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DECENTRALIZING AND INTEGRATING CONTRACEPTIVE LOGISTICS SYSTEMS IN LATIN AMERICA AND THE CARIBBEAN

CONSIDERATIONS FOR INFORMED DECISION MAKING THROUGHOUT THE HEALTH REFORM PROCESS



OCTOBER 2006

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DELIVER
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DELIVER

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Abstract

This paper highlights key considerations for policymakers in ministries of health and decision makers from the international donor community for prioritizing supply chain management throughout the health reform process—primarily when decentralizing and/or integrating the public health system. From a thorough compilation of experiences in the Latin American and Caribbean region, this paper synthesizes key ideas that policymakers, family planning managers, and logistics advisors can consider when implementing the decentralization and/or integration reforms of certain or all logistics systems functions to help sustain an efficient and continuous supply of contraceptives. These lessons illustrate how various logistics functions can be negatively affected when they are not prioritized throughout reform processes, while some reform measures can have positive effects on the supply chain when given priority attention throughout the planning and implementation process. Through careful planning, decision makers can help maintain a well-built logistics system that guarantees the availability of contraceptives to clients when implementing decentralization and integration reforms.

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ACRONYMS

CCSS	<i>Caja Costarricense de Seguro Social</i> (Costa Rica Social Security Institute)
CS	contraceptive security
DFID	Department for International Development (United Kingdom)
EPI	Expanded Programme on Immunizations
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
HSR	health sector reform
IMSS	Social Security Institute (Mexico)
LAC	Latin American and Caribbean
LMIS	logistics management information system
MOH	Ministry of Health
NGO	nongovernmental organization
PRISMA	Peruvian nongovernmental organization
RH	reproductive health
SIBASI	basic integrated health system (El Salvador)
TB	tuberculosis
UNFPA	United Nations Population Fund
USAID	U. S. Agency for International Development

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EXECUTIVE SUMMARY

Health sector reform (HSR) and sector-wide, health-strengthening initiatives—supported by bilateral donors, multilateral agencies, and development banks—have had an impact (in some cases, a large impact) on contraceptive logistics systems performance in most Latin American and Caribbean countries during the last two decades. Two components of HSR in particular—decentralization of the health sector and integration of health logistics system functions—have affected Ministry of Health and social security supply systems throughout the region. On some occasions, they have had a positive effect, but in other cases reforms have created challenges to maintaining efficient and well-functioning contraceptive logistics systems. Challenges may be magnified by recent gradual decreases in donor contraceptive support and by a growing demand for contraceptives in the region.

To help countries during the transition from external assistance to self-sustainability, this paper discusses the importance of prioritizing logistics—or supply chain management—throughout the health reform process. Logistics, or supply chain management, is the set of activities that moves products to people. The supply chain can be designed to succeed in virtually any environment as long as policymakers and program managers are committed to making and keeping products available for their clients. In all circumstances, supply chain management requires careful and detailed planning, policy-level visibility and support, sufficient human and material resources, and a commitment to the collection and use of accurate and timely information to drive supply chain decision making. Without these, supply chains are vulnerable to disruption and waste and many of the goals of health reforms can be lost. With these conditions, however, supply chains are robust and can bring many benefits in terms of program impact, efficiencies and cost savings, quality of care, and customer satisfaction—all important objectives of most health reforms.

This paper synthesizes key considerations that policymakers, family planning managers, and logistics advisors can take into account when implementing decentralization and/or integration reforms of certain or all logistics systems functions, which will help sustain an efficient and continuous supply of contraceptives:

- Before implementing decentralization and integration efforts, a commitment to family planning and to ensuring contraceptive availability must be sought and developed at all levels.
- Early planning is crucial to guarantee that reform efforts—namely, decentralization and integration—help sustain commodity availability at all levels.
- Logistics functions must be carefully analyzed during the planning phases of decentralization and integration efforts.
- Strong leadership often facilitates change; natural, respected leaders must be identified and included in the process to guide technical discussions on the advantages and disadvantages of decentralizing and integrating certain aspects of the supply system.
- Data-based planning from the outset about possible challenges to decentralizing or integrating different functions may result in more realistic plans and, consequently, make implementation easier.
- Some functions may lead to better system performance when they are centralized, while others may result in better performance when they are decentralized. John Snow, Inc./DELIVER's experience suggests that health systems should retain central capability for some logistics functions that are most likely to fail when decentralized, for example—

- logistics management information systems
- design of inventory control systems
- specifications and enforcement of essential medicines lists
- product selection and essential service package specifications
- bulk procurement
- rationing for scarce essential products
- quality assurance for all products.

(John Snow, Inc./DELIVER 2001)

- A focus on human capacity and new roles and responsibilities must be part of the planning process to ensure true ownership of logistics responsibilities. This will require widespread training and elimination of duplicate roles and functions. Decentralization or integration of certain contraceptive logistics functions requires a significant investment in human capacity development, information systems, and logistics training at different levels; without this training, the result may be less effective supply system performance. The time and effort required to reorient staff and provide logistics and supervisory training is often underestimated.
- A pilot test approach can help ensure smooth implementation of, for example, an integrated logistics information system that, subsequently, will be instituted on a larger, national scale.
- Throughout the planning stage, family planning and logistics experts must be included for advice and analysis of the effects of decentralizing and integrating the contraceptive logistics system. This will help protect the family planning program and its positive effects on maternal and child health and will ensure contraceptive availability at all levels.

For countries that are just beginning to plan for decentralization or integration and for those that are already in the implementation stage, it is important to proceed cautiously. Other countries' experiences have shown that unanticipated problems may occur when supply chain management has not been considered a priority throughout the reform process. A lack of careful planning can seriously degrade the logistics system, interrupting the efficient flow of commodities to the client, which is an essential component of any effective health program.

INTRODUCTION

Traditionally, international donors have partially or completely supplied contraceptives to the Latin American and Caribbean (LAC) region. As a result, in-country ministries of health (MOHs) and social security institutes have set up, financed, and managed vertical contraceptive logistics systems that function separately from essential medicine and other specialized (also vertical) supply systems, such as vaccine, HIV/AIDS, tuberculosis (TB), and malaria supply chains.¹ In recent years, however, donor support for contraceptives has started to decline worldwide. In the early 1990s, Latin America was the first region to begin experiencing a decline in contraceptive donations from the U.S. Agency for International Development (USAID) and other donors. Mexico, Chile, and Colombia were the first to become completely donor independent, assuming total financial and managerial responsibility for contraceptive procurement and distribution. Brazil and Costa Rica soon followed when donor contraceptive support ceased. In the LAC region, nine countries are beginning various stages of planning for the phaseout of external donations and/or technical assistance: Bolivia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, and Peru. Because of these shifts in donor support, MOHs have begun developing and strengthening their own national contraceptive security plans, including implementation of policy, procurement, financing, service delivery, logistics, and market segmentation strategies.

To help countries during the transition as they move from external assistance to self-sustainability, this paper discusses the importance of prioritizing logistics throughout the health reform process. Logistics—or supply chain management—is the set of activities that moves products to people. The following analysis illustrates that the supply chain can be designed to succeed in almost any environment, as long as policymakers and program managers are committed to making and keeping products available to their clients. In all circumstances, supply chain management requires careful and detailed planning, policy-level visibility and support, sufficient human and material resources, and a commitment to the collection and use of accurate and timely information to drive supply chain decision making. Without these, supply chains are vulnerable to disruption and waste, and many of the goals of health reforms can be lost. With these conditions, however, supply chains are robust and bring enormous benefits in terms of program impact, efficiencies and cost savings, quality of care, and customer satisfaction—all important objectives of most health reform initiatives.

