# **Virginia Department of Education logo**

# Virginia Department of Education, Office of School Nutrition

## Team Nutrition Training Program

### **Data-Driven Decision Making with Key Performance Indicators**

### eModule User Guide

Published August 23, 2019

#### **Overview**

In 2017, the Virginia Department of Education (VDOE) was awarded a USDA Team Nutrition Training Grant (TNTG) in the amount of $498,010 to develop and implement a training program, *Nourish and Flourish through Training and Technical Assistance*, for Virginia school nutrition professionals. Over the course of the three-year grant period (2017-2020), the VDOE Office of School Nutrition is providing targeted training to school nutrition professionals across all eight Superintendent's regions. In 2019 (year two), Team Nutrition training targets school nutrition directors with a focus on the following topics: Procurement, Farm to School, financial management, and data-driven decision making. Training topics are delivered using a two-step approach: 1) The release of four eModules (videos) and 2) an in-person interactive workshop delivered during the Office of School Nutrition’s annual Fall Regional Meetings.

A User Guide accompanies the four eModules and contains key pieces of information and examples to facilitate viewer engagement and serve as a resource for future reference. The User Guide for *Data-Driven Decision Making with Key Performance Indicators* was adapted from the Institute of Child Nutrition (ICN) resource entitled *Essential KPIs for School Nutrition Success*. For more information or to view the ICN resource, please visit the [School Nutrition Resources Section](https://theicn.org/school-nutrition-programs/) of the ICN website.

#### **Key Performance Indicators**

The following is a list of KPIs included in the ICN resource, *Essential KPIs for School Nutrition Success*. The KPIs followed by an asterisk are those included in the *Data-Driven Decision Making with Key Performance Indicators* eModule.

1. **Meal Counts and Participation**
	1. Meal Equivalents (MEQ)\*
	2. Average Daily Participation (ADP)\*
		1. Average Daily Participation Rate (ADP Rate)\*
2. **Financial and Inventory Management**
	1. Revenues
	2. Expenditures
	3. Revenue per Meal Equivalent (MEQ)\*
	4. Cost per Meal Equivalent (MEQ)\*
	5. Cost as a Percentage of Revenue
	6. Break-Even Point (BEP)
	7. Inventory Turnover Rate
3. **Productivity and Labor**
	1. Meals per Labor Hour (MPLH)\*
	2. Staff Turnover Rate
	3. Absenteeism Rate

##### **Meal Counts and Participation**

###### **Meal Equivalents**

The Meal Equivalent (MEQ) is the conversion of different school meal services (i.e., breakfast, supper, and snacks) and non-program food sales to the equivalent of one federally reimbursable student lunch for comparison purposes. In school nutrition programs, a federally reimbursable student lunch is the standard unit of measurement most often used to gauge the effectiveness and efficiency of the program.

**Calculating MEQs**

| **Meal Service** | **Conversion Factor** | **Explanation** |
| --- | --- | --- |
| 1 Lunch or 1 Supper (student or adult meal) | 1.00 | All reimbursable student lunches and suppers as well as paid adult lunches are counted as 1 MEQ. If a student purchases more than one lunch on a given day, the second lunch is considered non-reimbursable and is reported as a non-program food sale. |
| 1 Breakfast | 0.67 | Three breakfasts equal two MEQs  |
| 1 Snack | 0.33 | Three snacks equal one MEQ  |
| Non-Program Food Sales | Non-program food sales ÷ (current free lunch reimbursement rate + current USDA Foods value) | Dollar amount of non-program food sales divided by the sum of the current free lunch reimbursement rate and the current USDA Foods value |

***Non-Program Foods***

Non-program foods are foods/beverages purchased with funds from the nonprofit school food service account, but are not part of federally reimbursable meals and supplements.

***Free Lunch Reimbursement Rate***

The free lunch reimbursement rate changes annually and can be found on the USDA Food and Nutrition Services website.

The free lunch reimbursement rate for the 2018-2019 school year is $3.33.

***USDA Foods Value***

The USDA Foods value changes annually and can be found on the USDA Food and Nutrition Services website.

The USDA Foods Value for the 2018-2019 school year is $0.235.

**Collecting Data**

Meal count and food sales data can be found electronically via computer systems or manually via meal count forms at the point-of-sale (POS) used in the school nutrition program. The data needed to calculate MEQs can be found in day-end sales reports, edit check worksheets, and/or deposit reports.

