



Nigeria: Readiness Assessment for an Electronic Logistics Management Information System in Bauchi State



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Abstract

In May 2012, the USAID | DELIVER PROJECT, Nigeria, Task Order 4, conducted an assessment of the logistics system for free maternal and child health commodities in Bauchi State in order to determine the state's readiness to implement an electronic Logistics Management Information System (eLMIS) for management of these commodities.

Interviews and field visits were conducted with the various stakeholders involved in MCH commodity distribution, and a workshop was held with technical experts to determine the current state of operations in Bauchi. This report, presented to the Bauchi State Ministry of Health, presents the findings of the assessment, as well as the short- and long-term recommendations to bring about a successful implementation of an eLMIS for MCH commodities in Bauchi.

Cover photo: A pharmacist at the Bauchi State Cold Store demonstrates the electronic Stock Monitoring Tool used at the store to USAID | DELIVER PROJECT staff in May 2012.

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Contents

- Acronyms..... v
- Acknowledgments vii
- Executive Summary ix
- Introduction 1
- Chapter One: Current Logistics System for MCH Commodities 3
 - Current Flow of MCH Commodities and Logistics Data 3
 - Proposed Standard Operating Procedures 10
- Chapter Two: Workshop 13
 - Workshop 13
 - Follow-Up to Workshop 15
- Chapter Three: Next Steps..... 17
 - Challenges..... 18
- Conclusion..... 21
- Reference..... 23
- Figures
 - 1. Data and Commodity Flow for Family Planning Commodities..... 4
 - 2. Data and Commodity Flow for Malaria Commodities 5
 - 3. Data and Commodity Flow for Essential Medicines..... 6
 - 4. Data and Commodity Flow for Hospital MCH Commodities..... 7
 - 5. Data and Commodity Flow for Vaccines 8
 - 6. Data and Commodity Flow for MDG—NHIS MCH Commodities 9
 - 7. Proposed Logistics Management Information System for MCH Commodities..... 10
 - 8. Document Flow in Proposed System..... 12
 - 9. Project Road Map 17
- Tables
 - 1. Proposed Reporting Procedures and Documents for MCH Commodities 11

Acronyms

BACATMA	Bauchi State Agency for the Control of HIV/AIDS, Tuberculosis/Leprosy and Malaria
CMS	Central Medical Stores
DMA	Drug Management Agency
DPS	Department of Pharmaceutical Services
eLMIS	electronic logistics management information system
FP	family planning
HMB	Hospitals Management Board
IT	information technology
LGA	local government area
LMU	Logistics Management Unit
M&E	monitoring and evaluation
MCH	maternal and child health care
MDG NHIS	Millennium Development Goals National Health Insurance Scheme
NMCP	National Malaria Control Program
NPHCDA	National Primary Healthcare Development Agency
PHC	primary healthcare center
RRRIV	Requisition/Issue/Receipt Voucher
SMOH	State Ministry of Health
SPHCDA	Bauchi State Primary Healthcare Development Agency
SDP	service delivery point
SOH	stock on hand
SOP	standard operating procedure
TSHIP	Targeted States High Impact Project
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WMS	warehouse management system

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Executive Summary

Nigeria's Bauchi State has made a commitment to provide maternal and child health care (MCH) services free of charge through public sector service delivery points (SDPs) throughout the state. This amounts to managing approximately 190 commodities that are distributed in approximately 400 facilities (23 hospitals and more than 350 primary healthcare centers). In October 2011, a system design workshop was held to agree on a logistics system for managing MCH commodities in the state. The outcome of this workshop was a standard operating procedures (SOPs) manual that defined the flow of goods and information through the supply pipeline. One challenge that was identified is how best to manage the aggregation of logistics data collected from SDPs at the state level, and the desirability of an electronic logistics management information system (eLMIS) to manage this information. The USAID | DELIVER PROJECT conducted an assessment of the current distribution for free MCH commodities in Bauchi State to evaluate the state's readiness to implement a computerized system, and to develop a road map for this implementation.

Over the course of two weeks, interviews were conducted with various stakeholders in free MCH distribution in the state, along with field visits to one local government area (LGA) and four SDPs (two general hospitals and two primary healthcare centers). The assessment was capped by a workshop with technical staff to develop a vision for the electronic system. A lack of an integrated commodity distribution system was identified, with four different government agencies involved in the supply chain, and no consistent reporting of logistics data. The new SOPs are still in draft form and have not been implemented in the state. Personnel changes in the top management team of the SPHCDA and the State Ministry of Health (SMOH) means that those executives who had committed to the envisioned system are no longer there. In addition, the new SOPs do not take these different agencies into account and do not define their roles in the logistics system. The lack of harmonized processes for commodity distribution poses a huge challenge for computerization, that is, the agencies must agree on which processes to automate. Additionally, it has not been established which agency would house the aggregated logistics data and use them to make procurement decisions.

Other challenges that were identified are a low level of funding for MCH commodities, resulting in a non-full-supply situation, which would have to be taken into account in eLMIS design; poor Internet, electricity, and information technology (IT) infrastructure throughout the state; and a shortage of skilled, trained facilities staff who would report to the logistics system. In addition, there is no functioning electronic warehouse management system (WMS) at the state central warehouse.

The assessment recommends that some groundwork needs to be laid to prepare Bauchi State for a computerization effort. Chief among this groundwork is harmonizing the different distribution and reporting mechanisms currently in place in the state, so that all agencies are distributing MCH commodities in the same way and are receiving the same information from the SDPs. This would include establishing which agency would be the "owner" of the logistics information collected from the supply chain. There may also be some need to rethink the scope of the computerization effort and possibly scale it down to account for the challenges in commodity supply, infrastructure, and human capacity in the state.

Introduction

The free maternal and child health care (MCH) program in Bauchi State consists of approximately 190 commodities distributed through 23 hospitals and over 350 primary healthcare centers (PHCs). Free MCH commodities are divided into the following broad categories:

- antimalarials
- nutritionals
- vaccines
- essential medicines
- family planning commodities
- medical consumables and equipment

The State Ministry of Health has several component agencies, all of which are involved in distributing MCH commodities in the state, depending on commodity category and SDP type. In total, there are six stakeholders in the free MCH program:

- State Ministry of Health (SMOH)
- State Primary Healthcare Development Agency (SPHCDA)
- Bauchi State Agency for the Control of HIV/AIDS, Tuberculosis/Leprosy and Malaria (BACATMA)
- Drug Management Agency (DMA)
- Hospitals Management Board (HMB)
- Central Medical Stores (CMS)

Given the scale of commodities and facilities involved, it is clear that a paper-based system will be inadequate to properly manage the flow of goods and information related to MCH commodity distribution in Bauchi. A particular challenge is how to aggregate the data that will be collected from the logistics management information system (LMIS) reports filled out at facilities and sent to the state level. Consequently, implementation of an electronic LMIS (eLMIS) is being strongly considered to support distribution to health facilities, inventory management, and procurement planning. In May 2012, an assessment was carried out in Bauchi State to determine the state's readiness to begin implementing an eLMIS for MCH commodities. The assessment involved conducting interviews with relevant stakeholders to get a handle on current distribution processes, and holding a workshop with technical staff from the above-listed agencies to develop a vision for the eLMIS. This report presents the results of this assessment.

