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QUALITY OF INFORMATION ON PREVENTIVE MATERNAL HEALTHCARE INDICATORS IN STRENGTHENING UTILIZATION OF INFORMATION IN MIGORI COUNTY, KENYA

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ABSTRACT

Assessing quality of health information on preventive maternal health indicators in the providing quality healthcare services is important Four facilities, leading in maternal mortality were selected for this study in Migori county; County referral, St Joseph, Rongo Sub County and Isebania county hospitals. The study utilized retrospective and prospective study designs involving six basic health indicators; deliveries, antenatal visit1, antenatal visit4, Iron folic acid, interrupted presumptive therapy and long last insecticide treated nets. The hospital leading in maternal mortality ratio (MMR) was St joseph Mission hospital, more than 600 for 3 years from 2015.TheMatinal mortality ratio(MMR) in 2017(732). The Lowest was in Rongo hospital ranging between 0 and 340.Data were analyzed using statistical package for social scientists (SPSS). Results were presented in percentages using tables and charts. Inferential statistical analysis was done including correlation and T-test to determine quality. Checklists and open-ended questionnaires were used to collect data from routine health information system (RHIS), hospital registers and key informants. Convenient sampling method was applied to in data collection from key informants. The average correlation per facility was 0.598 and per indicator 0.64. The SD ±1 coverage was 39% and 71% respectively. Facilities data within significant level of 0.05, ranged between 17% and 50%. Years were considered in correlation analysis, results within the limits were 0.393 and 0.669. In the Radar graph, there were inadequacies in use of electronic systems (97%), knowledge (67%), healthcare work force (38%), use of information (25%) among others. Electronic systems were not available for collection of primary data to improve quality of data. Quality health information was to inform decisions in implementing annual and strategic plans to influence reduction of maternal morbidity and mortality to ensure

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quality services based on patient/client centeredness. The study recommends that computer tools should be installed for use in data management.

Key Words: Quality information, Preventive , Maternal health indicators, Utilization, Healthcare services.

Introduction

Data is said to be of Quality when it meets standards and it is valuable Quality of health information is the degree to which information increases the likelihood of the desired health results and matching with the professional knowledge Quality is a powerful pond among healthcare workers, administration and patients/clients. It energies our people and our urge to improve quality of life. The priority components of quality in this study includes; completeness, accessibility availability, timeliness and accuracy Health achievements were measured in terms of health indicators. Levels of maternal mortality and morbidity disclose the risks attributable to pregnancy and childbirth, as well as the performance of health systems in terms of access to health care and the quality-of-care provision .In Kenya, there are massive support towards strengthening health Information systems. to achieve the vision for the health "to provide equitable and affordable quality health services to all Kenyans", There is the need to strengthen the country's health information systems with correct and right information on health. Health Information was identified as the key investment area in the Kenya health Sector Strategic and Investment Plan (KHSSP) 2014-2018 for better coordination and alignment of health care resources. The Kenya Health Act, 2017 and the Health Information Policy 2014- 2030 provides for a National Health Information Systems that is responsive to the needs of the population.

MATERIALS AND METHOD

STUDY AREA

The study was conducted in four hospitals with the highest contribution of maternal mortality ratio in Migori County Migori County referral hospital, St Joseph Mission hospital, Rongo sub county referral hospital, and Isebania sub-County. The first two hospitals are found in Suna East Sub County and the other two in Rongo and Kuria West Sub Counties respectively.

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Figure1: Map for the Study area

DATA ANALYSIS

Data was manually entered into Microsoft Access (version 2013) and analyzed using Statistical Package for Social Scientists (SPSS V 21) and summarized using frequencies and percentages (%), and chi-square test was used to access the significance in analyzing the data. The significance of the association was determined using the p-values at 5% level of statistical error to answer the research questions.

Study population

The study population include 6 basic maternal preventive health indicators with 28 counts in each, seven from each hospital for the four hospital per year for the seven years (2013-2019).

Study design

The study used retrospective and prospective study designs (RHIS and register), and open-ended questionnaire respectively (KII)

DATA COLLECTION INSTRUMENTS

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Data was collected retrospectively using checklists for the seven years (2013-2019) on basic preventive health indicators from RHIS and hospital registers. The prospective data from key informant was collected using open ended questionnaires

ETHICAL CONSIDERATIONS

The study was approved by Barton university ethical body and NACOST before collection of data. Purpose of the study was explained to the study participants and once an agreement was reached, participants were interviewed. All participants gave informed consent before participating in the study.

To maintain confidentiality and ensure the identities of all participants questionnaire were kept under lock and key and the investigators were made aware of it. Identification codes were assigned to each questionnaire before entry of data into the SPSS software for analysis.

DATA COLLECTION PROCEDURES

Convenient method was used to collect data from RHIS and hospital register per month and per year for 7 years for all priority indicators. Also, checklists were applied on health county top leaders.

