



*Original Research Article*

# Community health information system utility: A case of Bungoma County Kenya

Received 10 March, 2016

Revised 12 April, 2016

Accepted 18 April, 2016

Published 25 April, 2016

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A wealth of data is available within the healthcare systems at community level. However, lack of effective use of information shared during community dialogue posed a great challenge despite efforts by governments' in recognising community care services as a critical service delivery. This article documents extent community units' use health information processes to improve community health information, technical, behavioural and organisational factors influencing community information utility for improved health outcomes. The study was descriptive cross-sectional design quantitative in nature. The study employed a combination of stratified clusters proportionate to population size and applied simple random sampling technic. The sample size was 54 community units. Both closed and open-ended interview questionnaire was administered to Community Health extension workers and 3 in-depth focus group discussions. Data analysis generated univariate frequencies using tables and charts. The expected outcome was utility of health information. Regression analysis using ANOVA<sup>a</sup> showed that results were moderately correlated with utility of community information with correlation Coefficients<sup>a</sup> 0.017 at  $\beta$  0.538<sup>b</sup>. Pearson Chi-Square Tests with linear association of 0.910 had a likelihood ratio of Fisher's Exact Test of 0.658 thus, result moderately significant. Knowledge above average, information was regularly shared during community dialogues; while design, technical tools and empowerment of communities were weak and inadequate. Finally the system was well structured, not resourced and uncoordinated. Recommended that both National and County governments to emphasize on regular feedback, provide technical capacities; finally consideration of budget allocations, empowerment and institutionalisation to promote information utility.

**Key words:** Dialogue, community unit, health information, data, action day, community health volunteers, community health workers, community health extension workers, utility; health outcome.

## Abbreviation

African Medical Research Education and Foundation(**AMREF**),Community Based Organisation(**CBOs**),Community Health Extension Worker(**CHEW**)Community Health Workers(**CHWs**),Community Health Committees(**CHCs**),Community Health Volunteers(**CHVs**),Community Health Information System(**CHIS**),District Health Information Software(**DHIS**),Government of Kenya (**GoK**), Health Management Information System (**HMIS**), Human Resources and Services Administration(**HRSA**),Ministry of Health(**MoH**),Ministry of Public Health and Sanitation(**MoPHS**),National Health Sector Strategic Plan(**NHSSP**),Organisation, Behaviour, Application and Technical Tool(**OBAT**),Performance of Routine Information System Management(**PRISM**),Routine Health Information System(**RHIS**),Statistical Package for Social Sciences(**SPSS**),World Health Organisation(**WHO**)

## INTRODUCTION

Worldwide, community units play a critical role of the extended healthcare systems providing services outside the formal ministry of health systems. They advocate for needed services to under-represented populations while collecting data that do not link to any standardised routine health information systems but own information needs. In the end such data and information are used to update donors' own programmes and solicit for new funding (AMREF Health Africa, 2010). Rarely, communities use the information for programming; evaluate programme effectiveness and efficient use of scarce resources in prioritisation of the health interventions (Bhutta, 2004). As a result community units/organisations have failed to link evidence to decisions and adequately respond to the priority needs of the community they serve.

According to Odhiambo-Otieno, information systems introduced have been weak, lacked backed up with health information policies, technical personnel and had proliferation of many tools for reporting (Odhiambo-Otieno, 2005b). At the same time most information systems are still manual and data could not be shared easily for evidence-based decision-making (Odhiambo-Otieno, 2005b, and Nadia, 2011). It is important noting that four out of five community health workers used manual notebooks and data completeness and accuracy were not guaranteed at the same time lack of regular feedbacks, enforcement of timeliness and use of standard protocols to guide information process were hindrances to utility of community information (Nadia, 2011). Similarly, Routine Health Information Network Organisation has emphasised that timeliness and accessibility of tools were barriers to utilisation of health information (Lau et al., 2007). While this is true community health volunteers are also not involved in designing information systems that could address the local needs of the communities they serve.

The purpose of the study was to inform service utilisation, promote use of community health information to improve health outcomes.

### Objective

#### General objective

The main objective was to determine the community health information system utility to improve health outcomes in Bungoma County.

#### Specific objective

The specific objectives were

- 1.To assess the community units level of use of information processes for improved community health services;
- 2.To identify the technical tools for sharing information during community dialogue and action days;
- 3.To establish community units behavioural factors affecting sharing of available information and

4.To determine what organisational factors influence sharing and use of community health information.

