

# Issue BRIEF

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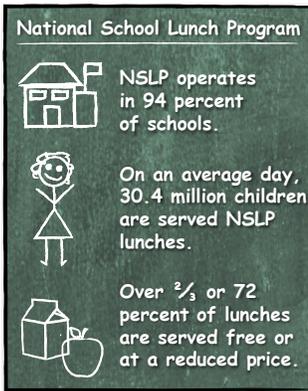
## Meeting New Nutrition Standards: How Much Do School Lunches Really Have to Change?

There are few methodologically robust studies to inform the current debate on school nutrition standards. To help fill this gap, Mathematica conducted new analyses of data from USDA's fourth School Nutrition Dietary Assessment Study.

With the passage of the Healthy, Hunger-Free Kids Act of 2010, the federal government set new rules designed to curb childhood obesity and ensure every child has access to healthy school meals.<sup>1</sup> One requirement was that the U.S. Department of Agriculture (USDA) update its nutrition standards for the National School Lunch Program (NSLP) and School Breakfast Program (SBP) to better reflect the most recent *Dietary Guidelines for Americans*, while satisfying children's nutrient requirements. Despite widespread initial support for healthier school meals, the new standards have raised concerns.<sup>2</sup> Some stakeholders have criticized the new benchmarks for calories, sodium, and whole grains as well as the requirement that children must select at least one fruit or vegetable in order for schools to receive federal reimbursement for the meal. These stakeholders say that schools are struggling to apply the new nutrition standards for various reasons, including higher food costs, lower student participation, and more food waste.

A handful of small studies have examined the impact of the updated nutrition standards on children's acceptance of school meals, their fruit and vegetable consumption, and food waste.<sup>3-6</sup> However, there are no methodologically robust studies based on national samples to inform the current debate on school nutrition standards. To help fill this gap, Mathematica Policy Research conducted new analyses of data from USDA's fourth School Nutrition Dietary Assessment Study (SNDA-IV).<sup>7</sup> This issue brief summarizes our findings, with a focus on how close school lunches were to meeting several of the new standards before they took effect. The results indicate that most schools were already serving lunches that met or came close to the initial target for sodium,<sup>i</sup> and most lunches served to students already included at least one serving of fruit or vegetables. Virtually no schools served lunches that came close to the whole grain standard,<sup>ii</sup> however, suggesting that this goal will be more challenging for schools to meet and is the area most in need of improvement.

## POLICY CONTEXT



USDA's Food and Nutrition Service (FNS) administers the NSLP. At the local level, the program is run by state child nutrition or education agencies and by individual school food authorities (SFAs), which are generally school districts. The SFAs provide meals to students and are reimbursed by USDA for each meal served that meets the nutrition standards. The program is intended to provide healthy, low-cost or free meals every school day in public schools and in some nonpublic private schools.

The updated nutrition standards that took effect in SY 2012–2013 represented the first major changes to meal requirements in more than 15 years. Based on recommendations from a multidisciplinary Institute of Medicine committee sponsored by FNS, the updated standards require schools to offer more fruits and vegetables daily, with a greater variety of vegetables across the week; limit milk choices to nonfat or low-fat (1%), with flavored milk limited to nonfat only; incorporate more whole grains; and limit weekly offerings of grains, meats, and meat alternatives (to control calories). Also, for the first time, USDA limited the amounts of calories and sodium, reduced the amount of trans fat to zero, and required that students take at least one serving of fruit or vegetables (for the meal to be eligible for federal reimbursement).

Schools were required to meet most of the updated standards for lunches by SY 2012–2013. Initially, at least half of the grains offered were required to be “whole grain-rich,” and the expectation was that all grains would be whole grain-rich by SY 2014–2015.<sup>iii</sup> Moreover, the updated standards for sodium called for a three-phase reduction, with the ultimate goal of cutting the sodium in school lunches in half.<sup>8</sup> The initial (target 1) sodium standard took effect in SY 2014–2015, and targets 2 and 3 were to be phased in over the next eight years.

