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# Challenges, Concerns, and Support Needs to Implement the Added Sugar Regulation: Perspectives of Oklahoma Child Nutrition Directors

- Taylor Peabody, MPH, RD, Cassidy Ring, MS, CHES, and Deana Hildebrand, PhD, RD

KEYWORDS: school nutrition, added sugars, challenges and concerns, support needs, speed scratch cooking

## INTRODUCTION:

Excessive consumption of added sugars remains a significant public health concern (2025 Dietary Guidelines Advisory Committee [DGAC], 2024). Current evidence indicates most Americans, including children, exceed the Dietary Guidelines for Americans recommendation for added sugars (Centers for Disease Control, 2024; U.S. Department of Agriculture, Food and Nutrition Service [USDA FNS], 2024a). An estimated 74–85% of children ages 5–18 years consume more than 10% of their daily energy from added sugars, increasing their risk of obesity and related comorbidities (DGAC, 2024). This is particularly concerning for this age group because foods high in added sugars, such as sugar-sweetened beverages, desserts, and sweet snacks, are often high in energy and low in nutrients, displacing nutrient-dense foods such as fruits, vegetables, and whole grains (DGAC, 2024; USDA FNS, 2022).

A 2021 study found that 92% of school breakfasts and 69% of school lunches prepared in the 2014–2015 school year exceeded the Dietary Guidelines for Americans' recommendations for added sugars (Fox et al., 2021). The primary contributor was flavored skim milk, which accounted for over one quarter of added sugars at breakfast and nearly half at lunch. Other leading sources at breakfast included cereals, condiments and toppings, muffins and breads, and granola and breakfast bars.

To align with the 2020–2025 Dietary Guidelines for Americans and reduce added-sugar consumption among school-age children, the school meal nutrition standards were updated to include limits on added sugars, implemented in two phases (USDA FNS, 2024a). As of school year 2025–2026, schools must implement Phase 1, which limits the amount of added sugars in cereals, yogurts, and flavored milks. In school year 2027–2028, Phase 2 will introduce a weekly limit on added sugars, with added sugars accounting for no more than 10% of total calories, in addition to the product-specific limits established in Phase 1. Dividing the regulation into two phases is intended to ease some of the immediate strain on those planning, preparing, and serving school meals; however, the added sugars limits introduce another layer to an already complex set of regulations (USDA FNS, 2024a).

A comment from a group of elected officials included in the Child Nutrition Programs: Meal Patterns Consistent with the 2020–2025 Dietary Guidelines for Americans Final Rule stated, “strong school nutrition requirements

are one of the most important public health achievements in a generation" (USDA FNS, 2024a). Although schools are among the healthiest food environments for children due to existing nutrition standards, efforts to further strengthen requirements must consider the full context of implementation, including procurement, meal preparation, and student participation and consumption (Jenkins, 2021; USDA FNS, 2024a).

While public comments on the Final Rule identified both concerns and potential solutions, it is critical that the child nutrition professionals implementing the standards contribute directly to the evidence base informing policymakers (USDA FNS, 2024a). As one Registered Dietitian noted in a comment, the perspective of those who apply the guidelines daily to feed children healthy meals is essential to successful implementation. At the time of this study, no published research described the operational changes required for school nutrition programs to efficiently meet the added sugars requirements or the challenges associated with doing so. Research examining these needs is necessary to support effective and efficient implementation. Therefore, the objective of this study was to explore the challenges, concerns, and support needs of school nutrition professionals related to the added sugars regulation through interviews with Oklahoma child nutrition directors (CNDs).

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## METHODOLOGY:

This study was conducted by Cooking for Kids Oklahoma in two phases. In phase 1, researchers hosted an online focus group with the Oklahoma State Department of Education (OSDE) Child Nutrition team to refine the questions for phase 2 semi-structured interviews with CNDs. This study was approved by the Oklahoma State University Institutional Review Board (IRB–24–468) on 10/23/2024.

### Sample

Participants in phase 1 were members of the OSDE Child Nutrition team, including Regional Program Specialists (RPSs) who supervise child nutrition programs in one of 16 multi-county regions. Researchers contacted the OSDE Child Nutrition Program Director to request an online focus group meeting with the Child Nutrition team in November 2024. Only members of this team were invited, satisfying the inclusion criteria. At the end of the focus group, RPSs were asked to assist with phase 2 recruiting by providing contact information for two lead child nutrition professionals from self-operated districts participating in a federal child nutrition program.

All 16 RPSs provided two contacts, yielding 32 potential participants who were contacted via email in January 2025 with study information and participation instructions. After two weeks, a reminder email was sent to non-respondents. Five declined participation, and one was no longer employed in child nutrition. After follow-up, the RPS from the one unrepresented region was asked to submit an additional contact to ensure statewide representation (Anderson, 2010). All phase 2 participants met the inclusion criteria of being their respective district's lead child nutrition professional, referred to hereafter as the child nutrition director (CND).

### Data Collection

Phase 1 data were collected through a one-hour recorded Zoom focus group in fall 2024. Researchers used semi-structured questions and gathered feedback to refine the interview guide for phase 2. Phase 2 data were collected through an online survey and recorded Zoom or phone interviews with CNDs. Interested participants completed an online survey to provide demographic information and schedule an interview. Consent was provided by advancing past the consent page in the survey. Interviews were conducted in early SPRING 2026 and followed a semi-structured format that allowed for clarifications and probing.

