



Texas Department of Agriculture

Report to the

80th Texas Legislature

Ordered by House Bill 4062, 80th Regular Session

Study Regarding Participation in Breakfast Program

TEXAS DEPARTMENT OF AGRICULTURE

TODD STAPLES
COMMISSIONER



November 17, 2008

The Honorable Rick Perry, Governor
The Honorable David Dewhurst, Lieutenant Governor
The Honorable Tom Craddick, Speaker of the House

Gentlemen:

Thank you for the opportunity to present this report on participation in the School Breakfast Program. The Texas Department of Agriculture administers this important program on behalf of 1.3 million school children every day, in partnership with our dedicated school districts across Texas. Without this program, many students would begin their school day hungry.

As requested by HB 4062 (80th session), this report presents findings on breakfast participation, and recommendations to increase that participation. Many of our administrators in school districts across the state recognize the benefits of breakfast, and its effect on student wellness and academic performance. Therefore, they are finding innovative ways to ensure more of their students have access to a healthy and delicious breakfast.

It is my hope by providing this information, we will be able to share some of these best practices, and help school districts overcome challenges related to school breakfast and student nutrition. I appreciate your interest in this critical issue.

Sincerely yours,


Todd Staples



Executive Summary

Despite its well-understood health benefits and minimal cost, only 30 percent of Texas schoolchildren start their day with a school breakfast. Nearly 2.9 million Texans enjoy a nutritious lunch at school every day through the National School Lunch Program (NSLP), and of those, less than half take advantage of that same opportunity at breakfast. The federally funded School Breakfast Program (SBP) operates and is administered for the most part the same way as the NSLP, which feeds nearly two-thirds (65 percent) of Texas students every day.

In 2007, the Texas Legislature, 80th Regular Session, passed House Bill 4062, directing the Texas Department of Agriculture (TDA) to identify ways to increase participation in the SBP in Texas. The mission of TDA's Food and Nutrition Division is to safeguard the health and well-being of all Texans by ensuring nutritionally adequate food is provided; encouraging adults and children to gain an understanding of the relationship between proper eating and good health; and providing learning experiences designed to result in healthier lifestyle choices. As such, TDA welcomed the Legislature's charge.

The bill calls for (1) an analysis to determine the costs and benefits of providing breakfast at no charge to some or all Texas schoolchildren; (2) identifying programs and practices in school districts in Texas and other states that are effective in increasing participation in the breakfast program; and (3) recommending to the legislature methods for increasing SBP participation.

To satisfy the responsibilities outlined in HB 4062, TDA contracted with the University of Texas Health Sciences Center in Houston (UT-HSC) to conduct the cost-benefit analysis, taking into

consideration (1) administrative costs to a school district; (2) federal reimbursement made to a school district for free or reduced-price breakfast; (3) cost per breakfast to a school district; and (4) participation of students in the breakfast program. TDA conducted its own research to identify benefits of and best practices for increasing breakfast participation, both in Texas and nationwide. This report presents the results of these studies and explores possibilities for applying the findings to increase participation in SBP in Texas.

Research conducted by the University of Texas Health Sciences Center in Houston as directed by HB 4062 indicates participation in SBP would grow by 24 percent if it were offered to all students at no cost and would increase by 32 percent if it were offered during the school day. This study was a cross-sectional study, which presents issues that more expensive and time-consuming methods can overcome. Another limitation of the survey is with the cost reporting, which was reported based on the information the survey respondents had immediately available rather than tracked in any prescribed manner.

Furthermore, the research indicates students who eat breakfast are 7 percent less likely to be obese. Research indicates regularly eating a nutritious breakfast also helps children perform better academically, leads to fewer behavior problems at school and better health, and decreases their likelihood of developing obesity.

Research into best practices found nearly one in ten school districts in Texas offered a universal breakfast. Other ways districts are promoting participation in breakfast are by adjusting bus schedules to ensure students arrive at school with time to eat breakfast before their classes start

(33 percent of respondents); serving breakfast in classrooms (46 percent); offering universal breakfast (46 percent); and distributing information for parents and students via printed material, Web sites, school-based menus and marquees; incentives and contests, and in-class education (54 percent). “Breakfast After First Period” was an option in 29 percent of districts represented, while “Grab and Go” breakfasts were being used by 18 percent of respondents. After a spring 2008 weeklong breakfast promotion statewide in Texas, SBP participation rose slightly, by about the same rate as the same time period over the prior two years without the promotion. Outside of Texas, some school districts show promise expanding breakfast participation with alternate service methods and times, revising menus and increasing outreach to schools and the public.

To develop recommendations on increasing breakfast participation, TDA staff consulted with the Healthy Students = Healthy Families Advisory Committee (HS=HF) regarding the research and survey findings. HS=HF members expressed concern about the limitations of the cost-benefit analysis and its related findings. However, members found promising information regarding successful breakfast practices in school districts surveyed. Therefore, TDA recommends the following as methods for increasing participation in the SBP: Schools that have 60 percent or more of their student population eligible for free and reduced price breakfast should be encouraged to offer universal breakfast and examine all available funding mechanisms; school districts should be encouraged to investigate alternative service methods for providing breakfast; and school health advisory councils should be charged with finding ways to increase breakfast participation in their local school districts.

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Charge

In 2007, the 80th Texas Legislature passed House Bill 4062, directing the Texas Department of Agriculture (TDA) to conduct a study regarding participation in the School Breakfast Program (SBP). Texas Agriculture Code, Section 12.043 reads as follows:

- (a) In this section, “breakfast program” means the national school breakfast program provided for by the Child Nutrition Act of 1966 (42 U.S.C. Section 1773).
- (b) The department shall identify methods for increasing the number of students who eat breakfast, including:
 - (1) Conducting a cost-benefit analysis in a sample of school districts in which 60 percent or more of the students qualify for free or reduced-price breakfast to determine the impact of providing a free breakfast to:
 - (A) Students who would otherwise pay a reduced price for breakfast; and
 - (B) All students in the district regardless of family income;
 - (2) Identifying programs and practices in school districts in this state and other states that are effective in increasing participation in the breakfast program; and
 - (3) Providing information at the beginning of the school year to students and parents about the importance of eating breakfast.
- (c) The cost-benefit analysis required under Subsection (b) must assess:
 - (1) Administrative costs to a school district;
 - (2) Federal reimbursement made to a school district for free or reduced-price breakfast;
 - (3) Cost per breakfast to a school district; and
 - (4) Participation of students in the breakfast program.

The report must:

- (1) Include the cost-benefit analysis;
- (2) Outline effective programs and practices identified; and
- (3) Recommend to the legislature methods for increasing participation in the breakfast program.

To satisfy the requirements of HB 4062, TDA conducted its own research to identify best practices for increasing breakfast participation, both in Texas and nationwide, and contracted with the University of Texas Health Sciences Center in Houston to conduct the cost-benefit analysis. This report presents the results of these studies and recommends to the Legislature methods for increasing participation in SBP in Texas.

