

Peru

Contraceptive Logistics System

Review of
Accomplishments and
Lessons Learned
(1994–1999)

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FPLM

The Family Planning Logistics Management (FPLM) project is funded by the Center for Population, Health and Nutrition for the Bureau for Global Programs, Field Support and Research, of the U.S. Agency for International Development (USAID). The agency's Contraceptives and Logistics Management Division provides a centralized system for contraceptive procurement, maintains a database on commodity assistance, and supports a program for contraceptive logistics management.

Implemented by John Snow, Inc. (JSI) (contract no. CCP-C-00-95-00028-00), and subcontractors (The Futures Group International and the Program for Appropriate Technology in Health [PATH]), the FPLM project works to ensure the continuous supply of high-quality health and family planning products in developing countries. FPLM also provides technical management and analysis of two USAID databases, the contraceptive procurement and shipping database (NEWVERN); and the Population, Health, and Nutrition Projects Database (PPD).

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Abstract

This report documents the current state of the contraceptive logistics system in Peru and the lessons learned about the achievements and limitations of the model used for logistics management. Three aspects of the contraceptive logistics system were considered: a logistics system assessment on the regional and services levels; an assessment of the effectiveness of logistics training and follow-up visit activities; and finally, lessons learned from the logistics technical assistance model used in Peru.



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Acronyms

AIDS	acquired immune deficiency syndrome
AMC	average monthly consumption
CARE	Cooperative for Assistance and Relief Everywhere
CPT	contraceptive procurement table
CPR	contraceptive prevalence rate
CSEP	Country and Strategic Evaluation Plan
DIGEMID	Dirección General de Medicamentos (organizational substructure in charge of drugs)
DISA	Dirección de Salud (regional health directorate)
FEFO	first-to-expire, first-out
FHI	Family Health International
FPLM	Family Planning Logistics Management project
HIS	health information system
HIV	human immunodeficiency virus
IMI	Informe de Movimiento de Insumos (Contraceptive Commodity Movement Report)
IUD	intrauterine device
JSI	John Snow, Inc.
LMIS	logistics management information system
MAX-MIN	maximum-minimum
MINSA	Ministerio de Salud (Ministry of Health)
MOH	Ministry of Health
MOS	months of supply
MSH	Management Sciences for Health
NA	not applicable
NGO	nongovernmental organization
OJT	on-the-job training
PECOSA	requisition and issue voucher
PRISMA	Asociación Benéfica Prisma
PROCETSS	Programa de Control de Enfermedades de Transmisión Sexual y SIDA (Sexually Transmitted Diseases and HIV Control Program)
SDP	service delivery point
SIS 240	Sistema de Información de Salud 240 (Health Information System 240 form)
TCV	tarjeta de control visible (inventory control card)
TOT	training of trainers
UNFPA	United Nations Population Fund
U.S.	United States
USAID	U.S. Agency for International Development
USAID/W	U.S. Agency for International Development/Washington

Preface

This paper is a status report on the USAID-funded Family Planning Logistics Management project (Peru), which has been providing technical assistance to the nation's countrywide logistics system in Peru since 1992. The study took place in November 1999. The timing is opportune because both the FPLM project and the PRISMA/USAID contract are due to end in the next year. The study assesses the logistics situation to date and also looks to the future.

The investigators collected qualitative data through key informant interviews and analyzed quantitative data using the composite indicators developed from FPLM's Country and Strategic Evaluation Plan for Peru.

By documenting the current state of the contraceptive logistics system in Peru and the achievements and limitations of the outsourcing model discussed in this report, FPLM and USAID hope to provide useful information not only to the various stakeholders in Peru, but also to programs that may consider adapting this model elsewhere.

The main authors of this publication are Carolina M. Godínez and David Papworth (FPLM III). Contributors include Graciela Bernal (MINSAs/Peru), Holga Cornejo (MINSAs/Peru), Pilar Calvo (PRISMA), Esteban de la Cruz (MINSAs/Peru), Enrique Figueroa (PRISMA), Carlos Gutiérrez (PRISMA), Steve Kinzett (FPLM III), Lucy López (USAID), Lisa Luchsinger (USAID), Kim Peacock (FPLM III), Nora Quesada (FPLM III), Miriam Rojo (PRISMA), Ego Salazar (MINSAs/Peru), Isabel Tejada (PRISMA), and many other individuals and organizations who provided us with valuable information, ideas, time, and interest.

Executive Summary

The Family Planning Logistics Management (FPLM) project, funded by the United States Agency for International Development (USAID), has been providing technical assistance to Peru's contraceptive logistics management information system in the Ministry of Health since 1994. The logistics program is in the ministry's National Reproductive Health Program.

FPLM does not have a resident advisor in Peru; instead, it subcontracts with Asociación Benéfica Prisma (PRISMA), a local not-for-profit organization acting as a third-party grantee, to provide technical assistance and training to MOH staff. The technical assistance and training encompass both classroom and on-the-job training in logistics management, periodic system assessments, development of a logistics procedures manual and other system documentation, and efforts to improve the ministry's logistics monitoring and supervision activities. It is a different approach from the model typically used in other countries that receive USAID-donated contraceptives and FPLM technical assistance.

With this model in place for about five years (1994–1999), FPLM and USAID decided to assess how well the model was working and identify aspects that may need improvement or change.

The study team, therefore, developed three instruments, two quantitative and one qualitative in nature, to meet the following study objectives:

- Conduct a logistics system assessment focusing on the intermediate (i.e., regional or district) and service delivery point levels.
- Assess the effectiveness of PRISMA's regional logistics training and follow-up visits conducted by district family planning supervisors in the period 1996–1999.
- Evaluate the lessons learned from the logistics technical assistance model used in Peru, examining the relationships between FPLM and PRISMA and between PRISMA and the MOH at the central level.

Data collection instruments were designed and field-tested in October 1999. Site visits for data collection took place during November 1999. Data were analyzed and recommendations developed in December 1999 and January 2000.

Key recommendations and lessons learned, based on findings and conclusions, include the following:

The major lesson learned was that—

- The PRISMA outsourcing model has worked in Peru. In a country with geographic and communication constraints, this model ensured performance of the contraceptive logistics system at the national level and also built logistics expertise at the regional level.

Other key findings are—

- The outsourcing model has not built significant logistics management capacity at the central level of the Ministry of Health because PRISMA handles most of these functions.
- Training and supervision have been a worthwhile investment. The result has been adequate logistics expertise at the intermediate and service delivery point levels. These staff members are

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now able to manage the system without the presence of PRISMA per se as long as supplies are available from the central level.

- The current system is designed to operate with full supply, but there is uncertainty about how it will perform under conditions of less than full supply.
- Now that the MOH has begun to purchase its own contraceptives, USAID will need to allocate additional resources to logistics, to protect its investment in a well-functioning system of contraceptive logistics.

In light of these findings, the study team recommends that the MOH explore opportunities to transfer the benefits of the contraceptive logistics system to the larger essential drugs system.

1. Study Protocol

The Family Planning Logistics Management (FPLM) project, funded by the U.S. Agency for International Development (USAID), started working in Peru in 1990. Implemented by John Snow, Inc. (JSI), FPLM works to ensure the continuous supply of high-quality health and family planning products in developing countries.

In this study of contraceptive logistics in Peru, the protocol was designed to guide the final activities to be conducted within the FPLM III project and also help the third-party grantee in charge of contraceptive logistics prepare for the end of its grant from USAID.

Study Objectives

This study had three objectives:

1. Conduct an assessment of logistics system performance focusing on the intermediate (i.e., regional or district) and service delivery point (SDP) levels.
2. Assess the effectiveness of regional logistics training conducted by Asociación Benéfica Prisma (PRISMA) and follow-up visits conducted by district intermediate family planning supervisors in the period 1996–1999.
3. Evaluate the lessons learned from the contraceptive logistics model used in Peru, examining the relationships between FPLM and PRISMA and PRISMA and the Ministry of Health (MOH) at the central level.

The objectives were derived from those defined in FPLM's Country and Strategic Evaluation Plan (CSEP) for Peru developed in 1996 and revised in early 1999. The findings on the first two objectives were to be determined from both quantitative and qualitative instruments. The third objective was to be evaluated on the basis of oral responses by key informants to the qualitative instrument.

The procedures for accomplishing each objective were as follows:

System Performance

- Determine the MOH's ability to prepare contraceptive procurement tables (CPTs) without technical assistance.
- Determine the availability of contraceptive supplies in a sample of MOH facilities at all levels to assess the quality of family planning services.
- Examine the current MOH contraceptive logistics system and information flow, as they relate to logistics decision making and forecasting.

Training Assessment

- Collect information on the total number of logistics courses conducted, including topics, trainers, and participants.

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- Summarize the information from training evaluations on the participants' knowledge scores to evaluate competency.
- Compare staff scores on performance with knowledge demonstrated by participants as they began to use maximum/minimum (max/min) levels and first-to-expire, first-out (FEFO).
- Evaluate the current accuracy of reporting and adequacy of storage practices and conditions.

Lessons Learned

- Document the reasons for the decision to use an outsourcing model for managing central logistics activities.
- Document the relationships between the USAID/Peru, PRISMA, and the MOH since PRISMA began managing contraceptive logistics.
- Document stakeholder perceptions about the relationship between the MOH and PRISMA and their respective roles in contraceptive logistics.
- Identify the PRISMA model's strengths and weaknesses and study its application in other countries and programs.
- Assess PRISMA's ability to determine appropriate future interventions in Peru, especially after logistics technical assistance and contraceptive donations cease.

Study Methods

The methodology for the study included reviewing relevant documents, verifying records and commodity counts, and conducting qualitative and quantitative interviews with stakeholders.

Study Team

The study team was comprised of representatives from FPLM, PRISMA, the MOH, and USAID/Washington (USAID/W). All parties contributed to the assessment design, information collection and analysis, and preparation and presentation of the final report.

Design

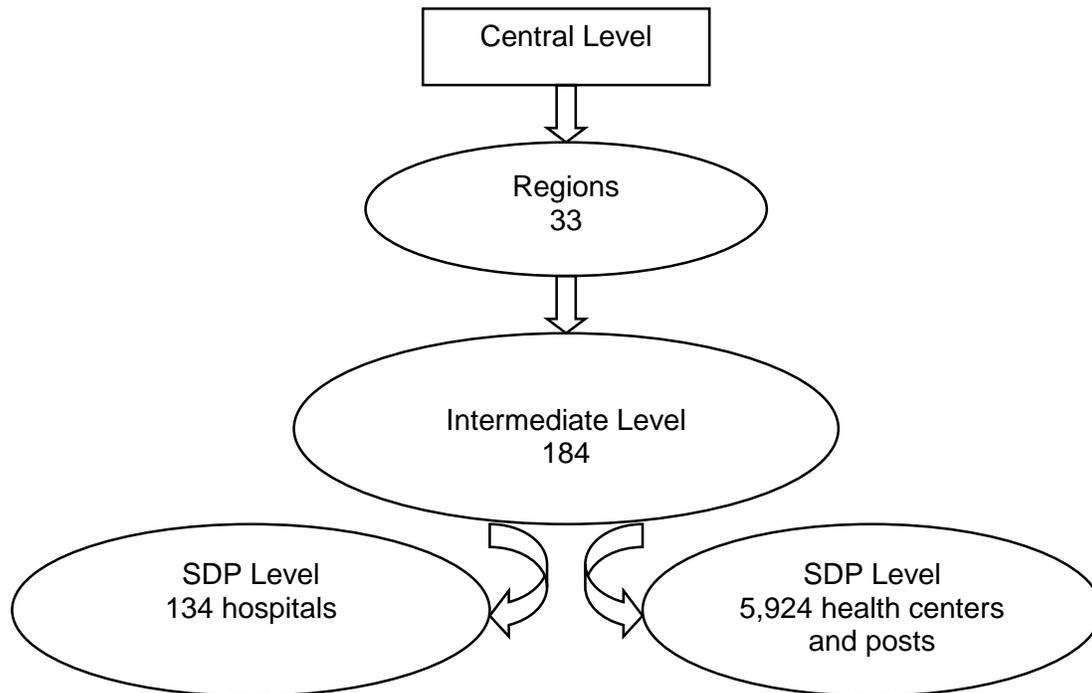
The MOH and PRISMA collaborated on selecting a purposive sample to represent the national contraceptive distribution system. A list of key informants was drawn up with the approval of all collaborators. Lead participants in the study each took responsibility for the various study components.

