

Jamaica's Contraceptive Logistics Management Information System in the Era of Sustainable Development: A Best Practice Approach

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Abstract: Family planning is one of the most cost-effective investments that a country can make in its future. Family planning services in developing countries have benefited economies and quality of life, with 885 million women of reproductive age delaying pregnancy. However, 214 million women worldwide have an unmet need for contraception. In Jamaica, unmet need represents 7.2%.

The aim of this research is to highlight the best practice approach used in enabling proficient improvement in Jamaica's Contraceptive Logistics Management Information System (CLMIS).

Eighty-one facilities were targeted; 78 sampled with the use of proportional stratified random method. Data were collected over 18 days during the month of February, 2019. This was done by trained staff of the National Family Planning Board (NFPB), with assistance from regional parish representatives, using the Logistics Indicator Assessment Tool (LIAT), which comprised a 37-item interview guide. Data were analysed via SPSS, featuring measures of central tendencies and Chi-Square Inferential Statistical Procedures.

The prevalence of stock-out of contraceptive methods had significantly declined from 65% and 85% in 2013 and 2015 respectively to 20% in 2019 - mainly condom (13%) and Microgynon (5%). Such progress is indicative of: increased availability of the key contraceptive methods for women who desire family planning and delayed pregnancy; standardisation of stock management records; capacity building of healthcare professionals in inventory control procedures/contraceptive forecasting methodologies; sound monitoring and evaluation. Improvement is evident in records management in all the facilities that has been sampled.

Conclusion: Jamaica's Population Planning and Development Sexual and Reproductive Health (SRH) Programme has established prescribed best practices for CLMIS which has seen significant improvement in forecasting logistics management, storage conditions, and record-keeping (Register and Logbook) throughout the public health regions.

Keywords: Family Planning, Contraceptive Logistics Management, Stock-out, Sexual and Reproductive Health.

1. INTRODUCTION

Developing states are more and more beginning to acknowledge that family planning is a critical part of their socio-economic development (Chandani & Breton, 2001), and that it is one of the most cost-effective investments for a country's future, especially if one were to consider the benefits regarding maternal and child health, women's health and empowerment, and education (World Health Organization, 2019).

Such benefit has also been evidenced in quality of life, with 885 million women of reproductive age delaying pregnancy. However, 214 million women worldwide have an unmet need for contraception World Health Organisation (2019). In Jamaica, unmet need represents 7.2% (National Family Planning Board, 2010).

This mixed method research looks at best practices that have been employed by Monitoring, Evaluation and Research Team of the National Family Planning Board, in the continued strengthening of the CLMIS throughout the public health sector in Jamaica. This paper highlights relative excerpts from the literature, shows detail ways in which the research was conducted, articulates the results, puts forward arguments that are pertinent to the results, draws the relevant conclusion, makes the necessary recommendations, acknowledges persons who contributed to this body of work, and then cites scholarly works that have been used to enrich this body of work.

2. LITERATURE REVIEW

Investment in family planning is likely to garner benefits when it comes to “women, families, communities, and countries...thus the likelihood of accelerating achievement across the five priority P’s of the Sustainable Development Goals (SDGs); namely: People (human rights), Planet (“consequences of population growth on environmental outcomes”), Prosperity (economic growth), Peace (mitigating conflict), and Partnership (partners supporting the achievement of the SDGs)” (Starbird, Norton & Marcus, 2016, p. 1). This is why family planning programmes cannot afford to fail at its supply chain management levels (Chadani & Breton, 2001). It also stands to reason why Governments in many countries, under the 1994 International Conference on Population and Development agreement in Cairo, admitted to the importance of family planning because of its linkage with socio-economic opportunities and benefits (United Nations Population Fund, cited in Chadani & Breton, 2001).

