

# **Food Service Director Experiences Implementing Revised School Meal Standards: Summary of Findings**

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## EXECUTIVE SUMMARY

### Background

In 2012, the United States Department of Agriculture (USDA) issued a final rule updating meal patterns and nutrition standards for the National School Lunch and School Breakfast Programs for the first time in 15 years (U.S. Department of Agriculture, 2012). “*Nutrition Standards in the National School Lunch and Breakfast Programs*” aligned meal standards with those outlined by the 2010 edition of the *Dietary Guidelines for Americans* (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2010) and required schools to increase healthy food offerings, including fruits and vegetables and whole grain-rich products, as well as reduce levels of sodium, saturated fat, and trans fat in school meals and set grade level-specific calorie requirements. School districts were required to comply with the revised federal meal standards beginning July 1, 2012, with provisions phased in through school year 2022-2023. A brief description of the revised standards is outlined in APPENDIX A.

### Methods

This Summary of Findings presents the results of a qualitative study that explored school food service directors’ (FSDs) experiences with implementing the updated Nutrition Standards for the National School Lunch and School Breakfast Programs. Nine qualitative interviews were conducted with FSDs representing a diverse group of school districts located in eight states, each with at least one HealthierUS Schools Challenge: Smarter Lunchrooms (HUSSC: SL)-certified high school in the district. HUSSC provides awards for schools that have met specific criteria for school meal and other wellness categories. For more information on the districts studied herein, please see APPENDIX B. The interviews focused on key questions or challenges that have been identified in the public domain relevant to the implementation of specific aspects of, and overall experiences with, the updated federal meal standards.

### Key findings

Key findings and highlights from the report include:

- Adjusting to new/different menus can take time, but over time, implementation became easier and student acceptance increased.
- FSDs recognized the importance of healthy food to student well-being and academic achievement; however, FSDs wanted to see reinforcing changes in the classroom, homes, community, and other environments so healthy habits and behaviors are also supported and encouraged outside of the cafeteria setting.
- Increasing the amount and variety of fruits and vegetables was seen as one of the most widely accepted components of the new standards.
- FSDs across the country employed creative strategies to increase healthy food consumption and student acceptance of the new standards; for example, by replacing sodium with spices and herbs and by showcasing fruits and vegetables in ways that make them appealing and fun for students.
- Initial drops in school lunch program participation and revenues after implementation of the standards were followed by steadily increasing gains in both areas – in some cases, exceeding pre-implementation levels.
- New fruit and vegetable requirements were associated with an increase in plate waste; however, FSDs also report an increase in consumption of fruits and vegetables. FSDs employed creative strategies for reducing plate waste.
- Engaging key stakeholders in the implementation process through communication, menu development, and other techniques was key to facilitating acceptance and support of the

revised meal standards.

While FSDs in these school districts have had many successes and been creative in implementing school meal reforms, some face ongoing barriers to implementation:

- Some districts still face difficulties with procuring specific acceptable items, such as whole grain-rich biscuits;
- The phased sodium reductions are particularly challenging and students' palates are still adjusting, especially given that many students are exposed to higher-sodium foods outside of school, including restaurants and home.
- Funding the procurement of new, sometimes more expensive products (e.g., whole grain-rich)

### Conclusions

FSDs generally reported positive perceptions of the revised school meal standards, despite experiencing some initial challenges. Overall, FSDs are pleased that students are consuming more fruits and vegetables when compared to fruit and vegetable consumption prior to implementation of the standards, and FSDs anticipate that, in a few years, changes will become the norm for the younger students in their districts. Their successes can be attributed to a wide range of creative strategies and proactive engagement with students and the broader school community.

## BACKGROUND

The bipartisan Healthy, Hunger-Free Kids Act of 2010 directed the United States Department of Agriculture (USDA) to reform the school food environment for the first time in over 30 years (Healthy, Hunger-Free Kids Act, 2010; U.S. Department of Agriculture, 2014). As a result, in 2012, the USDA issued a final rule updating meal patterns and nutrition standards for the National School Lunch and School Breakfast Programs (U.S. Department of Agriculture, 2012). *Nutrition Standards in the National School Lunch and Breakfast Programs* aligned meal standards with those outlined by the 2010 edition of the *Dietary Guidelines for Americans* (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2010) and required schools to increase healthy food offerings, including fruits and vegetables and whole grain-rich products, as well as reduce the levels of sodium, saturated fat, and trans fat in school meals and set grade level-specific calorie requirements. School districts were required to comply with the revised Federal meal standards beginning July 1, 2012, with provisions phased in through school year 2022-2023.

This Summary of Findings presents the results of a qualitative study that explored school food service directors' (FSDs) experiences with implementing the updated *Nutrition Standards for the National School Lunch and School Breakfast Programs*. Nine qualitative interviews were conducted with FSDs located in eight states who are employed in a diverse group of school districts with HealthierUS Schools Challenge: Smarter Lunchrooms (HUSSC: SL)-certified high schools. To earn this distinction, these schools voluntarily met specific criteria for school meal (e.g., promoting fruits and vegetables) and other wellness categories (e.g., physical activity). Additional information about the sample is provided in APPENDIX B, including the demographic and socioeconomic profile of the represented districts.

The interviews focused on key questions or challenges that have been raised in the public domain relevant to the implementation of the updated federal meal standards (see interview guide in APPENDIX C). This summary report is organized into the following key topics related to FSDs' experiences with implementation of revised school meal nutrition standards:

- Overall acceptance of revised school meal nutrition standards
- Perceived impact on student health and well-being
- Experience with specific requirements
  - Fruit and vegetable requirement
  - Whole grain-rich requirement
  - Sodium limits
- Perceived impact on school meal program participation
- Perceived impact on food service bottom line
- Perceived impact on plate waste
- Success factors and lessons learned
- Barriers to implementation

It is important to emphasize that the FSDs in this sample are employed in school districts that have high schools with HUSSC: SL certification. As a result, most FSDs began to implement some changes to school meals well in advance of the release of the school meal standards; based on the interviews, the range of time when changes were first initiated was approximately 4 – 11 years ago. For example, the TX school district implemented salad bars for elementary schools in 2004. This FSD described this proactive implementation as a key to his success: “*doing the right thing before the right thing is necessary.*”

## OVERALL ACCEPTANCE OF REVISED SCHOOL MEAL NUTRITION STANDARDS

Overall, FSDs reported some initial resistance from students but acceptance grew over time. The majority of FSDs reported that implementation was easier at the elementary level than at the middle or high school levels:

