Assessment of the Ghana Ministry of Health Contraceptive Logistics System

August 29–September 17, 1999

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FPLM

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Acronyms

AMC	average monthly consumption
CA	Cooperating Agency
CBD	community-based distributor
CIDA	Canadian International Development Agency
CMS	Central Medical Stores
DANIDA	Danish International Development Agency
DfID	Department for International Development
DHS	Demographic Health Survey
DOS	desktop operating system
FEFO	First Expiry, First Out
FP	Family Planning
FPLM	Family Planning Logistics Management
GDP	gross national product
GNDP	Ghana National Drugs Programme
GSMF	Ghana Social Marketing Foundation
HIV/STI	Human Immunodeficiency Virus/Sexually Transmitted Infections
HMIS	Health Management Information System
IPPF	International Planned Parenthood Foundation
IUD	intrauterine device
IUD, CuT	intrauterine device Copper T
JSI	John Snow, Inc.
LMIS	logistics management information system
MCH	Maternal Child Health
MCH/FP	Maternal, Child Health, and Family Planning
M&E	monitoring and evaluation
MIS	management information system
MOH	Ministry of Health
NDF	Nordic Development Fund
NGO	nongovernmental organization
PHNO	Public Health Nursing Officer
PNO PH	Principle Nursing Officer, Public Health
PPAG	Planned Parenthood Association of Ghana
PVO	private voluntarily organization
RMS	Regional Medical Stores
SDP	service delivery point
TA	technical assistance
UK	United Kingdom
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
VFT	vaginal foaming tablet
WFP	World Food Programme
WHO	World Health Organization

Executive Summary

Fertility rates have dramatically declined during the past decade, from six births in the mid-1980s to 4.5 births per woman during the past five years, according to the Ghana, 1998 Demographic Health Survey. While knowledge of family planning continues to be high among both men and women, women in rural areas are likely to have twice as many children as those in the urban areas. Access to basic health service is a major constraints faced by at least 40 percent of the Ghanaian population. In addition, the Ministry of Health (MOH) continues to struggle with increasing demand for health services and dwindling resources to manage them.

A joint tripartite team of MOH, USAID/Ghana, and John Snow, Inc.'s Family Planning Logistics Management (JSI/FPLM) project conducted an assessment of the MOH contraceptive logistics system from August 29–September 17, 1999, because 48 percent of the women obtain their contraceptive supplies from the MOH. The team used qualitative and quantitative methods for data collection to assess the in-country supply chain.

The assessment was conducted to better understand the status of the flow of commodities (especially to the rural areas), measure the overall performance of the MOH logistics system, and provide recommendations to make the system more effective.

The assessment results showed that the contraceptive logistics system is operational. A wide range of modern contraceptives is reaching the clients through the MOH distribution system, even in the most inaccessible and rural areas. Logistics data is collected throughout the system and reported to the national level. The family planning program has achieved a 100 percent reporting rate, enabling them to accurately forecast contraceptive requirements for the coming years. The system currently has an adequate supply of contraceptives; however, a future shortfall may occur if additional funds are not committed to the procurement of contraceptive supplies.

Inadequate storage conditions of contraceptive supplies were found at all levels—from the central level down to the service delivery point (SDP). In addition, the central medical stores was not always told when to expect deliveries, increasing their operating costs, decreasing their efficiency, and slowing their response time.

Many of the staff in the system have received basic training in storekeeping; however, the training did not include management and storage of health commodities, especially drugs. This is further exacerbated by the fact that there are no established standard operating procedures. A consequence of this was seen in the stock imbalances found throughout the system and the lack of an inventory control system.

Several factors may be contributing to the lack of access to family planning programs and they may need to be monitored nationally. Many of the health workers interviewed reported that the

recent price increase has had detrimental effects on the demand for contraceptives. The team also found that a client could not be given a consistent quantity of contraceptive in a given visit, as none of the health workers was aware of a national dispensing policy.

Recommendations

General Recommendations for All Levels

Procurement

To ensure to adequate supply, MOH should assess their needs and consider requesting appropriate funding for contraceptives from the Department for International Development (DfID) (see recommendation 2).

Warehousing

- Training on good warehouse/storekeeping practices needs to be given for the central level storekeepers. This would include space utilization and storage (see recommendations 3, 14, 23, and 28).

- A bulletin (with logistics/handling information essential to the efficacy of the products) should be issued on a regular basis and distributed throughout the MOH system (see recommendation 22).

Distribution

- The process for obtaining products from the next higher level of the distribution chain should be streamlined (see recommendations 17 and 24).

- An analysis of the transport system should be made so that the available resources can be utilized at their optimum level, thus improving scheduling and deliveries (see recommendation 5).

Inventory Management

- Physical inventory should be undertaken on a regular basis and the results entered onto the stock tally cards (see recommendations 8, 20, 26 and 31).

- A review of the max and min levels should take place and all those involved in the management of health commodities should be trained in inventory control methodology (see recommendations 9, 19, 27, and 29).

- Standard operating procedures should be established for all the facilities at all levels within the MOH and a procedures manual produced (see recommendation 12).

- All stocks of Neo-Sampoon about to expire should be recalled from the district and SDP levels as soon as possible and returned to the regional level for destruction (see recommendation 15).

- Stock tally cards should be kept next to the products and utilized as a cross-checking tool with the ledgers (see recommendations 18 and 25).

LMIS

- The reporting forms should be reviewed and revised to include the correct formula on each form (see recommendations 21 and 30).

- At least one contraceptive, e.g., Depo-Provera®, should be placed on the tracer drug list for all levels and facilities of the system (see recommendation 13).

Human Resources

- Pharmacists need to be made aware of the importance of contraceptive products and how they should be handled (see recommendation 6).

Specific Recommendation for a Level

Central Level

- Communication between UNFPA, MCH/FP and CMS should be improved so that all parties are aware of the timing and quantities of contraceptive delivery (see recommendation 1).

- Expert advice should be sought to address the issue of excessive heat that can damage the products, for example, roofing, ventilation, and others (see recommendation 4).

- Tally cards should be kept up to date (see recommendation 7).

- Introducing Logistics 2000 software to the MOH. should be considered (see recommendation 10).

- Central level MOH staff should provide feedback to the regions and districts on key indicators (stockouts, stocked according to plan, and others) using the data they receive (see recommendation 11).

- The impact of the price increase on contraceptive use needs to be monitored. Effects on the contraceptive prevalence rate should be reviewed for a period of six to nine months (see recommendation 32).

- The MOH should ensure that a national dispensing policy exists for contraceptives in order to improve accessibility and reduce service delivery costs (see recommendation 33).

Regional Level

- Without compromising security, warehouses must be accessible during normal working hours. Contingency plans need to be made when the senior pharmacist at the regional level is away from the regional warehouse for any period of time (see recommendation 16).

Background

Ghana, situated in West Africa, shares boundaries on the west with Cote d'Ivoire, on the north with Burkina Faso, and on the east with Togo. Although the country experienced substantial political and economic progress during the 1990s, Ghana, like many developing countries, has been plagued with falling gross domestic product (GDP), rapid population growth, soaring inflation, and widespread poverty. Ghana's population, estimated at 18.9 million, is growing at a projected 2.9 percent per annum.[1] According to the World Bank, 31 percent of the Ghanaian people live in poverty. Their current health status remains poor; more than 40 percent of the population does not have access to basic services. In addition, the burden placed upon the government has increased with new health issues, such as AIDS and chronic diseases, coupled with dwindling resources.

Since 1988, the MOH has undertaken extensive reforms to improve access to services, efficiently use resources, ensure quality of care, and strengthen inter-sectoral collaboration. The thrust of the reforms is to search for a new, better and more cost-effective way of addressing health care service provision within the constraints of limited resources .[2]

Prior to the health reforms, the Ghana health system was organized into fourteen vertical programs, each with separate management structures and staff. To streamline its structure, the MOH defined its overall long-term vision in its document, "Medium Term Health Strategy towards 2020" (1995). An action plan to implement this strategy is detailed in a five-year Programme of Work. Goals, objectives, and quantifiable targets are set within realistic resource availability and agreed upon between government and its cooperating partners.

One of the key priority public health activities within the health sector five-year "Programme of Work 1997–2001" is to increase the use of effective family planning methods. In response, USAID health program works in conjunction with the MOH, nongovernmental organizations (NGO), private voluntary organization (PVO), Cooperating Agencies, and other donors to promote policy reform, facilitate the flow of family planning commodities, and strengthen the role of private sector in the provision of family planning services.

This concerted multi-faceted approach has had some success. Recent 1998 Ghana DHS preliminary data indicated that fertility declined dramatically during the past decade from more than six births in the mid-1980s, to 4.5 births per woman during the past five years. Information about family planning methods also continues to be high among both men and women. However,

[1] IPPF Country Profile: Ghana (www.ippf.org/regions/countries/gha/index.htm)
[2] Gyapong J. Organizational restructuring in the Ministry of Health, Ghana: Changes in Management and Quality of Care. (www.insp.mx/ichsri/africa6.html)

based on the current fertility levels, women in rural areas will have approximately twice as many children (5.4) as those in urban areas (3.0).[3]

Since 1993, FPLM has provided technical support to MOH, Planned Parenthood of Ghana (PPAG), and Ghana Social Marketing Foundation (GSMF) to facilitate the flow of family planning commodities. The joint MOH, USAID, JSI/FPLM assessment was conducted to better understand the status of the flow of commodities (especially to rural areas) and to measure the overall performance of the MOH system.

Objectives

The two main objectives for the assessment are—

- To assess the status and function of each of the logistics-based activities at all levels of the MOH Ghana supply chain for donated contraceptives.

- To gather selected logistics indicators for donated contraceptives at all levels of the MOH.

Strategic Framework

The assessment was a joint collaboration between the MOH, USAID, and JSI/FPLM.
A basic in-country supply chain map and the logistics cycle framework were used to ensure a complete and systematic review of the logistics system. By using both frameworks, the team assessed all logistics-based activities, at all levels of the supply chain, from central level to the clinic.

In addition, commodities to improve efficiency and reduce cost, the assessment also considered the objectives of the health sector reforms to integrate the logistics systems for all public health. While the assessment focused on gathering data on the contraceptive logistics system, currently managed as a vertical program, the team also collected data, whenever time permitted, on the logistics system for essential drugs, other non-drug consumables, and vaccines.

This report describes, in depth, the structure of the system, mode of operation, relationship between the different divisions and levels, and potential impact of integrating the contraceptive products with other health supplies.

