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Nigeria: Central Contraceptive Warehouse Assessment



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Nigeria: Central Contraceptive Warehouse Assessment

USAID | DELIVER PROJECT, Task Order 1

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Abstract

In Nigeria, Fuel Logistics provided technical assistance to the Federal Ministry of Health (FMOH) by conducting a needs assessment of the Central Contraceptive Warehouse (CCW) of the Central Medical Stores (CMS) from November 11 to 23, 2007. This assessment also examined the need to expand to additional warehouses in Ibadan and Kaduna, and to determine the status quo and short-, medium-, and long-term requirements of the national storage and distribution systems for contraceptives.

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Abbreviations and Acronyms

ASN	advanced shipping notice
CCW	Central Contraceptive Warehouse
CMS	Central Medical Stores
EDI	Electronic Data Interchange
FEFO	first-expire, first-out
FMOH	Federal Ministry of Health
GRN	goods release note
JSI	John Snow Incorporated
KPI	Key Performance Indicators
NPO	National Program Officer
ODBC	Open Database Connectivity
PI	Perpetual Inventory
POD	proof of delivery
RFID	request for implementation date
RFP	Request for Proposal
SKU	stock keeping unit
SLA	service level agreement
SOPs	standard operating procedures
USAID	U.S. Agency for International Development
WMS	Warehouse Management System

Acknowledgments

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Executive Summary

The Reproductive Health Branch of the Federal Ministry of Health, with technical assistance from the USAID | DELIVER PROJECT, conducted a needs assessment of the Central Contraceptive Warehouse (CCW) in Nigeria. The assessment attempts to determine the current status of the CCW, to ascertain the need for expansion to additional warehouses in Ibadan and Kaduna, and to suggest improvements to the national storage and distribution systems for contraceptives that should be reviewed and implemented.

Methodology

The assessment identified the current warehouse practices and possible gaps in the areas of storage; receiving; pick, pack, and dispatch; inventory control; distribution; security; health and safety; human resources; and client relationships.

The assessment was based on a questionnaire and photographs. Steps were then identified with the aim of achieving good warehouse practices, improving the infrastructure and equipment, enhancing human and financial resources, and determining whether there is a need to expand the current warehouse to additional locations in Ibadan and Kaduna.

Upon completion of the necessary investigations, a proposed plan of action has been suggested that focuses on the short, medium, and long term.

Findings

Warehouse practices are generally good but exhibit poor storage conditions, as well as a manual warehouse operation system. Stock management is manual and does not track batch numbers and expiry dates on bin cards. In addition, no safety equipment or stock reports are in place. The warehouse employs dedicated security personnel for receiving and dispatch but has no segregated areas for those activities. No alarms, security cameras, or other security measures are in place, and the role of security personnel is limited.

The distribution system is reactive, and distribution resource planning is not optimum. Currently, no performance measurement exists for subcontractors.

The two zonal warehouses considered for possible expansion were also assessed. The assessment team found that storage condition was poor and that the electricity was not connected at either site.

Key Recommendations

- Develop standard operating procedures (SOPs), and provide on-the-job training for staff members.
- Reorganize stock arrangements, and create bin locations in the CCW.
- Purchase relevant equipment, and repair malfunctioning equipment (lights, forklift, fans, etc.).

- Set up database that is inclusive of batch numbers and expiry dates.
- Design a fire control plan, and implement it.
- Ensure security of products in the process of distribution.
- Create Job descriptions that clarify roles and responsibilities.
- Review and implement service level agreements and performance management measurements.

Background

The Federal Ministry of Health (FMOH), with technical assistance from the USAID | DELIVER PROJECT, conducted a needs assessment of the Central Contraceptive Warehouse (CCW) of the Central Medical Stores (CMS). The assessment will provide information in the following ways:

- Identify current warehouse practices and gaps in these areas:
 - Storage
 - Receiving
 - Pick, pack, and dispatch
 - Inventory control
 - Distribution
 - Security
 - Health and safety
 - Human resources
 - Client relationships
- Identify steps necessary to achieve good warehousing practices.
- Identify infrastructure and equipment improvements, including automation.
- Identify human and financial resource requirements that are necessary to achieve good warehousing practices.
- Identify the need to expand the current warehouse to include additional locations in Ibadan and Kaduna.

Purpose and Objectives of the Assessment

The purpose is to conduct a needs assessment of the Central Contraceptive Warehouse (CCW) and to examine the need to expand to additional warehouses in Ibadan and Kaduna. The needs assessment determined the status quo and the short-, medium-, and long-range requirements of the national storage and distribution systems for contraceptives.

Assessment Methodology

The assessment team comprised personnel from Federal Ministry of Health (FMOH), USAID/ Nigeria, the USAID | DELIVER PROJECT, and the Fuel Group. A complete list of data collectors and monitors can be found in Annex 5.

Data collection instruments used for the assessment included checklists; structured questionnaires, as provided for in Annex 1 and 2; and photographs.

Findings

CCW—Product Storage Conditions

On the day of the assessment team’s visit to the CCW, the warehouse was relatively empty. The staff members, however, reported that they were expecting some deliveries to come in. In general, the warehouse was in fairly good condition except for a few leakages and a termite problem.



Leakage in the roof, just above a storage area



A termite path in the warehouse

The warehouse practices were generally good, but some irregularities existed; for example, product locations and correct packing procedures were not followed. The assessment team noticed one incorrectly labeled package for dispatch. Parts of the warehouse indicated poor storage conditions, such as termite paths on the wall and leakages in the ceiling. Also, 6 out of 10 lights and four out of six fans were in working order. Many of the warehouse processes are manual, which can—and does—lead to human error.

The current practice of moving pallets using trolleys is inadequate. A pallet stacker is needed for more efficient movement of pallets, as well as for staff safety.

A generator that is stored in front of the warehouse and is awaiting commissioning has started rusting. The Central Medical Stores (CMS) generator provides electricity to the warehouse, but it does not have the capacity to power all the electrical appliances in the CCW.

CCW—Product Flow

The next photograph shows a box that has been used to pack a product different from that which it originally contained. The box, however, was not labeled with the new product name.

Ideally, the storage of parts boxes should be done in plain boxes without any existing printing on the box, but as a cost-saving measure, boxes can be reused as long as their labels are changed and updated appropriately.

A material-size shipment was also received and placed in the receiving or dispatch area because there was no space at the time it was received. However, the shipment has remained in that area for two years. Because space was taken up by having the shipment stored in the dispatch area, many dispatched orders were placed in the store pending loading. The result was poor workflow regarding picking and packing and an increased chance of stock being mislaid and thus not accounted for. In addition, mislaid stock could lead to stock expiry and wastage.



Commodities stored in boxes with the wrong label



Commodities stored in receiving and dispatch area for more than two years

A material-size shipment was also received and placed in the receiving or dispatch area because there was no space at the time it was received. However, the shipment has remained in that area for two years. Because space was taken up by having the shipment stored in the dispatch area, many dispatched orders were placed in the store pending loading. The result was poor workflow regarding picking and packing and an increased chance of stock being mislaid and thus not accounted for. In addition, mislaid stock could lead to stock expiry and wastage.

The assessment showed that there were no standard operating procedures (SOPs) for warehouse processes in place. Tally cards did not carry stock batch numbers and expiry dates. The cards were used per product regardless of the batches and expiry dates. Technically, that use of cards means that all batches of the same product were mixed in the warehouse, on the same pallets; therefore, it is unlikely that the first-expire, first-out (FEFO) principle was followed rigidly.