HEALTH SECTOR REFORMS: DECENTRALIZATION AND INTEGRATION

During the past two decades, health sector reforms (HSRs)—supported by bilateral donors, multilateral agencies, and international financing institutions—have, in one form or another, impacted contraceptive logistics systems in most LAC countries. Two HSR strategies in particular—decentralization of the health sector and integration of health logistics system functions—have created both positive effects, as well as challenges for public-sector contraceptive supply systems throughout the region. Integration can be defined as the merging of vertically managed health services and management activities—for example, the development of a consolidated logistics system for all essential medicines. The impending phaseout of contraceptive donations is frequently a justification for integrating the contraceptive supply system into the overall logistics system for all essential medicines or vice versa. Decentralization in health systems typically pushes varying degrees of responsibility for management functions from the central to the regional or district level, or sometimes to the municipal or facility level. Degrees of decentralization

1. The term supply chain refers to the entire chain of storage facilities and transportation links through which supplies move from manufacturer to consumer, including port facilities, the central warehouse, regional warehouses, district warehouses, all service delivery points, and transport vehicles.

vary between functions and between countries, and discrepancies exist between policy and practice.

While integration and decentralization can be beneficial to ensuring that commodities get to the customers who need them, these reforms can pose significant challenges to the integrity of the logistics system, particularly when supply chain management has not been prioritized throughout the reform process. The key findings from this report about decentralization and integration of contraceptive supply systems can assist health managers and decision makers prioritize supply chain management when considering or implementing HSR.

IN BRIEF: CONTRACEPTIVE SECURITY AND THE CONTRACEPTIVE LOGISTICS SYSTEM

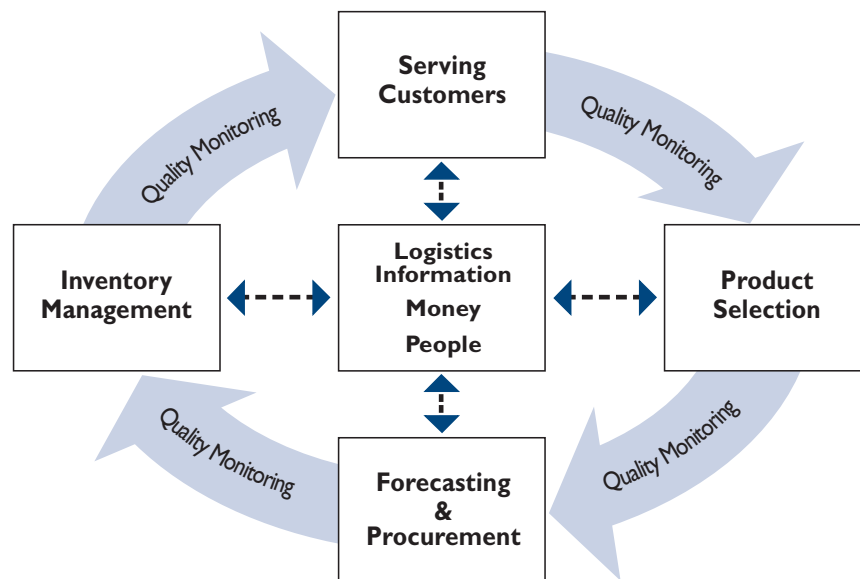
To achieve contraceptive security (CS), MOHs and others must know their commodity requirements, have or be able to coordinate the resources required to meet commodity requirements for the medium- to long-term, and effectively procure and distribute supplies (or have them procured and distributed) to clients. Understanding the logistics cycle (see figure 1), designing an effective logistics system, and efficiently performing logistics functions provide the foundation essential to attaining CS in any country.

Contraceptive security has been achieved when individuals have the ability to choose, obtain, and use quality contraceptives and condoms whenever they need them.

LOGISTICS CYCLE

Supply chain management includes several components that must be in place and functioning effectively to move products efficiently through the supply chain. The core focus of the logistics cycle is the consumer or *customer* of medicines and contraceptives. Each component of the logistics cycle must be in place and functioning effectively to move products through the different levels of the logistics system and to ultimately deliver them to the customers who need them (see figure 1).

Figure 1. Logistics Cycle



The essential components of the logistics cycle are—

Product selection. This ensures that the right product is selected to meet the needs of the customers. Criteria for the selection of the right products must be clear and based on quality, effectiveness, and affordability.

Data-based forecasting and procurement. Forecasting relies on historical consumption information as well as demographic, morbidity, and program planning data to generate short- and medium-term projections that will determine procurement needs and inform financing options. The next step is to quantify the actual amounts to be procured, taking into account quantities in stock and on order, additional quantities needed to ensure adequate stock levels and buffer stocks, and available financing. Commodities are then procured to ensure the timely delivery of shipments, clearance of products through customs, and final quality control checks.

Inventory management. This includes the design and implementation of inventory control systems and entails correct warehousing, reliable transportation, and efficient distribution of commodities throughout the supply chain.

Logistics management information systems (LMISs). These systems are critical to sound decision making. An LMIS collects data on the quantities of stock available at each distribution level, rates of consumption, and losses and adjustments. Streamlined management of this component (either run manually or through an automated system) is essential for effective overall system performance. An LMIS that has accurate, timely, and complete data allows managers to facilitate stock movements to ensure product availability, provide accountability to funders and policymakers, help minimize waste, and ensure increased transparency.

Political leadership and adequate financing. Both of these help support the efficient functioning of the logistics system. The logistics cycle must be supported by an effective policy and legal framework, which is addressed at the national level. Program managers, technical assistance providers, and donors must understand and articulate how each component in the cycle affects health service delivery and specific objectives that policymakers care about: health reform, cost recovery, commodity security, and program expansion. Political leadership is a necessary instrument to establish a legal and regulatory framework that supports commodity availability, including affordable prices, adequate financing, and sound supply chain management.

Quality monitoring. This should take place during all stages of the cycle.

(Rao, Mellon, and Sarley 2006)

LOGISTICS FUNCTIONS

Understanding and examining the essential logistics functions, which are part of the logistics cycle described above, are fundamental when prioritizing supply chain management throughout the reform process. Table 1 lists the essential logistics functions that must be efficiently carried out throughout the logistics cycle to ensure commodity availability for the client.

As mentioned above, the logistics system can be customized to any setting as long as international donors and agencies, as well as national policymakers, in close coordination with MOH family planning and logistics staff, carefully analyze the effects of health reforms on each function of the logistic cycle and on the logistics system as a whole, and then determine the most effective way to proceed with health reforms. More specifically, before program managers and policymakers begin to decentral-

TABLE 1. LOGISTICS FUNCTIONS

Functions of the Logistics System	
1.	Treatment protocols
2.	Product selection
3.	Forecasting and needs quantification
4.	Budgeting
5.	Procurement
6.	Inventory control
7.	Transportation
8.	Human resources/Personnel
9.	Training and supervision
10.	Monitoring and evaluation/Quality assurance
11.	Logistics management information system
12.	Warehousing and distribution
13.	Organizational support

ize or integrate, they need to understand and examine each logistics function to determine the extent to which that function is currently effective, who manages and performs the function, and the resources required to ensure that each function is correctly carried out. After these determinations are made, steps can be taken to ensure that resources, functionalities, and efficiencies are preserved, and possibly even improved upon, while reforms are carried out throughout the health sector. By preserving and deepening logistics function performance, policymakers and program managers can help guarantee a successful health reform process. Sustained commodity availability is a key component of any successful health program (Bossert et al. 2003).

The following section provides lessons learned from various health reforms, which were carried out primarily in the LAC region. These lessons illustrate how various logistics functions can be negatively affected when they are not prioritized throughout reform processes, while some reform measures can have positive effects on the supply chain when given priority attention throughout the planning and implementation process.

DECENTRALIZATION AND INTEGRATION: A BRIEF OVERVIEW OF THEORY AND PRACTICE

HEALTH SECTOR REFORM

Health sector reform (HSR) emerged as a major focus in the 1990s. Although its antecedents go back many decades, HSR measures were initially introduced by the World Bank in its *World Development Report 1993: Investing in Health* (World Bank 1993). The goals of HSR include improving the quality, equity, and financial sustainability of services as well as increasing access to these services. HSR is rooted in the desire of governments and lenders to provide expanded health care within limited budgets and resources.