- *The elementary kids come in, this is the first thing they see, so they haven't seen the changes like the high school students...So, it's easier with an elementary school student when you start them off that way to follow through with it. – VA FSD*
- *There are some that complain that they would still rather have meals like they used to have, but I think that most of them recognize that this is a good thing, and the younger ones that are coming up, they don't know the difference. So, I think that in the long run, it will have an impact on the health of the students coming in. – KS FSD*
- *I think they've become accustomed to them [meal standards]...as we see new students coming in, and that's all that they know in the elementary school, and they grow into it, of course they become more accepting of it because it's part of what they know. They don't know anything different. So, it's becoming easier and easier for us to implement. – NY FSD*
- *It's with kids and the psychology of a student. When you have 177 days to influence a student's mindset, if you continue to put a quality product out on a continuous basis, they're going to try it. It's the nature of a child, to want to experience new things and try new things. – TX FSD*

FSDs themselves reported a phase during which they also had to adjust to reforming school meals:

- *After you kind of get your feet wet with the program and you kind of understand what's happening, availability comes on different products, you're able to expand your menu options. You start to realize that you can integrate other things and other ideas. – TX FSD*

Implementation was considered to be successful if the school meal changes were “seamless and invisible” to the students. Several FSDs recalled that students did not notice or complain about changes until they were made aware of the changes:

- *We really didn't make any hoop-la about it; we just transitioned [4 years ago]. We went to whole-grain pasta, brown rice, 51% whole-grain breads and really without any fanfare. Once we introduced that it would be whole-grain items, then the students would give us responses like, "this is nasty" or "this is not good" so our response would be "well, you've been eating it for 6 months now," and they're like "oh, okay." – CA FSD*
- *I think it would have went over a lot easier than the kids finding out that everything was changing, was healthier...So we had to tell the students, basically "you're already eating the items that are on the guidelines." – IA FSD*

## PERCEIVED IMPACT ON STUDENT HEALTH AND WELL-BEING

FSDs reported that school meal reform has the potential to impact students' health because it has enhanced awareness of healthy eating and wellness broadly:

- *I think just having health and wellness on their radar - the kids' radar - as being important has been a very positive change. They really are thinking about it now, and...I think that's gonna be the long term change - that they really consider this now." – KS FSD*
- *Students are excited, especially our high school students are excited. They've made it [school meal reform] part of their class projects, what things they want to look at – do they want to look at how you make a healthier hot dog? This is a completely different dialogue than what we've*

*had in the past, you know. Earlier, we had "School food sucks." Now we have, "What makes a healthier hot dog?" – IL FSD*

- *It's something kids see in health or a classroom now, they see also in the school cafeteria where it all matches. It finally comes together and makes sense. – VA FSD*
- *We're really talking about how to make progressive change, and we're no longer talking about school food, we're just talking about food now. We don't have a school food system anymore, and then there's a food system for everybody else. What we're doing mirrors the way the experts say our kids should be eating. – IL FSD*

Along with enhanced awareness of nutrition and health, FSDs also appreciated that school meal reform provided an opportunity to "*shine a light*" on the child nutrition department by highlighting the importance that school nutrition plays in students' overall well-being and academic success:

- *What I really appreciate is the amount of attention that's been focused on the role that child nutrition plays in our children's life...Until someone's basic needs are met, they cannot develop self-esteem, they cannot become self-actualized. And so we are helping to meet those basic needs, and we can't do much about shelter, but we can certainly do something about the food...It's our responsibility to safeguard the health and well-being of the nation's children. -CA FSD*
- *I think the more they [schools] commit to realizing that this is just as much a part of their students' future as math and reading is and making it that priority in their school day, we are really gonna make the difference. – KS FSD*
- *I think the spotlight and the limelight is how we are working hand in hand and how students really can't learn without a healthy meal, and their minds have to be rejuvenated with the foods that they eat, and when we're showcasing those foods every day at breakfast and lunch, then I think we're more in partnership with our schools, linked with the food and nutrition program in the classroom, because of the new guidelines. – MS FSD*

However, all FSDs spoke of school meals not as a "*silver bullet*" but as one part of a broader, more comprehensive approach to address health that must also be supported by family and community environments:

- *Their [USDA] regulations as a whole are a good step in the right direction, but again, it's just one piece of a very, very large puzzle. – CA FSD*
- *There's an old adage that we're looking for progress, not perfection. There's no golden arrow, silver bullet. It's going to take time, and it's going to take community and outside efforts. They're only in school for eight hours. They're only in the cafeteria for 30 minutes. A 30 minute introduction to what you're supposed to eat doesn't change what happens on the weekends, what happens when you go home, what happens when you wake up every day. It's the responsibility of the school to educate, but it's the responsibility of the community to reinforce. – TX FSD*
- *It's not going to just be, like I said, the school alone. It's going to have to be more than just the school doing something. – VA FSD*
- *We can only do what we can in schools but I think some of these kids, it is in their heads and they realize what's good for them. But at home, a lot of them will leave and go home and eat things that aren't good for them. And the parents aren't home and won't cook a meal, 'cause usually it's two parents working. – IA FSD*

The perceptions from FSDs that school meal reforms are "one part of a bigger puzzle" are consistent with what the Institute of Medicine concluded in its 2012 report entitled, *Accelerating Progress in*



*Obesity Prevention* (Institute of Medicine Committee to Accelerate Progress in Obesity Prevention, 2012). In the report, the Committee concluded that "schools are the heart of health" but they are but one piece of a very complex and dynamic system of factors influencing children's health and well-being. Similarly, Cummings et al. (2014) also reported that a 'multi-component' approach to healthy school food modifications facilitated implementation by allowing for better integration and support of the changes.

Finally, FSDs spoke of the importance of nutrition education and reported that school meal reform would be most effective if it were combined with nutrition education for students and families so that children were exposed to healthier items beyond the cafeteria.

