



Inventory Management and Tracking

A Course for School Nutrition Directors
INSTRUCTOR'S GUIDE



National Food Service Management Institute
The University of Mississippi

Item Number ET109-12

2012



The logo consists of a dark blue vertical bar on the left containing the white letters 'I', 'M', and 'T' stacked vertically. To the right of this bar, the words 'Inventory Management and Tracking' are written in a large, bold, dark blue sans-serif font.

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National Food Service Management Institute

The University of Mississippi

Building the Future Through Child Nutrition

The National Food Service Management Institute was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford and is operated in collaboration with The University of Southern Mississippi in Hattiesburg. The Institute operates under a grant agreement with the United States Department of Agriculture, Food and Nutrition Service.

PURPOSE

The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

MISSION

The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

VISION

The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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Preparation Checklist

Instructions: The following table lists the specific tasks, completion dates, and people responsible for preparing to present this course. Review the list at least eight weeks prior to the training class. Assign each task to a person and establish a completion date.

TASK	PERSON RESPONSIBLE	COMPLETION DATE	DONE ✓
<p>Facility</p> <p>Reserve a facility to hold at least 42 participants comfortably. Ideal training group is 24, maximum is 42.</p> <p>Room should be arranged in tables of 6 to facilitate activities.</p> <p>Room should have accessible light controls for varying light as needed.</p>		6-8 weeks prior	
<p>Invitations</p> <p>Send invitations at least six weeks prior to training.</p> <p>Target audience for curriculum are those responsible for overseeing inventory systems.</p> <p>Request an RSVP with deadline of two weeks prior to training.</p> <p>Send list of items needed for training (calculator, pencils, present inventory system) in the invitation.</p>		6 weeks prior	
<p>Equipment</p> <p>Podium</p> <p>Lapel microphone (for groups over 30)</p> <p>Computer to present slides</p> <p>LCD Projector for slides</p> <p>A screen for presentation</p> <p>Flip chart</p>			
<p>Supplies</p> <p>Name tags or table tent for each participant</p> <p>Extra markers</p> <p>Extra pencils</p> <p>Extra calculators</p> <p>Two note cards per participant plus extra</p> <p>Post it note style flip chart paper</p> <p>Tape for each table</p>			

TASK	PERSON RESPONSIBLE	COMPLETION DATE	DONE ✓
<p>Resources for Participants</p> <p>Order from NFSMI: <i>Inventory Tracking Reference Guide</i> for each participant</p> <p>Activity Handouts for each participant plus 5 extra (these may be mailed or printed locally)</p> <p>Ground rule posters. These can be requested from NFSMI or printed locally</p>		2 weeks prior	
<p>Evaluation</p> <p>Evaluation form for each participant Large envelope to send evaluations to NFSMI</p>			

Ground Rule Posters

Posters may be downloaded from the NFSMI and printed locally or ordered with other training supplies.

<http://www.nfsmi.org/ResourceOverview.aspx?ID=267>

Ground Rules:

1. Turn your mind on and your electronic devices off.
2. Be in the classroom at least 5 minutes before scheduled start time.
3. Consider all ideas and reach consensus.
4. Always ask for clarification if you do not understand.
5. Be on time for all sessions.
6. Be a team player.
7. Stand up when your mind goes on vacation.
8. Share ideas.
9. Learn the names of all participants.
10. Use cameras at appropriate times.
11. Be respectful of everyone.

Activity Masters

Directions: Make one copy of each activity for each participant plus five extra for walk-ins.

ACTIVITY 2 – Efficient Supply Chains

Directions

1. Write down your assigned product: _____
2. Draw the supply chain (some potential members listed below for your convenience) for the selected product.
 - a. Product flow
 - b. Information flow
3. List and discuss how your inventory management is affected by each of the supply chain partners. What affect might this have on your quality and cost?
4. List and discuss how your practices may affect the inventory management of various supply chain partners. What affect might this have on quality and cost?

1. Grower
2. Rancher
3. Transporter
4. Packer
5. USDA - FNS
6. USDA - FSIS
7. USDA - AMS
8. USDA - FSA
9. HHS - FDA
10. Slaughter House
11. Mills
12. Manufacturer
13. Packaging Company
14. Redistributor
15. Distributor
16. State Warehouse
17. State agency
18. Broker
19. Purchasing Coop
20. Leased Warehouse
21. FS Office
22. District Warehouse
23. Central Kitchen
24. Prep School
25. Satellite School
26. Day Care
27. Private School

ACTIVITY 3 – Efficient Internal Supply Chain

Directions

1. Draw the supply chain for your school district for both commercial and USDA canned fruit (some potential members listed below for your convenience). Include these three links. Create two groups. One group does commercial and the other group handles USDA, then compare results.
 - a. Product flow
 - b. Information flow
 - c. Money flow
2. List and discuss how your school site inventory management is affected by each of the internal supply chain partners. What affect might this have on product quality and cost?
3. List and discuss how practices of the school site may affect the inventory management of various internal supply chain partners. What affect might this have on quality and cost?
 1. Leased Warehouse
 2. FS Office
 3. District Accounting
 4. District Purchasing
 5. District Warehouse
 6. Central Kitchen
 7. Base Kitchen
 8. Prep School
 9. Cooler Storage
 10. Freezer Storage
 11. Dry Storage
 12. Satellite School
 13. Day Care
 14. Private School

ACTIVITY 4 – What’s on Your Case? Interpreting Food Labels

Directions

1. Look at the various food packages shown in the slides. Check the columns for visible information needed for traceability. The first slide is shown as an example.
2. On the lines below the table, indicate what could be done to capture the missing information.

Slide	Product Name	Product Number or GTIN	Lot or Batch Number	Delivery Date	Brand or Manufacturer	Delivered From
1	Celery	√	√			
2	Red Peppers					
3	Apples					
4	Potato					
5	Potato Salad					
6	Juice					
7	Bologna					
8	Beef Patty					
9	Strudel					
10	Chicken					
11	Chocolate					
12	Cup					

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

ACTIVITY 5 – Critical Tracking Events in the Internal Supply Chain

Directions

1. Draw the flow of product in your district for a USDA Food - frozen cherries start with receiving at the first point of entry (e.g., warehouse) and list every process the cherries pass through such as storage or preparation.
2. On the diagram, indicate with a CTE (critical tracking event) each place where information should be recorded in order to ensure traceability.

ACTIVITY 6 – The Great Menu Debate

(There is no activity sheet for this activity).

The Great Menu Debate lets participants debate the benefits of a 3-week cycle menu compared to a menu that changes each month.

ACTIVITY 7 – Case Studies in Inventory Management

Directions

One of the following scenarios will be assigned to your table. After reading the scenario, discuss the following questions. Appoint a spokesperson to share answers with the group.

1. What school nutrition program goals (quality, customer service, efficiency, financial, quantity on hand, and food safety) are impacted in this scenario?
2. How does the scenario relate to inventory management?
3. Does the solution fix the problem or potentially make it worse?