Chapter One: Current Logistics System for MCH Commodities

Current Flow of MCH Commodities and Logistics Data

The logistics system of MCH commodities in Bauchi State comprises several government and semi-government partners (agencies) and donors dealing with hundreds of products with distinct vertical warehousing and distribution mechanisms. The first step toward assessing the state's current management of logistics information related to MCH commodities was to map out the flow of products and logistics data at various distribution levels. The assessment was done through interviews with personnel in the different organizations that are involved with MCH commodity distribution in an effort to find answers to the following questions:

- What commodities are included?
- What reporting period is used?
- What data elements are reported?
- How many facilities are there in the logistics system?
- How many levels are there in the logistics system?
- At which level(s) are resupply quantities calculated?

As a result of these interviews and some field visits, six distribution models for MCH commodities in Bauchi State were identified, which are described below.

Distribution Model I: Family Planning Commodities—SPHCDA

Coverage: Approximately 300 facilities

The supply chain for family planning commodities is run by the SPHCDA, with support from the USAID | DELIVER PROJECT and TSHIP.

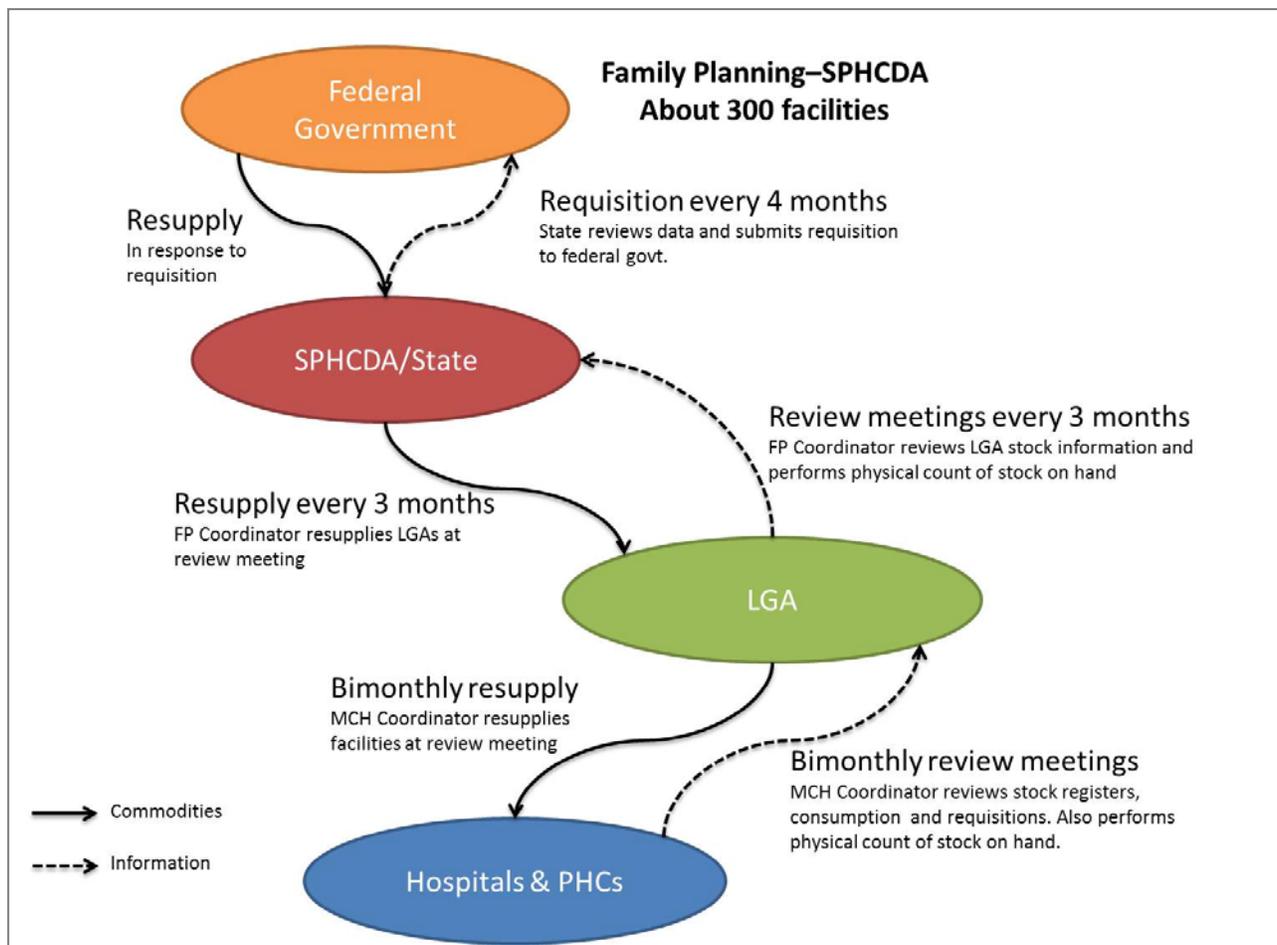
Data Flow:

Hospitals and PHCs meet bimonthly in clusters of LGAs, where a team comprising USAID | DELIVER PROJECT staff working with state and LGA staff reviews family planning (FP) registers, consumption reports, and requisitions. The team also performs a physical count of the stock on hand for each facility. Every three months, a review meeting occurs at the state level, where USAID | DELIVER PROJECT staff work with their state colleagues to review LGA stock cards and reports and perform a physical count of each LGA's stock on hand. Every four months, project staff, in conjunction with their state colleagues, review stock cards and reports from the entire state and submit a requisition for the state to the federal government.

Commodity Flow:

The federal government resupplies Bauchi State based on the requisition the state submits every four months. Every three months, the State Family Planning Coordinator resupplies the LGAs at the review meeting. In turn, the MCH Coordinator resupplies hospitals and PHCs at the review meeting every two months.

Figure 1. Data and Commodity Flow for Family Planning Commodities



Distribution Model 2: Malaria Commodities—BACATMA

Coverage: Approximately 400 facilities

The supply chain for malaria commodities is run by the BACATMA.

Data Flow:

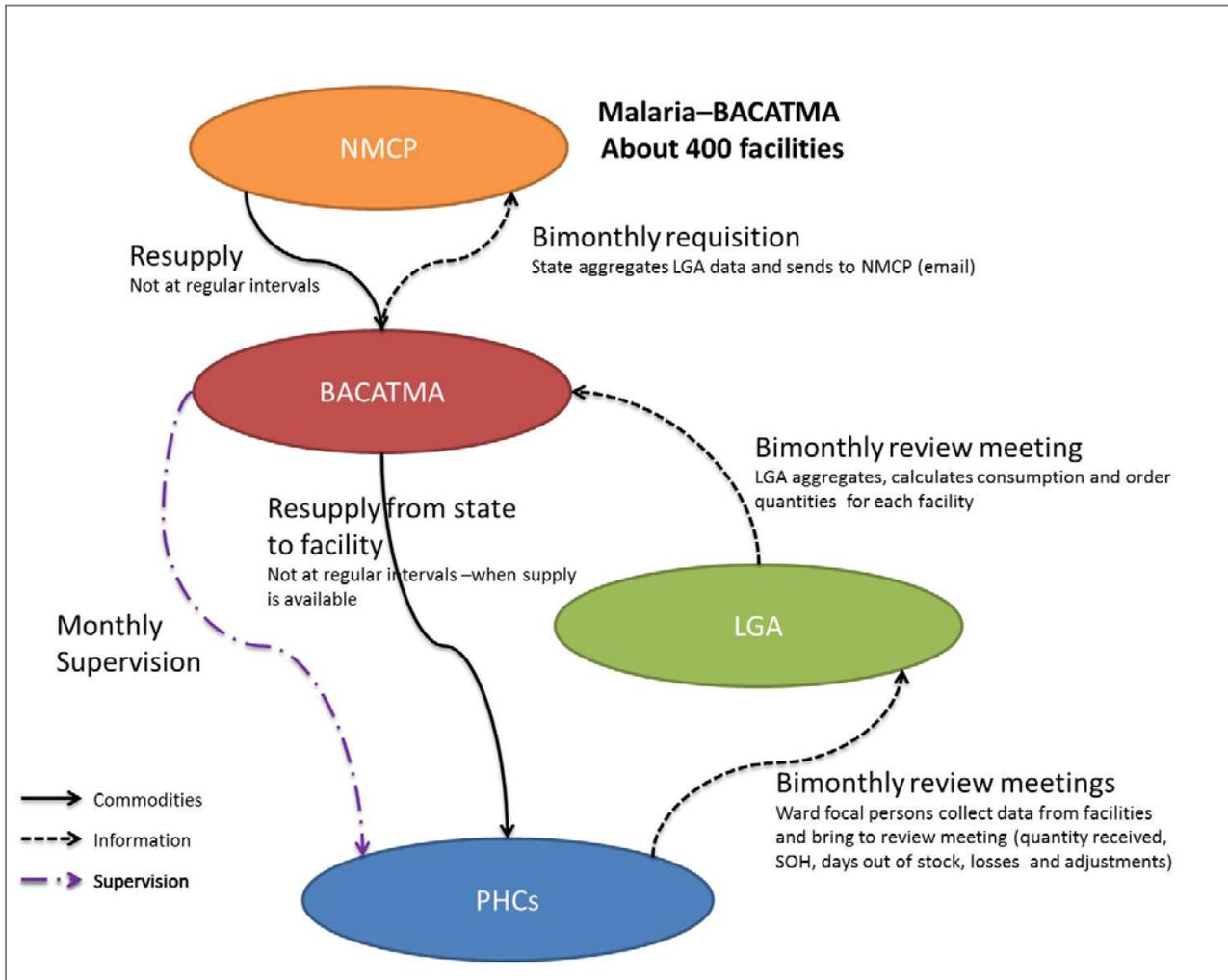
Every two months, ward focal persons collect logistics data from facilities and bring the data to review meetings at the LGA. The data collected include stock on hand (SOH), quantities received, days out of stock, and losses and adjustments. The LGA staff aggregate the data received and calculate consumption and quantities required for each facility in the LGA. This information is sent

to BACATMA whose staff then aggregate the data from all of the LGAs and send them to the National Malaria Control Program (NMCP) via email.

Commodity Flow:

NMCP resupplies BACATMA, but this does not occur at regular intervals. In turn, the state’s resupply to PHCs only occurs when supplies are available, not at regular intervals. Distribution is done by direct delivery of supplies from the state to the facilities.

Figure 2. Data and Commodity Flow for Malaria Commodities



Distribution Model 3: Essential Medicines—SPHCDA

Coverage: Approximately 312 facilities

The supply chain for essential medicines is run by the SPHCDA.

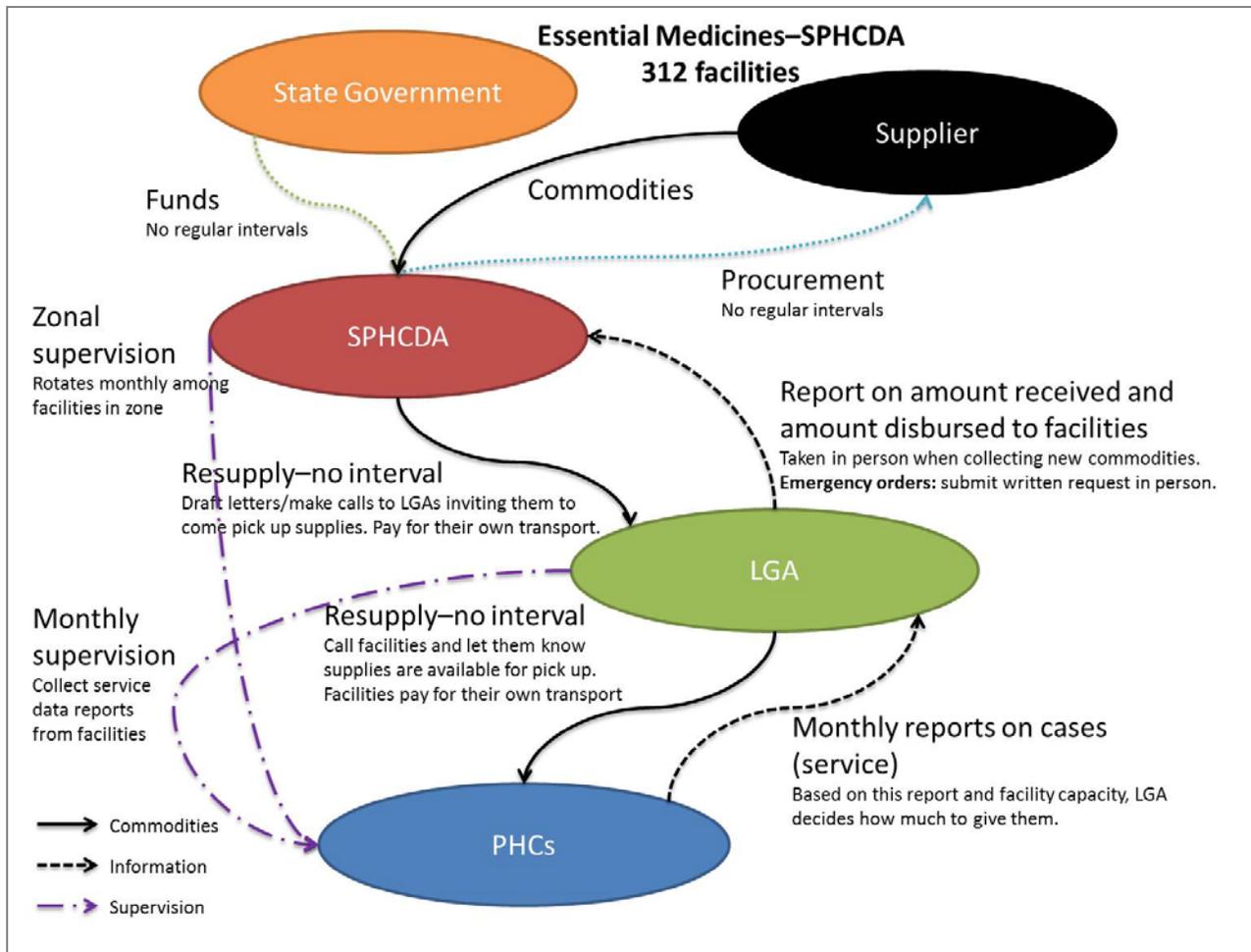
Data Flow:

PHCs report monthly to the LGA on services performed (cases treated). The LGAs report to SPHCDA at the state level on the amounts received and distributed to PHCs when they are collecting new commodities for the upcoming period, although this is not done at regular intervals.