Main Issues

Products stored in the CCW warehouse run the risk of damage. The poor storage procedures currently being used can also increase the risk of theft. Cumbersome and time-consuming put-away and order preparation processes used were not always in conformity to best warehousing practices. Manual processes are likely to lead to inefficiencies. The functioning of the FEFO principle can, therefore, not be guaranteed.

Key Recommendations

- Develop SOPs, and train staff members. The proper implementation of SOPs and a trained staff will ensure that warehousing functions run smoothly and effectively. That approach will also ensure that the risk of theft, damages, or mislaid stock is reduced and, in the best case scenario, avoided altogether.
- Completely reorganize the current stock, and create bin locations. SOPs on picking and packing will ensure that stock is packed in the correct locations and will help to avoid stock misplacement.
- Purchase the relevant equipment (forklifts, ladder, carts), and repair the current equipment (lights, fans, etc.).

CCW—Stock Management and Reporting

The manual stock management process as practiced in the CCW offers no tracking of batch numbers and expiry dates on bin cards and there are no stock reports in place. As a result, tracking and tracing of any batch, as well as reporting on expired stock, is cumbersome.

CCW has a computer, but it did not seem to be used frequently and was not plugged in when the advisor visited the premises.

No reports were in place on the day of the visit.

Main Issues

The manual processes currently in use in the CCW heighten the chance of human error. The FEFO principles are unlikely to be adhered to, increasing the risk of stock expiry and loss.

Stock is not properly reconciled, which means that stock losses might not appear until much later.

Key Recommendations

- Set up a database inclusive of batch numbers and expiry dates. Such an arrangement will ensure that FEFO is properly maintained and that the efficacy of stock is effectively managed.
- To improve the issue of reporting and inadequate access to information, create reporting templates and define reporting cycles.
- In the long term, set up a properly functioning warehouse management system and provide for staff training.

CCW—Expired Stock

On the day of the visit, some stock was expired. The warehouse staff reported that the last destruction exercise for expired drugs took place four months earlier, which was responsible for the reduced quantity of expired products sighted during this assessment.

Six months before expiry, products are quarantined.

Some stock that had expired in 2004 was sent back from one of the states.

Main Issues

The quarantined products are mixed up with expired products.

No process or mechanism seems to be in place for the return of expired stock from the state sites.

Key Recommendations

- Separate quarantined products from expired products.
- Review the timeline for quarantining to accommodate products with a short shelf life.



Expired stock in the CCW warehouse

CCW—Occupational Health and Safety Concerns

Only two fire extinguishers were in the warehouse, and they had had no maintenance since they were bought; thus, the possibility exists that their efficacy has been compromised. Parts of the ceiling showed visible damage caused by a leak that had gone unattended, making water damage a very real threat and compromising the safety of stock.

The warehouse staff had no safety equipment, such as helmets, boots and gloves, etc., which can potentially lead to serious injuries in the event of a warehouse accident.

The assessment team also observed that a ladder had been stored or placed incorrectly, possibly because of lack of space; such a situation can lead to injuries.



Warehouse practices, such as leaving a ladder or trolley against a stack of stock, can lead to injuries.

Main Issues

One of the main issues in the CCW is the risk of fire, which unfortunately cannot be contained under the current setup. Also, the very real risk of injuries to warehouse staff members exists as a result of nonavailability of the correct safety equipment.

Key Recommendations

- Design a fire control plan. Purchase and install the appropriate equipment to put the plan into effect.
- Procure the required safety equipment immediately. The safety of the warehouse staff is essential to any properly functioning warehouse. Train staff members in the use of safety gear purchased for their protection and educate them as to the importance of wearing the safety gear at all times.
- Design and implement safety SOPs.
- Thoroughly clean the warehouse, and set up a roster whereby staff members take turns in cleaning designated areas.

CCW—Security

The assessment team found that the CCW had five locks with two sets of keys. Two warehouse officers had a set of these keys each. This arrangement does not conform to good warehouse practices. The best practice would be (a) that at least one key from each set would be kept by the security officer to ensure that two people are present during the opening and closing of the warehouse and (b) that those two people are not from the same department. It is important that the segregation of duties in this regard be reviewed and enforced.

The warehouse has dedicated security personnel for receiving and dispatch. However, those two vital areas are not cordoned off from one another. The assessment team also noted that the security personnel have a very limited role. The noticeable lack of security at the warehouse is further exacerbated by the fact that no security alarm, security cameras, or closed circuit television exist.

Main Issues

As a result of the lack of security infrastructure, there is the risk of internal and external theft. Areas of high activity cannot be monitored, and the safety of stock during non-operational hours cannot be ensured. No historical data on the security activity are available.

Key Recommendations

- Seal all vehicles at the point of loading, and record serial numbers to ensure security integrity.
- Implement a warehouse management system that has strict adherence to SOPs to increase internal inventory security measures. It would also be advisable to install security measures in and around the warehouse to maintain the protection of stock.

CCW—Personnel and Skills

In general, the staff members are very willing and enthusiastic. However, no formal individual performance reporting process exists, and the level of authority on the basic coordination of activities is very limited.

Main Issues

The CCW has no formal system or feedback mechanism to monitor individual performance. It is also clear that staff members, in general, were not aware of all good warehouse principles and good warehouse management practices. Inefficiencies caused by lack of training are apparent.

Key Recommendations

- Document and enforce job descriptions, including roles and responsibilities. It is important that management receive input from staff members when their job descriptions are being developed and discussed.
- Develop performance and measurement indicators and tools with respect to specific job descriptions. Define SOPs in that regard, and institute on-the-job training.

CCW—Distribution

The current distribution system is reactive, and distribution and resource planning is not functioning optimally. No performance measurements on subcontractors were in place; this situation needs to be reviewed as soon as possible. A tender process was started in April and proposals were aggregated, but no follow-up has occurred since then. The drivers handling distribution of stock should be trained on best practices.

Main Issues

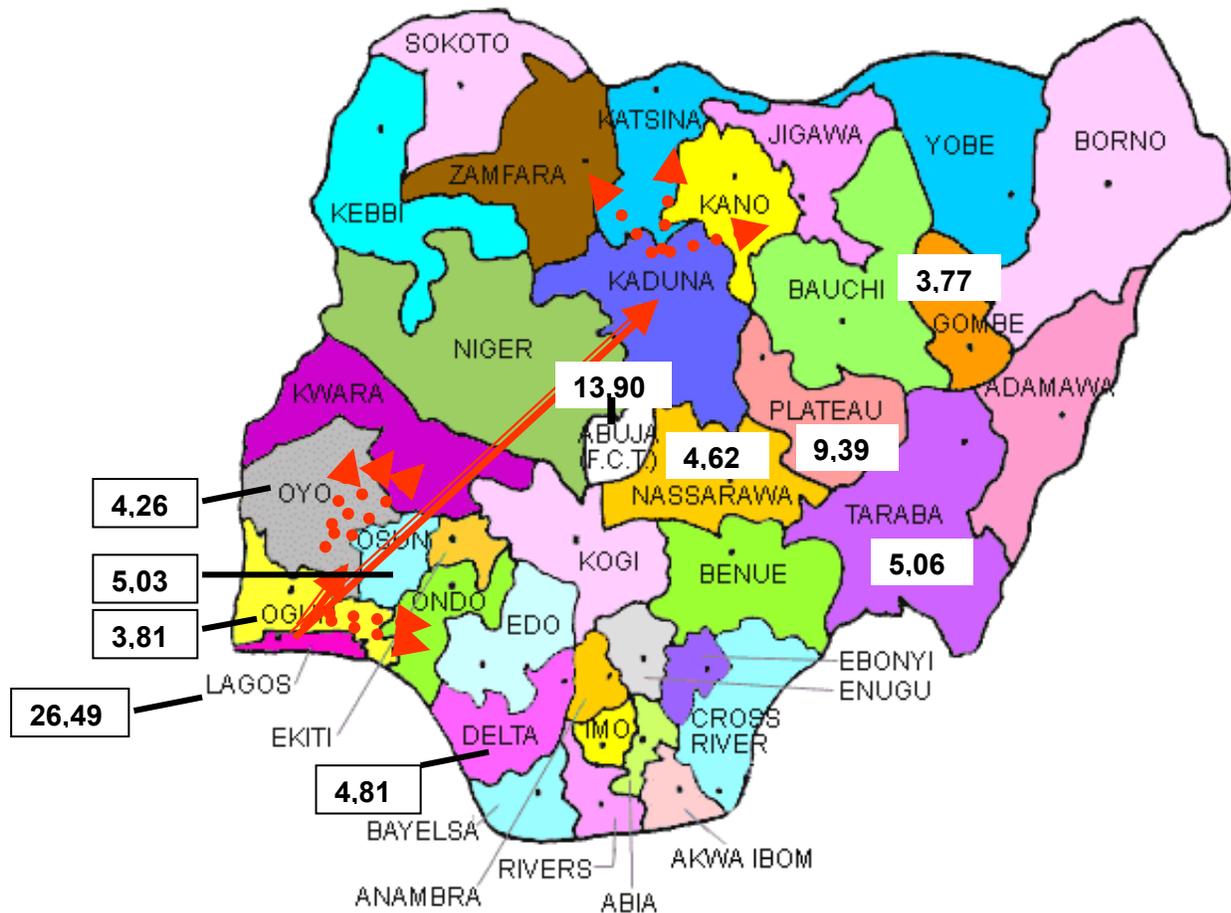
Vehicle routes are defined at the last minute and depend on the funds available.

