students completed pre- and post-assessments for anthropometrics. No statistically significant change in BMI percentile was observed between timepoints (pre = 63.82, post = 65.20, $p = .110$).

Nutrition and Physical Activity Behaviors

Although small decreases were observed between pre and post for milk, vegetables, fruit, juice, and consumption of all four foods/beverages combined (weighted or unweighted), these changes were not statistically significant. (Table 4).

Table 4: Mean number of times students consumed four different foods/beverages the previous day (MT1: Healthy Eating).

| | n | Pre Times/Day | Post Times/Day | P Value |
|----------------------------|----|---------------|----------------|---------|
| Milk | 80 | 1.64 | 1.43 | .107 |
| Vegetables | 80 | 1.59 | 1.45 | .417 |
| Fruit | 80 | 2.16 | 2.05 | .615 |
| Juice | 81 | 1.32 | 1.20 | .538 |
| Combined (Unweighted) | 79 | 6.78 | 6.12 | .115 |
| Latent Variable (Weighted) | 79 | 6.83 | 6.22 | .178 |

There was no statistically significant increase in days physically active 60 minutes or more (pre = 3.47, post = 3.86, $p = .124$, $n = 81$).

Skin Carotenoids

A total of 37 students had both Timepoint 1 and Timepoint 2 data and were included in the analysis. Skin carotenoids significantly increased between timepoints ($p = .002$) (Table 5). There was no significant change in BMI percentile (Table 5). No correlation was found between BMI percentile and RS score ($r = .157$; $p = .354$).

Table 5: Mean RS score and BMI percentile by timepoint (MT1: Healthy Eating).

| Data Collected | Timepoint 1 | Timepoint 2 | Mean Difference | p value |
|-----------------|----------------|----------------|-----------------|-------------|
| RS Score | 158.03 ± 76.58 | 210.76 ± 74.36 | 52.73 | .002 |
| BMI Percentile* | 62.63 | 64.36 | 1.73 | .178 |

*Includes only students with skin carotenoid data

Of the 37 students with Timepoint 1 and 2 RS data, 30 also had SPAN data. Pearson's correlation was used to assess the association between change in skin carotenoids and change in Healthy Foods latent variable. No correlation was found ($r = -.054$; $p = .775$). This was also the case when compared to the sum of fruits, vegetables, and juice ($r = -.136$; $p = .474$).

Summary

While no increase in one-day consumption of fruits, vegetables, milk, or juice was observed, the SPAN questions reflect only on the previous day, which may not be reflective of general intake. Furthermore, intake can vary throughout the week, particularly when comparing weekdays to weekends. As data were collected on Tuesday for both timepoints, this is unlikely to have impact results for this sample. Although the questionnaire did not detect improvements in fruit and vegetable

consumption, the significant increase in skin carotenoids observed in Year 2 suggests that students participating in the Three-Year Pilot are consuming more carotenoid-containing fruits and vegetables between Timepoints 1 (Fall 2018) and 2 (Spring 2019). It is also important to note that this is the second year of a three-year pilot and these data do not yet provide a complete picture of the outcomes. During FFY 2020, students will receive the second half of the SHCP curricula and a better understanding will be able to be achieved following final data collection and analysis. Based on CNS staff experiences collecting skin carotenoid data, several small improvements were made to data collection procedures to streamline the collection process. These included recommending that data only be collected indoors to reduce glare on the screen, using tape to create a line behind which waiting students will stand, using hand sanitizing gel rather than sanitizing hand wipes, and establishing left-hand ring finger as the default for detection to minimize likelihood of confounding due to staining from coloring agents in popular snack foods.

Description of how evaluation results will be used

This project is ongoing, with planned completion in FFY2020. Once the last round of data collection takes place in Spring 2020, data will be analyzed. If results indicate added benefit of NTGO prior to SHCP, this will be encouraged. Interim data for skin carotenoids indicate that these are feasible data to collect in this setting. Use of the Veggie Meter™ to assess skin carotenoids will be expanded to other counties in FFY2020 and will be used as an objective measure of change in fruit and vegetable intake in a validation study with the EATS questionnaire.

Implementation of Cooking Up Healthy Choices (CUHC) in High School

Project Goals

This project evaluated the effectiveness of the use of CUHC with high school students in improving attitudes toward cooking healthy foods and cooking skill self-efficacy.

Intervention

A CFHL, UC educator adapted CUHC to be used with high school students as a cooking curriculum. These lessons were taught weekly in January and February 2019 in an elective course that is part of an Early Childhood Education track at the participating high school. Before beginning the curriculum, the educator taught a lesson in knife skills and safety and then proceeded to lead the students through the five recipes included in CUHC, one per week.

Outcome Measures and Data Collection

Following the intervention, students completed a subset of ten questions from the "Motivation to Cook Healthy Food Safely."⁶ This questionnaire was developed and validated at Louisiana State University. Students were asked to rate their current enjoyment and confidence to cook healthy foods on a five-point Likert scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree) and then to reflect on their enjoyment and confidence before CUHC began. Paired t-tests were used to assess differences in ratings.

All quantitative analyses were completed using SPSS 25.0. Significance was set at $p < .05$.

Results

Sixteen questionnaires were completed. Significant increases were observed for three of the ten statements: "I enjoy preparing healthy food very much," $p = .02$; "I think it is fun preparing healthy food," $p = .048$; and "I would describe preparing healthy food as very interesting," $p = .010$ (Table 6).

Table 6: Mean agreement with statements regarding attitudes toward preparing healthy foods (ST1: Healthy Eating) (n = 16).

| | Before (mean) | After (mean) | P-Value |
|--|------------------|-----------------|---------|
| I enjoy preparing healthy food very much. | 3.00 | 3.63 | .020 |
| I think it is fun preparing healthy food. | 3.19 | 3.63 | .048 |
| Preparing healthy food holds my attention well. | 3.07 | 3.27 | .424 |
| I would describe preparing healthy food as very interesting. | 3.00 | 3.81 | .010 |
| Preparing healthy food is quite enjoyable. | 3.06 | 3.50 | .130 |
| I think I am pretty good at preparing healthy food. | 3.20 | 3.53 | .313 |
| I do pretty well preparing healthy food compared to other people my age. | 3.33 | 3.67 | .096 |
| I feel pretty confident about my food preparation skills. | 3.33 | 3.67 | .173 |
| I am satisfied with my ability to prepare healthy food. | 3.56 | 3.75 | .423 |
| I am pretty skilled at preparing healthy food. | 3.56 | 3.69 | .609 |

Summary

Preliminary results indicate that CUHC can improve attitudes toward cooking healthy foods, specifically, that it is fun, interesting, and enjoyable. While other statements did not yield statistically significant agreement, this may be due to the small sample sizes involved.

Description of how evaluation results will be used

While these preliminary data demonstrate the success of CUHC used with a high school audience, establishing the efficacy of this curriculum in improving nutrition behaviors is still needed for this age group. During FFY2020, this curriculum will be taught again with high school students and assessed with other outcome measures. If successful, the modified curriculum will be submitted for inclusion in the CFHL, UC approved curriculum list for high school.

Healthy Choices in Motion (HCIM) with CATCH Teens-as-Teachers

Project Goals

This project is evaluating the effectiveness of the use of HCIM curriculum with middle school youth prior to being trained to lead CATCH activities with younger youth .

Intervention

Older youth (grades 6-8) enrolled in summer school received the HCIM curriculum as a way to increase their knowledge and understanding of key concepts related to physical activity. The HCIM curriculum was delivered over the course of three days during 2-hour sessions. Following this initial training, teen teachers were trained each week for the remaining five weeks of the summer school program to lead different CATCH activities, through which they then led younger youth. During the summer school program, students had the option to participate in other activities, such as field trips; as a result, teen teacher participation varied from day-to-day.

Outcome Measures and Data Collection

Physical Activity Knowledge

A 20-item physical activity (PA) knowledge questionnaire was administered before the start of the HCIM lessons and again after the HCIM lessons were concluded. Data were unmatched as individual identifiers were not used; analyses included unpaired t-tests.

Teen Teacher Survey

Near the end of the program, teen teachers completed a subset of questions from the 4-H Teen Teacher Survey⁷ and a subset participated in a focus group about their experiences. Analysis included paired t-tests for matched data and descriptive statistics.

All quantitative analyses were completed using SPSS 25.0. Significance was set at $p < .05$.

Results

Physical Activity Knowledge

A total of 26 pre- and 23 post-assessments were completed. A statistically significant increase in physical activity knowledge was observed from pre-implementation to post-implementation (pre = 11.65 ± 2.9 ; post = 14.70 ± 3.1 ; $p = 0.001$) (Figure 1).

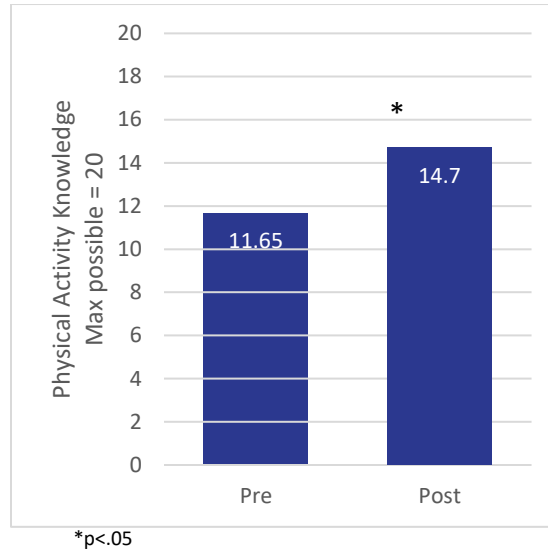


Figure 1: Differences in physical activity knowledge pre- and post-HCIM lessons (pre n = 26, post n = 23).

Teen Teacher Questionnaire

A total of 12 students completed the Teen Teacher Questionnaire (sixth grade n = 5, seventh grade n = 5; eighth grade n = 1, declined to state n = 1). Fifty percent of teen teachers had participated in the CATCH summer school program as teen teachers the previous year. Nearly half of students (41.7%) reported being active for more than 60 minutes five days the previous week, while 33.3 percent were active all seven days; 16.7 percent on six days, and 8.9 percent on one day. All of the students indicated they were Hispanic or Latino, 41.7 percent indicated they were female, 50 percent male, and 8.3 percent declined to state. Screen time usage varied from 8.3 percent indicating screen use less than one hour per day, 16.7 percent using screens 2 hours per day, 33.3 percent 3 hours per day, 17.6 percent for 4 hours per day, and 25 percent for 5 or more hours per day.

Participants were asked to rate their level of agreement on seven statements on a four-point Likert scale (ranging from 1 = Strongly Disagree to 4 = Strongly Agree) pertaining to outcomes after participating in the program as well as nine statements about their experiences during the program. The majority of participants agreed or strongly agreed to each of the 17 statements (Table 7).

Table 7: Percent of agreement to statements related to engagement and experiences in the program (n = 12).

| Statement | Percent Agree or Strongly Agree |
|--|---------------------------------|
| <i>Because of this program:</i> | |
| I can make a difference in my community through community service. | 66.7 |
| I can apply knowledge in ways that solve “real life” problems through community service. | 75.0 |
| I gained skills through serving my community that will help me in the future. | 83.3 |
| I taught others. | 66.7 |
| I acted as a mentor to others. | 66.7 |
| I am more confident in helping others. | 83.3 |
| I am more confident in myself overall. | 83.3 |
| <i>During the program:</i> | |
| There were dedicated adults who supported me as a teen teacher. | 91.7 |
| I was provided with a curriculum to follow as I taught in this program. | 91.7 |
| I received training on how to be a teen teacher before the program began. | 66.7 |
| I received ongoing training and support throughout the program. | 91.7 |
| The program made sure I had everything I needed to be successful as a teen teacher. | 83.3 |
| I received recognition and reward for my teaching efforts. | 70.0 |
| I participated in team-building with other teen teachers in the program. | 83.3 |
| I feel “set up” for success by adults running the program. | 83.3 |
| I received feedback on how well I was doing as a teacher. | 90.9 |

Participants also indicated interest in volunteering and in careers that help others or are health related on a 4-point scale (Ranging from 1 = Definitely Not to 4 = Definitely) (Table 8).

Table 8: Interest in volunteering and in careers that help others or are health-related (n = 12).

| Statement | Definitely (%) | Maybe (%) | Probably Not (%) | Definitely Not (%) |
|---|----------------|-----------|------------------|--------------------|
| I am encouraged to volunteer more. | 33.3 | 41.7 | 25.0 | 0 |
| I am interested in a career that helps others. | 33.3 | 41.7 | 25.9 | 0 |
| I am interested in pursuing in a health-related career. | 50.0 | 25.0 | 8.3 | 16.7 |

Participants were asked to rate their ability to perform different skills before and after participating in the program on a 4-point scale (ranging from 1 = No Ability to 4 = Excellent Ability) (Table 9). Participants reported increased perception of ability for all the statements, however only one statement (“I can speak before a group.”) yielded a statistically significant increase ($p = .012$). Two statements (“I can lead group discussions” and “I can plan programs”) were trending toward significance, however.

Table 9: Self-rated ability regarding leadership skills before and after participating (n = 12).

| Statement | Before (Mean) | After (Mean) | P-Value |
|-------------------------------|---------------|--------------|---------|
| I can lead group discussions. | 2.00 | 2.67 | .054 |
| I can work as a team member. | 2.67 | 2.92 | .191 |
| I can speak before a group. | 1.67 | 2.25 | .012 |
| I can see things objectively. | 2.17 | 2.42 | .082 |
| I can plan programs. | 1.67 | 2.17 | .053 |
| I can teach others. | 2.25 | 2.75 | .082 |

Participants were also asked to rate their level of agreement with the statement “I had experienced a successful youth–adult partnership” on a five-point Likert scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree). Average ratings from before the program (3.50) to after (3.83), were not significantly different. ($p = .489$).

Summary

Overall, the results indicate the HCIM/CATCH program was a positive experience for students. Teen teachers felt they gained skills and confidence, particularly in speaking before a group. Results indicate the addition of HCIM was also beneficial, as

demonstrated by the increase in physical activity knowledge. While the purpose of including HCIM was to increase the knowledge base of teen teachers before leading CATCH activities with younger youth, comments from the older youth indicate that they also applied what they learned to their own lives to increase their own physical activity.

Description of how evaluation results will be used

During FFY2020, this pilot will be conducted again to build on these data as well as collect behavioral data to establish efficacy in improving physical activity behaviors.

