# Assessment of Organizational Factors for Health Management Information System (HMIS) Performance in ElgeiyoMarakwet County, Kenya.

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## ABSTRACT

Health Management Information Systems (HMIS) have been used by many countries using platforms adopted or own-designed. It's implemented by integrating all healthcare services and gives service providers the ability to collect, store and use health data. The System is able to provide information on all aspects of the organization from billing to patient care and beyond. Despite its significance, lack of specificity and clarity hamper systematic understanding, successful implementation, and evaluation of its functional factors. The study was aimed at assessing the organizational factors for Health Management Information System performance in Elgeiyo-Marakwet County (EMC). The specific objective is to determine organizational factors for HMIS performance. Quantitative research method was used and data gathered through administration of questionnaires to 52 respondents. Data was analyzed using Statistical Package for the Social Sciences (SPSS) computer software version 20.0. The study found that there is presence of organizational factors for HMIS performance in the County as indicated by majority of the respondents. It concludes that the presence **o**f structures for the HMIS, organo-gram in the county, usage of HMIS structures is evident by the availability of organizational relationship of

the systems' stakeholder (vertical, horizontal) in issues of HMIS resource allocationand level of awareness of health policy, goals and objectives. The study recommends enhanced support for organizational systems performance for HMIS and regular review in the county.

**Key words**: HMIS, Kenya, ElgeiyoMarakwet County, organizational factors

## INTRODUCTION

The World Health Organization defines Health Management Information System (HMIS) as a system that integrates data collection, processing, reporting and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services[11]. In addition, health information systems were originally oriented only to collect information on disease and health services outputs; but in the contemporary era health information systems are referred to be part of the health system; and hold great importance in the planning and decision-making of health care delivery services. Health information systems generate information to inform health planners and decision –makers on what is happening at the health delivery facilities [12].

Gladwin et al., reports that Health Management Information Systems have mainly been concerned with the collection of epidemiological data in the past lacking the management subsystems that deal with all aspects in healthcare delivery system[2]. In addition, he observes that health system in developing countries has changed drastically in the last few years from a centralized system with hierarchical reporting to a decentralized system. Gladwin et al., says the introduction of a decentralized system has led to significant change, emphasized by the Ministry of Health (MOH), through the implementation of health management information systems (HMIS) which underscore the use of information at the point of collection. They stress that freedom and responsibilities are given to each point of care meaning that more skills are demanded of primary health care managers, concerning the data and information handling at all levels of a health care system on a global level[2].

Vital Wave Consulting notes that regions, nations, communities that comprise the developing world face a wide variety of health-related challenges, and the health systems that address those challenges are struggling with limited resources and capability. Having reliable data on the performance of different parts of the health system is the only way to devise, execute, and measure health interventions. Successful strengthening of health systems will require relevant, timely, and accurate information on the performance of the health system itself [10].

Health Information System (HIS) is an integral part of the health system whose operational boundaries include all resources, organizations and actors that are involved in the regulation, financing and provision of actions whose primary intent is to protect, promote and improve health.  He stresses further that Health Management Information System (HMIS) has an

objective of generating information that improves health care management decisions at all levels of the health system [2].Perfect HMIS requires all health facilities to report promptly in all months, allowing a comprehensive quantification of treatment events through time and space across the health system. They however note that the reality of HMIS in Africa and elsewhere stands in marked contrast to this ideal [3].

