

Research paper

The Role of Contraceptive Logistics Management Information System in Provision of Family Planning Services in the province of Sindh, Pakistan

Shafique Ahmed Qureshi[1], Saima Hamid[2], M Suleman Bajwa[3]

[1](MBBS, MBA, MSPH student, Health Services Academy), Islamabad, Pakistan
[2]Health Services Academy, Ministry of National Health Services Regulations & Coordination, Government of Pakistan and affiliated with Quaid-i-Azam University, Islamabad, Pakistan
[3]Intern at Health Services Academy, MBBS student, King Edward Medical University

ABSTRACT

Pakistan ranks in the lowest amongst countries in terms of health indicators including sexual and reproductive health (SRH). "Availability of the contraceptives, a human right" was declared in ICPD and WHO report on SRH in the year 2014. Subsequently, successive governments introduced many programs to improve SRH indicators of Pakistan but have had little success and sustainability. To ensure the availability of contraceptives, the Government of Pakistan, with support of USAID (United States Agency for International Development), introduced the online system of Contraceptive Logistics Management Information System (cLMIS), the competent functioning and effectiveness of which is the focus of this study conducted from October to December of 2015 (cLIMS homepage), (Pakistan Logistics Management Information System). The scope of this study included the two departments of the public sector in the province of Sindh; Department of Health (DOH) and Population Welfare Department (PWD), along with the national-level department Central Warehouse and Supplies (CW and S). The study used both qualitative and quantitative approaches to assess the use of cLIMS. The quantitative component examined the availability of contraceptives, inventory management, warehousing and human resource; it revealed much discrepancy in availability of stock in all departments, with some items in great excess and others out of stock in spite of cLIMS being supported with an auto-generation of demand Contraceptive Logistics Report 6 (CLR6) and the warehouses 'receiving stock from a common source; the CW and S. The qualitative analysis on the basis of in-depth interviews of the managers dealing with cLMIS at national, provincial and district levels revealed complaints ranging from a lack of training or refresher courses and non-uniformity in methods of data acquisition, to connectivity and communication issues that kept the Service Delivery Points (SDPs) out of the loop, thus inhibiting the effectiveness with which cLMIS could be used for performance evaluation. cLMIS being managed by USAID-deliver project staff (cLIMS homepage) and lack of trained personnel within the public sector was identified as a threat to the project's sustainability.

Keywords: Family planning; Mixed-method; Contraceptives; Availability; cLIMS

Highlights of this paper:

Over the last half century many programs for Family Planning have been introduced with varying degrees of success and limited sustainability [1,2]. According to the Pakistan Demographic and Health Survey (2012-2013) the national contraceptive prevalence rate is around 35%; 26 % of which is for modern methods of contraception [3]. Similar to programs of Indonesia, Philippines and Nepal, the constraints behind incomplete coverage of family planning services have been reported to include weaknesses in commodities' logistic management, geographical inaccessibility, limitations in health worker skills and numbers, legislation, etc. [4]. To ensure the availability of contraceptives the Government of Pakistan with support of USAID introduced the online system to ensure the supply of contraceptives with the name of cLMIS (cLIMS homepage) [5].

This article highlights obstacles in the effective implementation of cLIMS from the perspective of involved personnel, the state of stock management and consumption patterns in the areas under study and proposes remedies and training of personnel, transferring of stock between service delivery points and other steps to ensure that the objectives of cLIMS are fulfilled (cLIMS homepage), (Pakistan Logistics Management Information System) [5].

Introduction

Usage of family planning services in developing countries have been found to improve sexual and reproductive health (SRH) indicators, avert unintended pregnancies, reduce maternal and child mortality [6-13], not to mention its beneficial effect on the economy and quality of life [14-16]. However, contraceptive use still remains low in developing countries. Around 225 million women who want to avoid pregnancy are not using safe and effective family planning methods, for reasons ranging from lack of access to information and services to lack of support from their partners or communities (UNFPA webpage) [17]. Constraints leading to low use of contraceptives in developing countries, including Pakistan, include economic factors, social influences, non-availability of stock in rural areas and poor provision of contraceptive information and services [18-22].