Scenarios

1. Swift High School has 1200 students who are scheduled to eat in four 30-minute lunch periods. The lines were running out of tacos during the last period. To solve the problem, the cooks “ration” the tacos so that only so many servings are put on the line for each lunch period. When the taco “quota” is gone for each lunch period, the cook would substitute a popular item, such as pizza.
2. Warren Elementary School has very little storage space. The distributor delivers food every Tuesday, right before lunch is served. In order to help the manager, a custodian accepts the delivery and signs the delivery ticket. He has the delivery driver put the frozen and cold foods directly into the freezers and refrigerators. The dry goods are left in the hallway until after service. The manager checks in the order after lunch service has been completed. It appears that the delivery invoice matches the order so she signs the invoice and sends it in for payment.
3. Crown Middle School has a student named Tommy with a peanut allergy. Information about the allergy has been added to the point-of-sale system warning the cashier about the allergy and that the student’s tray should be checked. Tommy selected the chef salad with French dressing for his lunch today. The cashier checked the tray and did not see any peanut products. The distributor was out of canola oil this week and substituted peanut oil for the same price. The salad cook used the oil to make a French dressing. She carefully recorded the amount of oil she used on the production record and referenced the recipes she used.
4. The manager at Blue Bay High School is known for helping other managers in the district. The manager at East Elementary is struggling to forecast correctly and has not ordered enough pizza to serve all the students. The manager at Blue Bay offers to share 3 cases of pizza saying “I always keep extra on hand for emergencies”. She also offers to not tell the supervisor that she shared the food so that the new manager does not get into trouble for improper ordering.

ACTIVITY 8 – Calculating Food Cost and Inventory Turnover

Anderson School District has two middle schools, Anderson Middle and Northwest Middle. The district director plans a 3-week cycle menu for all middle schools. Each school gets a weekly delivery by a distributor of both commercial and USDA Foods. They receive twice-a-week deliveries for bread and milk.

On February 28th, the last serving day of the month, the managers in both schools took a physical inventory of their commercial and USDA food supplies. The value of Anderson’s total inventory was \$5,525 and Northwest’s total inventory was \$6,985.

During March, Anderson purchased \$8,900 in food and received \$ 750 in USDA Foods. Northwest purchased \$4,300 in food and received only \$250 in USDA Foods. There were 23 serving days during the month. On March 31st both managers took another physical inventory. Anderson’s total inventory was \$4,440 and Northwest’s total was \$7,120.

Directions

1. Using the information in the scenario, calculate the food cost for Anderson Middle School and Northwest Middle School.
2. How many days worth of inventory do both schools have on hand as of March 31st?
3. How many times did the inventory turnover in each school?
4. Answer the questions on the following page.

Anderson Middle	Northwest Middle
<p>Step 1</p> <p>Beginning Inventory \$ _____</p> <p>+ Food Purchased/USDA \$ _____</p> <p>- Ending Inventory \$ _____</p> <hr style="width: 100%;"/> <p>= Food Cost \$ _____</p>	<p>Step 1</p> <p>Beginning Inventory \$ _____</p> <p>+ Food Purchased/USDA \$ _____</p> <p>- Ending Inventory \$ _____</p> <hr style="width: 100%;"/> <p>= Food Cost \$ _____</p>
<p>Step 2</p> <p>Food Cost \$ _____ ÷ ____ Serving Days</p> <p> </p> <p>= Daily Food Cost \$ _____</p> <p> </p> <p>Step 3</p> <p>Ending Inventory \$ _____</p> <p> </p> <p>÷ Daily Food Cost \$ _____</p> <p> </p> <p>= Days of Inventory on Hand _____</p>	<p>Step 2</p> <p>Food Cost \$ _____ ÷ ____ Serving Days</p> <p> </p> <p>= Daily Food Cost \$ _____</p> <p> </p> <p>Step 3</p> <p>Ending Inventory \$ _____</p> <p> </p> <p>÷ Daily Food Cost \$ _____</p> <p> </p> <p>= Days of Inventory on Hand _____</p>
<p>Step 4</p> <p># serving days _____</p> <p>÷ days of inventory on hand _____</p> <p> </p> <p>= Inventory turnover _____</p>	<p>Step 4</p> <p># serving days _____</p> <p>÷ days of inventory on hand _____</p> <p> </p> <p>= Inventory turnover _____</p>

ACTIVITY 8 – Calculating Food Cost and Inventory Turnover, Continued

1. Using the food cost in Step 1, which school has the best food cost % (food cost divided by revenue)?
 - a. Anderson
 - b. Northwest
 - c. Not enough information to determine
 - d. Both had similar food costs
2. Does Anderson have an acceptable “days of inventory on hand”?
 - a. Yes
 - b. No
 - c. Not enough information to tell
3. Which site has the best “days of inventory on hand”?
 - a. Anderson
 - b. Northwest
 - c. Not enough information to tell
 - d. Both had similar “days of inventory on hand”
4. Does Northwest have an acceptable number of inventory turns?
 - a. Yes
 - b. No
 - c. Not enough information to tell
5. Which site has the best inventory turnover rate?
 - a. Anderson
 - b. Northwest
 - c. Not enough information to tell
 - d. Both had similar “inventory turnover rates”

ACTIVITY 9 – Writing Standard Operating Procedures

Directions

1. Read the SOP below and add or revise any steps that would improve the traceability of products.
2. Place a star by the Critical Tracking Events (CTE).

Taking a Physical Inventory – School Site

(Sample SOP)

PURPOSE: To determine the value of commercial foods, USDA Foods, and supplies on hand for use in determining food and supply costs. This information is also used for developing school district financial reports such as a balance sheet.

SCOPE: This procedure applies to site foodservice employees responsible for inventory control.

KEY WORDS: Inventory control, food cost, tracking

INSTRUCTIONS:

1. Follow State or local health department requirements.
2. Take inventory after all products have been received or issued for the day.
3. Count each product accurately.
4. Assign two employees to take a physical count of food and supplies in storage on the last serving day of the month or at the end of the accounting period.
5. Count all items in storage or received and invoiced during the month (or at the end of accounting period).
6. Instruct one employee to say the product name and quantity.
7. Instruct the second employee to record the quantity of each item counted on an inventory sheet.
8. Count the inventory in the top left-hand side of the storage area moving to the bottom right-hand side.
9. Note if a product is placed in the wrong location or in a position that compromises food safety e.g., chemical over food product. Do not move items to a different location until after the inventory is completed.
10. Count all full cases and unopened sub-units such as cans and packages. Estimate the amount in open sub-units such as sugar, flour or spices in $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ unit.
11. Inventory products ordered by weight by the same weight units as ordered.
12. Count and write-in leftovers noting the use-by date on the inventory sheets.

Physical Inventory, continued

(Sample SOP)

THE UNIT SUPERVISOR WILL:

1. Train foodservice employees on using the procedures in this SOP. Train different employees to take inventory, receive products, and issue food items.
2. Provide a pre-printed inventory worksheet without expected quantities of each item. List items on the inventory worksheet in the same order as products are stored on shelves starting at the top left and working toward the bottom right hand corner in each storage area.

MONITORING:

Foodservice manager will utilize the Site Inventory Management and Tracking Checklist each month. (Note: This document may be found in Chapter 6 of the *Inventory Tracking Reference Guide*.)

CORRECTIVE ACTION:

Use this SOP to retrain any foodservice employee found not following the standard operating procedures.

VERIFICATION AND RECORD KEEPING

1. Foodservice employees will record the name and quantity count of the food items on the Physical Inventory Worksheet.
2. The foodservice manager will verify that appropriate corrective actions are being taken by reviewing, initialing, and dating the inventory control section of the Site Inventory Control Checklist.
3. Update perpetual inventory record with physical inventory count.

