

## FY16 Pennsylvania SNAP-Ed Evaluation Results

*This document was developed as an addendum to the Fiscal Year 2016 (FY 2016) PA SNAP-Ed Annual Report. The data sets used for analyses were collected from participant self-reported survey responses. Results presented herein assume that participants provided truthful responses to the best of their knowledge and ability. Participant survey responses that resulted in biologically implausible data or were other outliers were removed from data sets on a case by case basis.*

### Statewide Evaluation Tools

In FY 2016, Pennsylvania SNAP-Ed conducted statewide evaluation activities that assessed direct education programming of the School-Age and Adult/Senior tracks.

The School-Age track was assessed using two evaluation tools:

**Modified SPAN** – a modified version of the School Physical Activity & Nutrition survey. This assessment is administered in a pre/post format and indicates nutrition and physical activity behavior changes resulting from series direct education programming. Approved curricula delivered to the School-Age audience as part of this evaluation included Show Me Nutrition, Growing Healthy Habits, Cooking with Kids, SDP Eat Right Now, Drexel Eat Right Now, CA Children’s Power Play, Arianna’s Nutrition Expedition, CATCH, and Team Nutrition: Serving Up MyPlate. Data was analyzed retrospectively using paired-samples t-tests to test for differences at alpha = .05. (n=2,200)

- Indicators assessed: *MT1, MT3*

**Modified YRBS** – a subset of nutrition and physical activity related survey questions from the nationally-administered Youth Risk Behavior Survey. Data sets compiled from national, Pennsylvania (statewide), and Philadelphia metro area are available for comparative analyses. This assessment was administered as a post-test only protocol after series direct education programming (n=854).

The Adult/Senior track was assessed using the following evaluation tools:

**UC Davis Food Behavior Checklist** – photo-based assessment tool that is administered in a pre/post format to assess nutrition-related behavior change after series direct education programming. Pennsylvania SNAP-Ed has developed two additional survey items to assess sodium and whole grain intake behaviors. Approved curricula delivered to the Adult/Senior audience as part of this evaluation included Eating Smart and Moving More, Eat Healthy Be Active Community Workshops, and Just Say Yes to Fruits and Vegetables. Data was analyzed retrospectively using paired-samples t-tests to test for differences at alpha = .05; (n=159)

- Indicators assessed: *MT1, MT2*

**Post/Retrospective-Pre Assessments** – these assessment tools evaluate nutrition-related knowledge change and intention to enact nutrition-related behavior changes as a result of participating in a one-session direct education event. Data was analyzed using Wilcoxon Rank-Sum non-parametric tests at alpha = .05; (n=1,224).

- Indicators assessed: *ST2, ST4*

## **Evaluation Improvement for Fiscal Year 2017 and Future Years**

Statewide evaluation activities in fiscal year (FY) 2017 will be modified to more closely align with evaluation goals related to the priority SNAP-Ed Evaluation Framework indicators: ST7 – Partnerships; ST8 – Multi-sector Partnerships and Planning; MT1 – Healthy Eating Behaviors; MT2 – Food Resource Management; MT3 – Physical Activity and Reduced Sedentary Behaviors; and, MT5 – Nutrition Supports Adopted in Environmental Settings.

In FY 2017, the evaluation tool developed for assessment of food resource management by the Expanded Food and Nutrition Program (EFNEP) will be pilot tested for feasibility and acceptability. The EFNEP Checklist will be piloted by local partner agencies who provide direct education programming in the Adult/Senior track to more thoroughly assess MT2 – Food Resource Management.

Expanded reporting of partnership activities conducted by local partner agencies will begin in FY 2017.

In FY 2018, further evaluation improvements are planned to assess the School Age Track, specifically in students in grades 8-12. The Modified YRBS will be administered as a pre/post assessment to more thoroughly evaluate indicators MT1 – Healthy Eating and MT3 – Physical Activity and Reduced Sedentary Activity.

The 1-page post retrospective-pre assessment tools designed to measure nutrition knowledge and intent to change behavior will be discontinued in FY 2018 in favor of tools that assess nutrition behavior changes related to SNAP-Ed Evaluation Framework priority indicators.

Additional tools may be identified and pilot tested with selected local partner agencies for assessment of Adult/Senior programming related to MT3 – Physical Activity and Reduced Sedentary Activity and MT4 – Food Safety.