Family planning initiatives have been in place in Pakistan for decades in the shape of departments and programs (cLIMS homepage) [1,5]. However, the Contraceptive Prevalence Rate (CPR) has not crossed 35%, of which only 25% includes modern methods of contraception [3]. Contraceptives being supplied throughout the country through the Central Warehouse through the manual record keeping, with all its inadequacies and ensuing errors and delays on the national scale, have been replaced by the online system of "the Contraceptives Logistics Management Information System (cLMIS)" developed in cooperation with the Ministry of Health and Coordination, the Provincial Departments of Health (DOH), the Population Welfare Departments (PWD) with support of the USAID-Deliver Project. To regularize the flow of logistics, cLMIS was launched in Pakistan in 2010 and gradually had spread through most of the country (143 districts) by October 2012 (cLIMS homepage) [5]. The system aids in stock management as well as the assessment of consumption patterns (Pakistan Logistics Management Information System).

The purpose of the study was to attempt to improve the sexual and reproductive health in the province of Sindh through an exploration of the use of cLMIS by provincial and district level managers of districts Hyderabad and Shaheed Benazirabad (Nawabshah) and to observe the availability of contraceptives in selected SDPs. Since cLMIS claims to ensure the availability of contraceptives from Central Warehouse & Supplies (CW and S) to SDPs, the focus of the study was to determine the adequate availability of contraceptives at the SDPs within a three month period (from October to December 2015).

Methodology

A mixed methods study was undertaken, taking both quantitative (stock levels and incongruence) and qualitative (views of managers using the system) aspects into consideration. Quantitative data was collected for the availability of contraceptives at the time of the study at different facilities; CW and S, district offices and SDPs. Furthermore, the availability of human resource, hardware/Information Technology (IT), inventory management system and warehousing were also observed. In the qualitative component, in-depth interviews of the Manager CW and S, seven managers involved in cLIMS (as district level users or provincial level administrators responsible for updating the system) and other related personnel were carried out with the intention of gaining a broader perspective of the successes and drawbacks of the current system and their suggestions for improving efficiency at their respective levels. Consent was taken from the departments and respondents. The HSA's ethical review board gave the ethical clearance to carry out the study. Through purposive sampling facilities of two districts and their federal authority were included in the study; the DOH and the PWD; with their management units, i.e. the District Health Offices (DHO) and the District Population Welfare Office (DPWO), Hyderabad, which were described to be poor in terms of reporting compliance, were selected for the study along with parallel departments of Shaheed Benazirabad (Nawabshah), which were considered to be the most compliant in terms of reporting; and at the federal level the Central Warehouse and Supplies.

For the assessment at the SDP level in the two selected districts, reports submitted to the district office during the last quarter were retrieved, out of which the maximum and minimum contraceptives consuming SDPs were included. SDPs which did not submit the report to the district offices as hard copies were excluded. The data were collected from the management-level facilities and their related SDPs (Figure 1). The data of CW and S was collected from Manager Warehouse at Karachi, dealing with the supply to the whole country. For the remaining facilities data were procured from the remaining management levels involved in the study i.e. provincial, district and SDP with the respondents / managers respectively.

In the qualitative component of the study besides the Manager CW and S, seven other managers were interviewed all of whom were closely involved in cLMIS, some as direct users or reporters at the district level and others at provincial level administrators with the responsibility of ensuring that cLMIS is updated on time by the districts. The reason for inclusion of provincial and district level managers in this part of the study was that the SDPs were not given direct access to the cLMIS. For the same reason, the officials of the SDPs were not interviewed. The principal investigator collected the qualitative data through in-depth interviews, which were transcribed and coded. Themes were drawn by thematic analysis.

