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AVAILABILITY OF QUALITY HEALTH INFORMATION ON MORBIDITY AND MORTALITY INDICATORS TO IMPROVE MATERNAL HEALTHCARE SERVICES IN MIGORI COUNTY, KENYA

Wilfred Obwocha ,George Ayodo and Shehu Shagari Awandu

Department of Public health, School of health Sciences Jaramogi Oginga Odinga University of Science and Technology, P.O BOX 210-40601 Bondo

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ABSTRACT

Assessing availability of quality health information on maternal morbidity and mortality indicators in the provision of quality healthcare services is critical. The study used retrospective and prospective study designs among four facilities with the highest maternal mortality ratio in Migori county; County referral, St Joseph mission, Rongo Sub County and Isebania county hospitals. The study involved eight priority maternal healthcare indicators; Antepartum hemorrhage, postpartum hemorrhage, and Eclampsia, ruptured uterus, Sepsis, obstructed labor, maternal deaths and Prevention of mother- to-child transmission. Similar indicator data from routine health information software (RHIS) and hospital registers were compared to determine availability of quality health information; to inform decision making in implementing annual and strategic plans to reduce maternal morbidity and mortality and to ensure quality healthcare services. The study used checklists and open-ended structured questionnaires to collect data. Convenient sampling method was used to select maternal priority health indicators. Data were analyzed using statistical package for social scientists (SPSS) and inferential statistical analysis were done including: correlation, T-test and Z-test for p-values at 0.05 level significance. The results were presented using tables and charts. Rongo hospital was leading in Maternal Mortality ratio (MMR) (781) and Isebania hospital had the lowest ranging from 0-190.The average correlation per facility was 0.512, SD ±1 coverage ranged between 0% and 50%. Perfect association covered 44.6%, strong association 25%, moderate 7.1% and weak 23.3%. Perfect, strong and moderate association coverage was 69.6% and weak and negligible 30.4% respectively. The p-value correlation coverage was 37.5% and T-test achieved 62.5% below 0.05.

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Keywords: Availability, Quality, Health information, Morbidity, mortality, healthcare indicators, maternal healthcare service.

INTRODUCTION

Assessing availability of quality health information on maternal morbidity and mortality indicators is important. Quality of health data is the degree to which data increase the likelihood of the desired health outcomes and are compatible with the current professional knowledge.1Onthe other hand, quality care in healthcare services is safety, effectiveness, timeliness, efficiency, equity, people-centeredness and delivery of the health outcomes in the community.

Quality is a powerful union among healthcare workers, management and patients/clients. Quality of life depends on quality of services which is influenced by quality of information. The key dimensions of data quality include; completeness, accessibility, availability, timeliness and accuracy, reliability, replicability, availability, consistency and timeliness. It is a valuable idea to have a strategic plan, which is a set of plans and courses of actions, to enable achievement of a goal such as prevention of morbidity and maternal mortality in health situations.

In Africa, there is low5availability of information for utilization in healthcare due to Lack of regular systems to support management of data, monitoring and evaluation (M&E) activities. In Kenya, maternal morbidity and mortality data are limited. It is the responsibility of the county and national governments to improve collection, storage and analysis of vital registration of data to serve as an integral source of information on maternal births and deaths. Despite the fact that the health management information system (HMIS) is the backbone of strong health systems. Studies have shown that there are challenges with data quality, including completeness and timeliness, accuracy, availability, consistency and poor utilization of HMIS tools.

In Migori County, data that is available for use include: routine primary data and vital statistics collected using paper-based system, routine household and demographic secondary survey data from census, collected manually and used as denominator in calculating rates and finally estimated data by World health organization (WHO) due to lack of accurate data/ information. There is also data in RHIS, which is secondary. However, RHIS does not collect data but stores, aggregates and analyzes manually collected data.

MATERIALS AND METHODS

STUDY AREA

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The study was conducted in four healthcare facilities with the highest maternal mortality ratio in Migori County as per Strategic Plans of 2013-2017and 2018-2021(MOH,2019); Migori County referral hospital, St Joseph Mission hospital, Rongo sub county referral and Isebania sub-County hospitals.

