USAID | DELIVER PROJECT

Initiating In-Country Pre-Service Training in Supply Chain Management for Health Commodities:

Process Guide and Sample Curriculum Outline

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Abstract
While health professional schools in developing countries typically are responsible for a full range of topics related to patient care—diagnosing diseases, using medicines to treat the diseases, and other topics related to the treatment or prevention of disease or illness, frequently health care workers must also manage the commodities used to provide this patient care. Pre-service training (PST) in supply chain management for health commodities complements the clinical training that the students receive; it prepares them to capably manage their commodities and fully perform their duties.

This process guide and sample curriculum outline offers programs, governments, and projects interested in implementing PST for supply chain management of health commodities a general understanding of the process, stages, steps, and activities required for initiating a successful PST training program.

Cover photo: University faculty presenting at a pre-service training lecturers' orientation in Lilongwe, Malawi, 2009. Photo by Motomoke Eomba, USAID | DELIVER PROJECT.

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Contents

Acronyms

DAR	daily activity register
FBO	faith-based organization
IST	in-service training
JSI	John Snow, Inc.
LOE	level of effort
MOE	Ministry of Education
MOH	Ministry of Health
NGO	nongovernmental organization
PST	pre-service training
SCM	supply chain management
SOPs	standard operating procedures
TA	technical assistance

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Introduction

Pre-service training (PST) can effectively introduce the principles and practices of supply chain management (SCM) of health commodities to future health workers while they are still enrolled in school. Reducing the need for, and reliance upon, expensive in-service training are two significant benefits of using a PST approach.

Traditionally, in-service training, or training given to employees, has been the primary way to build capacity in supply chain management for public sector health care workers in developing countries. While in-service training is necessary for informing the staff of new policies, technologies, and protocols, it does take health care workers away from their posts and, typically, is not a sustainable capacity-building mechanism.

Integrating supply chain management content for health commodities into the PST of health care workers offers several benefits, including—

- Health care workers will understand the importance of commodity security and be able to apply their country-specific commodity management procedures.
- Commodities will be better managed as soon as the health care worker begins service.
- Health care workers will see commodity management as an integral part of duties, not as an add-on task.
- Health care workers will understand the link between commodity availability and client service.
- Health care workers will require less in-service training time for learning commodity management, resulting in more time for their primary role—serving clients.

Using This Guide

For programs, governments, and projects interested in implementing a pre-service training (PST) for the supply chain management of health commodities, this guide provides general information about the process, stages, steps, and activities required to initiate a successful PST program. The strategy outlined in this guide is based on experiences with PST by the USAID | DELIVER PROJECT and other projects implemented by John Snow, Inc. (JSI), in a variety of countries, including Benin, Bolivia, Morocco, Malawi, Ethiopia, Rwanda, and Zambia.

The PST strategy described in this document is divided into seven stages—from initial PST planning to program evaluation and scale up. Each stage has clearly defined steps and activities, and the suggested level of effort required to complete each step. Where possible, specific country examples illustrate how these stages have been successfully implemented in the field. Please note that the level of effort (LOE) needed to implement the PST will largely depend on a country's supply chain management system, its academic system, and the availability of local health commodity supply chain expertise. See annex A for additional guidance on course-specific content. In addition, because it can take a long time to add a new course to a school's existing curriculum, remember that the actual time to complete each step may be longer than the LOE suggested. For example, one or two

academic years may be required for discussions and planning before the course can be fully introduced into the school's curriculum.

Who Should Use This Guide?

- Ministry of Health
- Ministry of Education
- faculty at selected institution(s)
- various organizations working in the supply chain management of health commodities.

Stages, Steps, Activities, and LOE for Initiating PST

Stage 1: Identify and define the need for health commodity supply chain management in PST

Table 1. Stage 1 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Assess logistics management capacity at various levels of the health system; including national, regional, district, and service delivery points.	10 days
2	Identify capacity building interventions that may solve logistics management capacity gaps, including on-the-job training, in-service training, pre-service training, and/or supportive supervision.	3 days
3	If PST is selected as the capacity-building intervention, answer the following questions: • Why is PST needed in this country/program? • What are the goals and objectives for a PST course? • What should an ideal PST course include? • Which health professionals should receive this training at school? – Students in health programs (nursing, medicine, pharmacy, etc.) who will have health supply chain management responsibilities? – Others as continuous education? • What institution(s) would be ideal to host a PST course? Ideally, the selected institutions would train health professionals who will be responsible for managing health commodity logistics; including schools for pharmacists, pharmacy technicians, and assistants, nurses, etc. It could include regional training institutions, as well.	4 days
4	Review other logistics and health education survey reports, program designs, education systems, and the curriculum approval process. Make appointments, arrange, and conduct any other required preparations for in-country work.	7 days
5	Write an initial PST concept note, which should clearly outline all the answers to the questions above. The concept note will be used as a conversation starter and basic proposal to key stakeholders involved in stage 2.	2 days
TOTAL STAGE 1 SUGGESTED LOE		**26 days**

Stage 2: Advocate for including a supply chain management of health commodities component in PST curriculum for identified health professionals

The most critical step in the overall process is to obtain a political commitment to incorporate a supply chain management component into the overall PST curriculum for future health professionals.

To obtain the political commitment, the relevant partners (ministry officials, partners, beneficiaries, etc.) must understand the benefits of the pre-service training approach, as well as the resource requirements for implementing such an approach.