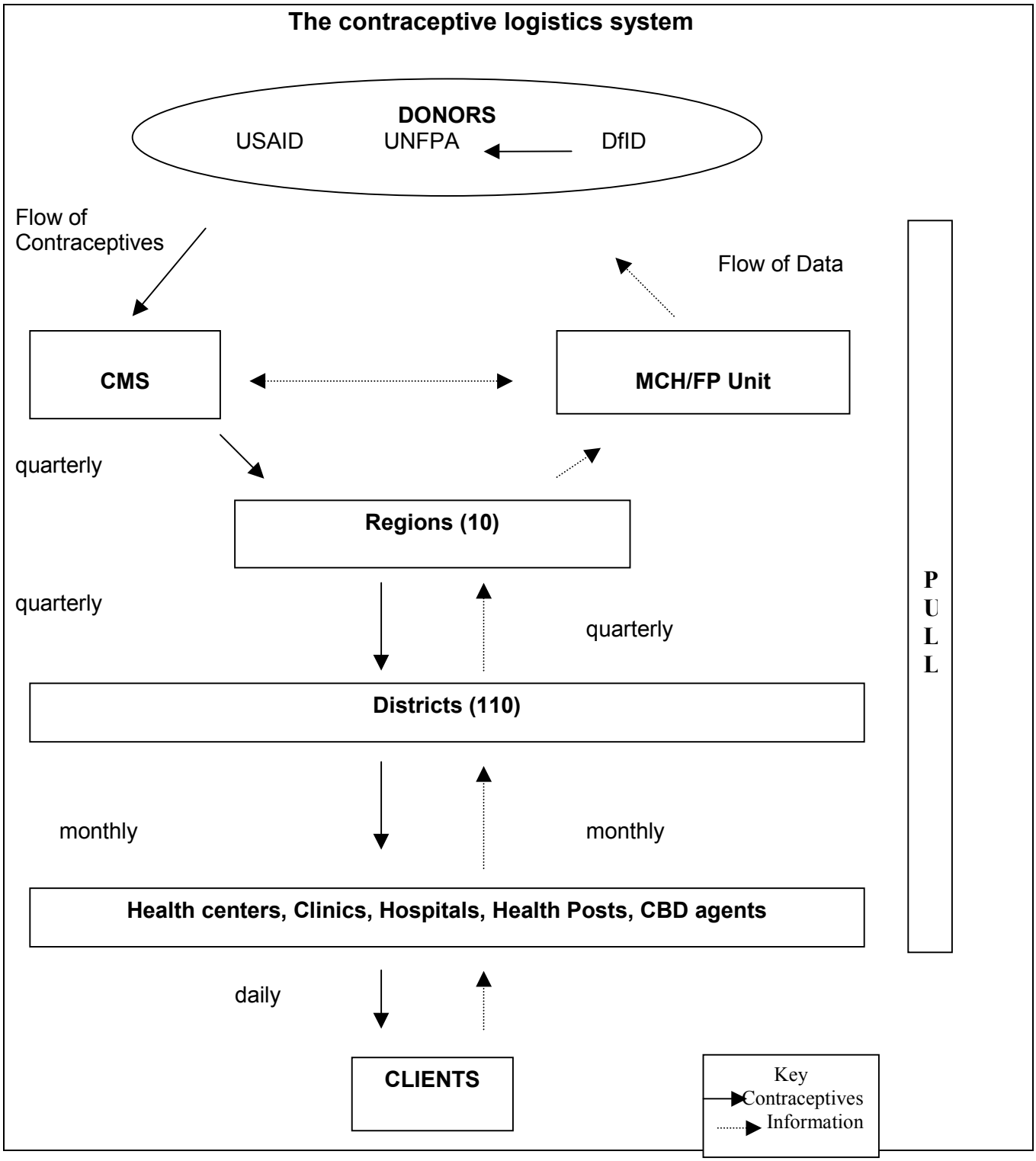
[3] Ghana Demographic and Health Survey, 1998. Preliminary Report. Ghana Statistical Service and MEASURE/DHS, May 1999.

In-Country Supply Chain Map of the Contraceptive Logistics System

At present, the three major programs distribute almost all contraceptives: MOH Maternal and Child Health/Family Planning (MCH/FP) Unit, GSMF, and the PPAG. This assessment focuses on the MOH contraceptive logistics system.

At the central level, with 10 regions and 110 districts, MCH/FP commodities are stored separately at the central medical stores (CMS). MOH services are provided through a network of more than 900 SDPs, including hospitals, clinics, health posts, and villages served through outreach activities. The following diagram outlines the MOH contraceptive logistics system. The team assessed each level of the system.

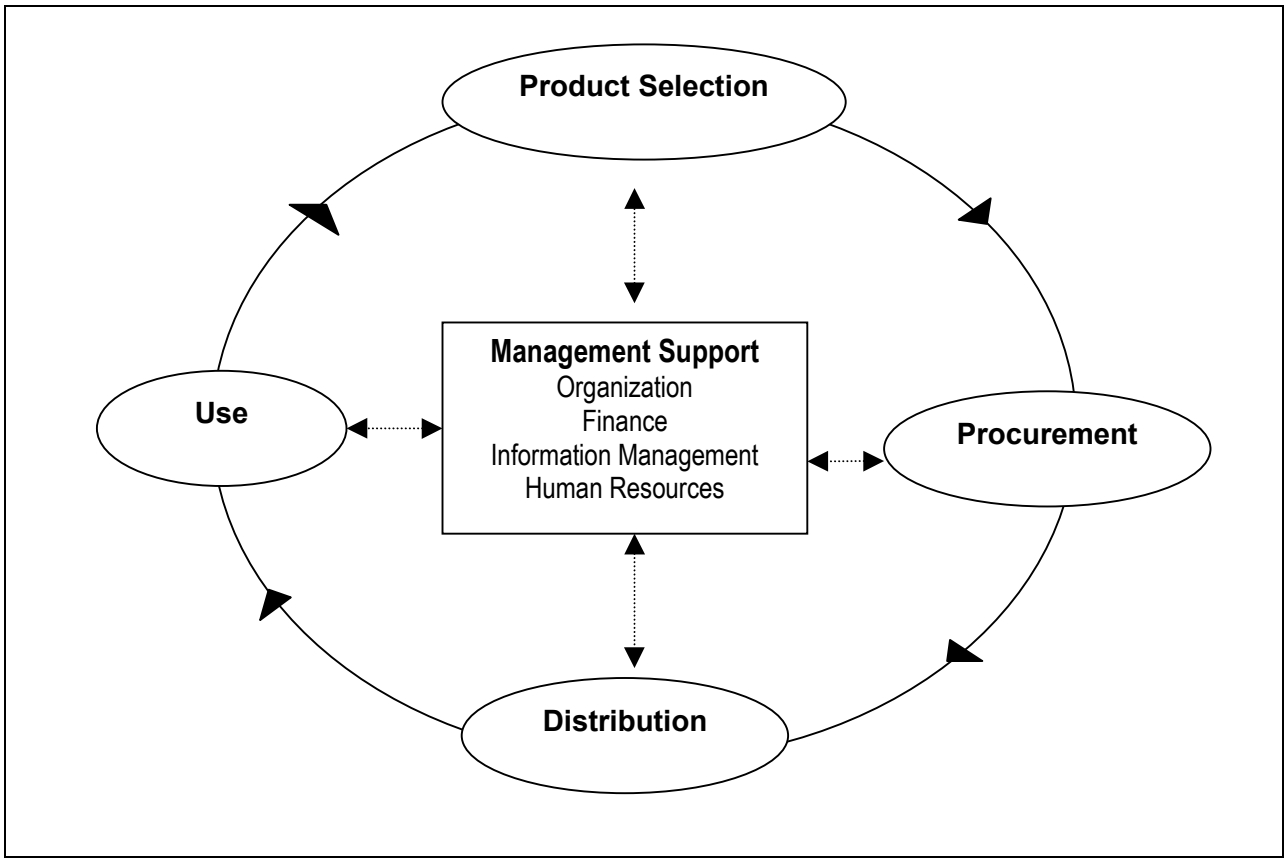
Figure 1.
In-Country Contraceptive Supply Chain



The Logistics Cycle

To ensure that all the logistics-based activities were systematically reviewed at all levels of the supply chain, the assessment was conducted for each of the activities identified in the logistics cycle.

Figure 2.
The Logistics Cycle



The report is written for each logistics activity, at each level of the system. In addition, the report describes the logistics system for essential drugs and vaccines where data was available and feasible to collect.

Methodology

The FPLM evaluation team developed draft instruments prior to arriving in Ghana. The instruments comprised separate questionnaires for the central, regional, district, and SDP levels, as well as a qualitative guide for key informant interviews. The instruments were revised during the first week in Ghana, prior to commencing work in Greater Accra, and were revised again after carrying out the interviews in Greater Accra and before leaving for the field.

For the initial work in Greater Accra, there were three teams of two (one FPLM, one MOH–MCH/FP). For the field work in other regions, there were three teams of three people, one each from the MOH MCH/FP unit, USAID/Ghana, and FPLM. All parties contributed to the gathering of the data and analysis of the information; the preparation of the final report was undertaken by FPLM. A final schedule appears in appendix 2.

The following quantitative indicators were calculated:

- stocked according to plan
- stockout rate
- wastage rate
- percentage of staff trained in logistics
- percentage of accurate reports
- percentage of warehouses/stores meeting acceptable standards
- reporting timeliness
- fill rates of deliveries against orders
- forecasting accuracy

Study Sites

With the help of USAID/Ghana and in collaboration with the MOH, sample sites were chosen to reflect the following: most and least accessible logistically; rural/urban mix; geographic region (northern savanna, middle forest, southern coast); and contraceptive prevalence (high, medium and low). The study was implemented in seven regions of Ghana: Greater Accra, Northern, Upper East, East, Volta, Ashanti, and Brong Ahafo.

Sample Size

The sample size included the central level; 7 out of 10 regions; 7 out of 110 districts; and 21 out of 900+ health clinics. Even though the sample was purposive and not necessarily statistically representative, it included all the different types of logistics systems that are operational in the country. While the regions were determined at the central level using the earlier criteria, the districts and SDPs were selected in the regions with the assistance of the Regional Administration Office. While accessibility was one of the key factors in determining which districts and clinics were visited, the teams tried to apply the same criteria applied when selecting regions, to ensure that the sample was as representative as possible.