Data-collection instrument preparation. FPLM developed the protocol for the study in cooperation with all stakeholders (USAID/W, USAID/Peru, FPLM, MOH, and PRISMA). The protocol served as a guide for PRISMA in developing the quantitative data collection instruments and for FPLM in developing the qualitative data collection instruments. Prior to the data-collection phase, the quantitative instruments were pilot-tested and revised by FPLM, the MOH, and PRISMA.

Sample. The study sample was based on the current structure of the contraceptive distribution system. For administrative purposes, the MOH is divided into 33 regional health directorates (DISA) that, in turn, comprise 184 intermediate-level administrative offices and accompanying storage facilities (see figure 1). These storage facilities distribute supplies to 5,924 SDPs (i.e., hospitals, health centers, and health posts).

Figure 1.

Organization of Family Planning Program, Ministry of Health/Peru, 1999



The sample size for the quantitative component of the study was largely determined by geographical constraints and by the time and resources available (three teams collecting data for two weeks). The sample selected allowed for visits to six health regions.

A purposive sample (proportional to the population distribution) was selected to reflect the broad geographical areas of the country: jungle (one region), mountains (two regions), and coast (three regions, including one of Lima’s DISAs) (see figure 2). In each region the assessment teams visited four intermediate-level stores (typically, the largest intermediate-level store in the region plus three others), and at least two SDPs for each intermediate-level store.

Data Collection

The quantitative data collection took place with three teams visiting two regions each. Each team included MOH and PRISMA interviewers, and either an FPLM or USAID/W observer.

The qualitative data collection took place both during and after the quantitative data collection, and consisted of document reviews and key informant interviews by FPLM and USAID/W staff.

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Figure 2.
Study Sample, Peru, November 1999



Six geographic regions:

-  3 Coastal
-  2 Mountainous
-  1 Jungle

Study Sites:

Intermediate level (13% of all stores):

- 24 intermediate family planning storage sites
- 24 intermediate stores

SDP level (1% of all SDPs):

- 68 hospitals, health centers, and health posts

Analysis and Reporting

Following collection of all data and analysis of the first half of the data, the team debriefed USAID/Peru staff by presenting preliminary impressions and conclusions. FPLM and USAID/W team members then completed their analysis and interpretation of the data and prepared the report.

Indicators

Performance of the system

The performance indicators used in the study expanded on those laid out in the CSEP for Peru and included:

- CPTs prepared without external assistance.
- Max-min inventory levels in place throughout the contraceptive logistics system for five methods (condoms, pills, IUDs, Conceptrol, and Depo-Provera).

- Number and duration of contraceptive stockouts, by method, during the previous six months.
- Percentage of storage facilities meeting acceptable storage conditions.
- Percentage of facilities observing FEFO.
- Number of facilities where inventory records and physical counts matched.
- Percentage of facilities using the Contraceptive Commodity Movement Report (IMI) appropriately.

Training

To assess training activities, the study team used the following indicators (Bertrand, Magnani, and Knowles 1994):

- Number and percentage of courses that achieve learning objectives.
- Number and percentage of courses where the training methodology is appropriate for transferring skills and knowledge.
- Number of trainees by job responsibility and for MOH staff, by level.
- Number and percentage of trainees who attained expected competency as demonstrated in a post-training test.
- Number and percentage of surveyed trainees who have received follow-up or supervision visits.

Lessons Learned

Although qualitative methods, by their nature, do not directly quantify the variables they measure, they are helpful in describing systems. Qualitative methods are especially useful for asking the question “Why?” and for documenting the respondent perceptions of the system. The study team collected qualitative information from (1) staff with logistics responsibilities at the MOH central and intermediate levels, (2) key PRISMA staff, (3) USAID staff responsible for reproductive health programs, and (4) FPLM technical advisors.

Composite Indicators

Using the composite indicators developed by FPLM for assessing the performance of contraceptive logistics systems, the study team scored the MOH system at the conclusion of the data-collection phase (appendix C).

2. Technical Assistance Strategy

In Peru, the FPLM project provides technical assistance and training through a subcontractor, PRISMA, to the MOH.

Background

The Republic of Peru comprises 1,285,216 square kilometers on the western coast of South America. It includes the desert of the coastal areas, the Andes Mountains running through the center of the country, cloud forests on the mountainous eastern slopes, and tropical jungle in the eastern part of the country. The total population is estimated at 25 million; 12.7 million are female, with nearly 6.2 million women of reproductive age (INEI 1996).

Reproductive health services, a high priority in Peru, are provided throughout the country by the MOH, the social security system (EsSalud), and nongovernmental organizations (NGO). The contraceptive prevalence rate (CPR) is 41 percent for modern methods and 23 percent for traditional methods (including 18% for rhythm). The total CPR is 64 percent (INEI 1996).

Every reproductive health care program strives to achieve a positive impact by providing high-quality services in a cost-effective manner. The key to success is an adequate supply of the products clients need. A logistics system that is well conceived, well operated, and well maintained delivers those products.

Policymakers and program managers may not notice inefficiencies in the logistics system until the system fails to deliver. When a critical product stocks out at a health facility and clients leave unserved, the program is jeopardized. When a health storage facility is overstocked with expired products, the waste of scarce resources threatens another program's chance for success. A reliable, responsive logistics system makes the difference.

Stakeholders in Contraceptive Logistics

The major organizations involved in contraceptive logistics in Peru and their general responsibilities are briefly discussed below. Their interaction is depicted in figure 3.

- *MOH* sets policy and provides reproductive health and family planning services. In addition to distributing contraceptives procured by USAID and the United Nations Population Fund (UNFPA) and distributed through PRISMA, the MOH distributes condoms as part of its Sexually Transmitted Diseases and HIV Control Program (PROCETSS).
- *USAID* provides economic development and humanitarian assistance to advance United States' economic and political interests overseas.
- *UNFPA* donates contraceptives to the MOH, although to a much lesser extent than USAID. In 1999, the MOH selected UNFPA to act as procurement agent for supplies of Depo-Provera.
- *PRISMA*, a not-for-profit, local organization, has been managing the central functions of the contraceptive logistics system under contract to USAID/Peru since 1991. This subcontractor has also been providing logistics training and technical assistance to MOH staff nationwide under contract to FPLM since 1994.

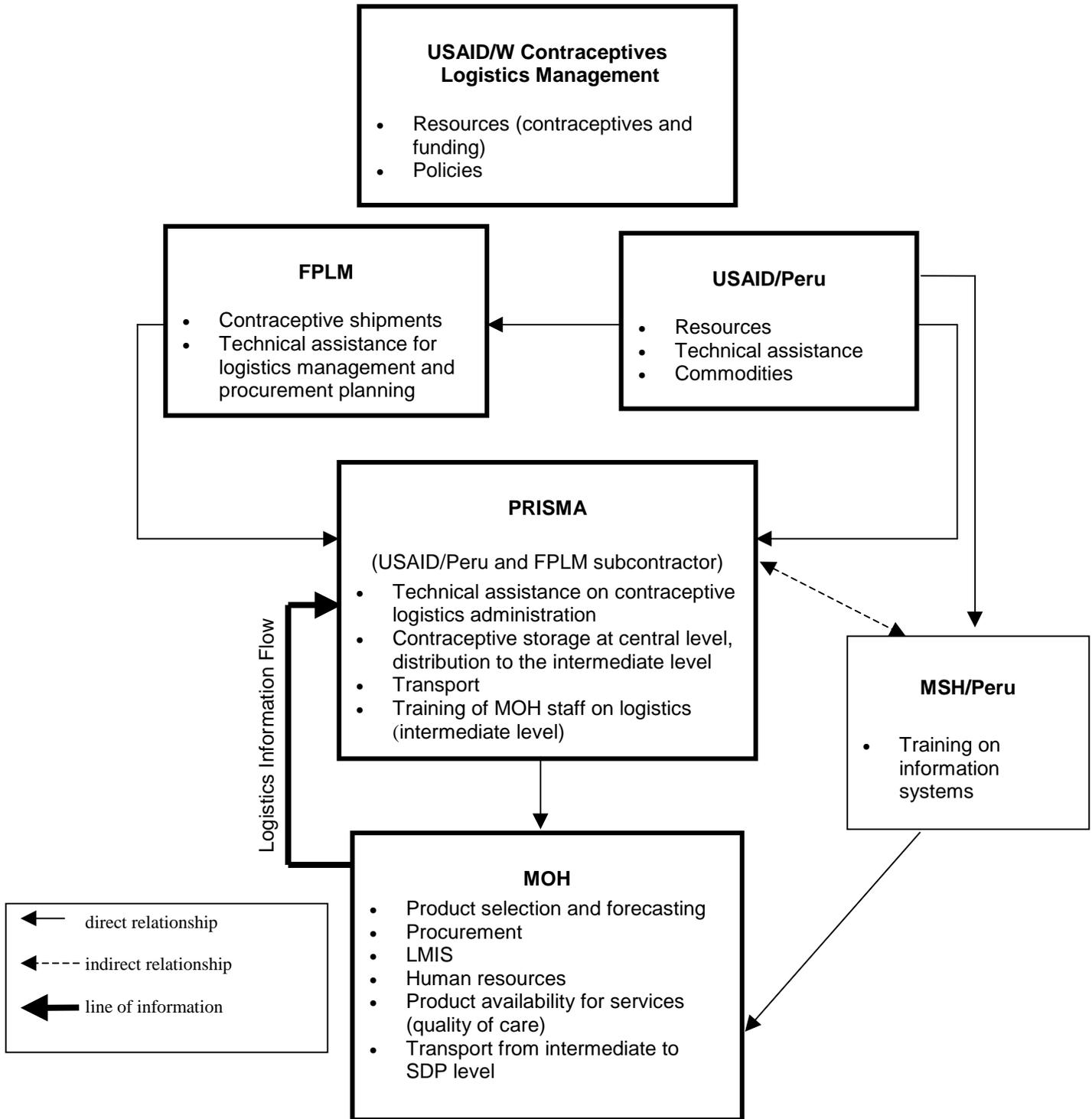
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PRISMA's overall responsibilities under the USAID contract include clearing contraceptive commodities through customs, maintaining central storage facilities, and transporting contraceptive commodities to intermediate storage facilities. Services were expanded in 1994 to include assistance in preparing contraceptive needs forecasts and an annual nationwide inventory of contraceptives.

The use of PRISMA to manage contraceptive logistics is a different approach from the model USAID used in other countries that receive USAID-donated contraceptives and FPLM technical assistance. In the typical case, private external organizations do not conduct logistics activities within a Ministry of Health.

- *USAID/Peru* has been donating almost all the contraceptives reaching the public sector since 1985, but has been slowly reducing its donations over the past few years (based on the numbers of contraceptives donated, not necessarily the dollar value). In 1990, the MOH did not have the capacity to manage a contraceptive logistics system, but needed these services to track USAID-donated contraceptives distributed to the public sector and NGOs. Working through FPLM, USAID contracted with PRISMA to provide third-party logistics services until the MOH could provide such services on its own.
- *The FPLM project*, funded by USAID, has been providing technical assistance and training in contraceptive logistics to the MOH in Peru since 1987.

Figure 3.
Key Collaborators for Contraceptive Logistics/Peru, November 1999



Contraceptive Logistics Policy

All stakeholders supported the MOH's decision in 1990 to outsource central level logistics, although the reasons differed. For the MOH officials, a political crisis caused by widespread stockouts of contraceptives at the SDPs in 1990 was the main motivating factor.

The stockouts occurred when a large shipment of contraceptives was abandoned and forgotten for months in a customs warehouse. An initial study by FPLM not only revealed the cost of the expired and lost commodities, but also demonstrated that the family planning program had suffered as a result. USAID offered to finance the outsourcing contract with PRISMA, and the MOH agreed.

“ . . . this model of contracting PRISMA works and circumstances that would support its continuation are related to funding as it is not self-sustainable. This relationship should not end because it is also providing a social benefit. The cost of not supporting this model is higher than the cost of paying to maintain it.”

—*Marion Aldrich, Centers for Disease Control and Prevention*

—*Carl Hemmer, former USAID/Washington*

USAID's decision to subcontract training support through FPLM on behalf of the MOH was made in the context of directing reproductive health funding to *priority* countries; Peru was the only priority country in Latin America at the time. USAID/Peru wanted to protect its contraceptive donations, but was legally prevented from giving money directly to the government. According to USAID staff interviewed in the study, other cooperating agencies were focusing on other topic areas, whereas “PRISMA people were ambitious and, contrary to some groups who were trapped in their own agenda, they valued logistics.”

