Mississippi School Nutrition Environment Evaluation Data System (MS NEEDS)

Comparison Outcomes: Year 1, Year 2 and Year 3

The University of Mississippi

UM Research Team:

Teresa Carithers, PhD, RD, LD
Principal Investigator

Laurel Lambert, PhD, RD, LD
Co-Principal Investigator

Emmy Parkes, RD, LD, CDE
Investigator

Aimee Dickerson, MS
Project Coordinator

Patricia Edwards
Research Assistant

Collaborators:

Lei Zhang, PhD, MBA

Zhen Zhang, PhD, MS

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Note: This is a preliminary draft of research outcomes which is for review and discussion and not intended for broad distribution, as some data measures may be added or modified prior to official distribution.

MS NEEDS Weighting Procedures for Year 1

SAMPLE DESCRIPTION:

See MS NEEDS Year 1 Report for detailed sampling method.

RESPONSE RATE:

Year 1: 94% - 141 out of 150 sampled schools attended the survey.

WEIGHTING:

A weight has been associated with each observation to reflect the likelihood of a school being selected, to reduce bias by compensating for differing school level of nonresponse, and to improve precision by making school sample distributions conform to known population distributions. The weight used for estimation is given by:

$$W = W_1 * f_1 * f_2$$

W_1 = inverse of the probability of school selection.

f_1 = a nonresponse adjustment factor calculated by school size (small, medium, or large) and school level (elementary, middle, or high school).

f_2 = a poststratification adjustment factor calculated by school level (elementary, middle, or high school).

1. W_1 - inverse of the probability of school selection

There were a total of 1100 schools (538 elementary, 308 middle, and 254 high schools) in the Year 1 sampling frame. We randomly sampled 150 schools. The probability of selecting one school was 150/1100, so the inverse of the probability of school selection was 7.3333 (1100/150).

2. f_1 = a nonresponse adjustment factor

To calculate the nonresponse adjustment factor, we first obtained the number of schools participated the study by school level and size (Table 1). Based on Table 1, we calculated the response rates by school size within each school level. Nonresponse adjustment factors were the inverse of response rates (Table 2).

Table1. Schools Participated the Study by School Level and Size, MS NEEDS, Year 1

School Level			School Size			
			Small, 50-265	Medium, 266-475	Large, 476+	Total
Elementary	Participated	Yes	14	19	13	46
		No	0	1	3	4
	Total		14	20	16	50
Middle	Participated	Yes	28	12	7	47
		No	2	0	1	3
	Total		30	12	8	50
High	Participated	Yes	13	12	23	48
		No	0	1	1	2
	Total		13	13	24	50

Table 2. Nonresponse Adjustment Factors

School Level	School Size	n	Response rate	f_1
Elementary	Small (50-265)	14	14/14 = 1.000	1.0000
Elementary	Medium (266-475)	19	19/20 = 0.950	1.0526
Elementary	Large (476+)	13	13/16 = 0.813	1.2308
Middle	Small (50-265)	28	28/30 = 0.933	1.0714
Middle	Medium (266-475)	12	12/12 = 1.000	1.0000
Middle	Large (476+)	7	7/8 = 0.875	1.1429
High	Small (50-265)	13	13/13 = 1.000	1.0000
High	Medium (266-475)	12	12/13 = 0.923	1.0833
High	Large (476+)	23	23/24 = 0.958	1.0435

3. f_2 = a poststratification adjustment

The purpose of the post-stratification is to make the distribution of schools participated the study within each school level reflect those in the population. The $\mathbf{f_2}$ were presented in Table 3.

