HEALTHY MEAL SCORE

CENTER FOR Nutrition & Health Impact

CHEF ANN FOUNDATION

Healthy Meal Score

Purpose and Development

The Healthy Meal Score (HMS) is a novel measure that was developed in collaboration with the school food experts at the Chef Ann Foundation (CAF), specifically for the Get Schools Cooking (GSC) program. From 2017-2019, while evaluating Cohort 3 of GSC, researchers at the Center for Nutrition & Health Impact (CNHI) partnered with CAF to develop and test[22] a measure that would complement the existing GSC evaluation strategy of qualitative data collection on the progress of meeting Assessment recommendations and pre/post comparison of key operational data (e.g., meals per labor hours, meal participation, and profit and loss). A gap in food-specific data, such as changes in procurement and the use of scratch recipes was identified, along with other related variables, such as the presence of competitive foods and sugary beverages. The HMS emerged from this work and now a quantitative measure to determine a pre/post change in the school food environment is part of the overall GSC evaluation strategy. The HMS Scoring Strategy (**see Figure 4**) compares the following 6 key food-specific indicators at baseline and follow-up for both breakfast and lunch, which are considered by the CAF team to be most closely related to a healthy school meal environment that supports scratch-cooking, these include the following variables and accompanying expectations.

Expectations Across the HMS Variables

Procurement: Ingredients or whole items that the district spends the most funding on annually are fresh/whole items, while less funding is spent on clean label, and processed and highly processed items are rarely purchased. See **Appendix E** for the HMS Rubric.

Recipes: In a sample from a representative month (October), scratch recipes are used most often. Speed scratch recipes are also used, but less frequently. Heat and serve recipes are rarely used.

Beverages: Flavored milk is not offered.

Produce: Produce makes up at least 30% of the total annual food cost. Produce that the district spends the most funding on annually are primarily fresh/whole, while less funding is spent on clean label, and processed and highly processed items are rarely purchased. Juice is not offered.

A la carte: A la carte is not offered in order to prioritize the reimbursable meal.

Commodity: Nearly all of the commodity allocation is utilized and USDA Department of Defence (DoD) fresh fruit and vegetable purchases increase at follow-up.

These standards are in alignment with the recommendations in the food section of the CAF Assessment report, and therefore technical assistance (TA) is provided to districts throughout their GSC experience in order to support positive HMS changes. The feasibility of data collection, including the time required by both district and research team, as well as coding accuracy was piloted with a district in GSC Cohort 3. The study protocols and scoring scales have been refined over time as more Cohort 4 data became available.

Data Collection and Analysis

Baseline HMS data is a combination of a subset of the data CAF requests for the Assessment (**Appendix F - Data Request**) and additional requests made by CNHI to collect recipes associated with October production records, and product labels associated with the procurement and produce analyses. CNHI replicates this process at follow-up. For Cohort 4, baseline data was collected from the 2018-2019 school year and used in both the CAF Assessment report and HMS calculations, final HMS data was collected from the 2023-2024 school year.

Each score is determined using a 0-3 scale, which is then converted to a 100 point scale for ease of interpretation (see the scale for each variable below). This occurs at baseline and follow-up, resulting in a change score (%) that helps to show the magnitude of the change from baseline. See **Figure 4** for an overview of each variable, including the data sources, scoring strategy, scales, and expectations at follow-up.

$$\frac{\text{Follow-up} - \text{Baseline}}{\text{Baseline}} \times 100\% = \text{Change Score}$$

Figure 4: Healthy Meal Score Overview

Variable	Strategy	Scale	Expectations at Follow-up
Procurement	All procurement data for the school year, across all vendors, was combined and organized by sales to identify the items that make up the top 20 most procured items by total spend that year. Product labels for those items were then collected and scored based on the HMS Rubric.	Percentage of top 20 items that are fresh/ whole: **3:** 70-100% **2:** 40-69% **1:** 10-39% **0:** 1-9%	**At follow-up**, a higher percentage of fresh/whole products are expected, and therefore a reduction of processed items. **This is an indicator** of a healthier school meal environment, because fresh/whole ingredients are required for scratch cooking.[23] **TA can support** this change by advising districts on fresh/whole and clean label alternatives for highly processed ingredients, as well as scratch-recipe development to replace the most common processed items in the top 20 at baseline, such as pizza, breaded chicken products, deli meats, fried potato products, etc.