USAID/Peru's contract with PRISMA ends in September 2001. According to USAID, the public sector family planning program has become identified with PRISMA and, as a result, *jealousies* exist within the MOH toward PRISMA. A spokesperson for USAID declared that “USAID/Peru is interested that family planning services continue, and if this collaboration [with PRISMA] needs to be sacrificed to achieve this goal, this will be done.”

Training

PRISMA's training covers the full range of contraceptive logistics. Training for central-level staff at MOH headquarters includes logistics management, periodic system assessments, development of a logistics procedures manual and other system documentation, and efforts to improve the ministry's logistics monitoring and supervision activities. The training at this level also covers such follow-up measures as supervision, planning of educational activities, and implementation of pilot projects.

The intermediate family planning coordinators receive logistics training from PRISMA, and then travel to the SDPs to provide on-the-job training (OJT) during routine supervisory visits. Over the past few years, the traditional concept of supervision has been completely changed. The typical supervisory visit is now conducted in an adult-education environment and includes observation, respectful one-on-one assessments of SDP staff skills, and immediate action on requests for information and other necessities. In line with this new approach, PRISMA has developed a procedures manual slated for publication soon.

System Operation

The MOH has recently begun to cover some of the costs for procuring contraceptives. UNFPA, the procurement agent for the one product (Depo-Provera) that the central office is currently purchasing, was selected through an open bid process and is able to procure this product at a competitive price.

According to the MOH's director of family planning, the MOH's goal is to take responsibility for all contraceptive procurement. The ministry plans to do this gradually by increasing its 1999 contraceptive procurement budget of 5 million soles (approximately U.S.\$1.5 million) by 10 percent each year and by purchasing contraceptive supplies from international manufacturers. Peru's national pharmaceutical industry does not produce contraceptives but only imported products, a procedure that increases product costs. These repackaged drugs are sold at high prices in the private sector.

Forecasting Needs

The MOH derives data on stock on hand from the annual national inventory of contraceptive supplies that PRISMA conducts, using external auditors, at intermediate stores. Information for this inventory flows from the SDP level up to the intermediate level and is then forwarded to the central level.

Concurrently, the MOH collects data on demographics, consumption, and coverage of family planning services. It then reviews all the relevant information with PRISMA staff, who validate the MOH data by comparing them to the inventory data. To prepare the CPTs, PRISMA uses FPLM's PipeLine software. PRISMA submits the CPTs to USAID/Peru. These CPTs then become the basis for the orders that USAID/Peru places with USAID/W.

The MOH also uses the CPTs as a tool for determining the amount of Depo-Provera that the MOH is to acquire with the help of UNFPA.

Contraceptive Distribution

All contraceptive supplies distributed throughout the system pass from the central warehouse to the intermediate storage facilities. The intermediate storage facilities deliver the supplies to the SDPs.

3. Study Results

After the study team analyzed the first half of the data collected during the study, they presented their preliminary impressions and conclusions to USAID/Peru staff. FPLM and USAID/W study team members completed the analysis and interpretation of the quantitative data, gathered the qualitative input from all the stakeholders, and prepared this report during December 1999 and January 2000 (see appendix F for qualitative answers from SDP personnel).

Findings from the system assessment are summarized below according to the indicators defined in the CSEP. The data were also analyzed to match the indicators and assess the system performance from a different perspective.

Performance Indicators

The study team found that most of the actions conducted by FPLM exceeded the 13 performance targets for each CSEP indicator (see table 1).

Table 1. System Assessment Findings Compared with CSEP Performance Indicators, Peru, November 1999

Performance Indicator	Findings	Indicator Value
MOH prepares CPTs without external assistance.	MOH and PRISMA jointly prepare CPTs. MOH prepares consumption forecasts each year. PRISMA validates the forecasts, using dispensed to user data. PRISMA submits the forecasts to USAID/Peru. The forecasts form the basis for orders placed by USAID/Peru with USAID/W.	√
75% of facilities in the sample are stocked within established max/min levels for at least 4 methods.	77% of the MOH facilities are stocked within established max/min levels for at least 4 methods (does not include Copper T or Conceptrol).	√
75% of the MOH facilities in the sample have not experienced total stockouts of any method within the previous 6 months.	97.8% of the intermediate stores and SDPs have not experienced stockouts of any method (Copper T, Lo-Femenal, Depo-Provera, condoms, and Conceptrol) within the previous 6 months.	√
75% of the MOH facilities meet 80% of the standards for contraceptive commodity storage.	100% of the MOH facilities meet 87.4% of the standards for contraceptive commodity storage. 100% of the intermediate stores met 82.9% of the standards. 100% of the SDPs met 91.8% of the standards appropriate for this level.	√
75% of the MOH facilities issue stock according to FEFO.	62.1% of the MOH facilities issue stock according to FEFO.* 81.8% of the intermediate stores issue stock according to FEFO.* 42.4% of the SDPs issue stock according to FEFO.*	√

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Table 1. System Assessment Findings Compared with CSEP Performance Indicators, Peru, November 1999 (continued)

Performance Indicator	Findings	Indicator Value
Stock records are within 5% of the physical inventory counts at 75% of the MOH facilities in the sample.	97.5% of the intermediate stores records matched the physical inventory count.	√
LMIS forms and reports include consumption data, inventory movement, and adjustments, where appropriate.	All LMIS forms and reports include consumption data, inventory movement, and adjustments, where appropriate.	√
75% of the intermediate stores in the sample have completed accurate and timely IMIs in the previous 2 quarters.	98% of the intermediate stores have completed accurate and timely IMIs in the previous 2 quarters. Errors were mainly mathematical errors. On average, the central level receives reports within 11 days.	√
90% of the trainers from MOH and PRISMA attain expected level of competency in logistics training workshop.	90% of the trainers from MOH and PRISMA attain competency during logistics training workshops. Having at least 2 trainers (1 competent in logistics) at each training assured the quality of subsequent training. All staff were tested for competency in learned skills after the training.	√
90% of the trainers from MOH and PRISMA complete training and attain competency in training techniques and methodology.	97.4% of the trainers from MOH and PRISMA complete training and attain competency in training techniques and methodology.	√
80% of the intermediate family planning coordinators and warehouse managers complete training and attain competency.	81% of the intermediate family planning coordinators and warehouse managers complete training and attain competency, based on pre- and post-test results.	√
Logistics Procedures Manual and Supervision Guidelines are developed, produced, and distributed to all levels in the system.	Logistics Procedures Manual and Supervision Guidelines have been developed, are being reproduced, and will be distributed to all levels in the system.	√
75% of the SDPs in the sample receive at least 1 supervisory visit every 6 months, and the visit includes logistics as a program area.	80.9% of the SDPs received a supervisory visit that covered logistics in the past 6 months. 97.1% received a visit in the past 15 months.	√

* This value has been lowered by the SDP mean, which is not achieved because the SDPs do not follow FEFO. The SDP supply of contraceptives rarely exceeds more than a few units, and these supplies will be used, at worst, within three months. If only the performance data for intermediate stores are taken into account, this performance indicator was met.

Logistics Management Information System

Quality data for decision making are critical to the functioning of a logistics management information system (LMIS) for contraceptives and depend on availability, timeliness, and appropriateness of the data. Consumption data are the most important to collect since they are used to forecast contraceptive needs at the SDPs.

MOH health facilities use the following official forms to ensure the proper, timely flow of information.

- Contraceptive Commodity Movement Report (IMI)
- Contraceptive requisition worksheet

- Requisition and Issue Voucher (PECOSA)
- Health Information System 240 (SIS 240).

The study team found that staff at all levels use these official forms and other supporting documents, including guides for standards and procedures, accurately. The data are of high quality, and recording and reporting mistakes minimal. However, some staff felt that the contraceptive logistics system and other systems required too many forms and that some forms duplicated information.

Although the intermediate family planning coordinators regularly use data sent from SDP staff to make supply decisions at the intermediate level, losses and adjustments were not being recorded because the inventory control cards (TCV) did not have columns in which to record this information.

SDP staff use the following official forms:

- IMI (89.7%)
- Contraceptive requisition worksheet (83.8%)
- PECOSA (80.9%)
- SIS 240 (95.6%).

Of the SDPs in the study sample, 95.6 percent submit the SIS 240 and the IMI each month. Although the contraceptive requisition worksheet is simply a calculation tool for processing orders, the study team found 83.8 percent of SDPs submitted this form to their DISA each month. In addition, 94.1 percent of SDPs use other unofficial forms. These include TCVs (48.5%), health information system (HIS) forms (45.6%), daily notebooks, prescription forms, and issue vouchers. Appendix A contains additional detail on use of forms.

Intermediate storekeepers are not officially required to send or receive reports, although most do. Those interviewed send and receive copies of the contraceptive requisition worksheet (83.8%), IMI (89.7%), PECOSA (80.9%), monthly SIS 240 (95.6%), and others (94.1%).

All service providers knew the correct amounts of contraceptives to dispense to new and continuing users. Through a review of pertinent records, the study team found that requested quantities were correct in 64 SDPs (94.1%). Data tables are included in appendix A.

The study team assessed the quality of the data at SDPs by verifying the accuracy of calculations in two columns in the IMI: average monthly consumption (AMC) and months of supply (MOS). AMC was correctly calculated in 92.6 percent of the forms and MOS in 97.1 percent.

The MOH ensures timely availability of data in the contraceptive logistics system. The reporting levels and data availability show that the system has the information necessary to maintain the supply level, respond to current demand, and adjust to changes in demand.

The current goal of the MOH is for the central level to receive logistics reports 10 days after the close of the reporting period. Three to four years ago, reports took up to three months, but the average is now only 11 days. Delays in delivery of data seem to occur at the intermediate level because family planning coordinators must first send their reports to the DISAs, who then forward them to the central level.

Forecasting

Forecasting by the MOH and PRISMA appears to be functioning adequately. Indeed, if the MOH's goal is to have staff able to prepare the CPTs with some assistance from local organizations, this goal has already been achieved. However, if the goal is to institutionalize CPT preparation, it has been achieved only partially. An independent MOH would need the skills necessary to use the PipeLine software, a transfer of knowledge held back by the limited number of staff in charge of logistics at the central level, and dedicated hardware at the MOH.

Procurement

The MOH will soon confront significant reductions in contraceptive donations. However, the MOH's ability to cover the foreign exchange requirements for purchasing contraceptives is limited. With contraceptives now included in the essential drug list since 1997, the allocation of funds in the national budget to purchase contraceptives will determine the priority given to contraceptives. If sufficient funds are made available, the MOH will still need to develop contacts with contraceptive manufacturers and adapt local laws and regulations for importation of contraceptive supplies.

Warehousing and Storage

The study team conducted visual inspections of storage facilities, using an 18-point checklist to rate storage conditions. A satisfactory condition was rated as 1, and those needing improvement were rated 0. For intermediate-level stores, an index was calculated by adding the values of all components, dividing them by the total (18), and multiplying by 100.

The investigators found storage conditions at intermediate stores to be good for the most part, although some aspects still need improvement. Index values ranged from 66.7 to 94.4, with a mean of 82.9. To calculate the index at the SDP level, only the *yes* and *no* values were considered. Those checked NA were not taken into account because some conditions and practices are not applicable at this level. Index values ranged from 77.8 to 100.0, with a mean of 91.7 (see appendix A).

Storage conditions at the intermediate stores required action. Some recommendations include—

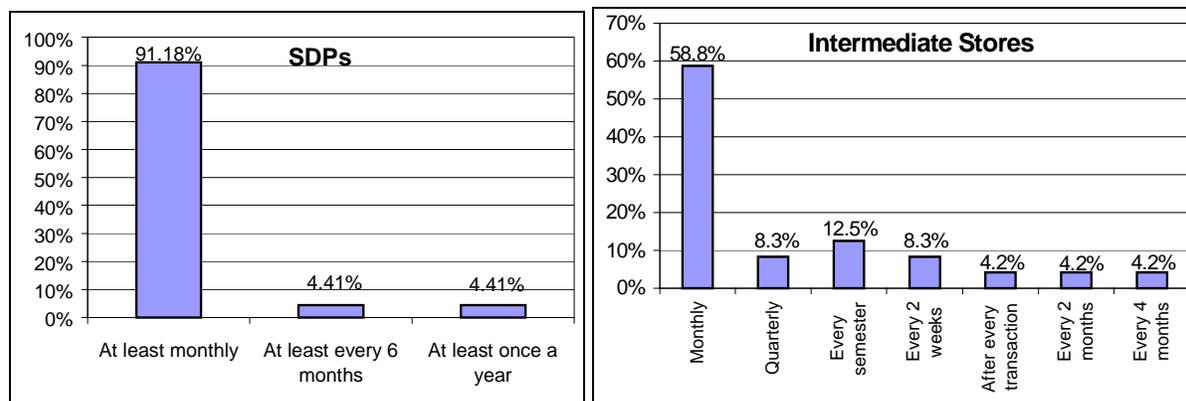
- Improving storage of HIV/AIDS condoms managed by the PROCETSS program (50% of the stores visited have HIV/AIDS supplies).
- Separating damaged or expired supplies from newer products (only 8.3% of stores did this).
- Adding fire extinguishers to facilities (58.3% did not have them).
- Labeling and identifying products, including expiration dates, on the outside of boxes containing contraceptives (20.8% did not label boxes). Labeling facilitates the use of FEFO, which limits loss due to storage beyond the expiry date.