Calculating MEQs on a weekly, monthly, and yearly basis provides the most accurate picture of the school nutrition program’s status and provides a standardized measurement to compare sales internally and externally.

**Using MEQs**

Converting school nutrition food sales data into MEQs enables you to calculate other KPIs, including Revenue per MEQ, Cost per MEQ, and Meals per Labor Hour (MPLH).

**Sample MEQ Calculations**

**Elementary School**

| **Meal Category** | **Total Meals Served/Non-Program Sales** | **Conversion Factor** | **Total MEQ** |
| --- | --- | --- | --- |
| Student Lunch | 6,675 | x 1 | 6,675 |
| Adult Lunch | 312 | x 1 | 312 |
| Student Breakfast | 3,129 | x 0.67 | 2,096 |
| Snacks | 2,231 | x 0.33 | 736 |
| Non-Program Food Sales | $900 | ÷ (3.33 + 0.235) | 252 |
| **TOTAL ELEMENTARY**  | **-** | **-** | **10,071**  |

**Middle School**

| **Meal Category** | **Total Meals Served/Non-Program Sales** | **Conversion Factor** | **Total MEQ** |
| --- | --- | --- | --- |
| Student Lunch | 7,224 | x 1 | 7,224 |
| Adult Lunch | 250 | x 1 | 250 |
| Student Breakfast | 3,528 | x 0.67 | 2,364 |
| Snacks | 2,494 | x 0.33 | 823 |
| Non-Program Food Sales | $4,400 | ÷ (3.33 + 0.235) | 1234 |
| **TOTAL MIDDLE**  | **-** | **-** | **11,895**  |

**High School**

| **Meal Category** | **Total Meals Served/Non-Program Sales** | **Conversion Factor** | **Total MEQ** |
| --- | --- | --- | --- |
| Student Lunch | 4,046 | x 1 | 4,046 |
| Adult Lunch | 435 | x 1 | 435 |
| Student Breakfast | 924 | x 0.67 | 619 |
| Snacks | 0  | x 0.33 | 0 |
| Non-Program Food Sales | $8,000 | ÷ (3.33 + 0.235) | 2,244 |
| **TOTAL HIGH**  | **-** | **-** | **7,344**  |
| **TOTAL DIVISION**  | **-** | **-** | **29,310**  |

###### **Average Daily Participation (ADP)**

Average Daily Participation (ADP) is the average number of reimbursable student meals served in a school nutrition program on a daily basis. Monitoring the program’s ADP can help forecast and determine the program’s labor requirements and food or non-food purchasing projections. This helps to minimize waste and control costs. ADP can also be used to evaluate the popularity of menu options, assess productivity, gauge customer satisfaction, and identify participation goals for the program.

ADP Rate is the ratio of students eating a school meal to the average number of students attending the school. ADP Rates for breakfast and lunch can be compared to industry standards to determine where a school nutrition program may need to increase participation.

**Calculating ADP**

ADP can be calculated for school breakfast and lunch. To find the monthly ADP, divide the number of student breakfasts or lunches served by the number of operating days in the month.

**ADP =** $\frac{Number of Student Breakfasts or Lunches Served in a Month}{Number of Operating Days in the Month}$

###### **Average Daily Participation Rate (ADP Rate)**

To find the ADP Rate, divide the breakfast or lunch ADP by the Average Daily Attendance. To calculate Average Daily Attendance, subtract the number of students who do not have access to school meals services from the average daily attendance of the school. Using Average Daily Attendance to calculate the ADP Rate ensures that the calculation does not include students who are absent or do not have access to school breakfast or lunch service.

**ADP Rate =** $\frac{Breakfast or Lunch ADP}{Average Daily Attendance}$

Regularly calculating the ADP and ADP Rate for school breakfast and lunch allows for tracking over time to identify major changes in program participation rates. For this reason, ADP and ADP Rate should be calculated daily, weekly, monthly, or as often as necessary to assess program needs.

**Collecting Data**

Meal count data is usually found electronically or manually at the POS used by the school nutrition program. Daily attendance can be found electronically or manually from the student information system, the school office, or from the registrar.