Background on the School Breakfast Program

Program History

In 1966, twenty years after the National School Lunch Program (NSLP) was established, President Lyndon Johnson signed the Child Nutrition Act into law and created the pilot School Breakfast Program (SBP). This legislation was a part of the president's Great Society programs and was intended to help students in low-income areas of the country, and those who had long commutes to school. The SBP was made permanent in 1975. It is administered by the United States Department of Agriculture (USDA) at the federal level and by the Texas Department of Agriculture (TDA) for Texas public, private, and charter schools and residential child care institutions. At the federal level, schools are not mandated to participate in the SBP. However, the State of Texas does mandate all school districts and charter schools in which at least 10 percent of students are eligible for free or reduced-price breakfasts under federal eligibility guidelines must participate in the program.

Nutritional Guidelines

School breakfasts must meet the Dietary Guidelines for Americans, which recommend that no more than 30 percent of an individual's calories come from fat and less than 10 percent from saturated fat. In addition, breakfasts must provide one-fourth of the Recommended Dietary Allowance for protein, calcium, iron, Vitamin A, Vitamin C and calories. Local school food authorities make the decisions about what specific foods to serve and how they are prepared.

Eligibility and Reimbursement

Any child at a participating school may purchase a meal through the SBP. Like NSLP, SBP reimburses school districts, private schools, charter school, and residential child care institutions—collectively known as school food authorities (SFAs)—on a per-meal basis for actual meals served. USDA reimburses SFAs for qualifying meals served according to each student’s level of eligibility: free, reduced-price, or paid. These eligibility levels are calculated according to the students’ household incomes. Schools may qualify for higher “severe need” reimbursements if 40 percent of their lunches are served free or at a reduced price in the second preceding year (i.e., 2006–07 if the current program year is 2008–09). Nationwide, about 74 percent¹ of the breakfasts served in the SBP qualify as “severe need.” Severe need payments are up to 28 cents higher than the normal reimbursements for free and reduced-price breakfasts. Effective from July 1, 2008, through June 30, 2009, SBP meals are reimbursed according to the following rates:

“Free”

- Income at or below 130 percent of the federal poverty line.
 - Three-person household with an annual income at or below \$22,880.
- SFAs receive \$1.40 for each “free” breakfast served.
 - SFAs must serve meals to free-eligible students at no cost.

“Reduced-Price”

- Incomes between 130 and 185 percent of the federal poverty line.
 - Three-person household with an annual income between \$22,880 and \$32,560.

¹ <http://www.fns.usda.gov/cnd/Breakfast/AboutBfast/SBPFactSheet.pdf>

- SFAs receive \$1.10 for each “reduced-price” breakfast served.
 - SFAs must serve meals to reduced price-eligible students for not more than \$0.30.

“Paid”

- Incomes over 185 percent of the federal poverty line.
 - Three-person household with an annual income over \$32,560.
- SFAs receive \$0.25 for each “paid” breakfast served.
 - SFAs may set their own pricing for “paid” meals using approved guidelines.

Another approach to providing and paying for meals is with “universal” breakfast. Universal breakfast programs offer meals at no charge to all students, regardless of income. Meals are reimbursed by category without the student paying any additional charge. This approach increases participation by reducing the degree to which needy children are singled out and by eliminating the requirement that the student pay something for the meal and increasing school-wide exposure to the breakfast program. SFAs may finance a universal breakfast program with local funding, by implementing Provision 2 under NSLP, or both.

Under Provision 2, SFAs use a simplified method for claiming reimbursements and must collect applications less often, lowering administration costs and raising participation. Under this approach, all students are offered meals at no charge – a “universal” approach to breakfast. If the SFA has a high enough percentage of students eligible for free or reduced-price meals, the increased participation may offset the cost of lost revenue from the paid and reduced-price meals. The threshold at which Provision 2 becomes feasible varies, but in Texas it typically begins with a minimum of 80 percent free and reduced eligibility. Provision 2 may be applied at

the school or district level. The following example shows how a severe-need school with 92 percent free and reduced-price eligibility might operate under both methods.

Example 1: Breakfast Funding Feasibility Worksheet

	<u>FREE</u>	<u>REDUCED</u>	<u>PAID</u>	<u>SEVERE NEED</u>
USDA Reimbursement	\$1.40	\$1.10	\$0.25	\$0.28
District Meal Prices		\$0.40	\$1.00	

School District Name	YOUR DISTRICT	County-District #	000-000
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A. Traditional Funding: Most Recent October

1. Student Eligibility per Day:	Total Days Claimed	22
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<u>FREE</u>	+	<u>REDUCED</u>	+	<u>PAID</u>	=	<u>TOTAL ENROLLMENT</u>
97		15		9		121

% of Eligibles = each category divided by total enrollment

0.801652893		0.123967		0.07438		1 Must = 1.000000
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2. Meals Served by Category per Month:

<u>FREE</u>	+	<u>REDUCED</u>	+	<u>PAID</u>	=	<u>TOTAL MEALS</u>
1,992		278		109		2,379

3. Percentage of Meals Served by Category per Month:
 Numbers by category from #2 above, each divided by total meals served.

<u>FREE</u>	+	<u>REDUCED</u>	+	<u>PAID</u>	=	<u>TOTAL</u>
0.837326608		0.116856		0.045818		1 Must = 1.000000

4. Average Daily Participation from the Accuclaim Daily Record

Total Meals Served	2379	= Average Daily Participation	108
Total Days Claimed	22		

Divide Average Daily Participation by Total Enrollment to calculate % Participation

<u>Average Daily Participation</u>	108	= % Participation	0.893689
Total Enrollment	121		

5. Total Federal Reimbursement for the NSLP for October **\$3,757.45**

6. From district records, the total NSLP Cash to be Received from Students **\$220.20**

7. Monthly Total of all income, line 5 + line 6 **\$3,977.65**

Provision 2 Breakfast Funding Feasibility Worksheet (continued)

B. Projected Figures under Special Assistance Provision 2 (SAP2)				
1. Projected New Meals per Month by Category:				
Page 1, #2-Total Meals Served multiplied by the % Increase from TDA Program Chart				
2379	*	2%	=	2426.58
2. New Projections per Month by Eligibility Category Projected:				
Projected New Meals multiplied by percentages by category from Page 1, #3.				
(Projected New Meals)(Free Percentage from #3) = <u>Projected Free Meals</u>				
2426.58	*	0.837327	=	2031.84
(Projected New Meals)(Reduced Percentage from #3) = <u>Projected Reduced Meals</u>				
2426.58	*	0.116856	=	283.56
(Projected New Meals)(Paid Percentage from #3) = <u>Projected Paid Meals</u>				
2426.58	*	0.045818	=	111.18
The three totals added together should be Projected number of New Meals from #1 of this page.				
2426.58	=	2426.58		
3. Projected Monthly Reimbursement under SAP2				
(Projected Free Meals)(Federal Reimbursement Rate)				
2031.84	*	\$1.40	=	\$2,844.58
(Projected Reduced Meals)(Federal Reimbursement Rate)				
283.56	*	\$1.10	=	\$311.92
(Projected Paid Meals)(Federal Reimbursement Rate)				
111.18	*	\$0.25	=	\$27.80
(Projected Severe Need Meals)(Federal Reimbursement Rate)				
2315.4	*	\$0.28	=	\$648.31
Monthly Total Federal Reimbursement				\$3,832.60
COMPARE: MONTHLY DIFFERENCE OR SUBSIDY				(\$145.05)

When making the decision whether to switch to operating under Provision 2, the SFA has to decide if the \$145 shortfall in monthly revenue from reduced-price and paid lunches can be offset by the reduction in administrative costs or in non-reimbursable food sales, such as vending and a la carte.