- *Put nutrition education back in the classroom. Talk about MyPlate in the classroom. I think that's where money would be better spent than more regulations on child nutrition because that only impacts the students that are eating at school. That doesn't impact the students that don't participate in the National School Lunch Program. – CA FSD*
- *You have to do more than just serve the meal. Now the education for healthy meals goes into the classroom...You're teaching kids how to do more than just come in and eat and leave. – TX FSD*
- FSDs felt the new standards were an opportunity to teach children about healthy eating habits, especially with respect to fruit and vegetables.
  - *We're responsible for educating them, not only in the classroom, but in the cafeteria – the cafeteria is my classroom. – CA FSD*
- Other FSDs who also valued nutrition education lamented that they no longer have the time to dedicate to educating students.
  - *I think what we're doing is exposing them to foods that are healthful. I don't know that we are – I'll be very honest with you – we have gotten our plate so full right now with things that we're being required to do, that the time that we used to spend going to classrooms and being able to talk to kids has been devoured by paperwork. – NY FSD*
- Two FSDs felt that school districts need to focus on physical education in order to impact students' health.
  - *I would think physical education has to be more important. Not just for the athletes, we need to include the ones that aren't athletes and try to find something that interests them. You know, you got your athletes and you have your geeks, and your computer geeks, and the in-between that don't do anything... We need to get our physical education more in line with stuff that some of these kids might get interested in, like yoga and stuff like that. – IA FSD*
  - *I can lower the calories. I can make the meals nutrient dense and calorie light and do all of the wonderful things, but there's no movement. You're only adjusting one side of the equation, right? You still only scratch the surface of one side of the equation, so it's not going to all be done on food service's back. – IL FSD*

Again, the perspectives of the FSDs regarding the importance of combining school meal reforms with nutrition education in the schools is consistent with the recommendations of the Institute of Medicine (2012). In fact, the FSD perceptions build off of the findings of Prelip and colleagues (2011) who conducted an intervention study which demonstrated the role that nutrition education can play in influencing both teacher and student attitudes towards fruits and vegetables.

## EXPERIENCE WITH SPECIFIC REQUIREMENTS

In addition to experiences with school meal reform more broadly, FSDs were asked to describe their experiences with specific components of the new standards. The revised school meal standards pertaining to fruit and vegetable, sodium, and whole grain-rich requirements can be found in APPENDIX A.

### Fruit and Vegetable Requirements

When asked to name what FSDs perceive to be the most successful component of school meal reform, the majority of FSDs reported the fruit and vegetable requirements due to the increase in student consumption of these items. The FSDs' reports are consistent with empirical studies that found increased fruit selection and vegetable consumption following school meal standard implementation (Cohen et al., 2014; Cullen et al., 2015).

- *I'm thrilled to death when I stand over here at the high school and I see the kids pile up on strawberries or blueberries and they eat it all. – IA FSD*
- *I will tell you a story about a parent who walked up to me at a school board meeting after I did a presentation, and he simply said, "I just want to shake your hand. I don't know what you're doing at school, but it works...I was putting the groceries up and my daughter sat on the counter and started talking to me, and I looked up and she had opened up the bag of spinach, and was just eating spinach leaves while she was holding a conversation." He said, "Years ago, I wasn't able to get her to eat vegetables, and now, she's not scared of them, 'cause she's seeing them everywhere she goes." – TX FSD*

Interestingly, FSDs also linked the increased fruit and vegetable requirements with creating more plate waste; however, in most school districts plate waste was reported to decrease over time. (This is described further below under the section entitled, PERCEIVED IMPACT ON PLATE WASTE).

For younger students, pre-sliced or pre-portioned fruits and vegetables (e.g., apple and orange slices) made items easier to consume due to students' dental issues (e.g., missing teeth for younger students; braces for older students) and the amount of time students have to consume meals. This finding is consistent with prior research, which found that the percentage of middle school students who selected apples and ate more than half of the serving increased by 73% in the 'treatment' school that served pre-sliced fruit (Wansink et al., 2013). However, FSDs interviewed for the current study pointed out that pre-slicing and pre-portioning items also pose additional financial costs:

- *Of course, that [slicing fruits and vegetables] also means labor intensive, but if we buy them already sliced that means more expensive, so we're trying to find that balance between those two. – IL FSD*

A wide range of strategies were employed to facilitate acceptance of fruits and vegetables:

- **Implement complementary programs** to promote fruit and vegetable taste-testing and education (e.g., Harvest of the Month, Farm to School, Fresh Fruit and Vegetable programs [USDA and DoD], school gardens, field trips to local farms). One FSD describes the USDA Fruit and Vegetable Program:
  - *At snack time, instead of the graham crackers, they got fresh carrots, strawberries, watermelon, and then we tried different things like hummus and, you can kinda judge...you can see what they like and you can see what they didn't like. – IA FSD*

- **Offer taste-tests of fruits and vegetables in advance** of adding them to the menu allowed students to become familiar with them in a “*safe environment*,” thus increasing their likelihood of trying it at a later time.
  - *So if I sample something a month before I menu it...I’ve learned that when kids have to make a choice about what they’re going to eat for the day...they’re going to choose the things that they’re familiar with and that they know will do the trick for them. They’re not going to take the chance that they’ll select something they don’t like and then they’re hungry later. – IL FSD*
  
- **Employ “salad bar ambassadors,”** employees who are in the cafeteria to encourage fruit and vegetable consumption. A FSD describes the latter:
  - *In addition to ensuring compliance, they [salad bar ambassadors] do a great job of encouraging kids to try things that maybe they're not familiar with, so they've absolutely been the key elements to the success of it. Having someone who is on paid status, not a volunteer because volunteers may have something else to do that day and the priority of the salad bar goes down, but an actual employee that is accountable, that is responsible and that is working towards that goal. – CA FSD*
  
- **Improve the appearance, marketing, and ease of consuming fruit and vegetables:**
  - Offering a variety of colors and types increases the appeal of fruits and vegetables and allows students to make selections. This strategy is consistently supported in the literature examining the school food environment. For example, the Rudd Center for Food Policy & Obesity at the University of Connecticut reported that fruit selection increased with additional fruit options (Schwartz et al., 2015). Bassler et al. (2013) also reported that enhanced marketing of fruit and vegetable à la carte items improved acceptance of these items amongst students. Similarly, Gosliner (2014) reported that middle and high school student consumption was positively associated with student perception of higher quality fruit and vegetables (students were asked to rate quality as “excellent, good, fair, or poor”). And, an experimental study with low-income elementary and middle school students found that providing an active choice of options increased consumption of fruit and vegetables that consequently lowered plate waste (Hakim & Meissen, 2013). Lastly, Terry-McElrath et al. (2014) reported that for high school students nationwide, increased accessibility to fruit and vegetables was associated with higher fruit consumption and higher green vegetable consumption.
    - *We have 3 fruits and 3 vegetables that are offered each day at lunch. So just having a variety on the menu that children can select from, I think they’re more likely to select something that they will actually eat. – MS FSD*
  