Commodity Flow:

The state government provides the SPHCDA with funds for commodity procurement at irregular intervals. SPHCDA then resupplies the LGAs whenever supplies are available, by drafting letters or making calls to the LGAs inviting them to travel to the state central warehouse to pick up supplies. In turn, the LGAs supply the PHCs by calling them to let them know that supplies are available for pick up at the LGA. This is done at irregular intervals, depending on product availability.

Figure 3. Data and Commodity Flow for Essential Medicines



Distribution Model 4: MCH Commodities—Hospitals

Coverage: Approximately 23 facilities

The supply chain for MCH commodities in hospitals is run by the HMB in conjunction with the SMOH.

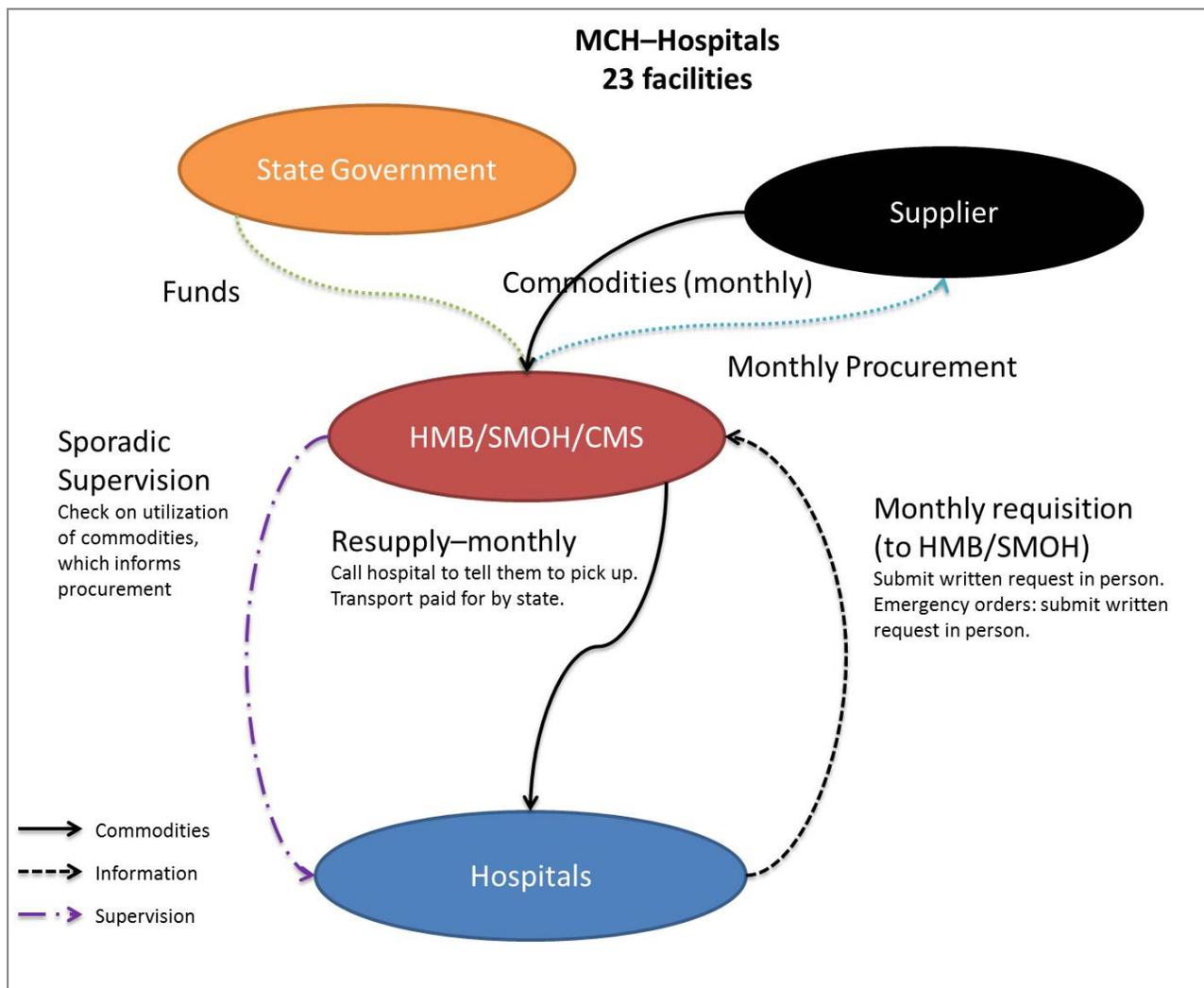
Data Flow:

Hospitals submit a monthly requisition to HMB/SMOH.

Commodity Flow:

The Bauchi State government provides the HMB with funds to procure commodities, which HMB does monthly. Hospitals are thereby resupplied monthly by calling the hospitals to invite them to pick up their supplies from the CMS.

Figure 4. Data and Commodity Flow for Hospital MCH Commodities



Distribution Model 5: Vaccines—NPHCDA

Coverage: Approximately 335 facilities

The supply chain for vaccines is run by the National Primary Healthcare Development Agency (NPHCDA) with support from the United Nations Children’s Fund (UNICEF).

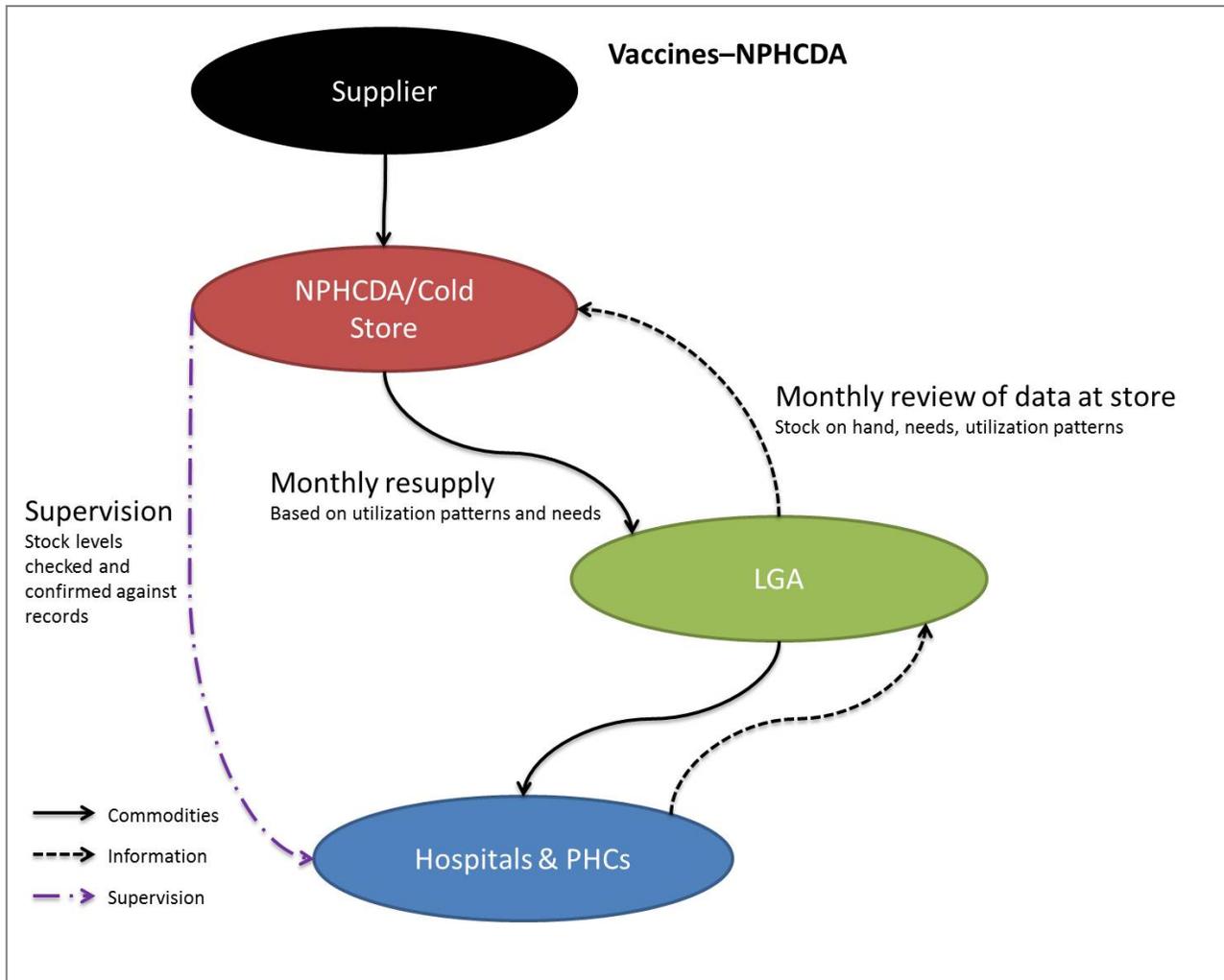
Data Flow:

Hospitals and PHCs report data to the LGA, and these data are reviewed at the State Cold Store monthly. The data reported include stock on hand and utilization information, from which the Cold Store calculates the LGA needs. The LGA utilization reports are also sent to the monitoring and evaluation (M&E) officer at NPHCDA.

Commodity Flow:

The State Cold Store supplies the LGAs at the monthly review meeting, based on utilization patterns and needs.

Figure 5. Data and Commodity Flow for Vaccines



Distribution Model 6: MCH—MDG NHIS

Coverage: Approximately 100 facilities

This distribution model includes a select number of PHCs in six LGAs to which the federal government sends funds directly to support all registered pregnant mothers and children under five. These facilities are not included in the statewide free MCH program.

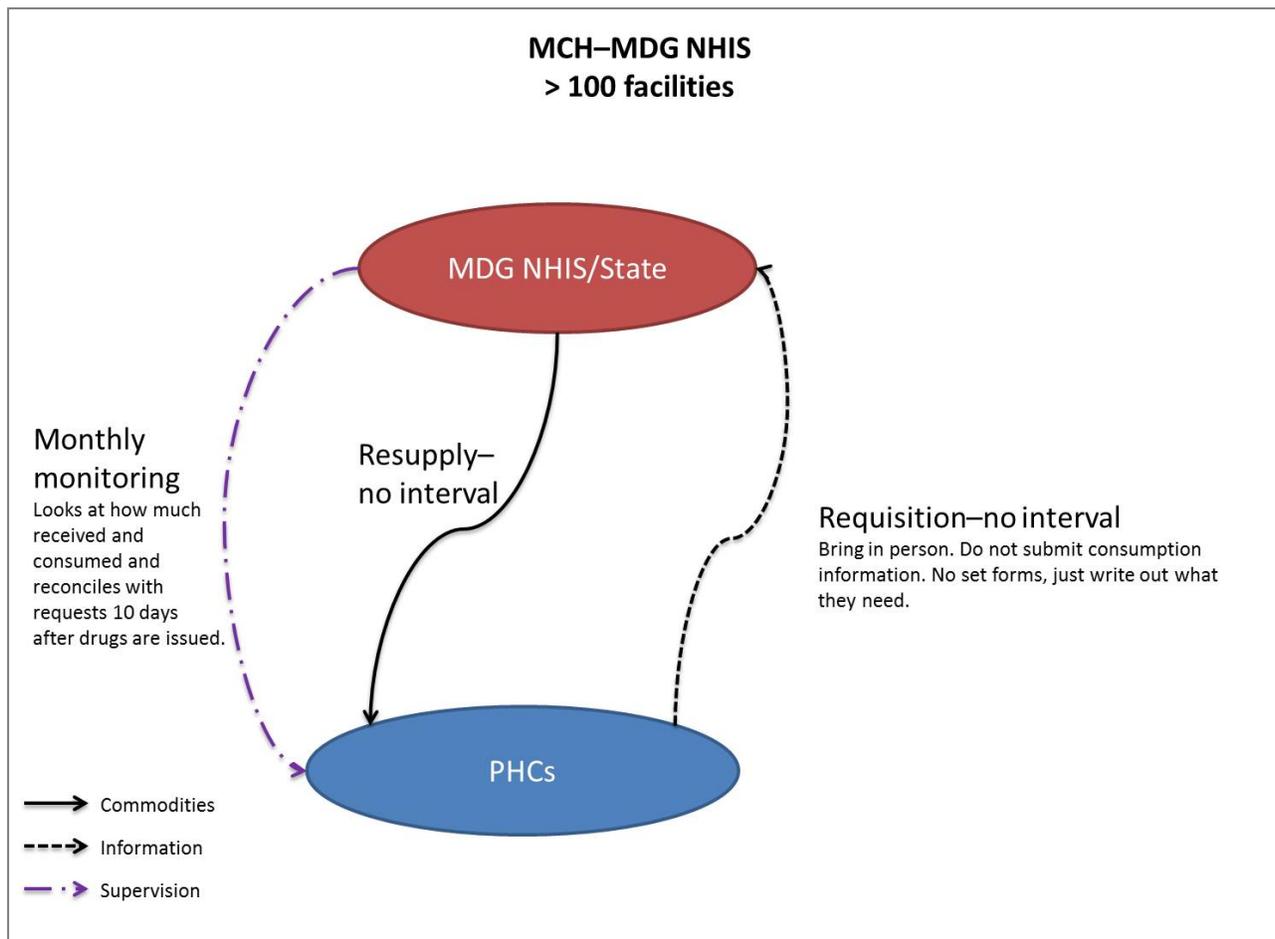
Data Flow:

PHCs submit a requisition to the Millennium Development Goals National Health Insurance Scheme (MDG NHIS) at the state level at irregular intervals. The information submitted is simply a list of their needs; they submit no consumption information.

Commodity Flow:

MDG NHIS resupplies the PHCs in response to their requisitions at no regular interval.