Participation

During the 2008 school year (August 2007–May 2008), Texas schools served more than 405 million breakfasts and received over \$300 million in federal funding for these meals. There were

7,363 schools providing the SBP in Texas—only six fewer than those providing NSLP. Approximately 1.3 million Texas schoolchildren per day ate breakfast in the SBP.²

Nationwide, about 75 percent of schools that participated in NSLP also provided SBP. In those schools, some 45 children received free or reduced price school breakfast for every 100 who received free or reduced-price school lunch. In Texas at the same time, SBP school participation was 99.7 percent of NSLP, serving 52.6 students a free or reduced-price breakfast for every 100 who received lunch at the same eligibility rate. In 2007, Texas had the nation’s sixth-highest SBP participation as a percentage of NSLP participation.³

Breakfast Service Methods

In addition to the traditional cafeteria-style service before the start of the school day, there are various alternative methods schools use to serve breakfast. Descriptions of the most common alternate methods follow. These methods may be employed alone or in conjunction with other methods, before or during the start of the school day.

Breakfast in the Classroom. Students eat breakfast at their desks during the first few minutes of class, usually while the teacher attends to morning administration details. School staff or volunteers either deliver meals to the classroom or hand out packaged meals. Trash from the meal is collected and left outside the classroom for custodial staff to pick up.

²“State Totals” Report, TDA, July 23, 2008

³ Food Research and Action Center, School Breakfast Scorecard 2007. http://frac.org/pdf/SBP_2007.pdf

Grab and Go. Breakfasts are individually packaged and distributed from the cafeteria line or carts or kiosks at other locations on the school campus. Students may eat outside the cafeteria, in class, or in common areas such as bus drop-off points before or between classes, depending on the SFA's program.

Breakfast after First Period. Students are allowed time after their first period class for breakfast. Service may be in the cafeteria or from "grab and go" stations, and students may eat in class, in the cafeteria or elsewhere, depending on the SFA's program.

Cost-Benefit Analysis

Background

The Texas Legislature's charge to TDA requires:

(1) Conducting a cost-benefit analysis in a sample of school districts in which 60 percent or more of the students qualify for free or reduced-price breakfast to determine the impact of providing a free breakfast to:

- (A) Students who would otherwise pay a reduced price for breakfast; and
- (B) All students in the district regardless of family income.

TDA contracted with the University of Texas Health Sciences Center in Houston (UT-HSC) to conduct the cost-benefit analysis. The specific aims for this study were:

- **Specific Aim 1:** To estimate the per-pupil cost of implementing universal breakfast in schools currently not providing universal breakfasts.
- **Specific Aim 2:** To determine the relationship between school breakfast participation rates; school level math and language arts Texas Assessment of Knowledge and Skills (TAKS) test scores; school level attendance rates; and school level disciplinary incidents and to compare outcomes between schools that serve universal breakfast and schools that do not serve universal breakfast.
- **Specific Aim 3:** To determine the relationship between school breakfast participation rates and obesity prevalence among 4th grade students in Texas.

Research Design

A cross-sectional study design using both primary and secondary data was used to reach the three specific aims. To determine breakfast costs for each school in our sample, in collaboration with research staff at TDA, UT-HSC developed the *Breakfast Cost Survey* (Appendix A).

Limitations

This study is a cross-sectional study, which is known to have many problems that more expensive and time-consuming methods can overcome. One problem is schools with universal no-charge breakfast have far fewer social and economic advantages than schools without. These schools simultaneously have low school-wide TAKS scores and poor disciplinary outcomes. Therefore, universal breakfasts may be correlated with negative outcomes in the school. The standard way to overcome this is to conduct a trial and to designate intervention schools and similar control schools. The trial would offer free breakfast in the intervention and follow TAKS scores, discipline, and obesity over years.

Another limitation is the reporting of cost data. The results show that few survey respondents were able to report food costs. Those who did report costs did so to the best of their ability without any prescribed method for identifying and tracking them. This may be due to the fact that many foods purchased are hard to apportion between lunch and breakfast. It also may be the case that foods are provided as commodity food or entitlements from USDA, and that the respondents are unaware of the cost. A more in-depth analysis, USDA's 2008 report "School Lunch and Breakfast Cost Study – II" is a study of financial statements, production records and

invoices from the 2005–06 program year in a broad national sample of districts, which yielded very different results than the study presented in this report.

Primary Data

Sample. To obtain a statewide representative sample of schools, UT-HSC used the probability based survey sample from the 2004–2005 School Physical Activity and Nutrition Survey (SPAN III) study¹. SPAN III is a stratified, multistage probability sample, which allows us to weight our sample to the population of 4th, 8th, and 11th graders in Texas. UT-HSC proposed to sample 207 elementary schools using a stratified, balanced random sampling design. Schools were classified in three strata based on the location of schools: (1) major urban centers, (2) suburban/small cities, and (3) rural areas. UT-HSC drew balanced samples of schools within each stratum.

Survey Administration: After Institutional Review Board approval from the University of Texas Health Science Center, the survey was administered to either school or district-level school food authorities (SFA)/child nutrition services (CNS) directors in our sample schools by either e-mail or phone.

Secondary Data

TAKS scores, attendance rates, and dropout rates: The 2007 TAKS scores for math and language arts, school attendance rates, and dropout rates were obtained from the Texas Education Agency’s (TEA) Academic Excellence Indicator System². In this database, these data are given by grade (3rd through 11th) for each school. Because not all of the schools within type

¹ Hoelscher DM, Day RS, Lee ES, Frankowski RF, Kelder SH, Ward JL, Scheurer ME: Measuring the prevalence of overweight in Texas schoolchildren. *American Journal of Public Health* 2004, 94(6):1002–1008.

² www.tea.state.tx.us/perfreport/aeis/

(elementary, middle or junior high and high school) serve the same range of grades, UT-HSC averaged applicable scores across the grades specific for each school. Attendance and dropout rates were similarly estimated for each school. UT-HSC did not estimate dropout rates before grade 6.