As SFAs started implementing the new standards, some stakeholders began expressing concerns. Some teachers, parents, and students worried that the calorie limits would leave students hungry and operating below peak performance, particularly athletes and students in after-school programs.<sup>9–13</sup> In some early feedback to FNS, menu planners said it was particularly difficult to keep the amounts of weekly grains and meats/meat

alternatives below the specified limits.<sup>14</sup> During their first year under the new standards, some states and SFAs reported challenges related to student acceptance, higher food costs, and product availability. Stakeholders also expressed concerns about the forthcoming sodium limits and the requirement that all grains be whole grain-rich.<sup>15</sup> Citing declines in school and student participation in the NSLP, more discarded food, and reduced revenues, the School Nutrition Association (SNA) asked for more flexibility with the new standards, particularly with respect to whole grains, sodium, and the requirement that all meals include at least one fruit or vegetable serving.<sup>16</sup>

USDA and Congress responded in a number of ways. In response to concerns about weekly limits on grains and meats, USDA initially waived this requirement and, in January 2014, permanently removed it.<sup>17</sup> In May 2014, USDA allowed schools that were having trouble getting students to accept whole grain-rich pasta (owing to issues such as product degradation) to continue to serve regular enriched pasta for up to two more years, as new, more acceptable products are developed.<sup>18</sup> This flexibility was extended to all grain products in February 2015 in response to a legislative exemption from the “all whole grain-rich” requirement for SYs 2014–2015 and 2015–2016.<sup>19</sup> USDA also allocated additional grants and technical support to help schools put the new standards into place.

Congress also entered the debate, proposing numerous bills to relax the new standards. The Sensible School Lunch Act (H.R. 1244), for example, prohibited any upper limit on the quantity of grains or meats that may be served in any meal or over any time period. A similar bill prohibited upper limits on calories as well as grains and meats.<sup>20</sup> In December 2014, Congress approved the Consolidated and Further Continuing Appropriations Act, which gives school districts two extra years to switch to all whole grain-rich products if the schools are struggling to find whole grain-rich products that students will accept. The Appropriations Act also suspended further limits on sodium beyond target 1 “until scientific research establishes that this would be beneficial for children.”<sup>21</sup> More recent legislation, introduced in the House and Senate, proposes that USDA require 50 percent of all grains (rather than 100 percent) to be whole grain-rich. This legislation also prevents USDA from mandating specific sodium levels below target 1.<sup>22</sup>

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<sup>i</sup> The sodium standards were to be phased in over several years, with target 1 taking effect in school year (SY) 2014–2015. The remaining, more stringent standards—targets 2 and 3—were to take effect by SY 2017–2018 and SY 2022–2023, respectively.

<sup>ii</sup> The new whole grain standard requires that, from SY 2012–2013 through SY 2013–2014, half of the grains offered during the school week be “whole grain-rich.” Beginning in SY 2014–2015, all grains must be whole grain-rich.

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<sup>iii</sup> To meet the whole grain-rich criteria for school meals, a food item must contain 100 percent whole grain or a blend of whole grain and enriched meal and/or flour, of which at least 50 percent is whole grain. For more information, see the Food and Nutrition Service. “Whole Grain Resource for the National School Lunch and School Breakfast Programs.” 2014. Available at <http://www.fns.usda.gov/sites/default/files/WholeGrainResource.pdf>. Accessed June 29, 2015.

Despite the flexibility provided by USDA and Congress to assuage stakeholders' concerns, debate over the new nutrition standards persists. However, there are no methodologically robust national data to either corroborate or refute stakeholders' objections to the new standards. To help address this evidence gap, Mathematica

conducted a comprehensive analysis of school lunch data from SY 2009–2010 to shed light on the question of how far schools need to go to meet several of the new standards.<sup>iv</sup> The analysis focused on calories, sodium, and whole grains (Figure 1 lists the specific standards used) as well as fruit and vegetable servings.

Standards Used to Assess NSLP Lunches	Grade Level	K–5	6–8	9–12
	<b>Calories</b>			
Minimum		550	600	750
Maximum		650	700	850
<b>Sodium (mg)</b>				
Target: 1 (SY 2014–15)		1,230	1,360	1,420
Target: 2 (SY 2017–18)		935	1,035	1,080
Target: 3 (SY 2022–23)		640	710	740
<b>Whole grain-rich grains</b>				
Minimum (SY 2012–13)		50%	50%	50%
Minimum (SY 2014–15)		100%	100%	100%

SY = School year  
 Source: USDA Nutrition Standards in the National School Lunch and School Breakfast Programs.  
 Note: Standards apply to average weekly calorie and sodium content of planned menus, and proportion of total ounces of grains offered that are whole grain-rich. Minimum and maximum levels of calories by grade group reflect differences in students' energy needs.