Table 3. Post-stratification Adjustment

School Level	Population (N)	Population (%)	Sample (n)	Sample (%)	f_2
Elementary	538	48.9	46	32.6	1.5000
Middle	308	28.0	47	33.3	0.8408
High	254	23.1	48	34.1	0.6774
Total	1100	100	141	100	

School Level Distribution after Weighting

Table 4. Comparison of School Level Distribution before and after Weighting

		Unweighted		Weighted	
	School Level	n	%	n	%
Sampling frame	Total	1100	100.0	NA	NA
	Elementary	538	48.9	NA	NA
	Middle	308	28.0	NA	NA
	High	254	23.1	NA	NA
Schools participated	Total	141	100.0	1106	100.0
	Elementary	46	32.6	550	49.7
	Middle	47	33.3	308	27.9
	High	48	34.0	248	22.4

We used the same weighting procedure to weight year 2 and year 3 data

Methods for Comparisons

The three years' weighted datasets were combined into one master file. A "year" variable was assigned to represent Year1 Year2 and Year3 data. For categorical variables, Chi-square test for trend was applied to compare proportions in Year1, Year2 and Year3. For continuous outcome variables, PROC MEANS and PROC GLM procedure in SAS were applied to generate and compare means. A p-value less than 0.05 indicated a significant trend (increase or decrease) over the three year period.

The statistics generated using weighted data may differ from those using non-weighted data.

RESULTS

The results are presented by sections which correspond to the main policy points from the MS Health Students Act as described above.

Section A: Healthy Food and Beverage Choices

Policy Point A.1: A minimum of one fresh fruit or vegetable choice should be offered to students each day.

Table 1. Percent of schools that served at least one fresh fruit or vegetable at lunch.

Source and Indicator	Year 1	Year 2	Year3	*p* value
Interview	(n=141)*	(n=153)	(n=150)	
Percent of schools that served at least one fresh fruit *or* vegetable all 5 days of the week for 4 weeks	59.8	35.6	39.0	<0.0001
Observation	***(n= 141)*****	***(n= 153)***	(n=150)	
Percent of schools that served at least one fresh fruit or vegetable at any time on the day of observation.	81.6	84.7	86.0	0.0002
Percent of schools that served at least one fresh fruit *or* vegetable for the entire lunch period on the day of observation	51.9	60.9	85.6	<0.0001

* 1 school has missing value;

**4 schools have missing value.

Table 2. Availability of fresh fruits vs. fresh vegetables

Source and Indicator	Year 1	Year 2	Year3	*p* value
Production Records	***(n=141)***	***(n=153)***	***(n=150)***	
Percent of schools that served at least one fresh fruit all 5 days of the week for 4 weeks	22.3	21.9	19.6	0.11
Percent of schools that served at least one fresh vegetables all 5 days of the week for 4 weeks	8.4	9.5	3.8	<0.0001
Observation	***(n= 141)***	***(n=153)***	***(n=150)***	
Percent of schools that served at least one fresh *fruit* at any time on the day of observation	68.9	77.0	72.8	0.04
Percent of schools that served at least one fresh *vegetable* for the entire lunch period on the day of observation	29.8	30.9	52.8	<0.0001

Policy Point A.2a: School menus shall offer a minimum of three different fruits weekly.

Table 3. Variety of fruit types served weekly at lunch.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Production Records	***(n=141)****	***(n=153)*** **	(n=150)	
Percent of schools that served a minimum of 3 different fruits per week for 4 weeks	93.4	97.7	97.2	<0.0001
Average number of fruit types served per week (over the 4 week period)	7.1	7.1	6.8	0.35

*2 schools have missing value;
** 1 school has missing value.
NOTE: Types of fruits included were canned, frozen, pre-prepared, and dried.

There is significant trend of increase in the percent of schools that served a minimum of 3 different fruits per week for 4weeks; However, the average number of fruit types served per week over the 4 week period did not change.

Policy Point A.2b: School menus shall offer a minimum of five different vegetables weekly.
Table 4. Variety of vegetable types served weekly at lunch.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Production Records	***(n=141)****	***(n=153)****	(n=150)	
Percent of schools that served a minimum of 5 different vegetables per week for 4 weeks	86.5	86.1	82.0	0.001
Average number of vegetable types served per week (over the 4 week period)	8.2	7.9	7.5	0.32

*4 schools have missing values;
**1 school has missing value.
Note: Types of vegetable included were canned, frozen, and pre-prepared.