RESEARCH FINDINGS/ RESULTS

Table 1 : Maternal mortality ratio among top four facilities in Migori County. Kenya

Facility/yeas	2013	2014	2015	2016	2017	2018	2019	Mean	SD
St Joseph m	286	405	612	643	732	0	0	383	279
Isebania CH	0	140	258	347	456	522	573	328	194
Migori CRH	256	236	295	283	300	324	309	286	28
Rongo SCH	0	340	0	0	0	0	0	49	119
Mean	136	280	292	318	372	212	220	261	
SD	140	101	217	229	265	223	240		

***This study is on quality of data in maternal mortality indicators**

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The four facilities selected for this study were leading in maternal mortality ratio (MMR) in Migori county. Hospital records as per 2013- 201918. St Joseph mission hospital had an upward trend from 2013- 2017, ranging from 286-732 and this was the highest MMR in county. Generally, St. Joseph had highest mean and standard deviation among the four facilities due to frequent strikes in GOK hospitals. The highest MMR for Rongo was 340 in 2014 and the rest were < 50. Isebania county hospital had an upward trend in 2013-2019, ranging from 0-573. The highest MMR for County referral hospital and standard deviation were 324 and 279 respectively. The country has 362MMR although the target is 107/100000.

The coverage within ±SD limits were57% for St Joseph Mission and Migori county referral hospitals. Isebania County hospital coverage within ±SD range was 71%, while Rongo sub-County referral had (15%). The year 2013,2018 and 2019 coverages were 25%. The years 2014-2017, coverages were 50%.The facility with the lowest MMR was Rongo sub county Referral with the mean and stand deviation of 49 and 28 respectively. The county average mean was 261. The national MMR according to demographic health survey of 2014 was 673 mothers per 100000 births. So, St Joseph in the year 2017 had MMR higher (773) than the country MMR.

Table 1 : correlation between RHIS and register data among six preventive maternal health indicators

FACILITIES	HEALTHCARE INDICATORS							
Facilities/ Indicators	Deliveries	ANC1	ANC4	IFAS	IPT1	LLITNS	Mean	SD
Migori County Hos	0.464	0.714	0.286	0.464	0.964	0.901	0.63	0.247
ST Joseph Hospital	0.286	0.893	0.26	0.679	0.536	0.878	0.59	0.254
Rongo Sub County	1	0.643	0.75	0.786	0.679	0.08	0.66	0.282
Isebania County Hos	0.36	0.536	0.771	0.369	0.536	0.499	0.51	0.137
Standard Deviation	0.280	0.130	0.244	0.165	0.175	0.335		
Mean	0.53	0.70	0.77	0.57	0.68	0.59		

Result on spearman's correlation coefficient analysis in comparing paired indicators data collected from RHIS and hospital registers for 7 years since 2013. The comparisons are among six preventive health indicators in the four healthcare facilities. Hospital registers are the only

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primary data collection tools, while RHIS is secondary data software for aggregation, storage and analysis of data. Therefore, comparisons were between primary paper data and secondary software data.

In Migori county referral hospital, considering the six health indicators there were 33.3% perfect and weak relationships, 16.7% moderate and very weak. Averagely Migori County referral hospital achieved correlation of 0.632, which was moderate association. Data generated in this hospital therefore were not of good quality because it was Less than 95%.

St Joseph Mission Hospital, achievements were 33.3% strong, moderate and very weak associations. Averagely the hospital correlation was 0.59, which was moderate association. Rongo sub county referral hospital had 16.7% perfect and very weak, and 66.7 moderate associations. In average correlation was 0.656 which was moderate. Isebania had 50% moderate, 33.3% weak and 16.7 very weak associations. Averagely correlation coefficient was 0.51, hence moderate association. This was far from quality data/information among the health indicators due high staff turner over, inadequate training for healthcare workers and DQAs.

Table 2 :P-Values for Preventive health indicators comparing RHIS and register data

Facilities/ p-Value	Migori CRH	St Joseph MH	Rongo SCRH	Isebania CH	Average
Deliveries	0.042	0.091	1	0.128	0.31525
ANC1	0.04	0.492	0.317	0.285	0.2835
ANC4	0.6	0.027	0.017	0.0463	0.172575
IFAS	0.612	0.398	0.317	0.144	0.36775
IPT1	0.893	0.225	0.018	1	0.534
LLITNs	0.018	0.465	0.062	0.715	0.315

Result of nonparametric statistical test

Migori county referral hospital has its indicators achievement of 50% below 0.05 significance level. This implies that good quality data were at par with poor quality. These data cannot be used for decision making for effective management of health services and functions. Therefore,