DATE IMPLEMENTED: _____ BY: _____

DATE REVIEWED: _____ BY: _____

DATE REVISED: _____ BY: _____

ACTIVITY 10 – Media Frenzy

Directions

1. Choose a different role for each person in the group from the following list: foodservice director, school nurse, school administrator (e.g., superintendent, business manager), public health official, school district media liaison, distributor salesperson.
2. Read the emergency scenario.
3. Write down questions related to the emergency that the media may ask related to your role. (5 min.)
4. As a group, draft a press release containing important information about the emergency. (5 min.)
5. Stage a media briefing for the other groups. Have the district media liaison read the press release drafted by your group. The rest of the class will take on the role of the media asking questions about the incident to any of the team members. (10 min.)
6. After the media briefing, list the inventory management and tracking best practices that would provide the best information in the event of a food-related emergency. (10 min.)

Scenario

James Jones, the School Nutrition Director from Anderson School District just spoke with Dottie Davis, his distributor's sales representative. Canned potatoes sold by the distributor have been recalled due to potential contamination by *Clostridium botulinum*. *Clostridium botulinum* can be fatal unless an anti-toxin is administered promptly. The onset of this disease is between two hours to six days. Dottie provided the GTIN and lot numbers for the potatoes being recalled. Purchasing records indicate that Anderson Schools received 20 cases of the recalled product on September 10 and another 20 cases on October 12. Parsley potatoes were on the menu 2 days ago. Notice of the recall also was provided to local news media because several commercial products were potentially affected. So far 30 cases of the disease have been reported nationally including one fatality. James notified his supervisor about the recall and the potential severity. The superintendent has called a meeting in 1 hour to address the issue and prepare a statement for the local media.

Information for Trainer

Note to the trainer: This information is included as background information. The purpose of this material is to help the instructor become familiar with the content of the lesson.

Inventory management has long been considered a critical component of a well-managed school nutrition program. According to a United States Department of Agriculture (USDA) cost study, 46 % of school nutrition program revenue is spent on food (USDA, 2008). Controlling this prime cost has been the focus of classic inventory management practices. More recently, food safety and security issues have added a need for traceability or the ability for schools to track food products back to their source and track forward to the consumption or disposal of the product.

Recalls of spinach, tomatoes, and peanuts have been in the headlines after hundreds of people became ill. Quick response to trace back to the source of contamination and trace forward to warn potential consumers is crucial for safeguarding public health. More recently, the number and frequency of food product recalls has required school districts to respond to these incidents by identifying recalled products and determining if they have been received by the districts, served, or are still in stock.

During the last few years, food safety concerns have driven new initiatives that impact inventory control practices. Changes to National School Lunch Program (NSLP) regulations in 2004 required schools to implement food safety plans based on Hazard Analysis and Critical Control Points (HACCP). Traceability should be incorporated into standard operating procedures (SOPs) contained in food safety plans because both the source for food products implicated in foodborne illness and the ability to track the storage, production, and service of food products is critical in controlling the spread of illness.

The need to trace and track products is not limited to food recalls and foodborne illness. Security of our food supply has come under scrutiny since terrorist attacks in 2001. In response to potential risk to our food supply from terrorism attacks, Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act) that requires all food processing businesses to track specific information about where food was sourced and where it was delivered, also called “one step forward, one step back.”

For these reasons, the food industry is taking a fresh look at ways to track and streamline the flow of food and information related to inventory. The increased focus on food safety and the need for greater efficiency and cost control now requires a wider lens when considering inventory management.

In the past, inventory management has been confined within an individual operation. Now there is a need for a more global view of inventory management that extends across the organization’s supply chain. The paradigm shift is in the understanding that business practices of supply chain partners are interrelated. Poor business practices of a vendor can have a negative effect on their customers just as poor business practices of a school nutrition operator can negatively affect their suppliers’ businesses driving up the cost of the products and services.

This course and the accompanying *Inventory Tracking Reference Guide* present information about inventory tracking that may be new to school nutrition operators. It also refreshes information about traditional inventory management in light of new traceability expectations. Finally, it includes information to help prepare school nutrition operators to implement technology solutions that provide efficient management of inventory as well as inventory tracking.

The goals of this course and the *Inventory Tracking Reference Guide* are to:

- identify inventory management best practices;
- provide tools for inventory management;
- introduce traceability and tracking systems; and
- update traceability practices in school nutrition programs.

Inventory management best practices

Effective inventory control begins long before products are purchased. Effective menu planning and recipe development is the first step in inventory management. Menu planning and recipe development should utilize a minimum of products while at the same time provide enough variety to maximize customer satisfaction and good nutrition. Procuring, forecasting, ordering, and receiving ensure that the right foods in the correct quantities are received just in time for production. Storage practices keep food secure and minimize waste. Effective and efficient production and service practices ensure that customers consistently receive the foods they want safe and freshly prepared served in correct portions.

Tools for inventory management

Good inventory management may require new tools to help you succeed. These tools can be customized to meet the needs of your organization and will give you a quicker path to implementation of recommended best practices. Report templates, bid language, sample standard operating procedures, checklists, and resources are included in the *Inventory Management and Tracking Reference Guide* and are discussed in this course.

Traceability systems

Traceability or the ability to track food items back to their original source may be a new concept for employees in school nutrition programs. It encompasses recording delivery dates, delivery agent information, quantity, product codes, and lot numbers for items received by the school, it also includes the disposition of the product such as served date or disposed of date, as a minimum best practice.

Traceability practices

Although schools are not currently required to keep records that would help them track food products, advancements in product tracking made by suppliers have made product tracking more feasible for schools. Recent incidents of food recalls also may make product tracking a high priority in order to assure the safety of foods served in schools.

Lesson Objectives

After completing this course on inventory tracking, participants will be able to:

1. Describe differences in inventory management when using a “supply chain view” compared to a “school nutrition department view”.
2. Identify information needed for product traceability and state when this information should be recorded.
3. Describe how each function in the school nutrition department impacts inventory management.
4. Describe how inventory management and food tracking best practices impact food-related emergencies.

Lessons at a Glance

TIME	LESSON	ACTIVITY	RESOURCES
Welcome – The Basis of Inventory Management			
:10	Introduction <ul style="list-style-type: none"> ■ Greeting ■ Warm-up exercise ■ State ground rules ■ Overview 	Post ground rule posters around the room. Have participants pair off. Each person finds out from other person: <ul style="list-style-type: none"> ■ Name ■ Where they work ■ Size of district Instructor calls on each table to start introductions and finishes with own introduction.	Reference Guide
:15	Overview The goal is to design an inventory system that ensures food is: <ol style="list-style-type: none"> 1. safe to eat, 2. available at the right time and in the right amount, and 3. cost-effective. Lesson 1 – The school nutrition supply chain Lesson 2 – Traceability Lesson 3 – Best practices Lesson 4 – Responding to emergencies Summary and Wrap-up	Activity 1 (Pre-test) Ask participants to think of an inventory “best practice” and then share with others in the group. Write one practice on note card and tape to wall or flip chart. List best practices on Activity Sheet as they walk around. Give the example of first in, first out stock rotation.	
Lesson 1 – The school nutrition supply chain			
Objective: Describe differences in inventory management when using a “supply chain view” compared to a “school nutrition department view”.			
:25	Why do school nutrition programs need to look beyond their own four walls when thinking about inventory management and traceability? What does a school nutrition supply chain look like?	Activity 2 Divide class into groups of six and assign each group a product: <ul style="list-style-type: none"> ■ Fresh-cut lettuce ■ Fresh apples ■ Frozen pizza made with USDA cheese and flour ■ Chicken patties ■ Raw ground beef ■ USDA processed beef patties ■ USDA canned peaches ■ Frozen corn Draw the supply chain for the assigned product including the relationships between organizations or departments	Reference Guide Chapter 1 & 2