**Using ADP and ADP Rate**

ADP and ADP Rate can be used as forecasting tools to:

* Prevent excess labor hours and food waste
* Examine participation trends over time
* Assess customer satisfaction and address concerns
* Identify opportunities to increase meal participation
* Determine labor needs and assignments
* Develop food production schedules
* Evaluate the popularity of menu items
* Measure program growth

**Industry Standards**

Industry standards for ADP rates are based on Healthier US School Challenge Gold Standards:

* Elementary school breakfast = 35 %
* Elementary school lunch = 75%
* Middle school breakfast = 35%
* Middle school lunch = 75%
* High school breakfast = 25%
* High school lunch = 65%

**Factors that Influence ADP and ADP Rate**

Student participation in school meals programs may vary depending on a variety of factors:

* **Controllable**
	+ Student acceptance
	+ Speed of service/wait time
	+ Menu options/recipes
	+ Staff friendliness
* **Non-Controllable**
	+ Free or reduced price meals percentages
	+ Rural versus urban location
	+ Age or grade of students served
	+ Weather
	+ Time of year
* **Potential to Influence**
	+ Type of production system
	+ Cafeteria atmosphere
	+ Locations and number of service areas
	+ School activities
	+ Closed versus open campuses
	+ School division regulations
	+ Administrative support
	+ Bus schedules
	+ Nutrition education
	+ Number of families applying for free and reduced price meals

**Sample ADP/ADP Rate Calculations**

**Elementary School**

| Meal Type | MEQs Served | No. OperatingDays | ADP | Average Daily Attendance | ADP Rate |
| --- | --- | --- | --- | --- | --- |
| Breakfast | 3,129 | ÷ 21 | 149 | ÷ 425  | 35% |
| Lunch | 6,675 | ÷ 21 | 318 | ÷ 425 | 75% |

**Middle School**

| Meal Type | MEQs Served | No. Operating Days | ADP | Average Daily Attendance | ADP Rate |
| --- | --- | --- | --- | --- | --- |
| Breakfast | 3,528 | ÷ 21 | 168 | ÷ 475 | 35% |
| Lunch | 7,224 | ÷ 21 | 344 | ÷ 475  | 72% |

**High School**

| Meal Type | MEQs Served | No. Operating Days | ADP | Average Daily Attendance | ADP Rate |
| --- | --- | --- | --- | --- | --- |
| Breakfast | 924 | ÷ 21 | 44 | ÷ 400 | 11% |
| Lunch | 4,046 | ÷ 21 | 193 | ÷ 400 | 48% |

##### **Financial and Inventory Management**

###### **Revenue per MEQ**

Revenue per MEQ measures the income received for each meal equivalent served. It can serve as a revenue management tool, helping to manage and analyze trends and project future revenues. It is important to calculate and compare Revenue per MEQ to Cost per MEQ to ensure there is sufficient revenue to cover meal costs. Trends and directions for improvement can then be identified so the best financial decisions can be made.

**Calculating Revenue per MEQ**

Revenue per MEQ can be calculated by dividing revenue by total meal equivalents:

**Revenue per MEQ =** $\frac{Revenue}{Total MEQs}$

Revenue per MEQ can be compared to budget projections, to the previous month’s Revenue per MEQ, and to the previous year’s figures to track progress and identify trends or directions for improvement.

**Collecting Data**

Meal count data, which is needed to calculate meal equivalents, is usually available electronically or manually at the POS used by school nutrition programs.

Revenue and expenditure data can be found in the revenue and expenditures statement. This is sometimes called an income statement or statement of activities. This report identifies revenues, expenditures, and fund balance for the current period, the previous period, and the year-to-date. This report is usually prepared at the end of the month by the school nutrition office.

**Using Revenue per MEQ**

Revenue per MEQ should be compared to Cost per MEQ to ensure that costs are lower than revenues and that the school nutrition program is self-supporting. Revenue per MEQ can be also used to determine areas where revenue can be increased, which will help to make better fiscal decisions.

**Industry Standards**

Ideally, Revenue per MEQ should meet or exceed the federal reimbursement rate for a meal.

**Factors that Influence Revenue per MEQ**

Revenue per MEQ can be affected by:

* ADP
* Average daily attendance
* Labor costs
* Food costs
* Pricing of meals and a la carte items
* Use of USDA Foods
* Free and reduced price meal percentages
* Closed versus open campuses
* Method of food service delivery