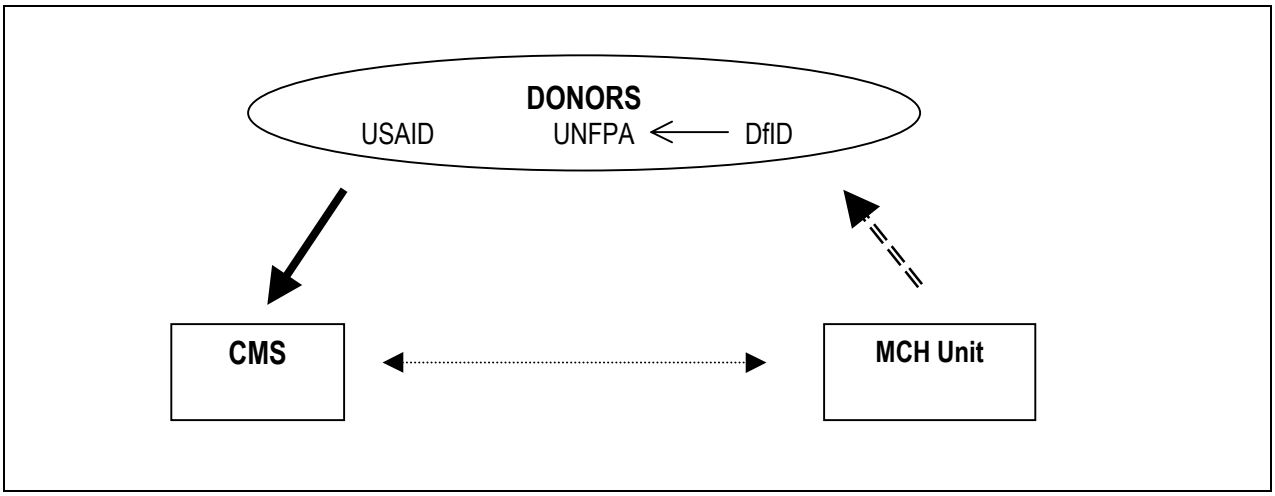
Table 1. Sample Size for the Assessment

Sample Size				
Regions	**Central Medical Stores**	**Regional Medical Stores**	**Districts**	**Service Delivery Points**
Tema	1			
Upper East		1	1	2
Northern		1	1	2
Ashanti		1	1	1
Brong-Ahafo		1	1	2
Volta		1	3	7
Eastern		0	0	2
Greater Accra		1	0	5
Total	1	6	7	21

Findings

The Central Level

Figure 3.
Central-Level Supply Chain



Product Selection and Procurement

Procurement

The MOH has established a Procurement Unit, responsible for the procurement of essential drugs, consumables, and medical equipment for the country. The Director of Stores, Supply and Drugs Management currently oversees this unit. The procurement unit's responsibilities include forecasting quantities required, determining the procurement method, developing and tendering bids, and awarding contracts. While the MOH does not currently procure contraceptives, it is envisioned that the government will eventually be responsible for the procurement of all health commodities needed by the MOH, including contraceptives.

Currently the MCH/FP unit manages the product selection and assists in the process of procuring contraceptives. To ensure a successful procurement, the MCH/FP unit forecasts the contraceptive requirements for the country on an annual basis using dispensed-to-user data. The unit directly negotiates with the donors. The unit also regularly monitors the status of the proposed shipments using the PipeLine software package developed by FPLM.

Port Clearance

Port clearance can be a cumbersome process, and some of the donors providing commodities to the MOH hire professional clearing agents to expedite the procedures. In addition, port clearance procedures vary based on whose procurement it is. The table below outlines the donors and the clearing agent they use to clear the commodities from port.

Table 2: Funders and Clearing Agents

Funder	Type of Products	Clearing Agent
MOH	Essential drugs	Ghana Supply Commission
UNICEF	Vaccines, ORS, other MCH supplies	UNICEF
DFID	Essential drugs	Crown Agents
UNFPA	Contraceptives	Secure Packing Ltd.
USAID	Contraceptives	Panalpina

The MOH procures most of the drugs and also receives small donations of supplies from associations, such as Ghanaians based overseas. For these supplies, the Ghana Supply Commission is responsible for the port clearance. The process is burdensome and can take up to a month. One hindering factors faced during clearance is the inability of the MOH to make timely payment of duty. It is possible to get an exemption not to pay the custom duty by sending a letter to the Ministry of Social Welfare to support the exemption. This letter must then be taken to the Ministry of Finance and approved and then forwarded to the Commissioner of Customs for final approval. The process takes time and delays clearance. In the meantime, the MOH may need to pay additional port charges for the time the products were sitting in the port.

UNICEF starts the clearance process as soon as they receive confirmation that the supplies are ordered. They process their clearance through Ministry of Foreign Affairs as they have a diplomatic clearance agreement with Government of Ghana. This process is less cumbersome than the one used by the MOH.

Professional clearing agents, such as Crown Agents and Panalpina, are used by other donors to ensure that the supplies will be cleared and available for use in a timely manner.

Quality Assurance Tests

The Ghana Standards Boards and the Food and Drug Board are the two governmental bodies charged with quality assurance in Ghana. For products entering the country, the process may take from two weeks to a month. None of the products are or can be released for use until the results of quality tests are received. Currently, testing for contraceptives and products provided by the World Health Organization (WHO) is not required. Quality testing is rarely conducted after the products are in the pipeline as most of the essential drugs used for clinical management do not remain on the shelf for long.

Donors

Two donors, USAID and United Nations Population Fund (UNFPA), meet the current contraceptive supply needs for Ghana. In 1996–1998, at the request of the MOH, DfID provided two grants to UNFPA to procure contraceptive commodities. The funding ended in 1999. If additional grants from DfID or other donors are not galvanized, UNFPA may not be able to continue to procure contraceptives at the current level.

UNFPA support to Ghana for a five-year period of 1995–1999 is $25 million including the two grants by DfID. The funding supports the following programs:

Table 3. UNFPA Five-Year Program Support

Program	Financial Amount
Reproductive health (MOH and PPAG)	17.5 million
Contraceptive procurement	4.0 million
Vehicles	0.5 million
Training	3.0 million

UNFPA is the third largest donor of vehicles after DfID and Danish International Development Agency (DANIDA). In the five-year program, UNFPA provided a pick-up truck to every region to assist in the supervision of the reproductive health program. It also bought a hundred Yamaha motorbikes for the health centers and twenty-four rickshaws as a trial for three regions, including the Upper East region.

UNFPA provided 12 air conditioners to the MOH. Unfortunately, since the donor did not identify where these air conditioners were to be used, they have been installed in offices or are still at the CMS awaiting distribution instructions. This is an opportunity for the air conditioners to be installed at the CMS or Regional Medical Stores (RMS) to ensure that the contraceptives (condoms in particular) are stored in an appropriate temperature range.

UNFPA provides contraceptives to PPAG and MOH. UNFPA uses a private company, Secure Packing Ltd., to clear its contraceptive supplies. The contraceptives are often delivered to the CMS without advance notice. The MCH/FP unit, the recipient of the supplies, is normally notified after the commodities are delivered to CMS. Because they are not notified, CMS does not prepare a space for receiving and storing the supplies, plan an adequate budget to hire daily laborers for off-loading, or re-assign tasks so that other clients collecting their supplies are not delayed. Unexpected deliveries of UNFPA supplies increase costs for the CMS, decrease efficiency, and slow response time. It is difficult for the CMS to run viable business because it cannot plan (caused by a lack of information). Efforts should be made by the MCH/FP unit to improve the tripartite communication among the partners: UNFPA, CMS, and MCH/FP unit. The MCH/FP also need to understand the UNFPA procurement process better. Last, as a temporary measure, MCH/FP unit could print a copy of the report of planned shipments for the year from the PipeLine database and provide the report to the CMS. As a minimum, this information will inform CMS about the number of shipments they should expect during the year.

Recommendation 1: Communication between UNFPA, MCH/FP and CMS should be improved so that all parties are aware of the timing and quantities of the contraceptive deliveries.

USAID total support to the Ghana Population and AIDS program for the five years 1995–1999 was approximately $69 million.

Table 4. USAID Five-Year Program Support

Program	Amount in U.S. Dollars
Non-project assistance for Family Planning and HIV/AIDS/STDs	14,000,000
Family planning	47,721,000
AIDS/STD	4,632,000
Monitoring, evaluation, and program support	1,629,000
Total	69,332,000

A total of $8.2 million was spent on the procurement of contraceptives from 1995–1999. USAID provides contraceptives to PPAG, GSMF, and the MOH. The contraceptives are cleared by the local clearing agent, Panalpina, and delivered directly to CMS and GSMF (sometimes to PPAG). Since last year, a system has been set up to provide shipping information to CMS, giving prior notice when the products are expected to arrive in the country. This change in procedure has dramatically improved CMS' ability to plan and respond when the supplies are delivered.

DfID's support to the MOH is negotiated as part of the health sector five-year program of work (1997–2001). Within this context, DfID currently puts one-quarter of its funds in the common basket, and uses the remaining funds to support earmarked programs, such as the procurement of essential drugs and support to set-up of the procurement unit. DfID uses Crown Agents to assist in the procurement and clearance of essential drugs. In addition, as part of the contract with Crown Agents, some funds are set aside for logistics. Crown Agents have also provided logistics training to the central level.

DfID is not a major direct donor in family planning. At the request of MOH, however, it did provide two grants to UNFPA, in 1995–1997 and 1996–1998, to procure contraceptives. DfID faced some constraints with this arrangement: missing or delayed forecasts, unaware, which type, of contraceptives were procured, and where the contraceptives were distributed. DfID does not plan to provide additional grants to UNFPA without a request from the MOH.

Recommendation 2: To ensure adequate supply, MOH should assess their needs and consider requesting appropriate funding for contraceptives from DfID.

World Bank loans are not used to procure contraceptives. However, the loans are used to provide a budget to the regions and districts. The funds may be used to cover some of the local costs to support family planning activities.

For products other than contraceptives, donors providing support to the MOH include DANIDA, the Dutch Government, CIDA, the Nordic Development Fund, UNICEF, WFP, and WHO.

Distribution

Ordering

Essential drugs and medical supplies are operated as cash and carry systems or credit and carry systems, depending funding situation. Therefore, it is automatically a pull system because regions determine the order quantity based on need and available capital. The priority clients for the CMS are the RMS. However, CMS also sells to private hospitals and clinics. Occasionally it has special clearance sales for slow moving items.

Contraceptive Products

Contraceptives are also managed on a pull system, but the supplies are free of charge to the MOH-supported programs. The team found that the central level usually cross-checked the requests coming from the regions, and changed the records if the figures did not match with the central-level records. However, opportunity was not taken to educate the regional staff as to why a change to the request was made. In many cases, the transfer of knowledge may not be possible, because with the integration of contraceptive products with the essential drugs, the nurse responsible for MCH/FP at the regional level may no longer bring the order request to the MCH/FP unit at the central level. But, at the present time, and in many cases, the regions bring the form half-completed and allow the national level to determine the order quantity, making the system more push than pull for some of the regions.

While contraceptives are donated to the MOH, they are sold to the clients as part of the cost recovery plan. The revenues generated are sent up to the central level using the following criteria:

1. The SDP center retains 50 percent of the revenue and sends up 50 percent.
2. The district retains 10 percent of the total.
3. The region retains 10 percent of the total.
4. The central level keeps 30 percent of the total.

For example, the cost to the client for Depo-Provera is Cedi (Cd) 1000[4]. In this case, the SDP keeps Cd 500, the district keeps Cd 100, the region keeps Cd 100, and the central level receives Cd 300. The funds are incorporated into the general budget of the institution and can be used for any program or activity. These typically include paying for in-service training costs, transportation, and purchase of detergent and other cleaning supplies.

[4] 1 $U.S. = 2600cd

Storage

Most medical supplies, equipment, and consumables are stored at the CMS, based in Tema, approximately 22 miles from Accra. Vaccines and HIV/STI supplies are the exception; they are stored in Accra and are managed by the National Diseases Surveillance unit.