Variable	Strategy	Scale	Expectations at Follow-up
Recipe	Production records for October were collected and all entrees were identified. The recipe for each entree was then collected and coded as scratch, speed scratch, or heat and serve.	Percentage of lunch recipes that are scratch: **3:** 70-100% **2:** 40-69% **1:** 10-39% **0:** 0-9% Percentage of breakfast recipes that are scratch: **3:** 70-100% **2:** 40-69% **1:** 10-39% **0:** 0-9% The two scores were averaged to determine the final recipe score.	**At follow-up**, a higher percentage of scratch recipes are expected, and therefore a reduction of heat and serve recipes. **This is an indicator** of a healthier school meal environment, because scratch recipes are required for scratch cooking.[18] **TA can support** this change by encouraging the district to select scratch recipes from **The Lunch Box** which also align with their procurement goals. TA providers can also provide the necessary culinary training needed to successfully execute these new recipes.
Beverages	All procurement data for the school year, across all vendors, was combined and organized to identify milk types.	Presence of flavored milk in procurement data, which includes milk that is served at both breakfast and lunch: **3:** No **0:** Yes	**At follow-up**, the absence of flavored milk is expected. **This is an indicator** of a healthier school meal environment, because the elimination of chocolate milk contributes to an overall reduction in added sugars.[24, 25] Elimination of flavored milk also opens up opportunities, such as bulk milk grants, which also has a positive impact on the environment.[26] **TA can support** this change by working on the messaging associated with this change and guide districts through the application process for the bulk milk grant.

Variable	Strategy	Scale	Expectations at Follow-up
Produce	All procurement data for the school year, across all vendors, was combined and organized by sales to identify 1) the percent of total produce sales compared to total food sales, 2) the top 20 most procured fruit items, 3) the top 20 most procured vegetable items, and 4) the presence of juice in the top 20. Product labels for the top 20 fruit and top 20 vegetable items were then collected and scored based on the **HMS Rubric**.	Percentage of total food cost attributed to produce: **3:** ≥ 30% **2:** 20-29% **1:** 10-19% **0:** 0-9% Percentage of top 20 fruit items that are fresh/whole: **3:** 70-100% **2:** 40-69% **1:** 10-39% **0:** 0-9% Percentage of top 20 vegetable items that are fresh/whole: **3:** 70-100% **2:** 40-69% **1:** 10-39% **0:** 0-9% Presence of juice in F/V top 20: **3:** No **0:** Yes The four scores were averaged to determine the final produce score.	**At follow-up**, produce should make up 30% or more of the total annual food cost. Of the top 20 produce procured, a higher percentage of fresh/whole items is expected, and therefore a reduction of processed items, including the elimination of juice from the top 20. **This is an indicator** of a healthier school meal environment, because fresh/whole produce is required for scratch cooking and a successful salad bar program.[23,27,28] Additionally, elimination of juice contributes to an overall reduction in childhood obesity risk.[29] **TA can support** this change by advising districts on fresh/whole produce procurement practice to fully utilize DoD and local producers. TA providers can also guide districts through the application process for the **salad bars to school grant.**