## MATERIALS AND METHODS

The study was descriptive cross-sectional design - quantitative in nature. The study employed a combination of stratified clusters proportionate to population size and applied simple random sampling technique with a proportion of 30% of target population as representative sample using Mugenda and Mugenda recommendations for populations less than 100 (Mugenda and Mugenda, 1999). The target population was (N =163) with a sample size of  $n_h = 54$  community units (Table 1). The second step involved determination of the cluster populations ( $N_h$ ). The third step was selection of representative sample size from each stratum in this case Sub-county. The study employed proportionate sampling based on population size with the proportional allocation for the stratum h

With respect to  $h^{\text{th}}$  stratum  $h=1, 2, 3, \dots, H$ , size was  $N_h$

such that 
$$N = \sum_{h=1}^L N_h$$

Then using proportion allocations for the stratum h was

$$n_h = \frac{N_h}{N} n \quad (\text{Neyman, 1934}).$$

### Sample size

A structured interview questionnaire both closed and open-ended was administered to Community Health extension workers and 3 in-depth focus group discussions. Data analysis was generated using univariate frequencies and interpretation using tables and charts. The expected outcome was utility of health information (Figure 1).

## RESULTS AND DISCUSSIONS

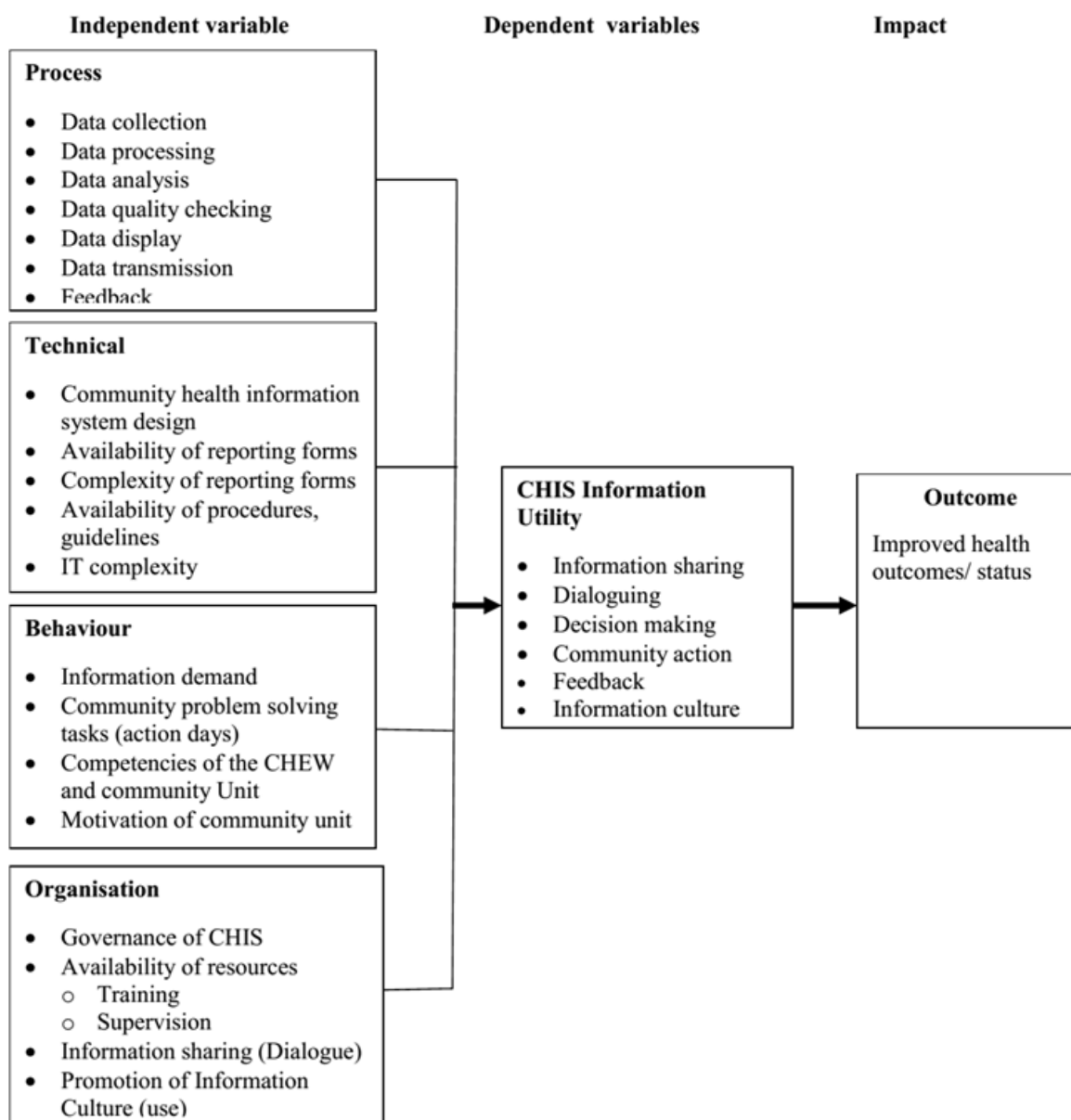
### Process factors affecting utility of community health information