In addition, relationships are seen among improvements in SRH indicators, significant reduction in unintended pregnancy, reduction in maternal and child mortality and quality of life (World Health Organization, cited in Qureshi, Hamid & Bajwa, 2017). Regardless, however, unmet need remains a concern in developing countries, as over 200 million women continue to not use family planning methods, yet are desirous of not getting pregnant (Bailey, et al; Stacey; Yalew, et al; cited in Qureshi, Hamid & Bajwa, 2017). In Jamaica, unmet need represents 7.2% (National Family Planning Board, 2010).

Scholarly works revealed that universal access to family planning and reproductive health has had positive effect on other interventions, thus cost less (Starbird, Norton & Marcus, 2016). This is why the achievement of universal access is essential to not only the realisation of optimum SRH, but also to the 2030 Agenda of the SDGs which stipulates that no one should be left behind (World Health Organization, 2019).

The use of modern contraceptives up to approximately two years ago, had prevented 308 million people from experiencing unintended pregnancy. Therefore, if all of women’s contraceptive needs were met, then an approximate 67 million more people would likely be added to the annual list of those who do not encounter unintended pregnancy (World Health Organisation, 2019).

What is really family planning? It is a mechanism which allows people to determine birth spacing, advances human rights and gender equality; helps in preventing the transmission of HIV/STIs (World Health Organization, 2019); and “encompasses the services, policies, information, attitudes, practices and commodities, including contraceptives that give women, men, couples and adolescents the ability to avoid unintended pregnancy and choose whether and/or when to have a child” (Starbird, Norton & Marcus, 2016. P.1). In continuing, the World Health Organization (2019) postulated that it is also a low cost way of saving lives, within the context of socio-economic opportunities and maternal and child health.

If one were to look at adolescent pregnancy for example, this accounts for the likelihood of low birth-weight babies, higher rates of neonatal mortality, and school drop-out (World Health Organization, 2019). The World Bank Group’s (2019) statistics puts adolescent fertility rate at 42.45/1,000 Worldwide. In Jamaica, adolescent fertility rate has been trending down since 2008 from 72/1000 (National Family Planning Board, 2010) to 59/1,000 in 2013, and to 52.7/1,000 in 2017 (World Bank Group, 2019). Furstenberg (2008) is of the view that a trending down of this nature is as a result of access to contraceptives.

3. METHODOLOGY

The Logistic Indicators Assessment Tool (LIAT) was the primary instrument used to collect both quantitative and qualitative data from the health centers. The LIAT was developed by the US Agency for International Development (USAID) and may be used to monitor, not only the availability of contraceptive methods at health facilities, but the performance of logistics management system over a given period. The LIAT was considered feasible to the Jamaica’s CLMIS, as the data collected may be used to assess the accuracy of logistics information for inventory management. It

may also be used to assess the percentage of facilities that received the quantity of products ordered, maintain storage conditions and experienced stock-out at the time of the visit. As a result, the LIAT was tweaked to suit the need of the survey, being cognizant that research has shown that the customisation to suit a country-specific situation would likely enable buy-in for implementation of the CLMIS to be realised, and at the same time being able to meet user's needs in a changing environment (Chandani & Breton (2001).

In order to obtain comparable information, the 2019 study assessed specific CLMIS activities such as ordering and distributing procedures, stock-status, maintaining storage conditions as well as supervision and general management. The instrument was revised in 2015 so as to enable applicability to Jamaica's public healthcare system.

Data Collection

The data were collected through direct observation, physical inventory checks and face-to-face interviews with midwives who had primary responsibility for managing contraceptives at each facility. In enabling such smooth logistics, a letter was previously sent to the Regional Technical Directors at each Regional Health Authority (RHA) to permit entrance into the facilities. The NFPB and the Regional Nursing Supervisors for each facility, mutually confirmed the dates and time for data collection.

This CLMIS was conducted with consideration to the (a) remedial actions toward gaps that were identified from previous CLMIS surveys; and (2) evaluation of findings which posited limitations in knowledge capacity in the discipline of contraception forecasting methodology techniques.