During the past two decades, HSR and sector-wide, health-strengthening initiatives—supported by bilateral donors, multilateral agencies, and development banks—have had an impact on contraceptive logistics systems in most LAC countries. Two components of HSR in particular—decentralization of the health sector and integration of health logistics system functions—have created both positive effects as well as disruptions in the MOH and social security supply systems throughout the region. On some occasions, they have had a positive impact, but in other cases, reforms have created challenges to maintaining intact logistics systems. In addition, the phaseout of contraceptive donations is usually another justification for integrating contraceptive supplies into the logistics system for distributing essential medicines or vice versa.

DECENTRALIZATION

Decentralization in health systems typically pushes varying degrees of responsibility for management functions from the central to the regional or district level or even the municipal or facility level. Degrees of decentralization vary between functions and between countries, and discrepancies exist between policy and practice. While decentralization can be beneficial, it poses significant challenges, particularly where capacity is minimal. In some respects, decentralization runs counter to many global trends in state-of-the-art logistics management, which obtains greater efficiencies by centralizing decision making—for example, in areas such as procurement and information systems management. Most LAC countries have adopted or are planning to adopt varying models of decentralization reform in coming years. Degrees or levels of decentralization can be understood as follows:

- *Deconcentration* is the most limited and most common level of decentralization, under which authority, functions, and/or resources are transferred to regional and local field offices of the central government.
- *Delegation* transfers authority, functions, and/or resources to an autonomous private, semipublic, or public institution.
- *Devolution* cedes autonomy and authority to autonomous local governments (usually municipalities), which, at least to some degree, take responsibility for service delivery, administration, and financing of the health system.

IN PRACTICE: SOME COUNTRY EXAMPLES

Health sector reform has introduced many changes in policies that have affected health care delivery and the contraceptive logistics system on which health care depends. Done in the right way, these changes can help

maintain family planning health gains and ensure efficient distribution of contraceptives throughout the supply system. For example, the El Salvador case presented in box 1 illustrates how bulk price negotiations were preserved throughout the decentralization process, thus ensuring health facilities access to affordable commodities. While, in many cases, health and economic reforms have helped improve health service delivery, there have been examples of unintended adverse effects on the operation of family planning and other public health commodity supply chains. These negative results have largely occurred because the implications of change on family planning and health commodity logistics systems were not considered during the planning and program design stage. These outcomes have also occurred because staff at the local level needed to develop capacity to successfully carry out change and to take on new roles and responsibilities before reforms were implemented.

Health sector decentralization frequently takes place under broader national decentralization efforts that are supported by donors and international banks. Unfortunately, decentralization of health care systems is not always the result of thorough planning. Consequently, contraceptive logistics management functions that have usually worked efficiently in a centralized and vertical system have often been disrupted by decentralization trends. In Bolivia, for example, after devolution of management functions to the municipal level, standardized norms and procedures for inventory control, and efficient and transparent procurement management of health commodities, have suffered. As a result of devolution, bulk price negotiations are not carried out and commodity prices are higher than necessary (see box 2). Also, in Brazil, authority was devolved to municipalities without proper local capacity building or sufficient communication about the implications of these changes over time. As a result, product availability was undermined due to a lack of capacity to efficiently forecast, manage inventory, and procure commodities. In response, the family planning supply chain was recentralized to help rectify capacity constraints (DELIVER 2006).

Several country- and function-specific examples of the different types of decentralization are provided below.

Deconcentration of procurement in Guatemala

In Guatemala, procurement responsibility has been deconcentrated to the local health area level. At this time, deconcentration of the procurement function applies only to essential medicines but not to contraceptives. Annually, a central-level committee negotiates price conditions with vendors for essential medicines on the basis of the

BOX 1. EL SALVADOR ENSURES HEALTH FACILITIES ACCESS TO AFFORDABLE COMMODITIES

In *El Salvador*, the MOH health system is currently deconcentrated into five regions, which are, in turn, partially devolved into 27 basic integrated health care systems (SIBASIs). Each SIBASI receives and manages its own budget, including the provision of essential medicines.

Although each SIBASI may independently forecast the need for essential medicines and contraceptives, the central MOH Essential Drugs Unit has successfully implemented a mechanism for consolidating forecasts to help lock-in bulk prices for essential medicines. This process includes tallying up product needs for each SIBASI and negotiating bulk procurements with vendors. Financial resources are then pooled from each SIBASI for a one-time procurement contract and payment action. For contraceptives, the forecasting process as well as the funding mechanism is similar to that of essential medicines and supplies. The only difference is that essential medicines are procured locally, whereas contraceptives are procured through the United Nations Population Fund (UNFPA).

This system has resulted in numerous benefits, including substantial savings of limited government resources; more transparent, simplified, and efficient procurement processes; and stronger procurement capacity at the local level. This type of innovative strategy for ensuring centralized procurement under a decentralized system illustrates the MOH's capacity to ensure cost-effective procurement while devolving decision making strategies to the local level.

BOX 2. DEVOLUTION IN BOLIVIA RESULTS IN HIGHER COMMODITY PRICES THAN NECESSARY

In *Bolivia*, the central government transferred authority for all aspects of administering the family planning program to local governments at the district level. Municipalities are now responsible for managing all aspects of family planning, including securing adequate funding for purchasing contraceptives and managing forecasting and procurement. Because contraceptives are still donated, municipalities have not included a budget to purchase these supplies despite the fact that under the Universal Insurance for Mother and Child Law each municipality should provide contraception to all women of reproductive age who want this service.

In addition, one of the greatest barriers to achieving economies of scale and low prices for commodities is the fact that each municipality has autonomy to procure essential medicines and contraceptives separately and locally—in some cases even from nearby pharmacies. Because bulk price negotiations do not take place, the country does not benefit from the economies of scale achieved when purchasing higher volumes of commodities.

consolidated needs of the entire public health system. Then, each health area places its order directly with vendors at the pre-negotiated prices. Currently, contraceptives are not included in these negotiations because the contraceptive supply chain is still managed vertically, through collaboration with the United Nations Population Fund (UNFPA). When all donations of contraceptive commodities are completely phased out, procurement responsibility for contraceptives may also be deconcentrated to the local level. The challenge ahead will be to evaluate procurement options, both centralized and decentralized, that will help guarantee adequate availability of contraceptives at the lowest possible price and of the best quality (Abramson, Sánchez, and Olson 2006).

Deconcentration of storage in Mexico

To reduce costs and storage space requirements, Mexico's Social Security Institute (IMSS) eliminated its central warehouse. IMSS's suppliers now ship products directly to each of 37 delegation (state) stores. Elimination of the central warehouse reduces the need for storage space and warehouse staff, shortens the pipeline, and thus reduces costs. This action resulted in savings at the central level and significantly reduced the transit time of the supplies by placing them closer to health facilities for the same price (Quesada and Reynoso 2002).

Delegation of all functions in Costa Rica

In the early 1990s, as part of HSR, Costa Rica's MOH delegated all responsibility for health care provision (including family planning) to the Costa Rica Social Security Institute (CCSS). The MOH retained only a normative function. In 2002, 88 percent of the population was officially registered with the CCSS, and the organization served as a safety net for the remainder of the population. (Health care facilities are required by law to provide care even to those not officially registered.) In 2005, the CCSS provided services to more than 72 percent of family planning users (Cisek and Olson 2006).

Delegation of forecasting, procurement, and distribution in Peru

Since the early 1990s, PRISMA, a Peruvian NGO contracted by USAID, was responsible for the MOH's contraceptive forecasting, procurement, and warehousing and distribution in Peru. The NGO managed the national warehousing information system; supported a central warehouse where contraceptives were stored; coordinated and funded a quarterly distribution of contraceptives to 184 points in the country; and provided training and technical support to MOH staff. However, the system has now changed, and PRISMA is transferring some of this responsibility to SISMED, the national public-sector essential medicines system. (For more information, a Peru case study is available in [Beith et al. 2006]). The impact of this transfer remains to be seen as the MOH takes on this additional role under a highly decentralized and integrated system.