Table 2. Stage 2 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Meet key officials to present PST concept note, further assess training needs, and determine the opportunities and constraints for PST, as well as the required level of resources. Those involved in the discussion/planning may include staff from the— • Ministry of Health • Ministry of Education • USAID mission • relevant technical assistance providers • potential teaching institutions • curriculum approval bodies • other agencies engaged in training and supply chain management of health commodities.	14 days
2	Write a draft strategy: Develop a draft PST strategy based on the findings, share the draft document with officials and other stakeholders, and collect their input (see annex B for a sample of an agreement letter). The draft strategy should include— • the local institution(s) that will implement the strategy • the roles of the various partners in implementing the strategy • the resources that each partner will provide to implement the strategy.	7 days
3	Finalize strategy: Revise and finalize the draft strategy based on input from all stakeholders. Share the final version of the strategy with in-country officials and obtain final approval and commitment.	7 days
TOTAL STAGE 2 SUGGESTED LOE		**28 days**

Stage 3: Collaborate with the appropriate college(s), nursing school(s), or other educational institutions to develop the PST course on SCM

After the schools, faculty, and curriculum approving bodies are identified and their pre-service training approach is approved and adopted, a PST course should be developed and incorporated into the academic curriculum. Key stakeholders, such as the Ministry of Health (MOH), Ministry of Education (MOE), curricula approving bodies, USAID mission, technical assistance providers, and selected schools, should participate in designing the PST course.

Table 3. Stage 3 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Collect and review existing curricula, including health logistics lessons, if any. Based on any existing curricula or materials, identify possible ways to incorporate a formal course on health SCM into the existing curriculum. This may include adding sessions or lessons to an existing course or developing an SCM-specific course. It is very important to analyze the existing documents before suggesting any new curriculum. It is essential that the process of curriculum approval be clearly understood.	7 days
2	Conduct consultations with the deans, faculty, and students of selected teaching institutions to gain a greater understanding of the context for PST.	
3	Observe actual classroom and practical sessions in the identified schools/training institutions to gain additional information on the context for the PST course. This will be useful when designing the specific lessons for the SCM PST course and when preparing the teachers to conduct the lessons. Teaching techniques can be adapted according to how existing courses are already taught.	
4	Conduct an in-service training (IST) on SCM for health commodities for faculty members, which will give them a broader view of the possible PST course content. *Though the PST will differ from the IST in content and delivery, the participants will benefit greatly from the IST sessions; they will fully understand both the technical aspects of the course, as well as the skills and knowledge that the course teachers will need.*	5 days
5	Conduct a PST curriculum writing workshop with joint participation from the faculty. Ideally, the faculty should be selected from among those that attended the IST. After identifying course objectives and outlining the course, session materials can be jointly developed at the curriculum writing workshop. Ensure that the following questions are answered: • Should the PST be a required or an elective course? • Should the course stand alone or should it be a smaller part of a larger course (e.g., a module of a course on health administration)? • How long should the PST course be?	5 days

Step	Activities	Suggested Level of Effort
	Ideally, the course should be planned for the last semester (or quarter) before graduation, if offered as part of a set school curriculum. • Who should write the course outline and curriculum? • Who would be the ideal trainers? *Ideally, the trainers should be affiliated with the training institution(s). Guest teachers from nongovernmental organizations (NGOs) and business organizations who are knowledgeable about health supply chain management might also conduct sessions. All key teachers, however, must be trained and certified on the PST course; this is mentioned above.*	
6	Complete the draft PST curriculum. Depending on the country context, counterparts, and stakeholders may also be involved or have complete control of the process. In Malawi, for example, the curriculum was written in collaboration with local lecturers. The completed draft PST course is then shared with the faculty members for their review and feedback. The course materials should be easy and interesting to teach. Instructor preparation should not be labor intensive. The outlines and activities should be detailed with easy-to-follow instructor notes. Part of the instructor training package should include handouts, exercises, tests, and answer keys. Overheads, PowerPoint slides, and other audiovisual items should be included, as appropriate.	21 days
TOTAL STAGE 3 SUGGESTED LOE		**38 days**

Stage 4: Jointly review the draft PST course and support the approval process

After the final draft of the SCM course curriculum is complete, it should be reviewed and refined with as many stakeholders as possible, through a workshop process, if possible. This process will foster ownership of both the process and the product among the in-country participants. Following the group process, the course can be finalized and submitted to the curriculum approving authorities. Formal approval will then allow incorporation of the PST course into the curriculum of the selected schools.

Table 4. Stage 4 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Arrange an in-country course review workshop; include the MOH, MOE, and select school officials, as well as the officials of the curriculum approval bodies. The intended target user of the curriculum (lecturers in health professional programs) should be introduced to and review the draft PST course curriculum. Collect inputs from participants during the workshop to make necessary adjustments to the draft PST curriculum. *In Ethiopia, the lecturers commented on the curriculum after receiving an orientation on the SCM of health commodities.*	5 days
2	Provide support to the schools and the curriculum approval bodies, as appropriate, to facilitate the formal approval and incorporation of the PST course into the schools' academic curriculum. Examples of support may include answering questions from the approval authorities, making changes in the PST course, etc. *In Rwanda, to become familiar with the content of SCM course, lecturers co-facilitated the SCM in-country workshops.*	14 days
3	Distribute PST course materials as soon as they are formally approved. Share these materials with the schools, curriculum approving authorities, USAID mission, and others, as appropriate.	1 day
4	Develop detailed lesson plans (e.g., with breakdown of the PST course into individual class materials, schedules for lectures and practical work, quizzes and exams, proportional weights for grading, etc.) jointly with the school authorities and faculty. See annex A for additional guidance on course-specific content.	15 days
TOTAL STAGE 4 SUGGESTED LOE		**35 days**

Stage 5: Train, certify, and support faculty members who will teach the PST course

After the course is finalized, the next step is to prepare the local teachers and trainers who will teach the SCM course. Preparation will include increasing their technical knowledge of supply chain management, as well as introducing them to the final sets of training materials they will use to teach the course.