In conducting the survey, key observations were made regarding

- 1) readiness of products for distribution in terms of their visible shelf arrangements according to identification labels, expiration dates, and manufacturing dates;
- 2) product storage and organisation within the context of accessibility in relation to first-to-expire, first-out (FEFO) counting and general management;
- 3) condition of products in the sense that whether they were crushed or damaged, or moist (damp or wet) or show signs of being exposed to heat or radiation;
- 4) whether it has been practiced to separate damaged and/or expired products from usable products and exclude same from inventory;
- 5) storage area being visually free from harmful insects and rodents;
- 6) security of storage area in terms of being locked away, and the security protocol being observed;
- 7) maintenance of roof to keep out direct sunlight and water away from contraceptive products;
- 8) maintenance of storeroom (clean, all trash removed, sturdy shelves, organised boxes);
- 9) availability and accessibility of functional, fully maintained and appropriately situated fire safety equipment;
- 10) separation of storage of contraceptive products from insecticides and chemicals.

Sampling Framework

There are three hundred and eight (318) functioning health facilities in Jamaica. A Proportional Stratified Random Sampling technique was applied to derive a representative sample of the health facilities. All the health facilities were organised into their respective regions and facility types 1 – 7 with assigned stratum per health region. South-East Regional Health Authority (SERHA) was assigned to stratum 1; North-East Regional Health Authority (NERHA) to stratum 2; Western Regional Health Authority (WRHA) to Stratum 3; and Southern Regional Health Authority (SRHA) to stratum 4. The health facilities were then randomly selected using random numbers between 0 and 1. The proportion of each facility type within each stratum was applied to the desired sample size 79 (Table 1) in order to compute the total number of facilities by type that was needed for the survey in each health region with a 10% margin of error. After meeting with the nursing supervisors for each region, the final sample of health centers was increased to 81 clinics, owing to unforeseen challenges during the period of data collection. Such drawback included limitations in geographical access, unavailability of key site personnel, non-storage of contraceptive methods at some locations that were targeted.

Table 1: List of Sampled Clinics for the CLMIS 2019

Region	Parish	Number of Facilities
South-East Regional Health Authority (SERHA)	Kingston & St. Andrew	8
	St. Thomas	7
	St. Catherine	6
	Total	21
North-East Regional Health Authority (NERHA)	Portland	7
	St. Ann	7
	St. Mary	5
	Total	19
Western Regional Health Authority (WRHA)	St. James	5
	Hanover	5
	Trelawny	6
	Westmoreland	4
	Total	20
Southern Regional Health Authority (SRHA)	Clarendon	7
	St. Elizabeth	6
	Manchester	6
	Total	19

Quality Assurance

Several methods were used to ensure quality adherence throughout the assessment process. The tool was reviewed prior to the training to ensure that questions were suitably adapted within the Jamaican context and modified again following a pilot test and input from data collectors during the training. Data collectors also participated in a one-day training course prior to field work so that they were fully au fait with the questions and sources of data for each form. Field work was also organised in a systematic way to ensure quality and accuracy of data. Every member of the team was responsible for completing each form.

Prior to leaving the facilities, the teammates compared each other's answers for accuracy and data quality. Following the review, one person (the assigned team lead) was responsible for verifying and submitting all of the forms that were completed at that facility. Feedback and clarification of forms were provided to each of the teams on a regular and ongoing basis. In situations where inconsistencies were found in the data that could not be clarified immediately, the team leader was responsible for calling the facility to verify such information.

Limitations

The limitations are as stated hereunder:

- 1) Self-reporting could risk misrepresentation
- 2) Establishing a functioning and strengthened CLMIS does not guarantee its sustainability, as the core healthcare professionals whose portfolio resides with family planning services sometimes rotate in duties, and/or migrate outside of the service.