Policy Point A2.3: Schools should try to serve dark green vegetable and/or orange fruits three times per week.
The MHS Act does not identify what comprises dark green and/or orange vegetables and fruits. For Year 1, the MS NEEDS team created a list based off of ??? For Year 2, the list used was based on the Institute of Medicine's recommendations and obtained from the Mississippi Department of Education, Office of Child Nutrition.

Policy Point A.3: Schools shall offer milk choices with a maximum fat of 2%. Flavored nonfat, low-fat, or reduced-fat milk shall contain no more than 160 calories per 8-ounce serving.
Table 5. Types of milk served at lunch.

Source and Indicator	Year 1	Year 2	Year 3	P value
Observation	***(n=141)****	***(n=153)***	***(n=150)***	
Percent of schools met the criteria for all milk items served at all lunches to be with maximum fat of 2%	100	99.4	98.4	0.07
Percent of schools that served a type of *white* milk				
Non-fat	25.8	21.8	13.5	<0.0001
1% fat	10.5	8.0	94.6	<0.0001
2% fat	97.1	85.1	1.4	<0.0001
Percent of schools that served a type of *flavored* milk				
Non-fat	8.7	15.0	11.5	0.05
1% fat	92.9	93.9	98.6	<0.0001
2% fat	11.9	3.3	1.4	<0.0001

*1 school has missing data.

All schools sampled in year 1 meet the criteria for all milk items served at all lunches; Only one school out of the year 2 sampled schools did not meet the criteria for all milk items served at all lunches, while year 3 there are 2 schools sampled did not meet the criteria.

Policy Point A.4: Schools shall only offer 100% fruit and vegetable juice with no added sugar.

Table 6. Types of juice served at lunch*

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Observation	***(n=141)****	***(n=153)*****	(n=150)******	
Percentage of schools serving juice during lunch	66.7	74.2	78.2	<0.0001
Of the schools serving juice, percent that met the criteria for all juice items served at all periods on the day of observation	99.1	97.4	98.7	0.67

*In year 1, only juice in reimbursable meal was reviewed. In year 2 and year 3, juice in both reimbursable and a la carte meal were reviewed.

**3 school has missing value

***2 schools have missing value.

****3 schools have missing value.

There is a significant trend of increase in the percentage of schools serving juice.

Section B: Healthy Food Preparation

Policy Point B.1: Schools shall comply with the existing NSLP/SBP meal pattern requirements.

Table 7. Use of meal patterns complying with NSLP. *

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)***	***(n=153)***	(n=150)	
Percent of schools that reported using a valid meal pattern	100	97.7	100	0.87
Percent of schools using listed meal pattern				
MS Cycles II (recipes or menus)	80.8	95.3	97.2	<0.0001
Traditional	3.1	6.6	3.9	0.19
Nutrient Standard	1.6	1.6	2.2	0.11
NutriKids	38.0	31.5	30.2	<0.0001
Other Meal Pattern	5.4	5.4	5.0	0.31

*In year 1 survey, only asked for "MS Cycles II", but in year 2 and year 3 survey, "MS Menus and Recipes" and "MS Cycle II Recipes only are separated. For the comparison, the two questions in year 2 and year 3 are combined.

Table 8. HACCP plan and compliance with individual appliance types.

Indicator	Year 1		Year 2		Year 3		*p* value
Observation	n[a]	%	n[a]	%	n	%	
Percent of schools that documented the temperature in the preceding 24 hours for all "back of house:":							
Kitchen refrigerators	139	91.6	153	91.4	146	92.8	0.16
Kitchen freezers	139	93.5	152	94.1	143	96.1	0.04
Food warmers	108	68.3	114	50.5	122	66.7	0.34
Kitchen storerooms	138	88.2	152	81.6	145	83.4	<0.01
Kitchen dishwashing	99	75.1	132	56.7	118	68.3	<0.01
Percent of schools that documented the temperature in the preceding 24 hours for all "front of house":							
Service tray lines	139	85.0	153	79.1	147	90.5	<0.0001
Service refrigerators	138	81.4	150	76.9	147	83.8	0.12
Service freezers	73	69.5	99	49.6	100	68.7	0.31
Food warmers	61	72.9	64	64.6	60	86.7	<0.001

[a]Sample n's vary across individual appliances because not all schools had each type of appliance. Data are presented only for those schools that had such an appliance in their kitchens.