No service level agreements are in place, and, therefore, subcontractors' performance is not monitored.

Key Recommendations

- Review and implement service level agreements and performance management measures.
- Test all drivers of the selected subcontractor or subcontractors to ensure that they have the necessary numerical and literacy skills to count boxes and to read descriptions for checking packages.
- Draw up distribution SOPs, and conduct relevant training.

Figure I. Map of Proposed Distribution



Note:

Numbers indicate the percentage of stock distributed to those states from the central contraceptive warehouse in Lagos.

CCW—Procedures and Processes

The contraceptive distribution process is relatively straightforward, but it is currently manually driven and is clearly slowed down by lack of funds and lack of the proper processes being in place. The lack of systems in place also results in poorly defined delivery timelines, as well as increased costs and inadequate reporting.

In general, the CCW staff members understand the standard practices of the distribution supply chain; however, the processes currently in place better accommodate the administrative requirements than the distribution system objectives.

Visits to Ibadan and Kaduna Warehouses

Ibadan Warehouse Visit



Poor storage conditions of products at the Ibadan warehouse

Infrastructure

As the photographs above illustrate, the Ibadan warehouse exhibited extremely poor storage conditions. The team noted inadequate racking, termites, disconnected electricity, and numerous leaks in the ceiling. The warehouse was being used to store bed nets, expired products, and obsolete forms and stationery. There was a generator, but it was not connected to this storehouse and its attached offices.

Main Issues

Storage is currently very poor, owing to termite infestation, a leaking roof, and inadequate racking. Storage should be done only after the warehouse is cleaned of all the expired stock and the unused or outdated stationery.

Key Recommendations

- Clean out the warehouse and make repairs. Install relevant equipment, such as lights, forklift, desks, computer, cards, stationery, etc., and train staff members in their proper use. Connect the warehouse and attached offices to the existing generator.
- Set up standard operating procedures SOPs, appoint a warehouse supervisor and a team, and proceed with on-the-job training of staff.

Kaduna Warehouse Visit



Kaduna warehouse as seen from the outside

Infrastructure

The assessment team could not gain access into the warehouse. However, on general inspection, poor storage conditions were noted, as well as lack of proper warehousing equipment. Leaks and damaged ceilings were clearly in evidence, and the electricity supply to the warehouse was disconnected.

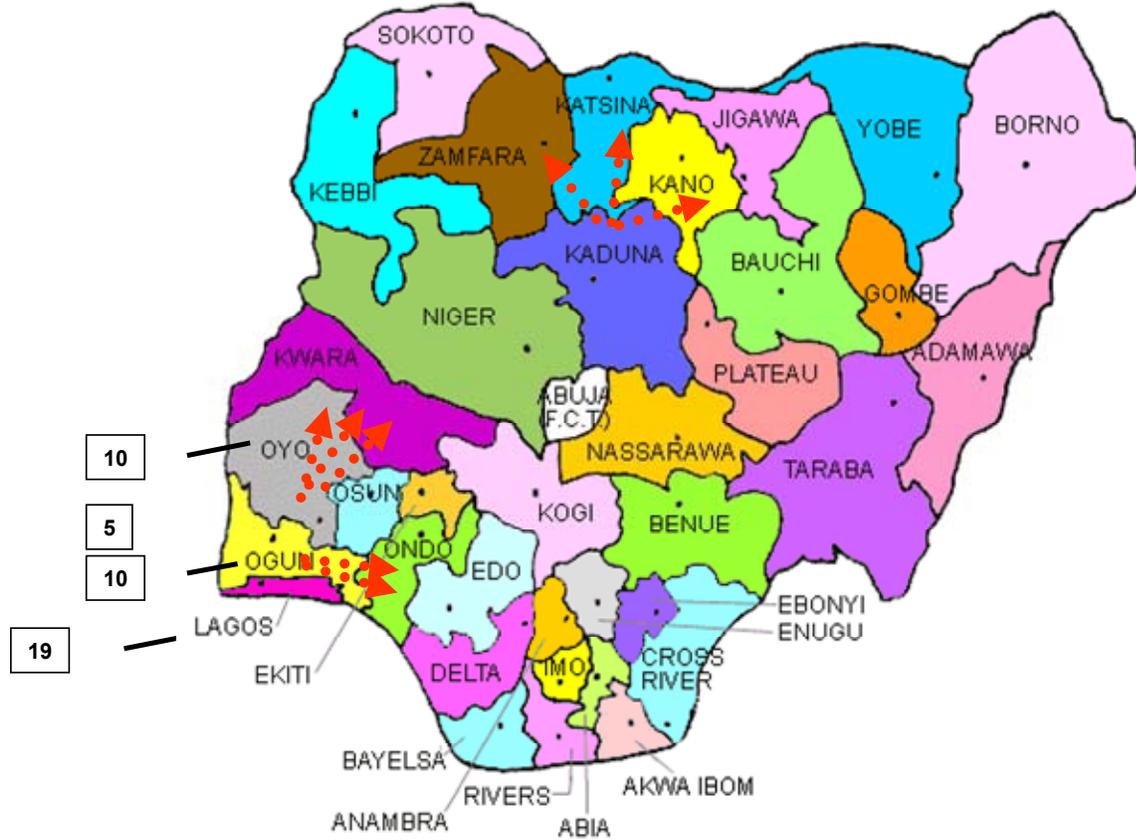
Main Issues

Storage of products in this warehouse is possible but only after extensive repairs.

Key Recommendations

- Here again, the warehouse requires clean up, major repairs, and purchase and installation of relevant equipment.
- Develop SOPs, and appoint a warehouse supervisor to oversee the repairs and implementation of processes.
- Provide on-the-job training for the staff.

Figure 2. Map of Proposed Distribution—Number of Pallets



The Ibadan and Kaduna warehouses can accommodate the current annual contraceptive consumption for their state and for neighboring states. It is, however, unlikely that either of the warehouses can support any scale-up plan.