Secondary data from the Oklahoma State Department of Education (OSDE, 2025) and the U.S. Department of Agriculture, Economic Research Service (USDA ERS, 2024) supplemented demographic information collected from participants. The publicly available OSDE Community Eligibility Provision (CEP) and Low-Income reports provided information on CEP eligibility and free or reduced-price meal participation (OSDE, 2025). The USDA Economic Research Service Rural-Urban Continuum Codes (RUCC) dataset, which categorizes counties by population and urbanization, was also downloaded from a publicly available webpage (USDA ERS, 2024).

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**Data Analysis**

Participant contact information, survey data, and secondary data were downloaded to Microsoft Excel. Transcripts generated by Zoom and iPhone were downloaded to Microsoft Word and cleaned and deidentified by researcher 1, with clarification assistance from researcher 2. Transcripts were uploaded to Dedoose (Dedoose Version 10.0.34, Los Angeles, CA) and coded using a grounded theory approach to gain understanding of the challenges, concerns, and support needs participants expressed (Bradley et al., 2007). All transcripts were coded ad hoc by researcher 1, with codes refined iteratively until a codebook was developed. Researcher 1 then re-reviewed all transcripts to ensure consistent coding. To establish inter-coder reliability, researcher 2 independently coded three randomly selected transcripts (13.6% of the data) using the codebook established by researcher 1. The researchers discussed the minimal discrepancies until they reached 100% agreement. Researcher 1 revised the codebook to reflect the agreement discussion, then both researchers applied it to one additional transcript to confirm reliability (18.2% of the data). With 100% agreement achieved with no changes to the codebook, researcher 1 then coded the remaining transcripts using the finalized codebook (Campbell et al., 2013; O'Connor & Joffe, 2020).

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## RESULTS AND DISCUSSION:

Eighteen members of the OSDE Child Nutrition team, including all 16 RPSs, participated in the focus group. Of the 33 CNDs invited to participate in phase 2, 22 (66.7%) completed interviews, lasting 27–63 minutes. All 16 OSDE regions were represented, with six regions providing two participants. Fifteen counties were represented, with just under half classified as rural (USDA ERS, 2024). Most districts (86.4%) had free and reduced rates (labeled as % Low Income in Table 1) above 50%, and seven districts participated in CEP, including three in at least one school and four district-wide (OSDE, 2025). Participants reported a range of job titles, including child nutrition director, assistant director, cafeteria manager/director, and superintendent. Approximately one quarter reported never preparing or serving food, another quarter did so as a primary part of their role, and the remaining half indicated they assist with preparation as needed. Table 1 presents the demographic characteristics of the participants and their district.

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**Table 1.** *Participant and District Characteristics*

| Participant Characteristics | | | | District Characteristics | | | |
|---|---|---|---|---|---|---|---|
| **Participant (P)** | **Position Title** | **Prepares Food** | **Years in Position** | **Metro Site[a]** | **Enrollment[b]** | **% Low Income[b]** | **# of CEP Sites[c]** |
| 1 | Child Nutrition Assistant Director | Sometimes | 3 | Metro | 2,826 | 59.2 | 0 |
| 2 | Cafeteria Manager/ Supervisor | Main job | 7 | Metro | 687 | 11.4 | 0 |
| 3 | Food Service Director | Sometimes | 8 | Metro | 1,919 | 88.7 | 4 |
| 4 | Food Service Director | Main job | 13 | Metro | 1,307 | 94.7 | 3 |
| 5 | Director of Child Nutrition | Never | 0.5 | Metro | 25,746 | 33.5 | 0 |
| 6 | Child Nutrition Director | Sometimes | 2 | Metro | 12,087 | 87.9 | 19 |
| 7 | Director | Sometimes | 13 | Nonmetro | 854 | 84.1 | 5 |
| 8 | Child Nutrition Director | Sometimes | 5 | Nonmetro | 1,355 | 47.8 | 0 |
| 9 | Child Nutrition Director | Sometimes | 4 | Metro | 582 | 83.2 | 2 |
| 10 | Cafeteria Manager/Director | Main job | 2 | Metro | 588 | 72.5 | 3 |
| 11 | Nutrition Director | Never | 2 | Nonmetro | 3,008 | 85.8 | 6 |
| 12 | Director of Child Nutrition Services | Sometimes | 20 | Nonmetro | 3,329 | ≥95 | 7 |
| 13 | Superintendent/Child Nutrition Director | Sometimes | 7 | Nonmetro | 501 | 84.2 | 0 |
| 14 | Manager | Main job | 11 | Nonmetro | 187 | 47.6 | 0 |
| 15 | Assistant Superintendent | Never | 5 | Metro | 2,998 | 81.8 | 5 |
| 16 | Child Nutrition Director | Main job | 1 | Nonmetro | 710 | 82.8 | 0 |
| 17 | Child Nutrition Director | Never | – | Metro | 32,707 | ≥95 | 57 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Child Nutrition Director | Sometimes | 5 | Nonmetro | 514 | 74.5 | 0 |
| 19 | Director of Child Nutrition | Never | 2 | Metro | 14,950 | 76.9 | 0 |
| 20 | Director of Child Nutrition | Sometimes | 3 | Metro | 19,882 | 50.6 | 0 |
| 21 | Child Nutrition Director | Sometimes | 20 | Nonmetro | 309 | 66.3 | 0 |
| 22 | Cafeteria Director | Main job | 2 | Nonmetro | 261 | 84.3 | 3 |

[a] 2023 Rural-Urban Continuum Codes Dataset (USDA ERS, 2024)

[b] 2025 Low Income Report (OSDE, 2025)

[c] 2025 Community Eligibility Report (OSDE, 2025)

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The interviews revealed an extensive catalog of challenges, concerns, and support needs related to implementing the added sugars limits in school nutrition programs. Illustrative quotes in Tables 2, 3, and 4 provide evidence of data interpretation and highlight key findings (Machado et al., 2022; Yeo & Han, 2025).