Table 5. Stage 5 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Develop training of PST trainers/instructors (TOT) curriculum based on the PST curriculum and lessons plans. The TOT curriculum should also include sessions on how to plan and administer the course (i.e., planning field trips, homework) and also to discuss the certification criteria required to teach this PST course.	5 days
2	Conduct a TOT-type workshop to orient the instructors for the PST course in the selected institutions. At the end of this workshop, the instructors should be able to teach the technical content and present selected parts of the course using established standards. After meeting the discussed criteria, instructors can be certified to teach the PST course on health SCM. This step is critical for ensuring adherence to quality standards. *In Ethiopia and Zambia, a field visit activity was part of the orientation during the lecturers' TOT.*	10 days
3	Orient the selected faculty members in the training workshop in how to develop lesson plans, map out the course over the semester/year, plan homework and field visits for students, develop examinations and quizzes, etc. These activities are in addition to learning the technical course content.	
4	Provide the faculty with all the necessary technical and teaching materials related to the PST course in hard copy and/or CDs. *If applicable, materials should be translated into the local language of instruction used in schools/colleges. An additional quality check will be necessary to verify the accuracy of the translated documents.*	5 days (cost for translation **not** included)
5	Keep copies of these materials available for the students in the institutions' reference libraries. Help the school librarians become familiar with the materials; include the materials in the list of resources available to students, so that they are able to use them for their studies and research.	
TOTAL STAGE 5 SUGGESTED LOE		**20 days**

Stage 6: Instituting the PST program

After the PST course is planned and the teachers prepared, the next step is to offer the course during an academic year at the hosting institution(s). Throughout the initial implementation, the implementing organization will need to monitor the course closely, primarily as an important quality check but also to identify and resolve any issues that arise during the initial implementation.

Table 6: Stage 6 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Observe a select number of session presentations; provide feedback and on-the-job training/coaching, as needed.	14 days
2	Solicit on-going feedback from the course teachers.	On-going
3	Solicit on-going feedback from the course participants/students.	On-going
4	Based on the outcomes of steps 1–3 above, update/revise the curriculum/lessons/teaching materials, as needed. *This step can be completed by the local team independently or with outside technical assistance (TA).*	On-going
TOTAL STAGE 6 SUGGESTED LOE		**14 days plus on-going monitoring**

Stage 7: Evaluating and scaling up the PST course

At the end of the first year of implementation, evaluate the PST course that was piloted in the selected academic institutions. Determine and adopt evaluation indicators, criteria, and a methodology that combines student and faculty surveys and observations of classroom and/or practical activities.

Table 7: Stage 7 Implementation Activities

Step	Activities	Suggested Level of Effort
1	Select evaluation criteria and appropriate methodology before the actual survey.	7 days
2	Develop questionnaires for survey and checklists to be used during observations.	
3	Conduct in-country evaluation using the selected methods and tools.	14 days
4	Analyze and disseminate findings from the evaluation, as appropriate.	7 days
5	Develop initial plans (concept paper) for scaling up the PST to include other teaching institutions.	7 days
6	Follow-up and repeat variation of the seven stages to implement recommended changes and scale up.	TBD
TOTAL STAGE 7 SUGGESTED LOE		**35 days**

Recommendations

To understand the opportunities, challenges, and context for an SCM course in PST, consult a variety of in-country resources. Consultations should take place both during the development of the national training program and, also, during the preparation stage for the SCM course for PST. Following is an illustrative list of potential in-country contacts.

Identify people that will advocate for SCM course of health commodities in PST. Sign a letter of agreement with the institutions.

Consult these important individuals/entities during the PST stages:

To understand the opportunities, challenges, and context for a PST course, consult a variety of in-country resource persons. Consultations should take place both during the development of the National Training Program and also during the preparation stage for the PST course development. Potential in-country contacts include—

- staff involved with supply chain and project administration
- USAID mission staff overseeing health logistics program
- MOH officials with decision-making authority for health logistics training
- MOH logistics officer/training officer at the central or national level
- MOH regional- and district-level officials with logistics responsibilities
- MOH health center/facility staff (e.g., pharmacy assistants, medical assistants, nurses, medical officers) who oversee supply, storage, and management of drugs and other health commodities at their facilities
- MOH medical stores managers at the central, regional, and district levels
- MOE officials with authority over school curriculum and training
- Officials of nongovernmental organizations (NGOs) agencies that support the public sector, especially for health logistics, training, and capacity building (e.g., local and international NGOs, faith-based organizations [FBOs], and UN agencies).
- academic dean and/or faculty at the school of nursing, pharmacy, medicine, where logistics personnel can receive professional training
- officials of academic curriculum review and approving bodies.