Point of Contact

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Evaluation Report Attachment #6:

Process and Outcome Evaluation: Building Together-Developing key partnerships to support youth-led participatory action research in CalFresh Healthy Living, University of California Programming

Project: CalFresh Healthy Living, UC Youth Engagement Initiative



BUILDING TOGETHER

Developing key partnerships to support youth-led participatory action research in CalFresh Healthy Living, University of California Programming

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IMPERIAL COUNTY: MEADOWS UNION

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HOW TO USE THIS REPORT

This report documents the work of six CalFresh Healthy Living, University of California county programs who facilitated a youth-led participatory action research (YPAR) project as part of the Youth Engagement Initiative during Federal Fiscal Year 2018. YPAR is a process that engages young people in using the tools of research to critically assess conditions that shape their lives, with the goal of supporting action to improve those conditions. This report highlights diverse examples of YPAR in action within SNAP-Education programs, with a focus on the critical role of partnerships in authentically engaging young people in policy, systems and environmental (PSE) change to promote nutrition, wellness, food access and physical activity. In California, the name for the federal Supplemental Nutrition Assistance Program Education (SNAP-Education) is CalFresh Healthy Living. After a brief introduction and executive summary, this report explores the key theme of partnerships within CalFresh Healthy Living, UC YPAR projects and examines the many lessons learned from these case studies during FFY 2018, concluding with profiles of each of the six projects.

Since no two YPAR projects are the same, the information presented is intended as a reference rather than a step-by-step manual. These case studies and their promising practices offer examples of what is possible as youth and program facilitators craft youth-led PSE change efforts that fit the specific needs and circumstances of their unique communities.

THE DOCUMENTATION PROCESS

Information provided here was collected through monthly check-in calls and additional technical assistance conversations with individual counties; statewide youth engagement conference calls that occurred every other month and involved all CalFresh Healthy Living, UC counties engaged in this work; site visits and in-person meetings; end-of-year exit interviews with adult allies; youth-produced final reports, videos, and presentations; CalFresh Healthy Living, UC retrospective YPAR student surveys; archived items and program documents from counties; and extensive field notes.

THE YOUTH ENGAGEMENT INITIATIVE

Launched in Federal Fiscal Year (FFY) 2016, CalFresh Healthy Living, UC's Youth Engagement Initiative is exploring innovative strategies to engage youth in nutrition and physical activity. Projects within this initiative seek to empower young people from vulnerable communities to lead efforts that improve the environments where they live, play, eat, shop, and learn.

The Youth Engagement Initiative embraces core youth development principles, as well as USDA Supplemental Nutrition Assistance Program—Education (SNAP-Education) Guidance that employ policy, systems and environmental (PSE) change activities—such as multi-level interventions and community and public health approaches—in addition to providing direct nutrition education.¹ CalFresh Healthy Living, UC recognized that youth who would be impacted by those PSE decisions should be involved in identifying, planning, implementing and evaluating the change interventions themselves. The goal of this initiative is to build the capacity of youth to contribute to PSE changes that help make the healthy choice the easy and preferred choice, while developing their leadership abilities, sense of self-efficacy, civic engagement, and college and career readiness. Throughout this process, UCCE staff serve as adult allies, a term used in the field and within this report to acknowledge their role as intergenerational collaborators committed to supporting and facilitating youth-centered efforts. For a full definition of policy, systems and environmental changes, please see the Fiscal Year 2018 SNAP-Education Plan Guidance, pp. 34-35.

In FFY 2017, three CalFresh Healthy Living, UC county programs pursued YPAR projects and received collective training and individual coaching from a technical assistance team. The efforts and lessons learned from this initial programmatic year were captured in [last year's report](#), "Moving from Serving Youth to Engaging Youth: Youth-led Policy, Systems and Environmental Change Interventions in UC CalFresh Nutrition Education²." This year in FFY 2018, the number of participating CalFresh Healthy Living, UC county projects increased to six and the technical assistance team instituted a cohort model to promote collective learning and cross-program collaboration and mentorship. The YPAR cohorts were comprised of nutrition educators and supervisors implementing a YPAR project with a similar timeline. At strategic points in the process these groups came together for collective training, technical assistance and program development.

In FFY 2019, the CalFresh Healthy Living, UC Youth Engagement Initiative aims to build upon its significant programmatic successes from the past two years. An expanded cohort model for training and technical assistance will support counties across the state and will strengthen the collaboration between the CalFresh Healthy Living, UC Program, the UC Division of Agriculture and Natural Resources (UC ANR), UC 4-H, the California Department of Public Health, Public Health Institute Center for Wellness and Nutrition, and the UC Davis Center for Regional Change. Four different cohorts tailored to practitioners with various levels of experience will support the full spectrum of SNAP-Ed youth engagement strategies, encouraging collective learning and mentorship. Regular, individualized coaching will remain a critical component of the technical assistance provided to practitioners to build on the lessons learned during collective training sessions and troubleshoot issues as they emerge. The goal for the 2018-2019 school year is to continue shifting toward engaging youth in nutrition and physical activity in more communities and build partnerships in communities across the state.

YOUTH-LED PARTICIPATORY ACTION RESEARCH (YPAR)

YPAR promotes process-oriented, reflexive research and action driven by youth's perspectives and strengths, allowing young people to study and address social issues that impact them in ways that build their capacities as civic actors.³ It is recognized by SNAP-Ed as a practice-tested PSE strategy that "aims to empower youth and achieve environmental changes related to health and nutrition" by having young people "identify their own issues, problems, and possible solutions."⁴ YPAR projects "provide youth with the opportunity to engage in leadership, critical thinking, problem-solving, service learning, and strategizing skills to address and promote nutrition and/or physical activity issues. It is part of an overall goal to increase consumption of fruits and vegetables, and physical activity."⁵

EXECUTIVE SUMMARY

This report presents six YPAR case studies from the CalFresh Healthy Living, UC Youth Engagement Initiative in FFY 2018, examining their approaches and lessons learned with respect to the role of forging and sustaining partnerships. UCCE staff primarily work with school administrators, staff and teachers during and after school, maintaining collaborations as intermediaries who inform partners and connect them to the project and young people. Engaging partners increases access to youth participants and resources, ensures information and experiences are shared, and increases young people's social competencies, community engagement and intergenerational relationship building. Collaboration also requires significant and variable time allocations and can involve conflicting partner interests and objectives, requiring adult allies to actively advocate for a youth-centered process.

Key lessons learned about developing and maintaining partnerships:

1. Active school administration support is critical. School leaders should be engaged from the beginning and provided tangible ways to contribute to a project.
2. Everyone involved must have a clear understanding of the YPAR process before a project is initiated, including partners, youth participants, adult allies and their supervisors.
3. Maintaining a consistent presence on campus helps to establish long standing, deliberate relationships and demonstrate dedication to the project, school and community.
4. Partnerships require flexibility because varying amounts of staff time may be needed at different phases of a YPAR project and school year.

5. Adult allies should play a leading role in identifying key stakeholders in support of the project and making connections as early as possible between adult partners, youth and the project.

6. Open communication and clear guidelines are critical to support a youth-centered process, build authentic relationships and foster trust.

7. It is important to have transparent discussions and set expectations as early as possible regarding any significant project parameters that might impact roles, responsibilities, decision-making processes, or the project's timeline, objectives or issue areas.

8. Developing young people's capacity and maintaining a youth-centered process takes continuous reflection and adaptability, as well as dedicated time and effort.

9. Providing gentle guidance as an adult ally means knowing when to intervene and when to create space for youth to lead.

10. Team building and having fun are important elements of youth engagement work that should be included at every stage of a YPAR project.

11. There appear to be benefits to having multiple YPAR projects and adult allies working simultaneously in close geographic proximity to one another.

12. There will always be challenges but it is important to keep moving forward, maintain momentum, innovate and adapt, remaining committed as an adult ally to the youth and a youth-centered process.

DEFINITION OF PARTNERS AND PARTNERSHIPS

Partnerships are a critical element of YPAR projects through the CalFresh Healthy Living, UC Youth Engagement Initiative. UCCE staff often form partnerships with teachers, school administrators, community members, local businesses and organizations. In their role serving as adult allies with youth-led PSE change initiatives, UCCE staff primarily work with schools in afterschool programs and during the school day. These partnerships are intended to support the young people and help build their capacities to create change in their communities and give them the skills to shape policies and programs that impact them. Engaging partners increases access to youth participants and resources, ensures information and experiences are shared, and increases young people's social competencies, community engagement and intergenerational relationship building. Partnerships are typically maintained by adult allies who often play an intermediary role, informing partners and connecting them to the project and young people.

Collaboration also comes with challenges. As projects progress and numbers of partnerships expand, adult allies must coordinate communication and foster relationship building between themselves, young people, and partners. This requires flexibility that is often constrained by other work obligations. Sometimes partners have conflicting interests and objectives. Lastly, because the YPAR process is youth-driven, adult allies need to actively remind partners that the young people themselves are part of decision-making.

This section expands on these topics and focuses on lessons learned related to partnerships, challenges, and how adult allies navigated them to ensure projects remained youth-centered.

LESSONS LEARNED

Active school administration support for the project is critical

Get administrators engaged at a high level from the beginning. Be as clear as possible about specific needs and a commitment to assist, giving administrators a tangible way to support and contribute to the project.

- Examples of support: coordinating with teachers and staff; promoting the group to others on campus; providing meeting space, access to WiFi and technology.
- Engaging administrators early on in the planning process helps build collective buy-in for prospective projects and establish parameters for administrators' involvement—preserving autonomy for youth input and leadership.
- Success stories can be really helpful to build relationships with new staff, develop new champions, and demonstrate how YPAR efforts can help promote and improve schools. UCCE staff shared UC Delivers articles, final products from previous projects (videos, photos, presentation slide decks, final reports), and other program documentation pieces.
- Adult allies generated on-campus support through champion teachers, who provided consistent updates and highlighted the group's progress to broker support with administrators and build interest in the project.

Cultivate a clear understanding of the YPAR process

YPAR is unique in that it is youth-centered, iterative, and process-oriented, requiring flexibility and a commitment of time and support that can differ significantly from more familiar programming (e.g. direct education).

- All partners involved in the project must have a clear understanding of the YPAR process before it is initiated—including youth participants, school administrators and partners, as well as the adult allies facilitating the project and their supervisors.

Maintain a consistent presence on campus

Establishing long-standing and deliberate relationships with school partners requires being physically present on campus as much as possible. Demonstrating dedication to the project, school and community helps to foster the same level of commitment in youth and adult partners.

- Regular visits to campus also provide additional opportunities to connect with youth participants outside of meetings.
- For one UCCE staff member, partnership development and maintenance was particularly smooth because of the longstanding relationships and trust they built at the school. The staff member had grown up in the community, attended the school and worked with some of the youth for a couple years as a volunteer with the afterschool program before initiating a YPAR project.

Partnerships take time and flexibility

While the percentage of work time varied across programs, staff need to be flexible with time to develop and maintain partnerships at different phases of a YPAR project and school year.

- This was a persistent struggle for staff who are constrained to a specific percentage of work time dedicated to their YPAR project.

Be an active player in facilitating connections between partners, youth, and the project

Adult allies should play a leading role in identifying partners in support of the project. This requires understanding the surrounding community and researching potential resources (e.g. unique partner attributes that may provide creative opportunities for assistance and collaboration).

- One adult ally worked with a local company to identify an affordable water testing kit and establish standard field practices for the group's research, which would have been difficult to accomplish on their own.

Be transparent with young people

Establish open communication and set clear guidelines with young people as early as possible (e.g. recruitment) to support a youth-centered process, build authentic relationships and foster trust. This can include establishing collective roles, responsibilities, expectations and decision-making processes for youth and adults; discussing any parameters related to potential issue areas or research topics the group can focus on.

- Develop the project's timeline, structure and objectives with youth, being realistic about what can be completed given the anticipated time frame and competing priorities.
- UCCE staff revisited their group's project timeline towards the end of the year so youth understood how many meetings remained in relation to how much they still wanted to accomplish. This reinvigorated participants at a crucial stage and continued to encourage their ownership over the project.
- Another adult ally intentionally built youth's capacity to engage directly with their YPAR training materials so everyone shared in the planning process and decision making.

Check in regularly with youth participants and change course when necessary

Developing young people's capacity and maintaining a youth-centered process takes continuous reflection and adaptability, as well as dedicated time and effort. Providing gentle guidance as an adult ally means knowing when to intervene and when to create space for youth to lead.

- Outside of meetings, different youth may respond more effectively to different communication methods (e.g. phone call, text, group chat, social media site), so utilizing a variety of approaches can be helpful.
- When UCCE staff noticed that youth engagement was low, they initiated a vote to determine if young people wanted to move forward with the current project. When youth were given the opportunity to opt in or out of a YPAR effort and choose the topic, their attitudes, engagement and ownership over the process improved significantly.
- One project created Action Teams that functioned similar to subcommittees. Students were split into smaller working groups with clearly defined focus areas and tasks so youth could opt-in to specific roles, pursue their interests, leverage their strengths, and exercise leadership over a segment of a larger project.

Find different and innovative ways to keep youth engaged throughout the course of the project and keep it fun

Team building is an important element of youth engagement work that should be included at every stage of a YPAR project. Do not short change having fun—build in time for this!

- Make sure to do fun activities every time you are together to keep meetings engaging. One adult ally set aside a portion of time at the end of each meeting to go outside and simply play together as a group, supporting youth retention and relationship building while also promoting physical activity.
- Preparing and enjoying a healthy snack is another way to build relationships and is a retention tool. One UCCE staff member partnered with the culinary class teacher to get donated food items, while another utilized an outside grant to purchase snacks for meetings.
- Whenever possible, seek creative ways to compensate youth for their efforts and involvement. One project provided youth with paid compensation through a collaboration with the UC 4-H Youth Development Program.
- The setting and environment for meetings is very important—choose a location where youth feel comfortable. One group met outside in their garden, where youth felt at home and could have a break from being in a classroom setting.
- Be sure to celebrate successes throughout the project and at the end of the year. Even if a full YPAR project is not completed, ensure participants finish the year with a sense of closure and accomplishment. One project celebrated their work at the end of the school year with a recognition dinner for youth group members and their families, while two other projects created culminating videos to highlight their research and accomplishments and inspire other youth to join the continuing effort the following year.

Build partnerships between YPAR projects

There appear to be benefits to multiple YPAR projects and adult allies working simultaneously in close geographic proximity to one another.

- An awareness of and connection with other YPAR efforts can help motivate youth and encourage greater engagement, wider perspectives and deeper understanding of possibilities through the exchange of ideas. Nearby youth can also support each other's action strategies and build greater collective power.
- In one county, UCCE staff worked closely together and were able to support, motivate and inspire each other. Having a second adult ally on hand to substitute or assist during meetings was very helpful for group management and progress.