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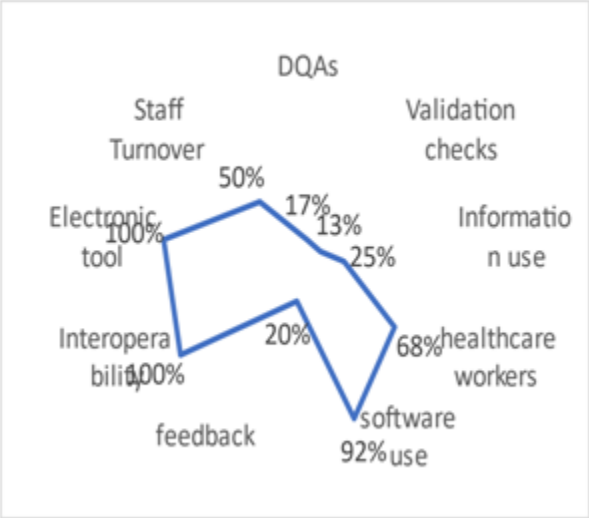
there were no quality data/ information for use in Migori county referral hospital resulting from inadequate use of electronic systems.

St Joseph Mission and Isebania hospitals have 17% indicators' achievement below 0.05 significance level. Rongo sub county referral has 33% below 0.05 significance level. St Joseph, Rongo and Isebania are least affected, while Migori county referral hospital has most data with quality issues. However even those facilities with 17% have data issues and can be considered having quality challenges. (Similarities and differences). *results<0.05, no quality.

Figure 2: Graph For challenges influencing data quality in the four hospitals collected from Key informants



These Results were obtained from Key informant interview which involved doctors, clinical officers, nurses, health records and information officers, administrators and public health officers, most of whom were in management positions in these health facilities and the county office.

They were interviewed in regard to quality of data involving components of quality, to include accuracy, timeliness, completeness, reliability, consistency, accessibility, availability and relevance. The priority challenge was: lack of interoperability and electronic tools, inadequate electronic health/medical records (92%), training among healthcare workers contributed a lot to poor quality data and information (68%). DQAs normal contribute to knowledge to the management about what will be happening with quality of data, but it was inadequate (17%). Health workforce is the backbone of healthcare service delivery but it was a problem (38%),

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information use was also a challenge (25%). There were problem of quality checks and validation of data (13%).

Discussion

The study reveals that collection of primary routine health data for health information system, uses manual health information systems in Migori count facilities. Aggregation and analysis of secondary data use routine health information software11, concurs with this study findings and recommends that there should be a web-based software for collection, validation, analysis, and presentation of statistical data tailored to integrated health information management activities12, contribution is that computer systems produce high-quality and timely information for effective decision-making and it is necessary.

The current study found that most of the health facility for this study do not have quality data for generation of quality information due to inadequate of primary routine data collection software, training of healthcare workers, shortages of professional knowledge and inadequate use of health information and lack of lectronic tools13 agrees with this study finding and stated that though the health management information systems offer opportunities to inform health decision-making at all levels of the health systems, its usefulness is realized only when it allows for the transformation of generated data into meaningful information and knowledge for action14, clearly highlights that the quality of routine data have undermined utilization of information for decision-making in the health sector

The study also reveals many more reasons leading to poor health information to include; inadequate DQAs, inadequate feedbacks, checks, verifications and lack of interoperability to run the department effectively. On this point added that some studies have presented overall evidence regarding the functioning of health information system in primary health care and more focused on the successes and have provided more detailed evidence about the challenges and inefficiencies .

Several studies have attempted to evaluate health information system with various strategies. Some of these evaluations were more focused on technical issues, clinical processes and stakeholders' views on the state of health information system.

CONCLUSION

1. Software primary data collection tools are lacking in the four health facilities, but there is one secondary software, DHIS which aggregates and analyses paper-based data. Data is collected manually and transferred into the software.

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2. These are quantity data but not quality because they are manually collected, stored, retrieved and entered into RHIS system software. They have transcription, human and omission errors. The paper tools in use are not in the state of completeness, timeliness, and accurate, reliable, and consistent.

3. There is no available quality information to use for development of policy and health plans, decisions and interventions because data was not collected using electronic systems is normally associated to quality.

4. The healthcare workers are in competence to handle information because most of them are non-professionals. Staff turnover is very high in mission and private hospitals. Government healthcare worker are more often on strikes than not.

Recommendations

1.Efficient and effective E.HR software should be established to collect, store, retrieve and analyze routine data electronically. The installation of system for data in all facilities to use and not in a few facilities.

2. The RDHIS aggregating data should communicate to REHR software to avoid transcription error. The duo for collecting, and analyzing data their function of exchange should not alter their individual specific operations.

3.The duo should have dependable and reliable data stored for processing of information which can be retrieved for utilization.

4. Encourage routine software collection of data which will be complete, timely, accurate, and reliable. Consistency, replicable.

5. There must be a training for healthcare professional's workers and orientation for non-professionals on software systems in use and data analysis.

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