Deliverables that can be included in a scope of work for developing a PST for SCM

If outside technical assistance is required for the planning and implementation of a PST course in SCM, a scope of work (SOW) will be required for the person(s) providing the assistance. The deliverables noted below are illustrative only, but they can be considered the backbone of a PST development SOW. The elements of the SOW should be planned in detail and divided for separate

assignments; for example, the evaluation of the PST course would be a separate deliverable to be planned at a much later stage than the other activities.

- Develop a comprehensive national training strategy, including PST.
- Select potential training institutions.
- Select potential trainers.
- Identify trainees for PST.
- Jointly develop a detailed PST course.
- Support the approval process for the course curriculum.
- Train and certify the selected faculty.
- Provide relevant teaching and research materials for faculty and students.
- Evaluate the PST course.
- Plan (concept paper) to roll-out PST to all potential in-country or regional institutions.

Conclusion

A substantial amount of time and effort may be required to introduce a PST course into a country's school curriculum; including the number of person-hours to move through the process of course acceptance, design, and adoption, as well as the overall timeframe needed to conduct the planning activities and incorporate the course into the school's academic program. Nevertheless, the benefits of providing SCM training in a pre-service training environment can well be worth the time and effort invested.

Appendix A

Sample Curriculum Outline for a Pre-Service Supply Chain Management for Health Commodities Course

Introduction

The following sample course curriculum outline is to be used for a country's pre-service training (PST) in supply chain management (SCM) for future health professionals. While schools typically cover a full range of topics related to patient care—diagnosing diseases, using medicines to treat the diseases, and other topics related to the treatment or prevention of disease or illness—health care workers are often also responsible for managing the commodities that will be used to provide patient care. The proposed course complements the clinical training that the students receive by preparing them to capably manage their commodities and, thus, better perform the full range of duties.

The course title, goals, and objectives cover standard SCM topics that will be useful to health care workers at various levels of the country's commodity pipeline and whose jobs will probably include one or more aspects of commodity management.

While the course topics are applicable to nearly every commodity management situation, specific course content must be adapted to suit both the form and content of the country's specific commodity management procedures and academic calendars. For instance, logistics management information system records and reports specific to the country should be taught during the course; also, the course will probably need to be modified to ensure that the forms' content and use are covered. Equally important, aspects related to in-country resupply procedures and commodity management requirements will need to be integrated into the course. Additional course modifications may need to be conducted if and when a country changes or updates its commodity management procedures.

From the academic perspective, it may be necessary to add modifications to accommodate the length of the academic semester or year, the number of contact hours required by the school's mandate, and other institution-specific requirements. Nevertheless, great care should be taken when omitting topics, as all the topics are part of the minimum and basic skills required for commodity management.

Course Title

The suggested title for the course is *Supply Chain Management for Health Commodity Security* or *Supply Chain Management Course*. Whatever the specific title of the course, it should convey the primary purpose of the course: the management of health commodities.

Course Goals

The suggested course goals are—

1. Understand the basic principles and importance of supply chain management in ensuring health commodity security.

2. Define the students' specific roles and responsibilities, following their graduation and placement, as they relate to supplying commodities in the public health sector to ensure that the health logistics system is functioning properly.

The suggested course goals focus on two main aspects of the course: (1) providing the skills that the health care worker will need to manage health commodities and (2) to understand their roles and

responsibilities in commodity management. To ensure that the country-specific course goals are met, any additions or changes to the course goals will probably require minor to significant changes in the course content.

Course Features

To achieve these goals, the PST course will have the following key features, all of which are typically included in any advanced course of formal study:

1. Classroom lessons are essential; each must have specific objectives.
2. Field visits will help students learn from practical observations of the existing supply chain management system in their country; they can then apply important principles to examine areas of improvement.
3. Quizzes, mid-term, and final examinations, and a written term paper can be used to evaluate the students' learning progress.

The key features of the course reflect the usual content of a pre-service training course, with a range from theory to practice.

It is expected that faculty members, not outside *experts*, will administer the course. However, when the instructors have no SCM as a specialty area, a training of trainer (TOT) course can be used. Also, an initial course offering could include an outside expert as a *mentor* for the school's regular staff.

Course Delivery

The SCM course would ideally be offered during the last quarter of the regular academic program for the position being trained (pharmacy technician, master nurse, etc.). This will enable the students to implement what they have learned soon after completing their overall course of study. Additionally, students will be able to learn the most current operating procedures related to commodity management, further reducing the need for intensive in-service training in the future.

Course Outline

The course is organized into a series of 14 contact activities, including classroom teaching and field visits. Classroom lessons, field visits, and several sessions for quizzes, mid-term, and final examinations can be planned, with at least two classes per week during the quarter. See the following suggested course outline.

The indicative outline for course requirements and student evaluation is as follows:

1. Class attendance and informed participation—20%
2. Quizzes—10%
3. Examinations:
    a. Mid-term exam—20%
    b. Final exam—20%
4. Field trip—15%
5. Term paper—15%