Further Recommendations/ Proposed Plan of Action

Short-term Plans (within six months):

- Establish stakeholder task force to complete action plan.
- Design and institute standard operating procedures at Central Contraceptive Warehouse (CCW) level, ensure staff training, and establish key performance indicators (KPIs).
- Draw a complete request for proposals (RFP) for transportation and issue the RFP to the market.
- Award tender, sign the standard local agreement, and define KPIs for transportation.
- Standardize the reporting format.

Midterm Plans (within one and one-half years):

- Set up an inventory control and warehouse management system at CCW.
- Upgrade the regional facilities (Ibadan, Kaduna, Kano).
- Improve workflow processes, and work with all stakeholders to support a continuous system of improvement.
- Set up online reporting that will be available to all relevant parties.

Long-term Plans:

- Complete renovation of CCW facilities to meet future commodity demand.
- Complete automation of distribution reporting at all sites and for all stakeholders.
- Undertake ongoing staff training and monitoring with partner organizations.

Appendix I

Warehouse and Distribution Assessment List

Warehouse and Distribution Checklist

I. WAREHOUSE GENERAL INFORMATION			
Items assessed	Available: Yes / No	Satisfactory: Yes / No	Comments
1. Warehouse location—Map			
1.1. If existing facility: A map showing roads and elevation and expansion capability			
1.2. If a planned facility: A map describing the topography and soil-bearing capacity			
1.3. Warehouse is reachable directly by			
Roads (state of the roads)			
Railway (if available)			
Air (if available)			
2. Warehouse floor plan			
2.1. Total surface area			
2.2. Total storage area surface			
2.3. Total staging area surface			
2.4. Total receiving area surface			
2.5. Total office area surface			
2.6. Height to the eaves			
2.7. Positioning of inbound and outbound doors (Are they separate to allow segregation of tasks?)			
2.8. Dock-levelers (If available, check safety procedures and inspection schedules as per drawn checklist.)			
2.9. Loading docks			
2.10. Container hard-standing and ramps			

3. Staff organization (Organogram to be attached to report)			
3.1. Top management: How many?			
3.2. Middle managers: How many?			
3.3. Supervisors: How many?			
3.4. Operators: How many?			
3.5. Total staff establishment			
4. Statistical information			
4.1. Statistics on units/orders received (12mo.)			
4.2. Statistics on units/orders shipped (12mo.)			
5. List of products within minimum and maximum level			
5.1. Calculate the ratio of receiving units to shipping units (Ratio = # orders received to # orders shipped)			
5.2. Total number of product lines			
5.3. Total number of hazardous lines			
5.4. Total number of cold chain lines			
II. INFRASTRUCTURE ASSESSMENT / BUILDING CONSIDERATIONS			
Items assessed	Available: Yes / No	Satisfactory: Yes / No	Comments
I. Floor condition			
I.1. Floor surface flatness			
I.2. Floor surface hardness (Also check load-bearing capability.)			
I.3. Floor surface general impression			
I.4. Are there any visible cracks?			
I.5. Are floor dressings or toppings required?			
I.6. Wall architectural details, building sections, waterproofing, weatherproofing, fireproofing, door and window information, finishes, and accessibility requirements			
I.7. Check the wall conditions: painting, quality, load-bearing capability			
I.8. Electric plans (Check the location of the main electrical equipment and all subpanels.)			
I.9. Electrical cutoff is located and marked. Switch is kept free of obstructions and readily accessible. Staff can turn off electrical current in an emergency.			

1.10. Is lighting adequate and suitable for a medical store / facility? (Type of lighting used, preferably low-heating fluorescent lamps.) Is lighting adequate for reading expiry dates, and does it permit a proper working environment?			
1.11. Are emergency lights in place?			
2. Roof condition (Check for leaks, especially during the rainy season and during or after a storm.)			
2.1. Roofing materials used			
2.2. Clear height from stored products?			
2.3. Adequate ventilation and cooling?			
2.4. Generally in good condition?			
2.5. Any visible damages, holes, etc.?			
3. Security / Safety systems			
3.1. Perimeter fencing			
3.2. Observe access control procedures and guardhouse procedures.			
3.3. Are there sufficient security guards, and are they presentable and aware of their tasks?			
3.4. Check occurrence book / incident book and closure of incidents.			
3.5. Gates / doors and alarms (Is the alarm activated for temperature changes?)			
3.6. Closed-circuit cameras in place and in working condition			
3.7. Emergency numbers prominently posted			
3.8. Facility evacuation procedures and routes posted			
3.9. Smoking areas properly designated and appropriate cigarette disposal containers provided			
3.10. Trapdoors in the ceiling or floor, including skylights, locked			
3.11. Firewalls			
3.12. Fire doors			
3.13. Fire extinguishers (Visually inspect fire extinguishers to ensure that pressures are maintained and extinguishers are ready for use.)			
3.14. Water hoses/safety showers			
3.15. First aid boxes (Are they properly maintained? Are there trained, certified first aiders?)			

3.16. Sprinkler systems (Physically check that there is water in the reservoir and that tests have been conducted and logged.)			
3.17. Safety alarms for heat, smoke, vapor			
3.18. Smoke venting condition			
3.19. Heating venting condition			
3.20. Backup generator? Auto switch on/off? (If more than one generator is present, the backup generator is separated from the main unit.)			
3.21. Positioning of fuel supplies for generator (Stored in remote areas and below ground level if possible. If not, there must be a tray to catch run off or spillages.)			
3.22. Temperature monitors and loggers (Check to see that temperature has been mapped and that the data have been validated.)			
3.23. Walk-in refrigeration or ordinary refrigerators used as storage units.			
3.24. Pest control (Check for bird nesting, rodents, termites, or any other pests that may encroach.)			
3.25. Availability of water to fight fires			
3.26. Fire hydrant near the building			
3.27. Level of water pressure			
4. Utilities			
4.1. Water supply			
4.2. Electricity supply			
4.3. Lighting condition			
4.4. Air conditioning			
5. Special areas			
5.1. Space for expansion			
5.2. Space for truck docking and turning; availability of an apron or canopy			
5.3. Space for rail docks			
5.4. Space for employees and visitors to park			
5.5. Separate area for inflammables			
6. General office inspection			
6.1. Is lighting adequate?			
6.2. Is ventilation adequate?			
6.3. Is temperature adequate?			
6.4. Are noise levels comfortable?			
6.5. Are dust levels kept at a minimum?			

6.6. Are working space and equipment adequate?			
6.7. Does office arrangement allow easy egress under emergency conditions?			
6.8. Are walls, floors and floor coverings, and ceiling in good condition?			
6.9. Is the carpeting in good condition and not badly worn or torn?			

III. REQUIREMENTS / OPERATIONS ANALYSIS

Items assessed	Available: Yes / No	Satisfactory: Yes / No	Comments
I. Storage requirements			
I.1. Inventory categories			
I.1.1. Hazardous materials			
I.1.2. Special control materials / refrigeration lines			
I.1.3. Special control materials / nonrefrigeration lines			
I.1.4. Restricted items			
I.1.5. Bulk storage item			
I.2. Inventory factors			
I.2.1. Temperature-sensitive items			
I.2.2. Hazardous characteristics items			
I.2.3. Stackability			
I.2.4. Product dimensions			
I.2.5. Volume			
I.2.6. Weight			
I.3. Storage method factors			
I.3.1. Conventional counterbalance trucks			
I.3.2. Narrow-aisle trucks			
I.3.3. Automated storage retrieval machines			
I.3.4. Manual carts			
I.3.5. Automated small item systems			
I.3.6. Order-picking trucks			
I.3.7. Pallet types used			
I.3.8. Type of racking used			
I.3.9. Maximum number of pallets high			
I.3.10. Any mezzanine levels?			
I.3.11. Any conveyor systems?			