Although PRISMA conducts annual physical inventories of contraceptives at intermediate-level stores, 58.3 percent of the storage facilities conducted physical inventory counts at least monthly (see figure 4).

Storage conditions at the SDPs mirror those of the intermediate-level stores. However, at the SDP level the amount of stock at each facility meant that there was very fast turnover—in other words all the stock was used/dispensed between delivery periods. Therefore, at the SDP level more than half of facilities did not use FEFO and just less than half labeled the boxes as this was unnecessary given the circumstances

discussed earlier. Similar to the situation found at the intermediate stores, SDPs conducted physical counts at least monthly (see figure 4).

Figure 4.
Frequency of Physical Inventory Counts, by Percentage, Peru, November 1999



Except for seven SDPs that received their supplies from the health center designated as the head of the network, the main source of contraceptives for SDPs is the intermediate-level store. The norm for reviewing stock levels at SDPs is one month, and 94.1 percent of SDPs visited during the study followed this norm. The main reason for variations in scheduling was the distance between the SDP and its supply center.

Although stores in each MOH administrative region receive funds from the national budget, resources are limited, and many stores do not have the infrastructure or the equipment they need. Moreover, the central warehouse, purchased and equipped with funding from USAID/Peru and PRISMA, belongs to PRISMA. If the MOH decides to discontinue contracting with PRISMA, it will have to acquire its own central storage space for contraceptive commodities.

Distribution and Supply

The SDPs in the sample follow program guidelines and maintain maximum and minimum stock levels of three months and one month. (One SDP maintains max/min levels of six and three months.) All the sampled intermediate stores also maintain max-min levels of six and three months, in accordance with program guidelines.

Lead time from the intermediate level to SDPs is relatively short, with 75 percent of SDPs resupplied within one week after ordering, and just over 95 percent receiving their supplies within two weeks (see appendix A for data tables).

During the six months prior to the study, 97.3 percent of SDPs and 98.3 percent of intermediate stores had no stockouts of any method. The central warehouse also had no stockouts during that time, but was stocked out of Depo-Provera at the time of the visit. (Depo-Provera is the first contraceptive to be procured by the MOH without USAID assistance.) The stockouts at the SDPs included four SDPs where condoms were stocked out for 14 to 43 days.

Physical counts conducted during the study visits to intermediate stores also showed no stockouts of any contraceptive method. One SDP (1.5% of the total studied) was stocked out of condoms. All other

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methods were in stock at SDPs, although some were below minimum stock levels. Because the central warehouse was making a quarterly distribution to the intermediate stores during the study visit, the warehouse was stocked out of condoms, but a shipment was scheduled to arrive the following week (see figures 5 and 6; appendix A).

Figure 5.

Stock Levels at Intermediate-Level Stores, by Percentage, Peru, November 1999

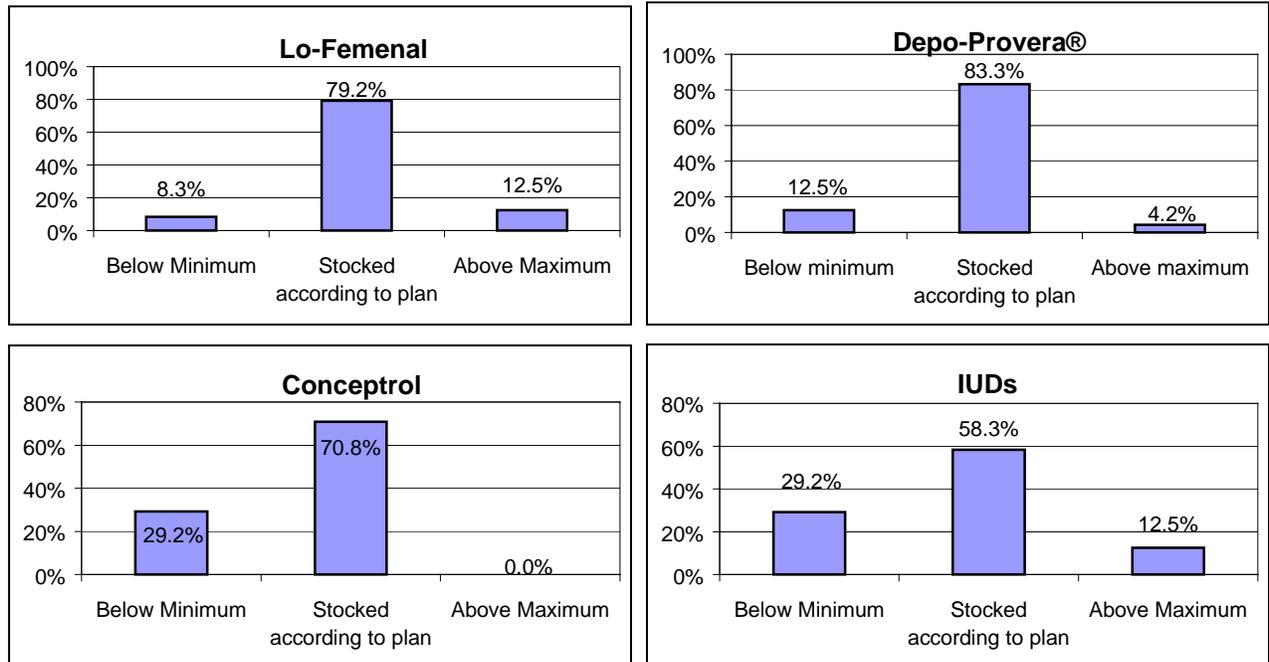
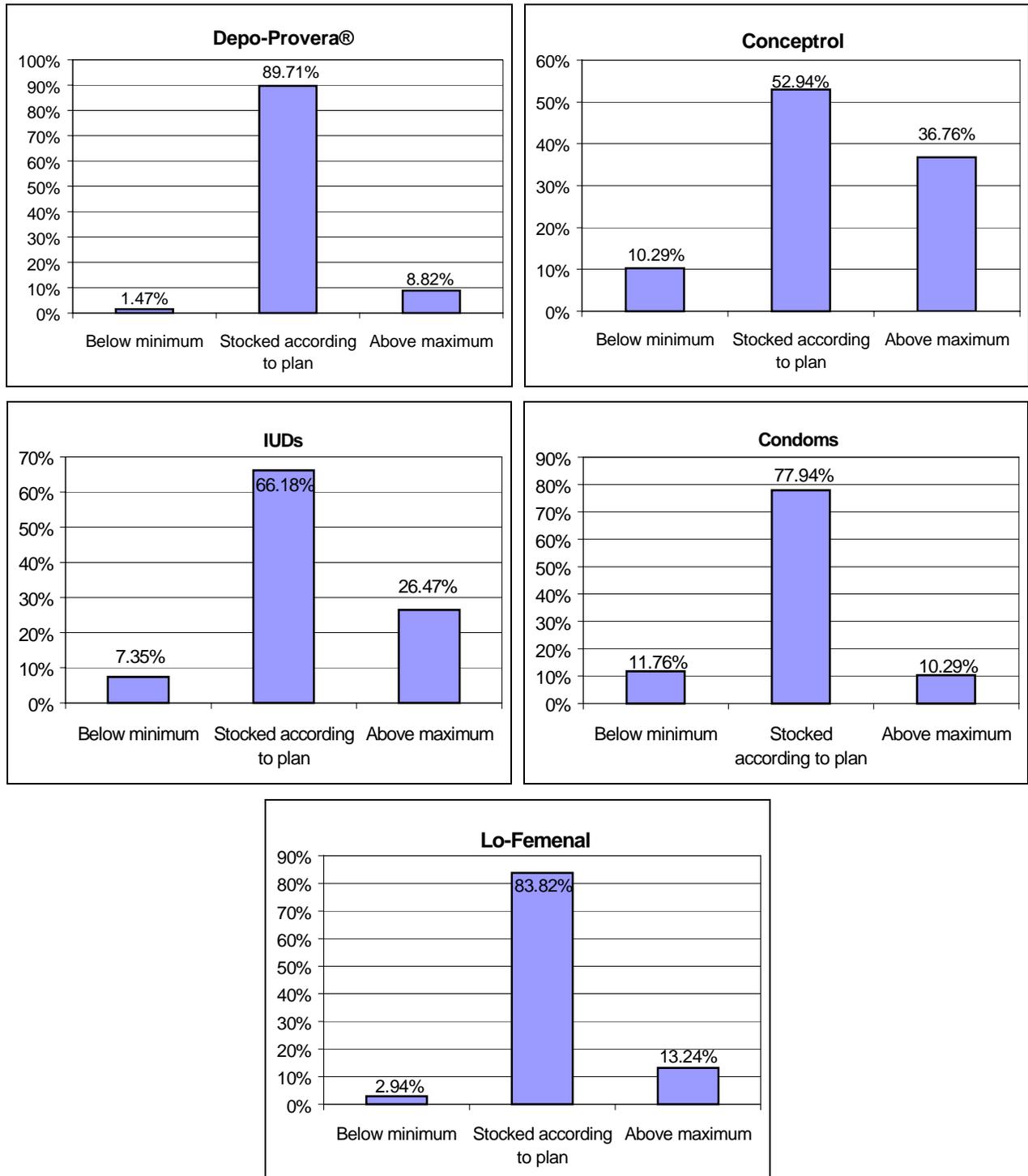


Figure 6.
Stock Levels at SDPs, by Percentage, Peru, November 1999

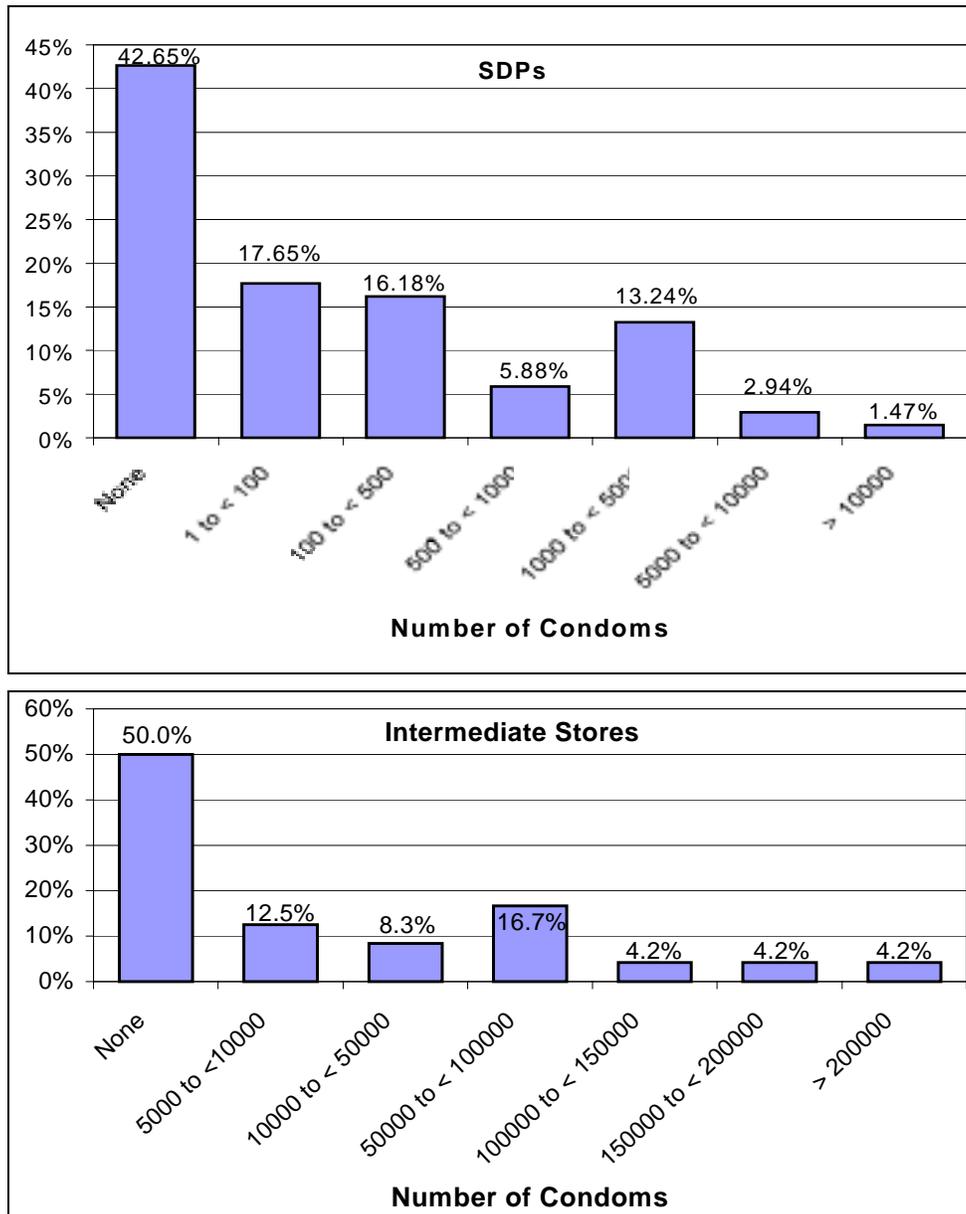


During the six months prior to the study, 100 percent of the intermediate stores had no products expire, while 97.1 percent of the SDPs had no products expire.