TIME	LESSON	ACTIVITY	RESOURCES
:20	<p>What does your internal supply chain look like?</p> <p>Where and how is product information shared in your internal supply chain?</p>	<p>Activity 3</p> <p>Instruct each participant to draw the internal supply chain in their district for commercial and USDA canned fruit. At each table, discuss differences and how the differences may affect inventory control. Share differences with the group.</p>	
Lesson 2 – Traceability			
Objective: Identify information needed for product traceability and state when this information should be recorded.			
:35	<p>What information needs to be captured from packages?</p> <p>Is there information that you need to add to your product packaging to improve traceability?</p>	<p>Activity 4</p> <p>Provide several pictures of food packages to participants. Working as a group, have participants write down information that should be recorded and why. Share with the class.</p>	Reference Guide Chapter 3
:20	<p>What is a critical tracking event (CTE)?</p> <p>Looking at your internal supply chain, at what points should you capture and record information about your products?</p>	<p>Activity 5</p> <p>Indicate the CTE at any points in the internal supply chain.</p>	
Break (10 minutes)			
Lesson 3 – Inventory control best practices			
Objective: Describe how each function in the school nutrition department impacts inventory management.			
:10	<p>How does your menu influence inventory control?</p>	Activity 6 – Great Cycle Menu Debate	
:10	<p>How do poor inventory control practices impact customer service, efficiency, financial management, and food safety?</p>	<p>Activity 7</p> <p>Provide each table a case study focused on one element of inventory control. Participants at each table discuss questions at the end of the case study. Report to group a summary of the case study and discussion.</p>	

TIME	LESSON	ACTIVITY	RESOURCES
:25	How much inventory is enough?	Activity 8 Each person will be given a worksheet describing a school scenario with: <ul style="list-style-type: none"> ■ Beginning inventory ■ Ending inventory ■ Purchases for the month Days of operation for the month. Calculate the days of inventory on hand and determine if the inventory is under stocked, overstocked, or just right.	Reference Guide Chapter 4 & 6
:20	Are changes needed to your current SOPs to facilitate traceability?	Activity 9 Provide each table with an SOP related to inventory tracking or control. Discuss how the SOP might be improved and note changes on the form. Report to group.	
Lesson 4 – Responding to food emergencies			
Objective: Describe how inventory management and food tracking best practices impact food-related emergencies.			
:30	Do you have all the information you will need in an emergency?	Activity 10 –Media Frenzy Each group simulates a press briefing concerning a food-related emergency involving a food product. Each person takes on a role and helps prepare the district media liaison for responding to the press.	Reference Guide Chapter 5 & 6
Summary and Wrap-up			
:10		Activity 11 (Post-test)	Reference Guide - Resources

Welcome and Introduction

Prepare: Have note cards, tape, name cards, markers, notepads, Activity 1 worksheet, and pencils on the table for each participant.

Show: Slide # 1 Inventory Management and Tracking: A Course for School Nutrition Directors

Say: Welcome to Inventory Management and Tracking, a workshop for school nutrition directors or administrators responsible for improving the inventory management system. The National Food Service Management Institute has provided each of you with an *Inventory Management and Tracking Reference Guide* to help you improve your inventory management system and, in particular, the ability to track products throughout your organization. The Reference Guide contains information regarding the school nutrition supply chain, tracking of school nutrition products, responding to recalls, and more classical inventory management topics such as taking physical inventories. This course is designed to help district personnel take a broader look at inventory management and implement controls that include product tracking and preparing to automate manual processes.

Many of our activities involve working with the other group members at your table. Before we begin, let's pair off in groups and take a moment to find out a little bit about each person. State your name and what size district you are from. Write your name on the name cards provided to you. Then write one effective inventory control that you practice in your district on one of the cards placed at your table. When you are finished, tape your "best practice" on the wall or flipchart.

Say: Using the **Activity 1** worksheet, read the other postings on the wall and record the ones you consider "best practices".

Do: Have everyone begin their introductions giving their name, the size of district, and naming one "best practice".

Say: Now that you know each other, let me tell you a little bit about myself. *Give the participants a brief introduction of your background especially as it relates to school nutrition programs and inventory management.*

Show: Slides # 2 - 5, Course Objectives.

Say: The goal of this course is to provide information that will help you improve your inventory management system to ensure that food is 1) safe to eat, 2) available at the right time and in the right amount, and 3) cost-effective. In order to reach this goal, this course is divided into four lessons. In the first lesson (*Slide 2*) we will learn about the basis of inventory control and the school nutrition supply chain. Lesson 2 (*Slide 3*) will introduce the concept of traceability. Lesson 3 (*Slide 4*) will review inventory management "best practices" and Lesson 4 (*Slide 5*) will include recalls and what actions to take in food emergencies.

The first step in modernizing your inventory management system is to map out your goals for inventory control and to identify the members of your school nutrition supply chain.

LESSON 1

Basis of Inventory Control and Supply Chains

Prepare: Handout Activity Worksheets 2 and 3.

Say: This course is designed to help you move closer to an ideal state of inventory control. This ideal state includes keeping enough inventory on-hand so that all products that you menu are available to every customer without having excess product that ties up your cash, spoils, or disappears. It also includes being able to track when, where, what, and how much of each product has been received, served, or stored.

Do: The instructor draws on the flip chart a line to depict the current state of inventory management to the ideal state. Ask the participants what are problems they encounter and list them in the Initial State box on the flip chart.



Say: Most districts current state will fall somewhere in between these two points. The goal is to make continuous improvements in order to reach an ideal state over time. The *Food Tracking Reference Guide* along with this workshop is intended to provide information that will help you move closer to an ideal state of inventory management. The first step in this effort is to help you broaden your view of inventory control.

Ask: How many of you have heard the term supply chain? What does the term mean to you?

Feedback: Acceptable answers include organizations that grow food, manufacture products, or deliver food and supplies to the school. Other organizations in the supply chain include USDA, state agencies, brokers, and cooperatives.

Show: Slide #6, definition of supply chain.

Say: The examples given were mostly members of the school nutrition supply chain. A supply chain includes all entities involved from the origin of a product through its disposal or consumption. The supply chain includes not only the flow of the products themselves but also the transmission of product information and payment. For school nutrition products this usually means the grower or rancher, manufacturer, distributor, brokers, maybe purchasing cooperatives, USDA, state agencies, various departments within the school district, and finally your customers or the dumpster. Turn to page 7 in the *Inventory Management and Tracking Reference Guide* to see an example of a school nutrition supply chain. The bold line is the product's physical path from the farmer to the students.

Ask: In our example, how many organizations does the product pass through before it gets to the student?

Feedback: Acceptable responses 8 or more.

Say: That is correct; the product passes through many hands before it gets to the student. In some organizations the product is changed in some manner such as mixing it with other ingredients to make a new product or packaging the product so it is more usable to the school nutrition program. These changes add value to the product. Sometimes the product may pass through an organization that does not add value, for example, years ago the only way to process a USDA Food was to accept delivery of the product into the district and then to send it out to a processor. Transporting the product into and then back out of the district did not add value to the product, only additional cost. At some point, USDA and the State Agencies realized that it would be more efficient to deliver the raw product directly to the processor instead of incurring the cost of shipping it first to the district. This is an example of how USDA has improved the USDA Food supply chain over the last several years.