#### Results

The result indicated that Data transmission (79.5%) and compilation (98%) was effectively done by Community Health Extension Workers (CHEWs) through making monthly CHEW's summary (88.6%). However, the process was majorly hindered by inadequate data collection and reporting tools (88.6%) and other competing priorities (69.8%). Most community units (95%) analysed their data using the CHEW summaries (79.5%) and provided feedback through monthly review meetings (38.6%) using

**Table 1:** Sample size Population

| NO. | Sub-County (strata) | Sample size = $n_h$ |
|-----|---------------------|---------------------|
| 1   | Kanduyi             | 7                   |
| 2   | Bumula              | 8                   |
| 3   | Tongaren            | 3                   |
| 4   | Sirisia             | 4                   |
| 5   | Kabuchai            | 5                   |
| 6   | Kimilili            | 8                   |
| 7   | Webuye East         | 5                   |
| 8   | Webuye West         | 7                   |
| 9   | Mt Elgon            | 7                   |
|     | <b>Total</b>        | <b>54</b>           |



**Figure 1:** Conceptual Framework (adoption from Lippeveld et al)

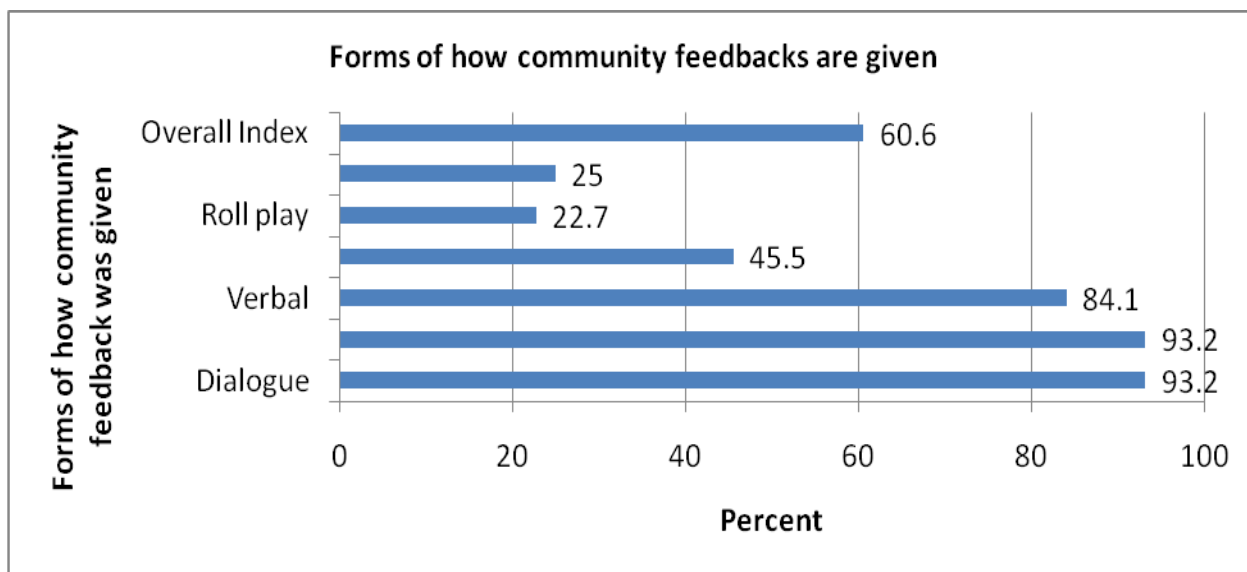


Figure 2: How community feedback are given (n= 44)