ADVANTAGES AND DISADVANTAGES OF DECENTRALIZING CONTRACEPTIVE LOGISTICS FUNCTIONS

The decentralization effort is a continuing process that requires flexibility to help adapt to new roles and responsibilities at lower levels. It also requires thorough knowledge about the reality of local-level needs and capacities and the extent to which such constraints must be addressed before reform measures are put in place. Experience in various countries in Latin America demonstrates that, even when the political mandate is to decentralize all the logistics functions, these cannot be delegated all at once or without careful planning. A streamlined and effective reform process requires comprehensive and detailed planning and analysis of the advantages and disadvantages of decentralizing each logistics function (see table 2).

TABLE 2. EXAMPLES OF ADVANTAGES AND DISADVANTAGES OF DECENTRALIZING CONTRACEPTIVE LOGISTICS FUNCTIONS

Function	Advantages	Disadvantages
Treatment protocols	Service delivery based on local needs.	Reduced control over prescribing practices.
Product selection	Selection based on local needs.	Reduced influence on— <ul style="list-style-type: none"> • treatment guidelines • products for priority essential services • priority of preventive products like contraceptives.
Forecasting and needs quantification, budgeting, and procurement	Quantification based on local requirements. Local <i>ownership</i> of commodity requirements and commitment to ensure product availability. Visibility and accountability at local level for forecasting and budgeting mistakes and procurement irregularities.	Greatly increased prices. Increased— <ul style="list-style-type: none"> • forecasting labor • forecasting error • inadequacies in local financial budgets • procurement complexity without basic guidelines for procurement procedures. Commodity quality control difficult if procurement is decentralized If staffs are not trained properly, wastage can occur.
Inventory control, transportation	Local control over reordering decisions. Local control of shipping schedules and transportation means.	Lack of standardized guidelines and procedures that enhance accountability and transparency Impossible to rationally allocate scarce products. Local resources (staff and transport) may be unavailable.
Logistics management Information system	Experience has demonstrated that this function performs efficiently only if it remains centralized.	LMIS may be lost or folded into the health management information system. Lack of standardized forms, guidelines, and flow of information As a feedback mechanism, information no longer flows from the lower to the central level.
Human resources management/personnel, training and supervision	If leadership is exercised, resources are available, and local capacity is institutionalized, local levels have demonstrated good judgment to resolve human resources gaps to carry out logistics functions.	In most cases, local trained staff may be absent or lacking necessary skills.
Quality assurance	Experience has demonstrated that this function performs efficiently only if it remains centralized.	Often, local levels do not have the skills or specialized equipment to perform formal quality assurance measures. Commodity quality control is difficult to manage if procurement is decentralized.

Source: (JSI/DELIVER 2001)

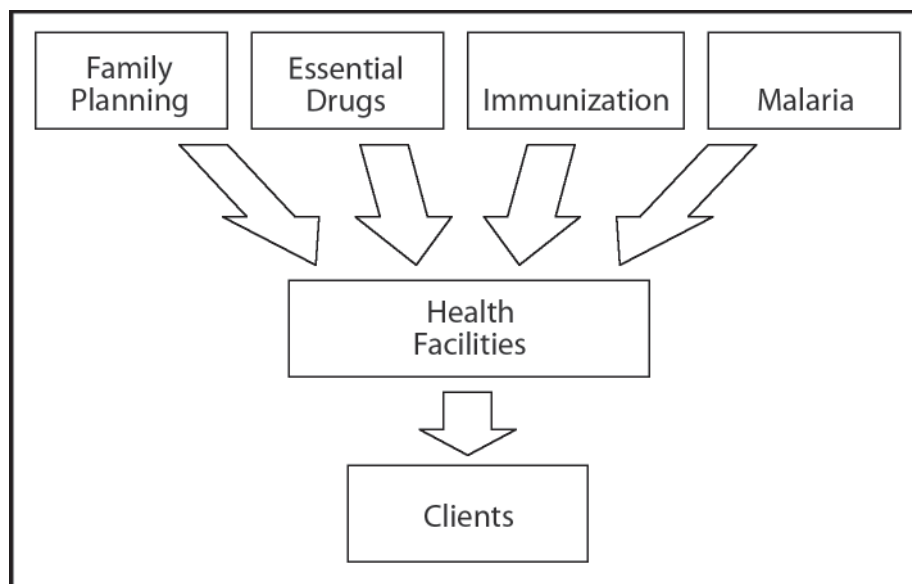
Human resources management and the proper clarification of new roles and responsibilities of local-level staff in times of health reform and decentralization are of the utmost importance for the proper functioning of the logistics system. During the decentralization process, health managers need to work closely with both the human resources directorate at the central level and staff at the local levels to ensure that logistics functions, responsibilities, and authority are explicitly delegated. This can help develop an enabling environment for local staffs to perform their new roles and responsibilities. Often, oversight of this undertaking limits the performance of local staff that are expected to effectively manage one of the most important public health budget line items: health commodities.²

INTEGRATION

For many decades, family planning and vaccine supplies have been managed independently from other essential medicine supply chains. This is primarily because vertical programs, such as family planning and immunizations, have also received a significant level of donor support. Moreover, the immunization programs have benefited from strong political will to make vaccines available throughout the entire public health system. The result has often been the implementation of well-run commodity management systems and improved product availability. Recently, however, the rise in the essential medicines movement led by the World Health Organization, and the Expanded Programme on Immunizations (EPI) in the LAC region, have highlighted the need to deal with drug management issues across programs; in general, vertical logistics systems have shifted to integrated logistics systems that manage and supply health commodities for several or all health programs at once.

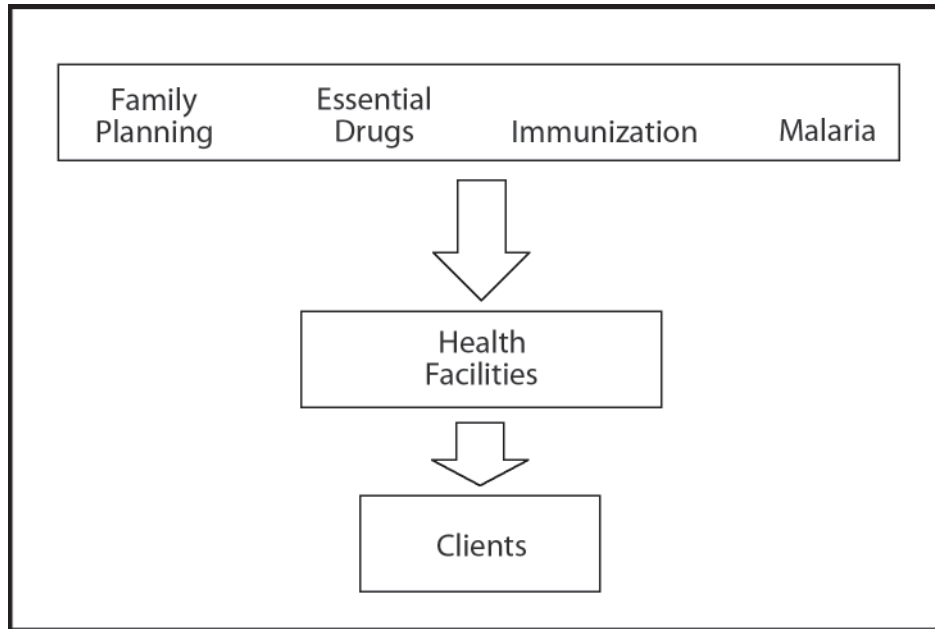
Integration is best defined as the merging of vertically managed health services and management activities. Figures 2 and 3 provide a very basic illustration of the differences in how vertical and integrated systems operate.

Figure 2. Vertical Logistics System



2. This section (Decentralization) is based on the following materials: (Bates et al. 2000), (Bossert n.d.), and (JSI/DELIVER 2001).

