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Research paper

Strategies for Managing Healthcare Data at Primary Health Care Level in the Local Government Areas of Osun State, Nigeria

[1]OMOLE, Michael Segun, [2]ADEBAYO, Tajudeen Temitayo, and [3]OSUNDINA, Kayode Sunday

[1]Head of Department, Health Information Management, Osun State College of Health Technology, Ilesa, Nigeria.
Corresponding author's E-mail: osegunmicheal@gmail.com
[2]Head of Department, Health Information Management, Federal Medical Centre, Owo, Ondo State, Nigeria.
E-mail: adebayott@gmail.com
[3]Health Information Management Department, Adeleke University, Ede, Osun State.
E-mail:kayodeosundina@yahoo.com

The study focused on the strategies for managing healthcare data at primary healthcare level among health records management practitioners in the local government areas of Osun State, Nigeria, with a view to combining insights of how healthcare data management bridges different aspects of primary healthcare services in the local government areas of Osun State, Nigeria.

Survey research design was adopted for the study. The population of the study was two hundred and fifty three (253) health records management practitioners in the 30 local government areas of Osun State. Total enumeration technique was used to cover all the 253 health records management practitioners in the 30 local government areas. A validated questionnaire was the instrument used for data collection. The response rate of 97.6% was obtained and data were analyzed using descriptive and inferential statistics.

Findings revealed that positive and significant relationship exists between healthcare data management and primary healthcare services (Df = 245, N = 247, r = .687**, P < 0.05). The p-value associated with the r statistics is less than the 0.05 level of significance. It implies that a unit increase in healthcare data management will increase the tendency for improved primary healthcare services in the studied area.

The study concluded that healthcare data management has significant influence on primary healthcare services in the local government areas of Osun State. The study recommended that: State government should provide logistics and materials, to facilitate efficient implementation of all components of primary healthcare services and organize regular training and re-orientation workshop for health records practitioners on electronic methods of managing healthcare data for improved primary health care services in the local government areas of Osun State.

KEY WORDS: Managing healthcare data, Primary health care level, Health records management practitioners, Health data management, Primary healthcare services.

INTRODUCTION

Primary Health Care service is the closest to the people and is constitutionally the responsibility of the local government. The challenge at the primary health level is to establish a health care system that will touch the life of every citizen and tackles the conditions that cause the highest mortality and morbidity. The system must be organized from grassroots and woven into the fabric of the community participation. It must integrate preventive, promotive, rehabilitative and curative healthcare services using the type of technology that the community will accept and at the cost it can afford. The health care is provided by a team of health workers which includes Doctors, Nurses, Health Information Management Practitioners, Midwives, Community Health Practitioners, Health Superintendents, Health Assistants, Public Health Officers and so on (Etuk, 2019).

It is of crucial importance to demonstrate results and outcomes of intervention especially in the area of health, through high quality and evidence-based program data. Essentially, that will go a long way in informing better planning, as well generating optimum by-in and confidence of stakeholders across all levels among others. Data management effort at primary health care level is aimed at fulfilling the above stated end, to support the accurate and timely data collection necessary to ensure that Primary healthcare system is meeting its objectives (Bardsley, 2016)

Omole (2017) also affirms that, the need for evidenced-based result is growing in all areas of development project implementation: In terms of quality management, process evaluation has become a critical part in program's implementation. To this end, the need for quality data gathering cannot be under-estimated. In order to accurately and transparently measure progress and track the performance of key program indicators; there is need to ensure the availability of good, quality and reliable data.

Data is usually transmitted through the Bottom-up program approach, with the smallest unit and point of data generation being PHC facility/Referral General Hospital/ Teaching Hospital. After service delivery, data is expected to be transmitted across the local government area and State levels before it gets to Federal level. It is important to stress that a functional data flow mechanism is critical to an effective data management at primary healthcare level which can be used to manage and improve effectiveness in service delivery (SURE-P, 2013). It is against this backdrop, that the researcher investigated the strategies for managing healthcare data at primary healthcare level in the local government areas of Osun State, Nigeria.