Policy Point B.2c: Schools shall include in their School Wellness Policy (SWP) a food safety assurance program for all food offered to students through sale or service.

Table 9. Percent of schools that included a food safety assurance program in their SWP.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)***	(n=150)	
Percent of schools with CNP manager answering "yes"	86.0	56.5	47.9	<0.0001

*5 schools have missing value.

NOTE: CNP managers not always aware of the inclusion of food safety in the SWP. Percents were arrived at through interview and confirmation through SWP documents.

Policy Point B.3: Schools shall secure a Food Service Operational Permit through the Mississippi State Department of Health for approval to operate under NSLP/SBP.

Table 10. Percent of schools that had a valid operational permit on display in kitchen.

Source and Indicator	Year 1	Year 2	Year 3	*p* value**
Observation	***(n=141)****	***(n=153)***	(n=150)	
Percent Yes	99.4	97.9	97.4	<0.001
Schools with A permit	77.1	82.1	86.8	<0.0001
Schools with B permit	22.3	15.8	10.6	<0.0001

*1 school has missing value.

**Results indicate that there is an overall drop in the percentage of schools having Food Service Operation Permit, and the drop is due to decrease of B permit percentage, while A permit percentage has a significant trend of increased.

Policy Point B.4: Mississippi Department of Health conducts two School Food Facility Inspections per site each school year.

Table11. Percent of schools that had two or more facility inspections in past year.

Source and Indicator	Year 1	Year 2	Year 3
Interview	***(n=141)***	***(n=153)***	(n=150)
Percent of schools with inspections in the past year:			
0 inspections	0.5	1.8	1.4
1 inspection	1.5	3.3	1.4
2 or more inspections	97.6	94.9	97.2

Policy Point B.5a: Schools shall implement healthy school food preparation techniques using training materials developed through sources such as USDA, National Food Service Management Institute or Mississippi Department of Education.

Table 12. Materials schools used for healthy food preparation training.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n= 141)****	***(n= 153)***	(n=150)	
Percent of schools that used valid training materials	89.9	89.6	75.1	<0.0001
Percent of schools using the following training materials:				
USDA	34.9	48.0	28.0	0.0002
NFSMI	37.6	33.7	24.0	<0.0001
MDE	52.0	61.0	42.7	<0.0001
Other	53.9	28.0	39.8	<0.0001
No sources used	10.1	10.4	24.9	<0.0001

***1 school has missing value**

Policy Point B.6a: Schools should limit fried foods whenever possible and practical.

Table 13. Number of fried food items per week served with reimbursable lunch.

Source and Indicator	Year 1	Year 2	Year 3
Interview	***(n=141)***	***(n=153)***	(n=150)
Percent of schools serving, on average, this number of fried items per week with the reimbursable lunch meal			
3 or more items/week	9.1	11.4	17.0
2 items/week	17.1	15.9	17.1
1 item/week	27.2	23.3	10.9
Less than 1 item/week	19.6	15.0	11.8
No fried food items	27.1	34.5	43.2
Percent of schools where fried items with the reimbursable lunch meal:			
Stayed the same (no fried food)	15.4	28.0	30.4
Stayed the same (with fried food)	25.1	23.5	18.2
Decreased in the last year	58.8	47.6	50.0
Increased in the last year	0.6	0.9	1.4

Policy Point B.6b: Schools shall develop a long range plan for reducing and/or eliminating fried products in their lunch and breakfast menus.

Table 14. Percent of schools that have developed a long range plan to reduce fried foods.