Figure 3. Integrated Logistics System



While these figures depict a general illustration of vertical and integrated logistics systems, it is important to scrutinize every logistics function and how its performance will be affected by integration efforts. Field experience has demonstrated that some functions may lead to better system performance when they are vertical, while others may result in better performance when they are integrated. Thus, health policymakers and family planning and logistics experts must carefully analyze each function and determine whether to maintain vertical or integrated management of this aspect of the logistics system. Overlooking this careful examination will hinder the correct functioning of the contraceptive logistics system.

Some experts believe that vertical systems are less desirable because commodities are forced to compete for the same scarce resources: budgetary allocations, facilities, equipment, and trained personnel working in logistics management. Other experts believe that it is important to maintain a few select vertical programs to ensure that these programs are given priority attention and support, protect public health gains ensured by these special programs, and provide essential health and logistics data for local and central levels. In fact, successful programs, such as the IMSS in Mexico and the MOH in Chile, have maintained vertical family planning programs in spite of the deconcentration of most family planning responsibilities and functions.

INTEGRATION OF CONTRACEPTIVE SUPPLY CHAINS WITH ESSENTIAL MEDICINES

The integration of vertical contraceptive supply chains with larger essential drug systems continues in many countries. Integration can have both positive and negative impacts on the contraceptive logistics system. While investing in the management of a vertical program can produce superb results for indicators such as commodity availability, a focus on the management of a vertical program does not necessarily ensure the most efficient use of available public-sector funds. For example, capitalizing on overall supply chain improvements, rather than investing in each supply chain separately, can help countries stretch limited resources and make improvements to all supply chains at one time. However, such broad attention may negatively impact certain priority programs by diffusing oversight throughout a much larger and cumbersome system. As with decentralization, integration is a gradual and continuous process that should consider, after a careful analysis, one or two functions at a time. In

addition, program managers and policymakers can consider mixed systems in which certain supply chain functions are integrated while other functions—or aspects of the same functions—maintain some degree of vertical oversight. For instance, the integration of physical processes, such as storage and transportation, can be accompanied by a degree of vertical program oversight and management to ensure product availability.

The process of integration also requires good preparation and planning to ensure success. Over the long term, integration can support contraceptive security objectives as investments that will strengthen national supply chains for all commodities. However, over the short term, if not planned carefully, it can create problems: the process of integration can disrupt existing roles and management structures, and staff must prepare for and be trained in new procedures to ensure that family planning programs are given the level of priority attention necessary to ensure contraceptive availability at all levels.

IN PRACTICE: SOME COUNTRY EXAMPLES

This segment provides brief examples of vertical and integrated logistics functions from countries in the Latin American and Caribbean region and other regions as well.

Many countries, especially those graduating from donor support, see integration of contraceptive logistics as a logical step. Frequently, the contraceptive logistics system performs more efficiently than that for other products, so integration becomes a way of capitalizing on those strengths by incorporating additional products and supplies into the system that is performing more efficiently. Again, to maintain continuous availability of every commodity included in an integrated logistics system, the decision to integrate must rely on a thorough analysis of each logistics function. For instance, countries should not consider integrating the recording and information systems without planning to have an automated system. If integration occurs without automation, the system might collapse because manual capacity to process data would be insufficient for such a large number of products.

For example, in Guatemala, the Ministry of Health decided that the logistics information system should be integrated right from the start; however, the contraceptive component was developed first and is now being used as a model to ensure that the same improvements take place for essential medicines. The future challenge is to ensure that the historic gains in contraceptive availability are maintained as the contraceptive supply chain is integrated with all other essential medicines. In addition, in both Nicaragua and Bolivia, where the contraceptive logistics system sets the example, other drugs were integrated into this system. In Bolivia, more than 100 drugs were integrated into the Unified National Supply System, including contraceptives. In Nicaragua, 11 tracer drugs were integrated into the contraceptive logistics system. Nicaragua is planning to expand and integrate a larger number of essential medicines after an automated system is fully developed and implemented. In Nicaragua, integration has led to some benefits for contraceptive supply chain management due to careful planning (see box 3). Again, the challenge, in these cases, will be to maintain the gains achieved in contraceptive availability after these supply systems are fully integrated with other essential medicines. The Ghana example describes the process of integrating some logistics functions while keeping others vertical and how, in this case, a mixed approach has proved to be most effective for ensuring contraceptive availability (see box 4).

BOX 3. AFTER CAREFUL PLANNING, INTEGRATION LEADS TO BENEFITS

In *Nicaragua*, the system was vertical until 2005, when the Essential Drugs Unit of the Ministry of Health decided to take advantage of the successes of the contraceptive logistics system and integrate essential medicines with contraceptives. A pilot test of the new integrated system took place in 2005; the experience has been very positive. As of now, only 10 tracer drugs and four contraceptives are integrated; once the automated system for the integrated LMIS is ready, all essential medicines will be integrated. This decision will reduce the number of vertical systems from seven to one. Warehousing and distribution of supplies are now fully integrated as well. Careful planning and coordination, including prioritization of supply chain management goals, has guaranteed the smooth integration of these functions, which are expected to result in savings for the MOH, in both human and financial resources.

BOX 4. IN GHANA, SOME LOGISTICS FUNCTIONS ARE INTEGRATED WHILE OTHERS STAY VERTICAL

Until 2001, the MOH in *Ghana* operated more than four vertical supply chains of health commodities (including contraceptives). The family planning program was primarily a vertical system, with its own managers who were in charge of the forecasting, logistics information system, and inventory control. In the storage facilities, contraceptives were kept in a separate area.

Later, the MOH identified the need to integrate the vertical supply chains to make them more efficient. The DELIVER project provided technical assistance to assess four

logistics vertical supply chains related to contraceptives, essential medicines, non-medicine consumables, and vaccines. As a result, today the contraceptive logistics system is integrated with essential medicines and non-medicine consumables. The warehousing, transportation, and inventory control management functions are integrated, while the contraceptive forecasting and procurement have been kept vertical, mainly because UNFPA is the contraceptive procurement agent for the MOH and some of the contraceptives are provided by USAID and the Department for International Development (DFID). The logistics information system is expected to be integrated in the near future; the challenge will be to make sure contraceptives continue to be given the priority attention they have received in the past.

In contrast, as revealed by the case of Mali, described in box 5, poorly implemented integration efforts can result in system breakdown.

As mentioned above, Nicaragua, after careful planning and a pilot test of an integrated model, has managed to keep some logistics functions vertical, including procurement and forecasting, while others have recently been integrated, such as inventory control, information systems management, distribution, and storage functions (see table 3).

POSSIBLE IMPACT OF INTEGRATION ON CONTRACEPTIVE LOGISTICS

Contraceptive logistics experts had previously viewed integration as having a negative impact on contraceptive supply. In recent years, however, experiences in various countries have revealed mixed impacts: integration of contraceptive and essential medicines systems may have a positive impact on some functions of the logistics system and a negative impact on others. For example—

- In *Bolivia*, integration was a disrupting factor to the contraceptive data quality of the LMIS, but at the same time, integration contributed to improved standards or norms for LMIS reporting. The contraceptive logistics system was the basis upon which an integrated logistics system for essential medicines and medical supplies was developed. When integration first took place, some disruptions occurred and, therefore adjustments have been made, particularly in the information systems and merging of forms. As a result of these adjustments, the contraceptive system, although integrated, will be temporarily maintained parallel to other information systems

BOX 5. IN MALI, INTEGRATED EFFORTS CAUSE SYSTEM BREAKDOWN

In 1998, *Mali* introduced some major organization reforms in public health logistics. The government created the National Pharmacy, a new organization with commercial incentives for using national wholesalers, including one that held the sole contract to provide USAID contraceptives. The vertical contraceptive system was dismantled and integrated into the system managed by the National Pharmacy. However, the managers at the National Pharmacy disagreed with the idea that they

should obtain contraceptives from the designated supplier and refused to do so. No mechanism existed for reversing this position. It was not long before stockouts began to occur; discovered mainly through site visits and most likely due to the integration effort. Health reform advocates had assumed that issues data provided by the new integrated LMIS would be sufficient for forecasting needs and ensuring distribution, and that the *dispensed-to-user* data supplied by the old contraceptive LMIS would not be missed. Under the new system, supervisory visits that had been used to collect data from health establishments ceased—and so did the flow of information.