**Challenges and Concerns Regarding the Added Sugars Regulation**

At the time of the study, all 22 participants reported challenges related to the added sugars regulation. Phase 1 product-based limits raised concerns about product availability, cost, and student acceptance. Phase 2 percentage-based limits highlighted broader operational challenges, including menu planning, procurement, and preparation, as programs considered adaptation strategies such as moving to savory, protein-focused menus and speed scratch cooking.

***Lack of Clarity***

Many participants wanted to begin changes gradually so staff and students could adjust; however, uncertainty regarding the 10% limit, such as how it functions and how Phase 1 interacts with Phase 2, limited confident planning (Table 2, Quotes 1–3). A participant expressed concern about purchasing new products prematurely, noting the potential financial and logistical burdens of acting on incomplete information.

In addition to regulatory uncertainty, some participants were unclear about what ingredients contribute to added sugars (Table 2, Quote 4). Participants also questioned the potential use of artificial sweeteners in reformulated products and noted the absence of clear guidance (Table 2, Quote 5). The uncertainty extended beyond child nutrition operators, with one participant recalling a manufacturer expressing disbelief that the regulation would be carried out.

***Balancing Compliance with Menu Variety and Appeal***

Participants anticipated difficulty meeting the new limits without reducing menu variety or student appeal. Several participants noted that if commercially prepared breakfast items such as cinnamon rolls, donuts, and breakfast bars aren't reformulated, menu cycles will likely be shortened, leading to menu fatigue and reduced student satisfaction (Table 2, Quotes 6–8).

Several participants plan to introduce more savory or protein-based items to manage added sugars, but these items are typically higher in cost, sodium, and saturated fat, complicating compliance with other nutrient standards (Table 2, Quotes 9–10). Participants expressed particular concern about balancing the added sugars limits with the 2027 sodium targets (USDA FNS, 2024b).

***Financial Constraints***

Participants said the lower breakfast reimbursement rate is already a challenge, and more funding would help them implement the added sugars limits. They explained that any time a manufacturer reformulates a product to meet new standards, costs are passed down to schools (Table 2, Quote 11). As a result, products reformulated to reduce added sugars will likely be more expensive.

Menu planning strategies, such as replacing sweet items with higher-protein savory items, were discussed as a possible solution, but these items can be expensive (Table 2, Quote 12). Participants discussed using speed scratch cooking to reduce dependence on commercial products, but this requires balancing lower food costs with higher labor costs (Table 2, Quotes 13–14). Additionally, not all kitchens are equipped to support this production model and may require significant financial investment in culinary skill training and equipment. Overall, participants agreed that the added sugar limits will have financial repercussions (Table 2, Quotes 12, 14–15).

***Staffing Capacity and Workforce Challenges***

Participants described difficulty recruiting, retaining, and promoting staff due to low financial compensation (Table 2, Quotes 16–17). Even when staffing allocations technically meet enrollment-based standards, programs may still be operationally understaffed (Table 2, Quote 18). Breakfast production was described as particularly demanding because of limited labor hours, short production time, and competing production priorities. Several noted breakfast preparation often falls to a single kitchen manager, as staff start times must be staggered to ensure adequate coverage for the day (Table 2, Quote 19). Participants worry the added sugars limits will further strain staff capacity (Table 2, Quote 20).

Regarding speed-scratch cooking as a possible solution, participants said labor hours and culinary skills would be barriers, as their employees are accustomed to heat-and-serve preparation and lack the training needed for efficient baking and speed-scratch cooking (Table 2, Quotes 21–23). They emphasized the need for targeted professional development to build the skills needed to produce appealing and compliant menu items.

***Product and Vendor Concerns***

Participants questioned whether manufacturers will reformulate products to meet the new standards and whether those products will be available in sufficient quantities, particularly in rural areas, where limited availability can already disrupt operations (Table 2, Quotes 24–25). They also worried about declines in product quality and flavor, noting reductions in sodium, saturated fat, and now added sugars could negatively affect flavor (Table 2, Quotes 24, 26–27).

A few participants said their menu-planning and nutrient-analysis software programs lacked fields or functions for tracking added sugars. They questioned when the nutrient analysis function and product databases would be updated, and how ingredients such as sugar and honey would be handled by the software when the labels of these ingredients list only total sugars, even though they contribute added sugars in recipes (Table 2, Quotes 28–29). Overall, participants expressed frustration with the lack of communication from software companies because they rely on these systems to ensure compliance. One participant even raised the question of whether the current software would retain USDA approval, given their lack of added sugars functionality (Table 2, Quote 29).

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***Student Acceptance and Participation Impacts***

Participants indicated that younger students often prefer sweet breakfast foods and were concerned that lower-sugar products or recipes might affect student acceptance, leading to increased food waste and reduced participation (Table 2, Quotes 30–33, 35). Some who had already introduced lower-sugar products said students reacted negatively because they could both taste the difference and see it on the package labeling (Table 2, Quotes 31–32).