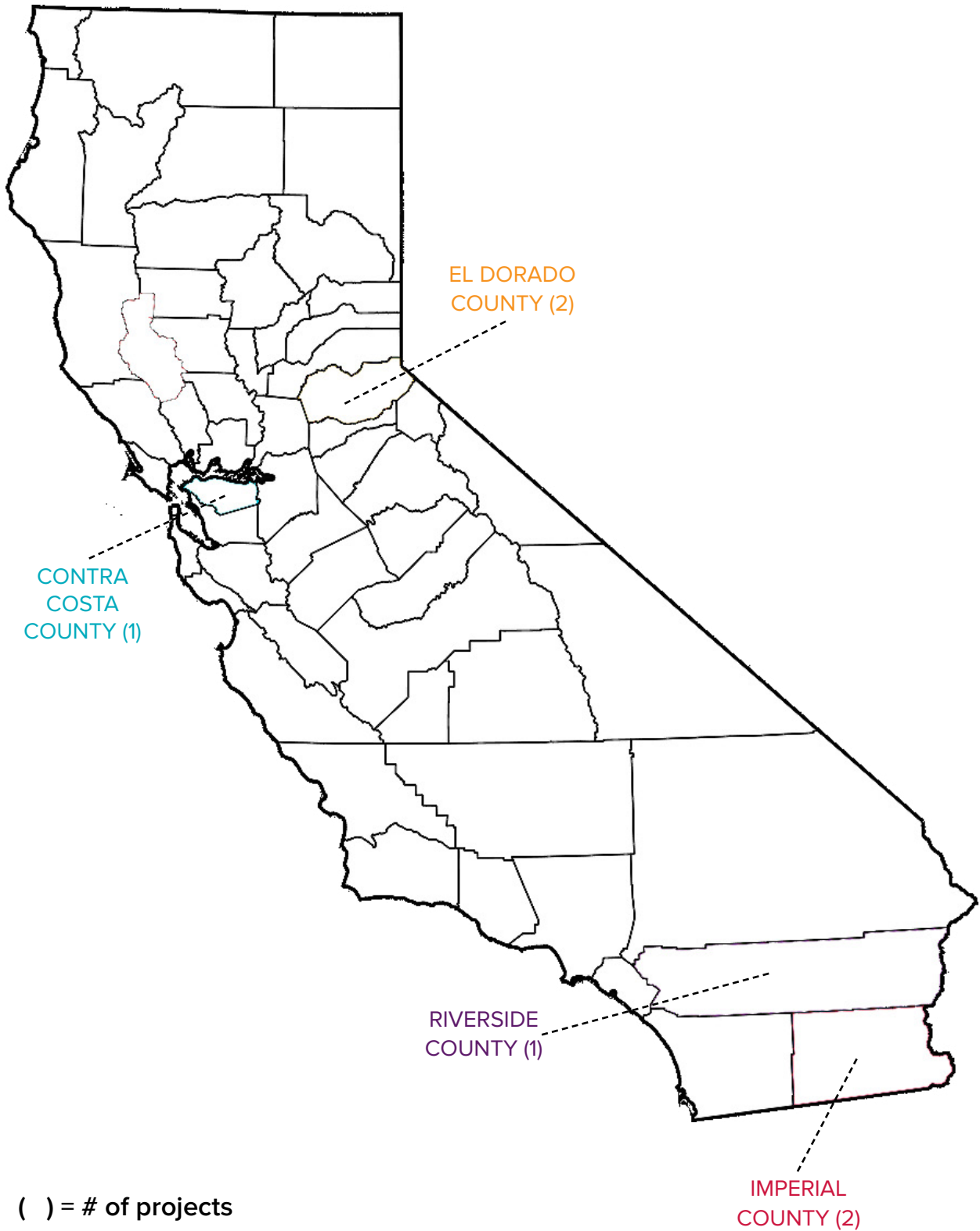
Keep moving forward, innovate and adapt

There are always going to be challenges but it is important to maintain momentum and approach adult allyship as an active state to continually strive towards rather than a static, self-conferred title.

- All of this year's YPAR projects faced a number of hurdles—such as shifting timelines, conflicts with partners, competing priorities, and fluctuations in youth engagement—but were successful because of the adult allies' perseverance and commitment to the youth and a youth-centered process.

What follows are profiles of the six CalFresh Healthy Living, UC YPAR projects for FFY 2018, providing a deeper examination of lessons learned and the critical role of partnerships in authentically engaging youth in PSE change interventions.

YPAR PROJECT LOCATIONS (2017-2018)



| Project | Contra Costa: Crockett | El Dorado: Georgetown | El Dorado: South Lake Tahoe |
|---------------------------------|--|---|--|
| Setting & Duration | After School, 9 months | In-School, 9 months | In-School, 5 months |
| Key Partners* | School; School District; Parents; UC 4-H; Bayer; EBMUD | School; 6th Grade Class | School; AVID Program |
| Youth Leaders | 6 high school students | 25 elementary school students | 4 high school students |
| Issue | Water Access, Appeal & Safety On & Off Campus | School Garden | District Health & Wellness Center |
| Research Methods | Schoolwide Survey; Water Quality Testing | PhotoVoice; Survey | PhotoVoice; Survey |
| Final Product & Recommendations | Presented findings to School Board via PowerPoint presentation | Presented research findings and proposed designs for new school garden site to principal, peers, parents, and community partners via video & PhotoVoice exhibit | Developing recommendations from survey results |

| Project | Imperial: Calexico | Riverside: Banning | Imperial: Meadows Union |
|-------------------------------|-----------------------------------|---|------------------------------------|
| Setting & Duration | After School, 5 months | In-School, 8 months | After School, 9 months |
| Key Partners* | School; ASSETs Program | School; ASB Class | School; ASES Program |
| Youth Leaders | 4 high school students | 4 middle school students | 14 K-8 students |
| Issue | Food Access & Nutrition at School | Lunchroom Environment & Physical Activity at School | Cafeteria Food Waste |
| Research Methods | Video Interviews | Focus Groups | Plate Waste Study; Observation |

Final Product & Recommendations

Advocating for youth involvement in Local School Wellness Policy Committee via video & PowerPoint presentation

Provided input on the cafeteria redesign & developed focus group protocol to research the school community's reaction to a walking trail on campus

Presented to superintendent & principal via PowerPoint presentation with video; recommended smaller portions, installing a share table & fridge

*East Bay Municipal Utility District (EBMUD), Advancement Via Individual Determination (AVID), After School Education and Safety (ASES), After School Safety and Enrichment for Teens (ASSETs), Associated Student Body (ASB)



CONTRA COSTA

John Swett High School's 4-H2O YPAR Project

PROJECT OVERVIEW

UCCE Contra Costa County staff facilitated their first YPAR project at John Swett High School. This cross-disciplinary project began in September 2016 led by Marisa Neelon—Nutrition, Family & Consumer Sciences Advisor—and Charles Go—UC 4-H Youth Development Advisor—and was brought on as a project with CalFresh Healthy Living, UC in December 2017. Eli Figueroa, Project 4-H2O Coordinator, started in December 2017 and served as the main adult ally and facilitator at 0.5 FTE. A group of six high school students met weekly for 60-90 minutes after school. The project focused on access to and the appeal of clean and safe drinking water for students.

SETTING

- The school is located in Crockett, a small town northeast of San Francisco. The town is situated next to the California and Hawaiian Sugar Company (C&H) and was originally built to house their employees.
- In 2016-2017, the school served 558 students, with 29% identifying as Hispanic/Latino, 19% non-Hispanic White, 17% Black or African American, 14% Asian, 10% Filipino; 11% English Language Learners (primarily Spanish and Punjabi-speakers), 55% eligible for free/reduced-price meals.

PROJECT DETAILS & PARTNERSHIPS

- Project 4-H2O was designed as an after school initiative in partnership with John Swett High School that incorporated YPAR into the UC 4-H model: once students were selected for the YPAR project, they were registered for the UCANR Contra Costa 4-H Youth Development Program.
- Cross-disciplinary effort linking nutrition and UC 4-H programming through UCANR with CalFresh Healthy Living, UC and their Youth Engagement Initiative; additional partnerships were developed with the National 4-H Council, Bayer and the East Bay Municipal Utility District (EBMUD). Eli worked half time coordinating the YPAR project through funding provided by CalFresh Healthy Living, UC.
- Multiple collaborations generated strong program incentives: compensation for youth participants; travel to the 4-H National Youth Summit on Agri-Science in Chevy Chase, Maryland, which helped develop trust and relationships within the group; support and guidance from two Bayer employees serving as expert consultants to the project.
- Eli's relationship with the librarian gave them access to a meeting space and computers. Communicated with the principal to provide project updates and gain administrative approval for the group's research.

YOUTH RECRUITMENT

- School principal and counselor helped recruit youth, who completed an online application, submitted a resume, and were then interviewed by the coordinator. Selection criteria included sophomore, junior or senior-year status; a minimum GPA of 2.5; and the abilities to work as a team member and follow through with project commitments.
- Four students started with the project as juniors during the 2016-2017 school year and continued this year. Eli recruited two additional students in February 2018, providing them with boost trainings to get them up to speed with the other members.
- Eli also hosted a parent meet-and-greet to introduce himself as the group's new adult ally and build relationships with youth participants' parents.

ISSUE & RESEARCH QUESTION

- Adult allies determined the project goals and objectives to ensure that it reflected SNAP-Ed parameters; however, the youth defined the issue area they wanted to research within the broader objectives. After having secured approval for six new water stations the previous school year, youth decided to focus on water quality and safety in addition to access.

Research Question: Do John Swett High School students have access to safe and appealing drinking water at school and in their community?

RESEARCH METHOD(S), DATA COLLECTION & ANALYSIS

- Survey from previous school year helped the group analyze student beverage consumption and identify popular drinking water access locations at the high school.
- This year's survey collected follow-up data on water consumption and identified popular drinking water access locations for students beyond their school campus in the community of Crockett. Survey results identified three access sites.

- Project consultants from Bayer were not allowed to analyze external samples at their lab but offered advice and support for the water testing process—recommended an affordable water testing kit available online, which was purchased with UC 4-H funds.
- Eli ensured youth were able to put science into action and test the water themselves, giving them hands-on experience collecting water samples and data for their project at the three identified community access locations.

RECOMMENDATIONS & FINAL PRODUCTS

- Created a presentation about their project and presented their findings to the School Board in August. Sought continued support for the installation of the six water stations, peer education to promote student water consumption, and enactment of a board policy to ensure every student has access to free, safe and appealing drinking water at school all day.
- The [Putting Youth on the Map online data mapping tool](#) enhanced students' advocacy efforts for school and community change and inspired them to create their own map identifying sites where their peers accessed water in the community.

ACTION & OUTCOMES

- Students tabled at Crockett's annual Sugartown Festival and provided free water through EBMUD's Water On Wheels trailer. Gave them the opportunity to share their project with community members while providing the public access to 500 gallons of drinking water.

“[I learned] how to approach something scientifically. You have to find out the causes and it's not just one cause usually. There are multiple solutions and how to figure out what is the best solution for everyone.”

—Project 4-H2O Youth Leader

- Challenging logistics on the district's end led to a delay in the installation of the six water stations at the high school; but construction plans to remodel and modernize the high school include installation of the water stations.
- Youth designed a project logo and slogan to use in promotional efforts and advocacy.

NEXT STEPS & PROGRAM SUSTAINABILITY

- Plan to recruit additional students for the 2018-2019 school year as four of the six youth have graduated. Initial recruitment strategy includes outreach during the high school's Back to School Night in September.
- Youth will continue conducting peer education around the health benefits of drinking water and promote the use of the water stations as they are installed. Following the Teens-as-Teachers model, Project 4-H2O aims to have high school students train middle school students on water issues to create a pipeline to the YPAR project when they eventually transition to high school.
- Pending the installation of the new water stations they successfully advocated for last year, Project 4-H2O youth plan to distribute a post-survey in spring 2019 to assess how the water stations have influenced students' water consumption while at school and if they are making healthier beverage choices overall.



“The first thing we did was gather data through a survey on students drinking habits and we took all that data and found that students weren’t drinking that much water. And one of the reasons was because the water coming out of the water fountains they thought tasted bad and wasn’t of good quality so we brought that up to the school board. And they were like ‘Oh, we didn’t know that.’ We offered a solution. We could get a hydration station and also test the water beforehand so students would know it’s safe to drink.”

—Project 4-H2O Youth Leader



EL DORADO

Georgetown Elementary School's YPAR Project

PROJECT OVERVIEW

El Dorado County UCCE staff facilitated their second consecutive YPAR project at Georgetown Elementary School. Miranda Capriotti, Nutrition Educator, helped to facilitate the first YPAR project at the school and was joined this year by a second Nutrition Educator, Carmela Padilla, to serve as the project's main adult allies. The group met once a week for one hour in Mrs. Brown's sixth grade classroom and focused on a new school garden site.

SETTING

- The school is located in Black Oak Mine Unified School District. This district serves a rural region known as the Georgetown Divide, which is situated along the border of El Dorado and Placer Counties. The small town is geographically isolated from the rest of the county and is a tight-knit community.
- In 2016-2017, the school served 231 students, with 86% identifying as non-Hispanic White, 9% Hispanic/Latino; 63% eligible for free/reduced-price meals.

PROJECT DETAILS & PARTNERSHIPS

- Initiative was structured as an in-school YPAR project in partnership with Mrs. Brown's sixth grade class; youth met with Miranda and Carmela once a week during her class time.
- Mrs. Brown continued to be a strong supporter of this project. She often served as the liaison between Miranda, Carmela, and the school's principal. Provided in-class support for the project when the students needed additional work time outside of scheduled meetings.

YOUTH RECRUITMENT

- The project involved 25 students in Mrs. Brown's 6th grade class.

ISSUE & RESEARCH QUESTION

- At the beginning of the school year, Miranda and Carmela planned to work with the new students to continue the previous year's project focused on purchasing a healthy vending machine for the school. However, the principal was interested in relocating the school's garden and introduced this new focus to the students.
- Their effort initially struggled with lack of youth engagement and ownership as well as behavior management issues, all connected to their competing youth engagement projects that were more adult-driven than youth-led. So, Miranda and Mrs. Brown facilitated an anonymous vote amongst the students to decide which project

they wanted to work on—25 students voted to move forward with the new school garden project and 4 chose to participate in another activity.

- Miranda and Carmela worked hard to ensure the new school garden project remained youth-driven and youth-led. “Action teams” had clearly defined focus areas and responsibilities: 1) Presentation, 2) Advertising, 3) Ambassadors, 4) Gallery, and 5) Garden Design Team. Along with deciding to switch their focus issue, implementing defined roles dramatically improved youth participation, ownership and engagement.