Source and Indicator	Year 1	Year 2	Year 3	P value
Interview	***(n=141)****	***(n=153)****	(=150)***	
Do you have long range plan to reducing or eliminating fried product items?				
Percent of schools with Plan	61.3	44.2	52.6	<0.0001
Percent of schools who do not serve fried foods	17.7	27.2	34.3	<0.0001
Percent of schools with no plan or CNP manager unaware of a plan	21.0	28.6	13.1	<0.0001

*2 schools have missing value;
**2 schools have missing value;
***1 school has missing value.

Policy Point B.6c: The long range plan should include preparation methods using existing equipment and/or goals to replace fryers with combi-oven/steamers as budgets allow.

Table 15. Schools with plans to replace fryers.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)****	(n=150)***	
Percent of schools whose long range plan replaces fryers with steamers and/or combi-ovens	60.0	46.4	44.9	<0.0001
Percent of schools whose long range plan replaces fryers with:				
Combi-ovens only	50.8	35.8	31.3	
Steamers only	1.6	2.9	2.0	
Combi-ovens and steamers	7.6	7.6	11.6	
Neither	12.4	18.4	13.0	
Unclear	7.1	14.9	18.1	
Not applicable-no fryers	20.6	20.4	24.1	

*Three schools have missing value;
**Four schools have missing value;
***Two schools have missing value.

Table 16. Equipment available for meal production in schools

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Observation	***(n=141)****	***(n=153)*****	(n=150)	
Percent of schools with a minimum of one working:				
Fryer	81.7	62.6	56.0	<0.0001
Combi-oven	31.3	35.3	34.4	0.11
Steamer	67.9	64.7	57.5	<0.0001

*1 – 7 Schools have missing value for fryer or combi-oven and/or steamer
**1 – 4 Schools have missing value for fryer or combi-oven and/or steamer

NOTE: In year 1, it was noted that many schools that had fryers were not using the fryers for meal production. Therefore, in year 2, consultants were instructed to count only working fryers.

Section C: Marketing of Healthy Food Choices to Students and Staff

Policy Point C.1: Train School Foodservice Administrators, Kitchen Managers, and Cooks in Marketing, New Cooking Techniques, and Garnishing using available or newly developed training tools, such as Marketing Sense – Mississippi Department of Education, Office of Child Nutrition.

Table 17. Percent of schools whose food service staff attended trainings in last 12 months.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)*****	(n=150)	
Percent of schools that reported having the CNP manager attend at least one training in the last 12 months	82.7	66.3	58.0	<0.0001
Percent of schools that reported having at least one kitchen staff member attend at least one training in the last 12 months	67.4	54.6	45.6	<0.0001

*3 - 5 schools have missing value for CNP manager and/or staff member;

**2 – 6 schools have missing value for CNP manager and/or staff member.

Table 18. Types of trainings attended by school food service staff.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)*****	(n=150)	
Percent of schools whose CNP Manager attended a training on:				
Marketing	34.8	21.8	17.7	<0.0001
New cooking techniques	16.0	16.3	16.7	0.34
Garnishing	23.9	18.1	18.5	0.0008
Other	54.0	50.6	42.9	<0.0001
Percent of schools whose kitchen staff attended a training on:				
Marketing	9.7	13.4	9.4	0.37
New cooking techniques	14.7	15.9	11.6	0.02
Garnishing	12.3	13.8	8.1	0.0006
Other	48.1	38.7	35.1	<0.0001

*3 – 4 schools have missing value in the above variables used;
**1 –2 schools have missing value in the above variables used.

Policy Point C.2: Use the Whole School Approach in Marketing the Local Wellness Policy. Administration, faculty, staff, students, and parents need to be solicited to be a part of the implementation of the Local Wellness Policy.