  - Salad/garden bars encouraged consumption by allowing students to customize their plate. FSDs stated that ensuring salad/garden bars are at “kid height” ensures ease of selection. The use of salad bars as a vehicle for increasing selection and/or consumption of fruits and vegetables is consistent with recent findings from the literature. For example, Terry-McElrath et al. (2014) found that amongst middle school students nationwide, higher salad bar accessibility was associated with higher green vegetable consumption. Gosliner (2014) surveyed over 5000 students in California and found that salad bars offered higher variety of vegetables, which was associated with higher vegetable intake amongst middle and high school students.
  - Pre-dressing salads is popular and increases consumption of salad mix

- Using vegetables to complement an entrée (e.g., spinach included on a meatball sub) instead of simply adding it as a side
- Creatively using legumes (e.g., hummus or chickpea dip) with salads and wraps

### Whole Grain-Rich Requirement

There was variability with FSDs' experiences with implementing the requirement to provide whole grain-rich products in school meals. (The new requirement is outlined in APPENDIX A). The districts in CA experienced minimal challenges, while other districts faced barriers related to costs and procuring acceptable products.

- Districts in CA reported minimal barriers to implementation.
  - *I haven't seen a significant increase in cost. I haven't seen students being less likely to select the items, so it kind of baffles me that everyone is so concerned about it [whole grain-rich requirement]...California tends to be a little more innovative on things, so maybe ahead of the curve? And so it might be a more regional thing? – CA FSD*
- One district reported challenges with finding whole grain-rich products that are affordable.
  - *We have had great success with our vendors and purveyors giving us a wide variety of products. But the cost has been sometimes 25% higher and that has really prohibited what we can serve to the kids. – NY FSD*
- Four districts (IL, VA, TX, MS) reported problems with procuring and preparing quality items in a manner that was acceptable to students.
  - Pasta (e.g., elbow macaroni) continues to be difficult for the VA district (unsatisfactory taste, texture, durability); sub rolls are challenging to find in an acceptable size; whole grain-rich breakfast biscuits are not a quality product yet according to the MS FSD
  - *The whole grain pastas, the nuttiness, the texture of it doesn't really make for appealing macaroni and cheese. But other than pasta, we haven't had any additional issues with it. – IL FSD*
  - *But when you get your standalone items, like the hamburger buns or the breads, then I think that's where you have your greatest challenges with students accepting those. – MS FSD*
  - Procuring whole grain-rich products remains a challenge to date for the TX district; the products exist, but the contracted supplier runs out of them each year, and finding alternatives is costly for the school district

One district and two states (KS, MS) have temporary exemptions that have been allowed by USDA for operators facing challenges with the whole grain-rich requirement.

FSDs employed different strategies to facilitate implementation of whole grain-rich products into the meal service:

- Phasing in whole grain-rich products incrementally
- Taste testing of whole grain-rich products (both by students and staff) to increase acceptance
- Having kitchen staff adopt new cooking techniques to make whole grain-rich items palatable
- Scratch cooking bread products to increase acceptance
- Adding color to the plate (e.g., chopped parsley or mixed vegetables) because whole grain-rich items can look "brown and bland"

## Sodium Limits

While most FSDs agree that sodium should be reduced, they reported that the timeline for implementing the sodium reduction phase-in was a consistent challenge. [Note: At the time of the interviews, the rule included a gradual phase-in period with three target periods (see APPENDIX A); however, the fiscal year 2015 appropriations language (Consolidated and Further Continuing Appropriations Act, 2015) states that schools are no longer required to meet sodium targets below Target 1 until the latest scientific research establishes the reduction is beneficial to children.] Additionally, the FSDs reported varying perceptions of the food manufacturing industry's response in reformulating products in a timely manner.

- *I agree it should be reduced but not at the aggressive level that USDA is insisting we do it. I do think there needs to be a little bit of easing those regulatory requirements. You know, manufacturing has to catch up, and again, students' palates really need to catch up. –CA FSD*
- *Sometimes it's a "shoot-from-the-hip" mentality instead of really fleshing it out and having realistic expectations. Case in point, in my opinion, it's the sodium. If you ask 100 nutritionists if sodium is a problem in the American diet, 99 or 95 will tell you yes. Then, their knee-jerk reaction is "let's cut sodium out in half or 30% from school meals." – CA FSD*
- *That reduction is just moving too fast. Too fast for acceptability – that reduction. The reduction is too low, too quickly. They [students] haven't been allowed enough time to accept the product as we reduce the sodium. – MS FSD*

The NY, IA, and TX FSDs reported that the recent sodium limits were not very difficult because their states had required decreases many years ago, and students had time to adjust to the change. In all three cases, sodium was reduced in advance of the revised federal standards by state law. The IL FSD reported that the challenges with student acceptance are amplified because the food and restaurant industries have not cut down on sodium:

- *So if you're eating at McDonald's, Wendy's, Chipotle, and then you come to school, it definitely tastes bland compared to what you might be used to in your other areas of life, right? It's hard when the rest of the world isn't following you. – IL FSD*

Yet, FSDs did report employing a wide range of strategies to facilitate implementation of the sodium standards:

- Implementing scratch cooking recipes and techniques
- Using rice instead of breads that have high sodium
- Using more whole, unprocessed foods
- Using herbs, spices, and seasonings instead of salt in cooking and baking
- Using frozen instead of canned vegetables
- Removing salt shakers
- Taste testing different low sodium products (students and staff)
- Installing spice and herb bars/flavor stations so that students can add additional seasoning to their food (e.g., pepper flakes, Mrs. Dash salt-free seasonings)
  - *They enjoy that (the spice bar). It gives them freedom of choice. It makes them feel as though they are the customer, and it makes an individual attempt for them to make their food taste the way they want it to taste. I think anything you can do to individualize their meal makes them feel as though you are doing something special for them. – NY FSD*

## PERCEIVED IMPACT ON SCHOOL MEAL PROGRAM PARTICIPATION

The majority of FSDs reported initial drops in school meal program participation upon implementation of the changes followed by gradual returns; there was a range of perceived reasons for these changes.

- *Our participation when she [former FSD] first made the changes, it really took a hit. We were down a lot. Last year, we recovered a little, but it was still down from what it had been previously. And this year, we've climbed even more, so hopefully we're getting close to getting back to our participation levels prior. – KS FSD*

The two FSDs from CA and the NY FSD reported slight decreases in participation; however, they were unsure of the reason for the changes, citing a combination of factors such as changes in the School Breakfast Program, increasing prices of school meals, and increasing scratch cooking recipes.