CMS receives an annual operational budget from the MOH, based on estimates provided by the CMS. Although the CMS does not receive 100 percent of the request, the funding has improved since 1998?. In addition, WFP and UNICEF contribute an operational budget to the CMS to cover some of the costs of management and storage of their commodities. Neither USAID nor UNFPA contribute any operational funds to CMS for the storage and management of contraceptive supplies.

Contraceptive Products

The CMS is a huge compound close to the seaport. There are several smaller warehouses within the compound where different types of supplies and equipment are stored. Most of the contraceptives are stored in one of the smaller stores, known as the UNICEF store. The storage space has three levels of built-in stacking racks. In addition, all the condoms are stored outside under a roofed platform.

The storage conditions were found to be poor. The storage space was very dusty and lacked overall organization. It was reported that the temperatures could get very high, especially in January and February. Built-in cross vents provide little relief.

The products were stored on shelves by donor. If both USAID and UNFPA provided the same product, for example, Depo-Provera, it would be stored in two different places. This system creates more work for the staff and makes it difficult to manage the product according FEFO. In following up with the donors who provide contraceptives, they were not concerned if the products were stored together. Overall, it was difficult to determine whether there was a lack of storage space in the warehouse or poor space utilization.

Recommendation 3: Training on good warehouse/storekeeping practices needs to be given for the central level storekeepers. This would include space utilization and storage.

Recommendation 4: Expert advice should be sought to address the issue of excessive heat that can damage the products (roofing, ventilation, and others).

Materials Handling Equipment

A limited number of materials handling equipment are available at the CMS, including three motorized forklifts and some manual forklifts. Most of the handling is done manually. Two staff in the MCH/FP store assist the storekeeper with the throughput activities (picking, storing, and receiving of commodities).

Transportation

Most regions collect supplies and equipment for their programs at the CMS. However, regions may ask CMS to deliver their supplies when the items are too bulky or when the region has no transportation. Currently, CMS regularly delivers to two regions. There is no charge for this service but the regions are expected to provide fuel for the vehicles and per diem for the drivers. Lack of appropriate transportation is one of the major constraints at the CMS. They currently have four 7-ton trucks (all are nine years old), one articulated Leyland truck, and four small pick-ups. To deliver all the supplies to a region for the quarter, the trucks may have to make two trips.

Recommendation 5: An analysis of the transport system should be made so that the available resources can be utilized at their optimum level, thus improving scheduling and deliveries.

Supplies are scheduled for pick up once every quarter. However, with the cash and carry system, regions collect supplies whenever they need them. Until recently, the individual vertical programs were each responsible for collecting their own supplies. Now, many regions are integrating the transport and storage of contraceptives with the essential drugs. This implies that the senior pharmacist is responsible for the collection of all the supplies for all the programs, including MCH/FP. If the delivery vehicle runs out of space, the pharmacist will usually determine the items to be left behind. There was anecdotal evidence reported by the FP nurses that sometimes the contraceptives are left behind. The assessment team found that some of the pharmacists were not adequately familiar with contraceptive commodities, and they were not aware of the role of contraceptives in maternal and family health. The pharmacists need information about the impact of family planning programs on the health of the family and the achievement of the overall MOH five-year program of work.

Recommendation 6: Pharmacists need to be made aware of the importance of contraceptive products and how they should be handled.

Management

Inventory Control and Management

The inventory of essential drugs and consumables is computerized at the CMS, using a database written by local staff in Clarion. This customized program has recently been upgraded to a "Windows" environment from a DOS-based system. The system is currently networked so that the accounting unit and warehouse managers have access to the same data. The computer system is used throughout the transaction to keep inventory up-to-date at all times. The system currently allows only people trained in using the software to initiate the transaction. The request is entered into the computer, the inventory is checked to see which supplies are available, and the supplies are picked according to the principle of First In, First Out. Requested items are removed from the inventory. The computer prints the invoice that the accounting department uses to collect the payment and the order is ready for pickup. CMS estimates that for the year 1999, for drugs, they have achieved an order fill rate of about 80 percent.

With the use of the database, CMS is able to check the stock status of all the items at any time. However, the system has not been validated. One expert who analyzed the system in 1998 found that it did not meet some major requirements and will need to be replaced in the future.[5]

Contraceptive Products

CMS computer programmers are currently working to automate and incorporate the contraceptive inventory into the database. This will probably improve the tracking of the contraceptive products as this task is currently done manually. Tally cards (stock cards) and requisition and issue vouchers are used to document the movement of the contraceptive stock; however the records are not updated after each transaction.

Recommendation 7: Tally cards should be kept up to date.

In addition, parts of the contraceptive inventory are currently being managed at two different places. The orders are processed at the MCH/FP unit based in Accra, while the supplies are kept at the CMS in Tema. Communication and data information flow between the MCH/FP unit and the CMS was found to be weak. The storekeeper responsible for contraceptives basically serves as a keeper of the supplies and plays a very small role in the management of the inventory. Because of this set-up, the storekeeper has little incentive to keep current records, or does she see the importance of doing so, as she rarely uses the data to manage the supplies in her store.

Although physical inventories are carried out on a regular basis, the results are not recorded on the stock tally cards.

Recommendation 8: Physical inventory should be undertaken on a regular basis and the results entered onto the stock tally cards.

Maximum and minimum levels of stock have been established for essential drugs and contraceptives. However, it was found that the concept is not used to manage the family planning inventory. See table 5 for the max and min levels of the in-country pipeline.

Table 5. Established Max and Min Levels

Supplies		Maximum	Minimum
Essential drugs	**Total for country**	**15**	**3**
Contraceptives	Central	9	6
	Regional	5	3
	District	4	2
	SDP	3	1
	Total for Country	**21**	**9**

[5] MOH. Health Sector 5 year Programme of Work 1997–2001. Joint MOH–Health Partners 1998 review. MOH, Accra. April 1999. p. 144.

Recommendation 9: A review of the max and min should take place and all those involved in the management of health commodities should be trained in inventory control methodology.

LMIS

The automated Clarion system, which manages essential drugs and other consumables, generates several reports that are used to monitor the system and disseminate information. A situation report is printed every two weeks and sent to the Director of Stores, Supply and Drugs Management, and the Chief Pharmacist. The report lists the current stock level and the projected need of all the drugs in the automated system. A Stock Bulletin is also distributed monthly to the regional directors. This report, listing the drugs currently in stock at the CMS and their prices, help regional directors plan the purchase of unavailable products from the private market.

Because CMS cannot provide 100 percent of demand, forecasts for essential drugs and non-drug consumables are made using issues data from the CMS and an estimated actual need of the regions.

Contraceptive Products

The current LMIS for contraceptives is set up so that all SDPs report to the district every month. The districts then aggregate the data and forward it to the regional level every quarter. The regions also aggregate all the data received from all the districts and send it to the central level every quarter. At times, there is a delay of three to six months in the reporting cycle, because clinics cannot always report on time and it takes time to compile the aggregate reports.

At the MCH/FP unit, the logistics consultant developed an Excel spreadsheet to input all of the dispensed to user data received from the regional levels (every quarter). The spreadsheet has enabled the MCH/FP unit at the central level to manage all the received data. However, because the cells in the spreadsheet are not locked, another user could overwrite the data or copy the wrong formulas. The Logistics 2000 program developed by FPLM could help manage the logistics information. The central HMIS does not plan to consolidate or eliminate any of the vertical reporting mechanisms. Therefore, the introduction of Logistics 2000 software would be beneficial to the MCH/FP program. It would be necessary, however, to ensure that back up support was available in-country for Microsoft Access program.

Recommendation 10: Introducing Logistics 2000 software to the MOH should be considered.

The aggregate data for the entire MOH family planning program is transferred to the PipeLine program every quarter and the procurement plans are reviewed. However, due to the delay in reporting, the information is not reviewed every quarter and some of the donors have been frustrated with the lack of timely data to assist them in making their funding commitments.

Currently, no system provides feedback to the regions on how well they are performing on key indicators, such as stocked according to plan or stockout rates. The staff at the central MCH/FP unit usually cross check the data reported in the quarterly report, however, they need a systematic approach to follow to ensure that they provide feedback on their findings on the

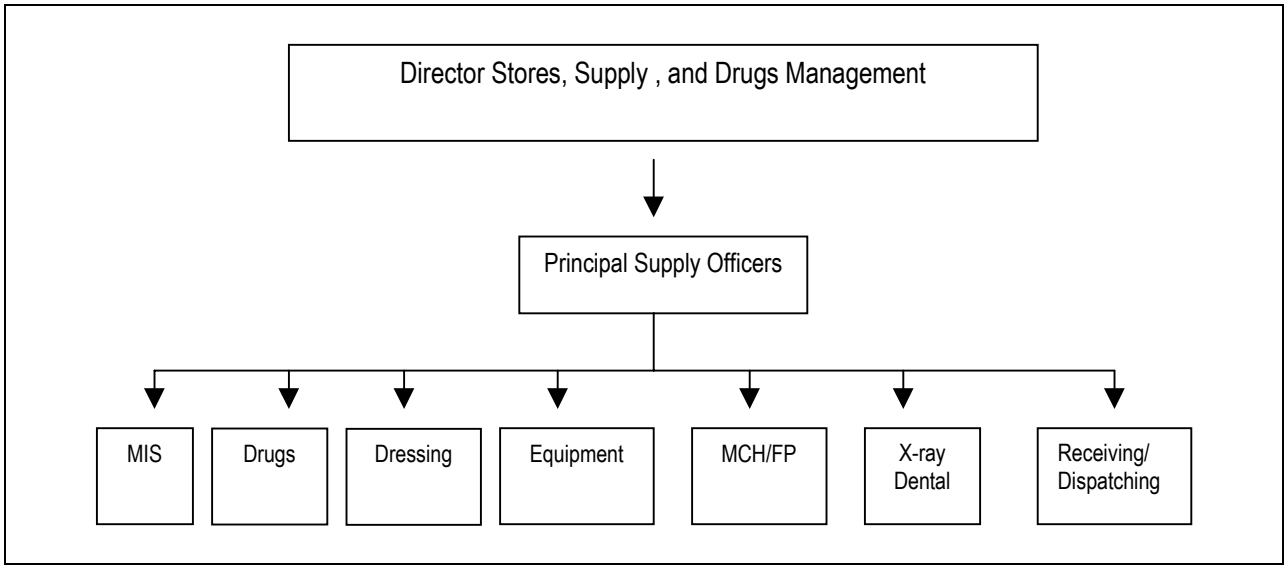
quality of the data. The MCH/FP unit should use existing mechanisms, such as the Principal Nursing Officer's conference, supervisory visits, and others, to disseminate the information.

Recommendation 11: Central level MOH staff should provide feedback to the regions and districts on key indicators (stockouts, stocked according to plan, etc.) using the data they receive.

Human Resources and Staff Development

The CMS and RMS in Ghana are usually managed by two groups of people, those who work for the Ministry of Finance and those who work for the MOH.