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One-half of the intermediate stores visited did not have PROCETSS condoms available. The other half had more than 200,000 condoms in stock at the time of visit. Of the sampled SDPs, 42.6 percent did not have PROCETSS condoms available, about one-third had fewer than 500 condoms in stock, and the rest had between 1,000 and 16,600 in stock (see figure 7).

Figure 7.
*Availability of Condoms Supplied by PROCETSS, by Percentage, Peru,
 November 1999*



Note: PRISMA does not manage these supplies; however, in some cases, PROCETSS supplies may be available to the same population that the MOH serves.

The average mean consumption for the MOH-provided condoms at all the sites visited was 646. Using this number as a reference and assuming the current CPR of 41 percent, the team estimated some SDPs had more than two years of stock of PROCETSS condoms.

Organization and Staffing

Staff turnover, relatively high at all levels, increases the need for in-service and OJT during supervisory visits. Length of service of SDP staff in their current positions ranged from six months to more than five years, with the majority in the one to one and one-half year range. This finding differed from that at the intermediate-level stores, where 41.7 percent of storekeepers had been in their current position less than six months. A breakdown of interviewees by staff designation appears in appendix A.

One-half of the intermediate storekeepers and 69.1 percent of the SDP staff had received formal training in logistics management compared to the 91.7 percent of intermediate family planning coordinators who received such training; the remaining received OJT. The time elapsed since formal training sessions ranged from less than 1 month to 34 months for intermediate storekeepers and from less than one month to 28 months for SDP staff. In the past year, 70 percent of SDP staff and intermediate storekeepers received logistics training. During the previous three years, 70 percent of intermediate family planning coordinators had been similarly trained.

The study team found during the qualitative interviews that every one of the intermediate family planning coordinators trained in logistics management believed that the training was relevant to his or her job responsibilities. One responsibility of the family planning coordinator is to train their colleagues in SDPs. Most reported replicating their own training either formally (73.5%) or through OJT (detailed training results can be found in appendix B).

Knowledge gained from the training increased in both family planning coordinators and warehouse managers. Initial knowledge was generally lower among warehouse managers than family planning coordinators. Despite the warehouse managers' improvement, their final scores were lower than those for the family planning coordinators.

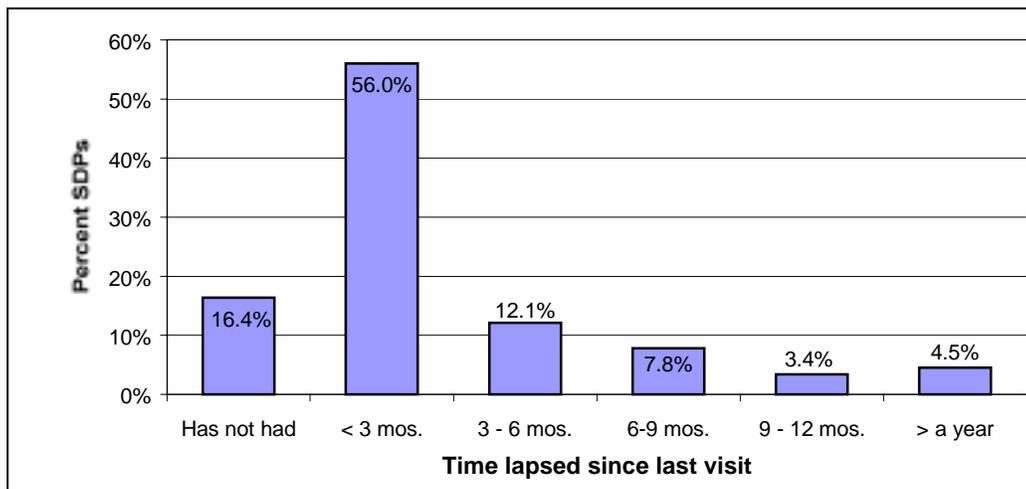
One area that requires reinforcement is the skill to analyze the LMIS and make decisions. Only 57.8 percent of the family planning coordinators achieved the desired competency level for decision making after training.

Almost all intermediate family planning coordinators (95.8%) received OJT during supervisory visits. One-half of the intermediate family planning coordinators received training from PRISMA and 62.5 percent from other intermediate family planning coordinators. Almost all (95.8%) told the study team that the topics were relevant to their work (appendix B).

Supervision

Nearly all intermediate family planning coordinators (91.3%) had received a supervisory visit within the 11 months prior to the study. Of these visits, 87.5 percent included logistics content. All stated that they conduct OJT for SDP staff during supervisory visits (figure 8). (It is important to note that the study did not evaluate the specific content or the quality of the supervisory visits.)

Figure 8.
Logistics Supervision Visits, by Percentage, Peru, November 1999



Most SDP staff (86.8%) indicated that they had received OJT during supervisory visits, mostly from the intermediate family planning coordinator (72.1%) and the DISA family planning coordinator (14.7%). Of the staff receiving supervisory visits, 94.1 percent were visited within eight months prior to the study.

The majority of intermediate storekeepers (79.2%) received OJT during supervisory visits. Of the 87.5 percent who had received a supervisory visit within the 11 months prior to the study, slightly more than two-thirds (68.4%) also received OJT that included logistics content.

During the interviews, central family planning staff said that human resources (i.e., the intermediate family planning coordinators) were the strength of the PRISMA model. However, the staff expressed concerns about the national Austerity Plan which limits government funding for health activities. The plan has reduced staffing in some intermediate stores to one person, who not only single-handedly manages drugs and contraceptives, but also loads and unloads stock, fills out requisitions and orders, and handles other paperwork. Understandably, this single storekeeper is sometimes unavailable for supply pickup, forcing the SDP staff to return, wasting time, travel costs, and other resources.

In the past, a prominent attribute of the PRISMA model was the jointly conducted training, with all planning, curriculum, and materials development, not just the training itself, handled by the MOH and PRISMA working together. Currently, the MOH has been cutting back on its participation with PRISMA staff (who inform the MOH only about activities planned and completed). Some communication for the coordination of the workshops and supervision visits still occurs.

PRISMA staff conduct the training for the intermediate family planning coordinators and travel to the DISAs to provide follow-up, such as educational activities, supervision, and small pilot studies. The implementation of training has lately been executed in a limited manner; the MOH has been slow in making decisions and the work style has changed from participational to informational. Although e-mail increases the possibility of better communication, PRISMA staff told us they rarely get responses.

4. General Findings

Although other health programs within the MOH have problems with logistics management, one strength of the contraceptive LMIS in Peru is its relative independence from political currents. Compared to other MOH programs with logistics problems, the focus here is on system efficiency. This approach has ensured that contraceptives are available at all levels.

Outsourcing Contraceptive Logistics

PRISMA is considered a success in Peru. According to the Peruvian business newspaper *El Comercio*, the perception of public-sector family planning services has improved during the last two years. In an article published November 7, 1999, the newspaper reports that 60 percent of family planning clients believe that the current contraceptive delivery service is good, up from 15 percent in 1997. From these opinions, we can infer that PRISMA has improved contraceptive distribution.

“ . . . the absence of anything like PRISMA running the contraceptive logistics system (being intrinsically part of it), unless you put something in its place, is like trying to run a car without an engine.”

—*Carl Hemmer, former USAID/Washington*

Contraceptive Logistics within the MOH

The MOH’s contraceptive logistics system works effectively and, for the most part, efficiently, ensuring the availability of a range of contraceptives throughout Peru. This finding holds true for both the components managed by PRISMA and those managed directly by the MOH at the intermediate and SDP levels.

The current government system is designed to function as a full supply, max-min, inventory control system. There is uncertainty, however, as to how it would perform under conditions of less than full supply. Because the MOH finances its purchases of contraceptives through national budget allocations, limited resources may not allow for the levels of supply currently in place. The new environment that will emerge when USAID stops funding PRISMA will likely mean modifying the design and policies of the system to include reexamining the current max-min levels, addressing warehouse space issues and transportation options.

“ . . . the Peruvian State still has defects, and management costs are higher than in the private sector, for this reason it is convenient to continue with outsourcing.”

—*High-level government official*

Strengths and Weaknesses of the Contraceptive Logistics System

The strengths and weaknesses of the procedures summarized in table 2 are based on the quantitative and qualitative data collected from central staff, regional family planning coordinators, SDP staff, and warehouse managers. The table depicts FPLM’s interpretation of the overall system based on a rating scale developed for this study. The ratings derive from the data collected during the study, including quantitative results and qualitative perceptions by interviews with key informants.

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Table 2. LMIS Procedures Ratings, by Composite Indicator, Peru, November 1999

Element	Rating	Rationale
Data for decision making, information flow, LMIS	+++	<ul style="list-style-type: none"> Reporting with SIS 240, 100%. Accuracy of records reviewed, 94.1%. Reporting timeliness is good, 11 days on an average. Standardized forms in place and used in ALL regions.
Forecasting	++	<ul style="list-style-type: none"> Currently well-handled by PRISMA. More skills need to be built into central level.
Procurement	--	<ul style="list-style-type: none"> Remains highly dependent on donations. The MOH has encountered problems procuring its first contraceptive, Depo-Provera®.
Warehousing	++	<ul style="list-style-type: none"> Satisfactory storage conditions at the intermediate-level stores. Central-level store subcontract costs donated by USAID.
Distribution	++	<ul style="list-style-type: none"> Over 95% SDPs resupplied within 2 weeks. 74% SDPs stocked according to plan for ALL contraceptives. 73.3% stores stocked according to plan for ALL contraceptives. No stockout of any product in the previous 6 months in 97.3% SDPs and 98.3% intermediate stores. No stockout of any product at SDPs or intermediate stores.
Organization/staffing	++	<ul style="list-style-type: none"> Knowledgeable personnel following norms and running the system efficiently at regional and SDP levels. Training has been strong and effective. Supervision and OJT strategy are ongoing. Few skills on forecasting need to be built at the central level. Not enough personnel currently available at the central level to sustain the system.
Supervision	+	<ul style="list-style-type: none"> Visits are being conducted according to plan. Funds for this activity come from USAID.

+++	strongest
++	strong
+	functioning
-	functioning with problems
--	barely functioning, requires strong action
---	weakest point, requires immediate action

Except for one negative rating (procurement), the overall system is strong and, if maintained, will function effectively. Any changes in procurement and central management that take place simultaneously during the transition will compromise system efficiency.

The vast majority of intermediate family planning coordinators believe the interaction between the MOH and PRISMA has produced favorable outcomes in the contraceptive logistics system, as follows:

- Improved security and control of contraceptive supplies.
- Improved monitoring and supervision of the system.
- Established system-wide norms and policies.
- Assured consistent product availability.
- Decreased overstocks and losses.
- Enhanced the role of the MOH.

According to coordinators, the factors contributing to these positive outcomes include—

- Maintaining communication between the MOH and PRISMA.
- Coordinating supervision to ensure product availability.
- Maintaining a good information flow.
- Coordinating staff responsibilities for contraceptives.
- Reducing lead times.
- Establishing a max-min system.
- Training in the use of records, forms, and reports.