TABLE 3. INTEGRATION OF LOGISTICS SYSTEMS IN NICARAGUA

Function	Contraceptive Logistics System	Essential Medical Supplies Logistics System
Procurement	Donations	Budgets, loans, and donations
Forecasting	Consumption based	Based on budgets and prioritized health problem areas
Needs quantification	Yearly to twice a year; flexible depending on consumption and available donor budgets	Annual needs estimates; little flexibility
Logistics management information system	Contraceptive-specific information system	Medical supplies—specific information system, but integration of contraceptives LMIS is in progress
Inventory control	According to established max/min levels	No reserve levels
Distribution	Integrated: either (1) from central warehouse to regional integral health care systems (or SILAISs) or (2) from central warehouse to municipalities. In addition, in a few instances in the case of essential medicines, suppliers distribute directly to selected municipalities and hospitals.	
Storage	Integrated: storage and control norms pertain to all products.	

Source: (Taylor et al. 2004)

to avoid any potential loss of information during the transition from a vertical to an integrated logistics information system. This practice will remain until the integrated information system is fully piloted, adapted, and put in place. At the same time, integration in Bolivia has also had some favorable effects in that it implemented national norms and standards that health facilities and municipalities are expected to follow when managing information systems.

- In *Nicaragua*, integrating the distribution of essential medicines and contraceptives improved the availability of both types of products at the regional level, as contraceptives and essential drugs are now treated with the same level of priority; they have the same distribution schedule, which represents savings for the national program.
- In *Zambia*, before integration of stores management, the capital city maintained separate storage sites for as many as eight different health programs, making transportation arrangements complicated. After integration, when supplies for all vertical programs except EPI were shifted to the Medical Stores Limited (MSL), the new system with its one-stop shopping made resupply visits to Lusaka from the districts much easier. On the other hand, integration efforts created major logistics-related problems when policymakers moved to an integrated health management information system (HMIS) that tracked the availability of only a small number of tracer drugs: they stopped using data collection forms that provided more detailed information on consumption, stock positions, and losses at all levels of the system. The confusion between the functions of HMIS and LMIS stopped the flow of contraceptive logistics information. As a result, the central level no longer received the data it needed to estimate future contraceptive needs and lost the capacity to monitor and respond to stockouts at peripheral levels.

Careful planning can help ensure that supply chain management concerns are prioritized throughout the integration process and that the appropriate logistics functions, or aspects of functions, are integrated while other functions, or aspects of functions, continue to be managed vertically.

INTEGRATION POLICIES AFFECT EVERY FUNCTION OF THE CONTRACEPTIVE LOGISTICS SYSTEM

Every logistics function is affected by the plans and policies that a country institutes as it carries out integration measures. In some cases, the integration of the family planning program and its corresponding logistics system may lose priority when integrated if the program lacks political support throughout the reform process. For example, in 2001, Peru began to integrate the FP program into all other health programs (Beith et al. 2006). This integration process greatly compromised the family planning and contraceptive logistics system, particularly by a reduction in management staff and the merging of budgets because the MOH had little commitment to taking over contraceptive supply chain management from an outside entity. PRISMA, a local NGO, had previ-

ously managed the contraceptive supply system, but careful planning did not take place to ensure these functions would be smoothly absorbed by the MOH. These disruptions ultimately compromised the adequate availability of contraceptives. Because of such experiences, policymakers need to analyze the efficiency of maintaining some functions as vertical—such as management of logistics information and forecasting and/or procurement—while integrating others, such as warehousing and distribution. In addition, throughout the reform process, if a new institution is going to absorb new functions, careful planning and advocacy work must take place to make sure there is political will at all levels to transfer these responsibilities from one institution to another and to ensure the new management unit has the ability and willingness to absorb these new functions.

Policymakers may also consider keeping priority programs, such as family planning and immunization, vertical to protect the important health gains assured by these programs. Even though they operate under decentralized settings, some countries—Ecuador, Mexico, and Chile, for example—have kept the family planning program and the contraceptive logistics system vertical to ensure that women have access to the contraceptives they want and need and to protect maternal and child health gains guaranteed by increased access to family planning services.

Moreover, before integration policies are outlined by health policymakers, it is essential to consider the following factors when integrating health systems:

- Earmark funds or maintain separate budget line items for preventive programs such as vaccines and contraceptives.
- Donors often drive the decisions about integrating health programs or changing from integrated to vertical programs. It is important that such decisions also be based on a thorough analysis of the advantages and disadvantages of integrating each separate logistics function before implementing integration of health programs.
- Unifying only products and system functions for which integration will improve the efficiency of the logistics system is often a good approach that enables countries to derive benefit from the advantages of both vertical and integrated systems.
- Remember that integration is a continuous process and the logistics system will, at certain stages, be partially integrated, with some functions working vertically while others are working in an integrated way.
- Integration is sometimes implemented before policy decisions and public health priorities have been clearly identified and communicated at both the central and the local levels. Before communicating these policies, analyze and redesign the logistics system to operate in an integrated manner, pilot test its implementation, and trail the tracer products, including family planning commodities. This will avoid interferences in the flow of contraceptives to clients.
- To guarantee efficient control and management of the system, if the information system is to be integrated, ensure that automation is part of the plan.
- Ensure that family planning and logistics management *champions*, including civil society advocates, continue to provide priority or *vertical* attention toward ensuring sustained contraceptive availability during, throughout, and after integration has taken place.³

3. Source for this section (Integration) is Bates et al. 2000.

KEY CONSIDERATIONS FOR DECENTRALIZATION

The ultimate goal of health sector reform (HSR) initiatives is to improve access to and equity in health care service provision. An essential element of improving access to health care services is to ensure commodity security—to guarantee access to commodities for all individuals who need or want them. Therefore, decisions about decentralization need to be made jointly by donors, ministries of health, and managers of various health programs to guarantee improved logistics system performance and availability of all essential products (including contraceptives) for all the clients who need them. More specifically, if decentralization efforts do not receive vigilant guidance from central-level leaders to ensure that national family planning policies are implemented at lower levels, there is a danger that contraceptive logistics systems will weaken and contraceptive availability will be compromised.

As with other approaches to improving access to health care and commodities, there is no single or *cookie-cutter* approach to improving decentralization and integration of logistics systems, or to ensuring that reforms do not compromise contraceptive availability. Nonetheless, the following recommendations are based on common challenges and opportunities emerging from country experiences that must be addressed if efficient and solid logistics systems are to be attained and maintained and the contraceptive supply chain protected throughout the reform process.

SECURE AND DEVELOP COMMITMENT FOR FAMILY PLANNING AND CONTRACEPTIVE AVAILABILITY AT ALL LEVELS

The challenge in decentralized systems is to develop political support for family planning and contraceptive availability at all levels. It is extremely important that, before decentralizing the system, the central level is fully committed to family planning and to guaranteeing contraceptive availability and has placed it as a high priority. Ideally, this commitment would then translate to the lower levels of the health care system. This begins with awareness raising about the importance of family planning and contraceptive availability among central and local health authorities, civil society leaders, and community-based groups that oversee commodity budgets and availability. Because most decentralization reforms emphasize the importance of community involvement and oversight, advocacy work at the local level with community leaders and civic groups will also help guarantee that family planning is given the priority attention necessary to guarantee contraceptive availability at all levels.