Figure 4.
Organizational Chart of the Central Medical Stores

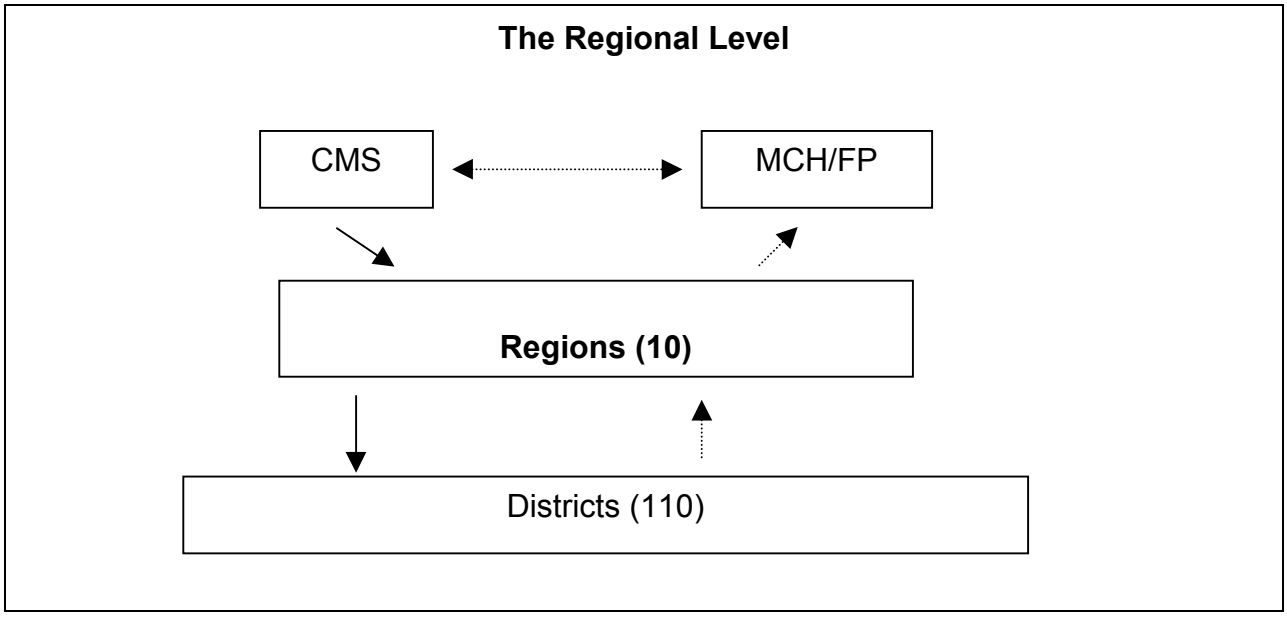


In most cases, the Principal Supply Officers and the storekeepers are employees of the Ministry of Finance, while the pharmacists and other technical people are employees of MOH. It is difficult to ensure accountability and proper management of the drugs with this type of organization.

All storekeepers receive a basic training in store keeping. However, most of the staff has not received any training in managing health supplies, especially drugs. Currently, no standard operating procedures are available to assist the staff do their job. The MOH is currently considering providing health logistics training to the staff who manage the CMS and RMS. A storekeeper and two assistants manage the MCH/FP store within the CMS.

Recommendation 12: Standard operating procedures should be established for all the facilities at all levels within the MOH and a procedures manual produced.

Figure 5.
Regional Level Supply Chain



Product Selection and Procurement

As part of the cash and carry system, all regions purchase the essential drugs and other consumables required in the region. The CMS is supposed to be the main source of supply, however, the regions also buy from the private sector, especially when the central level does not have the items needed. In the case of the Volta region, more than 50 percent of the essential drugs were bought from the private sector in 1998. Currently, all contraceptives are donated, not bought.

Throughout the system, there are lists of tracer drugs that the MOH uses to monitor how well the drug program is functioning. The drugs on the tracer list are normally based on the program priorities for that region. While provision and increase in the use of family planning has been identified as a priority at both the national and regional levels, at this time, the tracer drug list does not include any contraceptives.

Recommendation 13: At least one contraceptive, for example, Depo-Provera, should be placed on the tracer drug list for all levels and facilities of the system.

Distribution

Ordering

The essential drugs and medical supplies are a cash and carry system. The senior pharmacist is usually responsible for collecting most of the supplies from the central level, except vaccines and contraceptives. The regional family planning coordinator is usually responsible for collecting the contraceptives. However, in some of the regions visited, in line with the health sector reforms of integrating programs, this responsibility was being transferred to the senior pharmacist. Both the pharmacists and the regional family planning coordinators reported a mixed review of this procedural change. Some of the pharmacists complained that they did not know the products well and it increased their workload. Family planning coordinators were concerned that the contraceptives would receive a low priority and, therefore, the products would not be collected if the vehicle ran out of space. At the same time, family planning coordinators welcomed the reduction in their workload. This change in procedure may also affect the regular quarterly interaction between the national and regional family planning coordinators to review the program and to provide feedback on the reports, and others.

For essential drugs and other medical supplies, the regions determine the order quantity, and they go directly to the CMS to purchase them. For contraceptives, the distribution system is organized as a pull system with each level determining the supplies required for their level. In visiting the six regions, the assessment teams found that in half of the regions, the national level determined the contraceptive order quantities.

Unlike the distribution system for essential drugs, the contraceptive distribution system is organized to ensure that reports are taken to the central MCH/FP unit every quarter. The stock situation and the amount requested are cross checked with the central-level records kept by the MCH/FP unit in Accra. Once approved, the MCH/FP unit signs the requisition and issues voucher and the region can collect the supplies from the CMS.

Storage

The RMSs are large warehouses in each region operated by the MOH. In most cases, the RMSs are in the regional capitals, but there are three exceptions. In Upper East and Western Regions, the stores are just outside the capitals (a maximum of approximately 20 miles). In Brong Ahafo, the store is in Kintampo, which is quite far from the regional capital.

The RMSs are responsible for managing all the health commodities for the region, including motorcycles, drugs, consumables, and contraceptives. The exception is in Brong Ahafo, where the contraceptive products have been integrated in the Dispensary of the Regional Hospital in Sunyani, the regional capital, rather than in the regional stores at Kintampo. In all the regions, vaccines are stored in a separate location and are managed by the Department of Disease Surveillance.

The storage space was found to be adequate in all regional stores visited. The products were usually stored on shelves or pallets. Many of the stores did not have enough shelves and the products were stored against the wall. In most of the regions, the essential drugs were in a different storage room at the same location and were slightly better managed than the contraceptives. However, all the storekeepers responsible for the storage could benefit from training in warehouse storage and management, including improving the organization of products and space utilization.

Recommendation 14: Provide training on good warehouse/storekeeping practices for regional storekeepers, including space utilization and storage.

Warehouse temperature control is inadequate in most regional and central medical stores. Some of the regions visited had installed air conditioners in the section where the essential drugs were stored. With the exception of Ashanti region and the Brong Ahafo hospital dispensary, none of the regions visited had air conditioners where contraceptives were stored.

Most storekeepers stored and distributed the supplies according to FEFO. The expired products were kept separately from the non-expired supplies. In the Volta region, some of the contraceptives in the store had expired ten years before. The Senior Supply Officer showed the visiting team all the letters he had written to the regional administration requesting permission to discard the expired products. To date, he had not received any feedback or authorization to either destroy or dispose of the commodities. The expired products occupied approximately be 140 cubic feet of storage space. There was also a quantity of expired drugs and contraceptives in the Ashanti region. In addition, the team counted large quantities of Neo-Sampoon with expiry dates of September and October 1999. They should be classified as expired and recalled from all SDPs.

Recommendation 15: All stocks of Neo-Sampoon about to expire should be recalled from the district and SDP levels as soon as possible and returned to the regional level for immediate destruction.

Overall security of the regional stores was adequate. A limited number of staff have access to the stores, which ensures accountability. However, sometimes the same staff are also required to travel to the central level to collect supplies. The warehouse is closed until the staff return from travel. The districts' personnel may travel to the region to collect supplies and find the store closed. The regions need to guarantee access to the warehouse during normal working hours.

Recommendation 16: Without compromising security, warehouses must be accessible during normal working hours. Contingency plans need to be made when the senior pharmacist at the regional level is away from the regional warehouse for any period of time.

Materials Handling Equipment

A limited number of manual fork-lifts are available at the RMS, however, most of the throughput activities are done manually.

Transportation

In principle, the RMS collects all its medical commodities, including contraceptives, from the CMS every quarter. The central level, however, reported that, particularly for essential drugs, the regions might collect more than once a quarter. Some of the regions visited were integrating their pick-up schedules for all supplies, except vaccines. These products will continue to be managed vertically due to their special handling requirements. Again, the exception to this procedure was in Brong Ahafo, where, because the RMS was not based in the regional capital, the Regional Family Planning Officer arranges for the pick up of contraceptives from the CMS.

Most of the regions were able to collect their supply during the first week of the ordering month, except for the Upper East Region, which regularly receives its new supplies two months after the order month. For the Upper East region, the main problems were the lack of transport; they must rely on the transport at the CMS to bring them the supplies and submission of late reports from the lower level, which resulted in late report compilation. Once in Accra at the CMS, most regions reported that they were able to collect their supplies in less than one day, ensuring minimal transit time.

Recommendation 17: The process for obtaining products should be streamlined.

Management

Inventory Control and Management

All the RMS visited used stock tally cards and ledger books to manage the movement of stock. However, the stock tally cards were not kept with the products but were kept with the ledger book. Both records were kept to ensure a cross-check system. In this case, it doubled the work. Stock tally cards were updated after every transaction. However, only two regions out of six recorded any adjustments.

Recommendation 18: Stock tally cards should be kept next to the products and utilized as a cross-checking tool with the ledgers.

All RMSs have received a computer from DfID. The staff from the CMS were installing the Clarion-based program in the computers. This will allow the CMS and RMS to use the same automated system to manage supplies and, in the future, to exchange information through the Internet.

The inventory control system was found to be poor in all regions. None of the regions visited were using Months of Stock to manage their contraceptive inventory. Most of the staff had heard about maximum and minimum months of stock. However, the maximum level of stock reported ranged from five months to nine months, while the minimum levels ranged from one month to five months.

Recommendation 19: Staff responsible for the management of health commodities should be trained in inventory control, stock management and ordering procedures.

Most regions reported that they conducted a physical inventory every quarter to complete their quarterly report. In addition, all of the RMS conduct an annual physical inventory for all of the products (essential drugs, consumables, contraceptive products, and others).

However, in most regions the result of the physical inventory was not recorded. The exception was in Brong-Ahafo where the quarterly physical inventory count was recorded in the ledger book, and the Northern region where the annual physical inventory count was recorded on the stock tally cards. Most storekeepers were aware of the importance of physical inventory, and in most of the regions, a physical count of the products by the team closely matched the data recorded on the stock tally cards.

Recommendation 20: Physical inventories should be undertaken regularly and the results entered onto the stock tally cards.

There was no standard formula used by all regions to reorder contraceptive supplies. Fifty percent of the regions visited determined their supply order by multiplying the quarterly consumption by three. The remaining half of the regions, Ashanti, Brong-Ahafo, and the Northern region, divided the last three months consumption to get an average monthly consumption and then multiplied that number by three (they collect their supplies from the central levels every three months). It is, however, not surprising that some of the regions multiply the quarterly consumption by three, because that is the formula listed on the report form. Due to a lack of space on the form, the detailed instruction of dividing the consumption to get an average monthly consumption was documented in the job aid instead of the form. Unfortunately, some of the regions did not have the job aids handy.