Typically, many facilities never report, or report only intermittently, resulting in spatially and temporally incomplete national data. Following several decades of donor investment in HMIS across Africa, the incomplete nature of routine national reporting has shown little improvement. According to Kenya's Strategic Plan for Health Information Systems 2009 – 2014, the objectives of health management information system is to provide quality information that supports decision-making, aids in setting performance targets at all levels of health service delivery, assist in assessing performance at all levels of the health sector, and encourage use of health information. Efforts to introduce health management information systems at local levels have not had any substantial and long-term impact in most developing countries. [4]

Kenya and other developing countries, the HMIS components of are weak hence lack of good quality data and inefficient utilization of resources. She further concludes that it leads to inadequate appreciation and use of available information in planning and management of health services which negates health information systems in Kenya. Since its establishment of HMIS in 1980 in Kenya, it has had several constraints, which have impeded its growth as a modern management information system tool: ineffective compliance of available health information policy and enforcement in reporting which is 60% in the country [1]. This makes the generated health data unrepresentative for management, planning and budgeting at all levels. There are also lack of adequate and clear guidelines and clear responsibilities of health workers at all levels; weak linkages and data storage, sharing and usage and inadequate feedback at all levels of healthcare delivery. The tools used to collect and manage health care information in Kenya revolve around pen, paper and human memory. [5]

The use of such fallible tools to manage a sector as complex and critical as health care is a cause for concern in Kenya today, since availability of information is the primary driver of effective and timely interventions. In addition national health information systems are weak in regard to data quality, relevance, and their management, sharing and use for policy-making and decision-making [5]. It is in this context that the current study was undertaken in ElgeiyoMarakwet County to assess the organizational factors for health management information system performance in the county.

## MATERIALS AND METHODS

*Study population:* The study was conducted in Elgeiyo Marakwet County where it adopted a survey research design.The study population comprised the health facility managers, health facility staff and health record information officers a total of 52 persons.

### *Data collection instruments*

The data collection instruments used to collect data from the selected respondents was questionnaires. The structured questionnaires were used to collect data on the functional factors for Health Management Information System (HMIS) performance. The questionnaires consisted of closed ended questions designed to elicit specific responses for quantitative analysis. The questionnaires was administered through "drop and pick later" method.

Adequate time was given for the respondent to answer questions, and the respondent used semi-structured questionnaires to avoid misunderstanding or wrong interpretation. The questionnaire utilized a five point likert scale namely Strongly Agree (SA), Agree (A), Don't Know (DK), Disagreed (D) and Strongly Disagree (SD), which was assigned scores of between 1 and 5. This allowed the researcher to draw conclusions based on comparisons made from the responses. The researcher opted to use self-administered questionnaires to collect a lot of information over a very short period.

*Data analysis:* Each data was collected and checked for consistency and completeness with data obtained from questionnaires in order to eliminate misleading data which could arise from misrepresentation of questions in the questionnaires. Thereafter it was categorized, coded, and entered into a computer where it was analyzed automatically with the aid of the statistical package for social sciences (SPSS) version 20.0 and used descriptive statistics. The SPSS package was opted for, because it handles a large number of variables.

*Ethical consideration:* The researcher sought consent to do research on the selected health facilities from the county authority responsible for health in Elgeyo Marakwet County and the institutional ethical authority and the National Commission for Science, Innovation and Technology (NACOSTI). All the data acquired from any third party including the service providers were used for the sole purpose of research and only with their consent. In addition, the researcher observed a high level of privacy and confidentiality for any information accessed by him during the process of the research.

## RESULTS

*Demographic characteristics of the study participants:* There were 52 respondents with most of them 23 (55%) were females as compared to their male counterparts 19 (45%).The findings showed that the mean age of the study was 38.8±9.3 with a range of 37. The minimum age was 22 and maximum of 59 years. The findings indicate that majority 25 (56.8%) of the respondents

recorded that they had Diploma level of qualification, followed by Others, Higher National Diploma and Degree, that is, 11 (25%), 6 (13.6%) and 2 (4.5%).

The findings revealed that a higher number 14 (36.8%) of the respondents had worked in the facility for 10 years and above, followed by 1-5 years 13 (34.2%), less than 1 year 8 (21.1%) and 5-10 years 3 (7.9%). This therefore implied that a majority of the respondents had worked for long in the hospital, suggesting that they were vigilant in their work. As source of information, they form a good basis since one can get all the information they need from this very attentive and informed group.