**Figure 1**

## FINDINGS FOR CALORIES

Our findings on the schools that met the new calorie targets in SY 2009–2010 were mixed and varied by school level. For many schools, the average lunch served to students would not have satisfied *both* the minimum and maximum calorie requirements.

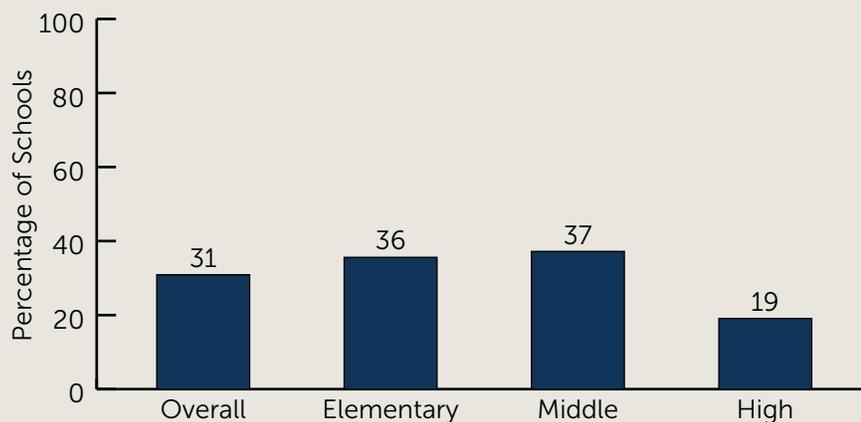
In SY 2009–2010, just over one-third of elementary and middle schools (36 percent and 37 percent, respectively) served lunches that, on average, met both the calorie **minimums** and **maximums** (Figure 2). But only one-fifth (19 percent) of high schools met both standards. This variation can be partly explained by differences in the calorie requirements. Although most high schools were meeting the calorie maximum, as shown in Figure 3, they have to provide 150 to 200 more calories per meal than elementary and middle schools and thus might have more trouble serving

lunches with enough calories. In addition, students in high schools are allowed to decline some foods, which could lower the calorie content of their meals. For the elementary and middle schools that failed to meet both standards, many had trouble staying at or below their calorie maximums, which are lower than high schools' maximums.

Most high schools (85 percent) served lunches in SY 2009–2010 that, on average, were already at or below the new calorie **maximum** for grades 9–12 (Figure 3). On the other hand, the average calories in lunches served by elementary and middle schools were too high: only 48 percent and 59 percent, respectively, met the standard for maximum calories. However, of the elementary and middle schools that exceeded the calorie limits, about half served lunches that came within 10 percent of the calorie maximum.

<sup>iv</sup> When considering the findings in this brief, readers should note that data were collected in SY 2009–2010, before the new nutrition standards were even proposed. Under the standards in place at the time, schools were not required to limit calories or ensure that students took a fruit or vegetable with their meal. Although schools were encouraged to lower sodium and increase whole grains, no specific standards were in place.

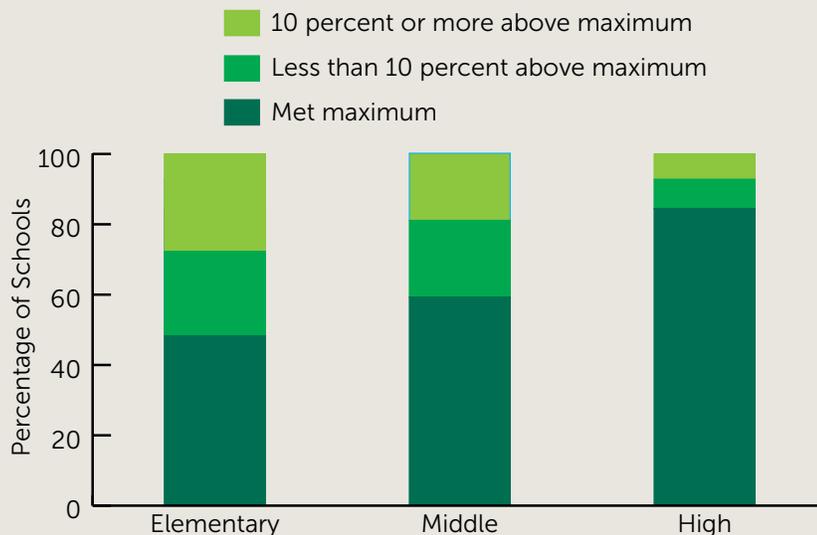
## Percentage of Schools Meeting Both Calorie Minimum and Maximum



Source: School Nutrition Dietary Assessment Study-IV, Menu Survey, school year 2009–2010.  
Note: Data shown are for NSLP lunches served.