Recommendation 21: The reporting forms should be reviewed and revised to include the correct formula on each form.

Order fill rates for contraceptive orders were difficult to calculate because one of the data items was missing, usually the amount requested. In many cases, the amount ordered would equal the amount requested only because the higher level, not the lower level, determined the amount of the order. This also indicates that a push system, not a pull system, was being practiced in many cases.

A systemic stockout of Microgynon was reported at all RMS, and some had stockouts of Micronor. For inventory control these stockouts may have been responsible for a greater demand for their equivalent formulation (Lo-Femenal and Ovrette). Consumption patterns should be monitored closely from September 1999 through May 2000.

LMIS

The family planning program at the regional level compiles three reports, which are then taken to the National MCH/FP unit. These reports include—

- Clinic Aggregate Report
- District Aggregate Report
- Regional Medical Stores Report.

The team reviewed the District Aggregate Report with the MCH/FP to help the coordinators at the regional levels understand the source of the data. The following essential items of data were collected as follows:

Beginning Balance.	Ending balance from the previous quarter's report.
Received.	Requisition and issue voucher.
Dispensed.	Aggregate district report.
Transferred.	No records kept.
Loss/Demonstrations.	No records kept.
Expiry.	Physical count.

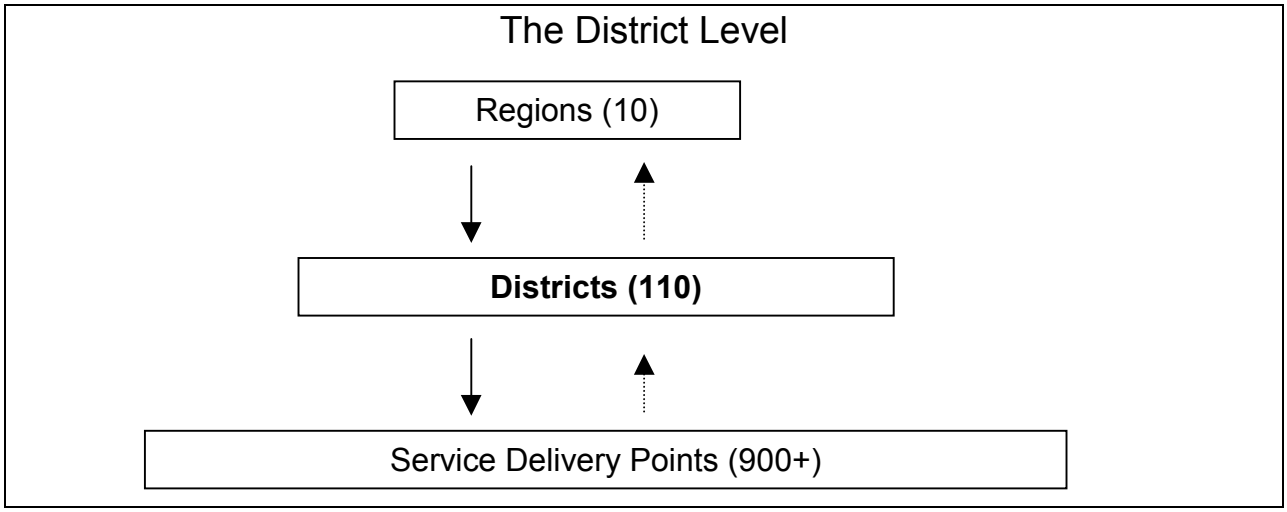
Human Resources and Staff Development

All the regions visited had a regional MCH/FP coordinator whose responsibilities included managing and supervising the family planning program. Most of the coordinators had extensive experience and had usually worked both at the health clinic and district level at some time during their career. While the coordinators are members of the management team, some of them do not have control of the decision-making processes. Furthermore, the lack of access to transportation and support services (computers and other items) can hinder program operations.

All the regional coordinators visited reported received training in family planning logistics management. The focus of the training was completing forms and calculating order quantities. The results of the effort can be seen in the 100 percent reporting achieved by the family planning program. However, there was no training provided on inventory management, storage, and general product management.

Most of the family planning coordinators interviewed reported not having received a supervisory visit from the central level during the past six months.

Figure 4:
District Level Supply Chain



Product Selection and Procurement

The district procures most of its essential drugs and other consumables from the RMS. Occasionally, the district also procures these supplies from the private sector. Currently, contraceptives are purchased, not donated.

Distribution

Ordering

The districts normally pick up their contraceptive supplies from the RMSs every quarter. Some of the regions in the northern part of the country reported going to the RMS more than once a quarter, as not all supplies were available. In the districts visited, except those in the Upper East Region, the Public Health Nurses stated that they picked up their supplies within the first two weeks of the ordering month. Those who collected their supply in the second week of the ordering month reported that there were delays in the compilation of the district report. The SDPs are required to submit their reports to the district within the first week of the month. The district is only able to compile its report by the end of the week or in the early part of the following week. The other reason cited for the delay in collecting supplies was that it was too much work.

Storage

The storage conditions varied from district to district. In some districts, the storage space was adequate, while in others it was not. The storage conditions were poor in many cases. In line with the MOH instructions received in the early spring, several districts were reorganizing the storage space so that essential drugs, contraceptives, and consumables would be stored in one storeroom.

In one of the districts, the storekeeper was overwhelmed. She was already responsible for the management of the district hospital supplies and health clinic supplies, and had just been given the management of family planning supplies.

The assessment teams found that Depo-Provera was not stored upright in many districts. Most of the storekeepers or district MCH/FP coordinators were unaware that the drug's potency would be compromised if stored incorrectly (shown in a Bolivia study funded by DfID).[6]

Recommendation 22: A bulletin with logistics/handling information essential to the efficacy of the products should be issued on a regular basis and distributed throughout the MOH system**.**

In most districts, supplies were stored and distributed according to FEFO. However, in some of the districts the expired and non-expired products were mixed in together, and the products were managed poorly. In addition, Neo-Sampoon expired in September and October 1999 throughout the system. Districts need to inform all clinics to bring the expired supplies to the district for destruction (see recommendation 22).

Recommendation 23: Training on good warehouse/storekeeping practices needs to be given for the district staff responsible for the management of contraceptives, and where applicable, of essential drugs.

Transportation

All the districts visited reported that they are able to collect their supplies in less than a day or within a day, except for one district in the Ashanti region. The public health nurse reported it normally took her three days to get their supplies (one day for travel, one day to complete all her work in the district and collect her supplies, and the third day to travel back to her post). The same district reported that she would prefer that the supplies be delivered to her.

All districts reported having at least one pick-up vehicle that could be used to collect the supplies. However, these vehicles were very old and it was unclear if the family planning program staff had access to the vehicle.

In line with the integration policy, some of the districts now use the storekeeper to collect all the district supplies from the region, including the contraceptive products. However, like the level above, the district also needs to obtain the signature of the regional family planning coordinator before they are able to collect the supplies from the RMS. In most of the regions visited, the MCH/FP unit and the RMS were in two separate locations. If the nurse responsible for MCH/FP at the district level had the skills to calculate the order accurately, there would be no need to have it recalculated at the next level up, eliminating the need to obtain the signature from the MCH/FP at the regional level.

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[6] Barraclough, A., Dec 1998. *Recommendations for action to address problems in the supply, storage and use of Depo-Provera injectable contraceptive arising from recent experiences in Bolivia*. Options Consultancy Services, DfID. 110/96 no.11.

Recommendation 24: The process for obtaining products at the district level should be streamlined.

Management

Inventory Control and Management

At the district level, the following records are used to document stock movement: stock tally cards, ledger book, and requisition and issue vouchers. As with the regional level, many of the districts were unnecessarily double-recording the data in the stock tally card, the issue voucher book, and the ledger book. They would record the data at the time of the transaction; at the end of the day, they copy the data in the various other record forms.

Recommendation 25: Stock tally cards should be kept with the products and utilized as a cross-checking tool with the ledgers.

Most of the staff at the district level understood the importance of physical inventory, and reported that they conduct physical inventory at the end of each month. One district reported that they conducted a physical inventory twice a month. However, in most of the districts, the result of the physical inventory was not recorded. The team conducted a physical inventory of contraceptives and found that the records closely matched to actual count.

Recommendation 26: Physical inventories should be taken regularly and the results entered onto the stock tally cards.

None of the district MCH/FP coordinators or the district storekeepers are aware of or are practicing maximum and minimum months of stock to manage their inventory. Most of the districts were able to estimate how long the contraceptive supplies would last. Many of the districts were stocked out of Microgynon, but this is a systemic stockout and does not reflect on a lack of an inventory control system.

Recommendation 27: Training in inventory control, product management, and ordering procedures is required for the staff handling the products.

Reorders were calculated differently in each district. However, in many cases the next higher level in the system determined the reorder amount. This may explain why the order fill rate was 100 percent—the number of contraceptives requested was equal to what was issued. Anecdotal evidence, however, indicated that the RMS sometimes did not have the contraceptives requested.

LMIS

The family planning program at the district level compiles two reports: Clinic Aggregate Report and District Stores Report. These reports are compiled every month and submitted to the District Director of Health Services. In addition, the same two reports are prepared every quarter and forwarded to the Regional MCH/FP Unit.

The assessment team reviewed the Clinic Aggregate Report with the MCH/FP coordinators at the district levels to understand the source of the data. The following essential items of data were collected:

Beginning Balance:	Ending balance from the previous quarter's report.
Received:	Requisition and issue voucher or a ledger book.
Dispensed:	Family Planning ledger book and tally cards.
Transferred:	No records kept.
Loss/Demonstrations:	No records kept.
Expiry:	Physical count.

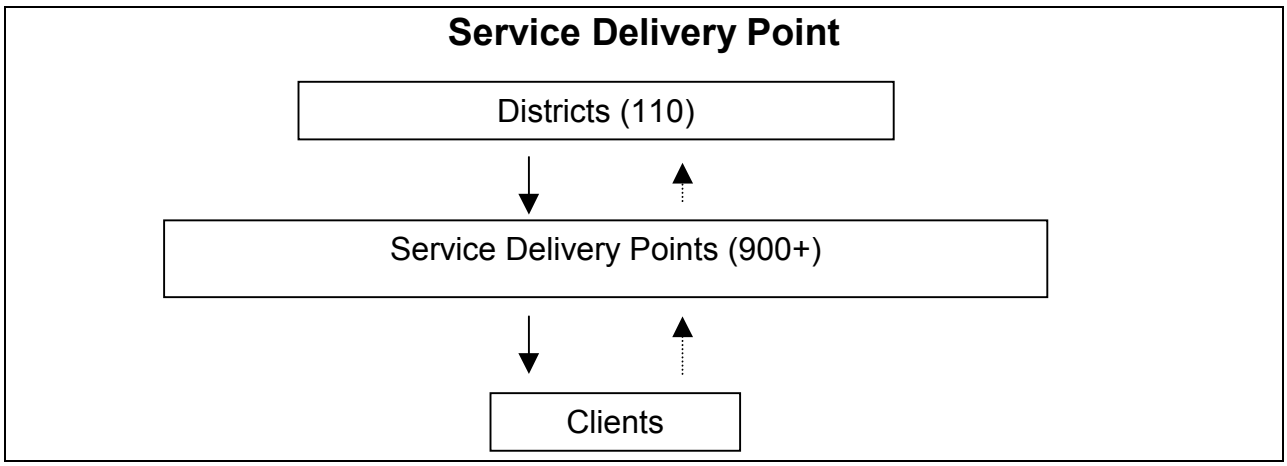
Human Resources and Staff Development

On average at least one–two staff are responsible for the family planning program. Most of the staff reported spending 20 percent –70 percent of their time managing the family planning program.