RESEARCH METHOD(S), DATA COLLECTION & ANALYSIS

- Students interviewed a UCCE master gardener and the UCCE Nutrition, Family and Consumer Sciences Advisor to learn more about school gardens and the garden planning process—helped set expectations for what could be accomplished by the end of the school year.
- Through PhotoVoice, highlighted old garden site challenges (e.g. located too far away from classrooms across a large, potentially dangerous parking lot; not fully utilized; shaded for a good portion of the day).
- Distributed a survey to peers to learn how a new school garden site could be better utilized by students and teachers. Results showed students wanted colorful flowers and edible plants, a place to have lunch, and potentially a café that could serve food from the garden.

RECOMMENDATIONS & FINAL PRODUCTS

- At the end of the school year, students hosted a garden gallery walk during Open House: displayed survey results and data maps highlighting physical fitness levels and student health risks in the school district, proposed designs for the new school garden site, and shared photos with written narratives from their PhotoVoice project. Open House was attended by members of the school community, parents, and community partners.
- Also created a video documenting their work throughout the school year.

ACTION & OUTCOMES

- Miranda and Carmela worked with the principal to secure a \$2,000 grant from the Whole Foods Whole Kids Foundation to support the school garden. Next year, they will work with a new group of students to decide how to spend the money.
- Georgetown Elementary received funding to be part of the New Tech Network—a project-based learning program that has a student-centered culture and overlaps with tech, student engagement and community service. The principal reached out to Miranda and Carmela to meet with the New Tech Network staff with plans to integrate and institutionalize their youth engagement work.
- The students were proud of their work and felt they did something important that was not just for themselves but for their younger siblings and community.

“I think the garden project will help improve our school’s health because it helps our school have healthy food option that are good for us and if we eat our fruits and vegetables we will grow up strong and healthy.”

—Georgetown Youth Leader

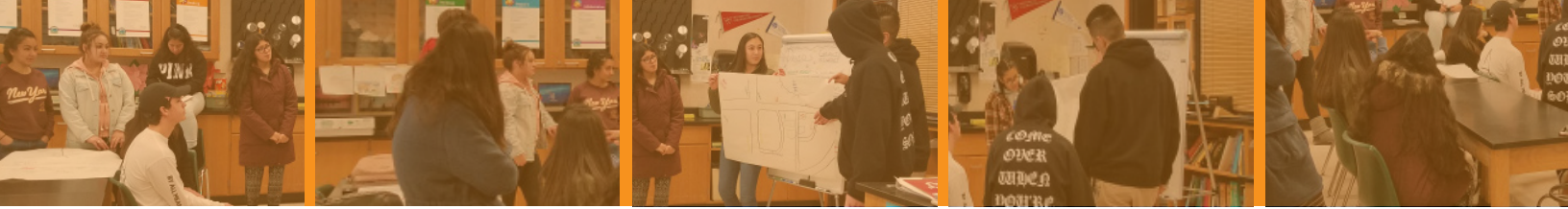
NEXT STEPS & PROGRAM SUSTAINABILITY

- The youth were concerned that the next 6th grade class would not be interested in continuing with their school garden project, just as they had pivoted away from their predecessors' healthy vending machine effort. They presented their project video to incoming 6th grade students to inspire them to continue with the project in the 2018-2019 school year.
- Every school year, Miranda and Carmela have to work with a new youth cohort because their group members all transition to middle school. They want to assist with orienting youth to YPAR by creating a project pipeline, providing nutrition and physical activity direct education to 5th grade classes so students come into 6th grade with a baseline knowledge ready to jump right into the YPAR project. Plan to prioritize and align new students' interests at the beginning of the year as well.



“I think the garden project will help our school be more healthy because it brings better healthy food to our school and gives us the opportunity to work really hard on something that is fun.”

—Georgetown Youth Leader



EL DORADO

South Tahoe High School's AVID YPAR Project

PROJECT OVERVIEW

El Dorado County UCCE staff facilitated their first YPAR project at South Tahoe High School in collaboration with the Advancement Via Individual Determination (AVID) class, a college preparatory program for first generation college-going students. Guadalupe Ramirez and Cristina Luquin, both CalFresh Healthy Living, UC Nutrition Educators, served as the main adult allies and facilitators. The group met once a week for 80 minutes in-class on campus.

During the first year, Guadalupe and Cristina focused on establishing partnerships with key school leaders and staff members on campus and building a presence among the youth with whom they intend to work. Facilitating a YPAR project for the first time proved to have its own unique challenges and opportunities which helped to form the foundation for future youth engagement work in South Lake Tahoe.

SETTING

- The project took place at South Tahoe High School, the only high school in the Lake Tahoe Unified School District that serves the surrounding unincorporated communities. The school is located in a small resort city in the Sierra Nevada Mountains that borders the California-Nevada state line. Tahoe has high, year-round tourism with a corresponding large service economy to accommodate the tourist demand for hotels, restaurants, etc.
- In 2016-2017, the school served 1,029 students, with 51% identifying as non-Hispanic White, 38% Hispanic/Latino; 13% were Spanish-speaking English Language Learners, 54% eligible for free/reduced-price meals.

PROJECT DETAILS & PARTNERSHIPS

- Guadalupe and Cristina had not previously worked at the school; they identified an existing group of students on campus, the AVID class, and initially came as guest speakers before the project started.
- Ms. Zalles, the AVID teacher, served as a critical link between Guadalupe, Cristina, and the school administrators. To build interest on campus, she presented project updates during staff meetings and gave students extra credit as an incentive for participating.

YOUTH RECRUITMENT

- Guadalupe and Cristina utilized PhotoVoice simultaneously as a recruitment and a community assessment tool to engage students and build interest in the project. They launched the project during the second half of the school year by facilitating PhotoVoice exercises with the students before their scheduled visits to college campuses.

- The project began with all 14 AVID students and took place during class time.
- A couple of months into the project, Guadalupe and Cristina started to notice that the students were not as engaged. Ms. Zalles facilitated an anonymous vote which revealed that a majority of students did not want to move forward with the project. A cohort of four students decided to continue.
- Guadalupe and Cristina found that the smaller number of students were more engaged in the project, productivity increased and meetings ran more efficiently.
- Students who chose not to move forward with the project were overwhelmed with juggling other competing end-of-year activities and testing. In addition, the students seemed to like PhotoVoice as a self-contained activity but were not interested in moving beyond that initial effort.

ISSUE & RESEARCH QUESTION

- Through the Photovoice process, youth looked at “model communities” while on their college campus visits and identified what made the communities healthy and what types of health services were being offered. They took photos answering these questions: What would make you want to go here? How can you bring it home?
- Students created a photo collage, then compared and contrasted what they saw to their own high school campus. They were inspired by college campus services for students such as meditation hours. This gave them ideas for services that could be offered at their school Health and Wellness Center.

RESEARCH METHOD(S), DATA COLLECTION & ANALYSIS

- The students planned to survey their peers to help determine the types of services of interest for the

Health and Wellness Center. However, a tragic community event derailed survey development focused on nutrition and physical activity. Therefore Guadalupe, Cristina and the youth were unable to move forward with their anticipated final product.

ACTION & OUTCOMES

- Students felt they were doing something important that was not just for themselves but for their younger siblings as well.
- Principal acknowledged the students’ important work.

NEXT STEPS & PROGRAM SUSTAINABILITY

- Guadalupe and Cristina plan to meet with the students at the beginning of the 2018-2019 school year to see if they are interested in continuing with the YPAR project with a focus on nutrition and/or physical activity.
- They intend to start project activity at the beginning of the year this time.
- They would also like to recruit both AVID students and others from the general student body.
- Guadalupe and Cristina plan to continue building their presence on campus through tabling at lunch time, facilitating additional nutrition education classes on campus, and connecting with the health teachers.

“This project is important because it is going to affect not just us, but younger generations as well.”
—AVID Youth Leader



IMPERIAL

Calexico High School's Eco-Garden YPAR Project

PROJECT OVERVIEW

Imperial County UCCE staff facilitated an afterschool YPAR project with students at Calexico High School in collaboration with the local After School Safety and Enrichment for Teens (ASSETs) Program and the school's Eco-Garden Club. Chris Gomez Wong, UCCE Community Educator, served as the project's main adult ally and facilitator; he worked with a team of four juniors and seniors to examine nutrition and food access issues at their school through observation and video interviews. The group met after school in the garden for an hour and a half each week but would transfer to a classroom during hot weather.

SETTING

- This school is located in Calexico, a small, agricultural community situated along the California-Mexico border. Many students live in Mexicali and cross the border daily to go to school.
- In 2016-2017, the school served 3,031 students, with 99% identifying as Hispanic/Latino; 52% were Spanish-speaking English Language Learners, 84% eligible for free/reduced-price meals.

PROJECT DETAILS & PARTNERSHIPS

- Partnered with the afterschool ASSETs program and the school. Strong support from school administration and a key teacher advisor, Chef Nunez, who was culinary class teacher and a main point of contact on campus.
- Chris had established, long-standing community and school relationships before joining CalFresh Healthy Living, UC in January—grew up in Calexico, attended Calexico High School, and had already been working as an advisor to the school's Eco-Garden Club for a number of years.

YOUTH RECRUITMENT

- Recruited from the school's Eco-Garden Club beginning in January. The garden was well established and the club was a bit limited in what it could do, so initiating a YPAR project opened up a number of new opportunities for them.
- Started with 12 members but ended up with 4 consistent youth due to competing commitments.
- Hit the ground running by recruiting through the club—youth already had established relationships and channels of communication with each other and Chris.
- Transitioning to a more structured project from what had previously been a more informal setting presented challenges.

- While working with a well established group provided participants, the perception that it was closed to outsiders made recruiting new members difficult.

ISSUE & RESEARCH QUESTION

- Concerned about rising childhood obesity rates and low physical fitness levels in their community discovered through publicly-available data sources, coupled with concerns about access to healthy, nutritious food at school. School has 2 separate campuses—one specifically for freshmen—and they focused on their campus for 10th, 11th and 12th grade students.
- Group did not like the food provided in the cafeteria and school has an “open campus” lunch policy but is surrounded by fast food establishments and food trucks mainly selling unhealthy options.

Research Question: Where are Callexico High School students getting their nutrition?

RESEARCH METHOD(S), DATA COLLECTION & ANALYSIS

- Utilized video interviews and observations during the lunch hour at school; conducted 20 interviews with a random sample of fellow students.
- Youth were ready to take action and it was really beneficial for them to move beyond just discussing issues among themselves to getting out and engaging with their peers.
- Interview results and data helped validate some of the issues the group had already identified: interviewees also disliked the school’s cafeteria food and options.

RECOMMENDATIONS & FINAL PRODUCT

- Youth are advocating to participate in the Local School Wellness Policy (LSWP) efforts at the district and school-site level as Student Wellness Ambassadors, to provide youth perspective to decision-making bodies and push for nutrition/food access policy changes (e.g. salad bar expansion; increased access to culturally-appropriate, vegetarian and vegan options; establish a farm-to-school program on campus and incorporate fresh produce from their garden into school meals).
- They aim to install 1-2 youth on the LSWP committee in the coming school year; other YPAR team members will serve as advisory group to support youth representatives.
- LSWP committee does not meet very often (it only convened once last year) and no youth are currently active members, so building relationships and ensuring meaningful youth participation in this context is their next challenge.

**“Many of us wanted to try to stay healthy during the school year, and that wasn’t really a possibility because we don’t have many food options available to us.”
– Eco-Garden Club Youth Leader**

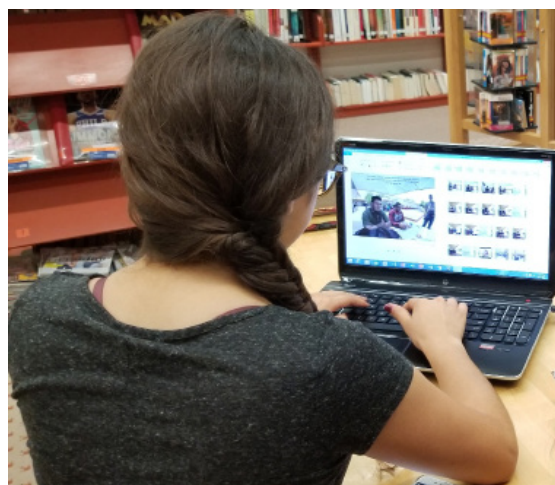
- Final product was a video with key interview clips and project highlights. Embedded video into a PowerPoint presentation and plan to use both media pieces to raise awareness among peers and recruit new members next year.

ACTION & OUTCOMES

- YPAR project showed youth they could be active participants in policy decisions that impact their lives and the lives of their peers via district wellness committee and community education.

NEXT STEPS & PROGRAM SUSTAINABILITY

- Two members graduated at the end of the year, but the two juniors will carry the group forward next year—will use their video as a promotional advertisement for recruitment and will seek new members from Chef Nunez’s culinary classes and the wider student body.
- Chris will implement a teens-as-teachers cooking academy program next year with students from Chef Nunez’s culinary classes. He would like to connect this effort with the YPAR work and some youth will probably participate in both programs.



“Since we’re already growing our own crops at the Eco-Garden Club, we would like to expand that into our school menu, that way we can establish a Farm-to-School program.”
– Eco-Garden Club Youth Leader



RIVERSIDE

Nicolet Middle School's YPAR Project

PROJECT OVERVIEW

Riverside County UCCE staff facilitated a YPAR project with students at Nicolet Middle School in the city of Banning. Emma Sandoval, UCCE Community Education Supervisor, served as the project's main adult ally and facilitator, working with a team of four 8th grade students to promote physical activity. The group met for an hour each week on the school campus during the ASB class period.

SETTING

- Project took place at a fairly small school with high needs and few resources in the city of Banning, a very rural community situated 30 miles east of the city of Riverside.
- In 2016-2017, the school served 933 students, with 67% identifying as Hispanic/Latino, 12% non-Hispanic White, 8% Black or African American, 5% Asian and 4% American Indian or Alaska Native; 13% were either Spanish-speaking or Southeast Asian English Language Learners, 89% eligible for free/reduced-price meals.

PROJECT DETAILS & PARTNERSHIPS

- Structured as an in-school Student Nutrition Action Committee (SNAC) in collaboration with the Associated Student Body (ASB) leadership class and the school. Primary support provided by the district's Nutrition Services Specialist and school faculty and staff, including school librarian.
- UCCE Riverside staff had already been working with the school on the Shaping Healthy Choices Program.
- Holding meetings during school time was very challenging for both recruitment and programming, but holding their meetings after school was not really feasible.
- Very limited pool of potential recruits—students were only eligible to join the group if they had extracurricular activities scheduled during the same class period.
- Maintaining a consistent meeting space was a challenge.
- Short meeting sessions and limited project time outside of meetings meant time was always a concern— took longer to get through each step and did not feel like there was adequate time to keep it fun while also getting work accomplished.