4. RESULTS

The findings were disaggregated by regions (Table 1) and facility types where applicable, in order to provide a comprehensive understanding of the various aspects of the CLMIS.

Facility Information

A total of seventy-eight (78) facilities were visited during this assessment: Twenty (20) were from SERHA, twenty (20) from NERHA, while seventeen (17) and twenty-one (21) were from SRHA and WRHA, respectively. All the facilities involved in the sample were responsible for Family Planning commodities. Among them was one (1) facility operated by a Non-Government Organization (NGO).

On average, most of health facilities managed at least three (3) of the five contraceptive products procured by the NFPB. The three (3) main products managed were: Microgynon, Condoms and Depo Provera. Of the five (5) facilities that offered Jadelle, three (3) were from SERHA and two (2) from NERHA. However, one (1) facility from NERHA offered an alternative brand of Oral Contraceptive Pill (Minigynon); while 18 of the facilities offered IUCD

Stock Status

Stock status was within the context of commodities managed at facility, physical inventory, stock-out, and stocks record. The availability of contraceptive methods on the day of visit was determined by a physical stock count for each method that were being managed at the health centers sampled. Of the eighty-one (81) health facilities that were targeted, only seventy-six (76) completed stock status forms were returned by the data collection team. The results also revealed that on the day of visit, five percent (5%; n=4) of the facilities experienced stock-out of at least one contraceptive method. This result reflects a seventy-one percent (71%) reduction in stock-out on the day of the assessment in comparison to the 2015 survey which reported a seventeen percent (17%) stock-out of contraceptive method on the day of visit.

One (1) facility (or 6% of the facilities) in NERHA was stocked out of Depo Provera on the day of the survey. Of the three (3) facilities in WRHA that experienced stock-out, two (2) were stocked out of Condoms while the other facility was stocked out on Copper T.

Stock-out data were disaggregated by facility type in order to provide further insight into the availability of contraceptive methods at each facility. Stock-out on the day of visit for Type 1 facilities was higher than other facilities. Specifically, ten percent (10%; n=2) of the Type 1 facilities that were visited reported a stock-out of Condoms, while five percent (5%; n=1) of the Type 2 facility reported stock-out of Copper T. Only one (1) Type 3 facility was stocked out of Depo Provera on the day of visit.

Facilities were prompted to report the prevalence of stock-outs over a six-month period prior to the survey (August to January 2019). The results revealed that approximately one (1) in five (5) or twenty percent (20%; n=15) of the facilities experienced stock-out of at least one contraceptive method over the review period. Thirteen percent (13%; n=10) of facilities managing condoms experienced a stock-out over a six-month period, while five percent (5%; n=4) of facilities were stocked out of Microgynon. This study revealed a seventy-seven percent (77%) reduction in the prevalence of stock-out over the six-month period prior to the survey when compared with the study conducted in 2015.

On average, facilities from the four health regions experienced six (6) stock-outs of condoms over a six-month period. The average duration of the stock-outs of condoms lasted for approximately ninety-three (93) days or three months.

Logistics System Performance

The analysis presented in this section highlights key performance regarding the management and movement of contraceptive supplies and commodities at the facilities. The analysis was disaggregated under eight best practice regimes; namely: Logistic Management Information System (LMIS), Reporting, Inventory Control, Ordering Procedures, Supervision, Record-keeping, Transportation and Storage Conditions.

Logistics Management Information System

Based on assessment, there is a relationship between the effectiveness of the CLMIS and the training of health providers in the discipline of Contraceptive Forecasting Methodology Technique, which was delivered as one of the best practice approaches. Additionally, proper training of healthcare workers contributed greatly to quality data management. Overall, the analysis revealed that sixty-eight percent (68%; n = 53) of the nurses learned to complete the Monthly Clinic Summary Report (MCSR), Contraceptive Logbook and Family Planning Register on the job. A further twenty-four percent (24%; n = 19) of the health providers learned to complete the aforementioned records during logistic workshops hosted by the NFPB and RHAs . However, approximately six percent (6%; n = 5) of the nurses indicated that they had not received any formal training to complete family planning records at their facility, but rather, they relied on their discretion.