Course Objectives

By the end of the PST course the students will be able to—

1. Describe the concept of commodity security and the role of logistics in ensuring commodity security.
2. Describe the purpose of the health supply chain management system, and discuss the relationships between the major activities of the system.
3. Explain the purpose of the standard operating procedures manual in the SCM of health commodities.
4. Outline the flow of commodities and information in a country.
5. Identify key individual roles and responsibilities in the country; describe their specific roles and responsibilities in contributing to health supply chain management.
6. Identify the purpose and elements of a logistics management information system (LMIS); analyze the LMIS currently used in their country and in selected countries; make specific recommendations for improving the LMIS.
7. Accurately complete the LMIS forms for a country, in a specific program, for the logistics system:
   - stock card
   - daily activity register
   - report and requisition.
8. Accurately complete other forms, based on the programs in the country.
9. Receive and issue commodities to ensure full accountability for these supplies.
10. Articulate the internationally accepted guidelines for the proper storage of health commodities; describe how they can be better applied in their country.
11. Assess health commodity stock status from the central- to peripheral-facility levels; determine what actions should be taken, based on the outcome.
12. Determine appropriate order quantities for all levels (central- to peripheral-facility levels) using maximum-minimum inventory control procedures. Select appropriate maximum-minimum inventory control systems for a variety of situations.
13. Monitor a logistics system program and supervise staff.
14. Define quantification and describe the steps in the quantification process.
15. Describe a variety of methods for preparing a short-term forecast of health commodity needs.
16. Identify practical considerations when planning orders and shipments.
17. Apply basic logistics principles to the management of a wide variety of health commodities; including contraceptives, HIV and AIDS products, essential drugs, and tuberculosis and malaria drugs.

18. Related to supply chain management responsibilities, differentiate between routinely monitoring activities and supervising staff.

19. Apply theoretical concepts SCM for health commodities during a practical field visit.

It is important to understand that the course objectives define the general content areas of the course, as well as what the future health care workers will be able to *do* to manage their commodities. This is reflected in the fact that all course objectives use *action verbs* and allow the teacher/trainer to directly *observe* the degree to which the student has achieved the objectives. The general course objectives, which help identify the topics that will make up the course, should be refined into topic-specific objectives; this will add an additional level of detail and will be used to define the individual class content.

Course Description

This section briefly describes each key lesson in the pre-service training and lists the learning objectives of the lesson. As noted above, lessons can be modified or divided among individual classes, depending on how each individual institution organizes its classes.

Lesson 1: Setting the Context of the Course: Commodity Security

Lesson Overview:

This lesson provides a basic understanding of commodity security and the framework in which commodity security functions.

Lesson Objectives:

After completing this lesson, the participants will be able to—

- explain the concept of commodity security as the framework for the course and its relationship to logistics.

Lesson 2: Introduction to Health Supply Chain Management System

Lesson Overview:

This lesson provides a basic understanding of a functional health commodity supply chain management system, its purpose and elements, and the relationship between the activities of the system.

Less*on Objectives:*

After completing this lesson, the participants will be able to—

1. describe the purpose of a health supply chain management system and the elements that comprise an effective system
2. identify the major activities within the system and the key participants that work within the system
3. list the components within the supply chain management system and describe the inter-relationship of these components as they relate to the logistics cycle
4. define pipeline, lead time, issues data, and dispensed-to-user data
5. describe push and pull distribution systems
6. describe the different levels (central, regional, district, facility) of the health logistics pipeline in the students' country; trace the flow of commodity through this pipeline.

Lesson 3: Introduction to the Standard Operating Procedures Manual for the SCM

Lesson Overview:

Participants will learn the importance and functions of the standard operating procedures (SOPs) manual in the SCM of health commodities.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. use the table of content to find information in the SOP manual
2. describe the purpose of the SOP manual in the SCM of health commodities
3. describe key features of the SOP manual.

Lesson 4: Facilities and Staff in the SCM of Health Commodities

Lesson Overview:

Participants learn the roles and responsibilities of staff, by level, in the SCM of health commodities.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. identify the position and role of personnel who manage the logistics system
2. discuss the relationship between the individual's role and the role of others in the facility and with others in the system.

Lesson 5: Logistics Management Information System (LMIS)

Lesson Overview:

Participants learn the importance and functions of the LMIS for managing health commodities, and learn to analyze different systems from their country and selected countries to recommend improvements for the LMIS.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe the purpose of the LMIS
2. list essential data for health logistics management
3. list and describe the three types of logistics records; give examples of each type
4. describe the purpose of reporting; give examples of different reporting systems
5. assess LMIS forms currently in use in their country and in selected countries; recommend changes, if necessary
6. describe the purpose of feedback reports; identify types of information that may be useful in feedback reports.

Lesson 6: Completing the Stock Card

Lesson Overview:

Participants learn how to fill out a stock card and discuss the data collected on the stock card.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. list the stockkeeping record used in the country
2. use a job aid to complete the stock card for the country
3. start a new stock card
4. update a stock card when supplies are received, issued, transferred, locally bought, expired, damaged, or physically counted.

Lesson 7: Completing the Daily Activity Register for Health Commodities

Lesson Overview:

Participants learn how to fill out a daily activity register, if they are used in the country.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe the importance of a daily activity register (DAR)
2. describe when the DAR is completed and by whom
3. complete the DAR.

Lesson 8: Reporting Commodities

Lesson Overview:

Participants learn how to complete a report and when to send it.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe who is responsible for completing the report for health commodities, when it should be completed, and why it is important
2. complete a report
3. complete a physical count and calculate the "Physical Count of Store Room and Dispensary" at the end of the month, for each supply.

Lesson 9: Ordering Commodities

Lesson Overview:

Participants learn how to place an order.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. list what should be reviewed when receiving and processing a report
2. complete a report and make an order by calculating the average monthly consumption
3. describe the role of staff who fill out the reports and those who calculate order quantity.
4. place an emergency order.