Two districts recently qualified for the Community Eligibility Provision<sup>1</sup> (CEP; U.S. Department of Agriculture, 2014) and experienced increases in participation as a result. In addition, the CEP was perceived to reduce stigma for students in the MS district, especially for high school students.

- *There were some of our high school students who were doing the individual application who would not submit an application, maybe because they didn't want the embarrassment that was associated, especially with the older students – of being on free and reduced lunch or breakfast. – MS FSD*

In addition, the MS FSD reported that they extended the hours that breakfast is available to students because they felt that students should not go hungry because they were late to school; she reported that this also helped to maintain participation levels.

## PERCEIVED IMPACT ON FOOD SERVICE BOTTOM LINE

Five of the FSDs reported decreases in revenues, and a variety of reasons were provided. Some cited drops in participation since “revenues are right in tune with participation;” others stated higher costs for certain items meeting the revised meal standards, such as whole grain-rich products, fruits, and vegetables; while others cited a decrease in à la carte sales due to the *Smart Snacks in School* standards<sup>2</sup> implemented in SY 2014-15 (U.S. Department of Agriculture, 2013). However, for most districts that experienced an initial revenue decline, revenues have started to increase over time:

- *The first year...because we couldn't get the products we needed, prices were sky high. We were in the red. We lost tons of money. Over \$100K. Now the last 2 years because we've had time to get on board, understand better, and more cooperation from vendors, chats with procurement, we've made money. We've made over \$100K. So, I mean, the first year we struggled. – VA FSD*

For the four districts that didn't experience any changes to revenues, both high participation rates and CEP were cited as providing an additional source of revenue. Aside from these, the FSD from IA found that utilizing the Department of Defense (DoD) Fresh Fruit and Vegetable Program helped to offset the

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<sup>1</sup> Community Eligibility Provision (CEP) allows schools that predominantly serve low-income children to avoid collecting individual applications and provide free, nutritious school meals to ALL students through the National School Lunch and School Breakfast Programs.

<sup>2</sup> The *Smart Snacks in School* standards requires that all school districts receiving federal funding for school meals comply with standards for food and beverage items sold outside of the school meal program (“all foods sold in schools”). This includes à la carte, vending machine, school stores, and fundraising sold during school hours. More information about the standards can be found at <http://healthymeals.nal.usda.gov/smartsnacks>

costs of increasing these items on her menu. The MS FSD noted a unique partnership and contract with a Head Start program to bring in additional revenues for food services.

- *This year, we have some additional revenue because we are working with a Head Start program, and we have about 9 Head Start programs that we are contracting out meals to for the first time, so that's additional revenue that we're seeing for the first time. – MS FSD*

And lastly, the TX FSD notes that to maintain revenues, he is always planning ahead, making adjustments to the meal plan, with a sensitivity for student preferences:

- *So if no one's eating the product, stop serving the product. Why are you wasting money bringing it in? So now your inventory is higher. Your meal cost is higher. You have to constantly be paying attention to inventory. You have to constantly be rotating products...Every fall we have a menu meeting; every spring, we have a menu meeting. So we're planning ahead. – TX FSD*

## PERCEIVED IMPACT ON PLATE WASTE

Overall, FSDs perceived an increase in plate waste upon first implementing the new meal standards; however, most FSDs reported that plate waste declined as students became more accustomed to the new meals. The increase in plate waste was primarily attributable to fruit and vegetable requirements. It is important to note that none of the school districts were measuring plate waste so reports were from personal perceptions or what FSDs were told by dining room managers. With the exception of one district struggling with acceptability of whole grain-rich items and one district that reported higher entrée plate waste at the elementary level due to short meal times, fruits and vegetables were felt to be the main cause of the increase in plate waste.

Several FSDs reported that the increase in plate waste was due to the requirement that students must take a fruit or vegetable item:

- *Then I think that anytime you MANDATE what has to be on the plate, you've now created a love-hate relationship with food, so I think there's some unintended consequence of the standards. I want fruit and vegetables, fresh and local, and the best possible that we can put in front of the students, but the moment I say you HAVE TO put it on the plate, you make that food the enemy. And I think we've done that, and that's an unintended consequence. – IL FSD*
- *The hardest part was getting the high school kids to take a fruit or vegetable on their tray. They really refused to do that and they don't feel like they should be told what they need to eat. – VA FSD*
- *The problem is students who are being forced to pick up those items that they don't always eat those. You know, they're not always consumed after you encourage them to pick it up, to make it a reimbursable meal. There is some waste there. – MS FSD*

Yet, according to most of the FSDs interviewed, plate waste has declined as students have become used to the fruit and vegetable requirements and school districts figure out more ways to make fruits and vegetables appealing to students. One FSD anticipates that plate waste will decrease over time as the younger students who are accustomed to the new regulations will transition into high school.

- *I think that we'll see them take it [fruit and vegetables], because it's more second nature to them, and they're used to eating them now, as opposed to the students that we have in high school today. – IL FSD*



Again, it is interesting to note that although fruits and vegetables were noted to be contributing the most to plate waste, FSDs were pleased overall with the increased selection and consumption of these items:

- *I would have to say it's kind of a double-edged sword. On the one hand, I'm seeing more plate waste, but on the other hand, I do believe that students are eating more produce. – CA FSD*
- *Consumption is up, but waste is also up, because there are some students who we ask to select an item but are not consuming the product, but what is happening is, because they have been asked to select a fruit or vegetable, they are sharing those items with other students at their table. – MS FSD*

This finding is consistent with a recent study by the Rudd Center for Food Policy & Obesity, which found that overall, student selection and consumption of fruits and vegetables increased after implementation of the new meal standards (Schwartz et al., 2015).

Strategies to decrease plate waste overlapped with strategies to increase fruit and vegetable consumption. In addition, three districts implemented “share tables” or “community tables” that can be used to offset plate waste. Unwanted, unopened fruits and vegetables can be placed on the table or in boxes and other students can help themselves to them, or if food-safe, they are served the next day (e.g., whole bananas or apples) or, in the case of one school district, donated to local shelters. One district also provides coolers for perishable items like milk:

- *Once you've bought it, it's yours. We don't bring it back into the kitchen, so now it's yours to manage. We'll give you the items necessary, like a cooler for the extra milks that happen to be there with ice. We make sure that there's always ice in the cooler, so for that whole lunch period, the kids are able to go up and share. – TX FSD*

## **SUCCESS FACTORS/LESSONS LEARNED**

In addition to strategies specific to the three components of the standards discussed above, FSDs also reported broader strategies that facilitated their success overall. These strategies involved efforts to create partnerships across the district, proactively and aggressively engage students and parents, and create a supportive environment for school meal reform.