Maintaining a consistent supply of contraceptive products at service delivery points is crucial to maintaining an efficient CLMIS. Overall, forty-two HCW (42 or 53.8%) indicated that a forecasting formula (such as the simple average methodology) was used to determine resupply of quantities. A percentage of approximately thirty-six (36%; n=28) of the healthcare providers indicated that their facility resupply quantities was determined by other means such as client appointment or balance in the logbook.

In regard to recording of supply information, seventy-four percent (74%; n=56) of the facilities that managed Microgynon reported having a stock book available for the product. However, out of the 74 facilities that reported having a stock book for Microgynon, forty-seven percent (47%; n=36) of those stock books were updated. Of the fifty-five (n= 55; 72%) facilities that managed condoms issued by Ministry of Health (MOH), only forty-seven percent (47%; n=36) had updated their stock books. In regard to Depo Provera, while seventy-two percent (72; n= 55) of the facilities reported having a stock book available, only forty-six percent (46%; n= 35) of these books were updated. A stock book is a CLMIS tool that is used to record information on the contraceptive products managed at the health facilities.

Since the inception of the CLMIS Survey in Jamaica in 2013, the overall prevalence of stock-out of contraceptive commodities continues to trend downward, hence, the stock-out on the days of visit declined to five (5) percent. While this is of significant improvement, some facilities were still experiencing long period of stock-outs, especially relating to condoms. Even though most facilities had a stock book available, on average, about half of the stock books were not updated. This was of concern, as regular updating of stock book is important for efficient record-keeping and stock management.

Reporting

Reporting throughout the public healthcare system was optimal, as the MCSR was sent from the clinics to higher levels (health departments and the Ministry of Health and Wellness) on a monthly basis. This was adhered to by all seventy-eight (78) health facilities. A completed MCSR usually provides information on consumption and the quantity of contraceptive distributed and collected over a period of time. The MCSR however, does not usually provide information on losses and adjustment of contraceptive methods, yet some facilities reported having captured such information via the MCSR.

Inventory Control

Adhering to stock management procedures is another vital best practice mechanism that has been employed in strengthening the CLMIS, and so, this article notes the percentage of facilities that placed an emergency order within a three-month period prior to the assessment. Sixty-nine (n = 69 or 88%) facilities did not place any emergency order within the last three months.

There was an increase in the percentage of facilities that did not place any emergency orders within the last 3 months prior to the survey when compared to 72.7 percent in the 2015 CLMIS assessment.

Ordering Procedures

Ordering procedures exist to ensure consistent supply of contraceptive products. This study found that forty-eight (n= 48 or 61.5%) facilities ordered contraceptives methods via phone; thirty-two percent (32%; n= 25) of the facilities order contraceptives via email or written request; and twenty-four percent (24%; n= 19) of the facilities reported using an order book as a medium for ordering products. Similarly, twenty-two percent (22% or n= 17) of the facilities reported, having visited the health department to place an order.

The study assessed the frequency of ordering request as a measure to monitor the efficiency of the stock management. The findings revealed that seventy-one percent (71%; n= 55) of the facilities placed orders on a monthly basis. Thirteen percent (13%; n=10) of facilities ordered contraceptives on a quarterly basis; while, seventeen percent (17%; n= 13) of facilities indicated that orders were sent to the higher level based on the demand for the products.

Record Keeping

The survey assessed the availability, accuracy and completeness of the Monthly Contraceptive Logbook. Of the seventy-eight (n= 78) facilities sampled, sixty-three percent (63%; n= 49) completed the *stock on hand* section of the Monthly Contraceptive Logbook. Conversely, fewer facilities completed the *quantities used* (62 %) and the *losses and adjustments* (38%) section of the Monthly Contraceptive Logbook.