Say: Today we are going to talk about the school nutrition supply chain for different products in terms of making the product and product information flow more efficient thereby reducing costs that do not add value to the product. We are also going to discuss the information we need to capture and record in order to facilitate product tracking. It is no longer enough to think about what we do within our department to reduce waste or increase safety of products, we must also consider what our supply chain is doing that may also impact cost or safety. This is referred to as having a supply chain orientation or view. Let's look at the supply chain for some typical school products.

Do: Assign each group one of the following products: 1) fresh-cut lettuce; 2) fresh apple; 3) frozen pizza made with processed USDA cheese and flour; 4) chicken patties; 5) raw ground beef; 6) USDA processed beef patties; 7) USDA canned peaches; 8) frozen corn.

Say: Working as a group, complete **Activity 2** by drawing the school nutrition supply chain for your assigned product. Think about both the flow of the product as well as the flow of the product information. Draw lines to show the relationships. Consider, discuss, and, write down your thought for questions 3 & 4 on the activity handout and discuss within your group. I will ask for volunteers from 2 or 3 tables to share their ideas. You can take 10 minutes to complete this activity. We will take another 10 minutes to discuss the findings.

Feedback:

Q3 Out of stocks, substitutions, product reformulation, selling products that do not yet have distribution slots. Can increase cost and disappoint customers.

Q4 Unclear specifications, inaccurate forecasting on bids, under-ordering, insufficient lead time for orders. Can increase their cost. Items that linger on shelves from inaccurate ordering may spoil.

Say: Viewing inventory management as a system that extends across the entire supply chain allows you to open a conversation with supply chain partners about how their actions impact your business. All parties may need to work together to identify the root cause of problems and address them. This type of partnership results in group efficiencies. When one member can reduce costs, the savings are shared by other members as well. Saving your own organization money at the expense of other supply chain members will eventually result in higher prices, not lower. Could you give an example?

Say: Let's take a closer look at your "internal" supply chain or the path products and product information take within your own organization. Look on page 8 in the *Reference Guide* for an example. Notice there are a lot of paths for product information even though the product itself may go directly to a school. As you can see, the process starts in the district school nutrition office when menus are planned. Each path can provide an opportunity to reduce waste through standardization of processes, reduction in manual processes, elimination of process steps, and elimination of redundant information gathering such as entering product information into more than one system.

Ask: What happens to inventory when the district nutrition office writes the menus and procures food items needed to produce the menus and then the schools order and serve other products?

Feedback:

- Partnership with distributor begins to dissolve
- Inventory is left on the shelf at the distributor
- Distributor out of stocks increase because orders are not predictable
- Students may be disappointed because they do not receive expected products – this leads to food leftover
- Accounting may have to request special permission from school board to vendor for products purchased “off bid”

Say: Now, let’s do **Activity 3**. Draw the internal supply chain for commercial or USDA brown box canned fruit for your district. Indicate the product flow, information flow, and money flow. Answer questions 2 & 3 and then turn to your neighbor and discuss the similarities and differences between your drawings and answers. I will ask for 1-2 volunteers to share their internal supply chain and discussion questions with the group. You will have 10 minutes to complete the activity and we will take another 5 minutes to discuss as a group.

Feedback:

Q2 Picking errors in warehouse, not paying vendors on time, incorrect forecasting by central kitchen. Costs rise and quality decreases. Regulations may not be met.

Q3 Receive products that have not been ordered, do not keep storage areas locked, breaking the cold chain (temperature control). Costs increase, quality decreases.

Say: Sharing product information among supply chain partners is essential for procurement, ordering, obtaining nutrient information, paying invoices, and identifying products that meet the needs of the school district.

Ask: What barriers do you see that make it difficult for members of the supply chain to share product information?

Feedback: Look on page 10 of *Inventory Management and Tracking Reference Guide*. Barriers include having:

- a shared terminology,
- an understanding of what each entity needs, and
- an efficient method for transferring the information.

Say: Addressing these three areas is at the center of traceability. In the next lesson we will discuss how traceability in school nutrition programs can be improved and the benefits of tracking products across the supply chain.

Summary Points:

- Inventory management should be evaluated based on where your program currently is compared to the ideal state.
- The ideal state includes having enough product to meet the expectations of customers while being kept low enough to minimize spoilage, waste, and shrinkage. It also includes the ability to trace products within the internal school nutrition supply chain and back to suppliers.
- Modern inventory management requires a supply chain orientation in order to maximize effectiveness.
- Both internal and external supply chains should be examined for processes that add expense without adding customer value.

Do: Hand out Activity Sheets 4 and 5.

Say: What do you think of when you hear the term “traceability”?

Feedback: Affirm answers such as:

- being able to tell where products come from,
- being able to respond to a recall, and
- reading certain information such as lot numbers on the package.

Say: Traceability is the ability to track a specific food within the supply chain or from the grower or rancher all the way to the point at which it is consumed or disposed of. In order to achieve traceability you need to have a common way to identify products.

Ask: Imagine you are ordering pizza from your distributor. Tell me what information you would provide to ensure that you receive the product that you wanted.

Feedback: If the volunteer responds that they would use the item number, follow-up by asking whose item number – the school district’s number, the distributor’s number, or the manufacturer’s number?

Say: Have you ever thought about how many different numbers may be assigned to one product as it travels across the supply chain? This has made it difficult to track products as they move from one organization to another. It is the same problem that you would have if you worked at company A under the name Bill Jones and then moved to company B and worked under the name William Jefferson. If company B called company A to ask about your work history they may not find you in their files because they know you by a different name. What if there were another William Jefferson at company A that was not such a great worker. Company B may not hire you!

Using a common name or code for each unique product has increased the ability for companies to be able to track their products forward to their customers and backward to their suppliers. If there is a problem with a product, it is easier to identify only the product affected. This reduces the amount of product that needs to be discarded. Collectively across the supply chain this can result in saving millions of dollars worth of product as well as lost reputations. What are these unique numbers and how can you use them in your organization?

Do: Turn to page 22 and 23 in the *Inventory Tracking Reference Guide*. The common case markings on page 22 are taken from actual product cases. Ideally each product will come in a case marked with both a product number and a lot or batch number. A product number identifies a unique product, the lot number identifies when it was manufactured. Often the lot number is coded in a way that is meaningful to the manufacturer but not necessarily to the operator. The three examples in the Guide are quite different from each other. Turn to page 23. A new way to identify products is by assigning each unique product a Global Trade Item Number or GTIN (pronounced G-tin).

Ask: Are you familiar with a UPC code on products you buy from retail stores such as grocery stores?

Say: UPC codes are one type of GTIN number, however, the UPC is a 12-digit number designed to scan in retail point of sale registers. Several years ago foodservice manufacturers and distributors agreed upon a 14-digit GTIN for products used in foodservice operations such as restaurants, hospitals, and schools. The GTIN is comprised of a company prefix

that is six digits and a five digit item reference number. The first digit is a packaging indicator code. If the first digit is zero (0) then the sub-packages have a different item reference than the case. If the first digit is one (1) then the sub-packs have the same item reference. This is important when collecting information for recalls. The GTIN is always accompanied by a bar code that may be scanned to capture data electronically. On page 23 you will see two different GTIN formats. The one on top is a GS1 ITF-14 bar code. It only includes the company prefix and item reference code.