5. Lessons Learned

1. **The third party technical assistance model can be extremely effective in delivering logistics management technical assistance to host governments.** The PRISMA outsourcing model has worked in Peru. In a country with geographic and communication constraints, this model ensured performance of the contraceptive logistics system at the national level and also built logistics expertise at the regional level. This model came about more by accident than design. For political reasons, USAID could not provide aid directly to the Government of Peru; therefore, a third party was identified through which to channel technical assistance. However, the outcome has shown that this is a model that could be replicated in other countries where there is an appropriate third-party organization.

One advantage of this model as compared to using short-term technical assistance or an expatriate resident advisor is that the third party is indigenous to the country. Therefore, the expertise in logistics management is likely to remain locally, even if activities are decreased. If the organization were to close down completely, the staff would still be in the country to pass on their expertise.

One disadvantage to this model is that control or influence on technical assistance is one step removed from FPLM, but this was a minor inconvenience in Peru's case. Another slight disadvantage in this case was the tension between the MOH and PRISMA. However compared to the advantages, the disadvantages of the model are minor. The model helps toward institutionalization of logistics capabilities in the country, without having continual FPLM presence.

2. **Training and supervision is worth the investment, as it has institutionalized adequate logistics expertise at the intermediate and SDP levels.** The system of training and supervision that was laid out in Peru has paid off in the responsiveness of the system, the low tally of stockouts, and the overall system performance. The intermediate and SDP levels are now able to manage the system without the presence of PRISMA per se—as long as supplies are available from the central level. In other words, contraceptive security will be assured as long as the present central-level capacity exists through PRISMA.

The fear in Peru is that USAID will simultaneously cease support for both commodities and technical assistance in logistics management. This would threaten the contraceptive security of Peru. Obviously, the government must take responsibility for vital functions of the contraceptive supply system, not all at once, but with a phased-in approach. Otherwise, the investment made in training and supervision could be wasted.

3. **Elements of a well running contraceptive logistics system can be used to design a drugs logistics system in anticipation of integrated systems under health sector reform.** The lesson here is that the contraceptive logistics system already in place in Peru should be used as an example for drugs. In some countries, contraceptive logistics systems were removed before an integrated system was in place (e.g., Mali). In others, the well-performing contraceptive logistics system has meant that drugs have been *piggy-backed* onto the LMIS (e.g., Philippines). In still others, the whole LMIS has been integrated after the contraceptive system performed well (e.g., Nepal). In Peru, plans have been made for an investigative study into the feasibility of developing a logistics information system for drugs similar to that of contraceptives.

6. Recommendations

The key recommendations of the study team are detailed below. They reflect responses taken from the interviews of central-, intermediate-, and SDP-level staff and decision makers from the MOH and other appropriate organizations.

1. *LMIS*: Data reliability are high due to the accuracy and timeliness in reporting, ensuring that the LMIS has the information necessary to run efficiently and respond to contraceptive demand. Indeed, the current LMIS is the strongest aspect of the contraceptive logistics system and should be supported. However, smaller features of the system require attention.

Recommendation: Staff at all levels should continue their efforts to achieve 100 percent timeliness, accuracy, and completeness in reporting, reinforcing the use of existing forms to collect essential logistics information. Staff should be trained to record losses and adjustments in the TCVs to obtain accurate stock balances. The MOH and PRISMA should also explore the possibility of reducing or combining other health forms to prevent redundancies and duplication of information.

2. *Forecasting and Procurement*: As the MOH takes greater responsibility for purchasing commodities through national budget allocations, limited financial resources may not allow for the same levels of supply currently in place. There is uncertainty as to how the current logistics system, designed to operate with full supply, will perform under conditions of less than full supply.

Recommendation: Improve the current forecasting through increased collaboration and sharing of information between the MOH and PRISMA. The new environment in Peru requires system design and policy modifications (e.g., changing current max-min levels, addressing warehouse space issues, and reexamining transportation options). The initial focus should be on the transfer of additional forecasting expertise from PRISMA to the MOH, with emphasis on comparing different types of data (logistics, demographic) to validate forecasts.

Recommendation: We recommend that the MOH immediately concentrate efforts on developing sufficient logistics management capability at the central level, especially in forecasting. This action will support the MOH when it assumes the functions currently managed by PRISMA and circumvent negative impacts on the system from the transition. It will have to be undertaken with some urgency because the current PRISMA contract ends in September 2001. In the interim, we recommend that the MOH continue to contract with a third party for some management functions. This can be done either by the MOH taking financial responsibility for the PRISMA contract when USAID funding ends or by selecting a third-party logistics provider through a competitive bidding process.

3. *Supply Availability*: Now that the MOH has begun to purchase its own contraceptives, the agency will need to allocate additional resources to logistics to “protect” its investment.

Recommendation: USAID/Peru should consider either reducing its contraceptive donations to the MOH or ending its financing of the PRISMA logistics contract. However, USAID should not do both simultaneously. As one MOH official put it, “I hope phasing out is not done abruptly but gradually, as otherwise, it would be a catastrophe.” Some effects of abrupt transitioning are already beginning to affect the stocks of Depo-Provera at the central level. USAID/Peru and the MOH should jointly develop and agree to a specific phaseover plan that includes timetables and milestones of what needs to be in place and by when. This plan will help the MOH clearly identify

procurement needs and corresponding financial requirements and develop a strategic plan for assuming responsibility of the central-level logistics functions if the MOH decides to stop using PRISMA's services. Until institutionalization of the logistics plan occurs, FPLM must also provide technical assistance to central-level decision makers in contraceptive procurement, cost definition, contracting product providers, presenting price offers, conducting bidding, setting shipment schedules, and other responsibilities. The MOH also needs to expand its procurement contract with UNFPA to include additional commodities or contract with another third-party procurement agent to manage its contraceptive procurement process.

4. *Warehousing and Storage Conditions:* Although expired or damaged commodities are uncommon, storage facility and service delivery point staff were found either to be unaware of the MOH policy for disposing of expired or damaged products or aware of the current policy but not following it.

Recommendation: We recommend that the MOH continue to contract with a third party for these functions at the central level or define the alternative desired for these activities. The MOH should also explore alternatives for increasing storage space at intermediate-level stores. It should also provide information to storage sites on proper handling and storage of Depo-Provera. During supervision visits, SDP staff should receive training on proper storage and handling, and intermediate family planning coordinators should reinforce the use of product labeling and FEFO. We also recommend that the MOH review the appropriateness of the current policy for disposing of expired or damaged products, modify the policy as necessary, and ensure that all staff are aware of this policy.

Recommendation: Staff should focus attention on storage conditions for similar commodities, such as HIV/AIDS condoms (managed by PROCETSS), so that they meet the storage standards observed by the reproductive health program. Otherwise, USAID-donated condoms previously loaned to the HIV/AIDS program are in danger of expiring or becoming otherwise unusable.

5. *Supply Distribution:* Distribution and supply are functioning well in the MOH's contraceptive logistics system, operating effectively and, for the most part efficiently, ensuring the adequate availability of a range of contraceptive methods in urban and rural areas throughout Peru. This is true for the components of the system managed by PRISMA and the components managed by the MOH.

Recommendation: We recommend that the MOH work out a plan with PRISMA to transition commodity distribution and supply from the central level to the intermediate stores. It is also important for the MOH to maintain and support the current distribution and supply activities from the regions intermediate stores to the SDPs.

6. *Organization and Staffing:* The logistics manager at the central level has nonlogistics job responsibilities that conflict and sometimes take priority over logistics management duties.

Recommendation: The central-level logistics manager should be a dedicated position so that he or she can focus on managing the family planning logistics system at this level. This will be especially important during the transition when the MOH is to take complete responsibility for contraceptive distribution. The central level should also be allocated more staff and financing to run efficiently. The MOH should maintain training to ensure that new staff members follow the same procedures. The MOH and family planning coordinators should reinforce training for proper storage, use of FEFO, and product labeling at all the service outlets.

7. *Supervision:* Staff at the intermediate and SDP levels are now able to manage the logistics system without PRISMA as long as supplies are available from the central level. The vast majority of staff members also receive regular supervisory visits that include at least some aspects of logistics. In our study, however, we find that the assessment teams did not assess the adequacy of these visits qualitatively. It appears that most supervisory visits are unstructured and do not take full advantage of the opportunity to provide appropriate OJT.

Recommendation: The MOH should implement the strategy for supervision at the intermediate and SDP levels through OJT, and provide sufficient staff and other resources to ensure adequate monitoring and supervision. The MOH should also complete the process of documenting the LMIS and continue to distribute the *Logistics Procedures Manual* and the *Supervision Guide* to all MOH staff with logistics management responsibilities.

8. *Transitioning Systems:* If the current plan to diminish donations of contraceptives and to stop funding to the logistics management system for contraceptives at the same time continues, rapid deterioration of this system will occur.

Recommendation: To ensure contraceptive availability, transitioning should occur with complete agreement on the timing by all stakeholders. Management of the system will still require external support. The MOH should also explore opportunities to transfer the benefits of the contraceptive logistics system to the larger essential drugs system and other systems currently struggling to fulfill their distribution activities.

Appendix A.

Data Frequency Tables

Table A-1. Geographic Distribution of the Sites Included in the Sample

Sample distribution by geographical area

Count	Geographic Area			Total
	Coast	Mountain	Jungle	
UTES PUNO		3		3
UTES CHUCUITO		2		2
UTES ILAVE COLLAO		3		3
UTES MELGAR		3		3
UBASS LAMAS			2	2
UBASS MOYOBAMBA			2	2
UBASS HUALLAGA			3	3
UBASS SAN MARTIN			5	5
UTES 1 NORTE	2			2
UTES 2 TRUJILLO SUR	3			3
UTES 3 CHEPEN	3			3
UTES 4 PACASMAYO	3			3
ZONADIS APLAO	3			3
ZONADIS CAMANA	3			3
ZONADIS ISLAY	2			2
SBS COMAS	5			5
SBS PUENTE PIEDRA	2			2
SBS SAN JUAN DE LURIGANCHO	2			2
SBS HUAURA OYON	3			3
RED APARICIO		3		3
POMARES		3		3
RED PAUCARBAMBA		3		3
RED AMBO		3		3
RED TINGO MARIA		2		2
ZONADIS AREQUIPA	3			3
Total	34	22	12	68

**Table A-2. History of Contraceptives Donated by USAID to Peru
From 01/01/1980 to 09/30/2000**

Beneficiary	Date of First Shipment	Date of Last Scheduled Shipment	Total Value of Donations
APROPO	Dec. 1984	May 1995	436,777.76
A. B. PRISMA	March 1990	July 1998	6,125,274.54
CARE-Peru	Nov. 1992	Jan. 1993	6,346.54
INPARES	Mar. 1985	Nov. 1989	631,078.28
IPSS	April 1989	Jan. 1997	1,491,740.39
MOH	March 1985	Sept. 2000	13,368,231.69
Private Sector Project	June 1987	August 1989	179,697.23
FHI Project	April 1984	May 1984	523.20
			U.S.\$22,239,669.63

Source: NEWVERN Report Data Tabulation

Table A-3a. LMIS Forms Used at Service Delivery Points

Form	Used	Not Used	Total Responses
Contraceptive Requisition Worksheet	83.8	16.2	100.0
IMI	89.7	10.3	100.0
PECOSA	80.9	19.1	100.0
SIS 240 (monthly)	95.6	4.4	100.0
Other	94.1	5.9	100.0

Forms included under “Other” are listed below. These forms are not exclusive, as we found staff using one or more non-official forms.

Table A-3b. Other Forms Used at SDPs

Type of Form	Frequency	
	N	% n = 68
Adds other column to the Transaction record	1	1.5
Analysis of advances	1	1.5
Clinic History	2	2.9
Dispensing notes (dispensing book)	2	2.9
HIS	31	45.6
IOU	1	1.5
Issuing voucher	1	1.5
Notebook for daily recording	14	20.6
Prescription forms	7	10.3
Record sheet	1	1.5
Stock cards	6	8.8
Supply records	1	1.5
TCV (Inventory Control Card)	33	48.5
Client cards	1	1.5
Worksheets	1	1.5

Table A-4a. LMIS Forms Used by Intermediate Level FP Coordinators

Form	Submitted to DISA % Coordinators	Received from SDPs % Coordinators
Contraceptive Requisition Worksheet	100.0	91.7
IMI	100.0	100.0
PECOSA	75.0	41.7
SIS 240	100.0	100.0
Other	45.8	45.8

Forms included under “Other” are listed below. These forms are not exclusive, as we found staff using one or more non-official forms.