Figure1: Map of the study area

STUDY POPULATION

The study population included 8 priority maternal morbidity and mortality health indicators with 28 counts in each; seven from each hospital for the four hospital per year for the seven years (2013-2019).

DATA COLLECTION INSTRUMENTS

Data were collected retrospectively and prospectively using checklists, open and closed ended questionnaires from RHIS software, hospital registers and key informants.

DATA ANALYSIS

Data was manually entered into Microsoft (MS) Access (version 13) and analyzed using Statistical Package for Social Scientists (SPSSV22) and summarized using frequencies and percentages (%).Chi-square tests were 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 DESIGN

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The study used retrospective and prospective designs for indicator and key informants'data respectively.

ETHICAL CONSIDERATIONS

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

To maintain confidentiality and ensure identities of all participants, questionnaires 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.

Results

Table1: Four leading facilities in maternal mortality Ratio (MMR) using RHIS data in Migori county, Kenya

Facility/yrs.	2013	2014	2015	2016	2017	2018	2019	mean	SD
St Joseph	257	147	246	536	455	276	159	297	135
Isebania	138	98	190	113	0	115	0	93	65
Migori CH	147	380	178	273	502	329	470	326	126
Rongo SH	159	84	61	0	781	622	864	367	345
Mean	175	177	169	231	435	336	373	271	168
SD	48	119	67	201	280	183	330	176	

Health facilities in Migori County are several but four were selected for this study due their high contribution of maternal mortality ratio (MMR) in the county19. Rongo hospital wastop in MMR, ranging from622-864 in2017-2019. Isebania had the lowest MMR, ranging from 0-190. The two facilities had mean of367and 93 respectively. The county MMR was 673 as per demographic health survey of 2014.Rongo had higher MMR than even the count in 2017 and 2019. On the other hand, average MMRin2017was the, highest(435) and 2015 lowest (169) respectively. The rest ranged between 0 and 536, well below the county MMR Using standard deviation limits (SD±1), coverage for St Joseph, Isebania and Rongo hospitals was 57%, and Migori CRH Coverages was 43%. The range for the years:2014-2015 was 75%and 2015-2019

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coverage was 50%. The county mean was 271 and standard deviation was176. The coefficient of variation (CV) was 65.

Table 2: Correlation between RHIS and hospital Register data on morbidity and mortality

Facility/ indicator	APH	PPH	Eclampsia	Ruptured Uterus	Obstructed Labor	Sepsis	PMCTC	M deaths
Migori CRH	0.004	0.592	0.000	0.000	0.000	0.003	0.270	0.153
St Joseph MH	0.315	0.003	0.097	0.915	0.000	0.630	0.607	0.62
Rongo SCRH	0.089	0.032	0.027	0.000	0.055	0.033	0.256	0.432
Isebania CH	0.785	0.000	0.542		1.000	0.946	0.326	

***Correlation considering P-values <0.05 * Preventive health indicators*Antepartum &Postpartum hemorrhages (APH &PPH)**

Migori county referral hospital had, statistical significance at< 0.05 coverage of 62.5%, St Joseph Mission hospital 25%, Rongo sub county referral hospital had 50% and Isebania county hospital 12.5%. These coverages did not portray quality data/ information in these facilities because quality is considered at the coverage of 95% and above.

On the other hand, coverages for availability of quality data for APH was25% and PPH75%, eclampsia, ruptured uterus, obstructed labor and sepsis 50% and PMCTC &maternal deaths0%. The coverage was <95% and therefore availability of quality data was insufficient.

Table3: RHIS and hospital registers data comparison on maternal morbidity and mortality

Facility/ indicator	APH	PPH	Eclampsia	Ruptured uterus	Obstructed labor	Sepsis	PMCT	Maternal deaths
Migori CRH	0.399	0.144	0.854	1.000	0.102	0.157	0.398	0.017
St Joseph	0.465	0.027	0.223	0.193	0.174	0.109	0.028	0.752
Rongo SCRH	0.593	1.000	0.285	1.000	1.000	0.109	0.237	0.132
Isebania SH	1.000	0.102	0.593	0.317	0.357	0.455	0.499	0.017

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*Comparison for P-values and coverages below 0.05, significance level. *Antepartum &Postpartum hemorrhages (APH &PPH).