1.3.12. Any flow-racking systems?			
2. Material handling requirements			
2.1. Order size			
2.2. Equipment alternatives			
2.2.1. Powered handling equipment: number?			
2.2.2. Manual handling devices: number?			
2.2.3. Automated devices: number?			
2.2.4. Safety equipment: number?			
3. Facility layout requirement			
3.1. Logistically easy material flow (area proximity)			
3.2. Is there work flow?			
3.3. Material control flow			
3.4. Safety security management			
3.5. Security			
4. Personnel requirements			
4.1. Job descriptions / training records			
4.1.1. Top management			
4.1.2. Middle managers			
4.1.3. Supervisors			
4.1.4. Operators			
4.2 Functions / activities level			
4.2.1 Top management			
4.2.2. Middle managers			
4.2.3. Supervisors			
4.2.4. Operators			
4.2.4.1. Receiving check-in			
4.2.4.2. Truck unloading			
4.2.4.3. Security staff at the receiving area			
4.2.4.4. Storage put-away			
4.2.4.5. Order consolidation			
4.2.4.6. Order picking			
4.2.4.7. Order checking and packing			
4.2.4.8. Truck loading			
4.2.4.9. Shipping order processing			
4.2.4.10. Information / paper work control / archives and records			
4.2.4.11. Report preparation			
IV. WAREHOUSE MANAGEMENT SYSTEM			

Items assessed	Available: Yes / No	Satisfactory: Yes / No	Comments
Is there a warehouse management system (WMS), or a manual system (Excel)? If WMS, then the following should be assessed:			
I. Warehouse layout			
I.1. The WMS allows for full warehouse layout, including different zones.			
Picking			
Quarantine			
I.2. Holding, including individual holds at bin, quantity, product, and batch levels, or at all these levels			
Assembly checking			
Marshaling / Staging			
Dispatch			
Quality control			
Damages and sorting and			
Bulk storage			
I.3. The WMS provides for the use of			
Standard pallet racking			
Flow racking gravity flow			
Steel shelving			
Block stacking			
I.4. The WMS provides a unique identifier for each storage element, which specifies zone, aisle, row, level, and position.			
I.5. The WMS provides for setting parameters and limits for each location, such as volume and maximum weight allowed.			
I.6. It provides for limitations for the type of products to be held in each location (e.g., temperature sensitive).			
I.7. It supports the following parameters / limits for each zone / location:			
Beam weights			
Stack height			
Aperture size			
Depth of slot			
Utilization for palletized / nonpalletized products only			
Mixed pallets permitted in a single pallet bay			
Location capacity			

Maximum fill for a flow rack or shelf picking location			
Maximum / minimum stock levels for picking locations			
1.8. It supports individual zone / location limitations in terms of the product it can hold:			
Temperature			
Product separation			
Level / height			
Batch mixing			
Picking frequencies—fast pick, slow pick, etc.			
2. Receiving			
2.1. The WMS supports advance scheduling of incoming deliveries.			
2.2. It has ability to create advanced shipping notices (ASNs).			
2.3. It allows for allocation of supplier details to all incoming deliveries.			
2.4. It produces bar code labels for each incoming product, specifying key data (product code, supplier code, goods release note (GRN) reference, date, label per pallet, labels per individual products, etc.).			
2.5. It supports quality control processes and quarantined goods pending the outcome of chemical tests.			
2.6. It supports rehandling goods during receipt (e.g., splitting down pallets).			
2.7. It supports recording of expiry dates and batch codes for all incoming products. It has the ability to trace the information until distribution.			
2.8. It allows for setting of rules governing permissible shelf life remaining at the time of receipt.			
2.9. It supports cross-docking.			
2.10. It provides for a full audit trail to record discrepancies to incoming deliveries.			
2.11. It allows for recording of key data at the time of receipt (product name, product ID, batch number, expiry date, purchase price, delivered price).			
2.12. It places products on hold until quality checking has been successfully completed.			
2.13. It facilitates the setting of rules governing the amount of shelf life that should be remaining for received items? (These rules will differ from product			

to product.)			
2.14. It supports multiple-currencies costing for received products.			
3 Put-away			
3.1. The WMS supports put-away either from quarantined goods or straight from goods that were received.			
3.2. It allows for put-away confirmation.			
3.3. It manages product pre-receipt so that suitable locations can be reserved in advance.			
3.4. Put-away can be achieved totally under the control of the WMS, totally under the control of the operative, or under the control of both.			
3.5. Put-away can be to a bulk location, straight to a picking location, or to a mixture of both.			
3.6. WMS can produce a pallet label that is for each pallet and that designates the product and the put-away details.			
3.7. WMS produces a master put-away list with summary details of all product to be put away.			
3.8. It supports all product movement tracking.			
3.9. It manages the put-away process in line with predefined rules:			
Environmental controls required, such as cold storage			
Secure storage			
Fixed warehouse location or random warehouse location			
Fast-moving or slow-moving item			
Item weight / volume			
3.10. It has a standard process for dealing with an error in the put-away process.			
3.11. It handles production of all standard documentation such as goods receipt notes, error reports, etc.			
4. Replenishment			
4.1. WMS supports automatic replenishment planning from bulk storage to the picking area with the ability to prioritize.			
4.2. Replenishment will be determined by a bin maximum quantity or by pick requirements.			
4.3. It can produce let-down lists at predefined intervals to direct the replenishment process.			

4.4. It supports management of the replenishment process in line with first-expire, first-out (FEFO) rules.			
4.5. It allows for replenishment confirmation, as well as a check-code on each storage location			
4.6. The let-down / drop-down lists will include the following details for each product to be replenished:			
Product code			
Product name and unit			
Expiration date			
Quantity to be moved			
Current (i.e., bulk) location			
Location to be moved to			
4.7. It has a standard process for dealing with an error in the replenishment process, such as “the bulk location specified does not contain the correct product.”			
4.8. It has a standard procedure for removing a pallet from bulk storage, replenishing the pick-face with part of the pallet, and replacing the remainder in the original bulk location.			
5. Order processing and picking			
5.1. The WMS contains customer and product databases for order processing.			
5.2. It provides a default order for all customers based on their most frequently ordered products.			
5.3. It contains an order-processing module providing the opportunity for operatives to check the status of any given customer order on request.			
5.4. It has the ability to input orders within the WMS either manually from a paper order or electronically using a standard form.			
5.5. It supports the release of orders for picking continuously, by customer, by product, or in line with preplanned distribution schedules.			
5.6. It supports any of the following as the basis of picking activity: sales orders, picking lists, label sheets, handheld terminals, and onboard computers.			
5.7. It contains back-order functionality.			
5.8. It supports generation of picking lists by order, in bulk by line or distribution route, or in bulk by zone.			
5.9. It prints standard format picking lists.			
5.10. It supports the generation of picking-label sheets as a form of picking control.			