**Sample Revenue per MEQ Calculations**

| **Revenue Source** | **Elementary School** | **Middle School** | **High School** | **Total** |
| --- | --- | --- | --- | --- |
| Student Meal Sales | $15,300 | $16,700 | $8,300 | $40,300 |
| Adult Meal Sales | $1,000 | $800 | $700 | $2,500 |
| Non-Program Food Sales | $900 | $4,400 | $8,000 | $13,300 |
| Contract Meal Sales | $400 | $400 | $400 | $1,200 |
| Interest | $100 | $100 | $100 | $300 |
| State Sources | $1000 | $2,000 | $1,000 | $4,000 |
| Federal Sources | $21,600 | $15,200 | $11,900 | $48,700 |
| TOTAL REVENUE | $40,300 | $39,600 | $30,400 | $110,300 |
| TOTAL MEQ | ÷ 10,071 | ÷ 11,895 | ÷ 7,344 | 29,310 |
| **TOTAL REVENUE PER MEQ** | **$4.00** | **$3.33** | **$4.14** | **$3.76** |

###### **Cost per MEQ**

Cost per MEQ measures the amount paid for each meal equivalent served. It can serve as a cost management tool, helping to manage and analyze trends. It is important to calculate and compare Revenue per MEQ to Cost per MEQ to ensure there is sufficient revenue to cover meal costs. Trends and directions for improvement can then be identified so the best financial decisions can be made.

**Calculating Cost per MEQ**

Cost per MEQ can be calculated by dividing expenditures by the total meal equivalents:

**Cost per MEQ =** $\frac{Expenditures}{Total MEQs}$

Cost per MEQ can be compared to budget projections, to the previous month’s Cost per MEQ, and to the previous year’s figures to track progress and identify trends or directions for improvement.

**Collecting Data**

Follow the same process used for collecting Revenue per MEQ data as noted in Revenue per MEQ section of this Guide.

**Using Cost per MEQ**

Cost per MEQ should be compared to Revenue per MEQ to ensure that costs are lower than revenues and that the school nutrition program is self-supporting. When expenditures are categorized, each type of cost (e.g., food, labor, supplies, etc.) can also be calculated per MEQ. This can help identify where costs can be decreased, which will support better fiscal decisions.

**Industry Standards**

To keep your program financially stable, Cost per MEQ should be less than Revenue per MEQ.

**Factors that Influence Cost per MEQ**

Cost per MEQ can be affected by:

* Type of meal preparation system
* Availability of labor
* School “start-up” expenses
* Seasonal price changes (e.g., fresh produce and other market driven items)
* One-time purchases (e.g., equipment)
* Unplanned expenses (e.g., repair bills, food loss due to power failure, etc.)

**Sample Cost per MEQ Calculations**

| Expenditure (Cost) Source | Elementary | Middle | High | Total |
| --- | --- | --- | --- | --- |
| Salaries/Wages | $6,800 | $7,800 | $6,800 | $21,400 |
| Employee Benefits | $7,000 | $7,500 | $7,000 | $21,500 |
| Purchased Services | $200 | $200 | $200 | $600 |
| Property Services | $300 | $300 | $300 | $900 |
| Purchased/ USDA Foods | $17,400 | $18,800 | $14,600 | $50,800 |
| Supplies | $1,800 | $2,000 | $2,500 | $6,300 |
| Miscellaneous | $300 | $400 | $400 | $1,100 |
| Capital Assets | $0 | $0 | $0 | $0 |
| Indirect Costs | $600 | $1,000 | $1,200 | $2,800 |
| TOTAL EXPENDITURES | $34,400 | $38,000 | $33,000 | $105,400 |
| TOTAL MEQ | ÷ 10,071 | ÷ 11,895 | ÷ 7,344 | ÷ 29,310 |
| TOTAL COST PER MEQ | **$3.42** | **$3.19** | **$4.49** | **$3.60** |

##### **Productivity and Labor**

###### **Meals per Labor Hour (MPLH)**

Meals per Labor Hour (MPLH) measures the number of meal equivalents (MEQs) served per hour of planned labor. MPLH is the primary measure of productivity and production efficiency for school nutrition programs and can be used to determine appropriate staffing needs. MPLH is also essential for developing labor budgets and determining economical use of resources.

**Calculating Meals per Labor Hour**

MPLH is calculated by dividing the total MEQ served in a given time period by the total number of planned productive labor hours for the same time period. Planned productive labor hours include the amount of labor planned by the school nutrition program for managers, kitchen staff, and cashiers as well as paid hours for substitute workers. Paid hours for sick, personal, or holiday leave are not included.

**MPLH =** $\frac{Number of Meals or Meal Equivalents (MEQ)}{Number of Planned Productive Labor Hours}$

**Collecting Data**

Meal count data is usually found electronically or manually at the POS used by the school nutrition program. Planned labor hours are usually found in the school division’s payroll records or time keeping system, such as time card data or timesheet logs. Payroll or timesheet data can usually be found at the school’s business office or the division’s Human Resources office.