Lesson 10: Storage and Warehousing

Lesson Overview:

Participants learn about internationally accepted guidelines for the proper storage of health commodities, and describe how the commodities can be followed in their country.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. articulate proper guidelines for the storage of health commodities, including HIV and AIDS commodities
2. identify selected product-related problems commonly found in warehouses or clinics
3. describe special storage considerations for program-specific commodities
4. conduct a visual inspection of a warehouse according to the guidelines and principles of proper storage
5. identify, by visual inspection, common product quality problems
6. correctly calculate storage space requirements at all levels (central- to peripheral-facility levels).

Lesson 11: Assessing Stock Status

Lesson Overview:

Participants learn to assess health commodity stock status at the central-, regional-, district-, and health-facility levels.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe the purpose and process of assessing health commodity stock status in *months of stock*
2. calculate the number of months of stock available at any storage level in their country when they are given the inventory and dispensed-to-user data.

Lesson 12: Maximum-Minimum Inventory Control Systems

Lesson Overview:

Participants learn about the purpose and use of the maximum-minimum inventory control systems; they determine issue or order quantities, based on the maximum-minimum stock levels and procedures in place in their country. Participants further learn to select an appropriate maximum-minimum inventory control system for a variety of situations.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. define the following terms: maximum months and quantity of stock, minimum months and quantity of stock, review period, lead time, safety stock, and emergency order point
2. state the storekeeper's decision rule for three versions of the maximum-minimum inventory control system
3. set order/issue quantities using the forced ordering version of the maximum-minimum inventory control procedures
4. set forced ordering maximum-minimum stock levels
5. list advantages and disadvantages of using maximum-minimum inventory control; select appropriate maximum-minimum inventory control systems for a variety of situations.

Lesson 13: Monitoring and Evaluation of Health Logistics System

Lesson Overview:

Using tools like the Logistics Indicators Assessment Tool (LIAT) and Logistics System Assessment Tool (LSAT), participants learn to assess the logistics system at all levels in their country.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe the purpose of conducting a logistics system assessment
2. list steps in planning and conducting a logistics system assessment
3. describe the use of the LIAT and the LSAT in assessing a logistics system
4. identify and select indicators to measure the logistics system performance in their country for assessing all elements of the system, including the inventory control procedures, LMIS, and storage practices
5. make effective recommendations
6. identify characteristics of an implementation strategy
7. describe their role in assessing and improving the logistics systems.

Lesson 14: Quantification for Health Commodity Requirements

Lesson Overview:

Participants will become familiar with the process for quantifying drug requirements, understand the issues to consider when conducting quantification, and understand the role of quantification in supply chain management.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. explain what quantification is and why it is important
2. explain what forecasting is and why it is important
3. explain what procurement planning is and why it is important
4. explain the relationship between quantification, forecasting, and procurement planning
5. describe the general steps to quantification, forecasting, and procurement planning
6. use four data types to describe the preparation of a commodity forecast
7. identify conversion factors required to convert number of visits, people, and incidents of a disease into quantities of commodities.

Lesson 15: Procurement Planning and Shipment Scheduling

Lesson Overview:

Participants will learn how to calculate the quantity of commodities to procure and determine when those commodities should be received to ensure adequate stocks throughout the country.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe the purpose and steps in procurement planning

2. identify the data necessary for calculating annual commodity supply requirements, the sources of these data, their possible limitations, and some possible remedies for those limitations
3. using the USAID tools currently available, develop an illustrative procurement plan for contraceptives
4. articulate the principles of shipment scheduling, including the sharing of data
5. prepare an illustrative commodity order for their country
6. discuss using PipeLine software as a resource for procurement planning and shipment tracking.

Lesson 16: Managing the Supply Chain for HIV and AIDS Commodities

Lesson Overview:

Participants will become familiar with the broad range of HIV and AIDS interventions and the commodities needed to support service delivery. They will be able to discuss key logistics implications for managing the supply chain for these commodities.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. list the range of HIV and AIDS interventions and the commodities needed to support these services
2. discuss the complexity of the environment in which logistics management of HIV and AIDS commodities takes place
3. identify specific characteristics of HIV test kits and ARV drugs and how their use affects the management of the supply chain for these commodities
4. identify a set of tools and resource materials that can be used for guidance in managing HIV and AIDS commodities.

Lesson 17: Managing Supply Chain for Malaria and other Commodities

Lesson Overview:

Participants will become familiar with the special logistics needs for malaria control and other projects that are relevant to their country. They will learn to apply general supply chain management principles to specialized projects, such as those used in a malaria control project.

L*esson Objectives:*

After completing this lesson, the participants will be able to—

1. list the commodities required to operate a successful malaria control (and other specialized) project(s)
2. discuss the special logistics needs for such projects
3. apply general health logistics principles to operate effective supply chain management of commodities for malaria control and other specialized projects.

Lesson 18: Routine Monitoring and Supervision

Lesson Overview:

Participants will understand the necessity and benefit of routinely monitoring logistics system activities and how to supervision people and staff using the SCM system.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. describe the difference between routine monitoring and supervision
2. list five indicators to look for in routinely monitoring activities for a SCM system
3. describe the purpose of supervision.

Lesson 19: Review of Commodity Security

Lesson Overview:

Participants will discuss the concept of commodity security and how it relates to their work.

Lesson Objectives:

After completing this lesson, the participants will be able to—

1. identify challenges that countries have faced in achieving commodity security
2. identify strategies that countries have attempted to implement or have successfully implemented to promote or move toward commodity security
3. describe their own experiences related to promoting commodity security
4. identify interventions that can promote commodity security and have an impact on the focus areas of the logistics cycle and the commodity security framework.