Table 19. Members of school district wellness committees.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)*****	(n=150)***	
Percent of schools *without* a wellness committee	4.1	2.9	8.2	<0.0001
Percent of schools whose wellness committees include administration, faculty, staff, students, *and* parents.	22.4	19.6	18.1	0.0003
Percent of schools with the following types wellness committee members:				
School board members	15.6	6.5	9.7	
Superintendent	25.0	10.8	13.6	
School principals	75.3	74.6	70.1	
Teachers	74.7	83.8	82.4	
School nurses	47.4	51.3	49.0	
Other school staff	50.4	45.0	59.2	
Child Nutrition director	51.8	43.9	23.6	
School foodservice staff	28.2	37.1	46.0	
Parents	63.0	52.3	59.3	
Other community members	39.7	31.2	38.8	
Health professionals	33.9	21.3	20.4	
Students	37.3	29.0	27.2	

*8 schools have missing value;

**4 schools have missing value;

***16 schools have missing value.

Section D: Food Preparation Ingredients and Products

Policy Point D.1: School districts shall adopt the Dietary Guideline recommendation that trans fatty acids will be kept "as low as possible".

Table 20. School Emphasis on reduction of trans fatty acids.

Source and Indicator	Year 1	Year 2	Year 3	P value
Interview	***(n=141)****	***(n=151)****	(n=150)***	
Percent of schools reporting that nutrient analyses address trans-fat in:				
Lunch menus	50.8	49.7	43.7	
Not sure for lunch	10.3	35.9	44.1	
Breakfast menus	27.7	20.9	24.1	
Not sure for breakfast	11.0	40.4	40.3	
Both Lunch and breakfast menus	26.9	20.1	23.9	0.11
Neither menu	36.5	12.0	11.6	<0.001

*6 -- 9 schools have missing value for lunch and/or breakfast;
** 2 schools have missing value for lunch and/or breakfast;
*1 school has missing value for lunch and breakfast.

NOTE: It was identified that the nutrient analysis included with the MS Cycles II menus does not include trans fat. An alternative means of nutrient analyses would need to be conducted to identify the trans fat in the school lunch menu.

Policy Point D.2: Wherever possible and practical, school lunch and breakfast programs shall include products that are labeled "0" grams trans fat.

Table 21. Percent of schools incorporating "0 trans fat" products into meal program foods.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=61)***	***(n=59)***	(n=60)*	
Of the schools who found "0 trans fat" products, percent that incorporated at least one "0 trans fat" product into: Lunch menus	100.0	100.0	99.1	<0.01
Interview	***(n=42)***	***(n=51)***	(n=42)**	
Of the schools found "0 trans fat" products, percent that incorporated at least one "0 trans fat" product into: Breakfast menus	100.0	100.0	96.8	<0.001
Observation	***(n=141)******	***(n= 153)***	(n=150)	
Percent of schools at which a product labeled "0 trans fat" was observed at lunch (a la carte or reimbursable meal)	31.2	47.7	28.8	0.07

* For Lunch: in Year three survey, 90 schools either made no attempt to find "0 trans fat" product; Or, made attempt but no product were found. Similarly were year2 and year3 survey.
**For breakfast: in year three survey, 108 schools either made no attempt to find "0 trans fat" product, Or, made attempt but no product were found. Similarly were year2 and year3 survey.
***Two schools have missing value.

Table 22. Availability of "0 trans fat" options

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=133)****	***(n=147)****	(n=140)***	
Percent of schools that learned which state bid products are "0 trans fat" from the State Child Nutrition Program office.	32.2	31.4	25.2	0.0002

*Eight schools have missing value;
**Six schools have missing value;
***Ten schools have missing value.

Policy Point D.3: Schools shall incorporate whole grain products into daily and weekly lunch and breakfast menus based on product availability and student acceptability.

Table 23. Percent of schools incorporating whole grain products into meal program foods.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)****	(n=150)***	
Percent of schools that incorporated at least one whole grain product into:				
Lunch menus	97.7	98.4	96.3	0.01
Breakfast menus	92.5	94.3	92.8	0.42
Lunch and breakfast menus	71.4	75.8	75.6	0.01
Neither menu	1.6	0.6	1.6	0.49
Observation	***(n=141)*****	***(n=153)******	(n=150)	
Percent of schools that served a minimum of one whole grain product in *at least one* lunch	35.5	39.3	57.9	<0.0001

*14 schools have missing value for lunch, 30 schools have missing value for breakfast;

** 8 schools have missing value for lunch, 31 schools have missing value for breakfast;

***1 school have missing value for lunch, 24 schools have missing value for breakfast;

****2 schools have missing value;

*****1 school has missing value.

Table 24. Availability of whole grain options

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)****	(n=150)***	
Percent of schools that learned which state bid products are whole grain from the State Child Nutrition Program office.	67.0	58.0	68.7	0.18

*8 schools have missing value;
** 3 schools have missing value;
***11 schools have missing value.