Participants identified several consequences of declining participation at breakfast, including reduced classroom readiness, lower academic outcomes, and missed opportunities to address childhood hunger (Table 2, Quotes 33–34). A participant challenged the notion that 'if they're hungry, they'll eat,' explaining that young children don't think that way. From an operational standpoint, lower participation reduces reimbursement revenue, creating a cycle of financial strain that limits the ability to invest in program improvements (Table 2, Quote 35).

Overall, participants feared they may struggle to meet the added sugars requirements without compromising meal quality or operational stability.

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**Table 2.** *Representative Participant Quotes Highlighting Challenges and Concerns*

| | |
|---|---|
| **Lack of Clarity** | |
| *10 out of 22 participants expressed this concern: P2, P7, P8, P9, P11, P12, P14, P17, P19, and P22* | |
| Quote 1 | "How do we change that without knowing what to change it to? . . . I'm not sure how to really implement it [the added sugars regulation] into our district at this point. It really—there's so many things that are up in the air with that, like, we don't know how—we know what the rule is, but we don't know how to implement it, yet or how to teach it." (P22) |
| Quote 2 | "It [Phase 2] sure is wide open" (P7) |
| Quote 3 | "If the milk counts in there as part of your 10%, I mean, that's going to be really hard" (P9) |
| Quote 4 | "I don't know which ones [ingredients] contain an added sugar thing" (P8) |
| Quote 5 | "When we say lower sugar, are they substituting that sugar out for aspartame?" (P2) |
| **Balancing Compliance with Menu Variety and Appeal** | |
| *20 out of 22 participants expressed this concern: P1, P2, P3, P4, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P17, P18, P19, P20, P21, and P22* | |
| Quote 6 | "As of right now, as my current menu stands, I'll have to take several things off of it and the rotation—right now I'm on a 4 week menu cycle and I'll probably have to drop that down." (P1) |
| Quote 7 | "Variety of things that the kids—that we can serve at breakfast is going to be less unless our manufacturers catch up." (P12) |
| Quote 8 | "We can only serve them biscuits and gravy so many days in a row or in a month" (P22) |
| Quote 9 | "Every time we put those [savory items] in there [the menu planning software], our nutritionals pop red because they're like 'You have too much fat, redo it.'" (P17) |
| Quote 10 | "I have a hard time with the sodium to get everything in to meet my weekly limits and my daily limits. I'm having a hard time adding protein, even though I want to add protein. And I feel like this [the added sugars limits] is just gonna make it a little harder, even with all of that." (P18) |
| **Financial Constraints** | |
| *14 out of 22 participants expressed this concern: P1, P4, P5, P7, P9, P12, P13, P14, P16, P17, P18, P19, P20, and P22* | |
| Quote 11 | "Anytime a manufacturer has to reformulate a product to be CN labeled, those costs are passed to us, they're absolutely passed to us." (P17) |
| Quote 12 | "All of those things that have more protein in them, more cheese, more chicken, beef, whatever, they cost more, the dollar amount, and you're not being reimbursed as much at breakfast as you are at obviously lunch" (P19) |
| Quote 13 | "I mean ideally, scratch cooking would be the best option [to help meet the added sugars limits]" (P12) |

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|---|---|
| Quote 14 | "If I have to serve things that are not already prepackaged and do more speed scratch or fast scratch items, then that cuts into my labor hours. And so that's a concern for me. I don't know how logistically I would do that. . . . it will be a financial burden if we have to bring more people in earlier." (P1) |
| Quote 15 | "It costs more for more higher protein options and so I think we need more funding if we're expected to serve more protein and less sugar . . . I think if you're going to more labor at breakfast, we would need more money for that too." (P5) |
| **Staffing Capacity and Workforce Challenges** | |
| *19 out of 22 participants expressed this concern: P1, P4, P5, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P17, P18, P19, P20, P21, and P22* | |
| Quote 16 | "We don't pay enough for anybody to want to come to work in here, so I mean, like I'm working tons of hours" (P10) |
| Quote 17 | "They [managers] don't get paid very much money to be required to know all this information, and you know, work as hard as they do, it's hard to find people that want to step up and do it [become a manager]." (P4) |
| Quote 18 | "I know that they hire people, and it goes along with your enrollment, but we're just shorthanded" (P14) |
| Quote 19 | "Our managers usually come in and do breakfast on their own so that they have their staff long enough at the end of the day to clean up." (P5) |
| Quote 20 | "implementing [the added sugars limits] adds on to our already stressed-out child nutrition workers" (P13) |
| Quote 21 | "We would really have to ease into that [scratch cooking] because my employees aren't—not that they're not capable, they're just not used to doing that" (P12) |
| Quote 22 | "Do I have the labor force and the culinary skills in my kitchens for them to be able to do that [speed scratch cook]?" (P17) |
| Quote 23 | "I think if we were gonna go back to like making scratch breakfast items like baking, or anything like that, we would need [training]. Like our people don't know how to do that anymore, they used to, but we don't do that anymore" (P5) |
| **Product and Vendor Concerns** | |
| *20 out of 22 participants expressed this concern: P1, P4, P5, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P17, P18, P19, P20, P21, and P22* | |
| Quote 24 | "A lot of the problems are going to be dealing with the manufacturers—Can they get there? Can they do it? Can they provide more quality options that taste good? . . . my biggest concern is just manufacturer compliance right now." (P19) |
| Quote 25 | "it will force us to back away from some of those heat-and-serve items. If they are not reformulated to fit the standards, we can't use them [manufactured products]" (P6) |

