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Research Article

Assessment of medicines supply chain management of select primary care facilities in the Philippines

Romulo F. Nieva Jr [1],*
Yolanda R. Robles [2]

[1]MHSS, RN, Policy Advocacy Associate, Zuellig Family Foundation, Manila, Philippines
[2]PhD, President, Philippine Pharmacist Association, Inc., Manila, Philippines

***Corresponding author:**
Romulo F. Nieva Jr,
romulonieva91@gmail.com

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ABSTRACT

Lack of access to medicines is a key health systems problem in a lot of developing countries. In the Philippines, lack of access to medicines is compounded by health system inefficiencies in relation to medicines management by municipal governments in a devolved health setting. The objective of the study was to determine the medicines supply chain management practices of the local health facilities in 10 municipalities. This assessment used a desk review of existing regulations on medicines management in 10 partner municipalities of Zuellig Family Foundation, plus 32 key informant interviews with mayors, municipal health officers, and other local health members. Questions asked were mainly on the processes on drug selection, procurement, storage, distribution, and disposal implemented in managing medicines at the local health facilities. Data gathered from the interviews were transcribed verbatim and subjected to content analysis for desk review. Findings indicated that all municipalities had problems in terms of accessibility and availability of essential medicines. Data showed that existing problems at various stages of the medicines management cycle, and challenges in medicines' quantification, storage, distribution, utilization monitoring and disposal were apparent in all of the targeted municipalities. In particular, medicines management functions were exercised by all municipal governments; however, these were below the standard. There is a need for local officials to understand systemic challenges in medicines management such as logistical issues brought about by fragmented procurement processes and limited resources.

1. INTRODUCTION

The goal of Universal Health Coverage (UHC) according to World Health Organization (WHO) is to ensure that all people receive the quality health services they need without suffering financial difficulties[1]. Essential medicines are considered an integral part of UHC; they are an indispensable element for delivery of services and are also a requirement for high-quality care. Aside from being a commodity that is required for service delivery, medicines also contribute significantly to government and household spending on health[1]. The gaps in access to medicines are alarming as expenditures for medicines and health services are largely borne by poor individuals and families. Medicines in the Philippines are more expensive than in other countries in Asia.

Analyses of various rounds of Family Income and Expenditure Surveys reveal that almost 66 percent of total health out-of-pocket can be accounted for pharmaceutical expenditure[2]. Thus, more often, the poor are unable to start treatment or sustain a lifetime drug regimen especially when these drugs are immensely priced beyond their capacity.

Overall, the structure of the healthcare delivery system in the Philippines is highly decentralized. The Department of Health (DOH) at the Central Office develops the plans and policies, which is then cascaded to regions. They also monitor and supervise the implementation of local government units (LGUs) through the regional DOH offices. Allocation of funds, human resources and procurement of commodities necessary for health programs implementation are the primary responsibilities of LGUs. In the Philippine context, LGUs are divided into three levels – provinces; cities and municipalities; and barangays (villages). The DOH is primarily responsible for the management of medicines for vertical programs (tuberculosis, etc.), medicines access programs (cancer, etc.) and for emergencies and disasters. Medicines are distributed through the regional office to both the DOH and health facilities managed by LGUs – hospitals (provincial, city and municipality), rural health units and village health stations[3]. LGUs also manage their procured medicines. LGUs are required by the Procurement Act to establish bids and awards committees (BAC). These function in conjunction with the General Services Office (GSO) to perform procurement of medicines for the health facilities under their remit. Local government procurement faces many challenges including limited budgets for medicines, full budgets not being received, difficulties in quantification, delays in procurement and delivery of medicines through the GSO and corrupt practices[4].Given the devolved setup of health system paired with limited resources and capacity of LGUs, medicines supply management remains a challenge and has led to overstock and undersupply of essential medicines. Problems related to medicines management in a decentralized system are more amplified with a lack of local management capacity, lack of local trained staff and inadequate financial resources[5].

Medicines management or pharma-ceutical supply chain management (SCM) is the entire process of how medicines are selected, procured, delivered, prescribed, administered and reviewed to optimize the contribution they make to producing informed and desired outcomes of patient care[6]. The WHO has recognized that effective management and good governance make a vital difference in all aspects of pharmaceutical supply, especially with respect to the procurement and distribution of essential medicines. This is coherent with Zuellig Family Foundation (ZFF) Health Change model which asserts that if the poor are to have better health outcomes, they must have easier access to health products and services. These will be available if institutional arrangements are improved such that they are favorable to the poor. And to make such arrangements possible, leaders must be responsive.