Disciplinary incidents: The TEA Public Education Information Management System (PEIMS) provided the reportable disciplinary incidents, as required by law. UT-HSC requested and received special access for these data at the school level.

Survey of existing research: Previous studies conducted by national, state, local, institutional, and advocacy organizations were researched, analyzed, and summarized for this report. The survey of years of existing research provided balance and context to this investigation.

Specific Aim 1

To estimate the per-pupil cost of implementing universal breakfast in schools currently not providing universal breakfasts.

Methodology

UT-HSC projected the cost of providing universal breakfast per school using the breakfast “cost and uptake” model. That model predicted the uptake rate for breakfast participation, given a hypothetical offering of universal breakfast, by schools taking into consideration the assumption that not every student offered a no-charge breakfast will participate.

Per-meal cost of breakfast was calculated based on data obtained from the Breakfast Cost Survey. It included “fixed costs” and “marginal costs.” Fixed costs include ovens, trays, etc., or things related to the provision of breakfasts, which would be needed if any breakfasts were provided. However, very few schools reported fixed costs. This may be because most schools also provide lunches, which requires similar equipment to prepare and serve as breakfast. Because the equipment is already in place, providing breakfast does not impose new costs.

Marginal costs are costs incurred for each additional breakfast served. In other words, these are costs that could be avoided in a short period of time if providing breakfast ceased. These cost items include food, clean-up materials and associated labor. Most schools were able to report labor costs. Food costs were not always reported, perhaps because some lunch and breakfast food stocks are purchased together or are provided as commodity entitlements. Most of the schools reported employee costs including labor costs from meal preparation, as well as clean up and delivery.

We know that not every child will decide to eat breakfast at school, even if it is offered at no charge. In order to estimate the number of additional breakfasts served under a hypothetical universal no-charge offer, UT-HSC estimated the proportion of children that would eat breakfast in school if all of the schools not currently offering universal breakfast at no-charge were to begin doing so. The model UT-HSC estimated predicts 24 percent more children would eat breakfast at school if universal no-charge breakfast were offered.

Projected costs to SFAs of offering universal breakfast be explained by the following equation:

$$\begin{aligned} & \text{cost of breakfasts consumed} \\ & - \frac{\text{USDA reimbursement for breakfasts}}{\text{USDA reimbursement for breakfasts}} \\ & = \text{Cost of universal provision} \end{aligned}$$

Results

As directed in HB 4062, TDA had a cost-benefit analysis conducted in a sample of school districts in which 60 percent or more of the students qualify for free or reduced-price breakfast to determine the impact of providing a free breakfast to: (A) students who would otherwise pay a reduced price for breakfast; and (B) all students in the district regardless of family income. Those results applied to districts in Texas not already serving universal breakfast at no charge in which at least 60 percent of students are eligible for free or reduced-price meals are given in Table 1.

Table 1: Projected Participation and Costs of Universal Breakfast

	SY 2007–2008	Projected
Average cost per breakfast	\$2.79	
Marginal cost per breakfast	\$2.36	
Admin cost per breakfast	\$0.43	
Full price revenue	\$1.00	
Reduced price revenue	\$0.40	
Projected Proportion breakfast consumption w/ universal		1.24
Non-universal SBP schools with at least 60 % free/reduced	1,898	
Average days	175	
Average daily attendance (ADA)	1,034,264	
Average daily participation (ADP)	337,747	
ADP % of ADA	32.66%	
Total paid meals	7,098,589	8,802,250
Revenue from paid meals	\$7,098,589	
Total reduced-price meals in non-severe-need SFAs	401,178	497,461
Total reduced-price meals in severe-need SFAs	5,106,341	6,331,863
Revenue from reduced-price meals	\$2,203,008	
Total free meals in non-severe-need SFAs	3,158,652	3,916,728
Total free meals in severe-need SFAs	43,438,599	53,863,863
Total SBP meals	59,203,359	73,412,165
USDA reimbursement PAID		\$0.25
USDA reimbursement REDUCED		\$1.10
USDA reimbursement FREE		\$1.40
Additional USDA reimbursement for free & reduced-price meals in SEVERE-NEED SFAs		\$0.28
Proportion eating breakfast	32.66%	40.50%
Reduced eating breakfast	9.30%	11.53%
Cost of projected reduced-price breakfasts consumed		\$16,117,204
USDA reimbursement for reduced price breakfasts		\$9,285,178
Cost of providing reduced-price breakfast at no charge		\$6,832,026
Cost of projected Universal Breakfast meals consumed		\$173,252,710
USDA reimbursement for meals consumed		\$107,460,449
Cost of providing universal breakfast		\$65,792,260

UT-HSC's cost survey estimates the cost of providing an additional breakfast to one child is \$2.36. This cost mainly includes the labor (cooking, clean-up, and delivery), food and supplies necessary to provide the additional breakfast. When capital equipment such as silverware or ovens are included, the costs do not change, mainly because most of the capital equipment is also used for lunches and is therefore not an additional cost to the breakfast program. The UT-HSC study found the vast majority of schools offered convenience foods, which are invariant to the scale of the offering. The finding that most breakfasts served at schools are convenience foods has implications for average and marginal cost curves in that these curves may turn out to be "flat" because making many breakfasts may not be cheaper than making few breakfasts.

The USDA "School Lunch and Breakfast Cost Study – II" study found the reverse to be true, reporting "much lower unit costs in SFAs serving large numbers of reimbursable breakfasts." The USDA report found for the average SFA with more than 60 percent of its students eligible for free and reduced-price meals, the mean reported cost of producing a reimbursable breakfast in school year 2005–06 was \$1.60 and the national average cost of a single reimbursable breakfast at the same time was only \$1.33. The USDA report offers this explanation: "This reflects the fact that schools serving large numbers of reimbursable breakfasts tend to have lower unit reported costs. As when the unit of analysis was the SFA, when the unit of analysis is the SBP meal, the mean reported cost of producing a reimbursable breakfast in small SFAs is significantly more than in other SFAs that have larger breakfast programs."

Under HB 4062's first scenario (providing breakfast at no charge to students in districts with at least 60 percent free and reduced eligibility who would otherwise pay a reduced price for

breakfast), the UT-HSC model predicts 24 percent more reduced-eligible children would eat breakfast at school. In schools not already providing universal breakfast at no charge to students, this increases the number of reduced-price breakfasts served in a school year from 5,507,519 to 6,829,324. At \$2.36 each, as estimated by UT-HSC, it would cost \$16,117,204 to provide those meals. Federal reimbursement for the meals at \$1.10 in non-severe-need SFAs and \$1.38 in severe-need SFAs would be \$9,285,178. The UT-HSC model estimates the net cost of providing reduced-eligible breakfasts at no charge to be \$6,832,026.