| | |
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| Quote 26 | "So, and then—so they take, you know, they've taken a lot of the fats, total fat and saturated fat and sodium, and so—but they've never taken sugar. So that's sort of like what every manufacturer is relying on to get any type of flavor in there, is sugar. So, if they want us to make palatable foods, we're gonna need more fat, saturated fat, and sodium allowances." (P5) |
| Quote 27 | "Biggest concerns is what I've already stated about being able to get the products, and then the quality of the taste—I think they can make that work, but you never know until you actually get to taste it. But they've already taken so—put so many regulations in that we're—the quality of the food has gone down a little bit." (P15) |
| Quote 28 | "We use Mosaic Back of House, and so we run all of our menus through that to make sure that we're meeting all of the weekly requirements. So is Mosaic gonna go in and make those requirement changes [to include added sugars] for us?" (P12) |
| Quote 29 | " We have Nutrikids, and no, currently, there is not a place to even [see the added sugars]—how are we supposed to even figure that? . . . are these softwares approved now? Or not approved now because the added sugar isn't in there? I don't know. I haven't heard anything from Heartland—who's the parent company of Nutrikids—if they are—if there's going to be some kind of upgrade this summer. Because what's the timeline?" (P19) |
| **Student Acceptance and Participation Impacts** | |
| *21 out of 22 participants expressed this concern: P1, P2, P3, P4, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, and P22* | |
| Quote 30 | "The kids just aren't going to want to eat" (P10) |
| Quote 31 | "[Students are] griping already. . . . they know number one, what it's supposed to taste like, and number two, it's written all over the package." (P3) |
| Quote 32 | "It's just hard when the foods that they get outside of the school taste like—and then they come here, and they don't want to eat it, because it doesn't taste normal to them." (P4) |
| Quote 33 | "If our food doesn't taste good, that's right where it's going [to the trash can], and that does nothing to curb childhood hunger at all." (P14) |
| Quote 34 | "The child nutrition program is within the top concerns that I have every day as a school superintendent, not only because I'm the child nutrition director, but because I'm concerned about student outcomes academically." (P13) |
| Quote 35 | "If your participation drops, well, then your reimbursement drops, and then you're just in the cycle—then I don't have enough money to buy the things that, you know, cost more, and it's—you know, it's just a spiral." (P19) |

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**Not Concerned**

During the interviews, 16 participants indicated there was at least one area regarding the added sugars limits they were not concerned about. However, those participants expressed concerns elsewhere, indicating no participant was entirely unconcerned. Most participants who expressed a lack of concern were confident that manufacturers and distributors would provide compliant products (Table 3, Quotes 1–2). Other common reasons included being mostly or fully compliant with Phase 1 (Table 3, Quotes 3–4), not serving many high sugar items (Table 3, Quotes 5–6), already incorporating some scratch cooking (Table 3, Quotes 7–8), and not expecting participation to decline (Table 3, Quotes 9–10). Less common reasons included confidence in updating menus, recipes, and procurement to control added sugars (Table 3, Quotes 11–13), ease of adaptation in smaller districts (Table 3, Quote 14), being more concerned about other issues (Table 3, Quote 15), and using maple-infused products to avoid breakfast syrup (Table 3, Quote 16).

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**Table 3.** *Representative Participant Quotes Highlighting Reasons Participants were Not Concerned*

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|---|---|
| **Confident in Manufacturers and Distributors Providing Compliant Products** | |
| *7 out of 22 participants shared this perspective: P2, P5, P10, P15, P18, P21* | |
| Quote 1 | "I feel pretty confident that they [suppliers] can [get the products they need]. . . . the vendors will still make money off of the product. And we're just gonna need a product that meets the requirement. . . . So, I feel pretty good about it." (P15) |
| Quote 2 | "I was telling my ladies, I was like, 'I'm not gonna panic yet. I'm gonna give them–'I mean, Ben E Keith is who I order from almost exclusively and they cater to schools, their companies, you know, they carry products that cater to schools so I feel like they'll be on top of that as much as we are trying to fix it because they're gonna want to sell those things to us. That's just my opinion. I don't know if they can get it done fast enough, or if they will, but I feel like they will." (P18) |
| **Already Mostly or Fully Compliant with Phase 1** | |
| *6 out of 22 participants shared this perspective: P5, P6, P7, P8, P9, and P22* | |
| Quote 3 | "The chocolate milk and the white milk, it's already in compliance. Yogurt for us is already in compliance . . . my cereal already is in compliance . . . next year, I do not see it as a huge issue next year at all." (P7) |
| Quote 4 | "The first Phase we are—well pretty much already meeting that, there are only like one or two cereals that do not meet the requirements, but as far as flavored milk and yogurt, we're already doing Phase 1." (P5) |
| **Does Not Serve Many High Sugar Items** | |
| *4 out of 22 participants shared this perspective: P3, P15, P16, and P22* | |
| Quote 5 | "I mean, right now it's not a lot of sugar [on the menu], honestly." (P16) |
| Quote 6 | "It's [the added sugars regulation] going to affect us just a little bit, but I don't think it's going to affect us a lot. We don't do a lot of sugars" (P22) |
| **Already Incorporates Some Scratch Cooking** | |
| *4 out of 22 participants shared this perspective: P3, P9, P10, and P22* | |
| Quote 7 | "I am glad that we do more scratch, I think it's probably less sugar than the heat and eat items so we might be good there" (P3) |
| Quote 8 | "At that point, I'm pretty sure we could handle making the breakfasts and everything from scratch" (P22) |
| **Not Expecting Participation to Decline** | |
| *3 out of 22 participants shared this perspective: P8, P10, and P15* | |