## **Highlighted Evaluation Results in Fiscal Year 2016**

- Following direct education series programming, school-age students in grades 4-6<sup>th</sup> reported consuming more total cups of fruit per day ( $p=.016$ ).
- Following direct education series programming, school-age students in grades 4-6<sup>th</sup> reported consuming more 100% fruit juice more frequently ( $p=.049$ ).
- Following direct education series programming, adults and seniors reported consuming more total cups of fruit per day ( $p=.004$ ).
- Following direct education series programming, adults and seniors reported eating more fruits and vegetables as snacks between meals ( $p=.014$ ).

## Summary of Statewide Evaluation Results

### Short-Term Indicators – Framework Component Readiness & Capacity; Goals and Intentions

<b>ST2: Food Resource Management</b> – Individual and family goals and intentions that reflect smarter shopping and food resource management strategies, enabling participants to stretch their food resource dollars to support a healthier diet.	
<b>Healthful Shopping Practices:</b> Setting goals or changes in intent related to the following shopping behaviors:	
ST2a. Choose healthy foods for my family on a budget.	After direct education programming, the number of adults and seniors intending to “almost always” plan healthy meals on a budget increased by 39.3%.
ST2b. Read nutrition facts label or nutrition ingredients lists.	Not assessed in FY 2016.
ST2c. Buy 100 percent whole grain products.	Not assessed in FY 2016.
ST2d. Buy low-fat milk or dairy products.	Not assessed in FY 2016.
ST2e. Buy foods with lower added: 2e1. Solid fats (saturated and/or trans) 2e2. Sugar 2e3. Salt/sodium	Not assessed in FY 2016.
ST2f. Buy fruits and vegetables - fresh, frozen, dried, or canned in 100 percent juice.	Not assessed in FY 2016.
<b>Stretch Food Dollars:</b> Setting goals or changes in intent related to the following shopping behaviors:	
ST2g. Not run out of food before month’s end	Not assessed in FY 2016.
ST2h. Compare prices before buying foods.	After direct education programming, the number of adults and seniors intending to “almost always” compare prices when buying foods increased by 32.8%.
ST2i. Identify foods on sale or use coupons to save money.	After direct education programming, the number of adults and seniors intending to “almost always” use store flyers to identify foods on sale increased by 70.0%.
ST2j. Shop with a list.	After direct education programming, the number of adults and seniors intending to “almost always” use a shopping list when grocery shopping increased by 39.9%.  The number of adults and seniors intending to “almost always” check foods on hand before making a shopping list increased by 56.8% following programming.
ST2k. Batch cook (cook once; eat many times).	Not assessed in FY 2016.
ST2l. Use unit pricing to find best values.	Not assessed in FY 2016.
ST2m. Cook healthy foods on a budget.	Not assessed in FY 2016.

<b>ST4: Food Safety</b> – Individual intention and goals that serve as motivators to food safety behavior changes recommended by the <i>Dietary Guidelines for Americans</i> .	
ST4a. Clean: wash hands and surfaces often.	After direct education programming, the number of adults and seniors intending to “almost always” wash their hands with soap and water before handling food increased by 19.4%.
ST4b. Separate: don’t cross-contaminate.	After direct education programming, the number of adults and seniors intending to “almost always” wash cutting boards after cutting meat to prevent cross contamination increased by 17.7%.
ST4c. Cook: cook to proper temperatures.	After direct education programming, the number of adults and seniors intending to “almost always” use a food thermometer increased by 271.7%. The number of individuals reporting that they “hardly ever” use a thermometer to check food temperature decreased by 47.4% following food safety programming.
ST4d. Chill: refrigerate promptly.	Not assessed in FY 2016.