Under HB 4062's second scenario (providing breakfast at no charge to all students in districts with at least 60 percent free and reduced eligibility, regardless of family income), the model predicts 24 percent more children would eat breakfast at school. In schools not already providing universal breakfast at no charge to students, this increases the number of breakfasts served in a school year from 59,203,359 to 73,412,165. At \$2.36 each, it costs \$173,252,710 to provide those meals. Federal reimbursement for the meals at \$1.40 free meals in non-severe-need SFAs, \$1.68 for free meals in severe-need SFAs, \$1.10 for reduced-price meals in non-severe-need SFAs, \$1.38 for reduced-price meals in severe-need SFAs and \$0.25 for all paid meals would be \$107,460,449. The cost of providing reduced-eligible breakfasts at no charge is estimated to be \$65,792,260.

A more in-depth analysis of Texas SFAs that examines financial statements, production records and invoices may yield results more similar to the USDA study, which seems to indicate that the per-meal cost could be \$1.00 or more less than UT-HSC found. If the findings of the USDA's "School Lunch and Breakfast Cost Study – II" can be extrapolated as predictive of a similar

analysis in Texas, the per-meal cost could be as much as \$1.00 less. In that case, the federal reimbursement would exceed the cost of providing reduced-eligible breakfasts at no charge by more than \$200,000. If, as the USDA report indicates, the per-meal cost were as much as \$1.00 less, the federal reimbursement would exceed the cost of providing breakfasts at no charge by nearly \$10 million.

Costs of Offering Breakfast after School Starts

Given that the most common barrier to breakfast consumption was the fact that children do not get to school early enough (for a variety of reasons) to be able to eat breakfast at school, UT-HSC ran the breakfast uptake model again, this time assuming that breakfast was served after the school day starts as opposed to before school starts. That model predicts that 32 percent more children would eat breakfast at school if it were served after the start of the school day. Costs are given in Table 2.

Table 2: Serving Breakfast During the School Day

Projected proportion breakfast consumption	1.32
Number breakfasts served	140,321,846
Cost of projected breakfasts consumed	\$331,159,557.22
USDA reimbursement for meals consumed	\$209,477,920.62
Cost of serving breakfast during the school day	\$121,681,636.60

Hypothetically offering breakfast after school starts increases the consumption of breakfasts by 32 percent, raising the number of all breakfasts served in a school year from 106,304,429 to 140,321,846. At \$2.36 each, it costs \$331,159,557 to provide those meals. Federal reimbursement for the meals at \$1.40 free meals in non-severe-need SFAs, \$1.68 for free meals in severe-need SFAs, \$1.10 for reduced-price meals in non-severe-need SFAs, \$1.38 for

reduced-price meals in severe-need SFAs and \$0.25 for all paid meals would be \$209,477,921.

The cost of providing reduced-eligible breakfasts at no charge is estimated to be \$121,681,637.

Again, if, as the USDA report indicates, the per-meal cost were as much as \$1.00 less, the federal reimbursement would exceed the cost of providing breakfasts at no charge by more than \$10 million.

Specific Aim 2

To determine the relationship between school breakfast participation rates; school level math and language arts TAKS test scores; school level attendance rates; and school level disciplinary incidents; and to compare outcomes between schools that serve universal breakfast and schools that do not serve universal breakfast.

Methodology

In order to achieve this aim, UT-HSC merged the average school TAKS score, attendance and dropout rates from the TEA's Academic Excellence Indicator System and the school discipline rates from the TEA Public Education Information Management System. UT-HSC then calculated t-tests to determine differences in these scores between schools with universal no-charge breakfasts to those without universal breakfast. T-tests measure the difference between the means of two groups, in this case, the group that offers universal breakfast and the group that does not. The p value indicates the probability that the results of a statistical test are random; the lower the p-value, the more significant the results. The p-level was set at 0.05.

Results

Table 3 shows the differences this study found between schools that serve universal no-charge breakfast and those that do not, in terms of attendance and TAKS scores.

Table 3: School Indicators Related to Universal Breakfast Provision

	MEAN: No Universal Breakfast	MEAN: Universal Breakfast	MEAN: difference	Standard Error	T value	Pr> t
Average TAKS Scores, Total	66.18	63.42	2.76	4.25	0.65	0.52
Average TAKS Scores, Math	75.24	74.00	1.24	3.68	0.34	0.74
Average TAKS Scores, Reading	85.69	84.31	1.39	2.46	0.56	0.58
Attendance Rate, 2006	95.79	95.40	0.39	0.48	0.59	0.57
Dropout Rate (Grades 7-12), 2006	1.48	2.59	-1.11	0.89	-0.89	0.40

While the research conducted specifically for HB 4062 was not able to identify a correlation between breakfast and school performance, a 2005 study in Houston Independent School District (ISD) did indicate that middle school students who consumed a school-based breakfast outperformed students who did not consume a school-based breakfast on the Math section of TAKS. The research does indicate a significant difference in the dropout rate when universal breakfast is offered. However, the tests indicate schools that offer universal breakfast have more dropouts than those that do not. This could be because schools that offer universal breakfast are generally those with a very high proportion of students eligible for free and reduced-price meals. Students that qualify for free and reduced-price meals have lower household incomes than those who do not qualify, and statistically face more socio-economic challenges. It is likely that the dropout rates in these schools could be higher without the availability of universal breakfast.

Other cross-sectional and longitudinal studies indicate that breakfast consumption among children affects their school attendance rates, their tardiness, their school performance and disciplinary incidents (Kleinman et al., 2002; Murphy et al., 1998; Alaimo et al., 2001; Rampersaud et al., 2005). In a review of 18 articles on the effects of breakfast eating on school-age children, Taras found that eating breakfast decreased absenteeism and tardiness (2005). Kleinman and colleagues found children who decreased nutritional risk through eating breakfast showed significantly greater improvements in attendance, math grades and behavior than children who did not (2002). In a different study, students who reported being “not hungry” because of eating breakfast had significantly fewer days tardy and absent, and greater child functioning than children who were at-risk or hungry (1998). A national study found children who had insufficient food intake were more likely to have poorer health status and experienced more frequent headaches and stomachaches than children with sufficient food (Alaimo et al., 2001), and were therefore more likely to miss school.

Specific Aim 3

To determine the relationship between school breakfast participation rates and obesity prevalence among 4th grade students in Texas.

Methodology

The School Physical Activity and Nutrition Survey (SPAN III) is an individual student level survey, as outlined earlier. Fourth graders are asked whether they ate breakfast on the previous day. The survey for the 8th graders asks whether the student usually or sometimes eats or drinks something for breakfast. Note that neither question distinguishes between a breakfast eaten at

school or at home, which is a limitation. In addition to completing the survey, the children's heights and weights were also measured, which allowed for the calculation of individual body mass index (BMI). The researchers' definition of obesity is being in the top 5 percent by sex and age in terms of BMI (e.g., 95th percentile of CDC BMI charts by gender and age, using the current American Medical Association (AMA) definition). Logistic regression models estimating obesity were used to determine the relationship between eating breakfast and obesity.