| | |
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| Quote 9 | "If we can get the right amount of stuff, they [students] may not ever notice that we have done a little playing with their stuff, you know." (P8) |
| Quote 10 | When asked if they were worried about participation decreasing participant 15 said, "I think we can hold to the—to an even balance because we're dealing with—my district is a high free and reduced district of about 80%, around there, and so those kids are gonna be getting fed anyway." (P15) |
| **Confident in Updating Menus, Recipes, and Procurement to Control Added Sugars** | |
| *4 out of 22 participants shared this perspective: P1, P2, P6, and P20* | |
| Quote 11 | "I can update my menus, I can update the recipes, it just takes time. So, I'm not that concerned about it. . . . as far as the execution of writing the menu and rolling it out, I think I can handle that without any stress. . . . the software I use in Health-e Pro makes it easy; I can go in and make whatever kind of adjustments you know." (P1) |
| Quote 12 | "If we're not able to have the cereal selection, well, we can fall back and do whether it's the cheese omelet and making sure that that meets regulation, and do oatmeal and not have sugar in it" (P2) |
| Quote 13 | "I feel comfortable in finding alternative things for our kids." (P6) |
| **Ease of Adaptation in Smaller Districts** | |
| *1 out of 22 participants shared this perspective: P2* | |
| Quote 14 | "With us being such a small school, and we're just one school in this district that it's not—I don't think for us to get product, isn't going to be as difficult as I think it would be for a bigger district and trying to get product. I think we're easier to adapt." (P2) |
| **More Concerned About Other Issues** | |
| *1 out of 22 participants shared this perspective: P6* | |
| Quote 15 | "I think that's [staffing is] the one piece of the puzzle that I'm most worried about. The actual sugar being reduced, I'm not super worried about it." (P6) |
| **Use Maple-Infused Products to Avoid Breakfast Syrup** | |
| *1 out of 22 participants shared this perspective: P19* | |
| Quote 16 | "We don't do like syrup on the side, but some of the like the pancakes are like certain maple infused, or something like that. But we actually don't do any of the dipping sauces with them." (P19) |

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**Support Needs**

Participants were asked what support they needed to help reduce added sugars in their programs. All participants offered input on the knowledge, resources, and training they felt were necessary to implement the new limits effectively.

***Training and Resources***

Training and resource needs included information about the added sugars regulation, recipes and menus, and culinary skill development. Participants wanted clear information on the regulatory requirements for added sugars for themselves, their staff, and their communities (Table 4, Quote 1). Due to confusion about added sugars, participants emphasized the need for training that builds foundational understanding of what added sugars are and how to identify them on the Nutrition Facts label. While preferences differed on the level of detail, all participants supported the creation of concise, customizable training materials that provide consistent, easy-to-understand information.

Participants requested low-added-sugar recipes with accompanying operational information such as preparation time, required equipment, advance-prep instructions, photos, or short demonstration videos, and serving prompts (Table 4, Quote 2). They also wanted sample menus that meet Phase 2 requirements while retaining familiar, student-approved items. Participants indicated recipes and menus alone are not sufficient for programs accustomed to heat-and-serve models, and called for culinary training in baking, flavor-enhancing methods, and presentation and service strategies (Table 4, Quote 3). Workflow and supervisory training for managers is also needed to promote kitchen efficiency.

Participants want training and resources as soon as possible so they can begin adjusting before Phase 2 takes effect (Table 4, Quote 4). They suggested scheduling live training on professional development days or after lunch service. Unfortunately, several participants said insufficient staffing limits their ability to participate in training or utilize resources.

***Collaboration***

Many participants favored in-person meetings for collaborating with other child nutrition professionals to allow for richer discussion, but acknowledged virtual meetings can be more practical and are still valuable. Preferences for peer collaborators varied, with some suggesting regional or geographic groupings, while others wanted opportunities to hear ideas from districts that were demographically similar. Participants also mentioned asynchronous options such as a Facebook group or GroupMe. Regardless of format, all participants agreed that peer collaboration would help them share ideas, problem-solve, and support one another (Table 4, Quote 5).

While viewed as beneficial, challenges for participating in collaboration included limited time, travel costs, and uncertainty about whom to contact (Table 4, Quotes 6–7). To address these challenges, they suggested a state-level organization host and facilitate multiple collaboration formats.

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***Advocacy***

A few participants emphasized the need for stronger advocacy and communication across all levels of the child nutrition system. Several called for more positive publicity that showcases the quality, effort, and professionalism of Oklahoma child nutrition programs, helping the public appreciate the complexity of preparing and serving school meals (Table 4, Quotes 8–9). Participants also suggested resources to help communicate with vendors to ensure manufacturers understand the new regulation and the need for compliant products in sufficient quantities (Table 4, Quote 10). Finally, participants called for advocacy to improve funding, staffing structures, and compensation levels (Table 4, Quotes 11–12).