Ask: What is the company prefix for the top bar code?

Feedback: The correct answer is 38000.

Ask: What is the item reference for the top bar code?

Feedback: The correct answer is 03665.

Say: Now look at the number under the second bar code. Notice that it has more than 14 digits and also has numbers set off by parentheses. This format is called a GS1-128 bar code. Many manufacturers have elected to use GS1-128 bar codes because it can hold additional information about the product such as the lot number or a use-by date. Because this additional information is included in the bar code it can also be scanned into software making traceability more efficient. The number inside the parentheses is called an application identifier. The first set of parentheses (01) simply tells you that the number that follows is the GTIN.

Ask: Using Exhibit 3-3, tell me what 10036 represents in the second bar code?

Feedback: 10036 represents the lot number. We know this because it is preceded by (10) which is the application identifier for lot number.

Say: The GTIN and GS1-128 bar codes, in particular, simplify traceability. If the manufacturer changes anything about a product, the product must be assigned a new GTIN. For instance, if you are purchasing a salad dressing made with corn oil and the manufacturer decides to begin making the same salad dressing with peanut oil, they must give the product a new GTIN. This may become a food safety issue when serving students with allergies to certain food products.

Say: A second important aspect of tracking products is to capture the correct information and store it in a manner that can be easily retrieved. There are several points in the internal supply chain when product information should be collected. Any time a product is moved between sites or the product is transformed, information should be recorded. For school nutrition programs this includes when a product is received, when it is used in production, for example cooked or prepared, and when it is stored, served, or thrown away. These are called “critical tracking events” or CTEs.

Ask: What information do you think should be recorded at CTEs?

Feedback:

- Product name
- Product code or GTIN
- Quantity and unit of measure
- Lot number
- Date
- Previous location when product is moved

Do: Let's take a look at some cases and identify what information should be collected for traceability. Take out **Activity 4**. While watching the presentation with various cases markings, check off the information that you can find on each case that should be kept when the product is received. If any information is missing, explain what you could do to capture the information on the lines below the table. This activity will take about 15 minutes. We will also spend 5 minutes to discuss your thoughts on collecting the missing information. (As an alternative print slides 9-23, assign labels to each group and have them complete Activity 4 together).

SLIDE	PRODUCT NAME	PRODUCT NUMBER OR GTIN	LOT OR BATCH NUMBER	DELIVERY DATE	BRAND OR MANUFACTURER	DELIVERED FROM
1	Celery	10614141012340	HUD2B9420		Western Grower's	
2	Red Peppers	10614141000347	259		Pacific Farms	
3	USDA Apples		0110058 Pack date: 02/27/10			
4	Potato		Lot 36L80B			
5	Potato Salad	10614141431042	Use By 10/23/10 BS			
6	Juice	10614141023421	?		J&N Products	
7	Bologna	10614141006851	Aug 1720104H		Charles Quality	Schools Best
8	USDA Beef Patty	10614141052506	10036		GEM Meats	
9	Strudel	10614141278524	09 Feb 2010UT 15:31 Use by 14 Aug 2010		Dutch Girl	
10	Chicken	10614141525093	0560PBF0417		Chick Delish	Midwest Distributor
11	Chocolate	10614141611253	34A2A BB 102011		Chocolate Delight	
12	Portion Cup	10614141795977	BV 4 02/15/10 10:49			

Do: Review slides while you discuss pointing out relevant information.

Feedback:

1. Celery – No delivery date, or vendor. Could stamp box with date and vendor name. Wasn't it easy to identify the product code and lot with this type of GTIN?
2. Peppers – No delivery date, or vendor. Could stamp box with date and vendor name.
3. Apples – No product number, delivery date, brand (could be brown box), and vendor.
4. Potato – Missing product number (maybe), brand, delivery date and vendor.
5. Potato salad – Missing delivery date, brand, and vendor.
6. Juice – It is not clear if this product has a lot number. The delivery date and vendor are missing. Note the first digit of the GTIN. The 1 signifies that the label on the inner packages has a different number than the case. In this case you would want to make sure that the case information is recorded if the case is discarded.
7. Bologna – There is more than one bar code on this package – which one is important to record? The bar code on the sticker is placed there by the distributor for their internal use. The one to record is the one on the bottom of the label. The vendor is indicated on the sticker.

8. Beef Patty – This product is missing the delivery date and vendor. USDA Foods are beginning to use GS-1 128 bar codes also. Also note the USDA facility seal – this may also be important to record. It should appear on all meat, poultry, and egg products.
9. Strudel – This product is only missing the delivery date and vendor.
10. Chicken – All information is contained on the case except the delivery date. The bar code on the pallet sticker looks like a GTIN but does not have the application identifier (01) which indicates a GTIN.
11. Chocolate – This product is only missing the delivery date and vendor.
12. This product is missing the delivery date, brand, and vendor.

Feedback: In addition to this information, the quantity of each product should be recorded as it is received, pulled from storage, prepared, and served. As you probably noted, the information is a lot easier to determine when GS1-128 bar codes are utilized. Can you influence how many of your products carry a GTIN number? (pause to see if anyone volunteers a solution). While it is probably too soon to require this type of bar code on product cases, it is not too soon to begin speaking with distributors and manufacturers to let them know that you want your products encoded with GTIN numbers plus a lot number and ask them to keep you informed on the progress in their area. This is especially important if you plan to scan in deliveries and/or scan products to track inventory.

Say: Next let's look at critical tracking events or CTEs and when those occur in a school nutrition program.

Do: Write on the flip chart a typical product flow for a district that has vendor deliveries made right to the school. Let's look at canned tomatoes.

Receive tomatoes → Remove tomatoes from storage → Prepare spaghetti sauce using the tomatoes → Serve to students → Discard leftovers

Ask: Where in this process flow would you need to record information about the tomatoes, what information would need to you capture, and where would you record it?

Feedback:

- Record the receive date, GTIN or product code, quantity received, and vendor on a perpetual inventory card. If you do not use a perpetual inventory, write the delivery date and vendor on each case of tomatoes before storing them.
- Record the GTIN or product code on a storeroom requisition, date removed, the quantity, lot number, and vendor. If using a perpetual inventory also record this information on the inventory card.
- Record the GTIN or product code and quantity on the production record. If feasible also record lot numbers. As long as the lot number is recorded on the storeroom requisition it may not be needed on the production record.
- If spaghetti sauce is leftover, label the container with the product name, date the product was produced, and the discard date. As long as the production date is on the label you will be able to link the product back to the production record for more information.

Say: **Activity 5** lets you practice identifying critical tracking events. Draw the flow of product in your district for USDA frozen cherries. Indicate each process the USDA frozen cherries would undergo beginning with the receiving process. Write CTE next to the processes where you need to record information in order to fully track the product.

Feedback: Processes that move the product from one site to another (e.g., to a satellite site) or transform the product into a new form should be noted with a CTE.

Summary:

- Traceability is the ability to track products from their original source such as the field to every organization through which it travels until it is consumed or discarded.
- In order to effectively trace products, all organizations must have a common number for the item, an understanding of what information to collect, and a means for recording or collecting the information.
- The foodservice market has agreed to use GTIN numbers as encoded in GS1 -128 and ITF-14 bar codes on product cases.
- GTINs are 14 digit numbers containing a company pre-fix and an item reference number.
- GS1 – 128 bar codes may contain application identifiers that include additional information such as lot numbers.
- Critical tracking events are points in the flow of product processes where information needed for traceability should be recorded.
- Dates, product name, GTINs or product codes, lot numbers, quantities, and locations should be recorded at CTEs.
- Technology may be used to capture information used for traceability more accurately and efficiently than manual processes.