Results

The results indicate elementary students who eat breakfast are less likely to be obese. The magnitude of the result is strong. Children who eat breakfast are approximately 7 percent less likely to be obese. When UT-HSC combined estimates from their hypothetical universal no-charge breakfast estimates, they predict that 1,043 fewer children in the sample of 85 schools would be obese. If that reduced likelihood of obesity follows the children into adulthood, the State of Texas would save \$5,340³ per obesity case averted.

This result supports several prior investigations into the relationship between breakfast and obesity (Rampersaud et al., 2005; Summerbell et al., 1996; Wolfe et al., 1994; Gibson et al., 1995; Pastore et al., 1996; Berkey et al., 2003). In general, these studies show children who eat breakfast on a consistent basis tend to have healthier dietary patterns than children who skip meals. In addition, although regular breakfast eaters consume more calories per day, they are less likely to be obese or overweight. Estimates from the Texas 2004–2005 School Physical Activity and Nutrition III data (Hoelscher, unpublished data) indicate that children who eat breakfast are

³Finkelstein, E.A., I.C. Fiebelkorn, G. Wang. 2004. "State-Level Estimates of Annual Medical Expenditures Attributable to Obesity." *Obesity Research* 12(1):18-24. www.nature.com/oby/journal/v12/n1/pdf/oby20044a.pdf

31 percent less likely to become obese and 37 percent less likely to become overweight than children who do not eat breakfast. Additional studies also indicate that different types of breakfast have different effects on BMI, or weight in kilograms divided by height in meters squared. However, it is generally accepted that eating any type of breakfast is a protective factor against childhood obesity and therefore, breakfast consumption among children should be promoted.

Effective Programs and Practices

Perceived Barriers to Eating School Breakfast

TDA contracted with the University of Texas Health Sciences Center in Houston (UT-HSC) to conduct a study for this report. Table 4 shows the barriers to breakfast participation perceived by the school administrators who responded to their survey (described in detail in the Cost-Benefit Analysis section).

Table 4: Perceived Barriers to Eating School Breakfast

	Number of times mentioned
Children do not get to school early enough	39
Bus schedule does not allow the children to get to school early enough	
Kids want to sleep later	
Parents are not getting the children to school early enough (working parents)	
Tardy bell; Students are not allowed to be late to class	
Children do not have enough time to eat	
Children do not like the breakfast food choices	14
Children do not like the food	
Unhealthy foods are no longer available	
Inadequate funds to provide menu variety and fresh fruits	
It is easier to eat at home	10
The allotted time for serving breakfast is too short	6
Cost of breakfast	5
Students who qualify for reduced breakfast often do not eat because of the portion they must pay	
School breakfast is just not cool	5
Peer pressure to not eat breakfast	
Student age	
Lack of teacher support	5
Children just don't eat breakfast anymore	5
Prefer to socialize	
Time of the day	
Stigma attached to eating school breakfast	3
Parent buys fast food on the way to school	3
Lack of administrative support	3
(High school) Student schedules (open campus)	1
Not allowed to offer food in the classroom	1
Location of the cafeteria	1
Kids don't know the importance of eating breakfast	1

The following section examines approaches to increasing breakfast participation – in Texas as well as around the United States – that are showing success.

Texas

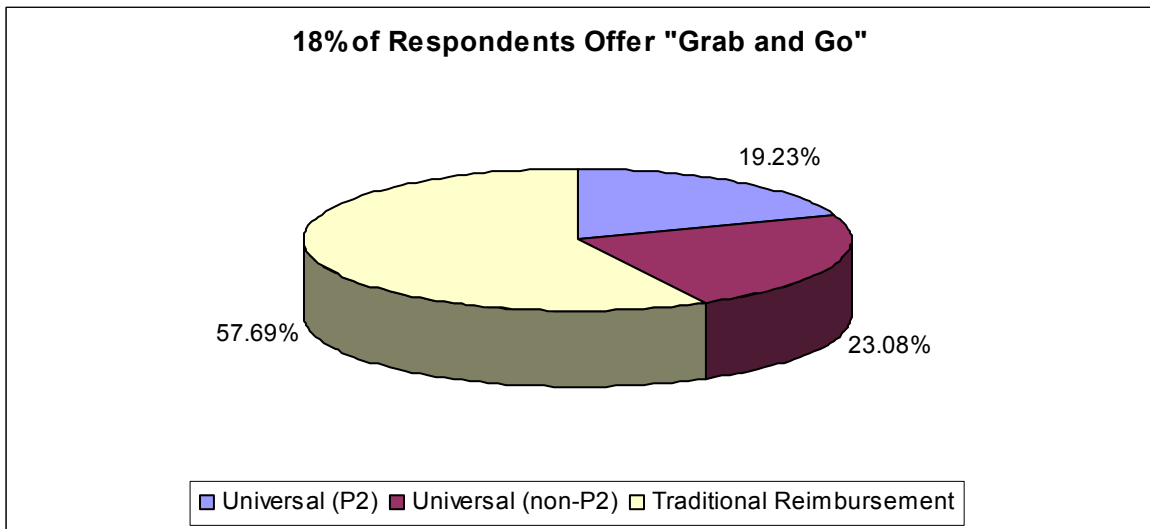
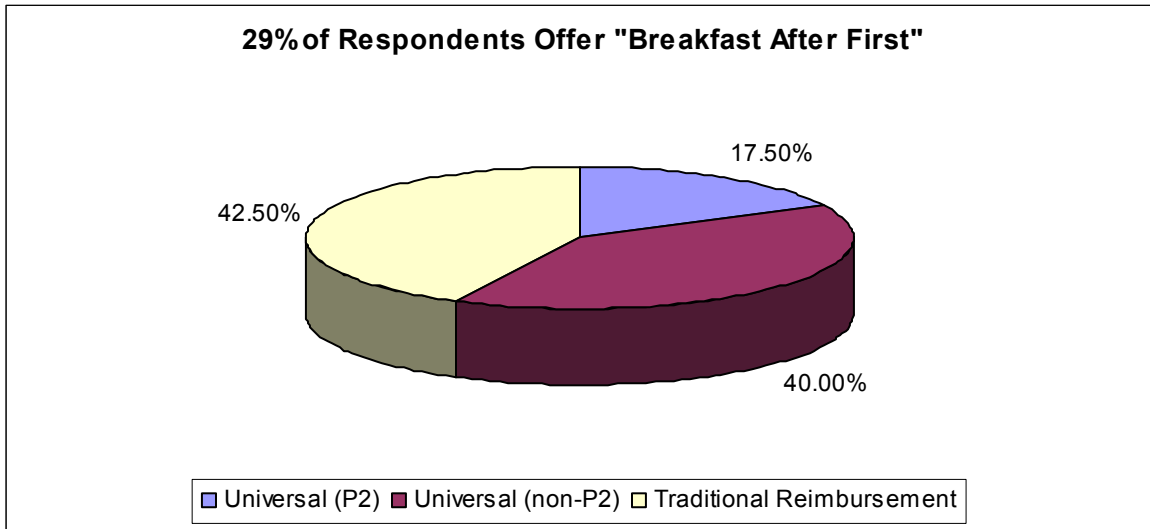
District-Level Practices