IDENTIFY THE LOGISTICS FUNCTIONS THAT PERFORM BETTER WHEN CENTRALIZED

Studies undertaken in Ghana and Guatemala suggest that higher system performance may result from keeping certain logistics management functions centralized while decentralizing others (Bossert et al. 2003, Bossert et al. 2004). Specifically, the studies indicate that the design of the inventory control system, logistics information system management, and product selection functions require enforced and standardized central guidelines and procedures. At the same time, decentralization of planning and budgeting may be associated with higher performance. Based on field experience, health managers are advised to retain central authority for the logistics functions that are most likely to fail if the functions are decentralized, including—

- logistics management information systems

- design of the inventory control system
- specifications and enforcement of essential medicines lists
- product selection and essential service package specifications
- bulk procurement
- rationing for scarce essential products
- quality assurance for all products.

(John Snow, Inc./DELIVER 2001)

SELECT STRONG LEADERS WHO CAN FACILITATE CHANGE

A strong leader can help bring about effective change. Where strong local leaders are identified, it is wise to allow them to have a prominent role in guiding the decentralization reform process, building up local buy-in, and ensuring that the family planning program and supply chain management are given the priority attention they require.

PLAN FOR DECENTRALIZATION

Some of the disruptions that decentralization can cause in logistics systems performance can be avoided with good planning and careful analysis of all the logistics functions. During the planning phase, it is important not to underestimate the funding required, the technical complexity of the work needed to ensure continuity of a well-functioning logistics system, organizational constraints, and the time required to implement change. Simultaneously, it is also important not to overestimate the availability and skills of personnel at the local level to take on new roles and responsibilities. Moreover, decision making should be decentralized only if local managers have the necessary resources, training and skills, and authority to execute those decisions.

FOCUS ON HUMAN CAPACITY, ROLES, AND RESPONSIBILITIES, AND INVEST IN TRAINING AND SUPERVISION

Health managers must work closely with the human resources directorate at the central level and staff from local health establishments to ensure that logistics functions, responsibilities, and authority are explicitly delegated and fully funded. This can help develop an enabling environment for local staff to perform their new roles and responsibilities. Often, overlooking this undertaking limits the performance of local staff who are expected to effectively manage one of the most important public health budget line items—health commodities. Moreover, it is critical to strengthen and develop local-level capabilities and to invest in logistics training and supervision.

PREPARE FOR NEW ROLES FOR CENTRAL AND LOCAL LEVELS

Decentralization often means a dramatic change in the role of the central level as Ministries of Health move from service delivery provider to a more normative or regulatory role. Indeed, one of the basic functions of the central level is to develop regulations, norms and protocols, and procedural guidelines for the entire health system, including the logistics system. This role, still needed in a decentralized setting, provides basic guidelines for managers in local health establishments who, in their respective jurisdictions, assume responsibility for service provision and health outcomes.

SUPPORT THE DEVELOPMENT OF INNOVATIVE LOCAL-LEVEL INITIATIVES

Decentralization can encourage local health establishments to develop innovative solutions to service-delivery and human-resource challenges as well as to allow civil society a more active role in oversight and provision of health care services. As a result, local concerns and needs can be better addressed in a decentralized setting, which can result in very positive effects on contraceptive security and increased access to family planning services.

KEY CONSIDERATIONS FOR INTEGRATION

Several countries in the LAC region have either integrated or are preparing to integrate some functions of their contraceptive logistics system with other health program logistics systems. Many of these contraceptive logistics systems were effective and efficient before these reforms were carried out; the ministries of health of Bolivia, Peru, and Nicaragua chose to adapt those existing contraceptive logistics systems to the supply chain management of all essential medicines and medical supplies. The recommendations presented below consider the fact that integration is a dynamic process. As such, the logistics system often operates more effectively with a combination of vertical and integrated functions. Most important, to maintain a robust logistics system that guarantees continuous product (including contraceptive) availability, managers must engage in a thorough analysis of logistics functions throughout the integration process.

PLAN FOR SUCCESSFUL INTEGRATION

It is vitally important to plan ahead for the integration of supply systems. Guiding principles need to be established, specifications developed, and detailed workplans prepared that clearly articulate the responsibilities and expectations of all partners in an integrated supply system. Before introducing an integrated system at the national level, the system must be designed and carefully tested. It is important to revise, test, and then finalize all policies and procedures related to human resources; information flows; databases; training manuals; and guidelines and tools for supervising, monitoring, and evaluating the logistics system over time.

FOCUS ON HUMAN CAPACITY AND DEFINE CLEAR ROLES AND RESPONSIBILITIES

When integrating logistics systems, it is easy to eliminate a specific responsibility for one staff position while neglecting to include the responsibility under another position. It is also easy to underestimate the effects that changing roles and responsibilities will have on the logistics system, or overestimate staff willingness to cooperate and move the process forward. These problems can be minimized by planning extensive training in the new roles and responsibilities of all related staff and avoiding deletion or duplication of roles and functions when reforms are implemented.

INVOLVE FAMILY PLANNING MANAGERS AND LOGISTICS EXPERTS IN ALL PHASES OF INTEGRATION.

Involving family planning managers and logistics experts in early planning stages and throughout the reform process will improve the outcomes of integrating various logistics functions. Such expertise will help protect the family planning program and its positive effects on maternal and child health, as well as help maintain an efficient supply chain.

RECOGNIZE THAT STRONG LEADERSHIP IS ESSENTIAL

Championship is the active, personal interest of senior decision makers who have the authority to induce change and prioritize programs. Their interest has been shown to be essential for facilitating successful logistics reform and ensuring sustained contraceptive availability.

IDENTIFY THE LOGISTICS FUNCTIONS THAT PERFORM BETTER WHEN INTEGRATED

Integration makes the most sense for functions such as storage and distribution; savings in these two areas are substantial because they reduce management and transportation costs. Another function that may be integrated is the logistics management information system, in which a database may run unified for all essential medicines, contraceptives, and other centrally procured medicines, while still allowing desegregation of data for individual products. Moreover, automation is essential when integrating a large number of products.

SOME FINAL WORDS

Health services in most Latin American countries are provided by a number of public bodies; the principal providers are usually the ministry of health and the social security institute. Countries in the region should consider what options currently exist that could be coordinated among institutions to gain increased economies of scale in procurement, distribution, LMISs, and other aspects of logistics management throughout the reform process. For countries that are just beginning to plan for decentralization or integration and for those already in the implementation stage, it is important to proceed cautiously. Other countries' experiences have shown that unanticipated problems may occur when supply chain management has not been considered a priority throughout the reform process. A lack of careful planning can seriously degrade the supply system, thus interrupting the efficient flow of commodities to the client, an essential component of any effective health program. The lessons presented earlier illustrate how various logistics functions can be negatively affected when they are not considered during health reform processes. At the same time, reforms can have a positive impact on the supply chain as long as it is given priority attention throughout the reform planning process and during the implementation phase.

Political situations and priorities change, even to the extent that they might be considered political fashions. They come and go with the passage of time in every society, necessitating systemic reforms and organizational adaptations. Decentralization and integration are two such forces currently abroad in the health sector in Latin America. Supply chains can be designed to succeed in virtually any environment as long as policymakers and program managers are committed to making and keeping products available to their clients. Under any circumstance—centralized or decentralized, vertical or integrated—supply chain management requires careful and detailed planning, policy-level visibility and support, sufficient human and material resources, and a commitment to the collection and use of accurate and timely information to drive supply chain decision making. Without these, supply chains are vulnerable to disruption and waste. With these conditions, however, supply chains are robustly successful and bring copious benefits in terms of program impact, efficiencies and cost savings, quality of care, and customer satisfaction. Our experience in Latin America with health systems that have contended with a wide variety of decentralization and integration contingencies bears this out.