Table A-4b. Other Forms Used by Intermediate Level FP Coordinators

Type of Form	Frequency	
	N	% n = 24
Adds other column to Transaction record	3	12.5
Distribution Notebook	1	4.2
HIS	3	12.5
Monthly Analysis	1	4.2
Dispensing Notebook	1	4.2
Report on Promoters	1	4.2
SIS 240 Daily	4	16.7
Worksheets	3	12.5

Table A-5. Reception of LMIS Forms from SDPs

Person/Place Receiving Form	Percentage of Sampled SDPs Sending These Forms				
	SIS 240	IMI	PECOSA	Contraceptive Requisition Worksheet	Other
Intermediate Level Coordinator	73.5	72.1	30.9	67.6	8.8
Issuing Health Center	8.8	8.8	8.8	7.4	1.5
Other*	14.7	17.6	2.9	11.8	7.4
NA	1.5	—	57.4	11.8	76.5
No response	1.5	1.5	—	1.5	5.9
Total	100.0	100.0	100.0	100.0	100.0

*Coordinator of Women's Area, Other Health Center, Statistics Office

Table A-6. LMIS Forms Used at Intermediate Level Stores

Types of Records	Used	Not Used	Total Responses
Contraceptive Requisition Worksheet	83.8	16.2	100.0
IMI	89.7	10.3	100.0
PECOSA	80.9	19.1	100.0
SIS 240 (monthly)	95.6	4.4	100.0
Other	94.1	5.9	100.0

Table A-7. SDP Staff Knowledge of Basic Logistics Data

Concept	Percentage Correctly Applying Concept
Quantity of contraceptives dispensed to new users	100.0
Quantity of contraceptives dispensed to continuing users	100.0
Contraceptive order quantity based on established max-min levels	94.1

Table A-8. Problems Found In Completion of Forms at SDPs

Problem	% Found	% Not Found
Mathematical error	1.5	98.5
Procedural or methodological error	2.9	97.1
Other types of problems	1.5	98.5
MEAN	2.0	98.0

Table A-9. Accuracy of AMC and MOS Calculations at SDP Level

Accuracy in calculation	AMC	MOS
Correct	92.6	97.1
Incorrect	7.4	2.9
Total	100.0	100

Table A-10. Storage Conditions (based on index calculation)

	Intermediate level stores	SDPs
Number of facilities rated (n)	24	68
Mean (\bar{x})	82.87	91.75
Standard Deviation (σ)	± 7.67	± 6.18

**Table A-11. Index Components for Storage Conditions
(percentage of facilities meeting each condition)**

Condition		% Intermediate Level Stores	% SDPs
1	Storage facility has sufficient space for accessing products.	95.8	98.5
2	Storeroom is regularly cleaned and maintained in good condition.	100.0	100.0
3	Contraceptives are stacked at least 10 cm off the floor.	58.3 (Dif. NA)	90.9
4	Contraceptives are stacked at least 30 cm away from walls and other stacks.	87.5	94.6
5	Cartons are arranged so that identification labels, expiry dates, and manufacturing dates are visible.	79.2	58.8
6	Products are separated by lots and are stored in a manner to facilitate first-to-expire, first-out (FEFO).	75.0	42.4
7	The storeroom is sufficiently ventilated.	100.0	100.0
8	The storeroom has sufficient lighting.	100.0	100.0
9	Fire safety equipment is available and accessible.	37.5	8.7
10	The storeroom is regularly disinfected and sprayed to kill insects and rodents.	100.0	95.6
11	Containers or packaging of products are in good condition.	100.0	97.1
12	Products are in good condition.	100.0	100.0
13	Contraceptives are stored separately away from insecticides and chemicals.	95.8	92.6
14	Damaged and/or expired contraceptives are separated from other products.	8.3	72.7
15	Stacks are no more than 2.5 meters high.	54.2 (Dif. NA)	100.0
16	Products are stored out of direct sunlight.	100.0	100.0
17	The storeroom is dry and free of humidity.	100.0	100.0
18	The storeroom is secure.	100.0	100.0

Table A-12. Frequency of Physical Inventory Counts at SDPs

Frequency	Percentage of SDPs
Annually	4.4
Every 6 months	4.4
Every month	57.4
Every 2 weeks	8.8
Every week	14.6
Every 3 days	1.5
Every 2 days	1.5
Daily	5.9
After every movement	1.5
Total	100.0

Table A-13. Contraceptive Supply Source for SDPS

Source	Number of SDPs receiving from this source	Percentage of SDPs receiving from this source
DISA	2	2.9
Intermediate level stores	59	86.8
Other*	7	10.3
Total	68	100.0

Table A-14. Review Period at SDPs

Review period	N	Percent
Monthly	64	94.1
Bimonthly	2	2.9
Quarterly	1	1.5
Other	1	1.5
Total	68	100.0

Table A-15. SDP Lead Time (between order placement and reception)

Time lapsed	n	Percent	
Immediately	15	22.1	50.0%
1–3 days	19	27.9	
4 days to 1 week	17	25.0	
1 to 2 weeks	14	20.6	
2 to 3 weeks	3	4.4	
Total	68	100.0	

Table A-16. SDP Stockout Episodes in the Previous Six Months

Product	Number of episodes	Duration (range in days)	No stockout episodes (# SDPs)	% SDPs with no stockouts
Copper T	0	NA	68	100.0
Lo-Femenal	1	9	67	98.5
Depo-Provera	1	3	67	98.5
Condoms	5	13–30	64	94.1
Conceptrol	3	7–10	65	95.6

Table A-17. Stockout Episodes in the Previous Six Months at Intermediate-Level Stores

Product	Number of episodes	Duration (range in days)	No stockout episodes (# stores)	% stores with no stockouts
Copper T	0	NA	24	100.0
Lo-Femenal	0	NA	24	100.0
Depo-Provera	1	20	23	95.8
Condoms	1	22	23	95.8
Conceptrol	0	NA	24	100

Table A-18. Months of Stock at Service Delivery Points

Contraceptive	Disa	MEAN	Std Dev	95% Confidence Interval	
				Lower	Upper
Conceptrol	Arequipa	3.6	±2.9	2.1	5.0
	Lima Norte	2.9	±1.8	1.8	4.0
	La Libertad	2.1	±2.1	0.7	3.6
	Huanuco	2.0	±0.7	1.5	2.5
	Puno	1.0	±8.7	1.2	12.8
	San Martín	4.0	±2.4	2.5	5.6
	Total		2.8	±1.4	
Condom	Arequipa	1.6	±0.7	1.1	2.0
	Lima Norte	2.5	±1.0	1.8	3.1
	La Libertad	2.0	±0.8	1.5	2.5
	Huanuco	1.6	±0.7	1.1	2.1
	Puno	3.4	±2.1	2.0	4.8
	San Martín	2.6	±0.2	2.5	2.7
	Total		3.0	±1.3	
Depo-Provera	Arequipa	2.0	±0.6	1.6	2.3
	Lima Norte	2.3	±0.7	1.8	2.7
	La Libertad	2.2	±0.6	1.8	2.6
	Huanuco	1.8	±0.4	1.6	2.1
	Puno	2.7	±1.0	2.0	3.3
	San Martín	2.6	±0.1	2.5	2.7
	Total		3.5	±1.3	
Lo-Femenal	Arequipa	2.0	±0.5	1.7	2.3
	Lima Norte	2.5	±0.7	2.1	2.9
	La Libertad	2.4	±0.7	1.9	2.9
	Huanuco	1.7	±0.7	1.2	2.1
	Puno	94.4	±300.3	-107.4	296.1
	San Martín	2.6	±0.2	2.5	2.8
	Total		3.6	±1.5	

Contraceptive	Disa	MEAN	Std Dev	95% Confidence Interval	
				Lower	Upper
Copper T	Arequipa	2.6	±0.8	2.0	3.1
	Lima Norte	2.9	±0.9	2.3	3.4
	La Libertad	3.2	±2.0	1.8	4.5
	Huanuco	2.0	±1.4	1.1	3.0
	Puno	184.9	±403.0	-85.8	455.6
	San Martín	2.8	±1.3	2.0	3.6
Total		3.6	±2.4		

Table A-19a. HIV/AIDS Condoms Found at Intermediate Level Stores

Quantity of Condoms	Number of Stores	Percent
None	12	50.0
5,000 to <10,000	3	12.5
10,000 to <50,000	2	8.3
50,000 to <100,000	4	16.6
100,000 to <150,000	1	4.2
150,000 to <200,000	1	4.2
>200,000	1	4.2
Total	24	100

37.4%

Table A-19b. HIV/AIDS Condoms found at SDPs

Quantity of Condoms	Number of SDPs	Percent
None	29	42.6
1 to <100	12	17.7
100 to <500	11	16.2
500 to <1,000	4	5.9
1,000 to <5,000	9	13.2
5,000 to <10,000	2	2.9
>10,000	1	1.5
Total	68	100

53.0%

Table A-20. Time in Current Position of SDP Staff

Time in current position	n	Percentage
0 to 6 months	16	23.5
6 to 12 months	8	11.8
12 to 24 months	10	14.7
24 to 36 months	18	26.5
36 to 48 months	7	10.3
48 to 60 months	3	4.4
More than 60 months	6	8.8
Total	68	100.0

Table A-21. Time in Current Position of Intermediate-Level Storekeepers

Time in current position	n	Percentage
0 to 6 months	10	41.7
6 to 12 months	4	16.7
12 to 24 months	3	12.5
24 to 36 months	1	4.2
36 to 48 months	1	4.2
48 to 60 months	1	4.2
More than 60 months	4	16.7
Total	24	100.0

Table A-22. Professional Background of SDP Staff

Profession	n	Percentage
Physician	2	3.0
Midwife	61	91.0
Other	4	6.0
Total	67	100.0

Table A-23. Professional Background of Intermediate-Level Storekeepers

Profession	n	Percentage
Midwife	3	12.5
Nurse	1	4.2
Management Technician	12	50.0
Other	8	33.3
Total	24	100.0

Peru: Review and Lessons Learned

Tables A-24 to A-28. Composition of the System by Type of Facilities as Described by Intermediate-Level Family Planning Coordinator

Table A-24

Hospitals		
Number	Frequency	% of hospitals in the sample
None	7	29.2
1	15	62.5
2	1	4.2
10	1	4.2
Total	24	100.0

Table A-25

Health Centers		
Number	Frequency	% of health centers in the sample
None	2	8.3
1-3	8	33.3
4-7	5	20.8
8-10	4	16.7
11-20	4	16.7
More than 20	1	4.2
Total	24	100.0

Table A-26

Health Posts		
Number	Frequency	% of health posts in the sample
None	2	8.3
1-5	4	16.7
6-10	5	20.8
11-20	6	25.0
21-30	1	4.2
31-40	3	12.5
More than 40	3	12.5
Total	24	100.0

Table A-27

Fourth-level Health Centers (supplied by other HCs)		
Number	Frequency	% of 4th level health centers in the sample
None	23	95.8
4	1	4.2
Total	24	100.0

Table A-28

Fourth-Level Health Posts (supplied by Health Centers)		
Number	Frequency	% of 4th level health posts in the sample
0	19	79.2
7	1	4.2
25-30	2	8.4
37	1	4.2
80	1	4.2
Total	24	100.0