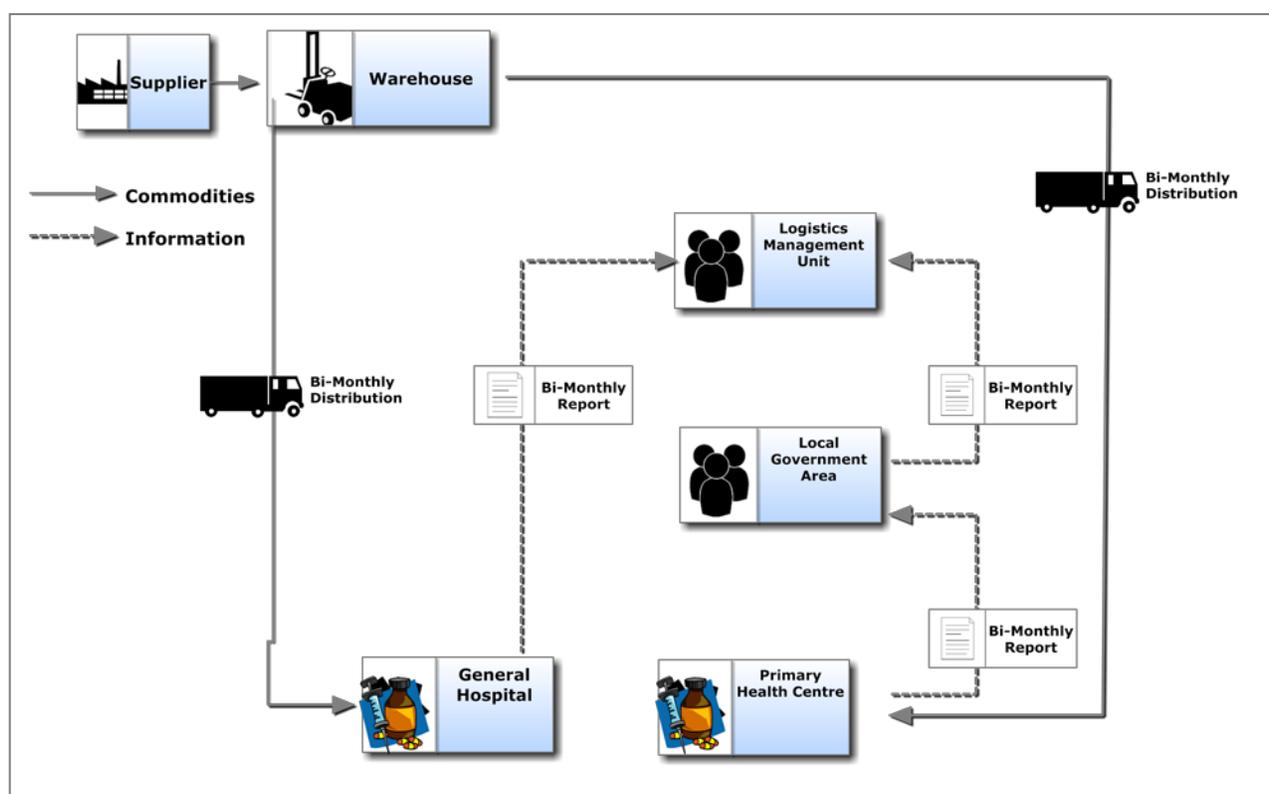
Figure 6. Data and Commodity Flow for MDG—NHIS MCH Commodities



Proposed Standard Operating Procedures

As part of the ongoing efforts to expand and strengthen MCH services in Bauchi, a logistics system assessment of the MCH program was carried out in July 2011. Based on the results of the assessment, a participatory logistics system design workshop was conducted in October 2011. The purpose of the system design workshop was to agree on the design and the operations of a standardized logistics system for managing MCH commodities needed for MCH service provision in Bauchi State. This included consensus on the design of the state supply pipeline, as well as the inventory control procedures and the data collection and reporting systems to be used by all facilities that will receive and use commodities for MCH. As a result, SMOH and partners agreed to adhere to the standard operating procedures illustrated below.

Figure 7. Proposed Logistics Management Information System for MCH Commodities



The proposed inventory control system designed to manage MCH commodities in the MCH logistics system is a forced-ordering maximum/minimum inventory control system. In the logistics system for MCH commodities, this means that every facility that receives MCH commodities would be required to report at the end of every two months. Then, based on the information reported, each facility would receive a bimonthly distribution of supplies that would bring their stock levels for all products back up to the established maximum level. The table below describes the reporting that would be required for each facility under this scheme:

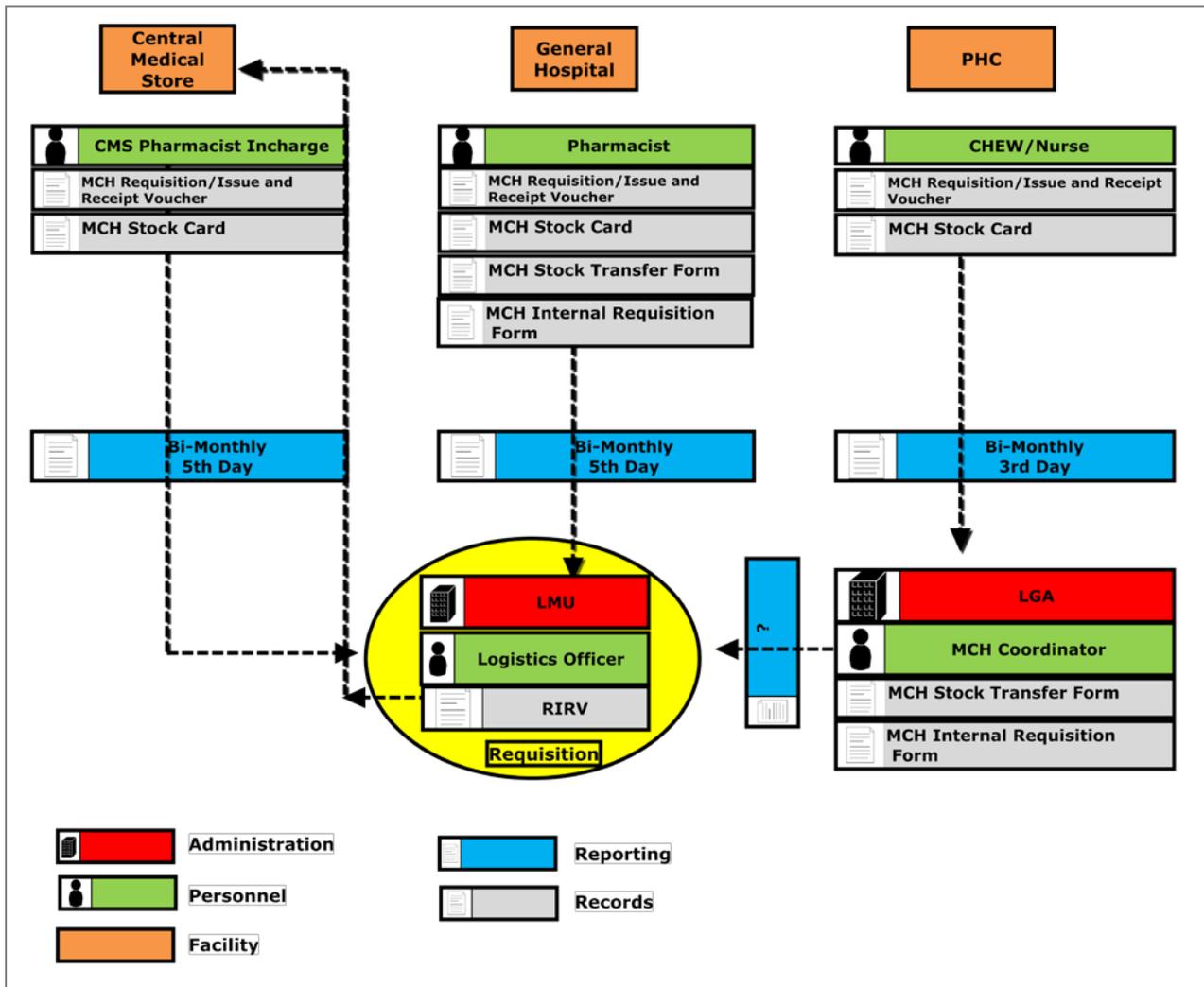
Table 1. Proposed Reporting Procedures and Documents for MCH Commodities