**Medium-Term Indicators** – Changes; Behavioral Changes

<b>MT1: Healthy Eating</b> – Changes in individual and family healthy eating behaviors on the pathway to achieving the current <i>Dietary Guidelines for Americans</i> recommendations.	
During main meals:	
MT11a. Protein foods prepared without solid fats (e.g. saturated and/or trans fats) or fresh poultry, seafood, pork, and lean meat, rather than processed meat and poultry.	Not assessed in FY 2016.
MT1b. Ate a serving size of protein less than the palm of the hand or a deck of cards.	Not assessed in FY 2016.
Throughout the days of week:	
MT1c. Ate more than one kind of fruit.	Following direct education series programming, adults and seniors did not report eating a greater variety of fruit each day (p=.265).
MT1d. Ate more than one kind of vegetable.	Following direct education series programming, adults and seniors reported eating more than one kind of vegetable each day (p=.002), but did not increase the frequency when 2 or more vegetables were consumed during the main meal of the day (p=.141).
MT1e. Ate nuts or nut butters.	Not assessed in FY 2016.
MT1f. Used <i>MyPlate</i> to make food choices.	Not assessed in FY 2016.
Frequency:	
MT1g. Drinking water.	Not assessed in FY 2016.
MT1h. Drinking fewer sugar-sweetened beverages (e.g., regular soda or sports drinks).	Following direct education series programming, adults and seniors did not report consuming

	fewer sugar-sweetened beverages such as fruit drinks, sports drinks, and punch (p=.161), or regular soda (p=.175)
MT1i. Consuming low-fat or fat-free milk (including with cereal), milk products (e.g., yogurt or cheese), or fortified soy beverages.	Following direct education series programming, the proportion of adults and seniors who report consuming milk as a beverage did not increase (p=.171)
MT1j. Eating fewer refined grains (e.g., spaghetti, white rice, white tortilla).	Following direct education series programming, the proportion of adults and seniors who report consuming whole grain foods during the past week did not increase (p=.848)
MT1k. Eating fewer sweets (e.g. cookies or cake).	Not assessed in FY 2016.
<b>Servings:</b>	
MT1l. Cups of fruit consumed per day.	<p>Following direct education series programming, school-age students in grades 4-6<sup>th</sup> reported consuming more total cups of fruit per day (p=.016).</p> <p>Following direct education series programming, school-age students in grades 4-6<sup>th</sup> reported consuming more 100% fruit juice more frequently (p=.049).</p> <p>Following direct education series programming, adults and seniors reported consuming more total cups of fruit per day (p=.004).</p> <p>Following direct education series programming, adults and seniors reported eating more fruits and vegetables as snacks between meals (p=.014)</p>
MT1m. Cups of vegetables consumed per day.	<p>Following direct education series programming, school-age students in grades 4-6<sup>th</sup> did not report consuming significantly more total cups of vegetables per day (p=.144).</p> <p>Following direct education series programming, adults and seniors did not report consuming significantly more total cups of vegetables per day (p=.292).</p>

<b>MT2: Food Resource Management</b> – Changes in individual and family behaviors that reflect smarter shopping and food resource management strategies, enabling participants to stretch their food resource dollars to support a healthier diet.	
MT2a. Choose healthy foods for my family on a budget.	Not assessed in FY 2016.
MT2b. Read nutrition facts labels or nutrition ingredient lists.	Following direct education series programming, adults and seniors did not report reading food

	labels more often than prior to receiving direct education (p=.536).
MT2c. By 100 percent whole grain products	Not assessed in FY 2016.
MT2d. Buy low-fat dairy or milk products	Not assessed in FY 2016.
MT2e. By foods with lower added: 2e1. Solid fats (saturated and/or trans) 2e2. Sugar 2e3. Salt/sodium	Not assessed in FY 2016.
MT2f. Buy fruits and vegetables – fresh, frozen, dried or canned in 100% juice.	Not assessed in FY 2016.
MT2g. Not run of food before month’s end.	Following direct education series programming, adults and seniors did not report a difference in overall monthly food security (p=.082).
MT2h. Compare prices before buying foods.	Not assessed in FY 2016.
MT2i. Identify foods on sale or use coupons to save money.	Not assessed in FY 2016.
MT2j. Shop with a list.	Not assessed in FY 2016.
MT2k. Batch cook (con once; eat many times).	Not assessed in FY 2016.
MT2l. Use unit pricing to find best values.	Not assessed in FY 2016.
MT2m. Cook healthy foods on a budget.	Not assessed in FY 2016.