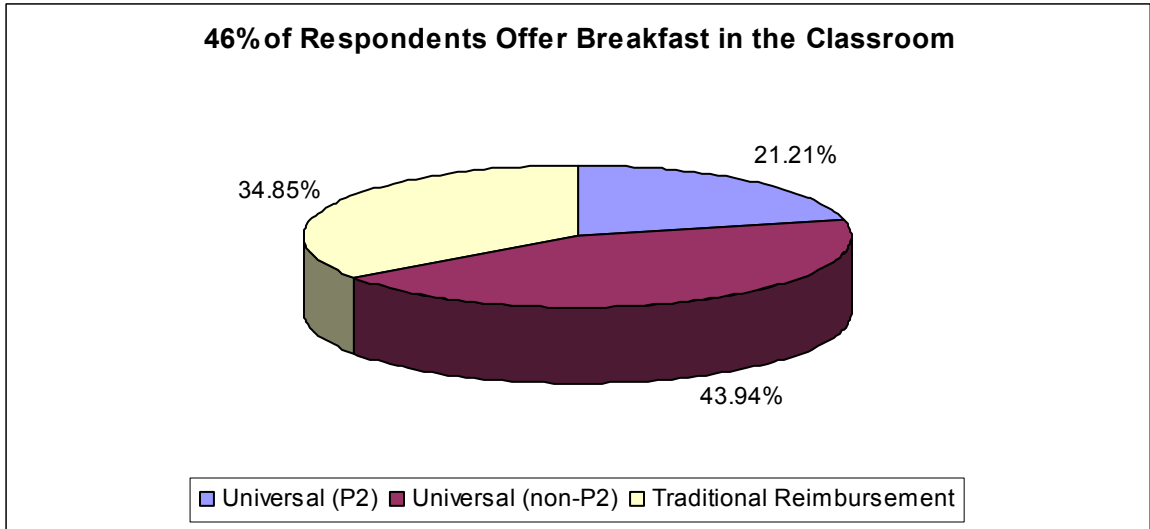
In a different investigation from the study conducted by UT-HSC for this report, TDA surveyed the 20 Regional Education Service Centers (ESCs) in Texas in spring 2007 to find out how their districts were promoting breakfast. Fifteen ESCs returned useable information. Nearly one in ten school districts represented among the respondents offered a universal breakfast.

Other popular ways to promote participation in breakfast are by adjusting bus schedules to ensure students arrive at school with time to eat breakfast before their classes start (33 percent of respondents); serving breakfast in classrooms (46 percent); offering universal breakfast (46 percent); and distributing information for parents and students via printed material, Web sites, school-based menus and marquees; incentives and contests, and in-class education (54 percent). “Breakfast After First Period” was an option in 29 percent of districts represented, while “Grab and Go” breakfasts were being used by 18 percent of respondents. The following charts show how SFAs that use these service methods fund their breakfast programs.

Any one of these methods may be employed alone or in conjunction with other approaches, and with traditional or non-traditional funding. With traditional funding, SFAs are reimbursed by USDA according to the child’s eligibility (free, reduced and paid) for qualifying meals actually served. Provision 2 is a non-traditional funding method that allows all children to eat at no

charge and for the SFA to be reimbursed according to established levels of eligibility in the school. Other non-traditional funding could involve a local source of funds to allow all the children to eat at no charge. Note that among SFAs providing non-traditional service, using a non-traditional funding method is common.





Provision 2: Robstown ISD

About one-fourth of the districts in Education Service Center Region 2, based in Corpus Christi, have enough students eligible for free and reduced-price meals to pay for breakfast at no charge to all students using Provision 2. The district serves breakfast in the classroom and has participation of 81 percent. The free and reduced-price eligibility in Robstown ISD is 95 percent. Robstown Independent School District (ISD) has been offering universal breakfast for 15 years, and moved to operating under Provision 2 in the 2000–01 school year. Breakfast service is unchanged from the students’ point of view, but the savings in administrative costs from not having to collect applications every year has made a big difference, according to the district food services director. With its years of expertise, Robstown ISD now acts as an informal advisor for other districts launching similar programs. The region’s Child Nutrition Program Specialist believes resistance from administrators and teachers is the biggest obstacle, but that they change their minds once they see the benefits in the classroom. Food service directors also work to keep the menus exciting by serving favorites regularly and rotating options such as the type of fruit juice served.

Non-Provision 2: Houston ISD

All schools in Houston ISD may opt to participate in a universal breakfast program. The district supports several approaches, including traditional, in the classroom, grab and go and after first period. The “First Class Breakfast” in-class approach started with 20 schools in fall 2006 and had expanded to 35 by the end of that school year. The district does not participate in Provision 2 funding, making up the cost difference beyond federal reimbursement with their food nutrition fund balance.

Statewide Promotion

TDA promoted National School Breakfast week March 3–7, 2008, sending professionally designed and printed posters, menus and triaramas (three-panel poster displays) to 7,461 schools. The cost of about \$300,000 was paid with USDA funds. As a percentage of average daily attendance, SBP participation in Texas rose slightly in April 2008, by about the same rate as the same period over the prior two years.

Nationwide

TDA conducted secondary research from local and national studies, legislative and statistical databases, and Food and Nutrition departments to identify the most successful efforts to increase SBP participation. The following are highlights of those efforts from outside of Texas:

California’s Breakfast First: Healthy Food for Hungry Minds

- Implemented universal breakfast in five school districts in fall 2004.

- Promoted breakfast consumption by students.
- Increased participation by 90 to 100 percent.

Los Angeles (CA) Unified School District Second Chance Breakfast

- Allows for a second breakfast service during morning recess or snack break.
- LAUSD phased this program into schools starting in the 2002–2003 school year and realized an immediate increase in breakfast participation of 11 percent from the previous year.

“Start Smart Breakfast” in Denver (CO) Public Schools

- Revised breakfast menu offerings to include items such as a breakfast wrap with eggs and salsa, waffles with peaches and vanilla yogurt, reduced-sugar cereals, and homemade toast.
- Testing a variety of delivery strategies.
- Includes a public information campaign to inform stakeholders of the importance and increased availability of breakfast in the schools.