Lesson 20: Field Visit

Lesson Overview:

Participants will gain practical knowledge of the supply chain management system currently established in their country; they will recommend improvements to strengthen commodity security.

Learning Objectives:

After completing this practical exercise, the participants will be able to—

1. list the major activities within the health commodity supply chain management system in their country, and identify the different levels and staffing involved
2. recognize the type of system currently in operation (e.g., push versus pull) at different levels
3. identify the LMIS records and reports currently in use at all levels
4. examine the storage practices at all levels; list areas where gaps may exist
5. conduct physical inventory and stock assessment
6. identify how the LIAT and LSAT can be used in a practical setting to evaluate the health logistics system

7. identify the special considerations needed to plan and operate the logistics system in their country for HIV and AIDS, malaria, and other country program–specific commodities
8. analyze the functionality of the in-country logistics system; make specific recommendations in the areas listed above to improve commodity security.

Sample Lesson Schedule

Following is an illustrative schedule that covers the lesson content listed above and also covers the objectives defined earlier.

The schedule will need to be fully developed for the various lessons; it should reflect class dates, lesson requirements, and instructor(s) names.

Table 1. Sample Lesson Schedule

Date		Session Content	Requirement	Instructor
Week 1	dd/mm/yy	*Lesson 1* Setting the Context of the Course: Commodity Security	List specific pages from reading materials for each lesson/quiz/test	Identify specific teacher(s) for each lesson
	dd/mm/yy	*Lesson 2* Introduction to Health Supply Chain Management System		
Week 2	dd/mm/yy	*Lesson 3* Introduction to the Standard Operating Procedures Manual for the SCM		
	dd/mm/yy	*Lesson 4* Facilities and Staff in the Supply Chain Management of Health Commodities		
Week 3	dd/mm/yy	Quiz-1 (5%)	Specific reading and classroom discussions	
	dd/mm/yy	*Lesson 5* Logistics Management Information System		
Week 4	dd/mm/yy	*Lesson 6* Completing the Stock Card		
	dd/mm/yy	*Lesson 7* Completing the Daily Activity Register for Health Commodities		
Week 5	dd/mm/yy	*Lesson 8* Reporting Commodities		
	dd/mm/yy	*Lesson 9* Ordering Commodities		

Date		Session Content	Requirement	Instructor
Week 6	dd/mm/yy	*Lesson 10* Storage and Warehousing		
	dd/mm/yy	*Lesson 11* Assessing Stock Status		
Week 7	dd/mm/yy	*Lesson 12* Maximum-Minimum Inventory Control Systems		
	dd/mm/yy	*Lesson 13* Monitoring and Evaluation of the Health Logistics System		
Week 8	dd/mm/yy	*Lesson 14* Quantification of Health Commodities		
	dd/mm/yy	*Lesson 15* Procurement Planning and Shipment Scheduling		
Week 9	dd/mm/yy	*Lesson 16* Managing Supply Chain for HIV and AIDS Commodities		
	dd/mm/yy	Mid-Term Examination (20%)	Specific reading and classroom discussions	
Week 10	dd/mm/yy	*Lesson 17* Managing the Supply Chain for Malaria (and other) Commodities		
	dd/mm/yy	*Lesson 18* Routine Monitoring and Supervision		
Week 11	dd/mm/yy	*Lesson 19* Review of Commodity Security		
	dd/mm/yy	*Session 20* Field Visit (15%) Central and Regional Levels	Specific questions answered from observations, interviews, etc.	
Week 12	dd/mm/yy	*Session 20 (same session as the preceding session with different groups in different levels)* Field Visit (15%) District and Facility Levels		
	dd/mm/yy	*Lesson 14* Processing Field Visit Observations	Classroom discussion on observations	

Date		Session Content	Requirement	Instructor
Week 13	dd/mm/yy	Quiz-2 (5%)	Specific reading and classroom discussions	
	dd/mm/yy	Review of Course Materials		
Week 14	dd/mm/yy	Review of Course Materials		
	dd/mm/yy	Term Paper Due (15%)	Field trip and classroom discussions	
Week 15	dd/mm/yy dd/mm/yy	Final Examination (20%)	Specific reading and classroom discussions	

SCM for Health Commodities Required Course Reading

The following reading materials are required; each student must complete the reading sections assigned by the instructor(s):

Family Planning Logistics Management (FPLM). 2000. *Contraceptive Forecasting Handbook for Family Planning and HIV/AIDS Prevention Programs.* Arlington, Va.: FPLM/John Snow, Inc. for the U.S. Agency for International Development.

John Snow, Inc./DELIVER 2005. *Logistics Indicators Assessment Tool (LIAT).* Arlington, Va.: John Snow, Inc./DELIVER, for the U.S. Agency for International Development.

John Snow, Inc./DELIVER. 2004. *Logistics System Assessment Tool (LSAT).* Arlington, Va.: John Snow, Inc./DELIVER, for the U.S. Agency for International Development.

Standard Operating Procedures Manual related to SCM of Health Commodities.

USAID | DELIVER PROJECT. 2000. *The Logistics Workbook: A Companion to The Logistics Handbook.* Arlington, Va.: USAID | DELIVER PROJECT.

USAID | DELIVER PROJECT. 2007. *The Logistics Handbook: A Practical Guide for Supply Chain Managers in Family Planning and Health Programs.* Arlington, Va.: USAID | DELIVER PROJECT.