In all except one of the districts, at least one staff was trained in family planning logistics. The training was reported to last from two days to one week, and the content focused on LMIS.

Supervision took place in all the districts. On-the-job training is normally provided during the supervisory visits, on both clinical and administrative issues, including reporting accuracy.

Figure 5:
Service Delivery Point Supply Chain



Product Selection and Procurement

The health clinics purchase their medical supplies other than family planning commodities from the districts or from the regions in the districts without a DMS. In many cases the transaction is completed on a credit basis. Health clinics do not procure drugs from the private sector. The health clinics obtain their contraceptive products from the districts free of charge.

Distribution

Ordering

The contraceptive supplies were normally picked up from the district or sub-district level. Most of the time, the MCH/FP nurses travel to the next level up using public transportation or motorbike, to collect contraceptive supplies only. The cost of the public transportation ranges from 500cd–4500cd ($.19 U.S.–$2U.S.). The transportation cost is usually paid out of the allocated health center budget whether it is public transportation or fuel for the motorbike.

In some SDPs, it was found that the district delivered essential drugs to the SDP to minimize the risk of theft during transit. However, the deliveries did not include contraceptives or vaccines. In the greater Accra region, the clinics that serve as sub-districts collect their supplies directly from the RMS instead of the district, because there are no district medical store.

Scheduled collection of the supplies varied in each of the region. In the Volta region, all SDPs reported collecting their supplies on a monthly basis, while the other regions reported picking up supplies on a schedule of every two weeks to quarterly. Reasons for the variation depended on proximity to the source of supply and access to transportation.

Most of the SDPs picked up the supplies during the first week of the order month. Four reasons were cited by clinics for not being able to pick up their contraceptive supplies during that time:

- Reports were not completed in time due to heavy workload.
- Access to transportation was undependable.
- Outreach activities were scheduled during the first week of every month.
- The clinics waited until all supplies were exhausted before replenishing with new supplies.

In most cases, the SDPs reported that they were able to collect their supplies within the same day, especially when the health workers were able to get the signature of approval for the amount to collect from the MCH/FP coordinator. Return trips occurred when the MCH/FP coordinator was not available to approve the request and/or the storekeeper was not able to issue the supplies.

The fill rate could not be calculated. In many cases, the level above determined the order quantity and most of the health clinics did not use a requisition and issue voucher.

Storage

Overall the storage conditions were poor at most of the health centers visited. Supplies were stored in more than one place, usually with other non-health supplies. The health workers did use FEFO to distribute the supplies and expired products were stored separately.

Recommendation 28: Training on good warehouse/storekeeping practices needs to be given for the staff managing the products.

Transportation

In most clinics, all the supplies required in a clinic were not picked up together. The MCH/FP nurse was responsible for collecting the contraceptives from the level above using either public transport or the UNFPA donated Yamaha motorcycles.

Management

Inventory Control and Management

No standard pattern was found in the management of inventory. Most of the health workers were not aware of the maximum and minimum levels of stock to manage their inventory. In the Volta region, most of the clinics reported that they need to keep a minimum number of the products, for example, 25 vials of Depo-Provera. In Ashanti, one clinic reported the maximum level as three months and the minimum level as one month. In Greater Accra, the clinics reported four months as their maximum and three months as their minimum. Most of the health workers interviewed were not aware of the concept of Months of Stock on Hand and, therefore, did not calculate it. However, most health workers were able to estimate how long their supplies would last.

Recommendation 29: Training in inventory control, product management, and ordering procedures is required for the staff handling the products.

Most of the health workers multiplied the previous month's consumption by one or by three depending on whether they picked up their supplies monthly or quarterly. None of the health workers calculated Average Monthly Consumption (AMC), because the formula on the form for the amount to request suggests that they multiply last month's consumption by one. The job aid used when completing the form shows the steps of calculating the AMC, but most of the health workers did not use the job aid when filling out the forms as it was not available. Part of the decision not to include all the steps on the reporting form was lack of space.

Recommendation 30: The reporting forms should be reviewed and revised to include the correct formula on each form.

All the clinics visited in the regions, other than Volta region, used stock tally cards to manage their inventory. The stock cards kept information on amounts received and issued, as well as balance on hand. Movement of contraceptives was either recorded by transaction or at the end of the day. In the Volta region, only four out of nine clinics used stock tally cards.

Physical inventories were conducted monthly to prepare the monthly family planning reports, though none of the clinics visited had recorded the result of the physical inventory on any of the record forms. A few clinics reported conducting weekly and/or quarterly physical inventories, but the results were not recorded.

Recommendation 31: Physical inventories should be undertaken on a regular basis and the results entered onto the stock tally cards.

Some of the Neo-Sampoon expiring in September 1999 and October 1999 were stocked at the SDPs. The systemic stockout of Microgynon and Micronor was also at this level.

LMIS

The health workers for family planning compile a monthly clinic family planning report that is sent to the district MCH/FP coordinator. In addition, some clinics also complete a quarterly clinic family planning report, especially if they are collecting their supplies every quarter. However, completion of this report may be superfluous work in the Volta region because they collect their supplies on a monthly basis.

In most of the clinics visited, the level above completed the line on the order form quantifying the supplies required for the following month.

The clinic report was reviewed with the MCH/FP health workers at each of the clinics to better understand the source of the data. The following essential items of data were collected:

Beginning Balance: Ending balance from the previous month or quarter report.
Received: Stock tally card or the family planning ledger book.
Dispensed: recorded in three places:

- daily register
- tally card
- family planning daily log

Transferred: Not recorded. Overall policy discourages transfers.
Loss/Demonstrations: No records kept.
Expiry: Physical count.

Human Resources and Staff Development

Most of the health centers reported having at least one staff trained in how to fill out forms and calculate orders. The roll out of the training occurred throughout the system.

Health workers in the Greater Accra region reported spending 100 percent of their time in family planning, while the staff in the other regions reported 30–70 percent of their time spent on family planning.

All the health workers visited reported receiving at least one supervisory visit from the level above. On-the-job training was provided during these visits, mostly on clinical issues.

Use

There was some concern on how the hike in the price of contraceptive products was going to affect demand. Prices of all contraceptives were increased on 1 July 1999, and some health workers indicated that this was having a serious effect on contraceptive use. For instance, the price of Depo-Provera increased from 120cd to 1000cd.

The price of essential drugs increased last year. Due to concern over whether people could afford the drugs, DANIDA conducted a study on drug affordability. They found that the consumption of drugs went down immediately following the price increase, but after three months, the consumption went back up to the pre-price increase level. There is a possibility that a similar pattern may be observed with the price increase of family planning products. However, contraceptives are not considered to be directly life saving, and there is a possibility that the consumption may fall. The trend of the consumption must be monitored closely for the next six to nine months.

Recommendation 32: There is a need to monitor the impact of the recent price increase on contraceptive use. Effects on contraceptive prevalence rate should be monitored for a period of six to nine months.

The team found there was no consistent pattern for quantities handed out to clients. For example, most health workers reported that they give three cycles of pills to new users; few clinics reported that they provide only one cycle to a new user. Continuing users were given six cycles. Despite clients' willingness to purchase larger amounts, a woman had to provide an extensive justification (such as extended absence from the region) to get more than six cycles, thus limiting

her accessibility to the product. Both Northern and Upper East regions were exceptions, and they reported providing a maximum of 12 cycles if the client wanted them. Condoms and vaginal foaming tablets were different—clients were given as many as they were willing to pay for.

A recent study conducted in Mexico found that if providers lengthened their workday, increased the amount of time they spend with clients, and dispensed larger amounts of contraceptives during a visit, the overall cost per couple year of protection would decline from the 1995 level of $29 to $22 by 2010.[7] While the cost savings to the provider are currently unknown for Ghana, it is obvious that the client's cost could be reduced if they had to make fewer trips to the health clinic to collect their contraceptive supplies.

Recommendation 33: The MOH should ensure that a national dispensing policy exists for contraceptive products in order to improve accessibility and reduce costs.

[7] Hubacher et al. *Increasing Efficiency to meet future demand: Family planning services provided by the Mexican Ministry of Health. Family Planning Perspectives* Vol 25, Num 3, Sep 1999.

Quantitative Findings and Results

The questionnaires included sections for entering quantitative data, such as dispensed to user data, inventory levels, and expired product. Information taken from official records, such as the stock tally cards combined with physical counting of the stock at each facility yielded useful data. The following tables are derived from the analysis of the questionnaires.

Stocked According to Plan

Table 6: Contraceptives Stocked According to Plan in Months of Stock (Jan.–June 1999)

	Months of Stock by Level			
	CMS	**RMS**	**Districts**	**SDPs**
Condoms no-logo*	5.7	3.8	3.7	1.8
Norplant	2.8	4.8	0.0	3.8
Depo-Provera®	1.2	2.9	2.4	1.3
IUDs CuT 380	19.6	2.1	4.1	5.7
Lo-Femenal	5.3	5.4	1.8	3.3
Microgynon	0.0	0.0	0.0	0.0
Micronor	0.0	5.5	0.0	0.0
Ovrette	5.2	2.7	0.0	2.2
Conceptrol	20.5	5.7	0.4	1.6
Neo-Sampoon	0.0	0.0	0.0	0.0
Maximum level	9	5	4	3
Minimum level	6	3	2	1

Table 7: Contraceptives Stocked According to Plan (Jan.–July 1999)

Stocked According to Plan				
	CMS	**RMS**	**Districts**	**SDPs**
Condoms no-logo	over	to plan	to plan	to plan
Norplant	under	to plan	**stockout**	over
Depo-Provera®	under	under	to plan	to plan
IUDs CuT 380	over	under	over	over
Lo-Femenal	under	over	under	over
Microgynon	stockout	stockout	stockout	stockout
Micronor	stockout	over	stockout	stockout
Ovrette	under	under	stockout	to plan
Conceptrol	over	over	under	to plan
Neo-Sampoon	stockout	stockout	stockout	stockout

Table 7 shows that the system is stocked according to plan or overstocked at the SDP level for all USAID products (no logo Condoms, Norplant, Lo-Femenal, Ovrette, and Conceptrol). For UNFPA products only Depo-Provera is stocked according to plan—vitally important as it is currently the most popular contraceptive in Ghana at the present time. The other UNFPA commodities (Microgynon, Micronor, and Neo-Sampoon) are stocked out throughout the system because of slow delivery in the case of the pills and expired product in the case of Neo-Sampoon. Both USAID and UNFPA provide intrauterine devices (IUD), and they are over-stocked.