STATEMENT OF THE PROBLEM

Primary Healthcare level is the closest to the people. It was established to provide integrated healthcare services; such as, preventive, promotive, rehabilitative and curative healthcare services using the type of technology that the community will accept at affordable cost. Provision of primary healthcare service is constitutionally the responsibility of the local government. However, poor response to primary healthcare issues by the concerned authorities usually results from improper management of healthcare data generated within the primary healthcare facilities which use to have negative impact and grave consequences on primary healthcare services in the local government areas. The problem therefore is that, it is not clear the extent to which health records management practitioners and local government authorities pay attention to healthcare data management for effective primary healthcare system. Therefore, it is important to find out empirically the existing strategies for managing healthcare data at primary healthcare level in the local government areas of Osun State Nigeria.

OBJECTIVE OF THE STUDY

The specific objectives of the study are to;

1.   examine the nature of primary health care services in the local government areas of Osun State;
2.   examine the existing structure for managing healthcare data at primary healthcare level in the local government areas of Osun State;
3.   determine the relationship between healthcare data management and primary health care services in the local government areas of Osun State.

RESEARCH QUESTIONS

The research questions for the study are;
1.   What is the nature of primary health care services in the local government areas of Osun State?
2.   What is the existing structure for managing healthcare data at primary healthcare level in the local government areas of Osun State?

HYPOTHESIS

The study was tested under the following research hypothesis at 0.05 level of significance:

H_0: Healthcare data management has no significant relationship with primary healthcare services in the local government areas of Osun State.

SCOPE OF THE STUDY

This study investigated the existing strategies for managing healthcare data at primary healthcare level among health records management practitioners who are the officers in charge of healthcare data management in all the thirty (30) local government areas of Osun State.

Significance of the Study

The findings of this investigation would be of significance to the local government authorities in Nigeria, as it would raise awareness and provide solutions to the challenges of managing healthcare data, arising from primary healthcare services among health records management practitioners in the local government areas of Osun State. The study would bring to bear the importance of healthcare data management to the public, the health care professionals and local government authorities, especially the outcome of efficient healthcare data management towards effective primary health care services in a local government area.

REVIEW OF LITERATURE

Concept of Primary Health Care Services

Smith (2016) submits that primary healthcare as stated in the Alma Ata declaration shall be the key to the development of the national health policy. Primary healthcare, according to the Alma Ata declaration is an essential health care based on practical, scientifically sound and socially acceptable method and technology made universally accessible to the individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination (WHO, 1978).

The system must be organized from grass root and woven into the fabric of the community through the process of community participation. It must integrate preventive, promotive, and curative services, using the type of technology that the community will accept at the level (cost) it can afford. The health care is provided by a team of health workers which includes Doctors, Nurses, Health Information Practitioners, Midwives, Community Health Practitioners, Health Assistants, Health Superintendents or Public Health Officers and so on (Etuk, 2019).

Components of Primary Health Care

Vuori (1986) indicates the basic elements of primary health care as cited in Smith (2016) are:

1. **Health Education**: This is a very important element of primary healthcare services. The members of the families in the community are enlightened on the causes of ill-health and methods to identify those causes and how to combat them in order to achieve safe and sound health. Only through understanding the basics of a healthy life, can people make rational decision concerning their health needs and life style.

2. **Maternal and Child Health including Family Planning**: Most maternal deaths are associated with children, pregnancy, labour and puerparium. Therefore, in order to promote the wellbeing of the mothers and children and also reduce the rate of infant and maternal mortality in our communities, ante-natal care, post-natal care and family planning services are integrated into the components of primary healthcare services.

3. **Promotion of Food Supply and Proper Nutrition**: Individuals require food for their daily consumption which normally provides essential nutrients for normal body functions. Such food has to be safe and free from pathogens right from the production processes to the consumption level.

4. **The Provision of Safe Water and Basic Sanitation**: Water for community consumption and other essential utilization has to be safe and free from pathogenic influences, so as to prevent individuals and families from infection. This can be achieved through tracing the source of water supply and providing adequate purification measures.

5. **Immunization against Major Infectious Disease**: Immunization is meant to build body resistance against infectious diseases, which usually affect the health of individuals and families in the community.

6. **Prevention and Control of Locally Endemic and Epidemic Diseases**: Causes and predisposing factors of diseases in the community have to be controlled to the barest minimum through environmental sanitation (terrestrial and aquatic sources), personal hygiene, proper nutrition and immunization.

7. **Appropriate Treatment of Common Diseases and Injuries**: Diseases and injuries do commonly occur due to some reasons affecting the wellbeing of individuals and families despite efforts in health

education, personal hygiene, and immunization and so on: such diseases and injuries have to be managed, using standing order.