Miami-Dade County (FL) Public School: Breakfast at “No Charge”

- Implemented a district-wide universal breakfast program in 2004.
- Added breakfast expansion results to the one year’s annual performance measures for principals. They set the goal of increasing breakfast participation by 2 percent, and achieved that goal.
- Testing breakfast in the classroom and “grab and go” delivery.

Maryland's "Meals for Achievement"

- Universal breakfast in the classroom.
- Started with six schools in 1998; more than 200 are participating in the 2008–2009 school year.
- State pays the costs not covered by federal SBP reimbursement.

Massachusetts' "Child Nutrition Outreach Program"

- Partnered with community organization "Project Bread" to improve quality of meals.
- State funds Breakfast Coordinators, who worked with individual schools to develop a universal program to meet its needs.
- State funds also supported an initial investment of equipment or supplies to support the changes in service models, such as supplies needed for classroom breakfast service.

"Breakfast in the Classroom" in Newark (NJ)

- District began serving breakfast in the classroom in all 75 elementary and middle schools during the 2004–2005 school year.
- Participation increased more than 150 percent.

Pennsylvania's "Breakfast Brigade"

- Matches experienced school food service directors with schools interested in starting or expanding their school breakfast programs.

- Areas of expertise include grab and go, breakfast in the classroom and breakfast after first period, promotions and classroom nutrition education.

South Carolina's "It All Starts with Breakfast" Video

- Highlights successful ways to reach more students with school breakfast.
- The state agency sent copies to all school superintendents and food service directors; shows the video at statewide and regional education, school food service and school health meetings; arranged to have it shown on statewide educational television programs aimed at school health professionals; and placed it on the state education agency Web site.
- Participation by South Carolina students in the school breakfast program was 101 percent of NSLP in 2006–2007 (more students participate in SBP than in NSLP).

Recommendations

To develop recommendations on increasing breakfast participation, TDA staff consulted with the Healthy Students = Healthy Families Advisory Committee (HS=HF) regarding the research and survey findings. The HS=HF Committee was appointed by Texas Agriculture Commissioner Todd Staples in 2007, and includes nutrition experts, food service managers, educators, physicians and parents. HS=HF regularly advises TDA on school nutrition policy and practices. HS=HF members expressed concern about the limitations of the cost-benefit analysis and its related findings. However, members found promising information regarding successful breakfast practices in school districts surveyed. HS=HF members also reviewed other research on breakfast participation and its benefits to academic achievement, behavior and overall health in school children. Therefore, TDA recommends the following as methods for increasing participation in the National School Breakfast Program:

Recommendation #1: Schools that have 60 percent or more of their student population eligible for free and reduced-price breakfast should be encouraged to offer breakfast at no charge to all students and examine all available funding mechanisms. School districts with larger free and reduced-price student populations often encounter the greatest challenges related to student achievement, disciplinary incidents and student wellness. Data show that increased breakfast participation has a marked effect on all of these issues. As mentioned in the report, school districts that have a high enough percentage of students eligible for free or reduced-price meals may find it beneficial to fund a universal breakfast through Provision 2. Others may need to review other available funding sources, or examine the possibility of increased participation offsetting the cost of lost revenue from the paid and reduced-price meals. A Provision 2

Feasibility Worksheet is available to all SFAs in the *Administrators' Reference Manual*, available through TDA's SquareMeals.com Web site. This worksheet helps programs considering Provision 2 weigh the costs.

Recommendation #2: School districts should be encouraged to investigate alternative service methods for providing breakfast. As described in the report, several school districts have found increased participation by offering breakfast during first period, or providing “grab and go” items. The most common barrier reported by students as a reason for not participating in breakfast was not arriving to school early enough. Although school districts can readjust school bus schedules, they have limited control over other transportation methods used by students. For example: should a parent drop their child off at school shortly before the first period bell, that student has little opportunity to take advantage of breakfast. Offering alternative methods to provide breakfast could ensure that more students have breakfast at the start of the school day.

Recommendation #3: School Health Advisory Councils (SHACs) should be encouraged to find ways to increase breakfast participation in their local school districts. Texas Education Code, §28.004 requires every school board in Texas to establish a SHAC, and appoint its members. A majority of the SHAC members must be school district parents, but may also include teachers, administrators, students, health care professionals, or other members of the community. SHACs are charged with advising the school district on health education instruction and curriculum, including nutrition services. Every school district in Texas has different characteristics, including size, student population, wealth level and facilities. SHACs can play an important role in guiding their school districts with respect to their districts' unique challenges. If given such a charge, a

SHAC could examine issues that may be limiting breakfast participation in their district and find ways to address them.

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Appendix A: School Breakfast Program Survey

Name of School: _____ Grade levels served: _____

Name of School District: _____ County-District Number: _____

Student Enrollment: _____ Average Daily Attendance: _____

Name of person interviewed: _____ Contact number: _____

ELIGIBILITY FREE AND REDUCED BREAKFAST:

1. Percent of students approved for **free** breakfast: _____
2. Percent of students approved for **reduced** breakfast: _____
3. Breakfast – **average daily participation**: _____
4. Percent free: _____ Average number served free: _____
5. Percent reduced: _____ Average number served reduced: _____
6. Percent full: _____ Average number served full paid: _____
7. Average Number of Adults purchasing items at breakfast: _____

CHARACTERISTICS OF YOUR SCHOOL BREAKFAST:

8. Do you serve universal breakfast? Yes ____ No ____

9. Is breakfast served before school starts? Yes ____ No ____

10. What type of breakfast service method do you provide?

____ Standard –in cafeteria;

____ Alternative (i.e., grab and go, breakfast in the classroom)

____ Both Standard and Alternative

____ If alternative, please explain: _____

11. The **majority** of foods served for breakfast are:

____ Convenience foods

____ Foods made from scratch

12. What food production system do you use?

____ On site

____ Central

____ Satellite

____ Other – Please explain: _____

COSTS RELATED TO SCHOOL BREAKFAST:

13. Please list all individuals involved in breakfast (including production, delivery, clean-up, etc.) and their wages (if known).

Employee Title	Hours per day	Yearly salary	Hourly wage	Weekly salary

14. Over the last 3 years, did you add any equipment and supplies over \$100 to be used for breakfast only? If so, add cost under the appropriate school year.

Items	School year 2007-2008	School year 2006-2007	School year 2005-2006
Cooking ware			
Utensils			
Ovens			
Plates			
Trays			
Carts			
Insulated carriers			

15. Let me ask about all other costs specifically for breakfast (for instance food costs, labor costs). Include only parts specifically attributable to breakfast.

All other Costs Attributable specifically to serving breakfast	Applicable?	Cost		
		Daily	Weekly	Monthly
Food cost				
Labor cost				
Other costs				
Other:				
Other:				

BREAKFAST PARTICIPATION:

16. Which grade level at your school has the lowest breakfast participation rate? (You do not have to provide exact data, just give us your best guess.) _____

17. What do you think are barriers to increasing breakfast participation?