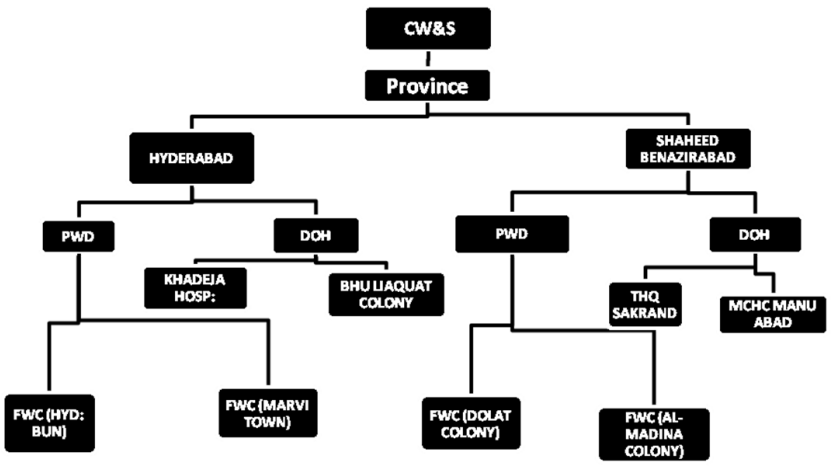

Figure 1: Organizational flow of the facilities included in data collection.

Results

Difference in availability of contraceptives, human resource, computer hardware, inventory management system and warehousing was seen at all levels i.e. central/provincial, district and SDP level. Stock availability of the contraceptives based on the average monthly consumption was calculated for each contraceptive.

At district level over-stocked commodities of contraceptives at management-level facilities ranged from 8 months to even 1070 months. Overstocked contraceptives are indicated in the (Table 1). Condoms, COC and Cu-T were highest in stock.

At SDP level the over-stocked commodities ranged from 4 months to even 897 months. Overstocked contraceptives indicated in the table above are Condoms, COC, Cu T and 3 months injections despite their being common items used in contraception (Table 2).

Table 1: Stocked contraceptives available (in months) based on AMC of past 3 months at management level facility.

Name of Contraceptive	Availability of Contraceptives in Months			
	District Hyderabad		District SBZ (Nawabshah)	
	DOH	PWD	DOH	PWD
Condom	210		27	
POP		13		
COC	1070		33	
ECP		8		
Cu- T	613	13.5	37	
Multiload	18			
2 Months Injection				
3 Months Injection	84		27.5	
Implanon				11
Jadelle				40

(POP: Progestogen only Pills, COC: Combined Oral Contraceptive, ECP: Emergency Contraceptive Pills)

The results related to availability of stock at SDPs, are segregated into "more than three months" and "less than or equal to three months", the rationale of segregation being based on the guidelines of maximum storage at any facility which is 3 months (Table 3).

Availability of human resource

Through observations made using a checklist it was seen that cLMIS operators were available at all the five management level facilities, while at all the eight SDPs, cLMIS operators were not available. Out of five management level facilities one cLMIS operator was untrained, two cLMIS operators were not able to report the data without external support. Out of five management level cLMIS operators, one had poor, one moderate and three good level of understanding of cLMIS.

Availability hardware/IT

At the five management level facilities the IT facilities were available. The computer hardware was in working condition in all facilities except DPWO Hyderabad where hardware was functional but without UPS support. Net connectivity was available at all the management level facilities but poor at CW and S and DPWO Hyderabad. Computer or IT hardware was not available for the cLMIS at any SDP.

The Inventory Management system was being updated on all the five Management level facilities regularly. During the course of the study the reporting rate of all facilities was acceptable, in accordance with their set schedule. Correct data was being entered by all the five Management level facilities.

Though stores for the contraceptives were present all the five management level facilities, one facility (DPWO Shaheed Benazirabad) was out of stock for the last three months. The recommended turnover stock was being maintained at only one facility (DPWO Hyderabad). Requisition for the supply was being sent by the three Management level facilities out of four.

The results of interviews with managerial staff at all levels are discussed under the following themes identified.

Table 2: Stocked contraceptives available (in months) based on AMC of past 3 months at service delivery level facilities SDPs.

Name of Contraceptive	Hyderabad				Shaheed Benazirabad			
	Department of Health		Population Welfare Department		Department of Health		Population Welfare Department	
	Khadija Hospital	BHU Liaqat Colony	FWC HydBnglws	FWC Marvi Town	THQ Sakrand	MCH Manu Abad	FWC Dolat Colony	FWC Al Madina Colony
Condom	4	411				35		
POP							7.5	7
COC	91	897			64		7	39
ECP				8				
Cu- T	94		33	33				
Multiload								
2 Months Injection								
3 Months Injection		20	5			15		
Implanon								
Jadelle								

(FWC: Family Welfare Centre; SDP)

Table 3: Availability of contraceptives at service delivery level facilities (SDPs).