8. **Provision of Essential Drug Supply and Drug Revolving System**: Drugs that are mostly needed to satisfy the healthcare need of majority in the community must be available and at cheaper rate at primary healthcare facilities using revolving system so as to treat any diagnosis or any identified diseases in the individual and families in the community.

9. **Mental Health:** Community mental health addresses ill-health of individuals and families in the community in terms of thinking, reasoning, interaction and judgment. Primary healthcare services identify and recognize those that are mentally ill within the community and refer them to psychiatric hospitals.

10. **Geriatric Care**: This means problem of the elderly/aged and their care. It is concerned primarily with how to make old people live productive and enjoyable life.

11. **Monitoring and Evaluation:** These involve the continuous follow up of activities in order to ensure that they are proceeding according to plan including systematic and periodic assessment of health program achievements in relation to defined service objectives. Monitoring and Evaluation permit measurement of the impact of health services on the population in terms of efficiency, coverage and effectiveness (Omole 2016).

These components constitute the basic services available at primary healthcare level in the thirty local government areas of Osun State. Community involvement in the planning and implementation of these services is of paramount importance. Community awareness about healthcare benefits that are available in the health facilities enhances an improved patronage (Smith, 2016). Therefore community involvement is germane as it facilitates sense of belonging, community ownership and community mobilization which is an integral element of the principles of primary healthcare.

Principles of Primary Health Care

Cumming and Gribben (2007) assert that the basic principles of primary health care are: Equity, Community Participation, Inter-sectoral Coordination and Appropriate Technology.

a.   Equity/Equitable Distribution

The first key principle in primary health care strategy is equity or equitable distribution of health services. Health services must be shared equally to all people irrespective of their location and ability to pay (rich or poor, urban or rural), must have access to health services. Currently health services are mainly in towns and inaccessible to majority of population in the developing world or core rural areas.

b.   Community Participation

This is the overall responsibility is of the State. The involvement of individuals, families, and communities in promotion of their own health and welfare is an essential ingredient of primary healthcare. Improved primary healthcare services coverage cannot be achieved without the involvement of community in planning, implementation and maintenance of health services.

c.   Inter-sectoral Coordination

Declaration of Alma –Ata states that primary healthcare involves in addition to the health sector all related sectors and aspects of national and community development; in particular, education, agriculture, animal husbandry, food, industry, education, housing, public works and communication. To achieve cooperation, planning at country level is required to involve all relevant sectors toward achieving the objectives of primary healthcare.

d.   Appropriate Technology

Technology that is scientifically sound, adaptable to the local needs, and acceptable to those who apply it and those for whom it is used and can be maintained by the people themselves with the resources that the community and country can afford.

The relevance of these principles to primary healthcare implementation in local government areas of Osun State cannot be overemphasized. The primary healthcare principle emphasized the need for equitable distribution of services, community participation, inter-sectoral collaboration, and appropriate technology. Adherence to the tenet of these principles promotes a sense of order as systematic execution of every element of primary healthcare facilitates accessibility and affordability of health services by all citizens.

Healthcare Data Management at Primary Healthcare Level

Health data management at primary healthcare level consists of the provision of appropriate infrastructure, the establishment of mechanism and procedures for

collecting and analyzing health data to provide needed information, to be used as management tool for inform decision making at primary healthcare levels. It involves data collection and management system that is designed to support planning, organizing, directing, controlling and informed decision making at health facility and local government area levels (Omole & Adebayo, 2019). Therefore in order to demonstrate evidenced-based and verifiable project outcome at primary healthcare level: Omole (2017) submits that the strategies involve in managing healthcare data comprises of these structures: Patient records management system, Disease surveillance and notification systems, National health management information system (NHMIS), and District health information system

Patient Records Management System

Benjamin (2001) defines patient record is a clear, concise and accurate account or history of patient's life and illness written from medical point of view. It consists of collection of definite facts concerning a particular patient. Patient record is a device used for recording the significant characteristics of a patient and his illness and the event occurring in the course of professional care, for the purpose of providing best medical care, warrant the treatment and the end result. For the health record to be complete, the record must contain sufficient information written in sequence of event to justify the diagnosis and warrant the treatment rendered.