Supervision

Regular supervisory visits contribute to proper record-keeping and ordering procedures while promoting quality assurance practices. A major part of the CLMIS assessment was to investigate:

1. when the last supervisory visit occurred;
2. the frequency of the visit; and

3. whether the visit was specific to family planning, such as:

- commodities check;
- stock book check, storage condition assessment and removing expired products.

Overall, forty-two percent (42%; n=33) of the facilities in the survey recalled receiving their most recent supervisory visit within the last month prior to the survey. Conversely, twenty-two percent (22%; n=17) of the facilities indicated that they were never visited by their supervisor for family planning. Approximately, fifteen percent (15%; n= 12) facilities recalled receiving their last supervisory visit within 1 to 3 months prior to the survey, while nine percent (9%; n= 7) of the facilities indicated that they received their last supervisory visit more than 6 months prior to the survey.

An in-depth analysis was done to examine the nature of the supervisory visits. The assessment revealed that thirty-two (n= 32; 41%) facilities indicated that their supervisory visits included checking of contraceptive stock books. Twenty-three percent (23%; n = 18) of the facilities recalled that their last supervisory visit included the removing of expired stocks. Correspondingly, forty-six percent (46%; n= 36) of the facilities that received supervisory visit indicated that their storage condition was checked. About half (56%; n = 44) of the facilities which recalled receiving supervisory visit, indicated that their supervisor checked their family planning reports.

Transportation

The provision of an efficient transportation system is a principal component in ensuring that the contraceptive methods are at the right place, at the right time, in the right quantity. Of the seventy-eight (78) facilities that were sampled, fifty-six percent (56 %; n=44) of the facilities indicated that they were responsible for picking up contraceptives for their facilities. On the other hand, thirty-one percent (31%; n=24) of the facilities confirmed that contraceptives were delivered from the health department, while four (n= 4 or 5%) facilities reported that contraceptives were delivered from higher level (National).

A Chi-square test analysis was conducted to determine if the responsibility of collecting contraceptive commodities differed across the four regions. The result indicated that facilities within their respective regions have different media for collecting contraceptive products for their facility. One of which is the use of their private motor vehicle of the health care professionals.

Storage Condition

Contraceptive storage is crucial as it enhances quality care and management. The storage area for all contraceptive commodities should meet a specific standard in order to ensure the safety and integrity of all products. The findings revealed that the least met storage condition was the availability of fire extinguishers. To elaborate, all the facilities reported having fire extinguishers; however, twenty-nine percent (29%; n= 21) of them were not recently serviced, hence optimum function could not be guaranteed should fire occur.

Best Practice Initiatives

Coupled with the aforementioned (Logistic Management Information System, Reporting, Inventory Control, Ordering Procedures, Supervision, Record-keeping, Transportation and Storage Conditions), other best practice initiatives are the

1. conducting of periodic contraceptive logistics management forecasting at the national level to ensure the sustained availability of the right family planning methods, of course, recognising that “contraception offers a range of potential benefits that encompass economic development, maternal and child health, education and women’s empowerment (World Health Organization, 2019);
2. training of health-care providers at the facility levels (clinic level) on record keeping, data quality and security, contraceptive management and forecasting methodologies, specifically, the Principles, Simple and Moving Averages, Missing Data, Real Demand, and Practical Inventory Control Procedures (Minimum and Maximum Stock Level). At the end of the training, the participant nurses are usually awarded Continuing Medical Education Credits. After one year, the capacity of the participants are usually assessed using the Kirkpatrick Model. Assessment is based on four levels; namely: Whether the training had influenced performance; the extent to which the training had changed behaviour; was knowledge transfer to the job evident; and the perspectives of the participants towards the training programme (Kirkpatrick & Kirkpatrick, 2016).