Variable	Strategy	Scale	Expectations at Follow-up
A la carte	All a la carte sales data for the school year is organized by school type.	Presence of a la carte offered at elementary sites: **0:** Yes **3:** No Presence of a la carte offered at secondary sites: **0:** Yes **3:** No The two scores were averaged to determine the final a la carte score.	**At follow-up**, we would expect to see an elimination of a la carte in both elementary and secondary sites. This is an indicator of a healthier school meal environment, because it demonstrates a commitment to dedicating resources to the reimbursable meal, instead of less healthy competitors.[30] **TA can support** this change by working on the messaging associated with this change.
Commodity	All procurement data associated with commodity purchasing for the school year, across all vendors, was organized by sales to identify the percent of total allocation spent and total DoD spending.	Percentage of total commodity allocation unspent: **3:** ≤ 5% **2:** 6-10% **1:** 11-15% **0:** < 16% Percentage of funding used for DoD: **3:** ≥ 25% **2:** 15-24% **1:** 5-14% **0:** 0-4% The two scores were averaged to determine the final commodity score.	**At follow-up**, a decrease in the percent of funding left unspent is expected and an increase in DoD spending is expected. This is an indicator of a healthier school meal environment, because by fully utilizing commodity funding, the district can save on food cost from other sources, leading to a more financially secure operation, and allowing districts to spend discretionary funds on high quality, fresh/whole products, proper equipment, and/or other program improvements.[31,32] **TA can support** this change by advising districts on commodity orders and the best uses of the commodity items.

Results

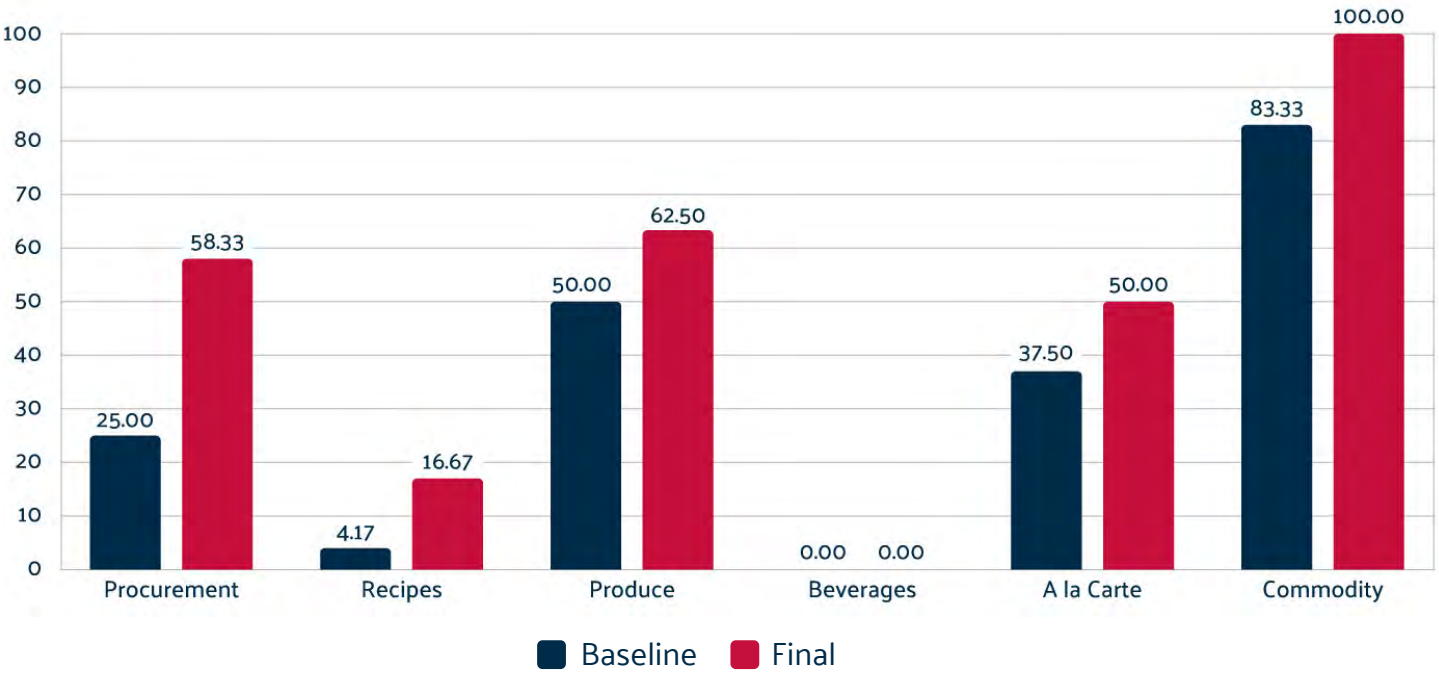
For Cohort 4, baseline HMS averaged 31.53 and final HMS averaged 46.32. All four of the districts showed increases in their scores (see **Figure 5**). This represents an overall increase in the HMS of 47% over the 5-year program.