*Organizational factors for hmis performance*

**Table 1:** Organizational factors for HMIS performance

| STATEMENTS | | 5 | 4 | 3 | 2 | 1 | T | M |
|---|---|---|---|---|---|---|---|---|
| **Availability of structure of the HMIS in relation to decentralization, availability of clearly stated organo gram in the county.** | F | 9 | 26 | 5 | 3 | 1 | 44 | 3.89 |
| | % | 20.5% | 59.1% | 11.45% | 6.8% | 2.3% | 100% | 77.8% |
| **The roles, responsibility assignment and job descriptions are clearly defined for usage of HMIS structures** | F | 7 | 25 | 6 | 5 | 1 | 44 | 3.73 |
| | % | 15.9% | 56.8% | 13.6% | 11.4% | 2.3% | 100% | 74.6% |
| **There is organizational relationship of the systems' stakeholder (vertical, horizontal) in issues of HMIS resource allocation** | F | 14 | 21 | 4 | 4 | 1 | 44 | 3.98 |
| | % | 31.8% | 47.7% | 9.1% | 9.1% | 2.3% | 100% | 79.6% |
| **The Level of awareness of health policy, goals objectives and HMIS is high in the county.** | F | 10 | 24 | 2 | 8 | 0 | 44 | 3.82 |
| | % | 22.7% | 54.5% | 4.5% | 18.2% | 0.0% | 100% | 76.4% |
| **Availability of responsible unit for supervisory, feedback & follow ups for HMIS domains** | F | 9 | 24 | 7 | 4 | 0 | 44 | 3.86 |
| | % | 20.5% | 54.5% | 15.9% | 9.1% | 0.0% | 100% | 77.2% |
| **Level of concentration of HMIS operational knowledge, responsibility to key persons in the county.** | F | 10 | 26 | 4 | 4 | 0 | 44 | 3.95 |
| | % | 22.7% | 59.1% | 9.1% | 9.1% | 0.0% | 100% | 79% |

| | | 5 | 4 | 3 | 2 | 1 | T | M |
|---|---|---|---|---|---|---|---|---|
| Degree of integration and flow of information (amount of information transferred to the next higher level, level of data analysis) for HMIS and acknowledged in the county. | F | 15 | 21 | 5 | 2 | 1 | 44 | 4.07 |
| | % | 34.1% | 47.7% | 11.4% | 4.5% | 2.3% | 100% | 81.4% |
| Presence of demarcated data indicators and determinants in HMIS in the county. | F | 12 | 26 | 2 | 3 | 1 | 44 | 4.02 |
| | % | 27.3% | 59.1% | 4.5% | 6.8% | 2.3% | 100% | 80.4% |
| Degree of relationship with other agencies on data sharing e.g. Donors' projects and partners in HMIS is present in the county | F | 12 | 26 | 1 | 4 | 1 | 44 | 4.00 |
| | % | 27.3% | 59.1% | 2.3% | 9.1% | 2.3% | 100% | 80% |
| Presence of documentation reports in the HMIS of private & NGOS in the county | F | 16 | 22 | 1 | 5 | 0 | 44 | 4.11 |
| | % | 36.4% | 50.0% | 2.3% | 11.4% | 0.0% | 100% | 82.2% |
| Presence of resource profile (Human, financial and physical) of HMIS in the county | F | 16 | 18 | 6 | 4 | 0 | 44 | 4.05 |
| | % | 36.4% | 40.9% | 13.6% | 9.1% | 0.0% | 100% | 81% |
| There is incentive or disincentives provided for information generation and use or non-use in the dissemination and use of health information in HMIS | F | 12 | 24 | 4 | 4 | 0 | 44 | 4.0 |
| | % | 27.3% | 54.5% | 9.1% | 9.1% | 0.0% | 100% | 80% |

**Key: F: Frequency, %: Percentage, 5: Strongly Agree, 4: Agree, 3: Don't know, 2: Disagree, 1: Strongly Disagree, T: Total, M: Mean**