Health Records are created for every patient treated in the primary healthcare facility to provide evidence of treatment rendered (Omole & Adebayo, 2019). The quality of primary health care services depends on proper management of healthcare data which rest solemnly on a good system of health record storage and preservation. And these can only be achievable through application and use of health records management systems, such as: Numbering System, Filing System, Tracing System, Appointment System, Coding and Indexing Systems (Osundina, 2014).

Disease Surveillance and Notification System

Disease surveillance and notification system is the act of carefully watching/maintaining a constant watch on the trend of occurrence of diseases within in a geographical area, through systematic data collection and processing on morbidity and mortality and prompt reporting to the appropriate health authority for further necessary action (Oshotimehin, 2009). Disease surveillance and notification system is a branch of health information management practices that involves a watchful vigilance

approach to information gathering, that serves to improve health of the population, through timely and orderly reporting of the occurrence of specific disease to the designated health authorities (Ogunbodede, 2015).

The basic strategy for the implementation of Disease Surveillance and Notification System is the Integrated Disease Surveillance and Response strategy which promotes rational use of resources by integrating and streamlining common surveillance activities through the use of the following forms for reporting priority diseases:

1. **I.D.S.R. 001A** – **Immediate case based reporting form**: This form is called case investigation form. It is used for immediate reporting within twenty four hours of detecting or receiving the report of any epidemic prone disease from health facility or health facility worker to local government area (L.G.A) health team.

2. **I.D.S.R. 001B** – **Laboratory form**: This form is used by the health facility, if laboratory specimen is collected, the form will be completed and a copy of this form is sent to the laboratory with the specimen.

3. **I.D.S.R. 001C** – **Line list for reporting from health facility to L.G.A and for use during outbreaks**: This form is used for line listing of cases for reporting from health facility to LGA and it is for use during outbreaks of any of the epidemic prone diseases in the local government area.

4. **I.D.S.R. 002** – **Weekly reporting of new cases of epidemic prone diseases and other public health emergencies**: The form is used for routine weekly reporting of new cases of epidemic prone diseases and other public health emergencies under surveillance.

5. **I.D.SR 003** - **Routine Monthly Notification Form**: This from is used at health facility level for routine monthly notification of the occurrence of any of the forty (40) notifiable diseases from health facility to local government area level. The same form is replicated for LGA level for onward routine monthly notification of the occurrence of any of the forty (40) notifiable diseases to the state level (Federal Ministry of Health, 2014)

National Health Management Information System (NHMIS)

National Health Management Information System provides mechanism and procedures for collecting and analyzing health data to provide needed information, to be used for inform decision making at all levels of health care delivery system through development of uniform registers, summary forms and online platform for data reporting (FMOH, 2014).

The structure of National Health Management Information System is an institutional framework of hierarchical level from which health data and information are to be obtained. The NHMIS unit of the Federal Ministry of Health inter-phases through established protocols with state ministry of health and local government area levels (Omole, 2018).

The guiding principle of the revised National Health Management Information System form is to keep things simple, practicable and sustainable. Hence, the National Health Management Information System forms consist of routine data collection forms, such as: Registers, Summary forms and District health information system.

A. Registers: Registers and forms have been developed by the Federal Ministry of Health (NHMIS Unit) to serve as data collection tools for capturing information about all health care delivery services: Such registers include; Ante-natal care and pregnancy outcome register, Family planning commodity utilization register, Family planning services register, Growth, monitoring and promotion register, Inpatient cases register, General outpatient registers, Health facility general attendance registers, Disease surveillance and notification forms and so on. Data are summarized from these registers into the health facility summary form on monthly basis (FMOH, 2014).

B. Health Facility Summary Form: This form is used by the health care facility to summarize activities at

monthly interval, the summary is usually sent to the local government area (Monitoring & Evaluation Office). Local government summary form is used by the local government monitoring and evaluation officer to summarize returns from all health facilities in their catchment area for onward transmission to the state level. State summary form is used by the state ministry of health to summarize returns from all local government areas, for onward transfer to the federal ministry of health. Summary forms serve as data management tools for capturing information about all health care delivery services rendered at the health facility.

C. District Health Information System: The two pronged approach; comprising of the immediate papers based system and long term electronic system is essential for data management at all levels of healthcare system. This led to the development of District Health Information System-2, by the Federal Ministry of Health (NHMIS Unit) which is a web-based software package that serves as electronic data reporting platform (FMOH, 2014).