At **follow-up**, an increase in score is expected, demonstrating a healthier school meal environment and increased scratch cooking practices that align with CAF's core recommendations. The districts made progress towards achieving a healthier school food environment by increasing scores across all variables except for the beverages, as no district eliminated flavored milk completely.

Figure 5: Cohort-Level HMS Pre/Post Scores

The greatest percent increase in score was in the recipe category (300%), followed by the procurement variable (133%). See **Figure 6**.

Figure 6: Cohort-Level HMS Pre/Post Scores by Variable



Discussion

The development of the HMS helped to strengthen the GSC evaluation strategy and is meant to complement the other evaluation findings, such as implementation scores and thematic results on key successes and challenges. Together, the evaluation components provide a holistic view of a district's transition to a scratch-cook model, including all of the intermediate steps required to do this work. Additionally, the implementation score refers to the extent to which the district worked through the Assessment recommendations, and the Director and CAF Operator interviews helped to provide specific examples of how this progress led to key wins and areas for continued efforts. These outcomes span CAF's 5 key areas of school food, while the HMS provides a measure of success specific to the food-related recommendations, specifically those identified as most indicative of a healthy school meal environment.

Across the cohort, there were several notable examples that demonstrate how accomplishing an Assessment recommendation leads to real food related change, which was measured by the HMS. **The following examples are specifically related to improvements in procurement practices and recipe development:**

1

Districts in the cohort accomplished recommendations related to the development of food standards to guide procurement, which was further supported by updated district wellness policies.

2

Procurement data shows an increase in procurement of fresh/whole and clean label items, such as fresh produce and raw proteins, while reducing purchases of processed potato products, canned fruit, and precooked and breaded chicken products.

3

HMS change score (Procurement Variable)

133% increase

(25.00 to 58.33)

1

Districts in the cohort accomplished recommendations related to decreasing sugar, specific to breakfast.

2

Procurement data shows an elimination of items such as pancake on a stick and sugary cereal, as well as addition of scratch baked goods and breakfast sandwiches.

3

HMS score (Recipe Variable)

300% increase

(4.17 to 16.67)

These two variables are most closely associated with scratch cooking, however the HMS also includes other variables related to a healthy school meal environment, such as elimination of milk and a la carte. Although reductions occurred, none of the districts were fully able to eliminate these items, resulting in no change for the HMS score for beverages and a 33% increase for a la carte. Additionally, CAF recommends that districts utilize 95% of their commodity allocation and at least 25% of spending should be in the DoD produce category. The districts made progress in this area, with some districts improving or maintaining their score as they spent most or all of their allocation, and increased spending on DoD produce.

Overall, the HMS is helping to fill a gap in food-specific data and measurement, demonstrating how successful implementation of Assessment recommendations, leads to a healthier school meal environment, which is key to a shift to scratch cooking.

Next Steps

The HMS could be further strengthened by other validation methods, such as an observational component that CAF Operators could support while onsite in the districts. Additionally, as the HMS is used to measure progress in future cohorts, trends in school food best practices may lead to modifications to the scoring scales. For example, an increase in DoD spending from baseline to follow-up is a core component of the commodity score, but as DoD becomes less affordable, Assessment recommendations may shift away from DoD as a way to spend commodity funding. The HMS core variables and scoring scales should always mirror Assessment recommendations developed by CAF school food experts, and therefore be flexible to adjustments over time.