3. standardisation of contraceptive records (family planning register and monthly contraceptive logbook) across all facilities, so as to enable accurate reporting of methods and efficiency in procurement and storage;
4. conducting of periodic assessment of the contraceptive logistics system via the CLMIS survey in order to enable continuous strengthening of the system. We also recognised that “usage of family planning services in developing countries have been found to improve sexual and reproductive health indicators, avert unintended pregnancies, reduce maternal and child mortality (World Health Organization, cited in Qureshi, Hamid, Bajwa, 2017, p.34) as well as add beneficial effects on the economy and quality of life (Qureshi, Hamid, Bajwa, 2017, p.34);
5. implementation of a routine quarterly clinic visits as part of the ongoing assessment process of the system;
6. conducting of three years evaluation survey (CLMIS survey).

5. DISCUSSION

The sustenance of a constant supply of contraceptive products at service delivery points is crucial to maintaining an efficient CLMIS. This enables trust from clients, who do not have to encounter disappointment at the clinics when their preferred contraceptive method is not in stock. The result showed that overall, forty-two (42 or 53.8%) healthcare workers indicated that a forecasting formula (such as the simple average methodology) was used to determine resupply of quantities. This reinforced consistency in supply, recognising that if otherwise, this could result in, not just the loss of credibility, but also failure in the family planning programme (chandani & Breton, 2001). Besides, family planning programmes cannot afford to fail especially since it is “a key to unlocking all 17 SDGs” (United States Agency for International Development, & Knowledge for Health, n.d.), and it is tied to policy and political priorities regarding women and girl’s health, human rights, SRH and reproductive rights; reduction in poverty, and elimination of unsafe abortion. This brought to mind, the arguments put forward by scholarly authors that family planning programmes are a vital ingredient of socio-economic development, and forms a cornerstone or national policy in many developing countries (chandani & Breton, 2001).

In strengthening Jamaica’s CLMIS, the family planning experts (Registered Nurses, Midwives and Public Health Nurses) were trained by the Monitoring, Evaluation and Research team in effective contraceptive forecasting techniques, one of which was the adoption of the six rights posited by the United States Agency for International Development: “The right goods, in the right quantities, in the right condition, delivered to the right place, at the right time, and for the right cost” (United States Agency for International Development, 2000). This effort was in consideration to the fact that countries have seen improvement in SRH indicators, significant reduction in unintended pregnancy, reduction in maternal and child mortality and quality of life owing to clear and accurate family planning programmes (World Health Organization, cited in Qureshi, Hamid & Bajwa, 2017).

The findings of the CLMIS survey suggest that the national family planning programme continues to make significant improvement in the areas of contraceptive method availability and overall stock management, despite pitfalls that require further attention. The implications of the key findings are discussed hereunder:

Reduction in Stock-out of contraceptive methods

Contraceptive stock-out was assessed both on the day of the investigation and over a six-month period (August 2018 to February 2019). The reduction in stock-out on the day of the visit from 17% in 2015 to 5% in 2019 supports the improvement in the system as stated above. This result indicates that there is now a 95% chance that a family planning client will get their method of choice at any selected health center island-wide, if they should randomly select a health center to visit. The probability of receiving a preferred method of contraception decreases (80%) however if a woman visits a selected health center consistently over a six-month period. Therefore, even though these results are good, there is still work to be done to ensure that stock-out is eliminated. Stock-out in any contraceptive system may lead to increase in the incidence and prevalence of pregnancy, unmet need for family planning and decrease in the contraceptive prevalence rate, as well as increase in incidences of HIV/STIs.