- Emma got a promotion and new staff in the fall but continued supporting this group. Her new role and responsibilities created additional challenges for time management: had less time to prepare for meetings and support the project, and new staff members could not assist her.
- Nutrition Services Specialist planned and facilitated some meetings and activities focused on a Smarter Lunchroom Movement cafeteria makeover; accompanied the group to Sacramento to present a poster and give a speech at the SNAC Conference.
- Coordination was challenging in the fall—the Nutrition Services Specialist and Emma pursued separate agendas with the youth without a clear, shared understanding of the YPAR process—but this situation was resolved by mid-year.

YOUTH RECRUITMENT

- Had 3 students from ASB leadership class who returned from last year’s initial YPAR effort.
- Youth-led recruitment process: presented program and applications to peers with extracurricular classes held at the same time as ASB to ensure they could actually participate in the meetings; process resulted in 1 more youth joining the group.
- Final group was a tight-knit team of 4 female 8th grade students.

ISSUE & RESEARCH QUESTION

- Youth were concerned about the aesthetics of their school’s cafeteria, low physical activity levels at their school and in their community, as well as Physical Education class quality.
- Interested in creating a walking trail on campus to improve mental and physical health—an alternative to what they saw as poor physical activity education and opportunities.

- Researched trail options and explored the idea of a multi-year project that could include an on-campus trail, a joint-use agreement, and eventually an off-campus extension of the trail.

Research Question: “Would a walking trail help increase opportunities for physical activity in our school community?”

RESEARCH METHOD(S), DATA COLLECTION & ANALYSIS

- Issue identification process took a long time and youth got bogged down in the slow pace of progress, which pushed their research design and data collection stages to after winter break.
- Needed additional support and guidance transitioning into the research phase of the project—focus on a walking trail may have moved a bit too quickly towards recommending a solution before youth had conducted their research and analysis.
- Used USDA Food Atlas mapping site to analyze food access in the area. Putting Youth on the Map mapping tool and other publicly-available data sources provided physical activity data.
- Felt peers were tired of taking surveys, so the group preferred focus groups as a more interactive and engaging research method.
- Developed questions for their research, but process took quite a while to complete and was slowed by school testing in the spring and other scheduling conflicts. Principal was supportive of their research plan but they were unable to conduct their research before the school year ended.

OUTCOMES

- Funding issues prevented any changes to the cafeteria this year, but this is something they plan to pursue in the near future through the Smarter Lunchrooms Movement.
- Did not receive a hoped-for physical activity grant which could have supported next steps.
- Despite challenges, youth identified their participation in this project as a very positive experience that led them to change eating and physical activity behaviors.

NEXT STEPS & PROGRAM

SUSTAINABILITY

- All youth participants graduated at the end of this year and were apprehensive about continuing this project in high school during their freshman year; due to this and Emma's own time constraints, this YPAR project will not continue in the 2018-2019 school year.



IMPERIAL

Meadows Union Elementary School's Helping Hands Active Knights (HHAK)

PROJECT OVERVIEW

Imperial County UCCE staff facilitated their second consecutive YPAR project at Meadows Union Elementary School in collaboration with the local After School Education and Safety (ASES) Program. Paul Tabarez, UCCE Community Education Supervisor, returned as the project's main adult ally and facilitator, working with a team of 14 6th, 7th and 8th graders. The group met weekly on campus after school and focused on food waste in their cafeteria for this year's effort.

SETTING

- This K-8 school is located in the desert about 5 miles east of El Centro and 6 miles west of Holtville and surrounded by agricultural fields with mobile home parks interspersed throughout the region and no walkability.
- In 2016-2017, the school served 488 students, with 85% identifying as Hispanic/Latino, 13% non-Hispanic White; 47% were Spanish-speaking English Language Learners, 67% eligible for free/reduced-price meals.

PROJECT DETAILS & PARTNERSHIPS

- Maintained same partners in Year 2. ASES provided coordination and logistical support, as well as funds, donating for group t-shirts.
- Strong school/district administrative support. However, staff turnover of key local partners and champions was an ongoing challenge: Paul focused on building and maintaining strong relationships with administrators and their successors to maintain school and district support.
- Paul's commitment to Meadows Union despite a promotion and new responsibilities helped maintain continuity, but also led him to cut training on youth leadership strategies like meeting planning and facilitation. New staff member, Chris, was able to assist during some Helping Hands Active Knights (HHAK) meetings and was very helpful since it was a bigger group this year.

YOUTH RECRUITMENT

- First youth-led recruitment process. HHAK members presented to ASES program peers and created application process. Final group included 6 returning youth and 8 new members, majority Latina.
- The process was very successful but lengthy, delaying YPAR project until after winter break—will shorten in future.

ISSUE & RESEARCH QUESTION

- Last year, the group was concerned about water access at school and a playground stencil project in addition to physical activity. Since the school had plans for new water stations and the stencil project was successfully completed, their school's lunchroom became a focus. Food waste emerged organically as a common concern across discussions and activities. Paul let the youth participants truly drive the process, and they settled on analyzing food waste at their school to assess how many fruits and vegetables are being wasted during lunch time.
- Paul communicated with the principal, laying the groundwork for administrative support and consulted with the CalFresh Healthy Living, UC State Office team for guidance.

RESEARCH METHOD(S), DATA COLLECTION & ANALYSIS

- Youth participants audited their own eating habits and then conducted a plate waste study in their lunchroom using observation and photography. Additionally, they measured the amount of fruits and vegetables wasted by processing 363 food trays. They tried to be as careful as possible with their framing so as not to place blame on the students or stigmatize them for wasting food.

- Paul drew from previous experience and PHI CWN and CalFresh Healthy Living, UC State Office expertise to support youth data collection and analysis. Youth were initially a little discouraged by what they perceived to be low result numbers, but Paul helped them use single day numbers to extrapolate school waste for the year. He also helped them think about this amount multiplied by the number of other schools in the area to demonstrate how waste adds up over time and multiple locations.
- A reflection log helped the group process and capture their thoughts and quotes.

RECOMMENDATIONS & FINAL PRODUCT

- HHAK members generated recommendations for their school:
 - Install a share table and a share fridge in the cafeteria to save unused food.
 - Implement taste testings and smaller food portions for some items.
 - Improve signage to let students know about these changes and their rationales.
- The group is also interested in supporting composting and recycling at school and is exploring logistics and regulations for donating unused food to other community programs.
- Their final report was created in PowerPoint. In a novel use of technology, they incorporated embedded video segments of the youth speaking within the slides. Youth were able to re-record their presentation videos as many times as they needed to get them just right.

“Did you know that 40% of all food in America is wasted? Let’s make a change!”
– HHAK Youth Leader

ACTION & OUTCOMES

- Paul followed up with key school and district decisionmakers over the summer, and the group’s final report presentation was shared with the superintendent and the outgoing principal. Their efforts were acknowledged at a School Board meeting at the end of the school year, too. The Food Services Director supports installing a share table and would like to formulate an official partnership with the HHAK group for the next year school year. They have planned a big ribbon cutting ceremony with the youth for the table’s unveiling.

NEXT STEPS & PROGRAM SUSTAINABILITY

- In the fall, the youth will continue to advocate for their recommended PSE changes with school and district administrators. They expect to have 12 returning youth leaders. While they will be starting with a good-sized group already, they still want to recruit new members because most of the returning youth will be 8th graders and will graduate at the end of the next school year. The youth really want to accomplish something big next year and leave a lasting legacy before they move on to high school.



“We decided to do a food waste study because it is a serious problem in not only our school, but also around the world.”
– HHAK Youth Leader

ENDNOTES

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For more information, program partners can be reached via the following links:

CalFresh Healthy Living, UC: uccalfresh_support@ucdavis.edu

UC Davis Center for Regional Change: crcinfo@ucdavis.edu

Public Health Institute Center for Wellness and Nutrition: info@wellness.phi.org

UC 4-H: ca4h@ucanr.edu



Evaluation Report Attachment 7a:

Process Evaluation: Results from Piloting Physical Activity Evaluation Tools at Preschools, Schools, and Afterschool Programs Implementing CATCH

Project: CalFresh Healthy Living, University of California SNAP-Ed Activities in 3 California Counties

Project Goals:

This evaluation most directly assesses the following California SNAP-Ed State Level Goal:

- Goal 5: Increase access to and/or appeal of physical activity opportunities for SNAP-Ed eligible populations.

However, these environmental changes are also intended to impact the additional individual-level SNAP-Ed State Level Goals:

- Goal 2: Increase Physical Activity

Introduction:

Children's diet and physical activity (PA) levels both play key roles in childhood obesity prevention. Historically, the Supplemental Nutrition Assistance Program – Education (SNAP-Ed) primarily focused on delivering high-quality nutrition education. However, more recently, the guidance shifted to incorporate PA and policy, systems, and environmental (PSE) efforts as key components of SNAP-Ed interventions. CalFresh Healthy Living, University of California (UC) administers SNAP-Ed through 32 UCCE county offices reaching approximately 100,000 youth annually, primarily in preschools, schools, and afterschool programs. A top priority of CalFresh Healthy Living, UC is to integrate effective PA direct education and PSE strategies into the existing high-quality nutrition education programming delivered across the state.

Recent reviews of the literature conducted by the 2018 Physical Activity Guidelines (PAG) Advisory Committee highlighted promising strategies for increasing PA among children in the preschool and school settings, which include PA opportunities after school. The 2018 PAG Advisory Committee Scientific Report provided suggestive evidence for promising strategies to increase PA among children in **preschools and child care centers**, which included:

- *providing portable play equipment on playgroups and other play spaces;*
- *providing staff with training in the delivery of structured PA sessions and increasing the time allocated for such sessions;*

- *integrating PA teaching and learning activities into pre-academic instructional routines; and*
- *increasing time that children spend outside.*

The PAG Advisory Committee found strong evidence that multi-component interventions at **schools** increased PA during school hours in primary school-aged and adolescent youth with effective combinations including two or more of the following strategies:

- *providing enhanced physical education (PE) that increases lesson time, is delivered by well-trained specialists, and emphasizes instructional practices that provide substantial moderate-to-vigorous PA;*
- *providing classroom activity breaks;*
- *developing activity sessions before and/or after school, including active transportation;*
- *building behavioral skills related to PA participation; and*
- *providing after-school activity space and equipment.*

In addition, important PE strategies identified to increase PA levels included the following:

- *developing and implementing a well-designed PE curriculum;*
- *enhancing instructional practices to provide substantial moderate-to-vigorous PA; and*
- *providing teachers with appropriate training.*

In line with the PAG Advisory Committee recommendations, CalFresh Healthy Living, UC adopted the Coordinated Approach to Child Health (CATCH) to integrate structured PA into nutrition education interventions delivered in the preschool, school, and afterschool settings. Over the past few years, the State Office collaborated with the CATCH National Office to train UCCE educators and volunteer teaching staff working in preschools, schools, and afterschool programs to deliver CATCH physical activity using Activity Boxes tailored to various age-groups and settings.

The main objectives for CATCH include the following:

- Make it fun and enjoyable!
- Make 50% of activity time moderate-to-vigorous.
- Create many opportunities to participate and practice skills.
- Encourage participation in a variety of PA during school, after school, and with family and friends.

The CATCH materials, activities, and trainings are tailored by age group and focus on achieving these objectives by applying the CATCH BASICS:

- B** Boundaries and Routines
- A** Activity from the Get-Go
- S** Stop and Start Signals
- I** Involvement by All
- C** Concise Instructional Cues
- S** Supervision

The State Office developed a process evaluation tool (i.e. CATCH Lesson Observation Tool) that assesses the CATCH objectives and BASICS to assist county/cluster programs in ongoing capacity building, identify any additional training or support needs, and ensure high fidelity with CATCH Activity Box implementation.

Intervention:

As part of comprehensive nutrition and PA programming in preschools, schools, and afterschool programs, UCCE educators as well as volunteer teaching staff deliver age-appropriate structured PA lessons using CATCH activity boxes. Participating sites typically adopt CATCH to complement their existing nutrition education programming. To achieve this, UCCE educators attend training for certification to deliver CATCH with the appropriate age groups. Once certified, educators both deliver CATCH lessons (as requested) and train volunteer teaching staff to deliver CATCH in an effort to institutionalize high quality structured PA and PE in participating preschools, schools, and afterschool programs.

CalFresh Healthy Living, UC programs primary use the CATCH Early Childhood Education (ECE) Physical Activity Box, the CATCH K-2 PE Activity Box, the CATCH 3-5 PE Activity Box, and the CATCH K-5 Kids Club Activity Box and the equipment available in the starter kit (ECE) and starter set (grades 1-8). See below for a brief description of these activity boxes:

- The CATCH Early Childhood Education (ECE) Physical Activity Box nurtures a love of PA early on in children. The boxes includes developmentally appropriate activities that are easy for teaching staff to follow in order to lead safe and enjoyable activities for children. Each activity features detailed instructions for how to play the games, identifies the skills utilized, and lists the equipment needed.
- The CATCH K-2 and 3-5 PE Activity Boxes for children in grades K-2 and 3-5 include over 400 and 650 developmentally appropriate, non-elimination games and activities that are super fun and easy to set up. Each card in the boxes features detailed instructions for how to play the game and lists the equipment

needed. The boxes also include a Teacher's Guidebook with additional resources and tips.

- The CATCH K-5 Kids Club Activity Box is an after-school, summer, and community recreation program to develop and maintain health in school-age children. The primary goal is to promote healthy PA behaviors. The CATCH Kids Club also includes short lessons on healthy eating.

In FFY 2018, the CalFresh Healthy Living, UC State Office worked with county programs to develop pacing guides and corresponding best practices to support volunteer teaching staff in implementing CATCH with their targeted age group (ECE, grades K-2, or grades 3-5). Each CATCH Pacing Guide includes 10 unique lessons derived from the CATCH activity box. The primary goals of the Pacing Guide are to decrease lesson planning and prep time, reduce equipment challenges, and build efficacy among classroom teachers and other teaching staff administering structured PA and PE. To promote high fidelity in the implementation of CATCH Activity Boxed, the State Office developed a standard lesson format. As shown below, a CATCH lesson includes a Warm-Up, Go Fitness card, Go Activity card, and a Cool Down and lasts for approximately 20 minutes.



If short on time or targeting youth with limited attention spans (e.g. Pre-K), teaching staff may adapt this lesson format by delivering at least one Go Fitness or Go Activity card with a Warm-Up and Cool Down. Go Fitness cards include activities for cardiovascular efficiency, flexibility, and muscular strength. Go Activity cards focus on practicing particular skills through various activities. Both Go Fitness and Go Activity cards should be taught throughout the month in order to build cardiovascular fitness and practice a variety of skills.