The findings indicated that a majority of the respondents 82.2% said that there is the presence of documentation reports in the HMIS of private & NGOS in the facility. 81.4% said that the degree of integration and flow of information (amount of information transferred to the next higher level, level of data analysis) for HMIS is acknowledged in the facility. Eighty one percent of the respondents held that there is the presence of resource profile (Human, financial and physical) of HMIS in the facility. Eighty point four percent of the respondents said that there is the presence of demarcated data indicators and determinants in HMIS in the facility. Eighty percent of the

respondents said that the degree of relationship with other agencies on data sharing e.g. Donors' projects and partners in HMIS is present in the facility and that there is incentive or disincentives provided for information generation and use or non-use in the dissemination and use of health information in HMIS.

Seventy nine point six percent of the respondents said that there is organizational relationship of the systems' stakeholder (vertical, horizontal) in issues of HMIS resource allocation. Seventy nine percent of the respondents said that the level of concentration of HMIS operational knowledge, responsibility to key persons in the facility. Seventy seven point eight percent of the respondents said that the availability of structure of the HMIS in relation to decentralization, availability of clearly stated organogram in the facility/hospital. Seventy seven point two percent said that there is availability of responsible unit for supervisory, feedback & follow-ups for HMIS domains. Seventy six point four percent of the respondents said that the Level of awareness of health policy, goals objectives and HMIS is high in the county. While seventy four point six percent of the respondents held that the roles, responsibility assignment and job descriptions are clearly defined for usage of HMIS structures.

## DISCUSSION

The study established that a majority of the respondents held there is the presence of technical factors for HMIS performance in the health facilities in the county. These include the presence of standard indicators, manuals, reporting forms, data presentation & analysis for HMIS in the county. In addition majority of the respondents hold that there is clearly defined and written guideline on training requirements, job description and career progression for the staffs in HMIS, and that there is the presence of trained personnel accountable or responsible for the HMIS (identified medical, newly trained, upgraded, profession oriented etc.) in the facilities.

This result is in agreement with Tsedeke et al (2014) who noted that the most effective way to assess the organizationalfactors in HMIS is in monitoring the standard indicators, data analysis and presentation of information. In their study, they noted that the effectiveness of the HMIS in part depends on data reporting and feedback relationships as well as on trained and motivated staff at each level that properly carry out their data collection, reporting and use responsibilities which is anchored in organizational structures.

Daudi and Mughwira (2006) are also in agreement with the study that data analysis and presentations of results, monitoring of the standard indicators and reporting feedback is an effective way to manage the technical factors affecting HMIS. In their study, they noted that Data collection and reporting forms are viewed as not adequately distributed to the whole county. Moreover, there is recognition that reporting forms are not properly filled and submitted, nor are data properly analyzed, fed back and utilized by the District Health Offices and health facilities for planning and managerial decision-making.

## CONCLUSION AND RECOMMENDATIONS

In conclusion, the study established that majority of the respondents agrees that there is presence of standard indicators, manuals, reporting forms and time, data presentation & analysis for HMIS in the county. Majority of the respondents said that competency in HMIS tasks is highly appreciated and used in the county. Majority of the respondents said that there is the presence of documentation reports in the HMIS of private & NGOS in the county. Majority of the respondents agreed that there is availability of minimum package of information (MPI) for collection, collation, analysis, dissemination and use of health information in HMIS. A majority of the respondents said that despite the fact that there are presence of technical factors and behavioral factors contributing to the overall performance of health management information system as this related to the challenge of HMIS involving those factors affecting the ability to collect health data, value & use of information in HMIS in the county.

The study found out that there is a challenge of HMIS involving those factors affecting the ability to collect health data, value & use of information in HMIS in the county, therefore the health facilities should enhance data collection and analysis of the information through the use of information communication technology. Intensified support for organizational systems for greater performance for HMIS and regular review in the county. There is need for further study in sphere of health management information systems in the counties of Kenya.

## ACKNOWLEDGEMENT

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