- **Bring nutrition into the classroom**, so that students can connect what they are eating with what they are learning about [e.g., Fresh Fruit and Vegetable Program, Harvest of the Month, cross-age teaching (high school students teaching elementary students about nutrition and wellness), school gardens].
- **Engage kitchen/cafeteria staff with education and training.**
  - *How many meals do I cook a day? Zero. How many meals does my staff cook? 15,000. The emphasis needs to be on them. I can have a phenomenal idea, but if we don't reach out to them, then it's not going to work. – CA FSD*

This finding is consistent with prior research which found that engaging food service staff was essential to the implementation of changes in the cafeteria because of staffs' influence on how the new items are presented to students (Bassler et al., 2013; Samuels & Associates et al., 2007).



- **Create internal and external partnerships** (e.g., public health department, local farm, Physical Education department, school district administration, medical group (provider and insurer, local food bank, Smarter Lunchroom Association, Alliance for a Healthier Generation, university, food service company) that provide resources and trainings as needed. These partnerships are consistent with the finding reported by Samuels & Associates (2007) in a study of implementation and experiences with school food environment reforms in California.
  - *Don't ever give up. You might need to change your direction every once in a while to get to your goal, but as long as you keep persevering, you'll find partnerships, you'll find people that support what you are doing. Don't be afraid to ask for help. Create partnerships. I think the partnerships ...are so vitally important, because no one person can do it all. – CA FSD*
  - *Our programs can't work in isolation. We have to have the support of the whole team, the administrative team, with talking to principals and sharing the concept and ideas. – MS FSD*
  - *The other thing is just our partnership as a whole – utilizing the resources at Sodexo to implement a great program at this level. Understanding that if I need a dietitian, I can call up someone in the healthcare industry who can help me with things. Working as a team, our team in the State of Texas of 22 school districts working together to come up with the right menus. – TX FSD*
  
- **Appeal to the 'customer' (i.e., students) by staying abreast of their food trends and continuously changing the menu cycle.**
  - *Watching the market trends, and going with what kids are eating out in the market. If they're eating Mexican, then you need to get Mexican food in. If they're eating a lot of Italian, then you need to get the Italian food. A lot of times it's tough to change, and I'll be the first to admit that, but you have to try new products, see if the kids will go for them. – NY FSD*
  - *We have the same clientele for 177 days. I mean, honestly, that's the difficulty. So, if you had to go to the same restaurant for 177 days, at some point in time, you'd look around and say, "OK, I'm tired of this." So that's when you have to change your menu cycles, you have to change the products you offer. – TX FSD*
  
- **Engage with students and give them a voice in the process.** The FSD in KS holds monthly Google chat meetings with student groups to run an informal focus group and "check in with them". Other FSDs stress the importance of aggressively soliciting their students' feedback: "taste test, taste test, taste test!"
  - *We can work with a student group to help them develop recipes with us, and go into their classroom and do taste tests. And that works out extremely well, cause then we have student buy-in, and they feel like they're being heard." – CA FSD*
  - *I felt like part of the reason there were so many negative feelings about the standards was because there was some misinformation and misunderstanding and that the students felt they had lost a voice in the process. And so it was really important to me to give them that opportunity to voice their opinions and thoughts and feedback, and it's been really instrumental in getting them to accept some of the changes. – KS FSD*

The importance of including students into the implementation process was also reported by Samuels & Associates et al. (2007) who noted the importance of engaging students and the larger school community when making changes to the school food environment. Likewise, Cummings et al. (2014) pointed to the importance of soliciting stakeholder (i.e., student) buy-in to facilitate school meal standard implementation. And, Gosliner (2014) notes that middle and high school student involvement in the food services program was associated with higher intake of fruit and vegetables at schools; however, the association was only statistically significant for vegetables.

- **Proactively and positively frame school meal reform.** The FSDs were instrumental in aggressively advocating for the changes through social and traditional media (e.g., Facebook, Twitter, Instagram, local newspaper), face-to-face parent group meetings, student newsletters, etc. Often, this job involved dispelling myths about the school meal reform.
  - *Parents see things on the news, and they have a preconceived idea of what these changes are, and it may not be correct. So, to put out your own story and to communicate what it is you are doing to include the students and so that they know, and to share, share, share your successes with the community. – KS FSD*
  - *If you try to inform them before changes occur and give it to them in writing and then visit your schools as much as you can – I know that has a big element in it being visible in your schools when you can actually see what’s going on during the time when breakfast and lunch are being served, then that really helps to make sure that everybody is understanding the importance of the new guidelines. – MS FSD*
  - *Just like our programs are not intended to operate in isolation either, so that when you inform everybody that’s involved, you know – your staff, your parents, your students – you know, if everybody’s informed of the importance of the program, then it’s a lot more successful. – MS FSD*
- **Encourage a strong wellness committee that includes administrators, teachers, parents, and students.**
  - *You have to have a strong STRONG wellness committee. You have to have your administration in there. You have to have teachers in there, parents and kids. And from there you have to have, like the kids involved in cross-age teaching. The peers being involved. – KS FSD*

Wellness committees are important in helping to effectuate positive changes to school food offerings. In a pair of studies conducted in Minnesota, researchers found that schools with both district and school-level wellness councils had significantly lower availability of low-nutrient, energy-dense foods and beverages in their vending machines (Kubik et al., 2011a; Kubik et al., 2011b). The authors highlight the role that wellness councils can play in impacting the school food environment due to councils ability to involve a wide variety of stakeholders.

- **Improve cafeteria/dining area appearances to promote healthy eating**
  - *We’re just always taking a holistic approach even with our kitchen and cafeteria where we make it a real refreshing and inviting atmosphere. We have our cafeterias painted – we have bright murals painted on the wall that reflect a message of good nutrition, healthy eating, and physical activity. – MS FSD*

This approach was also described by Bassler et al. (2013) as a successful approach to improve students' dining experiences and acceptance of more nutritious items.

## BARRIERS TO IMPLEMENTATION

### Initial Barriers

Despite working in school districts with HUSSC: SL recognized high schools, several FSDs experienced resistance to the school meal changes initially.