Appendix B. Training Results

Peru: Review and Lessons Learned

Table B-1. Training Workshops Conducted on Contraceptive Logistics 1994–1999

Health Districts	Interm Level Stores #	Date of Training Needs Assessment	Training		Date of Follow-up Supervision
			Date of Workshop	Trainees #	
Chavin	12	18-21 May '94	8-11 Aug '94 29 abr-2 May '97	26 26	
Puno	11	20-23 Apr '94	28-30 Nov '94	24	8-12 Dec '97
Tacna	1	19-20 Apr '94	27-30 Mar '95	10	18-22 Mar '97
Moquegua	2	19-20 Apr '94	27-30 Mar '95	14	18-22 Mar '97
TOT I			26-29 Feb '94	17	
TOT II			20-24 May '94	17	
Ayacucho Norte	9	27-30 Mar '96	12-17 Aug '96	24	17-21 Mar '97 4-8 May '98 5-9 Jul '99
Ica	7	2-6 May '96	19-24 Aug '96	11	3-7 Feb '97 28 set-2Oct '98
Ayacucho Sur	4	27-30 Mar '96	19-24 Aug '96	8	4-9 Aug '97 12-16 Oct '98
Chanka	1		19-24 Aug '96	3	5-7 May '97 3-6 Feb '98
Lima Norte	11	5-6 Jul '96	28 Jan-1 Feb '97	21	9-14 Jul '97
Lima Sur	9	26 Feb, 4 Mar '97	15-19 Apr '97	22	9-14 Jul '97
Huancavelica	1	15-20 Apr '97	20-23 May '97	22	1-5 Sep '97 19-23 Jul '99
Arequipa	5	7-10 Apr '97	10-14 Jul '97	16	15-19 Oct '97
Cusco	9	13-17 May '97	15-19 Jul '97	20	30 Jul-4 Jul '98
Apurimac	1	13-17 May '97	15-19 Jul '97	2	30 Jul-4 Jul '98
Madre de Dios	2	13-17 May '97	15-19 Jul '97	3	30 Jul-4 Jul '98
San Martin	10	7-12 Jul '97	6-11 Oct '97	22	15-19 Jul '98
TOT I			16-20 Mar '98	23	
TOT II			31 Mar-4 Apr '98	23	
Callao	10	16-21Jan '98	11-15 May '98	24	15-18 Sep '98
Lima Ciudad	6	12-15 Jan '98	20-29 Apr '98	65	20-24 Jul '98
La Libertad	11	4-8 Aug '97	26-30 May '98	27	Rt: 13-15 Nov '97 9-13 Nov '98
Huanuco	13	27-30 Apr '98	9-13 Jul '98	27	25-29 Jan '99
Jaen	1	15-19 Jul '98	17-20 Aug '98	6	5-10 Apr '99
Bagua	1	15-19 Jul '98	17-20 Aug '98	4	5-10 Apr '99
Amazonas	1	15-19 Jul '98	17-20 Aug '98	3	5-10 Apr '99
CajaMarca	7	10-14 Aug '98	19-23 Oct '98	17	19-23 Apr '99
Chota	1	10-14 Aug '98	19-23 Oct '98	2	19-23 Apr '99
Cutervo	1	10-14 Aug '98	19-23 Oct '98	2	19-23 Apr '99
Lambayeque	8	15-19 Jul '98	16-20 Nov '98	27	23-27 Aug '99
Piura	5	22-26 Feb '99	3-7 May '99	16	
Luciano Castillo	1	22-26 Feb '99	3-7 May '99	3	
Tumbes	1	22-26 Feb '99	3-7 May '99	2	
Loreto	2	8-10 Feb '99	24-28 May '99	24	
Pasco	7	22-26 Mar '99	7-11 Jul '99	25	
Ucayali	1	12 Feb '99	21-25 Jul '99	27	
Lima Este	2	13-14 Jan '98	6-10 Sep '99	34	
Julin	7	8-12 Mar '99	18-22 Oct '99	17	
NGOs	10		2-6 Nov '98	26	
	96			732	

A total 732 trained staff, 96 of which were warehouse managers, 46 were Regional Family Planning Coordinators, 26 staff from NGOs, and 564 MOH staff from the service delivery points responsible for family planning.

Training Topics

Contraceptive Logistics

- Introduction to Logistics
- Introduction to LMIS
- Contraceptive Availability
- Inventory Control systems: Maximum and Minimum Levels of Stock
- Analysis of Stock Status
- Storage Conditions
- Rules and Procedures of the Contraceptive Logistics System
- Commitments from this Workshop

Decision Making based on Logistics Information

- Introduction
- Information System
- Contraceptive Logistics System
- National Family Planning Program
- Commitments and Conclusions

Table B-2. Participant Post-Training Evaluations of Contraceptive Logistics Management & Information Training Workshops

Origin of workshop participants	Goal was achieved %	Use of appropriate methods and techniques %	Appropriate contents %	Adequate amount of time %	Satisfied with management of workshop %	Developed appropriate skills %	Able to calculate MOS without assistance %	Able to calculate AMC without assistance %	Able to request supplies without assistance %	Acquired skills to analyze LMIS data for decision making %
ANCASH	100	92	96	68	84	96	92	88	56	64
AREQUIPA	100	100	100	93.7	93.7	100	81.2	75	62.5	62.8
CALLAO	100	91.7	100	91.7	100	100	95.8	75	62.5	50
CAJAMARCA, CHOTA Y CUTERVO	100	100	95	80	100	95	90	75	75	55
CUSCO*										
HUANCAVELICA	100	100	100	71.4	81	95.2	76.2	71.4	57.2	47.6
HUANUCO	92.6	88.9	96.3	92.6	77.8	96.3	81.5	81.5	70.4	63
JAEN, BAGUA Y AMAZONAS	100	100	100	83.3	100	91.7	66.7	83.4	75	58.4
JUNIN	100	100	93.3	80	86.6	100	73.3	73.3	73.3	60
LA LIBERTAD	100	95.7	95.7	47.8	91.3	95.7	87	87	78.3	56.5
LAMBAYEQUE	84.6	96.2	100	69.2	96.2	96.2	88.5	73.1	57.7	46.2
LIMA CIUDAD*										
LIMA ESTE	96.9	100	93.8	68.8	96.9	100	81.3	75	53.2	50
LIMA NORTE*										
LIMA SUR	75	90	100	55	55	95	80	75	65	50
LORETO	100	95.8	95.8	79.2	91.7	99	83.3	79.2	75	75
PASCO	95.2	100	100	95.2	100	100	90.5	95.2	81	76.2
PIURA, L. CASTILLA Y TUMBES	100	100	100	77.3	100	100	72.8	77.3	72.8	59.1
SAN MARTIN	95.5	100	100	81.8	100	100	86.3	72.3	45.5	59.1
UCAYALI	84.6	100	92.3	80.8	100	100	69.2	73.1	50	50
MEAN	95.6	97.1	97.5	77.4	91.4	97.7	82.1	78.2	65.3	57.8

* No evaluation was conducted at the end of the workshop.

Table B-3. Training of Trainers Achievement

Area of assessment	% participants achieving it
Use of appropriate methods and techniques	97.1
Developed appropriate skills	97.7
MEAN	97.4

Area of assessment	% participants achieving it
Able to calculate MOS without assistance	82.1
Able to calculate AMC without assistance	78.2
Able to request supplies without assistance	65.3
Acquired skills to analyze LMIS data to make decisions	57.8
MEAN	70.8

Table B-4. Participants' Knowledge Increase (following training in contraceptive logistics)

Statistic	FP coordinators	Storekeepers
Mean pre-test score	9.0	5.7
Mean post-test score	14.3	11.7
Mean percent increase	52.1	96.8
Standard deviation of mean percent increase	±32.7	±51.8
One sample T-test of increase	7.308	8.354

Appendix C.
Composite Indicator Scores

Table C-1. Contraceptive Logistics Program Progress Assessed by Composite Indicators Whole System

Element	Subelement	Baseline		Midterm		Final	
		P	S	P	S	P	S
LMIS	Program has basic elements of LMIS. Max 4 pts	2	2	4	4	4	4
	LMIS information is used in management decision making. Max 4 pts	2	1	2	3	3	4
	LMIS information is fed back to all lower levels in the distribution system. Max 2 pts	0	1	1	2	1	1
	Commodities data are validated by cross-checking with other data sources. Max 2 pts	1	0	1	2	1	1
LMIS sub score (Max 12 pts)		5	4	8	11	9	10
% Change				60%	175%	13%	-9%
FORECASTING	Periodic forecasts of consumption are prepared, updated, and validated. Max 4 pts	2	1	4	3	3	3
	Forecasts are incorporated into cost analysis and budgetary planning. Max 4 pts	0	0	2	1	3	3
FORECASTING sub score (Max 8 pts)		2	1	6	4	6	6
% Change				200%	300%	0%	50%
PROCUREMENT	Consumption forecasts are used to determine short-term procurement plans. Max 4 pts	2	2	4	1	4	4
	Right amount of contraceptives are obtained in appropriate time frame. Max 4 pts	0	0	4	0	3	3
PROCUREMENT sub score (Max 8 pts)		4	0	8	1	7	7
% Change				100%		-13%	600%
WAREHOUSING	Adequacy of storage capacity and conditions. Max 4 pts	3	3	3	4	3	4
	Conducts at least one physical inventory of contraceptives per year at each warehouse. Max 2 pts	2	1	2	1	2	2
	Knows & complies with standards for maintaining product quality. Max 2 pts	1	1	1	2	1	2
	Issues stock according to first-to-expire, first-out (FEFO) inventory control procedures. Max 4 pts	3	2	3	4	3	4
WAREHOUSING sub score (Max 12 pts)		9	7	9	11	9	12
% Change				0%	57%	0%	9%
DISTRIBUTION	Has appropriate distribution system and schedule for stocking each level. Max 4 pts	1	2	4	4	4	3
	Each level is stocked adequately. Max 4 pts	2	2	2	4	4	3
	Minimal stockouts have been experienced during the previous year. Max 4 pts	3	1	3	1	4	3
	Has a system for tracking and documenting system losses. Max 2 pts	0	0	1	2	1	2
	Has adequate transportation system for moving supplies. Max 4 pts	2	2	4	2	3	4
DISTRIBUTION sub score (Max 18 pts)		8	7	14	13	16	15
% Change				75%	86%	14%	15%

Appendix C (continued)

Element	Subelement	Baseline		Midterm		Final	
		P	S	P	S	P	S
ORGANIZATION	An appropriate logistics unit exists, the unit has adequate resources, and the Logistics Officer-in-Charge has adequate authority. Max 4 pts	2	1	3	4	3	3
	Effective supervision is maintained at all levels and written policies and procedures exist. Max 4 pts	1	2	3	2	2	3
	Has a logistics training plan and an adequate number of active personnel have been trained in logistics. Max 2 pts	1	0	2	2	2	2
	Has sufficient personnel performing appropriate logistics activities. Max 4 pts	2	2	3	4	3	4
ORGANIZATION sub score (Max 14 pts)		6	5	11	12	10	12
% Change				83%	140%	-9%	0%
POLICY	Logistics information is provided to appropriate policymakers. Max 4 pts	2	2	4	4	4	4
POLICY sub score (Max 4 pts)		2	2	4	4	4	4
% Change				100%	100%	0%	0%
ADAPTABILITY	Entire logistics system has ability to adapt to changes. Max 4 pts	2	1	4	4	2	3
ADAPTABILITY sub score (Max 4 pts)		2	1	4	4	2	3
% Change				100%	300%	-50%	-25%
Peru MOH, Whole System Score		51	36	81	70	79	87
% Change				60%	98%	-3%	23%

Score Summary				
Baseline	Date	Name of Scorer	P Score	S Score
	15-May-1996	C. Gutierrez/L.Leon	42	38
	16-May-1996	David Papworth	62	46
	17-May-1996	Lucy Lopez	47	27
	07-Jun-1996	Nora Quesada	53	31
Period Average			51	36
Midterm	Date	Name of Scorer	P Score	S Score
	29-Apr-1999	E. De la Cruz	81	70
Final	Date	Name of Scorer	P Score	S Score
	22-Nov-1999	Ego Salazar	79	87

Appendix D.
Qualitative Responses from Quantitative
Interviews

Peru: Review and Lessons Learned

During the quantitative interviews with the intermediate family planning coordinators, the study team asked several qualitative questions. A summary of their answers to specific questions follows.

QUESTION:

What is MOH's role in maintaining contraceptive stock levels?

RESPONSE:

- Assuring contraceptive availability throughout the system.
- Analyzing contraceptive requests from SDPs.
- Authorizing the amount of contraceptives to be delivered to the intermediate level.
- Ensuring timely distribution of contraceptives.
- Monitoring contraceptive quality and use.
- Improving organizational structure and norms.

QUESTION:

What is PRISMA's role in maintaining contraceptive stock levels?

RESPONSE:

- PRISMA is a distribution mechanism charged with coordinating MOH's central-level contraceptive logistics.
- PRISMA monitors supplies continuously and conducts frequent supervision of supply status and recording of information at all levels, ensuring contraceptive availability.
- PRISMA provides central storage, trains staff, analyzes data or verifies MOH's analysis, and repackages products for shipment.

QUESTION:

Did you experience problems with contraceptive supply at the intermediate level?

RESPONSE:

- Have not had supply problems at the intermediate level (the vast majority).
- Few problems in earlier years, but not currently.
- Lead time had increased to 40 days, provoking a 1-week stockout (one case only).

QUESTION:

How have the roles of the MOH and PRISMA changed?

RESPONSE:

- The system has improved and is more efficient.
- Did not experience stockouts or overstocking.
- Distribution is managed better now.
- Orders are based on technical criteria, not "improvised."
- Training has increased.
- The reporting system, treatment of staff, and communications all have improved.

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