**Using Meals per Labor Hour**

MPLH can help to determine how many employees or how many scheduled hours per employee are needed at individual schools or across the school division. MPLH can also be used to compare productivity between different school sites within a division.

Explaining the importance of MPLH, how it is calculated, the variables that affect it, and how additional hours can be earned is also motivating for managers. It allows them to better manage their operations and explain staffing to their employees in clear and understandable terms, which can encourage the entire team to work towards a common goal of ensuring adequate meal participation to support adequate labor hours.

**Industry Standards**

Labor efficiency is dependent on the type of production system (i.e., conventional, cook chill, and assembly serve) and distribution/service systems (satellite, on-site, and combination) used in a school nutrition program. MPLH industry standards take these differences into account to effectively compare labor utilization within the applicable system.

The industry standard for an on-site production system is 14 to 18 MPLH, while the industry standard for a central kitchen is 50 to 75 MPLH.

**Staffing Guidelines for On-Site Production**

**High and Low Productivity in Conventional Systems**

Conventional systems prepare some foods from raw ingredients on premises. For example, a conventional system might use some baked goods and prepared pizza, prepare other items from scratch, and wash all dishes.

| **Number of Meal Equivalents** | **Low Productivity****(in MPLH)** | **High Productivity****(in MPLH)** |
| --- | --- | --- |
| Up to 100 | 8 | 10 |
| 101-150 | 9 | 11 |
| 151-200 | 10-11 | 12 |
| 201-250 | 12 | 14 |
| 251-300 | 13 | 15 |
| 301-400 | 14 | 16 |
| 401-500 | 14 | 17 |
| 501-600 | 15 | 17 |
| 601-700 | 16 | 18 |
| 701-800 | 17 | 19 |
| 801 and above | 18 | 20 |

**High and Low Productivity in Convenience Systems**

Convenience systems use primarily processed foods. For example, a convenience system might use all baked goods, precooked chicken, ready-to-serve raw fruits and vegetables, portion-pack condiments, disposable dinnerware, and only wash serving trays.

| **Number of Meal Equivalents** | **Low Productivity****(in MPLH)** | **High Productivity** **(in MPLH)** |
| --- | --- | --- |
| Up to 100 | 10 | 12 |
| 101-150 | 11 | 13 |
| 151-200 | 12 | 14 |
| 201-250 | 14 | 15 |
| 251-300 | 15 | 16 |
| 301-400 | 16 | 18 |
| 401-500 | 18 | 19 |
| 501-600 | 18 | 19 |
| 601-700 | 19 | 20 |
| 701-800 | 20 | 22 |
| 801 and above | 21 | 23 |

**Factors that Influence Meals per Labor Hour**

MPLH can be affected by:

* Size of the school nutrition operation
* Availability and type of facilities and equipment
* Number of serving lines
* Organization of the food production area (workflow)
* Type of service provided
* Scheduling of lunch periods
* Disposable versus reusable trays
* Skill level of employees
* Complexity of the menu
* Conventional versus convenience production
* Number of meal choices

**Sample Meals per Labor Hour Calculations**

**Calculating Planned Productive Hours**

**Elementary School**

| School | No. Staff | Planned Labor Hours | No. Operating Days | Total |
| --- | --- | --- | --- | --- |
| **A** | 1 | x 8 | x 21 | **168** |
| **B** | 5 | x 5 | x 21 | **525** |
| **Total Elementary** | - | - | - | **693** |

**Middle School**

| School | No. Staff | Planned Labor Hours | No. Operating Days | Total |
| --- | --- | --- | --- | --- |
| **C** | 1 | x 8 | x 21 | **168** |
| **D** | 6 | x 5 | x 21 | **630** |
| **Total Middle** | - | - | - | **798** |

**High School**

| School | No. Staff | Planned Labor Hours | No. Operating Days | Total |
| --- | --- | --- | --- | --- |
| **E** | 1 | x 8 | x 21 | **168** |
| **F** | 5 | x 5 | x 21 | **525** |
| **Total High** | - | - | - | **693** |

**Calculating Meals per Labor Hour**

| School Type | Total MEQ | Total Planned Productive Labor Hours | Meals per Labor Hour (MPLH) |
| --- | --- | --- | --- |
| Elementary | 10,071 | ÷ 693 | **14.5** |
| Middle | 11,895 | ÷ 798 | **14.9** |
| High | 7,344 | ÷ 693 | **10.7** |