- *You know, a lot of us have been totally abused...not by administration as much as teachers and these kids...and they didn't realize that this was a mandate from the government that's making us do this. – IA FSD*

As noted, the majority of implementation challenges attributed to “too much [change] all at once.” Although these school districts had started to implement some standards in advance, other requirements were implemented more recently.

- *The perception was bad. I mean, the outcome that they [USDA] want I believe is wonderful. It was just a lot of things to get done very quickly, for vendors to get products. I thought that was pretty difficult. – VA FSD*
- *You know, you really have to take baby steps, and then over time let students' acceptance growth in one area before you add it to another. I think we didn't have enough time to make the transition. You know, we implemented it at lunch one year, and then next year we came back and did it at breakfast. I think that was just too soon. – MS FSD*

### Ongoing Barriers

With the exception of specific procurement challenges already discussed, the school districts in this study have met the revised meal standards and thus reported minimal barriers with their current school meal programs. However, FSDs reported other ongoing barriers that affect implementation of the school meal standards:

- Insufficient reimbursement for implementation. The *Healthy, Hunger-free Kids Act of 2010* increased reimbursement for the school meal program; however, some districts feel that the increase was enough to fully implement the standards.
  - *I've never heard anybody say, "Oh, I hate giving the balanced meal" or "Oh I hate giving fruits and vegetables." What we do fault is that we're not given more money to be able to afford to give them a balanced meal, especially for a paying child. – NY FSD*
- Low compensation and morale of kitchen/cafeteria staff.
  - *They are the lowest paid employees of anybody [in the district], and so their perception of their value is poor and you know my staff is food safety certified, we have all these rules and regulations, and there's fiscal sanctions that could come into play if they don't do their work right, children could actually lose their lives if they didn't handle food correctly, so where does that put my staff lower than a bus driver? – CA FSD*
- Increasing the familiarity and acceptance of scratch cooking recipes being tried in districts (California districts). Certain dishes, such as casseroles, were reported to be unfamiliar and thus poorly accepted by students.

- *One is that the customer that we're serving, they come from a generation where they don't see the same value in scratch cooking. They saw more value in a recognizable package. – CA FSD*

## CONCLUSION

In summary, FSDs from the school districts with exemplary high schools (HUSSC: SL awardees) reported overall positive perceptions of the revised school meal nutrition standards, despite experiencing initial challenges such as increased plate waste from fruits and vegetables and decreases in school meal participation. Overall, FSDs are pleased that students are consuming more fruits and vegetables compared to consumption levels prior to implementation of the standards, and FSDs anticipate that in a few years, these changes to the meal requirements will become the norm for the younger students in their districts. Their successes can be attributed to a wide range of creative strategies and proactive engagement with students and the broader school community. This summary report outlined specific strategies employed by these FSDs with the aim of informing school meal standards implementation. Given the nascent but growing body of literature positively linking changes to school meals/food environment to improved student consumption (Gosliner, 2014; Hakim & Meissen, 2013), these strategies show strong potential for improving students' health at a population level.

## APPENDIX A

### USDA Revised School Meal Standards Summary

USDA School Breakfast and School Lunch Programs Nutrition Standards:  
Summary of Selected Provisions<sup>1</sup>

- Fruit and Vegetable Requirements
  - Require students to select a fruit or vegetable as part of their reimbursable meal
  - Offer fruits and vegetables as two separate meal components
  - Offer fruit daily at breakfast and lunch
  - Offer vegetables daily at lunch
- Whole-grain Rich Requirement
  - Beginning in school year 2014-15, all grains offered must be whole grain-rich
    - “Whole grain-rich” foods must contain at least 50% whole grains
- Sodium Limits
  - Gradual reduction of the sodium content of meals over ten years:<sup>2</sup>

<b>Target 1:</b> School Year 2014-15	<b>Target 2:</b> School Year 2017-18	<b>Target 3:</b> School Year 2022-23
<ul style="list-style-type: none"> <li>• Lunch               <ul style="list-style-type: none"> <li>➤ ≤1230 mg (K-5)</li> <li>➤ ≤1360 mg (6-8)</li> <li>➤ ≤1420 mg (9-12)</li> </ul> </li> <li>• Breakfast               <ul style="list-style-type: none"> <li>➤ ≤540 mg (K-5)</li> <li>➤ ≤600 mg (6-8)</li> <li>➤ ≤640 mg (9-12)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lunch               <ul style="list-style-type: none"> <li>➤ ≤935 mg (K-5)</li> <li>➤ ≤1035 mg (6-8)</li> <li>➤ ≤1080 mg (9-12)</li> </ul> </li> <li>• Breakfast               <ul style="list-style-type: none"> <li>➤ ≤485 mg (K-5)</li> <li>➤ ≤535 mg (6-8)</li> <li>➤ ≤570 mg (9-12)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lunch               <ul style="list-style-type: none"> <li>➤ ≤640 mg (K-5)</li> <li>➤ ≤710 mg (6-8)</li> <li>➤ ≤740 mg (9-12)</li> </ul> </li> <li>• Breakfast               <ul style="list-style-type: none"> <li>➤ ≤430mg (K-5)</li> <li>➤ ≤470 mg (6-8)</li> <li>➤ ≤500 mg (9-12)</li> </ul> </li> </ul>

<sup>1</sup>A comprehensive overview of USDA meal pattern requirements and nutrition standards, including resources and tools, is available at <http://www.fns.usda.gov/school-meals/nutrition-standards-school-meals>

<sup>2</sup>It is important to note that as of FY2015, schools are no longer required to meet sodium targets below Target 1 until the latest scientific research establishes that the reductions are beneficial for children (Consolidated and Further Continuing Appropriations Act, 2015).

## APPENDIX B

### Methods

#### Background

This study drew from the sample utilized in a recently completed multiple case study that examined competitive food and beverage policy implementation in exemplary high schools with HUSSC: SL certification (all award levels). (The earlier study was conducted by UIC study team member, Yuka Asada, as part of her doctoral dissertation work.) In the earlier study, high schools were selected from the HUSSC: SL database in February 2014 (total n= 203) using a criterion sampling strategy that aimed for variation in state competitive food and beverage law strength, region (of the United States), locale/urbanicity, school size, majority ethnicity, and free and reduced price meal eligibility. Table 1 lists the characteristics of the districts in which the FSDs in the current sample (n=9) are employed.