A number of studies have already been conducted to understand the medicines profile of the Philippines[6, 7]. However, these studies do not give focus on how municipalities manage their medicines supply chain. Since evidence suggests that access to medicines remains to be pressing problem primarily due to poor supply chain management at different levels of government, it is therefore important to examine and to learn how frontline municipal government units in the Philippines manage their medicines. The objectives of this study were to assess local health facilities medicines management system; and to document existing policies for medicines management in the LGUs.

2. MATERIALS AND METHODS

This study was carried out in 2015 between September and November and used a desk review of existing practices and regulations on medicines management in 10 partner municipalities of ZFF, plus 32 semi-structured key informant interviews with mayors (n= 8), municipal health officers (MHO) (n=10), public health nurses (PHN) (n= 10) and BAC representatives (n= 4). Questions asked were mainly on the processes on drug selection, procurement, storage, distribution, and disposal implemented in managing medicines in the primary care facilities based on the 2004 Training Manual for Drug Management at the Health Center Level of WHO[8] and Philippine DOH 2015 Training Manual on Pharmaceutical Supply Chain management for Local Health Facilities[9]. Data gathered from the interviews were transcribed verbatim and subjected to content analysis for desk review. Additional data were

identified during the workshop on pharmaceutical supply chain management which was attended by mayors, municipal health officers and public health nurses and Bids and Awards Committee members.

3. RESULTS

3.1. Medicines management in the local government health facilities

Data showed that existing problems at various stages of the medicines management cycle were apparent (see Table 1). The "Leadership, Governance, and Transparency in Pharmaceutical Management" workshop was rolled out to ZFF partner municipalities in August 2014 with the intention of discussing with the LGUs the pharmaceutical management policies and identification of current experiences and issues in pharmaceutical management at the local level. The initial assessment showed the gaps of LGUs in terms of SCM.

All municipalities had experienced insufficient supply of complete essential medicines in Rural Health Units (RHUs) and Barangay Health Stations (BHS). Specifically, common insufficient medicines were antibiotics and anti-tuberculosis drugs particularly in geographically isolated areas. Based on interviews and review of documents, no Drug and Therapeutics Committee (DTC) had been organized in all municipalities. Furthermore, all municipalities were not able develop local policy that directs the Municipal Health Office to put into writing the protocols about LGU's pharmaceutical SCM. One hundred per cent of municipalities procured medicines based on the Philippine National Formulary (PNF) manual. All had neither licensed pharmacist nor focal

Table 1. Medicines Management of Primary Care Facilities

Phases of Medicines Management	Key Indicators	Number (n=10*)	Percentage (%)
Availability and Accessibility of Essential Medicines	Presence of complete essential medicines in the rural health units	0	0
	Presence of essential medicines in all barangay (village) health stations	0	0
Governance on medicines management	Establishment of Drugs and Therapeutics Committee which governs the pharmaceuticals-related activities	0	0
	Presence of policy that directs the Municipal Health Office to put into writing the protocols on medicines management	0	0
System for medicines selection and quantification	Procurement of medicines that are listed on the Philippine National Formulary manual	10	100
	Presence of licensed pharmacist or focal personnel trained on selection and quantification of medicines	0	0
	Conduct of evidence-based quantification of supply (i.e. use of either consumption or morbidity data)	5	50
Procurement and reception mechanism	Conduct of regular monitoring/ reporting on procurement performance (supplier lead times, % of purchases made through bidding, planned vs actual purchases)	6	38
Storage and distribution capacity	Implementation of good storage practices**	4	40
	Conduct of regular inventory of medicines and other health products (electronic or manual methods) by Rural Health Units	6	60
Rational use of medicines	Presence of RHU protocols on dispensing of medicines	0	0
	Adoption of the Daily Drug Use Record / Drug Utilization Report (Name of patient, name of medicine, duration of treatment, when to follow-up)	7	70
	Presence of trained staff on drug counseling and dispensing	0	0
LGU system for pharmaceutical donations	Presence of guidelines in accepting foreign and local drug donations	0	0
	Integration of issue of access to essential medicines during health emergencies and disasters to the municipal disaster plan	0	0
Disposal system of expired medicines	Presence of policy that outlines the protocol regarding disposal of unwanted and expired medicines	0	0
	Conduct of regular inventory/reporting of disposed medicines	4	40

*ZFF partner municipalities
** Good storage practices should include ALL of the following: a. uncrowded space, b. adequate lighting, c. adequate ventilation, d. presence of room thermometer, e. cold chain for vaccines, f. presence of shelves and pallets.

personnel trained on selection and quantification of medicines. A little more than two thirds of RHUs had used consumption data or morbidity data to quantify medicines. In terms of procurement, all had no written guidelines or local policy on correct procurement procedures for medicines as stipulated in the procurement law (RA 9184). All procured by generic name. About half of the municipalities had functional Bids and Awards Committee (BAC) that practices competitive procurement. Lastly, no municipality had a regular reporting system for procurement performance of the supplier.