5.11. It supports the use of scanning devices during the picking process.			
5.12. It provides standard error procedures and reports, such as, no stock in location, wrong stock in location, mis-picked items, damaged items discovered in picking location, etc.			
5.13. It supports product rehandling, such as repacking of loose items into transit cartons.			
5.14. It reserves stock for a particular customer.			
5.15. It manages the picking of specified batch/lot numbers for a particular customer.			
5.16. It contains WMS order processing function to provide more than one picking opportunity for the same sales order.			
6. Product management and inventory control			
6.1. WMS allows for assignment of unique item codes for all items.			
6.2. It allows for marking all items as either “stock” or “nonstock.”			
6.3. It supports perpetual and planned physical inventory counts.			
6.4. It allows for data entry adjustments—with reason codes—to stock balances.			
6.5. It supports the classification of all products into one or more of a number of product groups.			
6.6. Provides reports filtered by product group			
6.7. It supports inventory control in line with FEFO rules.			
6.8. It supports minimum / maximum inventory levels, both for stock levels and picking areas.			
6.9. It links a number of different pack sizes for the same generic item back to the generic item.			
6.10. It permits product substitution during the replenishment or picking process in line with FEFO rules.			
6.11. It provides expiry warnings reports, using a combination of current stock levels, expiry dates, and current usage rates.			
6.12. It notifies that a product is in danger of falling below its minimum stock level if not ordered within a standard period (such as one month).			
6.13. It supports lead-time management.			
6.14. It provides expiration date management data.			
6.15. It provides early warning that some or all of a particular batch of a product will expire if usage			

continues at current rates.			
6.16. It provides a standard report listing all batches that will expire within the next 12 months.			
6.17. It allows stock for multiple owners to be held in the same warehouse (so that stock can be tracked independently).			
6.18. It contains “pick and fill kit” functionality to support local assembly of essential test kits.			
6.19. It supports profiling for each product to enable correct put-away (e.g., cold storage required) and management.			
6.20. It is able to complete an ABC Analysis			
7. Customer service			
7.1. WMS provides a running total of the value of goods distributed to each customer during the current year and provides a comparison with the customer’s preset annual budget.			
7.2. It provides the customer service team with real-time order status information for all orders.			
8. Marshaling and dispatch			
8.1. WMS provides goods marshaling and dispatch functionality			
8.2. It manages the process of combining orders picked from several pick lists back into one customer order.			
8.3. It supports repacking items into other media, such as loose items into transit cartons or transit cartons into roll cages.			
8.4. It manages load assembly for specified routes.			
8.5. It produces a packing list, delivery note, and invoice as standard for all orders being distributed.			
9. Housekeeping			
9.1. WMS provides a full audit trail for all transactions.			
9.2. It manages the stock-checking / stock-counting process.			
9.3. It supports changes to physical layout (see below).			
9.4. it completes warehouse re-lay (including both changes to physical locations and changes to product pick-slots).			
9.5. It repositions products according to changes in their usage rates (i.e., changes from fast moving to slow moving, or vice versa).			

9.6. It contains functionality to account for the following:			
Damaged stock			
Expired stock			
Withdrawn stock			
Stock awaiting return			
Stock awaiting destruction			
Destroyed stock			
9.7. It supports product recall down the supply chain to the customer and includes management of batch numbers throughout the system from receipt to dispatch.			
9.8. It supports bin-sealing by location, batch, product code, pallet number, or other specified codes.			
10. Warehouse resource planning and verification of tasks			
10.1. Inbound—WMS supports the following types of planning:			
Inbound scheduling of deliveries			
Whether an inbound schedule or activity record is provided			
How the schedule is determined			
Whether a resource planning (equipment / personnel) is provided			
Inbound recording of actual activity versus the planned delivery			
10.2 Outbound			
10.2.1. WMS assists in resource planning within the following areas:			
Planning of picking resources			
Planning of picking routes			
Let-down planning			
Dispatch planning			
Perpetual inventories			
Stock verification and adjustments			
10.2.2. It aids warehouse organization (suggesting re-allocation of warehouse space based on recent activity trends).			
11. Warehouse control			
11.1. WMS contains standard procedures for updating following a system failure.			

11.2. It provides standard functionality to validate picking activity and contains functionality to ensure correct loading and dispatch.			
11.3. It contains standard functionality, thus allowing users to track specific batches of particular products.			
11.4. It provides standard codes indicating the reason for product returns (i.e., product wrongly supplied, product damaged on delivery to customer, etc.).			
11.5. WMS planning algorithms encompass all or any of the following attributes or conditions:			
All load, delivery, and order references			
Date of delivery			
Fixed agreed delivery time			
Details on incoming conditions for receiving, standard / nonstandard pallets, loose boxes, etc.			
Mixed product on the same pallets			
Standard handballing / pallet creation rates for off-loading, etc.			
11.6. It validates tasks by the operatives, such as pick validation and put-away validation.			
12. Reporting			
12.1. WMS provides predefined reports, including			
Customer and supplier lists			
Products by expiration date			
Receipts including unit cost and total cost			
Order turnaround times			
Issues per month (or other defined period) per customer/province			
Issues per product or per product group per month			
Stock levels, stock outs, reorder levels, etc.			
12.2. It provides for immediate transfer of report data to other applications (such as Microsoft Word and Microsoft Excel).			
12.3. It provides a report writer that can be used to produce custom WMS reports.			
12.4. It reports on values and/or products distributed during a user-defined period; this information is also provided in summary and/or with full transaction details.			

12.5. It supports the creation of new reports by users without the use of technical support, which occurs through the inclusion of a report writer and without additional cost.			
12.6. WMS assesses data back up and procedure.			
13. Use of bar codes, labels, scanners, and real-time data management			
13.1. WMS facilitates the use of bar codes in the following way:			
13.2. It supports multiple bar code symbologies, TrueType fonts, request for implementation date (RFID) terminal applications, and multiple types of thermal and laser printers.			
13.3. It provides a carton label that records the product code, supplier name, goods release note (GRN) reference, and date of receipt for each carton.			
13.4. It provides a pallet label that designates put-away location and product detail.			
13.5. The carton label (dispatch) designates customer, order reference, delivery address, carton number out of total number of cartons, date of dispatch, and route reference.			
13.6. There is a pallet / roll cage label for each facility's delivery; pallets and roll cages will be stretch-wrapped and strapped to highlight any interference with the goods in transit.			
13.7. The WMS uses RFID-compliant scanners to facilitate real-time updates for replenishment from bulk to picking area.			
13.8. It provides label design / barcode printing software that will ensure smooth interface between the WMS and desired outputs.			
13.9. It supports RFID-compliant bar-code scanners that have LCD displays, recharge cradles, and rechargeable batteries.			
13.10. Label printers conform to the following specifications:			
Have the current level of industrial quality.			
Be RFID ready.			
Support the highest resolution possible.			
Support varying and maximum printing widths.			
Support varying and maximum printing speeds.			
13.11. Bar-code / label design / print management software should be a single-user license and should conform as follows:			

13.12. Software is operable either from a local personal computer or through a local or wide-area network.			
13.13. It is able to facilitate the adding of records to a file, ODBC source, or database.			
13.14. It is configurable to receive, format, and use data from other devices without keying.			
13.15. It facilitates the handling of any label design where custom formats are required (such as for categories of products that require special handling).			
14. Interface with other software			
14.1. WMS supports import and export of data from / to established programming interfaces such as Microsoft Office Applications (Word, Excel, Access) and Oracle			
15. Electronic Data Interchange			
15.1. WMS supports current Electronic Data Interchange (EDI) standards and protocols.			
V. DISTRIBUTION			
Items assessed	Available: Yes / No	Satisfactory: Yes / No	Comments
1.1. Order invoice			
1.2. Delivery note			
2.1. Special labels are printed and affixed to the boxes.			
2.2. Each box must have a document showing what it contains (name and quantity of products).			
2.3. Copies of documents ready to be sent must also be filed according to the company's SOP for document management.			
2.3.2 Transport alternatives are as follows:			
Trucks, vans, cars (most common)			
Air transport (costly, high charges; best for heat-labile products such as vaccines; increased packing costs; low theft; best for transport to islands)			
Boats (specialized packaging and storage to protect against water damage)			
Railways (cheap and excellent; risk of theft and damage; concerns about transfers)			
Private-trucking transport companies,			
Box trailer units, small trailers (best for rural			