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APPENDICES

**APPENDIX I. SUMMARY OF DECENTRALIZATION STATUS BY COUNTRY AND LOGISTICS FUNCTION
(U=UNCLEAR/UNKNOWN)**

Country	Type	Product Selection	Forecasting and Needs Quantification	Procurement	Storage and Distribution	LMIS	Inventory Control	Budgeting/Financing	Human Resources	Quality Monitoring
Bolivia	Devolution	Primarily centralized	Mainly central, but in process of being decentralized	Centralized because of donations. However, some municipalities purchase some products locally.	Integrated storage with warehouses at the central and regional levels. Vertical distribution.	Integrated with essential medicines	Integrated	Mainly central	Centralized	Centralized
Brazil	Deconcentration	Primarily central. However, some municipalities are able to increase contraceptive method mix on their own.	Mainly central. However, states and municipalities may also forecast for condoms. Some hospitals also may do their own forecasts.	Centralized since 2005. However, some municipalities and hospitals purchase additional contraceptives.	Since 2005, centralized distribution from central warehouse to municipal warehouses. Warehousing and distribution for some contraceptives are subcontracted to an outside firm. Condoms go from central to state to municipality level. Municipalities distribute to health posts and hospitals. All health posts have storage facilities.	Four central-level LMIS; essential medicines list at regional level; and three different LMISs at municipal level (one for each program: RH, HIV/AIDS, and essential medicines).	Central level responsible for general coordination of logistics resources, distribution, and warehousing management; logistics department at regional level; and supply coordination at municipal level.	Mainly central with exception of condoms. Municipalities may establish budgets for contraceptive procurement.	U	Centralized
Chile	Devolution	Centralized	A combination of central and regional effort	Centralized	Integrated (both storage and distribution)	Vertical	Vertical	Mainly central	Mainly central, but negotiate with regions and municipalities	Mainly central
Colombia	Devolution	A combination: negotiated between central, other service providers, and municipalities	Decentralized	Decentralized	Decentralized	Decentralized	Decentralized	Negotiated between central level and service providers (hospitals, private clinics, etc.)	Decentralized	Decentralized
Costa Rica	Delegation of complete responsibility for health care (including family planning) to the Costa Rica Social Security Institute (CCSS)									

Country	Type	Product Selection	Forecasting and Needs Quantification	Procurement	Storage and Distribution	LMIS	Inventory Control	Budgeting/Financing	Human Resources	Quality Monitoring
Dominican Republic	Centralized, but in process of devolution	Complete responsibility of the central level	Complete responsibility of the central level, based on demographic data	Complete responsibility of the central level	Vertical	Design and implementation are the complete responsibility of the central level, with some input from regions.	Design and implementation are the complete responsibility of the central level.	Complete responsibility of the central level	Complete responsibility of the central level	Monitoring of quality control executed by central level. Other levels must meet certain storage conditions to ensure product quality.
Ecuador	Deconcentration	Complete responsibility of the district/area level	Complete responsibility of the district/area level, standardized based on morbidity	Complete responsibility of the district/area level; purchase primarily from local suppliers. Considering doing a pooled procurement centrally.	Complete responsibility of the district/area level	Complete responsibility of the district/area level. LMIS are not standardized across areas.	Complete responsibility of the district/area level. Inventory control is not standardized across areas.	Centralized program reimburses each consultation reported by areas; rates set at central level.	Complete responsibility of the district/area level	Complete responsibility of the district/area level
El Salvador	Mix of devolution and deconcentration	Responsibility of central and regional levels (SIBASIs)	Responsibility of central and regional levels (SIBASIs)	Responsibility of central and regional levels (SIBASIs)	Responsibility of central and regional levels (SIBASIs)	The design and implementation is responsibility of central and regional levels (SIBASIs).	Responsibility of central and regional levels (SIBASIs)	Responsibility of central and regional levels (SIBASIs). However, funds are pooled and requested by the central level.	Responsibility of central and regional levels (SIBASIs)	Responsibility of central and regional levels (SIBASIs)
Guatemala ⁴	Deconcentration (essential medicines but not contraceptives)	Complete responsibility of the central level for contraceptives (including NGOs); for essential medicines local authorities (including MOH-contracted NGOs) can select as long as products are on a national essential medicines list.	Complete responsibility of the health area level, with participation from the central level	Complete responsibility of the central level for contraceptives (because of donations) and of the health area level (for essential medicines)	All levels are involved in both distribution and storage for contraceptives; there is no central warehouse for essential medicines.	Central level responsible for LMIS guidelines and procedures. Health area level follow central guidelines.	Central level set standard procedures (balance, requisition, and delivery of supplies) with high involvement and participation from health area staff.	Health area level manages its own budget.	Responsibility of central and area levels	Responsibility of central (because of donations)

4. The MOH has delegated to NGOs the provision of a basic health care package for the coverage extension program (including FP services) at the primary health care level. MOH-contacted NGOs receive USAID-donated contraceptives. When donations cease in 2007, the plan is to add NGO needs to the MOH forecasting needs at the central level.

Country	Type	Product Selection	Forecasting and Needs Quantification	Procurement	Storage and Distribution	LMIS	Inventory Control	Budgeting/ Financing	Human Resources	Quality Monitoring
Honduras	Centralized	Complete responsibility of the central level	Forecasting is the responsibility of the central level in conjunction with the provincial/ regional levels, which submit orders and store products every three months, and deliver products to health facilities on a monthly basis. Needs quantification traditionally has been based on historical data; however the new FP strategy currently being implemented is based on consumption data.	Complete responsibility of the central level	Vertical	Vertical	Vertical	Complete responsibility of the central level. Regions are assigned budgets to purchase contraceptives, but they are executed centrally.	Responsibility of central level	Central level norms exist, monitoring is included in all periodic evaluations at regional level and regular monitoring is also ongoing at district level.
Mexico	Deconcentration	Centralized	Decentralized	Decentralized	Integrated	Vertical	Vertical	Responsibility of both central and state levels	Responsibility of state level	Responsibility of both central and state levels.
Nicaragua	Deconcentration	Complete responsibility of the central level	Complete responsibility of the central level	Complete responsibility of the central level	Integrated	In process of integration for selected drugs; responsibility of the central and regional levels	In process of integration for selected drugs; responsibility of both central and regional levels	Complete responsibility of the central level	Responsibility of the central level	Responsibility of the central level
Paraguay	Centralized	Complete responsibility of the central level	Complete responsibility of the central level	Complete responsibility of the central level	Vertical	Vertical	Vertical	Complete responsibility of the central level	Complete responsibility of the central level	Complete responsibility of the central level
Peru	Centralized, but in process of deconcentration	Centralized	A combined responsibility between central level and regions	Centralized	Vertical, but in process of integration	In process of integration; vertical; responsibility of the central and regional levels	In process of integration; vertical; responsibility of the central and regional levels	Centralized	Responsibility of the central level	Responsibility of the central level

**APPENDIX 2 SUMMARY OF INTEGRATION STATUS BY COUNTRY AND LOGISTICS FUNCTION
(V=VERTICAL, I=INTEGRATED, M= MIXED, U=UNCLEAR/UNKNOWN)**

Country	Product Selection and Use	Forecasting, Needs Quantification	Procurement	Storage and Distribution	LMIS	Inventory Control	Budgeting/Financing	Human Resources	Quality Monitoring
Bolivia	V	V	V	I	I	I	I	I	I
Brazil	V and I Those products on the essential medicines list are integrated for procurement and distribution, yet vertical for all other functions. Those that are part of the RH "contraceptive kits" program, the Farmacia Popular program, or the National AIDS program are vertical.	I	I						
Chile	V	V	V	I	V	V	V	I	V
Colombia	I	I	I	I	I	I	I	I	I
Costa Rica	I for all functions								
Dominican Republic	V	V	V	V	V	V	V	I	V
Ecuador	I	I	I	I	I	I	I	I	I
El Salvador	I	I	V	V	V	V	I	I	I
Guatemala	V	V	M	I	I ⁵	I	V	I	V
Honduras	V	V	I	V	V	V	V	V	V
Mexico	V	V	I	I	V	V	I	I	I
Nicaragua	V	V	V	I	In process of integration	In process of integration	V	I	I
Paraguay	V	V	V	V	V	V	M	M	V
Peru	V	V	V	I	In process of integration	In process of integration	I	I	I

5. The MOH began in 2006 to officially use the LMIS for all essential medicines, not only for contraceptives.

For more information, please visit www.deliverjsi.com.

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