Section E: Minimum and Maximum Time Allotment for Students and Staff at Breakfast and Lunch Periods

Policy Point E.1: Schools shall schedule at least a minimum of 24 minutes to ensure an adequate eating time for school lunch.

Table 25. Percent of schools at which students have enough time to eat lunch.

Source and Indicator	Year 1	Year 2	Year 3	
Interview	***(n=141)****	***(n=153)***	(n=150)	
Percent of schools which students have adequate time to eat their school lunch meal				
None of the time	0.0	2.5	3.0	
Some of the time	4.2	4.1	8.1	
Most of the time	21.1	25.4	23.7	
Always	74.7	68.0	65.2	
Observation	***(n=141)****	***(n=153)*****	(n=150)	P value
Percent of schools providing at least 24 minutes for all lunches	63.3	54.1	45.0	<0.0001

*1 school has missing value;
**6 schools have missing value;
***1 school has missing value.

NOTE: Some uncertainty as to the required number of minutes required for lunch times. Some schools identified 18 minutes as the minimum time allowed.

Policy Point E.2: Schools should take into consideration the recommend time of 10 minutes for a child to eat school breakfast after they have received the meal.

Table 26. Percent of schools at which students have enough time to eat breakfast.

Source and Indicator	Year 1	Year 2	Year 3
	(n=141)*	***(n=153)***	(n=150)***
Frequency with which students have adequate time to eat their school breakfast meal (% schools):			
None of the time	0.6	3.2	0.0
Some of the time	1.7	2.8	2.7
Most of the time	12.6	14.6	14.8
Always	83.3	79.4	82.5

*4 schools have missing value;
**5 schools have missing value;
***4 schools have missing value.

<u>Section F: The Availability of Food Items during the Lunch and Breakfast Periods of the Child Nutrition Breakfast and Lunch Programs</u>

Policy Point F.1: Schools districts shall comply with the Mississippi Board of Education Policy of Competitive Food Sales as outlined in Mississippi Board of Education Policies.

Table 27. Percent of schools complying with Competitive Food Sales Policy on times of day competitive foods are available.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)*****	(n=150)	
Percent of schools reporting that no competitive food sales are made within 1 hour of any meal	80.6	78.2	82.5	0.21
Number of schools selling foods in the hour before *breakfast* via:				
Vending machines	8	4	8	
School stores	3	2	2	
Fundraisers	2	1	2	
Teacher sales	1	1	2	
Other	1	6	0	
Number of schools selling foods in the hour before *lunch* via:				
Vending machines	6	1	2	
School stores	6	10	5	
Fundraisers	2	0	2	
Teacher sales	1	2	3	
Other	3	4	4	
Observation-Vending	***(n=77)***	***(n=63)***	(n=55)	
Number of schools observed selling competitive foods the hour before lunch in these locations:				
Hallway	30	23	7	
Outside on school grounds	21	8	17	
Faculty lounge	16	46	23	
Gym/locker room vending	13		3	
Cafeteria	5	6	2	
Other	0	2	3	
		5		

*1 school has missing value;

**2 schools have missing value.

Table 28. Percent of schools complying with Competitive Food Sales Policy allowing students to purchase water and milk without purchasing a reimbursable meal.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Observation	***(n=141)***	***(n=152)****	(n=150)**	
Percent of schools *observed* where a student purchased a milk or water product without a meal	44.8	47.1	34.9	<0.0001

*1 school has missing value;
**3 school have missing value.

NOTE: These percentages only reflect direct observation by the data collector.