Name of Contraceptive	Hyderabad								Shaheed Benazirabad							
	Department of Health				Population Welfare Department				Department of Health				Population Welfare Department			
	Khadija Hospital		BHU Liaqat Colony		FWC HydBnglws		FWC Marvi Town		THQ Sakrand		MCH Manu Abad		FWC Dolat Colony		FWC Al Madina Colony	
	≤ 3	>3	≤ 3	>3	≤ 3	>3	≤ 3	>3	≤ 3	>3	≤ 3	>3	≤ 3	>3	≤ 3	>3
Condom		√		√	√		√		√			√	√			√
POP	×	×	×	×	√			√	×	×	×	×		√		√
COC		√		√	√		√			√	√			√		√
ECP	×	×	×	×	√			√	×	×	×	×	×	×	×	×
Cu- T		√	×	×		√		√		√	√		√		√	
Multiload	×	×	×	×		√		√	×	×	×	×	×	×	×	×
2 Months Injection	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
3 Months Injection	√			√		√	√		√			√		√		√
Implanon	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Jadelle	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

(≤ 3 less than or equal to three months; >3 more than 3 months; √ available; × not available)

a) Insufficient training and capacity building

The respondents shared that as a direct consequence of frequent transfers/postings flimsies was hampered; in the words of one respondent:

"Another issue is that people get transferred, then we don't have the person to deal with cLMIS on their place, so either more personnel may be trained or districts may be allowed to train other persons at the district level".

The situation was so dire that there was complete non-availability of trained staff to work at lower management levels (SDPs) and according to one statement, in some places the officers themselves had to perform work pertaining to cLIMS. The need for refresher trainings was identified.

b) Poor compliance

The reporting compliance varied at different levels. Reports were being submitted timely by the Population Welfare Department whereas reporting compliance of the DOH was 86%. Describing the situation one provincial manager said:

"Still there are three districts that are not reporting properly… Before that no monitoring software was there, even before joining of current manager xyz, reporting was only 30%, PPHI (Peoples' Primary Healthcare Initiative) *was at 3% and LHW* (Lady Health Workers') *Program was on 13% to 18%...We brought it to 86% reporting compliance now, then I started focusing on continuously poor compliant districts"*

c) Need for integration

It was the perception of managers working in the PWD and DOH that cLMIS should be integrated with other online reporting systems like District Health Information System (DHIS). Stressing the need of integration, one provincial manager said:

"I would like to say that the data is not being integrated; data from department of health, PPHI & NGOs is not being incorporated at the national level. It is supposed to be generated 100% to make this initiative fruitful. The provincial level integration may also be done for better evaluation, let the data be gathered with different names like of DOH, PPHI, etc. but there must be integration."

d) Sustainability after USAID-deliver ends

The managers showed their concern about the future of cLMIS as it needed to be regulated and upgraded routinely; this work had been done by USAID and it was stressed that in order to sustain it within the system, the project be owned by the public sector stakeholders. One of the provincial managers said:

"My concern is that, what will happen when deliver project is ended; who will manage & update the software at national level; as this is national project, as it needs to be updated and upgraded constantly? Because till now, it is being run by USAID; later on who will manage as USAID-Deliver project is likely to end?"

Discussion

This study was conducted to assess the working of cLMIS, a system which claims to ensure the availability of contraceptives CW and S to SDPs, by determining the adequate availability of contraceptives at the SDPs (cLIMS homepage) [5]. Though it possesses the qualities of an effective logistics management system, in practice it was observed that there exists considerable incongruity in distribution of contraceptives at the locations where the study was conducted [23]. Ideally there should be a mechanism of shifting the commodities (condoms, for example) from one department to another (CW and S and DOH to PWD in this case) to bring a measure of uniformity and balance. Even within the districts, the situation was different for both the departments, with a similar situation observed at the SDPs. This situation demands immediate attention, as the date of expiry and the storage conditions can vary at different places and can lead to the wastage and unavailability of stock.