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**Table 4.** *Representative Participant Quotes Highlighting Support Needs*

| | |
|---|---|
| **Training and Resources** | |
| *All 22 participants discussed this support need* | |
| Quote 1 | "If there was like a high level training and then a low level training, you know what I mean, like super high level goes into all the little details [about the added sugars regulation] that you might not think of for managers, directors, and above. But then, like a low-level training for staff, like maybe a quick video or a template, or something that they could read over that explains the why and the important stuff that they need to know." (P1) |
| Quote 2 | "I think like a like a very quick like video of just like, step by step of how the recipe kind of comes together to show like how easy it is. . . . this is a new recipe we're doing and here's a video of how we're gonna assemble it. And I think that would be a good visualization for them of what all the steps look like and what the end product should look like" (P6) |
| Quote 3 | "training or resources on how to make foods more palatable with limited added sugar, like what you could use, or different cooking methods, you know, could help with that. . . . And then probably just cooking trainings to begin with, like how do you prepare these items and make it presentation-wise or cooking method-wise more palatable for the students." (P20) |
| Quote 4 | "Well, having those recipes already formulated for lower sugar so we don't have to go in and make those conversions would be helpful so it's just right there. I think that would be the biggest thing because if we're looking at transitioning to scratch cooking for those lower sugar options, having something that's already done so that we could maybe implement now" (P12) |
| **Collaboration** | |
| *21 out of 22 participants discussed this support need: P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P16, P17, P18, P19, P20, P21, and P22* | |
| Quote 5 | "If everyone could kind of brainstorm, like different districts, and talk about any lower sugar items that they're already doing that are lower sugar, high participation, and okay on cost . . . not everyone having to reinvent the wheel, like everyone share their best ideas" (P5) |
| Quote 6 | "With your small schools, you lose this connection where there's no true director—it might be the principal, it might be the superintendent, or it might be somebody who never steps inside the kitchen that actually would get all those emails or all that stuff [communication about support and collaboration opportunities]." (P7) |
| Quote 7 | "I feel like also a thing out here is all of us are shorthanded. And I know that they hire people and it goes along with your enrollment, but we're just shorthanded, we're busting our butts out here. So, if we did get like, you know, outreach from people that are close— |

| | |
|---|---|
| | there—a lot of the times we don't even have time to collaborate with those people, because by the time we get all done and they get all done, the only thing we want to do is go home." (P14) |
| **Advocacy** | |
| *9 out of 22 participants discussed this support need: P1, P4, P10, P11, P13, P14, P17, P19, and P20* | |
| Quote 8 | "I think a lot of times the rules and the things that do come to us are based off of taking care of the worst problems instead of focusing on what's positive—I don't ever really see that. So, I think if there's ways for you all, the State Department. . . to start highlighting positive things that are going on in child nutrition across the state and even the nation, I think that's not something we see. . . . I'm pretty proud of what we serve. I'm pretty proud of the options that we give our kids . . . we have a dedicated staff of ladies who are working very hard and put a lot—as much heart as they do cooking skill into to what they're putting out for kids because they love the kids that they see every day. And so, I think, finding ways to highlight that and to showcase that are important steps also on the on the backside of everything that we do." (P13) |
| Quote 9 | "Advocacy for child nutrition and what that actually looks like and how our standards should be. And you know, just communicate it because if you're not in it every day, people, they don't know." (P20) |
| Quote 10 | "Having help reaching out to manufacturers to see if they really are ready for this, and if they know what kind of volume they'll have . . . any kind of support with the manufacturers would be fantastic" (P1) |
| Quote 11 | "I can't get anybody to do it [be a kitchen manager]. . . . they don't get paid very much money to be required to know all this information, and you know, work as hard as they do, it's hard to find people that want to step up and do it." (P4) |
| Quote 12 | When asked what would be helpful if you have to do more cooking at breakfast, Participant 14 said, "An actual morning person that comes in with me. . . . You know, because like I use a lot of my morning time, you know, doing my office work and things like that—like when there's nobody here, it's all silent, I like to do all my paperwork and office work and things like that. So, if I had somebody that would actually come help me do the breakfast cooking and prep, that's really what I need more than anything." She then said "My perfect plan for this child nutrition program—because we don't have an actual director, like I share those responsibilities with the lady that does our point of sale—like a perfect plan for me, would be for me to have the actual director's job and then hire a manager so that way—I just feel like it would be—run more smoothly." (P14) |

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## CONCLUSIONS AND APPLICATION:

This study provided CNDs the opportunity to voice their challenges, concerns, and support needs regarding the revised school meal nutrition standards. Participants anticipated significant challenges serving meals lower in added sugars, particularly at breakfast. They voiced concerns about the Final Rule lacking operational clarity, balancing compliance with menu variety, financial and staffing constraints, product availability, vendor compliance, and student acceptance and participation. Even those who were less concerned about implementation identified at least one barrier or area of uncertainty.

Procurement challenges identified in this study align with prior literature documenting concerns related to both commercial products and USDA foods (SNA, 2023, 2025a, 2025b; U.S. Government Accountability Office, 2023; USDA FNS, 2024c). In their 2021 study, Fox et al. noted the need for manufacturers to produce lower sugar products suitable for school meals. However, the School Nutrition Association (2023) reported the cost of product reformulation is passed on to schools, making it difficult for school districts to afford products that meet the standards. Discussions at the 2023 Supply Chain Summit highlighted increased reimbursement as a strategy to reduce supply chain issues (SNA, 2023). Without additional funding for school nutrition programs to back procurement, manufacturers may not sell enough volume to justify the high research and development costs associated with frequent updates to the standards and may choose to exit the school nutrition market, further limiting product availability for schools. If these challenges persist, school districts may need to move to speed scratch cooking rather than heat-and-serve manufactured products, particularly at breakfast.