Policy Point F.2: School districts shall update the wellness policy to address limiting the number of extra sale items that may be purchased with a reimbursable meal. This policy will exclude extra beverage purchases of milk, juice and/or water.

Table 29. Percent of schools incorporating this policy into the School Wellness Policy.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)****	(n=150)***	
Percent of schools that incorporated this policy into their School Wellness Policy	46.5	31.7	21.2	<0.0001
Percent of schools where the CNP answered “not sure”/”do not know” to this question	3.3	44.2	44.7	<0.0001

*11 schools have missing value;

**1 school has missing value;

***1 school has missing value.

Policy Point F.3: Schools may sell extra items in individual packages not to exceed 200 calories.

Table 30. Percent of schools meeting calorie limit on a la carte food items.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=102)***	***(n=91)***	(n=129)	
Of the schools that provide a la carte food items with nutrition label, percent of schools that were fully compliant – 100% of a la carte items sold were 200 calories or less	94.4	98.2	87.8	0.36

Policy Point F.4: Schools may sell extra (menu) items in portions not to exceed the menu portion serving size.

Table 31. Percent of schools meeting guidelines on portion sizes for extra servings.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Observation – Reimbursable Meal Form	***(n=69)***	***(n=64)***	(n=68)	
Percent of schools where the serving size of an extra portion item from the reimbursable meal was observed as smaller or the same size as the portion size in the meal	99.6	99.0	96.5	<0.0001
Percent of schools where the serving size of an extra portion item from the reimbursable meal was observed as larger than the portion size in the meal	0.4	0.9	3.5	0.26

Policy Point F.5: Schools will use marketing, pricing, and nutrition education strategies to encourage healthy extra sale selections.

Table 32. Percent of schools using various strategies to encourage healthy food item sales.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Observation	***(n=141)***	***(n=153)****	(n=150)**	
Percent of schools where daily healthy specials are advertised	23.5	8.8	12.1	<0.0001
Percent of schools where nutrition information is available for food items without packaging	14.8	8.8	1.5	<0.0001
Average number of health promotion posters (per school) in the cafeteria	7	8	7.5	

*2 schools have missing value;

**8 schools have missing value.

Section G: Methods to Increase Participation in the Child Nutrition School Breakfast and Lunch Programs

This section addresses the following policies as outlined in the MS Healthy Students Act:

Policy Point G.1: Since school food service operates like a business with income and expenses, adequate marketing ensures a successful program operation. When devising a plan, remember the following: 1) Define your business, 2) Define your customer, evaluate your plan and budget, define your objectives.
Policy Point G.2: Family education will be the key to building a healthy future for all Mississippians. Mississippi public schools offer the best resources, facilities and structure to promote family nutrition education.
Policy Point G.3a: Schools are strongly encouraged to develop academic partnerships with appropriate governmental agencies to offer family nutrition education programs.
Policy Point G.3b: Family education should be incorporated into each school's Wellness Policy.
Policy Point G.6: Schools will promote healthful eating and healthy lifestyles to students, parents, teachers, administrators and the community at school events.

Table 33. Percent of schools promoting healthy eating via meal programs, family nutrition, etc.

Source and Indicator	Year 1	Year 2	Year 3	*p* value
Interview	***(n=141)****	***(n=153)*****	(n=150)***	
(Policy Point G.1) Percent of schools with a plan to promote these programs:				
Lunch meal	40.3	22.3	21.1	<0.0001
Breakfast meal	33.4	21.9	21.7	<0.0001
Lunch & breakfast meals	33.1	16.1	17.9	<0.0001
No plans for either meal	57.7	70.5	74.0	<0.0001
(Policy G.2) Percent of schools that offered resources to promote family nutrition education in last year	56.9	35.0	48.7	<0.0001
(Policy G.3a) Percent of schools with partnerships to promote family nutrition	28.6	17.3	13.2	<0.0001
(Policy G.3b) Percent of schools whose Wellness Policy incorporate family education	75.0	40.9	36.5	<0.0001

*4 -11 schools have missing value for various variables used;
**2 schools have missing value;
*** 1 school has missing value.