Additional resources are available to support CATCH delivery and promote PA using playground stencils at preschool and school sites. These playground stencil resources (CATCH ECE & Stencils, CATCH K-2 & Stencils, and CATCH 3-5 & Stencils) help educators and teaching staff combine CATCH activities with playground stencils, make CATCH more engaging, minimize the need for equipment, and promote the ongoing use of stencils by providing regular opportunities for structured PA that integrate playground stencils.

FFY 2018 CATCH Implementation

CalFresh Healthy Living, UC summary data reported in PEARS help illustrate the broad reach of CATCH interventions in FFY 2018. In total, CATCH was delivered at over 150

sites reaching 17,461 youth in over 500 classes across 25 counties in California (see Table 1). CATCH Activity Boxes and Kids Club were the top curricula reported by county programs. This was achieved by training 120 UCCE staff through FFY 2018, culminating in the development of 4 community master trainers to continue to meet the increasing demand and help achieve sustainable increases in PA opportunities and behavior in preschools, schools, and afterschool programs.

Table 1: Number of Sites, Classes, and Students Reached by CATCH Activity Boxes and Kids Club

| CATCH Curricula Delivered | # of Sites | # of Classes | Student Reach |
|------------------------------------|------------|--------------|---------------|
| Activity Box (ECE, K-2 PE, 3-5 PE) | 128 | 320 | 9,684 |
| Activity Box or Kids Club* | 40 | 139 | 6,399 |
| Kids Club (Afterschool) | 13 | 55 | 1,378 |
| TOTALS** | 181 | 514 | 17,461 |

Notes: *Feedback from the PA leadership committee (January 2019) indicated that CATCH 'Nutrition Curriculum' was inadvertently selected in PEARS and the data presented here actually represent CATCH 'Activity Box' or 'Kids Club'. None of the county representatives reported using CATCH 'Nutrition Curricula' in FFY 2018. In this table, the CATCH 'Nutrition Curriculum' label was replaced with 'Activity Box or Kids Club'. **181 sites includes duplication across CATCH categories; total unique sites is 155. FFY 2018 PEARS Program Activity data.

In addition, 121 sites or organizations reported implementing PSE changes to improve the quality, access, and/or opportunities related to structured PA/PE (e.g., CATCH) in ECE, school, and afterschool settings reaching over 32,000 SNAP-Ed eligible youth across 16 counties (see Table 2). Out of these three settings, county programs most frequently adopted structured PA changes at ECE sites (57 sites). However, CATCH structured PA/PE efforts reached the largest number of students through schools (24,804 individuals). The school setting includes organizational-level PSEs completed with school districts that tend to reach significantly more students than a site-level PSE.

Table 2: Number of PSE Sites and Reach for Structured PA Changes Adopted by Setting

| Setting | Student Reach of Structured PA PSEs by Setting | # of Structured PA PSE Sites/Orgs by Setting |
|---------------------------------|--|--|
| Schools (K-12)/School Districts | 24,804 | 19 |
| Early Care and Education Sites | 3,185 | 57 |
| Afterschool Programs | 4,059 | 45 |
| TOTALS | 32,048 | 121 |

Notes: One school district (organizational level) PSE change reported a reach of 14,700, contributing a large proportion of the total school setting reach. FFY 2018 PEARS PSE Site Activity data.

When examining the comprehensive nature of interventions including CATCH structured PA, PEARS data showed that county programs often reported multiple PSE changes (up to 14) at sites with a structured PA change. Nearly half (44%) of the structured PA sites incorporated both nutrition and PA related PSE changes, while the remaining sites (56%) focused solely on PA related PSEs. All PSE sites with structured PA changes reported at least one complementary activity, with over one-third (36%) implemented three or more activities to maximize the overall reach and effectiveness and help sustain the PSE changes over time. As displayed in Table 3, evidence-based education (86%) and staff training (82%) were reported most frequently at sites with a structured PA change, followed by parent and community involvement (36%).

Table 3: Number of Sites Reporting Complementary Activities to Support PSEs at Sites with a Structured PA Change Adopted (n=121)*

| Complementary Activities | # of PSE sites | % of PSE sites |
|--|----------------|----------------|
| Evidence-based education | 104 | 86% |
| Staff training on continuous program and policy implementation | 99 | 82% |
| Parent / community involvement | 44 | 36% |
| Marketing (Advertising, Promotion, etc.) | 4 | 3% |

Notes: *Only includes those PSEs in the implementation and maintenance stages reported in PEARS during FFY 2018.

When examining the 'programs, packages, and initiatives' delivered as part of the PSE efforts at sites with a structured PA change, the vast majority (91%) of sites reported implementing CATCH, nearly one-third (29%) were engaged in work on wellness policies, approximately one in five (17-18%) incorporated playground stencils and edible

gardens, and one in ten sites (10%) implemented Smarter Lunchrooms Movement strategies. Unfortunately, not all county programs responded to this optional question. For the PSE sites that reported this information (n=108), Table 4 includes a complete list of the ‘programs, packages, and initiatives’ delivered to support PSEs at sites with a structured PA change. These findings illustrate the move towards intentionally layering PSE approaches at CATCH sites and targeting both nutrition and PA behaviors to achieve more comprehensive SNAP-Ed programming and facilitate healthy, active lifestyle choices among preschool and school age children.

Table 4: Number of Sites Delivering Programs, Packages, and Initiatives to Support PSEs at Sites with a Structured PA Change Adopted (n=108)*

| Which of the following programs, packages or initiatives were used as part of the PSE efforts? | # of PSE sites | % of PSE sites |
|--|----------------|----------------|
| CATCH | 98 | 91% |
| School Wellness Policy | 31 | 29% |
| Edible Gardens | 19 | 18% |
| Playground Stencils | 18 | 17% |
| Smarter Lunchrooms Movement | 11 | 10% |
| Healthy Apple | 7 | 6% |
| Harvest of the Month | 6 | 6% |
| Rethink Your Drink | 3 | 3% |
| Shaping Healthy Choices Program | 3 | 3% |
| Safe Routes to School | 2 | 2% |
| California Thursdays | 2 | 2% |
| Other (specify): <i>Fuel Up to Play 60, Pedometer Challenge</i> | 2 | 2% |
| SPARK | 1 | 1% |
| Farm to Preschool/School | 1 | 1% |
| Power Play! | 1 | 1% |
| EatFresh.org | 1 | 1% |

Notes: *Only includes those PSEs in the implementation and maintenance stages reported in PEARS during FFY 2018.

Evaluation Design:

A convenience sample of educators working in preschools and schools to implement CATCH in FFY 2017 agreed to pilot test the CATCH Lesson Observation Tool (LOT). The CATCH LOT assesses the delivery of facilitated CATCH lessons and identifies useful feedback for CATCH Champions. During the pilot, educators primarily used the tool to build capacity among new CATCH Champions (either teachers or peer educators). In addition, supervisors can administer the CATCH LOT to support educators in their professional development. It is also a valuable tool

for assessing CATCH fidelity during formal and informal site visits by the State Office.

The purpose of the CATCH LOT is to support the delivery of the key components of the CATCH Activity Boxes to ensure high-quality PA education practices among county programs. The tool collects descriptive information about the site and lesson delivery, includes 19 questions focused on the CATCH objectives and BASICS, and three open-ended questions ('Areas done well', 'Areas that could be improved', and 'Action items needed') for reflection and debriefing with teachers. Each of the 19 questions has response options of 'Yes' or 'No' followed by an open-ended 'Comments' box to add additional detail (see examples below).

| Question | Description | Yes | No | Comments |
|--|---|--------------------------|--------------------------|----------|
| 1. Did students participate in a warm-up activity? | Score "Yes" for warm-up if at least 2-minute preparation period was allocated to students before they were required to do vigorous movements during the lesson. | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Were students active right from the start? | Students begin being physically activity at the start of the lesson. | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Were the boundaries well established? | Activity area was clearly defined and students played within the designated space. | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. Was the start/stop signal clear? | Students understood and could follow management and instruction tasks. | <input type="checkbox"/> | <input type="checkbox"/> | |

Educators conducted their CATCH observations within 8 months of the CATCH training provided to CATCH Champions (teachers and peer educators), completing the CATCH LOT once for each CATCH Champion observed. In addition, the State Office conducted key informant interviews with the Alameda County and Butte Cluster teams to:

- learn more about their CATCH LOT administration experience;
- identify any additional training, technical assistance, and/or resource needs; and
- explore opportunities and challenges related to CATCH implementation and evaluation.

Results:

CalFresh Healthy Living, UC evaluated CATCH implementation at 12 SNAP-Ed sites in three different counties (Alameda, Butte, and Sutter counties). This included nine preschools and three elementary schools. The length of CATCH lessons varied from 10-19 minutes to 50-59 minutes with longer lessons typical reported in schools (grades 2-3) and shorter lessons more common in the preschool setting. Across the twelve sites, the CATCH lessons reached 1,502 students. Of those, 294 students were observed using the Lesson Observation Tool. Results of note are described below.

CATCH Objective (N = 12)

- At all of the sites, students appeared to be enjoying CATCH by laughing, smiling, and appearing happy while engaging in lesson activities
- At a majority of sites (75%), students were actively engaged in moderate to vigorous PA that made their hearts beat faster and made them breathe harder than normal for at least half of the total lesson time.
- At fewer sites (17%), students received prompts, rewards, or praise from the teacher about engaging in PA during non-PE class time (e.g. before, during, or after school and on weekends)

CATCH BASICS (N = 12)

- *Boundaries and Routines*
 - 67% of the sites observed did a warm-up activity; 33% did a cool-down activity
 - 83% of the sites had well established boundaries where the activity area was clearly defined and students played within the designated space
- *Activity from the Get-Go*
 - Over half (58%) of sites got students active right from the start of the CATCH lesson
- *Stop and Start Signals*
 - Over half (58%) of the sites had CATCH instructors whose start and stop signals for CATCH activities were clear and students understood and could follow management and instruction tasks
- *Involvement by All*
 - At all of the sites, it was observed that
 - All students were consistently involved in the CATCH activities by using re-entry tasks and no elimination games
 - Group sizes were appropriate permitting ample opportunities for students to be active and learn skills without waiting in line for extended periods
 - The student to equipment ratio was adequate with the provision of adequate amounts of equipment providing students with opportunities to be active and learn skills (student/equipment ratios should not exceed 3 to 1 during skill practice or 10 to 1 during game play)
- *Concise Instructional Cues*
 - At a majority of sites (83%), clear and concise instructions were delivered and students understood and could follow management and instruction tasks

- Equipment was distributed efficiently at all of the sites with students active and engaged while equipment was both distributed and collected
- Most of the sites (92%) conducted their CATCH activities with minimal management and transition times in between CATCH activities with students constantly active and engaged such as “hitting the track” during these periods
- *Supervision*
 - At half of the sites (50%), students received prompts or encouragements to be physically active (i.e. engage in high intensity activity or increase their physical activity levels) from the teacher during the lesson
 - At a majority of sites (75%), students received praise or positive feedback about their PA levels or engagement in the activity during the lesson from the teacher
 - At slightly less than half of the sites (42%), students received positive feedback through prompts and recognition from the teacher highlighting and reinforcing their progress and achievements in skill development and fitness level (e.g. more reps, improved technique/time).
 - At most sites (83%), the teacher appeared to be enthusiastic by modelling and facilitating inclusive PA with a positive tone and enthusiastic energy to engage and motivate students to try their best and have fun

Findings from the CATCH lesson observations indicate that in most cases the majority of the sites observed met both the CATCH objectives and BASICS. Student enjoyment of CATCH activities and ‘Involvement by All’ were the core components of CATCH observed at every site. A few areas identified for improvement in CATCH instruction include:

1. ensuring staff provide positive feedback highlighting and reinforcing student progress and achievements in skill development and fitness level (*Supervision*),
2. incorporating a cool-down activity at the end of the lesson (*Boundaries and Routines*), and
3. encouraging participation in a variety of PA during school, after school, and with family and friends.

Follow-up interviews were scheduled with county/cluster teams to review these findings, brainstorm lessons learned, and discuss next steps.

Key Informant Interviews

Follow-up interviews with participating county/cluster programs provided additional insights about the CATCH LOT administration, how results can be used, and training, technical assistance, and resource needs that can help inform future CATCH programming and evaluation.

- *Administering the CATCH LOT*

Overall, county/cluster program teams found the CATCH LOT easy to administer and indicated that the question flow worked well. Some educators ran into challenges collecting the CATCH activity card numbers, because teachers did not have the cards with them and could not recall the numbers. The State Office plans to continue to collect CATCH activity card numbers to ensure fidelity. County teams recommended emailing teachers with the tool before the observation to highlight the information that will be collected. The goal is to plan ahead and know what equipment and space is needed for the lesson that day, so teaching staff should know what activity cards are being administered during the observation. The cards numbers should also be confirmed at the time of the observation in case they change due to weather, space, or other factors. The adoption of the new CATCH Pacing Guides will also help teaching staff easily identify the activity card numbers, because they are listed on each Pacing Guide. The State Office will continue to check in with counties and identify best practices for collecting activity card numbers.

Some teaching staff expressed concerns about being 'assessed' and were resistant to scheduling a CATCH lesson observation. The limited teacher participation resulted in very little data to help inform and improve CATCH programming. The State Office and county programs reconsidered the different methods of observation and determined that more teaching staff may be receptive to participating in the lesson observation, if they have the option to complete the tool as a self-assessment following their CATCH lesson delivery and within 3 months of their CATCH training. In FFY 2020, teacher self-assessment will be added to the existing observation approaches to help increase the number of CATCH LOTs completed and provide valuable information regarding the areas teaching staff need additional support when implementing CATCH. Fidelity observations will continue to be conducted by state and county level staff at formal and informal site visits, not via self-assessment, to address any concerns about the accuracy of self-report data.

- *Using CATCH LOT Results and Suggested Reporting Timelines*

County/cluster programs primarily used the observation results to identify additional training and support needed by teachers implementing CATCH. The

site and teacher specific observational data were immediately reviewed and used by county/cluster programs to:

- identify any site or teacher specific training, technical assistance, and resources needs and
- determine key follow-up to support CATCH implementation at the sites assessed.

In addition, the State Office generates aggregate summary data from the CATCH LOT at the county (if sample size allows; $n = 10+$) and state level to assist in identifying key areas within a county/cluster or across the state where additional training, technical assistance, and resources may be needed to support CATCH implementation at a broader level.

To support program planning efforts, county programs provided feedback on the best timing for CATCH LOT data entry and summary results in future years.

- Counties will plan to enter all CATCH LOTs into the online portal by the end of June.
- The State Office will provide aggregate summary results to each county by mid-July providing adequate time to support planning for the next fiscal year.

The county and statewide results will include a summary of the top training, technical assistance, and resource needs identified over the year. These findings will also help identify key areas for statewide training in the upcoming year. Counties implementing CATCH will be highly encouraged to complete the LOT to ensure the needs of their county/cluster program are represented in the summary results.