area)			
2.4. WMS can determine delivery routes.			
2.5. It can draw up delivery schedules.			
2.6. It can estimate costs and compare to outsourcing.			
3. Assess distribution capacity			
3.1 WMS can determine existing storage size at central and local levels.			
3.2 It can assess cost-effectiveness by the following:			
Costs to build / rent additional storage			
Costs to buy / lease additional vehicles			
Costs to hire more staff (salaries, perks / bonuses)			
Costs maintenance (machineries, building, vehicles)			
4. Loss control during distribution			
4.1. Staff must pack goods in large boxes, and use pallet to ensure stability from movement during transport.			
4.2. Each box must be filled to capacity.			
4.3. Many boxes should be bound for stability.			
4.4. Staff must seal boxes with special seals (prevent theft).			
4.5. Liquid must be boxed separately and placed at the bottom.			
4.6. Staff must fill voids (empty spaces) in carton with packaging material to avoid breakages.			
4.7. Staff must protect supplies from sun and rain.			
4.8. Vehicle must be loaded carefully and systematically using first-out / last-in principle.			
4.9. Staff must secure vehicle doors and prevent loses or theft.			
5. Maintenance of quality distribution			
6. System performance monitoring			
6.1. Percentage of health facilities submitting requisitions on time			
6.2. Frequency of delivery			
6.3. Losses due to damage and theft			
6.4. Distribution costs per ton per kilometer			
6.5. Vehicle availability and frequency of breakdowns			
6.6. Vehicle fuel availability in different parts of the			

country			
7. Contracting out distribution			
7.1. Type of service-level agreement			
7.2. Duration of agreement			
7.3. Contractual service obligations			
7.4. Penalty clauses			
7.5. Cost escalation factors			
7.6. Demonstrable cost increase criteria			
7.7 Rates schedule			
7.8. Insurance cover			
7.9. Accidental damage procedures			
7.10. Theft procedures			
7.11. Goods lost in transit procedures			
7.12. Proof of delivery control and remittance			
8. Availability of information			
8.1. Information to calculate weighted distribution analysis			
8.2. Information to calculate stock cover days			
8.3. Information to calculate expiry days and potential expiry problems			
8.4. Information to analyze and calculate service levels in terms of order fill and order percentage			
8.5. Information on facilities to be supported			
Location			
Storage areas			
Refrigeration capacity			
Stock keeping unit (SKU) population			
Access			
Opening times			
Systems installed			
On a credible delivery route			
Frequency of order and delivery			
8.6. Information to calculate key performance indicators (KPIs)			
Pick efficiencies			
Put-away efficiencies			
Labor utilization			

Racking occupancy			
Picking errors			
Out-of-stocks			
Vehicle utilization			
Turnaround time from order to delivery			
Customer service calculations:			
Order fill percentage			
Items supplied percentage			
8.7. Is PI (cycle counting) used?			
8.8. How frequent is the stock taken?			
8.9. Incidence of emergency orders			
8.10 Incidence of returns compared to orders			
8.11 Incidence of rejected / damaged goods			

Appendix 2

CCW Consumption Data per State

States	Products							
	Female Condoms	Volume	Male Condoms	Volume	Depo Provera	Volume	Exluton / Microlut	Volume
Abia	1,600	0.110	21,600	0.375	600	0.010	0	0.000
Abuja	19,445	1.340	278,380	4.831	8,780	0.147	1,690	0.121
Adamawa	0	0.000	108,000	1.874	3,300	0.055	0	0.000
Akwa Ibom	0	0.000		0.000	7,644	0.128	0	0.000
Anambra	146	0.010	28,800	0.500	2,575	0.043	900	0.065
Bauchi	0	0.000		0.000		0.000	0	0.000
Bayelsa	310	0.021		0.000	2,000	0.033	0	0.000
Benue	0	0.000	33,958	0.589	340	0.006	3,005	0.215
Borno	500	0.034	54,400	0.944	3,000	0.050	0	0.000
Cross River	1,963	0.135	122,400	2.124	2,540	0.042	1,440	0.103
Delta	3,000	0.207	93,600	1.624	6,000	0.100	1,290	0.092
Ebonyi	270	0.019	27,774	0.482	4,096	0.068	1,290	0.092
Edo	0	0.000	69,465	1.206	2,900	0.048	835	0.060
Ekiti	0	0.000		0.000	1,033	0.017	697	0.050
Enugu	0	0.000	8,208	0.142		0.000	0	0.000
Gombe	2,840	0.196	41,110	0.713	3,947	0.066	1,360	0.097
Imo	0	0.000	21,600	0.375	300	0.005	500	0.036

Jigawa	0	0.000	1,460	0.025	1,700	0.028	1,020	0.073
Kaduna	0	0.000		0.000	4,083	0.068	1,000	0.072
Kano	0	0.000		0.000		0.000	0	0.000
Katsina	0	0.000	2,160	0.037	3,475	0.058	0	0.000
Kebbi	0	0.000		0.000	2,075	0.035	1,000	0.072
Kogi	0	0.000	72,000	1.250	2,000	0.033	0	0.000
Kwara	0	0.000	10,000	0.174	500	0.008	200	0.014
Lagos	0	0.000	158,400	2.749	4,170	0.070	2,532	0.181
Nassarawa	591	0.041	1,193,725	20.717	8,827	0.148	130	0.009
Niger	0	0.000		0.000	4,000	0.067	0	0.000
Ogun	300	0.021	517,440	8.980	8,930	0.149	0	0.000
Ondo	0	0.000	36,000	0.625		0.000	0	0.000
Osun	2,650	0.183	216,000	3.749	5,000	0.084	720	0.052
Oyo	0	0.000	28,800	0.500	2,500	0.042	1,100	0.079
Plateau	10,000	0.689	580,350	10.072	7,850	0.131	0	0.000
Rivers	0	0.000	55,110	0.956	2,550	0.043	0	0.000
Sokoto	0	0.000		0.000	750	0.013	250	0.018
Taraba	0	0.000	37,296	0.647	60,000	1.003	0	0.000
Yobe	0	0.000		0.000		0.000	0	0.000
Zamfara	0	0.000		0.000		0.000	0	0.000
Arfh Ibadan		0.000	432,000	7.497	2,000	0.033	120	0.009
Pffn Headquarters	5,000	0.345		0.000	12,000	0.201		0.000
Prevention Hiv/Aids		0.000	344,466	5.978		0.000		0.000
Stop Aids		0.000	237,600	4.124		0.000		0.000
Fct Smoh	2,200	0.152		0.000		0.000		0.000
Un		0.000	150,000	2.603		0.000		0.000
Others	200	0.014	144	0.002		0.000	30	0.002
Totals Qqties/Pallets	51,015	3.516	4,982,246	86.467	181,465	3.034	21,109	1.513

Qtties Reported Dist Jan-Oct07	0	0.000	4,422,454		117,197		0	
Expired/Quarantined	41,620	2.868					259,383	
Issued After Quarantined		0.000					2,160	
Returns	5,000	0.345						
Dimensions		0.069		0.125		0.017		0.052