At the end of every 2 nd month...		Records
Central Medical Stores	Report quantities received, issued, losses and adjustments, and stock on hand to the MCH Logistics Officer at the Logistics Management Unit (LMU) by the 5th day of the month following the reporting period.	<ul style="list-style-type: none"> - MCH Stock Cards - MCH Requisition/Issue/ Receipt Voucher (RIRV)
General Hospitals	Report quantities received, quantities issued by hospital, losses and adjustments, and stock on hand to the MCH Logistics Officer at the LMU by the 5th day of the month following the reporting period.	<ul style="list-style-type: none"> - MCH Stock Cards - MCH Stock Transfer Form - MCH Internal Requisition Form - MCH Requisition/Issue/ Receipt Voucher
Primary Health Centers	<p>Report quantities received, quantities issued to the facility, losses and adjustments, and stock on hand to the LGA MCH coordinator by the 3rd day of the month following the reporting period.</p> <p>After receiving and reviewing the <i>LMIS Bimonthly Reports</i> from PHCs and following up on any errors or discrepancies, the LGA MCH coordinators bring the MCH <i>LMIS Bimonthly Reports</i> from the PHCs to the bimonthly logistics LGA meeting for analysis and transmission to the LMU MCH Logistics Officer.</p>	<ul style="list-style-type: none"> - MCH Stock Cards - MCH Requisition/Issue/ Receipt Voucher

NOTE: If stock levels ever fall below the Emergency Order Point of one month of stock before the end of a bimonthly reporting period, the LGA MCH coordinator and the LMU MCH Logistics Officer should issue an emergency order of supplies to the General Hospital or PHC that is running short of supplies.

The document flow in the proposed logistics system is shown in figure 8:

Figure 8. Document Flow in Proposed System



It should be noted that the SOPs described above are still in draft form and have not been disseminated widely within Bauchi State. Although the system design team had received commitment for this implementation, personnel changes in the top management team of the SPHCDA and the SMOH since design completion meant that the new executives in place had not bought into this vision. In addition, the SOPs do not take into account the different agencies involved in MCH commodity distribution and do not define their roles in the proposed system. The SOPs are also designed for, and assume, a full-supply situation, which is not the case for MCH commodities in Bauchi. As such, the SOPs need to be revised to define the roles of the agencies and establish ownership of the logistics data collected.

Chapter Two: Workshop

This chapter covers the consensus-building workshop that was held with MCH stakeholders in Bauchi State and the outcomes and follow-up to that workshop.

Workshop

The objective of the all-day workshop held on May 30, 2012, was to bring together all of the different stakeholders involved in MCH commodity distribution in Bauchi State to discuss and develop a common vision for an eLMIS to manage these commodities. The workshop was well attended, with technical staff from SMOH, BACATMA, SPHCDA, DMA, and CMS present, so that all stakeholder organizations except the HMB were represented. Representatives from the State Ministry of Budget and Economic Planning, and JSI's TSHIP attended as well.

The workshop began by setting the stage for the day by defining logistics data and discussing the importance of these kinds of data for managing commodities. Workshop participants were reminded of the three standard logistics indicators—consumption, stock on hand, and losses and adjustments—and the difference between logistics data and services data was stressed. The six distribution models discussed in chapter one were then presented to the group, and participants were asked for input on how accurate the models were, and whether any corrections needed to be made. Apart from a few minor corrections, the group agreed that the distribution models represented an accurate picture of the situation in the state. As such, all agreed that a harmonized system for MCH commodity distribution and collection of logistics data was necessary for Bauchi State.

Small-Group Discussion One: Expectations of an LMIS

Building on this agreement, the participants were divided into two groups to discuss what they would like out of a logistics information system. The discussion groups were given 30 minutes to discuss their expectations and were given questions to help guide the discussion, as follows:

- What decisions need to be made with the data?
- What reports would be useful to make these decisions?
- What data pieces need to be collected to create these reports?
- What other considerations need to be kept in mind for a logistics information system for MCH commodities?

There was lively discussion within the groups, followed by each group reporting back to the larger gathering on what had been agreed upon. By and large, both groups agreed on the kinds of decisions they would want to make about MCH commodities. These included:

- procurement and commodity selection decisions
- funding decisions

- planning, quantification, and forecasting decisions
- impact assessments of interventions

All agreed that logistics data collected through a logistics management information system would be invaluable in making these kinds of decisions.

Small-Group Discussion Two: Assumptions, Limitations, and Challenges

Following this discussion, the workshops were again divided into two separate—and different from before—groups. The purpose of these groups was to discuss the assumptions, challenges, and limitations that should be taken into account when implementing a logistics management information system. The small groups were given the following questions to guide their discussion:

- What assumptions should the system take into account?
- What are the challenges involved in stock management of MCH commodities?
- What limitations may affect logistics data related to MCH commodities?

On reporting back to the larger group, it was agreed that a logistics management information system would need to assume that the following conditions were in place:

- full supply of MCH commodities
- functional transportation
- effective monitoring and supervision
- a harmonized distribution system
- available and skilled human resources
- adequate funding
- political will

Unfortunately, the reality is that not all of these conditions are in place. The group discussions yielded the following as limitations and challenges:

- non-full supply of commodities
- poor recordkeeping at facilities
- poor-quality reporting
- low commitment to and funding for MCH commodities
- inadequate infrastructure, including roads, electricity, power, and IT facilities
- lack of central coordination; multiple reporting processes and fragmentation of systems
- inadequate numbers of trained staff and few opportunities for capacity building
- low security levels leading to pilferage

The group's consensus was that these challenges and limitations would need to be addressed before an effective logistics management information system could be put in place.

Workshop Next Steps

The group agreed on several next steps coming out of the workshop:

- Participants would brief the leaders at their respective organizations on the workshop outcomes and advocate for harmonization of distribution processes for MCH commodities.
- The Technical Assistant to the Commissioner for Health, who attended the workshop, would follow up with the commissioner about forming a steering committee comprising representatives from all stakeholder organizations. This committee's mandate would be to work on harmonizing distribution processes; creating SOPs for MCH commodity distribution; and reporting logistics information.

Follow-Up to Workshop

In the days following the workshop, follow-up meetings were held with senior managers of some of the agencies involved in the distribution of free MCH commodities in Bauchi State, some of whom had been unable to attend the workshop and had sent technical staff to represent them. Among these meetings were the Director of Pharmaceutical Services at the SMOH, the Managing Director of the DMA, and the Technical Assistant to the Commissioner for Health. All agreed that there was a need for a committee to discuss harmonization of distribution and reporting processes; with representatives from all of the agencies involved in MCH commodity distribution. This committee would agree on procedures for reporting logistics information and where the information would be housed.

A debriefing meeting was also held with the Commissioner for Health for Bauchi State, who had been unable to attend the workshop. During this meeting, the commissioner expressed support for harmonizing logistics processes for free MCH commodities and pledged to convene a meeting of all the relevant stakeholder agencies to discuss the way forward. The outcome of this meeting would be the formation of a steering committee that would define the roles of the different agencies and drive the harmonization process.