Record Keeping and CLMIS Forms

The main type of training reported by more than two-third of the family planning providers was on the job training. The major limitation with this type of training is that the quality of the information transferred between health providers is difficult to manage because it is largely based on the level of understanding from the individual transferring the information. That is, if the individual providing the information has limitation in their knowledge, then this will also be

transferred to the trainee. This is supported by the percentage of facilities that reported that the MCSR contains a section that reports on losses and adjustment of contraceptive methods, which is not factual; the MCSR contains sections which provide data on the number of contraceptive acceptance by age, sex and type of users, but it was not design to provide information on inventory control methods such as losses, adjustments and ordering patterns. These data should be captured either in the monthly contraceptive logbook or any other facility designed contraceptive management record. The impact of this error can lead to incorrect records being captured and sent throughout the system affecting policies and programmes decisions.

It was also discovered by the result that the Monthly Contraceptive Logbook that was designed to standardise inventory management was not being used by the majority of the health centers. The general reason provided was that the health providers did not understand how to complete sections of the book. This could further explain the challenges that exist regarding record keeping and inventory control.

Inventory Control

The study assessed the ordering patterns, frequency and procedures of the health facilities. Most facilities place their contraceptive orders on a monthly basis via telephone, email or order book. The methodology and frequency of ordering practices work in most cases but can be more efficient if minimum, maximum and lead time inventory procedures are applied. These methodology would streamline the current ad hoc ordering practices, and ultimately result in an elimination of stock-out through the CLMIS. It would also reduce the need for emergency ordering that was reported by some health centers.

Supervisory Visits

Regular supervisory visits specific to or including family planning was reported to be inconsistent results of the study. More than half of the facilities reporting not receiving monthly supervisory visits for family planning. The effect of lack of supervision of the contraceptive management at the facility level could attribute to the incomplete and incorrect records, poor storage conditions and inefficient inventory control practices. Improvement in the supervision will invariably lead to further improvements in the system and would also contribute to the eradication of stock-out through the system.

Storage conditions

The assessment of storage conditions throughout the system is challenging given the reality of the health facilities. Most of the health facilities use file cabinets as storage areas for the methods due to a lack of a designated area for contraceptive storage or sufficient space. Therefore, the assessment was conducted to ascertain if these areas, which were deemed adequate, were free from rodent droppings, secured with locks and were kept at the appropriate temperature (room temperature) for the efficacy of the products. Based on these criteria, most health facilities were assessed to have adequate storage facilities for the methods. The major concern was observed with the fire safety equipment. Facilities either did not have a fire extinguisher or a recently serviced one. This result is critical because in the event of a fire, the facilities appeared to be ill-equipped to adequately protect themselves or the products. Therefore, more work needs to be done in this area in order to protect the family planning providers and the products.

6. CONCLUSION

Jamaica's Population Planning and Development Sexual and Reproductive Health (SRH) Programme has established prescribed best practices for CLMIS which has seen significant improvement in forecasting logistics management, storage conditions, and record-keeping (Register and Logbook) throughout the public health regions.

7. RECOMMENDATION

Arising from the analysis are the following recommendations:

Establish a family planning supervision protocol

The frequency of supervisory visit and the nature of the visit should be addressed as the analysis revealed severe limitation therein. Supervisory visit is a key component in strengthening the CLMIS. Protocol should be developed, with the aid of the nursing supervisors, to assist the nurses in doing family planning supervision. This is because where visits were done, family planning were not considered in some instances.

Formal CLMIS training for staff

In an effort to continue the strengthening of CLMIS, there needs to be ongoing formal training of key health personnel in proper logistic management. The logistic training should provide comprehensive insight on inventory control and reporting procedures; such as completing stock book, contraceptive logbooks and other forms/records used at the facilities. The training should reinforce information on forecasting procedures and other methods used to determine resupply quantities. Such training would likely help staff members to keep up-to-date stock books and proper inventory records, hence, the likely alleviation of stock-out which would normally be caused by improper inventory and procurement planning at the facility level.

Advocating for regular servicing of fire equipment within the health centers

While many health centers have fire extinguishers mounted at their facilities, a large majority of these extinguishers were not recently serviced. Therefore, the recommendation should be made to the fire departments within the parishes to assist the health centers in keeping their fire extinguishers up-to-date.

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