Speed-scratch preparation methods can help child nutrition programs reduce added sugars and sodium while addressing growing concerns about processed foods (Zuercher et al., 2025). USDA's recent partnership with Applied Curiosity Research to gather information about fresh food preparation and scratch cooking from school food authorities highlights the relevance of this production method (USDA FNS, 2025). While speed scratch cooking can help address procurement concerns, it introduces its own considerations. Directors must increase staffing and labor hours; menu planners must create or select recipes to build menus that meet all school meal nutrition standards; kitchen managers must plan for more time- and labor-intensive preparation; and cooks must have the culinary skills to execute speed-scratch cooking and baking techniques. To be successful, training and resources on foundational cooking skills, all the way up to human resource management, are needed (Asada et al., 2017). Several participants in this study described taking, or planning to take, a proactive approach to implementing the new standards and to incorporating more speed-scratch cooking. Lessons can be learned from these districts to help develop applicable support tools. In addition, these program leaders may serve as peer collaborators for other districts.

Several commenters on the Final Rule expressed concern that overly restricted standards may reduce the appeal of school food, leading to food waste or students seeking less nutritious food sources (USDA FNS, 2024a). That concern was echoed by the CNDs in this study, who worried these changes would lower student satisfaction and participation. Understanding how recipe changes influence satisfaction can help address these concerns. Peters et al. (2018) examined how reducing added sugars and incorporating calorie-free spices

influenced recipe enjoyment, with results varying by the complexity of the recipe's flavor profile. Reducing added sugars and adding spices in simple recipes, such as oatmeal, had lower appeal, while complex recipes, such as apple crisp, maintained satisfaction ratings even with a 37% reduction in added sugars compared to the original recipe. These findings indicate that some recipes can be modified to reduce added sugars without sacrificing student satisfaction, helping identify strong candidates for reformulation. Successfully implementing these changes will require targeted training and resources to modify recipes and prepare the resulting speed scratch dishes.

**Key Practice Implications**

Support needs were discussed alongside challenges and concerns, offering guidance for actionable assistance opportunities. Participants identified the need for timely information and training on the added sugars limits, as well as practical resources such as culinary skill development and compliant recipes and menus. Additionally, tools for recipe modification, taste testing, and student feedback collection can help programs adapt to the new requirements. Participants also indicated that peer collaboration and information-sharing networks would support problem-solving and knowledge exchange. Finally, several participants emphasized the importance of advocacy to increase awareness of and support for child nutrition programs among decision-makers and the public.

**Conclusion**

This study provides insight into how federal nutrition policy translates to district-level operations and the need for balancing the provision of nutritious foods with student satisfaction and operational feasibility when modifying school meal nutrition standards. School nutrition professionals must be central contributors to these conversations. While these findings focus on the regulation of added sugars, this study can provide a framework for understanding how child nutrition programs respond to regulatory changes and the importance of school nutrition professionals contributing to the conversation. Future research on the challenges and support needs of school nutrition professionals can contribute to the knowledge base and provide supporters with actionable tasks directly from those who would benefit from their support. Further explorations in operational readiness, impacts of culinary training on student satisfaction, and the outcomes of peer collaboration would benefit the field.

**Strengths and Limitations**

The use of qualitative methods strengthened this study by allowing for deeper exploration of participant perspectives. Additionally, the researchers' experience from their employment with Cooking for Kids Oklahoma, a culinary training program for child nutrition professionals, contributed to their understanding of school nutrition operations and context.

This study has a few limitations. The sample was limited to Oklahoma CNDs, so the results may not be generalizable to programs in other states. The rurality of participant districts also differed from statewide demographics. According to the RUCC, 76.6% of Oklahoma counties are considered nonmetro, compared with 45.5% of the districts represented in this study (USDA ERS, 2024). This may reflect that CNDs in smaller, more

rural districts have additional food preparation responsibilities than those in larger, more urban districts, and thus have less time to participate in studies such as this. In addition, ad hoc coding prevented the calculation of formal inter-rater reliability statistics, though the coding process involved iterative discussion between researchers to reach consensus.

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## ABSTRACT

### PURPOSE/OBJECTIVES

The school meal nutrition standards were recently revised to include two phases of added sugars limits beginning July 1, 2025 and July 1, 2027. Phase 1 establishes product-based limits for milk, cereal, and yogurt. Phase 2 introduces a weekly limit that restricts added sugars to no more than 10% of total calories, in addition to Phase 1 limits. This study explored the challenges, concerns, and support needs of child nutrition directors (CNDs) related to the implementation of these revised standards.

### METHODS

This study was conducted in two phases using a qualitative research design. Phase 1 included an online focus group with the Oklahoma State Department of Education Child Nutrition team to refine interview questions and assist with recruiting for phase 2. Phase 2 involved an online survey and virtual semi-structured interviews with CNDs. Interview transcripts were analyzed using grounded theory and were reviewed for inter-coder reliability.

### RESULTS

Interviews with 22 CNDs from the 16 Oklahoma child nutrition regions revealed challenges related to both phases of the added sugars regulation. Phase 1 concerns focused on product availability, cost, and student acceptance, while phase 2 concerns highlighted broader operational challenges, including menu planning, procurement, recipe modification, and preparation. Many participants discussed speed scratch cooking as a possible solution, though they noted it would introduce additional staffing, training, and equipment challenges. While some participants were confident in their supplier support or their current compliance, all expressed at least one challenge or concern. Participants also identified specific knowledge, resources, and training needed to successfully implement the added sugars limits.

### APPLICATIONS TO CHILD NUTRITION PROFESSIONALS

Oklahoma CNDs anticipated significant challenges reducing added sugars, particularly at breakfast, but emphasized the value of proactive planning, clear guidance, and relevant training. Findings illustrate how federal nutrition policy translates to district-level operations and identify actionable opportunities to support effective implementation.

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