Say: Let's take a 10 minute break to stretch our legs and clear our minds. We will begin again promptly at xx:xx.

Inventory Management Best Practices

Do: Hand out Activity Sheets 7, 8, and 9, there is no activity worksheet for activity 6.

Say: In this lesson we will discuss best practices in inventory management, especially as they relate to improving the traceability of products. Instead of the traditional approach that only looks at discrete inventory tasks such as tracking perpetual inventory or taking a monthly physical inventory, we are going to take a systems approach to inventory management. Beginning with the menu, each function will be examined to determine its impact on inventory as well as how the school nutrition program can help improve efficiencies of their supply chain partners resulting in cost reductions for all members of the supply chain. Automating menu planning, purchasing, and inventory functions will lead to efficiencies. The best practices discussed in this lesson also will help prepare your organization for automation.

Ask: In what way does menu planning affect inventory?

Feedback:

- Determines what items are needed, the form of the items (fresh, frozen, canned), the total number of items needed, and how frequently the items are used.
- Planning menus before purchasing products ensures that products required to prepare menus are purchased.
- Menus establish buying pattern that helps vendors stock enough product to meet your needs.
- Inventory can build up for products not included on menus on a consistent basis.

Do: Activity 6 (there is no worksheet for this activity) – The Great Menu Debate, lets you debate the benefits of a 3-week cycle menu compared to a menu that changes each month. Divide the tables into two equal size groups. Half of the tables should debate for cycle menus and the other half for a changing monthly menu. List the pros and cons for your menu type especially with traceability in mind. Five (5) minutes will be allowed for this part of the activity. After your arguments are written down, volunteers from each group will make their case. The instructor will declare the winner after closing arguments. Ten minutes will be allowed for the arguments and discussion.

Feedback: Planning centralized cycle menus are a best practice. If carefully planned, cycle menus can provide as much variety as menus planned each month and adjust for seasonal products. Planning a great menu is a difficult task. Cycle menus help control inventory by establishing a predictable consumption pattern that helps:

- managers forecast their needs,
- vendors predict what products have in stock in sufficient quantities,
- identify unusual waste or shrinkage.

Say: In a 1998 study, USDA found that the average school district carried over 800 individual products or stock keeping units (SKUs). Each flavor of juice is a separate SKU with its own GTIN. That equates to writing 800 bid specifications and ensuring all 800 items are properly received, inventoried, and tracked. Reducing the number of SKUs is a best practice. This can be achieved by:

- eliminating menu items that sell less than 50 servings or 25 servings in a small school,

- using the same product for more than one menu item such as one chicken patty for chicken and gravy, crispy chicken on a bun, and chicken parmesan, and
- allowing only substitutions that have been approved by the Director or central office person responsible for purchasing.

Say: It is also a best practice to carefully choose suppliers that follow the same good inventory and food safety practices that you do. Discuss with vendors your desire to add language to bid documents that require manufacturers to follow Good Manufacturing Practices (GMP) and farms to use Good Agricultural Practices (GAP) especially when implementing farm-to-school programs. Firms that are ISO or SQF2000 certified will be following traceability best practices. There is more information about these certifications in Chapter 3 of the *Inventory Management and Tracking Reference Guide*.

Do: Poor practices can negatively affect inventory management. **Activity 7** provides case studies of practices that may or may not be helpful when managing inventory. Read and discuss your assigned case study at your table. Identify a spokesperson to present a summary of your conclusions. We will allow 5 minutes to read and discuss the case study at each table and 10 minutes for class discussion.

Feedback:

CS 1 – This is providing poor customer service as all students are not getting the product they want. The manager will continue to under forecast the number of tacos that are needed and may run out of pizza when it is on the menu.

CS 2 – The manager is taking a risk that products ordered are not received because the delivery is not being checked in and certainly not checked in against her order. They are also risking vendor theft by allowing newly delivered products to be stored without checking them in against the order. The dry goods are also at risk for theft because they are not secured at a busy time of the day when no one is watching. Can you be sure that you received the right products in the right quantities?

CS 3 – A product substitution was made without first considering the consequences. Substituting a product containing allergens can be life-threatening. In this case, it also adds a new product to the inventory increasing the number of SKUs. Did school nutrition personnel also record the GTIN of the oil so if the student becomes ill school nutrition personnel will be able to trace the problem back to the oil in the salad dressing?

CS 4 – The manager at Blue Bay is over ordering, which unnecessarily ties up money that could be used for other purposes. Large inventories increase spoilage, waste, and theft. Covering for a manager who needs more training is not really helping that manager. Were the products tracked properly? Is this type of sharing a CTE?

Say: Measuring how well you are managing your inventory is very important especially when you are making changes to your procedures. Common measurements for inventory management are inventory turns and days of inventory on hand. These calculations are very easy but in order to be meaningful they require an accurate physical inventory. Take out **Activity 8** and practice calculating food cost, days of inventory on hand, and inventory turns. (As an alternative, have participants work in groups to complete this activity.)

Feedback:

Anderson Middle	Northwest Middle
<p>Step 1</p> <p>Beginning Inventory \$ 5,525 + Food Purchased/USDA \$ 9,650 -Ending Inventory \$ 4,440 = Food Cost \$ 10,735</p>	<p>Step 1</p> <p>Beginning Inventory \$ 6,985 + Food Purchased/USDA \$ 4,550 -Ending Inventory \$ 7,120 = Food Cost \$ 4,415</p>
<p>Step 2</p> <p>Food Cost \$ 10,735 ÷ 23 Serving Days = Daily Food Cost \$ 466.74</p> <p>Step 3</p> <p>Ending Inventory \$ 4,440 ÷ Daily Food Cost \$ 466.74 = 9.5 Days of Inventory on Hand</p>	<p>Step 2</p> <p>Food Cost \$ 4,415 ÷ 23 Serving Days = Daily Food Cost \$ 191.96</p> <p>Step 3</p> <p>Ending Inventory \$ 7,120 ÷ Daily Food Cost \$ 191.96 = 37 Days of Inventory on Hand</p>
<p>Step 4</p> <p># serving days 23 ÷ days of inventory on hand 9.5 = Inventory turnover 2.4</p>	<p>Step 4</p> <p># serving days 23 ÷ days of inventory on hand 37 = Inventory turnover .62</p>

Q1 – c. there is not enough information to determine. To compare food costs you need to calculate a ratio of the food cost divided by revenue. Although Anderson spent more on food, they may also be a much larger school with higher revenue.

Q2 – a. Yes. A school that receives weekly deliveries should carry between 7-10 days of inventory.

Q3 – a. Anderson.

Q4 – b. No. They have four times the amount of inventory that they should have.

Q5 – a. Anderson. They are turning their inventory over a little more than twice per month. Northwest is taking more than a month to turn over their inventory.

Say: Using a cycle menu and accurate forecasting and ordering will result in consistent inventory levels from month to month. More information on measuring inventory efficiency can be found in Chapter 2 of the *Inventory Management and Tracking Reference Guide*.

Say: Standard operating procedures (SOPs) should be updated or developed for inventory management and food tracking. SOPs can:

- Improve processes;
- Improve compliance with regulations and policies;
- Clarify and improve staff performance; and
- Provide content for training programs.