**Figure 2**

## Most High Schools Already Met the Calorie Maximum



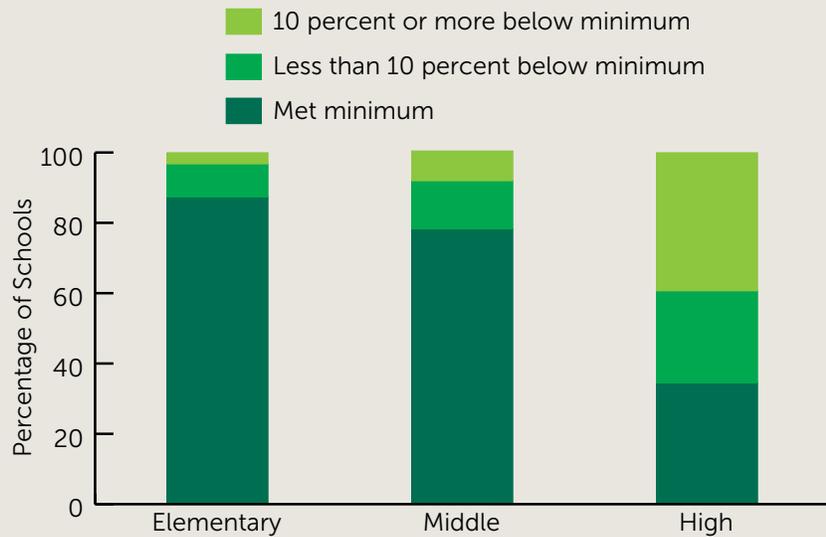
Source: School Nutrition Dietary Assessment Study-IV, Menu Survey, school year 2009–2010.  
Note: Data shown are for NSLP lunches served.

**Figure 3**

The findings were reversed for the **minimum** calorie standards. A large majority of elementary and middle schools (87 percent and 78 percent, respectively) served lunches that already met

the new calorie **minimums** (Figure 4). But only about one-third (34 percent) of high schools met the minimums, and the largest share (39 percent) fell more than 10 percent below this target.

### Most Elementary and Middle Schools Met New Calorie Minimum



Source: School Nutrition Dietary Assessment Study-IV, Menu Survey, school year 2009–2010.  
 Note: Data shown are for NSLP lunches served.

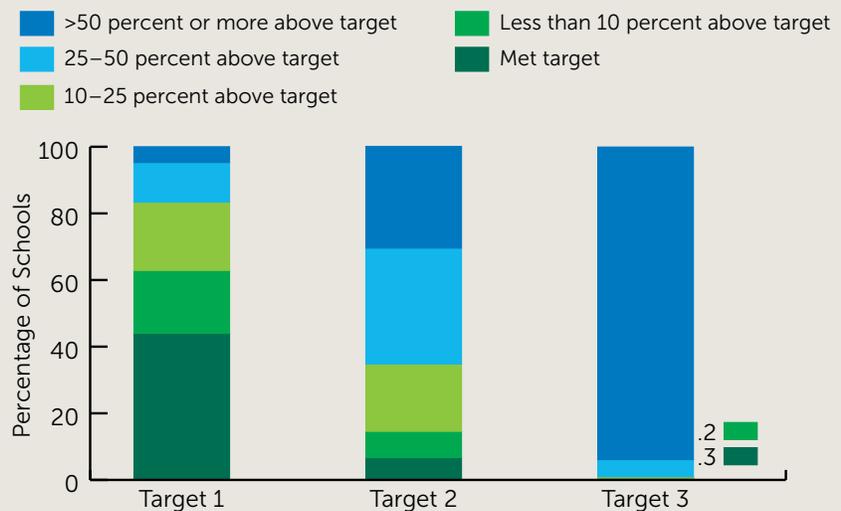
**Figure 4**

### FINDINGS FOR SODIUM

Although most schools needed to reduce the sodium content of their lunches to meet the target 1 sodium limit, many schools were already at or close to this benchmark in SY 2009–2010. Forty-four percent of schools served lunches

that met the target, and another 19 percent came close, exceeding the limit by less than 10 percent (Figure 5). The remaining schools needed to make extensive changes to meet this goal; about 17 percent of schools served lunches that exceeded the target 1 sodium limit by more than 25 percent.