- *Existing Training, Technical Assistance, and Resource Needs*

Lastly, county/cluster programs indicated that CATCH Champions need a simple outline with clear steps to follow for implementing CATCH and identifying existing resources. They recommended developing a one-page CATCH implementation flow chart to assist UCCE educators with program orientation, development, and training; while also providing teaching staff with a checklist for program implementation. In FFY 2019, the State Office will develop a one-page document that includes the critical steps involved in implementing CATCH (planning, implementation, evaluation, etc.). This document will promote existing resources available to support CATCH programming and explain how the components fit together (pacing guides, stencil resources). The State Office will work with the PA Leadership team to review and finalize the CATCH implementation flow chart for distribution in FFY 2020.

Conclusions and Next Steps:

A key lesson learned from reviewing the FFY 2018 PEARS data and communicating with county programs was that UCCE staff were unclear how to report CATCH implementation in PEARS. Sometimes staff reported CATCH as direct education and other times they reported it as a PSE. However, it was not consistently reported based on the CATCH implementation approach. To address this, the State Office developed and disseminated in FFY 2019 guidelines for subsequent CATCH reporting. When CATCH is delivered by UCCE educators, UCCE staff will report CATCH direct education delivery in PEARS as a Program Activity. Whereas, when teaching staff are trained and delivering CATCH, UCCE staff will report CATCH direct education delivery as both a Program Activity and PSE Site Activity in PEARS.

In FFY 2019, the CalFresh Healthy Living, UC evaluation team will be looking to expand the use of the CATCH Lesson Observation Tool to continue to evaluate that the CATCH program is being implemented with high fidelity and to identify potential technical assistance areas and training and resource needs as CATCH implementation transitions from educators to teaching staff. Teacher self-assessment will be included as an additional data collection method.

Specific consideration will be given to best practices for CATCH implementation and sustainability across different settings (e.g., school, afterschool, ECE). The State Office will also focus on assessing existing and identifying any new process and outcome measures needed to track CATCH Implementation and Adoption and determine the best measures to evaluate CATCH Effectiveness (PA TOT, SOPLAY, EATS, SLAQs, CDE FitnessGram data for 5th graders) using the RE-AIM Framework in FFY 2020-2022.

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Evaluation Report Attachment 7b:

Process and Outcome Evaluation: Results from Piloting Physical Activity Evaluation Tools at Preschools and Schools with Playground Stencils

Project: CalFresh Healthy Living, University of California SNAP-Ed Activities in 6 California Counties

Project Goals:

This evaluation most directly assesses the following California SNAP-Ed State Level Goal for FFY2017-2019:

- **Goal 5:** Increase access to and/or appeal of physical activity opportunities for SNAP-Ed eligible populations.

However, these environmental changes are also intended to impact the additional individual-level SNAP-Ed State Level Goals:

- **Goal 2:** Increase physical activity

Introduction:

Recognizing that both children's diet and physical activity (PA) levels play key roles in childhood obesity prevention, the CalFresh Healthy Living, University of California (UC) administered by UC Cooperative Extension (UCCE) offices in 32 counties reaching approximately 86,300 youth annually incorporates playground stencil projects as one approach to integrate PA into nutrition education in preschools and schools. Recent literature reviews indicate that playground markings alone show inconsistent findings related to children's PA levels (Broekhuizen et al., 2014; Escalante et al, 2014). Therefore, county programs employ more comprehensive intervention approaches that engage and build capacity among key stakeholders and facilitate policy, systems, and environment (PSE) changes. These efforts support the utilization of playground stencils for multiple purposes combining improvements to the environment with PA promotion that reinforces both nutrition education and academic concepts.

The CalFresh Healthy Living, UC State Office collaborated with county programs to develop a practitioner-oriented pre/post playground stencil assessment. The tool captures changes in the physical and social environments of SNAP-Ed eligible preschools and schools, as well as the proportion of children actively playing or being sedentary before and after applying the playground stencils. CalFresh Healthy Living, UC uses this pre/post assessment to examine the impacts of playground stenciling on students' physical and sedentary activity during outside play times (am/pm breaks, recess, lunch, etc.) in a convenience sample of the FFY 2018 and FFY 2019 stencil sites. In addition, the evaluation also explores teaching staff

participation and practices (training, engagement level, role modeling), and other policies and practices that may promote or inhibit PA levels during outside play times. This study will explore the following two hypotheses:

- Do playground stencils applied at school/preschool sites improve the proportion of children actively playing (total and in stencil space) and reduce the proportion of children who are sedentary based on pre/post stencil assessment observations conducted during outdoor play times?
- Do playground stencils training and resources provided to teaching staff at school/preschool sites improve their promotion of student PA, PA facilitations skills, and role modeling during outdoor play times?

Intervention:

When undertaking stencil projects, the CalFresh Healthy Living, UC State Office requires county programs to complete a stencil application. Through the application process, staff confirm that UCCE teams conduct stencil projects in close collaboration with site staff, link the project with the larger multi-component nutrition education and PA intervention, and focus on building staff capacity to improve youth PA. These factors support sustainability and help the State Office ensure that SNAP-Ed funds are invested wisely in eligible communities. UCCE county programs engage with parents, teaching staff, school administrators, and community members to be actively involved in supporting the stenciling project design and implementation. Sites receive pre-approval for designs and are strongly encouraged to use the pre-made stencils promoted by CDPH's Prevention First and Nutrition Education and Obesity Prevention Program (NEOP).

Following the design, volunteer engagement, and approval stages, UCCE consults with teaching staff to identify any training or resources they may need to support the use of the playground stencils. UCCE teams provide support materials and demonstrations explaining how teaching staff can engage students in age-appropriate PA using the stencils, promote the links to educational standards for movement, and offer CATCH (Coordinated Approach to Child Health) PA training. The CalFresh Healthy Living, UC stencil application and resources are available [online](#).

From FFY 2016 to FFY 2019, CalFresh Healthy Living, UC completed 40 playground stencil projects in 14 counties (see Table 1). The large majority of these stencil projects (n=37) were SNAP-Ed funded. However, UCCE teams secured community and/or school funding for paint and supplies to support three additional stencil projects (see Table 2).

Table 1: Number of Stencil Projects Completed by County from FFY 2016 through FFY 2019

| County | Number of Stencil Projects (n=40) |
|------------------------------------|-----------------------------------|
| Alameda | 13 |
| Butte (Butte Cluster) | 3 |
| Glenn (Butte Cluster) | 2 |
| El Dorado (Central Sierra Cluster) | 3 |
| Fresno | 1 |
| Imperial | 3 |
| Kern | 3 |
| Madera | 1 |
| Placer/Nevada | 1 |
| Shasta (Shasta Cluster) | 3 |
| Tehama (Shasta Cluster) | 3 |
| Trinity (Shasta Cluster) | 1 |
| Tulare | 2 |
| Yolo | 1 |

Table 2: Number of SNAP-Ed and Non SNAP-Ed funded Stencil Projects Implemented in FFY 2016 through FFY 2019

| Stencil Project Funding | Number of Stencil Projects | | | | |
|-------------------------|----------------------------|-----------------|----------------|-----------------|--------------|
| | FFY 2016 (n=4) | FFY 2017 (n=13) | FFY 2018 (n=9) | FFY 2019 (n=14) | Total (n=40) |
| SNAP-Ed | 4 | 12 | 9 | 12 | 37 |
| Non SNAP-Ed | 0 | 1 | 0 | 2 | 3 |

Source: Stencil tracking log.

Over the past two years, UCCE worked with school and preschool partners to complete 9 new stencil projects in 6 counties during FFY 2018 and 14 additional projects in ten counties over FFY 2019, while actively maintaining stencil projects at a number of sites (see Table 3). In FFY 2018, one new stencil project was not reported in PEARS (n=8). Therefore, all FFY 2018 PEARS data presented here report n=18, rather than n=19. Similarly, in FFY 2019, one new stencil project was not reported in PEARS (n=13). Thus, all FFY 2019 PEARS data report n=17, rather than n=18. In both FFYs 2018 and 2019, the number of sites actively maintaining stencil projects went largely under-reported in PEARS.

Table 3: Number of New and Continuing Stencil Projects Implemented from FFY 2016 through FFY 2019

| Stencil Project Phase | Number of Stencil Projects | | | |
|---------------------------------|----------------------------|--------------------|--------------------|--------------------|
| | FFY 2016 (n=4) | FFY 2017 (n=17) | FFY 2018 (n=19) | FFY 2019 (n=18) |
| New PSE effort | 4 | 13 | 9 | 14 |
| Actively maintaining PSE effort | 0 | 4 | 10 | 4 |

Source: Stencil tracking log (new #s) and PEARS (total and continuing #s).

Policy, systems, and environment (PSE) data reported in PEARS help to illustrate the multi-component interventions implemented at sites with stenciling projects in FFYs 2018 and 2019. UCCE county programs reported working on playground stencils at a total of 18 sites in FFY 2018 (5 schools and 13 early care and education (ECE) sites) reaching 2,743 youth (1,702 students at schools and 1,041 preschoolers) and 17 sites in FFY 2019 (8 schools and 9 ECE sites) reaching 4,298 youth (3,584 students at schools and 714 preschoolers).

All PSE sites with stencil changes reported at least one complementary activity to maximize the overall reach and effectiveness and help sustain the PSE changes over time. As displayed in Table 4, evidence-based education was reported at all stencil project sites (100%/100%, FY18/FY19 respectively), followed by parent and community involvement (83%/94%), and staff training (94%/76%). Marketing was the complementary activity least often reported at stencil project sites. Furthermore, the vast majority (83%/82%, FY18/FY19 respectively) of stencil sites utilized three or more complementary activities to support and enhance the impact of their PSE efforts in FFYs 2018 and 2019.

Table 4: Number of Sites Reporting Complementary Activities to Support PSEs at Sites with a Stencil Change Adopted

| Complementary Activities | Number (Percent) of PSE Sites | |
|--|-------------------------------|--------------------|
| | FFY 2018 (n=18) | FFY 2019 (n=17) |
| Evidence-based education | 18 (100%) | 17 (100%) |
| Marketing (Advertising, Promotion, etc.) | 2 (11%) | 4 (24%) |
| Parent / community involvement | 15 (83%) | 16 (94%) |
| Staff training on continuous program and policy implementation | 17 (94%) | 13 (76%) |

Notes: Only includes those PSEs in the implementation and maintenance stages reported in PEARS.

When examining the programs, packages, and initiatives delivered as part of the PSE efforts at stencil sites, the large majority (78%/65%, FY18/FY19 respectively) implemented CATCH, over half (56%/53%) were engaged in work on wellness policies, half (50% in FY18 only) applied Smarter Lunchrooms Movement strategies, and two out of five (41% in FY19 only) included Rethink Your Drink efforts. Table 5 includes a complete list of the programs, packages, and initiatives delivered to support PSEs at sites with stenciling projects in FFYs 2018 and 2019. These findings illustrate the intentional layering of PSE approaches at stenciling sites often targeting both nutrition and PA behaviors to achieve more comprehensive SNAP-Ed programming and facilitate healthy, active lifestyle choices among preschool and school children.

Table 5: Number of Sites Delivering Programs, Packages, and Initiatives to Support PSEs at Sites with a Stencil Change Adopted

| Which of the following programs, packages or initiatives were used as part of the PSE efforts? | Number (Percent) of PSE Sites | |
|--|-------------------------------|-----------------|
| | FFY 2018 (n=18) | FFY 2019 (n=17) |
| Coordinated Approach to Child Health (CATCH) | 14 (78%) | 11 (65%) |
| School/Preschool Wellness Policy | 10 (56%) | 9 (53%) |
| Smarter Lunchrooms Movement | 9 (50%) | 2 (12%) |
| Rethink Your Drink | 0 (0%) | 7 (41%) |
| Shaping Healthy Choices Program | 1 (6%) | 1 (6%) |
| SPARK | 1 (6%) | 1 (6%) |
| Youth Participatory Action Research | 1 (6%) | 1 (6%) |
| Safe Routes to School | 0 (0%) | 1 (6%) |

Notes: Only includes those PSEs in the implementation and maintenance stages reported in PEARS.

County programs tended to report multiple PSE changes (up to 14 per site) at sites with stencil projects and showed a slight increase in the average number of changes reported from FFY 2018 to FFY 2019 (8.0 to 8.8 changes per site, respectively). Approximately three-quarters (72%/82%, FY18/FY19 respectively) of the stencil sites incorporated both nutrition and PA related PSE changes, with the remaining sites (28%/18%) focusing solely on PA related PSEs. The most common nutrition-related changes reported at stencil project sites were establishing and utilizing gardens for nutrition education and onsite meals/snacks; working on wellness related policies and implementing nutrition/food guidelines including for classrooms, celebrations, and fundraisers; improving food layout/display and water access/appeal; as well as improving child feeding practices at ECE sites. In addition to wellness policies, the primary PA-related PSE changes reported at stencil sites focused on improving the opportunities for and quality of structured PA, increasing opportunities for unstructured PA time/free play, and expanding restrictions on the use of PA as punishment. Table 6

includes a complete list of the PSE changes reported at stencil project sites in FFYs 2018 and 2019.

Table 6: Most Common PSE Changes Reported at Stencil Project Sites (n=18, 2018 and n=17, 2019) by PSE Change Categories

| PSE Changes by Category | Number of PSE Changes | |
|---|-----------------------|---------------------|
| | FFY 2018 (n=144) | FFY 2019 (n=150) |
| Nutrition | 70 | 65 |
| Initiated or expanded use of the garden for nutrition education | 12 | 10 |
| Edible gardens (establish, reinvigorate or maintain food gardens) | 12 | 6 |
| Improved child feeding practices (e.g. served family style, adults role model healthy behaviors, staff sit with children, children decide when they are full, etc.) | 9 | 7 |
| Initiated or expanded implementation of guidelines for meal foods/beverages or healthier snack/competitive food and beverage options | 7 | 8 |
| Initiated, improved or expanded healthy fundraisers | 7 | 8 |
| Initiated or expanded implementation of guidelines on use of food/beverages in the classroom, as rewards, or during celebrations or educational programs | 7 | 8 |
| Improved free water access, taste, quality, smell, or temperature | n/a | 8 |
| Initiated or expanded use of onsite garden produce for meals/snacks provided onsite | n/a | 6 |
| Improved layout or display of meal foods/beverages to encourage healthier selections | 8 | n/a |
| Improve appeal, layout or display of snack or competitive foods to encourage healthier selections | 7 | n/a |
| Nutrition & Physical Activity (PA) | 10 | 11 |
| Established or improved food/beverage, PA and/or wellness-related policies | 10 | 10 |
| Physical Activity (PA) | 64 | 74 |
| Initiated or improved playground markings/stencils to encourage PA | 18 | 17 |
| Increased or improved opportunities for structured PA | 12 | 14 |
| Improved quality of structured PA | 12 | 9 |
| Increased or improved opportunities for unstructured PA time/free play | 11 | 9 |
| Increased or improved opportunities for PA during recess | 4 | 7 |
| Implemented new or expanded restrictions on use of PA as punishment | n/a | 8 |

Notes: Only includes those PSEs in the implementation and maintenance stages reported in PEARS. Table only includes PSE changes reported at four or more sites in each category (nutrition, nutrition & PA, and PA).