States	Products							
	IUCD	volume	Lo-Femenal	Volume	Microgynon	Volume	Noristerat	Volume
Abia	800	0.060	100	0.003	1,000	0.072		0.000
Abuja	2,289	0.173	5,915	0.184	2,486	0.178	13,050	0.294
Adamawa	50	0.004	2,420	0.075	450	0.032		0.000
Akwa Ibom	433	0.033		0.000	600	0.043	3,777	0.085
Anambra		0.000	500	0.016	900	0.065	2,000	0.045
Bauchi		0.000	2,441	0.076	866	0.062	2,684	0.060
Bayelsa		0.000		0.000	1,260	0.090	1,600	0.036
Benue		0.000	675	0.021	280	0.020		0.000
Borno		0.000	1,200	0.037	2,160	0.155	3,000	0.068
Cross River		0.000		0.000	7,560	0.542	6,000	0.135
Delta	1,050	0.079	3,585	0.112	8,640	0.619	10,400	0.234
Ebonyi	350	0.026		0.000		0.000		0.000
Edo		0.000	2,045	0.064	1,575	0.113	6,720	0.151
Ekiti	647	0.049	375	0.012	1,833	0.131		0.000
Enugu		0.000		0.000		0.000		0.000
Gombe	204	0.015	3,047	0.095	3,140	0.225	8,800	0.198
Imo		0.000	500	0.016	900	0.065		0.000
Jigawa	240	0.018	1,900	0.059	636	0.046	1,300	0.029

Kaduna	200	0.015	1,000	0.031	1,000	0.072	5,400	0.122
Kano		0.000		0.000		0.000		0.000
Katsina		0.000	2,400	0.075	1,980	0.142	5,900	0.133
Kebbi		0.000	1,950	0.061	1,885	0.135	2,349	0.053
Kogi	2,000	0.151		0.000		0.000		0.000
Kwara	200	0.015	1,000	0.031	298	0.021	500	0.011
Lagos	2,850	0.215	1,000	0.031	2,400	0.172	4,550	0.102
Nassarawa		0.000		0.000	88	0.006	17,193	0.387
Niger		0.000	1,200	0.037	720	0.052	4,000	0.090
Ogun	1,900	0.144	2,425	0.076	6,480	0.464	4,240	0.096
Ondo	2,975	0.225	1,000	0.031		0.000		0.000
Osun	3,000	0.227	3,600	0.112	2,880	0.206	5,060	0.114
Oyo	2,000	0.151	900	0.028	1,000	0.072	1,500	0.034
Plateau	955	0.072	6,450	0.201	2,775	0.199	19,563	0.441
Rivers		0.000	2,400	0.075	2,940	0.211	8,805	0.198
Sokoto	500	0.038	2,400	0.075	1,020	0.073		0.000
Taraba		0.000		0.000	20,160	1.445		0.000
Yobe		0.000		0.000		0.000		0.000
Zamfara		0.000		0.000		0.000		0.000
Arfh Ibadan		0.000		0.000	9,996	0.716	1,000	0.023
Pffn Headquarters		0.000	40,000	1.246	43,200	3.096	16,000	0.360
Prevention Hiv/Aids		0.000		0.000		0.000		0.000
Stop Aids		0.000		0.000		0.000		0.000
Fct Smoh		0.000		0.000		0.000		0.000
Un		0.000		0.000		0.000		0.000
Others	50	0.004		0.000		0.000		0.000
Totals Qqties/Pallets	22,693	1.715	92,428	2.879	133,108	9.539	155,391	3.501
Qqties Reported Dist Jan-Oct07	22,333		92,528		117,962		143,425	

Expired/Quarantined					360,999		
Issued After Quarantined							
Returns	4,202						2,000
Dimensions							

States	Products						Vol. per State in Number of Pallets
	Implaton	Volume	Jadelle	Volume	Hand Gloves	Volume	
Abia	0	0.000			20	0.001	0.63
Abuja	79	0.034			370	0.020	7.32
Adamawa	74	0.032				0.000	2.07
Akwa Ibom	69	0.029			59	0.003	0.32
Anambra	64	0.027			30	0.002	0.77
Bauchi	64	0.027			32	0.002	0.23
Bayelsa		0.000			5	0.000	0.18
Benue	64	0.027			34	0.002	0.88
Borno	84	0.036				0.000	1.32
Cross River	129	0.055			30	0.002	3.14
Delta	114	0.049			120	0.007	3.12
Ebonyi		0.000				0.000	0.69
Edo	96	0.041				0.000	1.68
Ekiti	64	0.027			66	0.004	0.29
Enugu	184	0.079			16	0.001	0.22
Gombe	64	0.027			169	0.009	1.64
Imo		0.000			15	0.001	0.50
Jigawa		0.000			53	0.003	0.28
Kaduna	139	0.059			25	0.001	0.44

Kano	64	0.027				0.000	0.03
Katsina	64	0.027				0.000	0.47
Kebbi	64	0.027			10	0.001	0.38
Kogi	114	0.049			20	0.001	1.48
Kwara	70	0.030			10	0.001	0.31
Lagos	74	0.032			150	0.008	3.56
Nassarawa	64	0.027			53	0.003	21.34
Niger		0.000				0.000	0.25
Ogun	64	0.027			37	0.002	9.96
Ondo	64	0.027			100	0.005	0.91
Osun	64	0.027			200	0.011	4.76
Oyo	64	0.027			42	0.002	0.93
Plateau	1,024	0.437	250	1.000	110	0.006	13.25
Rivers	96	0.041			130	0.007	1.53
Sokoto	64	0.027				0.000	0.24
Taraba	64	0.027				0.000	3.12
Yobe	64	0.027				0.000	0.03
Zamfara	128	0.055				0.000	0.05
Arfh Ibadan	30	0.013			15	0.001	8.29
Pffn Headquarters		0.000				0.000	5.25
Prevention Hiv/Aids		0.000				0.000	5.98
Stop Aids		0.000				0.000	4.12
Fct Smoh		0.000				0.000	0.15
Un		0.000				0.000	2.60
Others	300	0.128	650			0.000	0.15
Totals Qqties/Pallets	3,828	1.634	900	1.000	1,921	0.105	114.90
Qtties Reported Dist Jan-Oct07	3,885		700		1,878		
Expired/Quarantined							

Issued After Quarantined							
Returns							
Dimensions							

Appendix 3

People Met

Surnames	Names	Title	Organization/Affiliation
Kwateng-Addo	Akua	Team Leader	USAID
Fossand	Karla	Asst. Team Leader	USAID
Maiwada	Abdulahi	Activity Manager	USAID
Morenikeji	Kayode	Asst. Activity Manager	USAID
Odiniya	Musa	Asst. Chief Prog. Officer	FMOH
Quadri	Kafilat	Asst. Store Officer	CCW
Anyanwu	Lawrence	Principal Health Planning Officer	FMOH
Oladipo	Esther	Asst. Chief Health Sister	CCW
Izuwa	Greg	Principal Program Officer	FMOH
Ononose	Judith	Asst. Chief Program Officer	FMOH
Kachiro	Alexander	Zto Kaduna	NPHCDA KADUNA
Olekwu	Jane Ene	Team Leader	NPHCDA KADUNA
Salisu	S.	Zto Kaduna	NPHCDA KADUNA
Ajayi	Folarin	Cust. Rel. Man.	MDS LOGISTICS
Ajibola	Babatunde	Asst. Exec. Officer	CCW
Oyesiji	Dr. M. O.	Zonal Tech. Officer	NPHCDA IBADAN
Adebiyi	J. K.	Zonal Store Officer	NPHCDA IBADAN

Appendix 4

List of Data Collectors and Monitors

Isabelle Creamer, FUEL GROUP

Lawrence Anyanwu, FMOH

Musa Odiniya, FMOH

Judith Ononose, FMOH

Greg Izuwa, FMOH

Elizabeth Igharo, USAID | DELIVER

Elizabeth Ogbaje, USAID | DELIVER

Kayode Morenikeji, USAID

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

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