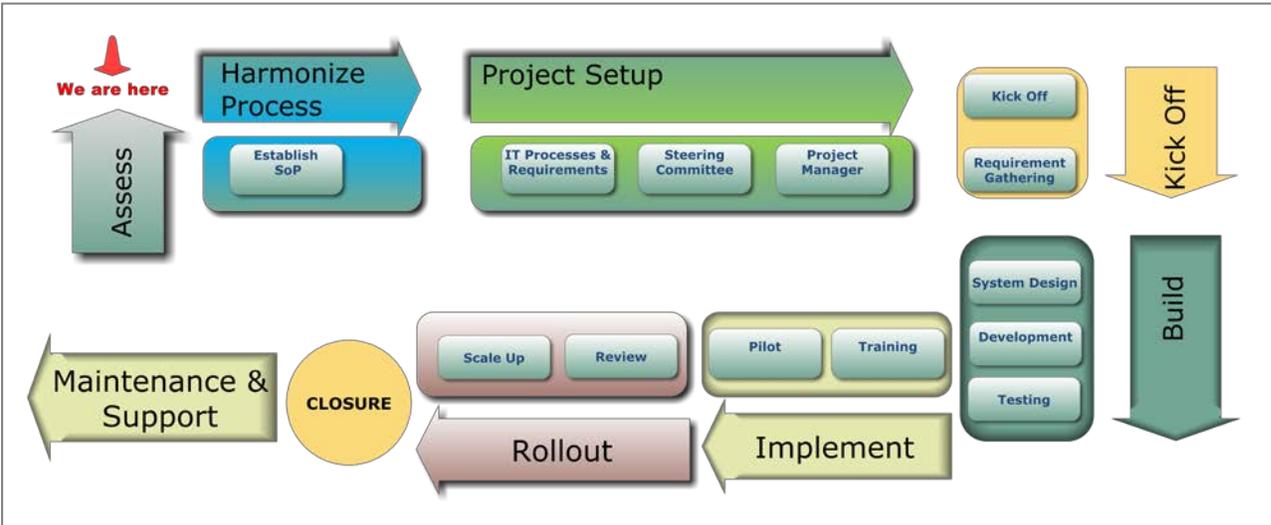
Chapter Three: Next Steps

Before successful implementation of an eLMIS for MCH commodities can occur in Bauchi State, standardized procedures for distribution and reporting must be agreed upon and implemented. This agreement and implementation will depend on having the political will and commitment to harmonize procedures across all the stakeholder agencies involved in MCH commodity distribution. To support Bauchi State at this stage, the following immediate next steps were identified for the USAID | DELIVER PROJECT Nigeria field office:

- Provide support to Bauchi State to establish a steering committee to harmonize the process and to identify a state focal person for this harmonization and the larger automation project beyond.
- Provide support to Bauchi State as it works on reaching consensus on and committing to harmonized SOPs for MCH logistics processes.

A road map for the development of an electronic LMIS for MCH commodity distribution in Bauchi State is laid out in figure 9.

Figure 9. Project Road Map



As indicated in figure 9, this report outlines the results of the readiness assessment that has been completed. Following this assessment, the immediate next steps, as discussed above, are to harmonize processes and establish SOPs for MCH commodity distribution and reporting, which can then be elaborated for computerization. Without these harmonized processes, successful implementation cannot occur.

The remaining phases of the project are outlined below:

- **Project Set-Up:** In this phase, a steering committee for the project will be formed, or possibly carried over from the harmonization process, and a project manager will be identified
- **Kick-Off:** This will involve a meeting of the steering committee to mark the kick-off of the project as well as requirement-gathering exercises to document needs for the automated system.
- **Build:** Using the user and functional requirements gathered in the previous phase, the system will be designed, built, and tested to ensure that the finished product meets the identified needs.
- **Implement:** Once fully tested and accepted, the electronic system will be piloted in a select number of sites, and users will be trained on how to report to and use the system.
- **Roll-Out:** At the end of the pilot, there will be a review period to identify and solve any problems in the system, after which the system will be scaled up statewide. The project will then close, and the fully functional system will enter the maintenance and support state.

Challenges

The primary challenge to successful implementation of an eLMIS for MCH commodities in Bauchi State is the fragmentation and lack of coordination of systems at the central level, leading to the various distribution and reporting models discussed in this report. In addition, a few other challenges were identified during this assessment:

- **Competing Agencies:** The six different distribution models discussed in chapter one are implemented by four different state agencies, depending on product categories. In addition to those agencies that already distribute commodities, the DMA is a new agency that is also expected to participate in commodity distribution, but whose role has not yet been fully defined. As a result, there is some confusion about which of several players will be responsible for collecting MCH logistics information and making decisions based on it. As procurement decisions are associated with funding, stakeholder agencies have vested interests in maintaining control of logistics data, and more than one agency believes it should be the one to provide the home for this information. This is something that will have to be worked out among the stakeholder agencies and the SMOH.
- **Infrastructure:** Electricity, Internet, and IT infrastructure in Bauchi State is inadequate, and below the central level, there is little computer literacy. In general, there is currently a low level of computerization in the management of MCH commodities. Any electronic system that is developed would have to take infrastructural challenges into account. In addition, the state would need to purchase the relevant hardware, such as computers, servers, and Internet capabilities at the central level at least, and to conduct trainings that may need to cover basic computer literacy in addition to how to use the system developed.
- **Funding:** There is little funding for MCH commodities, which has meant that the commodities are seldom in full supply. As a result, the distributing agencies all perform rationing to some extent, although the amounts vary from agency to agency. Therefore, the electronic system would need to be able to handle rationing, which is something that a typical eLMIS does not do.
- **Human Resources:** There is a shortage of skilled, trained staff at facilities and few opportunities for capacity building. As a result, there is poor recordkeeping at facilities and poor-quality reporting. In addition, little monitoring and supervision is conducted, so there is little

opportunity for this recordkeeping and reporting to improve. This would need to be addressed before implementing an electronic system, as a system is only as good as the data that go into it.

- **Warehouse Management System:** A well-functioning eLMIS also depends on a functioning WMS, so an electronic WMS strongly integrated with eLMIS would be needed. The two systems should be able talk to each other using common protocols for exchanging data. This would help reconcile data between the two systems and consolidate information for better data analysis. At present, there is no WMS in place in Bauchi State.

Conclusion

Bauchi State is not yet ready to implement an eLMIS for its free MCH commodities. Based on the challenges identified during the assessment exercise and discussed in this report, some groundwork remains to be done before computerization can occur. However, officials in the state have expressed commitment to the computerization effort and willingness to do whatever needs to be done to bring the state to the point where it will be ready to automate. Therefore, while the process may take longer than originally envisioned, there is hope that the current state of affairs does not mean a death knell for the computerization effort.

There may also be some need to rethink the scope of the electronic system that will be put in place. Given the fact that most MCH commodities are not in full supply, and as a result are rationed, there may be more interest in simply collecting information on what has been issued to facilities and not collecting consumption data for the moment. This would give a picture of what is being distributed throughout the state and can be expanded to include consumption data as more funding for commodities becomes available.

Reference

Bauchi State Ministry of Health, the Federal Republic of Nigeria, THE USAID | DELIVER PROJECT, and TSHIP. 2011. *Standard Operating Procedures Manual for Management of Maternal Child Health Commodities Logistics System*. DRAFT.

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