Stockout Rate

Other than the systemic stockouts, there were only 19 weeks of stockouts of all other products for all the facilities surveyed in the past six months. This figure does not include facilities that did not order certain commodities—these products were deliberately not ordered for that facility. This can be calculated as a stockout rate of only 2.2 percent (19/864 facility weeks).

Wastage Rate

Pipeline wastage rate was nearly zero for regional, district, and SDPs, based on the sample that was visited. There were no expired products in the system, except Neo-Sampoon, which is due to expire in September and October 1999 (two batches). This makes the Pipeline wastage rate for Neo-Sampoon approximately 50 percent.

Wastage rate is calculated as a percentage: number of product that are expired/lost/damaged divided by the number dispensed to clients during a six month period.

Number of Staff Trained in Logistics

In all of the sites visited, at least one staff and, in most cases, more than one, was trained in filling out forms and calculating orders.

Percentage Accuracy of Reports

The team did not calculate the accuracy rate as the reports were cross-checked by the level above in every instance and corrected if a mistake was found.

Table 8. Percentage of Warehouses/Stores Meeting Acceptable Standards

Level	Percentage	Comments
Central level		The warehouse at the CMS did not meet acceptable standards.
Regional level	100	The warehouses visited met acceptable standards, but with room for improvement.
District level	20	The facilities visited met acceptable standard.
SDPs	42	The storage at the SDPs met acceptable standards.[8]

Reporting Timeliness

While not calculated quantitatively, the team observed that the regional quarterly reports were handed in three to six months after their due date. The district reports were usually handed in between two weeks to a month after their due date, and the SDP reports were usually handed in two weeks after their due date.

Fill Rates of Deliveries against Orders

As reported above under the central, regional, and district sections, the order fill rates either could not be calculated or they were found to be 100 percent because of the way in which the system is working. To reiterate the findings: the level above seems to check the requisition form against the reports and they calculate what the order level for each commodity should be. Thus, the order fill rate is near100 percent, i.e., they get everything they request.

[8] This does not include the SDPs in the Greater Accra Region because the questionnaire was field tested at these sites and was subsequently modified, making the data collected not comparable to the data collected later.

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Appendix 1

People Contacted

Title	Name	Telephone
USAID/GHANA		
Health and Population Officer	Ms. Laura Slobey	233-21-228440
Senior Technical Advisor	Ms. C. Kirk Lazell	233-21-228467
Population Specialist	Mr. Lawrence Aduonum-Darko	233-21-770285
Project Accountant	Mr. Thomas Asare	233-21-231939
Procurement Assistant	Mr. Sophie Boafo	233-21-770286
MINSTRY OF HEALTH		
Maternal Child Health and Family Planning		
Senior Nursing Officer	Ms. Patricia Odoi	
	Ms. Gloria Quansah-Asare	
	Ms. Victoria Assan	
Stores Supply & Drugs Management		
Director, Stores, Supply & Drugs Management	Mr. Samuel Boateng	233-21-666537
Head, Procurement Unit	Mr. Kofi Pobe-Hayford	
Programme Advisor, GNDP	Johan Van Haperen	233-21-664309 gndp@ighmail.com
Training Advisor, GNDP	Mr. Timothy R.P. Dodd	233-21-664309 gndp@ighmail.com
Senior Supply Officer, CMS	Ms. Carolina Asomaning	
Senior Supply Officer	Mr. Seth M. Adjei	
Pharmacist	David Dankwa	
Computer Support	Harry Okwampah	
MCH Supply Officer	Ms. Doris Allotey	
Store Assistant/MCH	Peter	

Information, Monitoring and Evaluation		
Head of Information, M&E	Issac Adam	moh-ime@africaonline.com.gh
GREATER ACCRA REGION		
Regional Director of Health Services	Dr. K. O. Adadey	233-21-226203
Deputy Director of Nursing Services	Samuel Crabbe	233-21-226203
Regional MCH/FP Coordinator	Emelia Thompson	223-21-226203
Senior Supply Officer	A.F. Arthur	233-21-664120
Senior Pharmacist	Adwoa Akyaa Ahmed	233-21-664120
Tema PolyClinic		
Nursing Officer	Edith Gertrude Ogoe	233-21-202775
Principle Nursing Officer, Public Health	Sarah Mensah	233-21-202775-8
Adabraka Clinic		
Principal Nursing Officer, Public Health	Mrs. Mercy Hackman	233-21-222490
Nursing Officer	Ms. Beatrice Marbell	
Ablekuma Clinic		
Family Planning Provider	Ms. Comfort Louise Antwi	
Korle-Bu		
Senior Nursing Officer	Mercy Offei	
Ussher Clinic		
Senior Nursing Officer	Ms. Grace Adubifour	
VOLTA REGION		
Regional Director of Health Services	Dr. Frank K. Nyonator	233-91-8211 nyonator@africaonline.com.gh monvr@ghana.com
Regional MCH/FP Coordinator	Mrs. Margaret Ayegbe	233-19-8214
Principal Storekeeper	Prosper Kumah	
Senior Supply Officer	N. K. Shivanda	
Ho District		
District Health Director	Dr. Margaret Kweku	
District Family Planning Coordinator	Lena Tolsu	
District Assistant Family Planning Coordinator	Victoria Butias	233-91-0935
Ho Clinic		
Family Planning Provider	Ms. Betty Esime Adsei	

Have Clinic		
Community Health Nurse	Ms. Felicia Zigah	
Family Planning Nurse	Edith Anku	
Tsito Clinic		
Family Planning Nurse	Bertha Agama	
Family Planning Nurse	Vincentia Bansah	
Kpong Clinic		
General Nurse	Mrs. Emelia Kwatchey	
MCH/FP Nurse	Rose Anson-Fevd	
MCH/FP	Evelyn DoKu	
Pemyi Clinic		
Sr. Community Health Nurse	Ms. Doris Asamoah	
Sr. Community, Health Nurse	Ms. Anne Geraldo	
Demu Clinic		
Nursing Officer	Ms. Rose Aniaku	
Ketu District		
Senior Nursing Officer	Ms. Grace Seneagya	
Aflao Hospital/MCH Clinic		
Community Health Nurse	Ms. Esther Atiah Asadare	
Dakpa Health Center		
Nursing Officer	Ms. Janet	
Nursing Officer	Ms. Love	
HoHoe District		
P.H. Nurse	Ms. Victoria Butias	
HoHoe Hospital		
Family Planning Provider	Ms. Dorothy S. Bekui	
BRONG-AHAFO REGION		
Director Regional Health Administration	Ibrahim Issah	
P.H.N.O	Georgina Sam	
P.N.O. PH	Agnes Kwaakye	
Senior Storekeeper	Ibrahim Bukari	
Techiman District		
District Director Health Services	Dr. George Bonsu	
Nursing Officer Public Health	Margaret Abolige	
Offuman Rural Clinic		
Midwife	Comfort Bakuro	

Berekum District		
Nursing Officer, Public Health	Elizabeth Winfield	
Zongo Clinic		
Nursing Officer	Mary Boakye	
ASHANTI REGION		
Director Regional Health Services	Dr. Ebenezer Appiah-Denkyira	
Deputy Director Nursing Services (PH)	Janet Agyeman	
Senior Nursing Officer	Agnes Nkumfo	
Nursing Officer (PH)	Elizabeth Sarfo-Adu	
Bosomtwe-Atwima-Kwanwoma District		
Director District Health Services	Franklin Osei-Owusu	
District Health Nurse	Salome Patterson	
Kuntanase Health Center		
Midwife	Margaret Kanga	
EASTERN REGION		
New Senchi Clinic		
Sr. Community Health Nurse	Ms. Evelyn Kuffoh	
NORTHERN REGION		
Principal Nursing Officer	Ms. Balchisu Dason	
Senior Nursing Officer	Ms. Abiba Amadu	
Tamale Regional Hospital		
Tamale District		
MCH/FP Supervisor	Ms. Roslyne Ayishetu Marama	
Tamale Central		
Family Planning Provider	Ms. Cecilia Dombadoh	
UPPER EAST REGION		
Pharmacist	Mr. Akordam Karbo	
Regional FP Coordinator	Ms. Beatrice Anderson	
Chuchuliga Health Center		
Nursing Officer	Ms. Perpetua Piligibase	
Zuarungul Health Center		
Public Health Nurse	Ms. Bibiana Yizura	
Public Health Nurse	Ms. Vida Kunkuri	

Sandoma District Hospital		
	Ms. Mary-Stella Adapesa	
UNFPA		
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DFID		
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Appendix 2

Schedule

Date	Time	Activity	Person Responsible
Aug 30 '99 Monday		FPLM team arrives in country	
Aug 31 '99 Tuesday	8:00 – 9:30	FPLM internal meeting	Steve K
	10:00 – 11:00	Meeting with USAID - review objectives of the TA - review the protocols -	Linda
	11:00 – 12:30	Joint MOH/USAID/FPLM meeting - ice-breaker - review of the protocol, complete information if known to team members. - formation of the teams	Steve K
	12:30 – 1:30	Lunch	
	1:30 – 4:30	Joint MOH/USAID/FPLM meeting cont'd - review of the assessment instruments - practice through role play implementation of the instruments - Plan for the Accra data collection	Steve K
Sep 1 '99 Wednesday	8:30 12:30	Joint team assessment of - central product selection and procurement - central FP warehouse - central LMIS - central transportation system - central resources/training - central financial costs - central performance measures	Steve K
	12:30 – 1:30	Lunch	
	1:30 – 3:00	Joint team assessment of central level cont'd	
	3:00 – 4:30	Joint team review - of data gathered - plan for next days activities	Sangeeta
Sep 2 '99 Thursday	8:30 – 3:00	Split in three teams - team A Greater Accra Regional level or district - team B Accra District or 2-3 health centers - team C 2 –3 health centers	

Date	Time	Activity	Person Responsible
	3:30 – 4:30	In a joint team: - review process of visits	
Aug 3 ’99 Friday	8:30 – 12:30	In a joint team - review the findings - synthesize - make any changes to the questionnaires	
	1:30 – 4:30	Prepare for the field trip - ensure all the photocopying is complete	
Aug 4 ’99 Saturday			
Aug 5 ’99 Sunday	8:30 - 5:00	Travel to the field sites	
Aug 6 ’99 Monday		Field	
Aug 7 ’99 Tuesday		Field	
Aug 8 ’99 Wednesday		Field	
Aug 9 ’99 Thursday		Return from Field	
Aug 10 ’99 Friday		In a joint team - review and synthesize the findings - write the preliminary report - prepare for presentation	
Aug 11 – 17 ‘99		Complete the lessons learned evaluation	
Aug 16 ‘99		Present the findings to MOH, USAID and other interested donors	