### About 4 in 10 Schools Already Met Sodium Target 1



Source: School Nutrition Dietary Assessment Study-IV, Menu Survey, school year 2009–2010.  
 Note: Data shown are for NSLP lunches served.

**Figure 5**

The results were less promising for the subsequent sodium targets. Just 7 percent of all schools served lunches that met sodium target 2. Most schools exceeded the limit by more than 25 percent, and nearly a third (31 percent) exceeded the limit by more than 50 percent. None of the schools served lunches that met sodium target 3, and almost all (94 percent) exceeded this target by more than 50 percent. These findings were similar across school levels.

The findings for sodium are not entirely surprising given that there were no previous standards for the sodium content of lunches and because sodium is high within the U.S. food supply—not just in school meals. Meeting the new sodium standards will be challenging for many schools, particularly those that rely heavily on commercially prepared foods (which tend to be high in sodium).

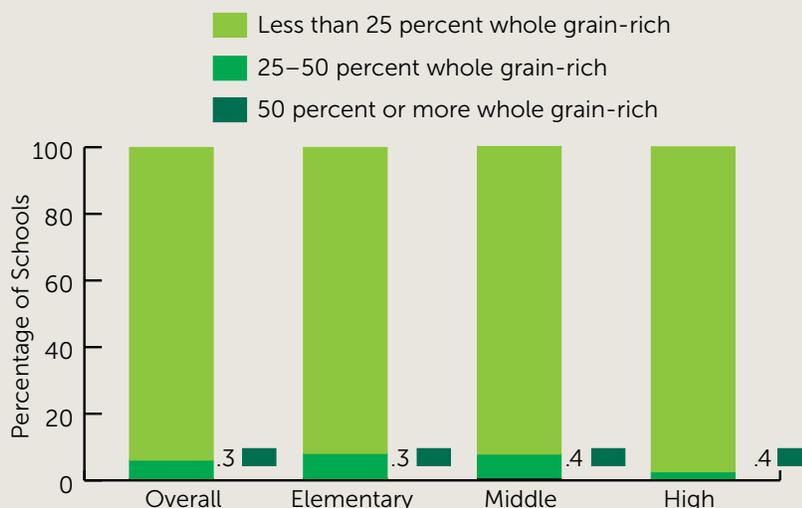
## FINDINGS FOR WHOLE GRAINS

As with sodium, schools will need to make major changes to meet the new standards for whole grains. In SY 2009–2010, virtually no schools even came close to meeting the target that at least 50 percent of all grains be whole grain-rich (Figure 6). Almost all schools (94 percent) served grains that were less than 25 percent whole grain-rich. On average, only 10 percent of grains served were whole grain-rich.

These findings were similar for all school levels. To offer 100 percent whole grain-rich foods (or even 50 percent), virtually all schools would have to purchase almost all new grain products and modify most of their recipes to meet the standard.<sup>v</sup>

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### Virtually No Schools Came Close to Serving 50% or 100% Whole Grain-Rich Grains



Source: School Nutrition Dietary Assessment Study-IV, Menu Survey, school year 2009–2010.  
Note: Data shown are for NSLP lunches served.