District Health Information System-2

DHIS-2 is a tool for collection, validation, analysis, and presentation of aggregate and patient based statistical data, tailored (but not limited) to integrated health information management activities. It is a generic tool rather than a pre-configured database application, with an open meta-data model and a flexible user interface that allows the user to design the contents of a specific information system without the need for programming. DHIS-2 is a modular web-based software package built with free and open source Java frameworks.

The key feature/purpose of DHIS-2 is to provide a comprehensive data management solution based on data warehousing principles and a modular structure which can easily be customized to different requirements of a management information system, supporting analysis at different levels of the organizational hierarchy (FMOH, 2018)

Use of DHIS2 in Healthcare Data Management

DHIS-2 enhances data collection, processing, interpretation, and analysis. The wider context of the uses of DHIS-2 can be comprehensively described through the information cycle presented in Figure 1 below as indicated in the manual of DHIS-2 (FMOH, 2018). The information cycle pictorially depicts the different components, stages and processes through which the data is collected, checked for quality, processed, analyzed, presented, interpreted and used.
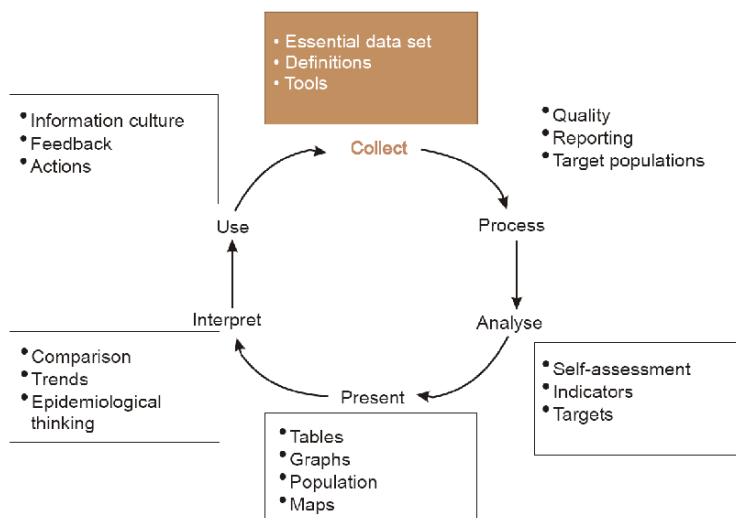
The Information Cycle

Figure 1. The health information cycle

Taylor, (2016) submits that in order to enhance quality data management at primary health care level, an effective Health information Management System must be in place at all Health facilities across the country, with an approach that is simple and compatible with the existing National Health Management Information System, so as to demonstrate evidence-based and verifiable service outcomes. Furthermore, Omole, (2018) asserts Monitoring and evaluation of primary healthcare services can only be achieved through an established method of data collection for periodic assessment of health programs' achievement through the use of the collected data in relation to the defined service objectives in respect of each element of primary healthcare services. To this end, the need for quality data gathering cannot be under-estimated in order to accurately and transparently measure progress and track the performance of key primary healthcare service indicators.

Therefore, there is need to ensure continuous availability of good, quality and reliable data for effective planning, implementation and evaluation of primary healthcare services. In order to achieve this, an effective health management information system must be in place in all healthcare facilities across the country, with a functional data flow mechanism that is critical to an effective monitoring and evaluation of primary healthcare system, so that data can be used to manage and improve effectiveness.

METHODOLOGY

Survey research method was used. This study investigated the strategy for managing healthcare data at primary healthcare level among health records management practitioners in the local government areas of Osun State. The instrument used for data collection was questionnaire. The instrument was administered to health records management practitioners in the 30 local government areas of Osun State. Administration and collection of the instrument lasted for three months. Retrieved data were analyzed and presented with the use of descriptive and inferential statistics that is: frequencies, percentages, means, standard deviation and simple correlation table.

FINDINGS AND DISCUSSIONS

Data were collected through the questionnaire. Data generated through questionnaire were collated, coded, and analyzed using descriptive and inferential statistics that is: frequencies, percentages, means, standard deviation and simple correlation in analyzing the responses of the health records management practitioners. The return rate of 253 copies of the questionnaire dispatched to the health records management practitioners in the 30 local government areas of Osun State show that 247 copies representing 97.6% were duly completed and returned while 6 copies representing 2.4% of the questionnaire were not duly completed. Therefore the results presented in the following sections were based on the 247 copies of the questionnaire that were duly completed and returned.