Evaluation Design:

A convenience sample of the preschools and schools implementing stencil projects in FFY 2018 and FFY 2019 agreed to administer the CalFresh Healthy Living, UC pre/post playground stencil assessment. The tool assesses the physical environment; teaching staff training, practices, and promotion of PA; and the number of students physically active, not active, and actively playing on the stencils to capture any changes observed and reported from pre to post. The stencil assessment consists of two parts: (1) the pre/post playground scan observation and (2) the pre/post teacher interview/survey. UCCE county program staff conduct the environmental scans on similar days of the week and times of day at pre and post. They also collect the teacher surveys by interview (when possible) or alternatively asked teachers to complete and return a hard copy before and after the stencils are painted.

The pre-assessments are typically collected during outdoor playtimes (am/pm breaks, recess, lunch, etc.) approximately 2 weeks prior to the stencil painting days and scheduled during the school year when students are using the playground. The post-assessments are completed at least 2 weeks following but within two months of the unveiling of the painted stencils. This provides county programs with adequate time to train teaching staff and review relevant resources to support stencil use at the site. The pre and post stencil assessments are entered into an online portal and data are downloaded for cleaning and analysis. The State Office follows up with county programs regarding any missing data or questions about the data entered.

UCCE county programs agreed to administer the CalFresh Healthy Living, UC pre/post stencil assessment to evaluate their stencil projects at over half of the preschool and school sites working on new playground stencils in FFY 2018 (5 out of 9 sites) and FFY 2019 (8 out of 14 sites). Results from the 13 SNAP-Ed sites implementing the stencil assessment tool are presented below.

Results:

Of the 23 sites implementing stencil projects during FFYs 2018 and 2019, 13 sites (8 preschools and 5 elementary schools) across six counties (Alameda, Butte, El Dorado, Imperial, Madera, and Shasta) completed pre and post playground stencil assessments. At one site, the UCCE team collected three matched pre and post environmental scans for a more rigorous evaluation. Therefore, the aggregate statewide summary findings presented here include 15 matched pre and post environmental scans and 19 matched pre and post teacher surveys collected at the 13 stencil project sites participating in the evaluation during FFYs 2018 and 2019. UCCE staff typically conducted the environmental scans during late morning from 9-11am (67%) or midday from 11am-1pm (27%). Observations included a range of

grade levels from preschool to fourth grade, with preschool (53%) and third grade (18%) classes most commonly observed.

Playground stencils are quantified based on the stencil types applied rather than counting each individual painted item (letters/numbers, footsteps, shapes, etc.) to ensure a standard protocol across assessments. When conducting their environmental observations, UCCE teams found 23 stencils painted at the pre-scan and 152 present during the post-scan. Thus, UCCE county teams in collaboration with site staff applied 129 new stencils at ECE and school sites during FFYs 2018 and 2019 (see Table 7).

Table 7: Total Playground Stencils Observed from Pre to Post Stencil Application

| Matched Pre/Post Environmental Scans (n=15) | Number of Stencils | | |
|--|--------------------|------|-------------------|
| | PRE | POST | # of New Stencils |
| Number of stencils painted on the playground | 23 | 152 | 129 |

As shown in Table 8, the types of stencils most commonly applied during stenciling projects were: a variety of vegetables (n=13) and fruits (n=13), MyPlate four square (n=12), different shapes such as circles, squares, or stars (n=12), playground ponds including examples of the plants and animals living in that habitat (n=12), and footprints (n=10).

Table 8: Types of Playground Stencils Observed from Pre to Post Stencil Application

| Matched Pre/Post Environmental Scans (n=15): Types of Stencils Painted on the Playground | | | | | |
|--|-----|------|---|-----|------|
| Stencil Type | PRE | POST | Stencil Type | PRE | POST |
| None/NA | 5 | 0 | Footprints | 0 | 10 |
| Number Hopscotch | 4 | 11 | Fruits | 1 | 14 |
| Letter Hopscotch | 0 | 2 | Vegetables | 1 | 14 |
| Bull's Eye Toss | 0 | 4 | Spanish letters (ll, ch, rr, and ñ) | 0 | 2 |
| Shapes (circle, square, diamond, pentagon, heart, star) | 3 | 15 | Traffic (bike, cross walk, yield, stop, speed limit) | 0 | 6 |
| Numbers 0-9 | 3 | 8 | Playground Paths | 1 | 9 |
| Letters A-Z | 3 | 10 | MyPlate (four square) | 0 | 12 |
| Playground pond (frog, lily pad, dragonfly, duck, turtle, cattails, fish) | 0 | 12 | Other: four square; zig zag, squiggle, straight lines | 5 | 11 |
| Words (crawl, cross, hop, swim, walk, fly) | 0 | 6 | Other: hopscotch; plant/water cycle | 2 | 5 |
| Wall target toss | 0 | 1 | Other: | 0 | 0 |

The literature suggests that playground equipment (Kreichauf et al., 2012) and physical structures (Ridgers et al., 2007; 2010) are critical components for promoting PA among youth and valuable to use in combination with stenciling efforts to increase student PA. UCCE staff observed these environmental supports for PA during the environmental scans of stencil project sites and found that over 90 percent of sites provided students with both playground equipment (balls, hoops, bikes, etc.) and physical structures (play structures, swings, slides, monkey bars, etc.) for students to play with during the pre-scans (see Table 9). All ECE sites reported playground equipment and structures and although there was little room for improvement, one additional school site provided playground equipment for students to use during the post-scan observations (93% to 100%). The prevalence of physical structures remained the same from pre to post.

Table 9: Changes in the Availability of Playground Equipment and Physical Structures that Support Student Activity

| Matched Pre/Post Environmental Scans (n=15) | PRE n (%) YES | POST n (%) YES |
|--|--------------------------|---------------------------|
| Is playground equipment available for students to use? (balls, hoops, bikes, etc.) | 14 (93%) | 15 (100%) |
| Are there any physical structures for students to play on? (play structures, swings, slides, monkey bars, etc.) | 14 (93%) | 14 (93%) |

During the pre-assessments, many teaching staff expressed interested in training to support students in using the playground stencils (see Table 10). Over half (53%, n=10) of the teaching staff wanted training on how to facilitate PA using the stencils. One-third (37%, n=7) of teachers requested CATCH-specific training to support student engagement in PA. Findings from the teacher surveys showed an increase from pre to post in the training and resources received to support stencil use. The proportion of teaching staff who received support materials to help facilitate PA for students using the playground stencils increased from 26 to 79 percent, a gain of 53 percentage points representing 10 more teachers (see Table 10). In both the pre and post stencil assessment over half (58% and 63%, respectively) of the teachers surveyed reported being trained to deliver CATCH with only a slight improvement (one more teacher trained). This is an area for improvement in FFY 2020, because CATCH training provides valuable skills for facilitating and promoting PA among youth. A small number of teaching staff (11%) reported other training to facilitate student PA such as SPARK or peaceful playground during the pre-survey. This proportion increased to well over one-third (42%) being trained during the post-survey, a gain of 31 percentage points (6 more teachers trained).

Table 10: Changes in Teacher Reported Training and Practices that Support Student Activity

| Teachers Interviews/Surveys (n=19) | PRE n (%) YES | POST n (%) YES |
|---|------------------|-------------------|
| Would you be interested in training on how to facilitate physical activities using the stencils? | 10 (53%) | |
| Would you be interested in training on CATCH? | 7 (37%) | |
| Were you provided with support materials to help facilitate physical activities for students using the playground stencils? | 5 (26%) | 15 (79%) |
| Have you been trained on how to facilitate physical activities with CATCH? | 11 (58%) | 12 (63%) |
| Have you been trained on how to facilitate other physical activities? | 2 (11%) | 8 (42%) |

In addition to the changes to the physical environment and the training provided to teaching staff, improvements were also observed from the pre to post environmental scans in students' PA behaviors. The data collection team observed a total of 576 students during the pre-scan and 578 students during the post scan. Measures of individual effectiveness (*LT6: Physical Activity Supports*) for the thirteen CalFresh Healthy Living, UC stenciling projects assessed are summarized below.

Improvements in Student Physical Activity (PA) and Sedentary Behavior

- Overall, the proportion of students observed actively playing in the play space at recess increased by 10 percentage points (or 60 students more) from before the stencils were painted on the playground compared to after (55% vs. 65%; see Table 11).
- When examining only the stencil areas, increases were also seen in the percentage of students playing on the playground stencils or play space where the stencils would be painted from the pre to post assessment. Across all sites, 31 percent of students were observed playing on the playground stencils or play space pre-stencil compared with 44 percent post-stencil, a gain of 13 percentage points (or 77 more students).
- Students also showed a reduction in sedentary behavior from the pre to post period from 19 percent down to 15 percent, a difference of 5 percentage points or 29 fewer students observed sitting down, not walking, or very inactive.
- In addition to the direct observation data, all (100%) of the teaching staff surveyed (n=19) reported seeing changes in students' PA since the playground stencils were painted.

Table 11: Changes in Students Activity from Pre to Post Stencil Application

| Environmental Scan (n=15) | Number or % of Students | | |
|--|-------------------------|------------|-----------------------------------|
| | PRE | POST | Differences between PRE and POST* |
| How many total students are in the play space? | 576 | 578 | |
| How many total students are actively playing in the play space? | 316 | 376 | 60 |
| Percent of Students | 55% | 65% | 10% |
| How many students are playing on the playground space where the stencils will be painted (pre) or on the playground stencils (post)? | 177 | 254 | 77 |
| Percent of Students | 31% | 44% | 13% |
| How many students are sedentary? (Sitting down, not walking or very inactive) | 111 | 82 | 29 |
| Percent of Students | 19% | 14% | 5% |

Notes: *Percent values are adjusted for differences in the number of students observed at pre and post.

Both the environmental scans and teachers' self-reports indicated that teaching staff at preschool and school sites were more actively promoting PA after the stencil project.

Enhanced Teaching Practices and Promotion of Physical Activity (PA)

- As shown in Table 12, data from the environmental scans indicated that only one-third (33%) of the teaching staff observed were encouraging students to be physically active before the stencils were painted, whereas the large majority (80%) were observed encouraging PA during the post scan. This 47-percentage point gain from pre to post demonstrates strong teacher support for student PA at these sites following the stencil projects. The observational results were supported by teacher responses (Table 13) that showed most (89% or 17) of the 19 teaching staff interviewed reported encouraging students to use the playground stencils.

Table 12: Proportion of Teaching Staff Encouraging Student Activity at Recess

| Environmental Scan (n=15) | PRE n (%) YES | POST n (%) YES) |
|---|------------------|-----------------------|
| Do teaching staff encourage students to be physically active? | 5 (33%) | 12 (80%) |

- Interviews/surveys with teaching staff observing students during outdoor play times such as am/pm breaks, recess, and lunch found that (see Table 13; reported post-stencil only):
 - 74 percent of the teaching staff reported participating in PA with students using the playground stencils,
 - 74 percent of the teaching staff reported facilitating PA for students using the playground stencils, and
 - 42 percent of the teaching staff reported using the playground stencils to infuse PA into the school day outside of the regularly scheduled outside play times (am/pm breaks, recess, and lunch breaks).

Table 13: Teacher Reported Practices Post-Intervention that Support Student Activity

| Teachers Interviews (Post N=19) | POST n (%) YES |
|---|-------------------|
| Do you encourage students to use the playground stencils? | 17 (89%) |
| Do you participate in physical activities <i>with students</i> using the playground stencils? | 14 (74%) |
| Do you facilitate physical activities for students using the playground stencils? | 14 (74%) |
| Do teachers use the playground stencils to infuse physical activity into the school day outside of recess and lunch breaks? | 8 (42%) |

Notes: Questions only included in the post interviews/surveys conducted with teachers.

- Finally, the majority (79%) of teaching staff used the playground to teach academic concepts through movement at both the pre and post stencil assessment (see Table 14), increasing students' access to PA while learning. No change was observed from pre to post, as this was already commonly reported among the teaching staff surveyed.

Table 14: Changes in Teacher Reported Training and Practices that Support Student Activity

| Teachers Interviews (n=19) | PRE n (%) YES | POST n (%) YES |
|--|------------------|-------------------|
| Do you use the playground to teach academic concepts through movement? | 15 (79%) | 15 (79%) |

Conclusions and Next Steps:

The FFY 2018 and FFY 2019 stencil evaluation provides promising findings related to improvements in the physical environments of preschools and elementary schools (129 new stencils), the successful institutionalization of social support for student PA among school staff, and increases in student activity levels both on the playground stencils and throughout the play space during outdoor play times, along with decreases in student inactivity. These results continue to build the evidence highlighting the value of incorporating playground stencils together with teacher training and support as promising components of comprehensive preschool and school programming in SNAP-Ed.

One area identified for improvement in subsequent stencil projects is increasing the number of teaching staff (who observe outdoor play times) that receive training to facilitate CATCH activities. CATCH training can assist in PA promotion at schools and preschools making it a valuable strategy to ensure that stencils are used throughout the school day. To address this, beginning in FFY 2020, the State Office will require county programs to provide CATCH training to teaching staff at preschools and schools before approving stencil projects to ensure teachers have adequate training and the facilitation skills needed to maximize and sustain the use of playground stencils.

In FFY 2019, we developed standardized stencil assessment scoring included in the stencil site results summary, so that county programs could immediately see the findings and include their stencil assessment results related to environmental improvements and individual effectiveness in PEARS. In FFY 2020, the State Office will provide technical assistance around reporting stencil assessments and work with county programs to ensure that all stencil projects completed are consistently reported in PEARS, including both new sites and those were UCCE team efforts are focused on active maintenance of stencil projects.

In FFY 2020, the CalFresh Healthy Living, UC evaluation team will continue to look for partnership opportunities to incorporate a more rigorous PA observation method (SOPLAY) to evaluate stencil project outcomes in preschool and school settings.

This will allow us to assess the validity of the existing practitioner-oriented pre/post stencil assessment tool while continuing to capture changes in the physical environment, students' behaviors, and teaching staffs' training/practices and promotion of PA. We plan to examine playground stencil project successes particularly regarding coordination with CATCH delivery, and will continue to refine the recommendations and resources developed for implementing playground stencil projects to maximize the impact in SNAP-Ed eligible settings.

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