Because the concept of tracking inventory may be new to your staff, updating SOPs or creating new ones will ensure that employees consistently handle inventory in a manner that controls cost, improves productivity, and provides safe products with consistent quality.

Do: Review the SOP for taking a physical inventory at a school site described in **Activity 9**. Add or revise any steps that would improve the traceability of the products. Make CTEs with a symbol such as a star. Work independently for 3 minutes and then discuss your changes with the group for 3 minutes. A volunteer from your group should be prepared to report to the class with your suggestions. We will discuss for 4 -5 minutes.

Feedback: The following additions could be made to the SOP:

- Step 6 also include product name, GTIN or product code, quantity, and unit of measure.
- Step 7 could include a pre-printed worksheet with product names, GTIN, and unit of measure.
- Add a step to turn cases or cans so that the product name and date received or use-by date is visible and the oldest dated product is in front.
- Under verification, include a CTE by # 1 and # 3.

Summary:

- Inventory management and food tracking should be approached as an inter-related system rather than looking solely at discrete inventory functions such as taking a monthly physical inventory.
- The menu planning function is the first link in the inventory management process. Using a cycle menu can make ordering requirements predictable, which helps managers order more accurately and reduces inventory costs across the supply chain.
- Reducing the number of products (SKUs) will help reduce the time it takes to specify, receive, inventory, and track products.
- Selecting vendors with certifications in ISO or SQF2000 will help ensure that products you receive can be traced back to their original source.
- It is important to measure inventory management. Two common methods are inventory turnovers and days of inventory on hand.
- SOPs can help ensure consistent results in the processes that are implemented to manage inventory and improve product traceability.

Responding to Food Emergencies

Say: Despite careful planning and handling of products, things can still go wrong. Imagine seeing emergency vehicles pull up to your school as your phone begins to ring. I am sure that is enough to put a pit into anyone's stomach.

Ask: What is a food emergency?

Feedback: A food emergency is any type of actual or potential illness or injury caused by accidental or purposeful contamination of food. Food emergencies include foodborne illness and acts of bioterrorism. Often product recalls could also cause a food emergency if products are not pulled from the operation soon enough. Food emergencies require the ability to trace the source of the problem back to a food product.

Ask: How many of you have experienced a food emergency? Is there anything we have talked about today that would have been helpful during your emergency? (Allow a couple of minutes for sharing)

Do: Using **Activity 10**, we are going to conduct a mock press conference about a food emergency in a school district. Each person at your table should choose a role they would like to play from step 1 in the directions. Read the scenario. Take 5 minutes to write down questions related to your role that the media may ask concerning the emergency. Then, as a group, write a press release containing important information to share with the parents and other members of the community. You will have 5 minutes to write your press release. I will ask for a volunteer who played the role of the district media liaison to read the press release to the rest of the class. Members of the class can then ask questions of the media liaison or other staff members for 5 minutes. On a flip chart, make a list of the inventory and food tracking best practices that would have helped them better respond to the emergency.

Say: The key to handling emergencies is to plan for them. Turn to page 44 in the *Inventory Management and Tracking Reference Guide* for a list of information that you should be ready to provide for any product. As a best practice keep samples of any food items that have been cooled and reheated, label them with:

- recipe number,
- date of preparation,
- name of personnel who prepared the item,
- date the item was served, and
- the date the sample should be discarded.

Note the products that were sampled on the production record. Keep the sample for two weeks. Central kitchens should retain samples for each batch of product prepared and periodically send random samples to a lab for microbiological analysis.

Do: Read the differences between procedures for USDA Foods, further processed foods, and commercial products in the event of a recall Exhibit 5.3 on page 43 in the *Inventory Management and Tracking Reference Guide*. Summarize each of the three processes using bullet points. A volunteer will be asked to report out on the procedures to the group.

Ask: Do you proactively seek out information about recalls? What are you using to find recall information?

Say: You may sign up to get information on recalls at www.recalls.gov. FNS is currently developing a new manual addressing recalls.

Summary:

- Develop a proactive plan to respond effectively to food emergencies.
- Include the ability to track foods back to their original source by keeping accurate records of products, GTIN/Product numbers, vendor information, delivery dates, lot numbers, and shipping information for products shipped to other organizations.
- Take the extra precaution of collecting samples from every batch of produced products and periodically run microbiological tests, especially districts with central kitchens.
- The state and USDA are involved in recalls of USDA Foods but are not involved in recalls of commercial foods and USDA Foods that have received further processing. The same types of information, such as GTIN and lot numbers, should be collected and recorded for all products.

Workshop Summary and Wrap-Up

Say: The goal of this course was to provide information to you to improve your inventory management system to ensure that food is safe, available in the right amount, and cost effective. New requirements for tracking products across the school nutrition supply chain were blended with traditional inventory management approaches to provide a fresh perspective on inventory management. Key concepts from this course include:

- It is no longer effective to consider only your own organization when improving management of inventory. Each organization in the school nutrition supply chain may impact the inventory of other supply chain members,
- Food safety issues and efficiency are the driving forces behind initiatives to improve product traceability,
- Inventory management is more effective when a systems approach is taken, and
- Recordkeeping of key product information is essential when dealing with food-emergencies.

Do: Pull out **Activity 11** and list the inventory management processes discussed in this course that were new to you. Consider your list and put a symbol (e.g., star) by two that you would like to begin implementing this year.

Say: Thank you for participating in this course. I have enjoyed being your guide today and I look forward to hearing about the new inventory management and tracking initiatives that you implement.

Manuals

U.S. Department of Agriculture, Food and Nutrition Service. (2004). *A biosecurity checklist for school foodservice programs: Developing a biosecurity management plan*. FNS-364 <http://healthymeals.nal.usda.gov/hsmrs/biosecurity.pdf>

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Website Resources

American Commodity Distribution Association

<http://www.commodityfoods.org/index.php>

American National Standards Institute (ISO 22000:2005, ISO 22005:2007)

<http://www.ansi.org/>

Best if Used By Guidance for Inventory Control in Schools and Warehouses

<http://www.fns.usda.gov/FDD/facts/biubguidance.htm>

Commodity Alert System (USDA Foods recall notification)

<https://www.envoyprofiles.com/USDA-ALERTS/>

Farm to Fork, Produce Marketing Association

<http://fieldtofork.pma.com/?cat=17>

Federal Food Safety Information (commercial recall notification)

<http://www.foodsafety.gov/recalls/recent/index.html>

Food Safety Inspection Service

http://www.fsis.usda.gov/FSIS_Recalls/index.asp

Foodservice GS1 US Standards Initiative

<http://www.gs1us.org/industries/foodservice/foodservice-initiative>

Global Food Safety Initiative

<http://www.ciesnet.com/2-wwedo/2.2-programmes/2.2.foodsafety.gfsi.asp>

Institute of Food Technology – Food Product Tracing

<http://www.ift.org/knowledge-center/focus-areas/food-safety-and-defense/traceability.aspx>

Meat & Poultry Data Standards

<http://www.mpxml.org/>

Produce Traceability Initiative

<http://www.producetraceability.org/>

Federal Government Online Resource for Recalls

www.recalls.gov

Safe Quality Food Institute (Standards SQF 1000/SQF 2000)

<http://www.sqfi.com/standards/>

USDA Foods Fact Sheets

<http://www.fns.usda.gov/fdd/schfacts/default.htm>

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