Answers to Research Questions

This section consists of the results from the descriptive statistics on the account of the two Research Questions posed in the study:

Research Questions 1: What is the nature of primary health care services in the local government areas of Osun State?

Table 1. Showing the existing nature of primary health care services in the local government areas of Osun State

S/N	Items	SD (%)	D (%)	A (%)	SA (%)	Mean	Std. Dev
1	Health Education service is provided in the health facility	-	-	48 19.4	199 80.6	3.79	.458
2	Maternal & child health including family planning services are rendered in the health facility	-	11 4.5	87 35.2	149 60.3	3.61	.426
3	Basic Sanitation Services & Portable water supply are provided by the LGA Authority	-	16 6.5	57 23.1	174 70.4	3.68	.615
4	Growth monitoring & promotion services are provided to assess nutritional status	-	10 4.0	38 15.4	199 80.6	3.80	.474
5	Immunization Services are provided in the health facility	-	8 3.2	76 30.8	163 66.0	3.76	.446
6	Treatment of common ailments is provided in the health facility	-	-	71 28.7	176 71.3	3.68	.519
7	Essential Drugs are available for dispensation in the health facility	-		101 40.9	146 59.1	3.57	.418
8	Identified mentally ill patients are usually referred to psychiatric hospitals for further management	-	15 6.1	83 33.6	149 60.3	3.55	.476
9	Geriatric care is provided for the aged people in the health facility	-	12 4.9	85 34.4	150 60.7	3.57	.539
10	Every citizen have equal access to primary healthcare services in the health facility	-	10 4.0	89 36.0	148 60.0	3.56	.447
11	Community members do participate in decision making process on issues concerning their health	-	15 6.0	74 30.0	158 64.0	3.66	.456
12	LGA authority coordinates other sectors' contribution to provide quality primary healthcare services	-	-	91 36.8	156 63.2	3.71	.435
13	Appropriate technology is adopted in providing primary healthcare services	-	19 7.7	123 49.8	105 42.5	3.50	.521
14	Registers and Summary forms are available for monitoring and evaluation of primary healthcare services	-	-	86 34.8	161 65.2	3.76	.312
15	Healthcare data are used for planning, implementation & evaluation of PHC services for improved service delivery	5 2.0	11 4.5	92 37.2	139 56.3	3.53	.456

Source: Field Survey, January, 2020:
Key: SA = 3.5-4.0: A = 2.50-3.49: D = 1.50-2.49: SD = 1.00-1.49
Note: SA=Strongly Agree: A=Agree: D=Disagree: SD=Strongly Disagree
X = Mean, Std. Dev. = Standard Deviation

The result in Table 1 reveals that (using the mean), respondents strongly agreed that Health Education service is provided in the health facility ($\times$ = 3.79), Maternal & child health including family planning services are rendered in the health facility ($\times$ = 3.61), Basic Sanitation Services & Portable water supply are provided by the LGA Authority ($\times$ = 3.68), Growth monitoring & promotion services are provided to assess nutritional status ($\times$ = 3.80), Immunization Services are provided in the health facility ($\times$ = 3.76), Treatment of common ailments is provided in the health facility ($\times$ = 3.68), Essential Drugs are available for dispensation in the health facility($\times$ = 3.57), Identified mentally ill patients are usually referred to psychiatric hospitals for further management ($\times$ = 3.55) and Geriatric care is provided for the aged people in the health facility ($\times$ = 3.55).

Table 1 also shows that, respondents strongly agreed that services are provided in accordance with principles of primary healthcare as every citizen have equal access to primary healthcare services in the health facility ($\times$ = 3.56), Community members do participate in decision making process on issues concerning their health ($\times$ = 3.66), LGA authority coordinates other sectors' contribution to provide quality primary healthcare services ($\times$ = 3.71), Appropriate technology is adopted in providing primary healthcare services ($\times$ = 3.50), Registers and Summary forms are available for monitoring and evaluation of primary healthcare services ($\times$ = 3.76) and Healthcare data are used for planning, implementation and evaluation of primary healthcare services for improved service delivery ($\times$ = 3.76). These indicate the nature of primary healthcare services rendered in various primary healthcare facilities which are in relation to all the components of primary healthcare in the local government areas of Osun State

Therefore, it could be inferred that all the components of primary healthcare are indicated in the primary healthcare services rendered and that services are provided in compliance with the principles of primary healthcare in the local government areas of Osun State. Finally the findings revealed that registers and summary forms are available for data collection in respect of monitoring and evaluation of primary healthcare services and healthcare data are used for planning, implementation and evaluation of primary healthcare services for improved service delivery in the local government areas of Osun State.