Migori County referral hospital had only one indicator, maternal deaths achieving <0.05 and this was coverage of 12.5% and < 95%, meaning availability of quality data was not met. In maternal morbidity and mortality availability of quality data was a challenge. Non-availability of quality data/ information was attributable to low management support and lack data management software for database (figure2).

St Joseph Mission hospital, had two indicators; postpartum hemorrhage and PMCTC achieving <0.05 significance level, coverage of (25%) which was <95%. Availability of quality data is not acceptable considering information for its usefulness in appropriate decision making, efficient and effectiveness in management of healthcare services.

Rongo Sub County referral hospital had no achievement < 0.05 significance level. This meant the result in RHIS and hospital register were similar. This further implies availability of quality data/information for decision making and health interventions for prevention, control and therapeutic of diseases was guaranteed.

Figure 2: Challenges of availability of quality data

The Highest Inadequacies revealed by the study was lack of interoperability & use of electronic system especially in primary data collection. Then training & professionalism among others. The other challenges were in data tools, storage space, accessibility, availability, healthcare workers. The was lack of investment in computer software systems in the health facilities to improve quality of health data/information in county and the country.

DISCUSSION

The results for the current study revealed clearly that data quality issues existed in the facilities. This result was conforming with3 findings, stating that accurate assessment of health indicators

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on availability of information in maternal mortality and morbidity has been a problem and WHO has developed estimates of maternal mortality due to lack of good quality data for monitoring trends and comparisons between countries10, further more the results of increasing coverage on interventions demonstrated to be effective and cost-effective was essential, but quality data remain limited.

The study revealed also that there were no electronic systems to collect routine quality data/information. This explaining concurred with this study findings explaining that excessive data demand, large number of reports, and frequent changes in HMIS tools, changes in organization structures, lack of effective systems to monitor quality and absence of standards guidance to measure data quality contributed to availability of poor-quality information11

According to 17, in Migori County data were available for use included routine primary data and vital statistics collected using paper-based system, routine household and demographic secondary survey data from census, using manual systems and used as denominator in calculating rates and finally estimated data by WHO because of lack of accurate data/ information 18. All these data are transferred into DHIS system as secondary data compromising quality.

The study revealed that maternal morbidity and mortality data are not available, This study concurs with these findings and recommends that county and national governments should improve the collection and analysis of vital registration data to serve as an integral source of information on maternal births and deaths19. In the health facilities there were no electronic system13 recommends the introduction of electronic health information systems to

collect quality data on indicators such as reporting completeness and timeliness have significantly improved in many countries.

This study finding proves that under training of healthcare workers and inadequacy of healthcare resources influencing availability of poor quality of maternal health data/ information. Accordingto16, quality data on maternal health was lacking, which undermined planning and responses to maternal health issues.

CONCLUSION

1. There were no routine electronic data collection tools. Routine data was collected manually and analyzed electronically using routine health information software (RHIS) as secondary data.

2. These data are not of quality but quantity because they are manually collected and entered into RHIS system for storage, aggregation and analysis.

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3.There was no available quality information to use for policy, developing of plans, making decisions and putting interventions in place.

4.The electronic system RHIS is efficient but fed with incorrect data using wrong system (manual). RHIS is software but does not collect data, has secondary and estimated data for storage, aggregation and analysis and therefore poor-quality information.

5. The healthcare workers are not competent to handle information because majority of them are non-professional in health information, staff turnover is very high in mission and private hospitals, government hospitals have a small number of qualified staff who cannot manage workload in this high-volume facility.

RECOMMENDATIONS

1.The RHIS aggregating data should be interoperable with REMR/EHR software collecting data for exchange without manual transfer of data and information. Communication of the two software should not interfere with but retain their different functions and the data will no longer be secondary but primary.

2. Established electronic routine data collection system for storage, analysis and retrieval in every facility and unit in the hospital in the county.

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

4 There should be an investment of computer software for collection, analysis and storage of data and impress information culture.

5. There must be a training for healthcare professionals and orientation for non- professionals on software use and data analysis.

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