The inventory management failure, attributed to flaws in the

system, seen at DPWO Shaheed Benazirabad resulted in that department's remaining out of stock throughout the three months period; highly damaging to attached SDPs (Tables 2 and 3). This situation resembles the condition in the same district observed the year before, which was later compensated by the push mechanism, through which items were sent to DPWO Shaheed Benazirabad without demand (CLR6).

Analyzing the reasons for the success and failure of various initiatives in the past (http://dx.doi.org/10.1016/j.healthpol.2003.12.007), ownership by the stakeholders has been observed to play a pivotal role. cLIMS finds in this a parallel; during the early days of the initiative the reporting compliance was quite low, wavering from 3% to 30%. Currently one department (PWD) has achieved the 100% required for fulfillment of the demands of cLIMS, while the other (DOH) has yet to achieve the target. Indicative of the variation of ownership at different levels, the author is led to believe that the commitment level of the stakeholders at all levels warrants improvement to get the maximum output from the system. Another departmental concern is that though the system of reporting was the same in both the DOH and the PWD, a "standard format" of reports from the SDPs was found to be lacking. Without uniformity of format, the efficiency of the process can be affected and the margin for loss or improper recording of data is considerably increased.

If uninterrupted and efficient analysis of data is to be carried out, information from all available sources needs to be collected at a central point where it can be accessed with ease and the outcomes can be measured. Both the Government and NGOs have developed many systems of reporting data that are not only user friendly but are fairly easy to access. The Health Management Information System (HMIS), Disease Early Warning System (DEWS) and the DHIS are a few such initiatives which have been introduced in the DOH. Similarly, in the Population Welfare Department, a reporting system of their own is working in collaboration with the Bureau of Statistics. Some of the reporting systems are online-based such as DHIS in the DOH, while reporting system of PWD is working on a manual format. There is a need for collecting, focusing and effectively employing all this data.

It is unfortunate that in our country many initiatives have failed or ended without further pursuit, for example the training program for Traditional Birth Attendants (TBAs) - also known as Dais, as well as the current programs of Community Mid-Wives (CMWs) and DEWS. Being managed by USAID-deliver project, responsible for technical management, upgrading of software, etc., the case of cLMIS cannot be expected to differ much. HR support at CW and S is an example of the hiring of two persons for technical support in IT and logistics management. However, support for this project from USAID is anticipated to be withdrawn in the imminent future and its fate may well be that of its abandoned predecessors. cLMIS had been expected to end by December 2015, but has been extended till March 2016. Sustainability of the project without the external support, at this point is a huge question mark.

Thus, it is imperative that the causes of failure of past programs are learnt from (http://dx.doi.org/10.1016/j.healthpol.2003.12.007) and that there be mandatory scaling up of FP institutions in order to improve SRH indicators soon [24].

Limitations

The scope of the study was limited to two districts, eight SDPs and related administrative authorities due to limited time and financial constraints. An in-depth analysis with more resources could be planned with different and more comprehensive setting for a more complete picture of the situation.

The data studied was submitted by facilities of different levels, which may contain a certain margin of errors as it was not collected by PI. Some data was obtained through the less reliable and manual CLR6 method.

Conclusion

The availability of the contraceptives was observed to be varied at all levels including management level facilities and the SDPs to the extent that some facilities were found out of stock while facilities of DOH were found having commodities in excess, primarily due to data derived from an unjustified requisition form (CLR6-manual method).

The use of cLMIS undulated with the availability of the trained persons and their capability to perform the work. Furthermore factors highlighted by respondents ranging from connectivity, security and power supply prevented proper application of the cLMIS. The sustainability of cLIMS was a major concern. Respondents felt that there was much room for improvement along the lines of hiring more trained staff, providing refresher courses for existing personnel. In addition, bringing SDPs in the loop by giving the direct access, sharing of commodities to avoid overstocking and introduction of an evaluation system to take corrective measures, assess, and plan ahead can prove helpful.

ETHICAL APPROVAL

The Ethical approval was granted by the Institutional Review Board of the Health Services Academy, Islamabad, Pakistan.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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ADDRESS FOR CORRESPONDENCE

Saima Hamid, PhD.MPH, MBBS, Associate Professor, Health Services Academy, Islamabad, Pakistan; Tel: +923008543090; E-mail: saima_hamid@yahoo.com

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