**Table 1. Characteristics of districts included in the FSD Key Informant Interviews**

State	Region	District locale	Total # students in the district	% Free-/ reduced-price lunch students in district	% non-Hispanic White students in district	% non-Hispanic Black students in district	% Hispanic students in district	County obesity rate (%)*
CA	West	Suburban	23,235	59.5%	24.0%	8.0%	50.7%	30%
CA	West	Suburban	10,560	82.3%	6.1%	20.4%	60.7%	22%
IL	Midwest	City: Large	395,948	84.6%	9.2%	40.4%	45.0%	25%
IA	Midwest	Town	1,414	44.8%	93.9%	0.1%	2.5%	31%
KS	Midwest	Rural	1,190	34.8%	93.4%	1.6%	2.6%	32%
MS	South	City: Small	4,608	90.9%	4.6%	90.5%	3.3%	35%
NY	Northeast	Town	1,476	29.3%	86.0%	0.5%	0.8%	29%
TX	South	Rural	11,423	88.3%	6.0%	9.9%	82.1%	21%
VA	South	Rural	13,163	33.3%	78.8%	4.9%	11.7%	31%

\*Obtained from [County Health Rankings](#) based on CDC BRFSS 2012 data

#### Recruitment

For the current study, FSDs were re-contacted from the previous study and invited to participate in a follow-up interview to discuss their experiences with the revised school meal standards. This study was approved by the University of Illinois (UIC) Institutional Review Board (#2013-1007), as well as two school district-level review boards.

#### Instrumentation, Data Collection and Analysis

A semi-structured interview guide was prepared by the UIC research team and reviewed by officials at USDA and the Rudd Center for Food Policy and Obesity at the University of Connecticut (a member of the UIC study team).

FSDs from 9 school districts in 8 states participated in semi-structured telephone interviews between March-April 2015. Interviews lasted 40-60 minutes and were audiotaped and transcribed verbatim by UIC researchers, coded and analyzed by Yuka Asada. The summary document was written by Yuka Asada, PhD, MHSc, and Margaret P. Ziemann, MPH, with review and feedback provided by the UIC Team PI, Dr. Jamie Chriqui.

## APPENDIX C

### Interview Guide

#### Semi-Structured Interview Guide Food Service Directors

Thank you very much for agreeing to participate in this follow-up interview. As mentioned in the [email/on the phone], I previously asked about your experiences with implementing snack policies, and now I am interested in hearing about your experiences with revised school meal standards.

Do you have any questions for me before I begin?

1. Please start by telling me about your general experience with implementing the recent revisions to the federal school meal standards.

Probes:

- You mentioned you began to apply for HUSSC in [YEAR], what changes did you make to receive HUSSC?
- What changes did you make towards meeting the new school meal standards?
- Do you feel the students generally liked the changes to the school meal?

For these next questions, I'm interested in hearing about how you've implemented very specific components of the revised school meal standards:

2. Could you please describe your experiences with implementing the revised whole grain-rich requirement?

Probes:

- [If clarification needed: Half of grains whole grain-rich upon implementation of rule and all whole grain-rich two years post implementation]
- What facilitated your implementation with this requirement?
- What strategies have you tried to facilitate student consumption of more whole grain-rich?
- What advice would you give to other FSDs trying to implement the whole grain-rich requirement?
- Has your state/school district applied for an exemption to the whole grain-rich requirement? If so, please tell me why?

3. Could you please describe your experiences with implementing the revised sodium requirement?

Probes:

- [If clarification needed: Target 1 of <1230mg ES; <1360mg MS; <1420mg HS for NSLP / for SBP Target 1 of <540mg ES; <600mg MS; <640mg HS]
- What facilitated your implementation with this requirement?
- What strategies have you tried to facilitate student consumption of lower sodium foods?
- What advice would you give to other FSDs trying to implement the sodium requirement?

4. Could you please describe your experiences with implementing the revised fruit and vegetable requirement?

Probes:



- [If clarification needed: F&V separate components; adds fruit req at lunch; 1cup fruit to all grade levels at SBP beg 2014-2015; veg subgroups (dark green, red/orange, beans/pea, starchy, other)]
- What facilitated your implementation with this requirement?
- What strategies have you tried to facilitate student consumption of more fruits and vegetables?
- Have you made any changes to the cafeteria to facilitate increased consumption? E.g., installed salad bars
- What advice would you give to other FSDs trying to implement fruit and vegetable requirements?

5. What is your impression of fruit and vegetable consumption since implementing the revised meal standards? Are students eating more fruit and vegetables? Are you measuring this in any way?

6. What is your impression of participation levels in school lunch since implementing the federal school meals standards?

Probes:

- Did your school implement the Community Eligibility Provision (CEP)?
- If so, how has that impacted participation?

7. What is your impression of plate waste since implementing the revised school meal standards?

Probes:

- Did you measure plate waste? If you measure food waste, approximately how much food is being thrown out?
- Do you think plate waste is the same for the entrée versus fruits or vegetables?
- Have you noticed changes to plate waste over time? Since 2012?
- What do you feel contributes the most to any plate waste at your school district? Has this changed since implementing the new meal requirements? If so, how?
- What do you think are the most effective strategies for reducing plate waste?

8. Can you describe any changes you've seen in food service revenues as a result of implementing the revised school meal standards?

Probes:

- Have these changes occurred over time?
- If no change or positive revenues: What strategies have you used to maintain revenues?

9. Last time, we discussed your perspectives about whether or not snack policies are impacting childhood obesity. What is your opinion about how the revised school meal standards are impacting childhood obesity now?

Probes:

- Do you feel they have the potential to impact childhood obesity in the future? In what ways?
- Do you feel the school meal standards are impacting students' health overall? In what ways?
- What, if anything, do you believe schools can do to reduce childhood obesity?

10. What component of the revised school meal standards changes have been the most successful in your eyes? Why?

Probe:

- Are there any other positive changes you've experienced or heard about as result of the new school meal standards in general?

11. What key factors do you think have made your school successful at implementing the revised meal standards? Are there any best practices you would be willing to share with other schools like yours?

12. OPTIONAL Q: You mentioned [INSERT QUOTE] last time, can you please expand more on this?

13. What are the next steps you'll be taking for implementing any changes to school meal standards?

14. Is there anything else you'd like to share about your experiences with revised school meal standards?

15. Do you have any questions for me at this time? Thank you so much for participating in this interview. I appreciate your time and contribution to this project very much. As with the previous interview, I will send you any briefs or materials that our team creates out of this study. Thank you again for your time.

## APPENDIX D

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