<p><b>MT3: Physical Activity and Reduced Sedentary Behavior</b> – Two-part indicator measuring behavioral changes to increase physical activity and/or reduce sedentary behavior. Physical activity is defined as any body movement that works muscles and requires more energy than resting. Sedentary behavior is defined as too much sitting or lying down at work, at home, in social settings, and during leisure time. Both increasing physical activity and decreasing sedentary behaviors is important for overall health.</p>	
<p><b>Increased Physical Activity, Fitness, and Leisure Sport.</b> Increases in duration, intensity, and frequency of exercise, physical activity, or leisure sport appropriate for the population of interest, and types of activities.</p>	
MT3a. Physical activity and leisure sport (general physical activity or leisure sport).	Following direct education series programming, school-age students in grades 4-6 <sup>th</sup> did not report engaging in physical activity on more days of the week (p=.515) or reducing the days where no physical activity was reported (p=.165).
MT3b. Physical activity when you breathed harder than normal (moderate-vigorous physical activity).	Not assessed in FY 2016.
MT3c. Physical activity to make your muscles stronger (muscular strength).	Not assessed in FY 2016.
MT3d. Physical education or gym class activities (school PE).	Not assessed in FY 2016.
MT3e. Recess, lunchtime, classroom, before/after school physical activities (school activities – non-PE).	Not assessed in FY 2016.
MT3f. Walking steps during period assessed (e.g., increasing daily goal by ≥ 2,000 steps).	Not assessed in FY 2016.

<b>Reduced Sedentary Behavior.</b> Decreases in time spent in sedentary behavior (computers, desk sitting, television watching) during the period assessed.	
MT3g. Television viewing.	Not assessed in FY 2016.
MT3h. Computer and video games.	Not assessed in FY 2016.
MT3i. Sitting on weekdays while at work, at home, while doing course work, and during leisure time.	Not assessed in FY 2016.
<b>Increased Physical Fitness.</b> Increases in health-related physical fitness levels (aerobic or cardio fitness, muscular strength, muscular endurance and flexibility).	
MT3j. Aerobic or cardio fitness, muscular strength, muscular endurance and/or flexibility.	Not assessed in FY 2016.

## Summary of School-Age (Grades 8-12) Statewide Evaluation Results

### Background

The Nutrition and Physical Activity Survey is used to collect annual post-intervention data from school-age TRACKS participants in grades 8-12. The survey includes demographics and nutrition and physical activity items from the CDC Youth Risk Behavior Survey (YRBS). Additionally, the FY 2016 version included self-report height and weight, calcium items from a University of Minnesota Food Frequency Questionnaire<sup>1</sup>, internet access/usage questions, and CDC items capturing hours of TV and computer time.

### Sample Characteristics

Eight local agencies (partners) participated in the evaluation; four partners administered surveys in the School District of Philadelphia. The evaluation included 41 classrooms from 8 school districts. The sample (n=854) was 49.5% female, mean age was 14.78 years. Grade, race, and ethnicity information is shown in *Table 1*.

81.2% of the sample provided complete height and weight information; mean BMI was 23.4. 29.0 % of girls had a BMI  $\geq$ 25; 32.2% of boys had a BMI $\geq$ 25.

90.1% of respondents reported connecting to the internet from their home and 82.1% connect from a location other than home. 91.2% indicated connecting to the internet using a cell phone or mobile device; 44.2% of these students would use an app to learn about nutrition and health.

**Table 1. FY16 Nutrition and Physical Activity Survey Sample Grade & Race**

	FY16 TRACKS* n=854	National 2015 n=15,624	Pennsylvania 2015 n= 2,899
<b>Grade</b>			
<b>8<sup>th</sup></b>	50.5%	0.0%	0.0%
<b>9<sup>th</sup></b>	19.3%	27.2%	25.9%
<b>10<sup>th</sup></b>	5.9%	25.7%	25.0%
<b>11<sup>th</sup></b>	12.3%	23.9%	24.3%
<b>12<sup>th</sup></b>	9.1%	23.1%	24.2%
<b>Race</b>			
<b>Black or African American</b>	43.8%	13.6%	14.7%
<b>White</b>	38.5%	54.5%	71.8%
<b>Other</b>	12.8%	9.7%	4.9%
<b>Ethnicity</b>			
<b>Hispanic</b>	25.1%	22.3%	8.6%

\*Valid percentages presented due to missing responses.

\*\*Not reported.

<sup>1</sup> Harnack, L. J. *et al.* Reliability and Validity of a Brief Questionnaire to Assess Calcium Intake of Middle-School-Aged Children. *J Am Diet Assoc.* 2006;106:1790–1795.