**Figure 6**

## FINDINGS FOR FRUIT OR VEGETABLE SERVINGS

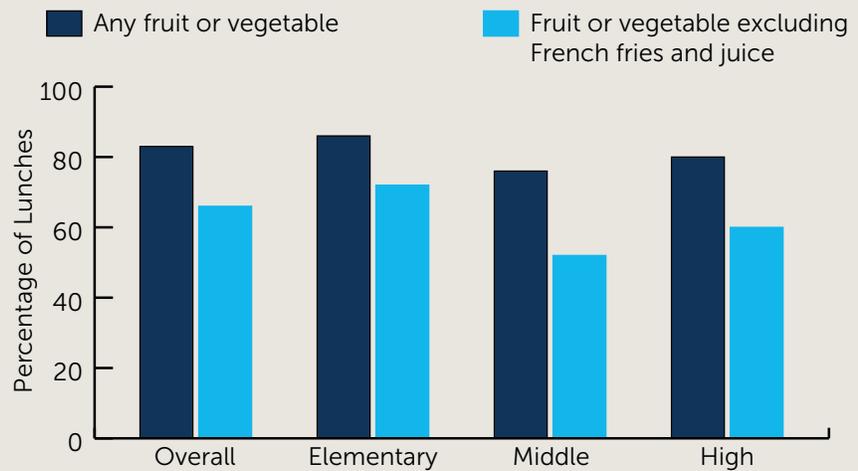
Most students were already taking fruits or vegetables with their lunch in SY 2009–2010 (Figure 7). More than 8 in 10 (83 percent) of all lunches served to students included an average of at least one serving of fruit or vegetable. However, when juice and French fries are excluded from the analysis, the percentage of lunches including a fruit or vegetable serving is lower. Still, two-thirds

(66 percent) of all lunches served to students included, on average, at least one fruit or vegetable serving.

The analysis included fruits and vegetables offered in salad bars and mixed dishes if they counted toward the fruit/vegetable requirement. However, one caveat is that portion sizes in SY 2009–2010, particularly for elementary schools, may not have met the minimum portion size that students are required to take under the new standards (at least a half cup of fruit and/or vegetables).

<sup>v</sup> Note that our determination of whole grain-rich status for each menu item was based on data from the USDA MyPyramid Equivalents Database rather than on information provided by manufacturers or reported by food service staff at schools.

## Most Lunches Included at Least One Serving of Fruit or Vegetable



Source: School Nutrition Dietary Assessment Study-IV, Menu Survey, school year 2009–2010.  
Note: Data shown are for NSLP lunches served.

**Figure 7**

## LOOKING AHEAD

Although the SNDA-IV data were collected before the new nutrition standards took effect, many schools were already meeting (or close to meeting) these standards, especially the initial sodium limits and the requirement for fruit or vegetable servings. However, the later sodium limits and whole grain minimum will be a bigger challenge, and schools may benefit from training and technical assistance in these areas. Further, the school food industry may need to offer more lower-sodium and whole grain products that students will accept. USDA, Congress, school nutrition professionals, and the public may also want to consider these findings when reauthorizing or revising the nutrition standards for the NSLP.

Mathematica and its partners are conducting two national studies to monitor and measure the challenges and successes schools are facing now that the new standards for the school lunch and breakfast programs are in place:

- The School Nutrition and Meal Cost Study, funded by USDA, will measure schools' compliance with all aspects of the updated nutrition standards, the costs of the meals, student participation and dietary intake, and food waste.

- The School Meal Approaches, Resources, and Trends (SMART) Study, funded by the Pew Charitable Trusts, will examine school districts' experiences using the updated nutrition standards for school meals and the "Smart Snacks in School" standards for competitive foods.<sup>vi</sup>

Researchers have been gathering data for both studies during SY 2014–2015; the results for the Pew study will be available early in 2016, and for the USDA study, in 2017.

## DATA AND METHODS

For the SNDA-IV, Mathematica collected data from nationally representative samples of 300 public school districts and nearly 900 schools in SY 2009–2010. School nutrition managers provided detailed information on all foods and beverages offered through the NSLP and SBP for one week. These data were used to describe the nutritional characteristics of school meals and to determine how many schools offered and served meals that met or almost met the former School Meals Initiative standards. For more details on the design, methods, and findings of the SNDA-IV, see the comprehensive report at [http://www.mathematica-mpr.com/~media/publications/pdfs/nutrition/snda-iv\\_findings.pdf](http://www.mathematica-mpr.com/~media/publications/pdfs/nutrition/snda-iv_findings.pdf).

<sup>vi</sup> Competitive foods are foods and drinks that are available in schools but are not part of the NSLP—typically, items sold in vending machines, cafeteria à la carte lines, and school stores. For details, see the Food and Nutrition Service. "Smart Snacks in School: USDA's 'All Foods Sold in Schools' Standards." Available at [http://www.fns.usda.gov/sites/default/files/allfoods\\_flyer.pdf](http://www.fns.usda.gov/sites/default/files/allfoods_flyer.pdf). Accessed July 17, 2015.