Research Questions 2: What is the existing structure for managing healthcare data at primary healthcare level in the local government areas of Osun State?

Table 2. Showing the existing structure for managing healthcare data at primary healthcare level in the local government areas of Osun State

S/N	Items	SD (%)	D (%)	A (%)	SA (%)	Mean	Std. Dev
1	Health records are created for every patient as evidence of care rendered in the health facility	-	-	69 28.0	178 72.0	3.79	.467
2	Hospital numbers are allocated to patient records for unique identification & easy access to health information	-	-	88 35.6	159 64.4	3.64	.515
3	Patient records are maintained through the use of basic health records management systems	-	10 4.0	76 30.8	161 65.2	3.68	.784
4	Health records are arranged in a prescribed order at a secured place in the health facility	-	-	50 20.2	197 79.8	3.77	.464
5	Disease surveillance & notification systems exist in the health facility	-	-	86 34.8	161 65.2	3.65	.457
6	Active case search & records review are done regularly in the health facility by the LGA Surveillance Officer	-	12 4.8	78 31.6	157 63.6	3.61	.586
7	IDSR is the existing surveillance strategy in the health facility	-	-	96 38.9	151 61.1	3.63	.467

8	The five (5) IDSR forms are available for use in the health facility	-	6 2.4	102 41.3	139 56.3	3.58	.764
9	Registers are the sources of data in the health facility	-	6 2.4	85 34.4	156 63.2	3.66	.439
10	Data are summarized monthly from registers into health facility summary form	-	11 4.5	82 33.2	154 62.3	3.59	.518
11	Registers and health facility summary forms are available for use in the health facility	-	11 4.4	81 32.8	155 62.8	3.62	.559
12	DHIS-2: (modular web-based software package) is used for on-line data reporting in the health facility	-	14 5.7	88 35.6	145 58.7	3.59	.548
13	DHIS-2 is applicable to every component of information cycle (i.e. data collection, processing, analysis, presentation, interpretation & use)	-	8 3.2	94 38.1	145 58.7	3.56	.613
14	Laptops, I-pads & Smart phones are the electronic devices used for accessing DHIS-2 application in the health facility	-	21 8.5	85 34.4	141 57.1	3.54	.673
15	Managing healthcare data generates quality information to be used as tool for informed decision making in the health facility	-	-	52 21.1	195 78.9	3.82	.435

Source: Field Survey, January, 2020: Key:, SA = 3.5-4.0:, A = 2.50-3.49:, D = 1.50-2.49:, SD = 1.00-1.49
Note: SA=Strongly Agree:, A=Agree:, D=Disagree:, SD=Strongly Disagree, X = Mean, Std. Dev. = Standard Deviation

The result in Table 2 reveals that (using the mean), respondents strongly agreed that Health records are created for every patient as evidence of care rendered in the health facility ($\times$ = 3.79), Hospital numbers are allocated to patient records for unique identification & easy access to health information ($\times$ = 3.64), Patient records are maintained through the use of basic health records management systems ($\times$ = 3.68), Health records are arranged in a prescribed order at a secured place in the health facility ($\times$ = 3.77), Disease surveillance and notification systems exist in the health facility ($\times$ = 3.65), Active case search and records review are done regularly in the health facility by the LGA Surveillance Officer ($\times$ = 3.61), IDSR is the existing surveillance strategy in the health facility ($\times$ = 3.63), The five (5) IDSR forms are available for use in the health facility ($\times$ = 3.58), Registers are the sources of data in the health facility ($\times$ = 3.66), Data are summarized monthly from registers into health facility summary form ($\times$ = 3.59), Registers and health facility summary forms are available for use in the health facility ($\times$ = 3.62), DHIS-2: (modular web-based software package) is used for on-line data reporting in the health facility ($\times$ = 3.59) and DHIS-2 is applicable to every component of information cycle (i.e. data collection, processing, analysis, presentation, interpretation & use) ($\times$ = 3.56).