All had no crafted guideline/policy for the storage and distribution of medicines. Only a third of RHUs had adequate shelves, pallets, and racks for drug storage; hence, some of the medicines are stored along with other supplies. All regularly conducted inventory through manual procedures. At the RHU, all personnel were not trained on drug counseling and dispensing. All municipalities had no clear guidelines/ criteria being followed on accepting donations. Furthermore, all had no policy either through an executive order or municipal ordinance that outlines the protocol regarding disposal of unwanted and expired medicines. More than a third had regularly reported disposed medicines.

Existing issues at various stages of the medicines management cycle were common among the pilot municipalities. Specifically, most had inadequate shelves, pallets, and racks for drug storage; hence, some of the medicines are stored along with other supplies. All personnel were not trained on drug counseling and dispensing. Storage facilities were inadequate due to limited resources and capacity of health workers.

All municipalities had experienced challenges in implementing national medicines-related policies. Specifically, national guidelines for accepting donations and handling pharmaceutical wastes were not fully implemented in health facilities as all municipalities would just accept medicines donations given by local and international partner organizations (Table 2).

4. DISCUSSION

4.1. Availability and Accessibility of Essential Medicines

A considerable number of municipalities had problem in terms of availability and accessibility of essential medicines. The continued supply of drugs after the initial stock has

Table 2. Common Issues on Medicines Management Encountered by Municipalities

Phases of medicines supply chain management	Issues related to medcines management
Selection	-Approved budget for medicines is lower than the proposed budget based on consumption & morbidity -Lack of proper training of the concerned staff on medicines selection -Lack of governing body/ therapeutics committee
Procurement	-No clear local policy on the procurement process -Lack of awareness on the list of qualified suppliers -No actual monitoring of LGU to the suppliers site -Lack of feedback from winning bidders
Storage and Distribution	-No proper storage rooms/ Lack of shelves/pallets for the storage -Lack of system for inventory (no available software) -Lack of training among health workers -Improper maintenance of temperature of medicines from supplier -No restriction to access to storage room
Rational use of medicines	-No proper area for dispensing -Public are not well-informed about adverse drug reactions (ADR) -Discrepancy in recording of dispensed meds -No counseling conducted during dispensing -Self-medication prior to consultation -Shortage of essential medicines in the facility
Medicines Donations	-During emergency, medicines excessively donated to the LGU -Donated medicines with date near expiration -Lack of guidelines in accepting donations -There are drugs directly donated to BHS without coordination with LGU officials
Disposal	-Excess of medicines for disposal due to non-utilization -Personnel are not equipped to properly dispose expired medicines -No guidelines in disposing of expired medicines

run out has been a major problem. This can be associated with the nature of medicines management in the Philippines wherein DOH is primarily responsible for the management of medicines for vertical programs (tuberculosis, etc.), medicines access programs (cancer, etc.) and for emergencies and disasters while municipalities manage their own procured medicines. More often, the DOH lacks complete information on the actual consumption of commodities at the service delivery points leading to mismatch of supply at the local facilities. This is coherent with the formative evaluation of the DOH's Complete Treatment Pack (Compack) Program[10], which showed that medicines distributed to LGUs did not match the expressed needs of the community, resulting in wastage. One indicated factor was lack of appropriate storage area like in BHS, in particular. This is true for municipalities with BHS located in geographically isolated and depressed areas.

4.2. Municipal Medicines Supply Chain Management

Existing issues at various stages of the medicines management cycle in the local government units were common. Clearly defined policies at the national level did not translate well to the LGU level. Municipalities had no established DTC to oversee the medicines management in the municipalities. Local leaders were not aware of their functions and not capacitated on how to establish an effective medicines management system. In the Philippines where municipalities also procure and manage medicines, it is significant that health managers fully understand on the system of ensuring quality medicines for the community.