For this brief, Mathematica used the SNDA-IV data to compute (1) the average calorie, sodium, whole grain, and fruit and vegetable content of NSLP lunches in SY 2009–2010 and (2) the proportions and distributions of schools that met the new standards for calories, the three sodium targets, and the 50 percent and 100 percent requirements for whole grains. The brief focuses on lunches because the NSLP is the larger of the two school meal programs. This brief focuses on *served* lunches because these are closest to the *planned* lunches that are used to assess compliance with the new meal standards. Meals as *planned* and *served* reflect students' food preferences and the rules that allow students to refuse a certain number of items offered as part of a reimbursable meal.

## ENDNOTES

<sup>1</sup>The White House. "President Obama Signs Healthy, Hunger-Free Kids Act of 2010 into Law." 2010. Available at <http://www.whitehouse.gov/the-press-office/2010/12/13/president-obama-signs-healthy-hunger-free-kids-act-2010-law>. Accessed June 20, 2015.

<sup>2</sup>Confessore, Nicholas. "How School Lunch Became the Latest Political Battleground." *The New York Times*, October 7, 2014. Available at <http://www.nytimes.com/2014/10/12/magazine/how-school-lunch-became-the-latest-political-battleground.html>. Accessed June 20, 2015.

<sup>3</sup>Schwartz, Marlene B., Kathryn E. Henderson, Margaret Read, Nicole Danna, and Jeannette R. Ickovics. "New School Meal Regulations Increase Fruit Consumption and Do Not Increase Total Plate Waste." *Childhood Obesity*, forthcoming in 2015.

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<sup>8</sup>Ibid.

<sup>9</sup>Yee, V. "No Appetite for Good-for-You School Lunches." *The New York Times*, October 5, 2012. Available at <http://www.nytimes.com/2012/10/06/nyregion/healthier-school-lunches-face-student-rejection.html>. Accessed June 20, 2015.

<sup>10</sup>Mitka, M. "Meal Programs Questioned." *Journal of the American Medical Association*, vol. 308, no. 18, 2012, p. 1849.

<sup>11</sup>Hellmich, N. "Students Push Back on New Lunches." *USA Today*, September 28, 2012. Available at <http://usatoday30.usatoday.com/news/nation/story/2012/09/28/kids-push-back-on-new-school-lunch/57842204/1>. Accessed June 20, 2015.

<sup>12</sup>Castillo, M. "Hungry Students Protest Low-Calorie Lunches." *CBS News*, September 27, 2012. Available at <http://www.cbsnews.com/news/hungry-students-protest-low-calorie-lunches/>. Accessed June 20, 2015.

<sup>13</sup>Jalonick, M.C. "Schools Seek Changes to Healthier Lunch Rules." Available at <http://bigstory.ap.org/article/schools-seek-changes-healthier-lunch-rules-0>. Accessed June 20, 2015.

<sup>14</sup>Food and Nutrition Service, USDA. "Flexibility in the Meat/Meat Alternate and Grain Maximums for School Year 2012–2013." December 20, 2012. Memo code SP 11-2013 (revised). Available at <http://www.fns.usda.gov/sites/default/files/SP11-2013os.pdf>. Accessed July 1, 2015.

<sup>15</sup>GAO. "School Lunch. Implementing Nutrition Changes Was Challenging, and Clarification of Oversight Requirements Is Needed." January 2014. GAO-14-104. Available at <http://www.gao.gov/assets/670/660427.pdf>. Accessed July 1, 2015.

<sup>16</sup>School Nutrition Association. "Protect School Meal Programs: Provide Commonsense Flexibility So Schools Can Prepare Healthy Meals That Students Will Eat." June 9, 2014. Available at [https://schoolnutrition.org/uploadedFiles/Legislation\\_and\\_Policy/SNA\\_Policy\\_Resources/July2014-Protect%20School%20Meal%20Programs.pdf](https://schoolnutrition.org/uploadedFiles/Legislation_and_Policy/SNA_Policy_Resources/July2014-Protect%20School%20Meal%20Programs.pdf). Accessed July 1, 2015.

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<sup>21</sup>Consolidated and Further Continuing Appropriations Act, 2015 (H.R. 83). <https://www.congress.gov/113/plaws/publ235/PLAW-113publ235.pdf>