Table 2 also unveils that, respondents strongly agreed that electronic devices are available for smooth operation of online data reporting as Laptops, I-pads and Smart phones are the electronic devices used for accessing DHIS-2 application in the health facility ($\times$ = 3.54) and Managing healthcare data generates quality information to be used as tool for informed decision making in the health facility ($\times$ = 3.54). These confirm that the structure for managing healthcare data at primary healthcare level exists in various primary healthcare facilities, as data management activities are in relation to all the components of the structure for managing healthcare data at primary health care level in the local government areas of Osun State.

Hence, it could be deduced that, the structure for managing healthcare data at primary healthcare level is exists, as indicated in the data management activities shown in the results. Findings also showed that, two-pronged approach, comprising of the immediate papers based system and long term electronic system are used for managing healthcare data as registers, summary forms and electronic devices are used for the smooth online data reporting via DHIS-2 platform in the local government areas of Osun State. Finally the findings revealed that the existing structure for managing healthcare data generates quality information to be used as management tool for informed decision making in the local government areas of Osun State.

Test of Research Hypothesis

This section consists of the results from the inferential statistics on the account of the one hypothesis tested:

H_0: Healthcare data management has no significant relationship with primary healthcare services in local government areas of Osun State.

Table 3: Pearson Product Moment Correlation summary table, showing the relationship between Healthcare data management and primary healthcare services in the local government areas of Osun State

Variables	N	Mean	Std. Dev	Df	R	P	Sig
Primary healthcare services	247	50.487	4.721	245	.687**	.000	Sig
Healthcare data management	247	50.249	5.312				

Source: Field Survey, January, 2020
Key: If P-value associated with the relevant 'r' statistics is less than 0.05 level of significance, reject H_o; but if otherwise accept H_o

Table 3 shows positive and significant relationship between healthcare data management and primary healthcare services (Df = 245, N = 247, r = .687**, P < 0.05). The p-value associated with the r statistics is less than the 0.05 level of significance. Based on this, the null hypothesis is rejected. Therefore, there is a significant relationship between healthcare data management and primary healthcare services. The table further revealed a positive significance exerted by healthcare data management on primary healthcare services. It implies that a unit increase in healthcare data management will increase the tendency for primary healthcare services in the studied area. To further understand the proportion of influence exerted by healthcare data management with a determinant of coefficient r^2 $(.687)^2$ was estimated = 0.471969. This implies that the healthcare data management factor accounted for 47.2% variation for the prediction of primary healthcare services. That is a unit increase in healthcare data management improves primary healthcare services by 47.2%

SUMMARY OF FINDINGS

Major findings of the study are outlined below:

1.   Findings revealed that all the components of primary healthcare are indicated in the primary healthcare services rendered and services are provided in compliance with the principles of primary healthcare in the local government areas of Osun State.
2.   The findings confirmed that the structure for managing healthcare data at primary healthcare level exists as indicated in the data management activities and information generated are used as

management tool for informed decision making in the local government areas of Osun State.
3.   The result showed that there is positive and significant relationship between healthcare data management and primary healthcare services in the local government areas of Osun State.

CONCLUSION

This study established that healthcare data management influences primary healthcare services in the local government areas. The effectiveness of primary healthcare services depends on efficient healthcare data management, for generation of accurate and reliable health information for planning, implementation and evaluation of primary healthcare services in the local government areas of Osun State. Primary healthcare services depend on the extent to which healthcare data management is taken seriously by health records practitioners in the local government areas. Therefore, improved primary healthcare services can only be achieved through implementation of the structure for managing healthcare data that placed premium on effective planning, implementation and evaluation of primary healthcare services for improved service delivery in the local government areas of Osun

RECOMMENDATIONS

On the basis of the findings and conclusion of this study, the following recommendations are made;

1.   State government through appropriate agency (State Primary Healthcare Development

Board/Ministry of Health) should provide logistics and materials, to facilitate efficient implementation of all components of primary healthcare services in compliance with the principles of primary healthcare in the local government areas of Osun State.

2.   Health records practitioners should pay serious attention to all components of the structure for managing healthcare data at primary healthcare level, with a view to generate accurate and reliable healthcare data, for monitoring and evaluation of primary healthcare services in the local government areas of Osun State

3.   State government through the relevant agency (State Primary Healthcare Development Board/Ministry of Health) should organize more training and re-orientation workshop, for health records practitioners on electronic methods of managing healthcare data for improved service delivery at primary healthcare level in the local government areas of Osun State.

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