Recommended Reading

Compact Disc: *Resources for Managing the HIV and AIDS and Laboratory Supply Chains.* May 2006. USAID | DELIVER PROJECT, for review by the U.S. Agency for International Development.

Diallo, Abdourahmane, Lea Teclemariam, Barbara Felling, Erika Ronnow, Carolyn Hart, Wendy Nicodemus, and Lisa Hare. 2006. *Assessment Tool for Laboratory Services (ATLAS) 2006.* Arlington, Va.: DELIVER, for the U.S. Agency for International Development.

Family Planning Logistics Management (FPLM). 1999. 8 × 11 Contraceptive Warehouse Charts (English). Arlington, Va.: FPLM/John Snow Inc., for USAID.

Family Planning Logistics Management (FPLM)/John Snow, Inc. 2000. *Programs That Deliver: Logistics' Contributions to Better Health in Developing Countries.* Arlington, Va.: FPLM/John Snow, Inc., for the U.S. Agency for International Development.

John Snow, Inc./DELIVER, in collaboration with the World Health Organization. 2003. *Guidelines for the Storage of Essential Medicines and Other Health Commodities.* Arlington, Va.: John Snow, Inc./DELIVER, for USAID.

Management Sciences for Health and World Health Organization. 1997. *Managing Drug Supply.* West Hartford, Conn: Kumarian Press, Inc.

Owens, Rich, and Tim Warner. 2003. *Concepts for Logistics System Design.* Arlington, Va.: Family Planning Logistics Management.

Appendix B

Sample Letter of Agreement

LETTER OF AGREEMENT:

Between Evelyn Hone College

(Department of Health Science-Pharmacy Section)

and USAID | DELIVER PROJECT

1. Background:
The Evelyn Hone College through the Pharmacy Section trains Pharmacy Technologists who eventually are employed in the health sector to provide services such as ART. ART services have proved to be one of the most important interventions to be included in the basic healthcare package for mitigation against HIV and AIDS. In order to ensure that the best quality care is provided there is need to have adequately trained service providers. It is against this background that Evelyn Hone College aims to strengthen both the lecturers' and students' knowledge in essential health commodities supply chain management.

USAID | DELIVER PROJECT is a USG project funded by the President's Emergency Plan for AIDS Relief through the United States Agency for International Development (USAID), aimed at strengthening in-country supply chain systems for essential health commodities to ensure their sustainability in developing countries. Our mandate in Zambia includes supporting the Ministry of Health to institutionalize essential health commodities supply chain systems and build capacity in the country. In this regard, the USAID | DELIVER PROJECT supports the establishment of supply chain management trainings in higher institutions of learning. This is to ensure long term sustainability in managing essential health commodities in Zambia.

Both Evelyn Hone College and USAID | DELIVER PROJECT have a mutual interest in ensuring that pharmacy graduates from the college are trained in essential health commodities supply chain management while they are still in school.

In view of this, Evelyn Hone College (Department of Health Science-Pharmacy Section) and the USAID | DELIVER PROJECT agree to the following:

2. Training Strategy:
a. Evelyn Hone College to incorporate supply chain management in the pharmacy curriculum as a pre- service training so that students will be well versed in MoH approved essential health commodities logistics systems and be able to manage supplies should they be appointed to service in the public health sector.

b. USAID | DELIVER PROJECT to provide technical assistance in the development of supply chain management pre-service curriculum to be incorporated in the existing academic curriculum.

c. USAID | DELIVER PROJECT to develop Lecturers Training of Trainers (TOT) curriculum and provide TOT for two weeks.

d. Upon completion of TOT, Evelyn Hone (Department of Health Science-Pharmacy Section) agrees to teach all final year pharmacy students in supply chain management for a total of -------- contact hours during the final term. This may translate to ------ hours per week for --------- weeks.

e. USAID | DELIVER PROJECT to provide supply chain management training materials for both lecturers and students at the initial stage only. This will include students' training start packs, i.e. Standard Operating Procedures Manual (SOPs) and Participant Workbooks (PWs).

f. USAID | DELIVER PROJECT to provide quality assurance to the dispensation of the course as and when necessary in the form of routine visitation when the trainings are being conducted.

3. TOT Roles and Responsibilities:

- Evelyn Hone College (Department of Health Science-Pharmacy Section) to invite all the required lecturers for the training in supply chain management.
- USAID | DELIVER PROJECT to book and pay for accommodation, venue and meals for the period of the TOT. However, this does not include out of pocket allowances.
- USAID | DELIVER PROJECT to provide trainers to conduct the TOT
- USAID | DELIVER PROJECT to provide all training materials and other supplies for the TOT.
- USAID | DELIVER PROJECT to provide transport to and from the TOT venue.

This agreement is effective from the date of signature by duly authorized representatives of each party for the duration of the collaboration. Implementation of this agreement will start upon commencement of arrangement for the training of trainers.

We, the undersigned acting as duly authorized representatives of both parties, do hereby acknowledge and agree to abide by the terms and conditions stated above.

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USAID | DELIVER PROJECT COUNTRY DIRECTOR	Date
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Evelyn Hone College THE PRINCIPAL	Date
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Evelyn Hone College HOD-HEALTH SCIENCE	Date
----------	----------
Evelyn Hone College HOS-PHARMACY	Date

For more information, please visit deliver.jsi.com.

USAID | DELIVER PROJECT

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