## Results

YRBS nutrition and physical activity survey results are presented in *Table 2* along with national and state data from 2015 (most recent available). Survey items ask students to report food and physical activity related behavior over the past 7 days.

**Table 2. Youth Risk Behavior Survey Item Results**

	FY16 TRACKS* n=854	National 2015* n=15,624	Pennsylvania 2015* n=2,899
Did not eat <b>fruit or drink 100% fruit juices</b> in the past 7 days	3.6%	5.2%	7.1%
Reported eating <b>fruit</b> 2 or more times/day in the past 7 days	37.2%	31.5%	28.6%
Did not eat <b>vegetables</b> in the past 7 days	6.6%	6.7%	6.1%
Reported eating <b>vegetables</b> 2 or more times/day in the past 7 days	34.3%	28.0%	24.3%
Reported eating <b>vegetables</b> 3 or more times/day in the past 7 days	22.9%	14.8%	10.7%
Did not participate in at least 60 minutes of <b>physical activity</b> on any day in the past 7 days	8.7%	14.3%	15.5%
Reported 60 minutes of <b>physical activity</b> on five or more days in the past 7 days.	49.4%	48.6%	45.6%

\*Question-specific sample sizes vary due to missing responses.

TRACKS programming participants reported watching television for an average of 1.68 hours during a typical school day. Time spent playing video games or using a computer for something other than school work was 1.79 hours on an average school day.

Calcium items from a University of Minnesota food frequency questionnaire replaced the YRBS item “During the past 7 days, how many glasses of milk did you drink?” beginning in FY11. Results revealed a clearer picture of dairy group intake and allowed estimation of cup equivalents which can be compared to recommendations (3 or more cup equivalents per day). Survey items ask students to report how many times per week various dairy foods are eaten.

Results for individual dairy items are shown in *Table 3*. Students consumed an average of  $2.16 \pm 1.67$  cup equivalents from the dairy group per day; 23.8% consumed 3 or more cup equivalents per day. On average, males consumed significantly more milk, milk on cold cereal, total dairy (*Table 4*). Differences between gender groups for ice cream, yogurt, pizza, and cheese intake were not significantly different.

**Table 3. Dairy Group Intake**

<b>Food</b>	<b>Times/day Mean (SD)</b>	<b>n*</b>	<b>Cup equivalents/day Mean (SD)</b>	<b>n*</b>
Milk (Beverage)**	0.86(0.94)	833	0.92 (1.17)	833
Milk (on Cold Cereal)	0.52 (0.52)	828	0.23 (0.32)	828
Yogurt or Yogurt Drink	0.22 (0.27)	834	0.20 (0.29)	834
Pizza	0.34 (0.37)	833	0.36 (0.47)	833
Ice Cream, Ice Cream Bars, Milkshakes, Frozen Yogurt	0.37 (0.42)	827	0.26 (0.36)	827
Cheese	0.41 (0.32)	827	0.21(0.21)	827
Total dairy	--	--	2.16 (1.67)	827

\* Sample sizes vary due to missing responses.

\*\*12.1% of respondents (n=106) reported usually drinking skim or 1% fat milk.

**Table 4. Gender Differences for Dairy Food Intake**

<b>Food</b>	<b>Females</b>		<b>Males</b>		<b>p-value</b>
	<b>Cup equivalents/day Mean (SD)</b>	<b>n*</b>	<b>Cup equivalents/day Mean (SD)</b>	<b>n*</b>	
Milk (Beverage)	0.74 (1.09))	399	1.10 (1.24)	406	<0.001
Milk (on Cold Cereal)	0.20 (0.29)	399	0.26 (0.35)	406	0.006
Yogurt or Yogurt Drink	0.19 (0.26)	399	0.19 (0.31)	406	0.907
Pizza	0.33(0.41)	399	0.38 (0.53)	406	0.198
Ice Cream, Ice Cream Bars, Milkshakes, Frozen Yogurt	0.26 (0.36)	399	0.26 (0.37)	406	0.873
Cheese	0.20 (0.21)	399	0.20 (0.20)	406	0.197
Total Dairy	1.95 (1.51)	399	2.39 (1.80)	406	<0.001

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