Local leaders and health staff in all municipalities lack technical expertise and capacity (i.e. employed pharmacist, trained personnel) to forecast and quantify drug requirements. MHOs were the main coordinators of medicines management at the RHU while midwife plays the role at the BHS. Furthermore, personnel or health workers based their quantification on municipal budget allocation and do not use evidence-based criteria such as morbidity or consumption data. This is consistent with the study of Salenga et al. (2015)[3] on the medicines supplies system of selected typhoon-affected areas in the Philippines, which showed that LGUs quantify their medicines based on municipal budget. So the quantities were not in accordance with the needs of the community. In terms of procurement practices, LGU followed the guidelines as stipulated in the procurement law (RA 9184)[11]. But because of slow bidding process, it often resulted in emergency purchase. All had no written protocol to establish and maintain a formal system for product quality assurance (QA) and monitor the procurement performance.

Data indicated that storage facilities in all LGUs were inadequate; hence, some of the medicines were stored along with other supplies. Additionally, there was no appropriate ventilation for some storage rooms to comply with specific temperature requirement of the medicines. These can attributed to LGU's lack of technical expertise and limited resources to support good storage system. These practices do not meet the minimum standard of WHO and may negatively affect the quality of medicines. Based on the good storage practices of WHO (2004)[8], storage areas should be designed or adapted to ensure good storage conditions. In particular, they should be clean and dry and maintained within acceptable temperature limits. Where special storage conditions are required on the label (e.g. temperature, relative humidity), these should be provided, checked, monitored and recorded. Materials and pharmaceutical products should be stored off the floor and suitably spaced to permit cleaning and inspection.

All local facilities initiated their own manual process of recording medicines consumption using logbook. There was no standardized recording system for monitoring medicines distribution or inventory software program at the RHU; therefore, the integration of data and accessing real-time information of stock levels were difficult. Thus, LGUs had difficulty in generating reports. This is coherent with Salenga et al. (2015)[3] study on the medicines supplies system of selected typhoon-affected areas in the Philippines, which indicates that LGUs had difficulty to generate year to year comparisons of medicine utilization because they use logbooks for recording of patients who visited RHU (along with dispensed medicines).

National guidelines for accepting donations and handling pharmaceutical wastes were not fully implemented in all health facilities[12, 13]. It was reported that on several occasions, national policies for accepting donations were not followed, which led to the

acceptance of large quantities of short-dated and unnecessary medicines. This can be associated with the lack of clear guidelines/ criteria being followed on accepting donations at the local level. This finding is similar to what was found in the study of supply chain practices of rural communities affected by typhoon in the Philippines where donated pharmaceuticals occupied a lot of space in the storage areas and caused an additional burden to dispose unwanted products[3]. The process of managing medicines during disasters is not greatly different than the usual practice; however, the response to typhoon Haiyan highlighted the system' s weaknesses. Existing problems on pharmaceutical donations and disposal were amplified due to the damage to existing facilities and the massive influx of donated medicines.

This study has limitations. The fact that the study only involved 10 municipalities which were selected using non-probability sampling technique means that the findings that are derived from the study cannot be generalized and are not representative of the entire Philippine regions and LGUs. Additionally, participants being from selected LGUs, and their experiences and opinions may not be representative. The data mostly relied on interviews of mayors, MHOs, and client representatives. The use of these interviews had some limitations. There could have been recall bias as drawn from short responses of respondents. In most instances, interviews with client respondents and occasionally with MHOs were done at the municipal office although care was taken to make these interviews in private in the municipal office.

5. CONCLUSION AND RECOMMENDATIONS

This study found that while national policies on medicines management were in place, implementing these in the local setting was difficult. The lack of coordinated processes and tools to facilitate easy and timely monitoring of medicines availability, distribution and consumption led to either overstocking or under-stocking of medicines. Receiving short-dated, near-expiry and unnecessary items which could not be easily distributed caused an additional burden to the health system as they needed to be safely disposed. An integrated system that bridges the gap between the national government and various health facilities should be in place to ensure equitable access to medicines and reduce resource wastages. There is a need for local government officials to understand systemic challenges in medicines management such as logistical issues brought about by decentralized procurement system and limited resources. To improve universal access to medicines and reduce resource wastages, LGUs must establish: a) information systems and regular monitoring that can track medicines utilization, expenditures, and quality of medicines use; b) local policies and programs support that facilitate appropriate medicines use by prescribers, dispensers, and patients. A well-functioning and efficient local SCM system must be in place to ensure equitable access to medicines and considering the frontline role of LGU in the delivery of basic public health services and goods.

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