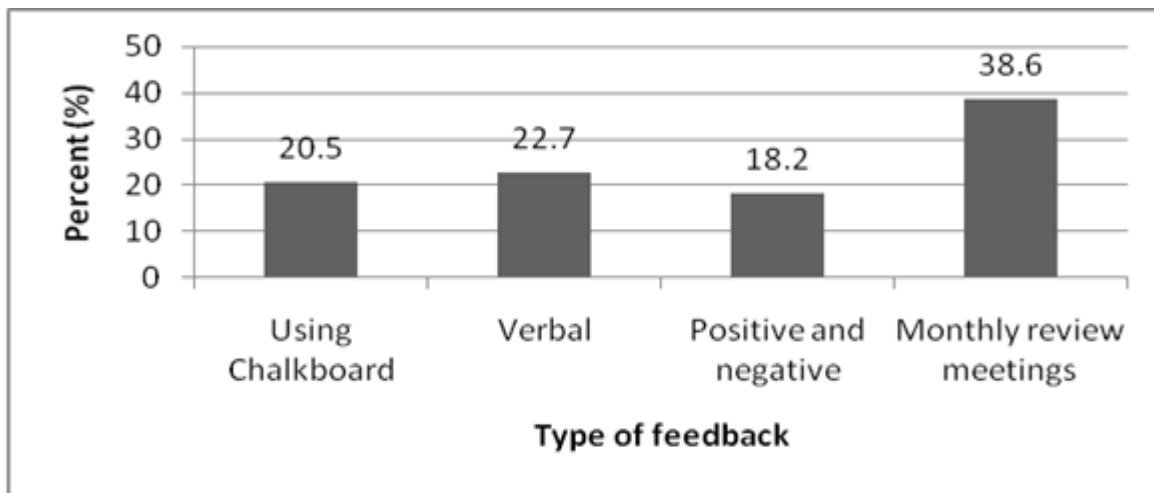


Figure 3: Type of feedback used in sharing community information

chalkboards (20.5%). Community feedback was given through use of dialogue (93.2%), discussions (93.2%) and also provided verbally (84.1%).

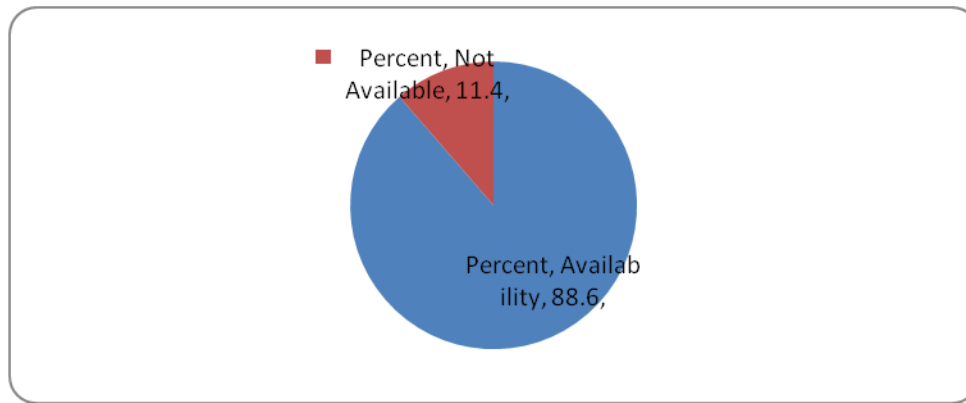
**DISCUSSIONS**

The result agrees with Nadia that community health workers are volunteers with responsibilities and accountability was not definite (Nadia, 2011). At the same time Community Health Workers (CHWs) were non-literate requiring special sheets (Odhiambo-Otieno, 2005a; Ndwiga and Verbree, 2010).

This results agrees with the results by Nadia, Aung and Whittaker that four out of five units reviewed utilised manual systems processes and results could not be shared

easily for evidence-based decision-making (Nadia, 2011, Aung and Whittaker, 2010). The results was however, contrary to the one that identified proliferation of many different tools for reporting existed and were barriers for reporting (Odhiambo-Otieno, 2005b).

This was encored by AMREF Health Africa that working with Community units to capture health data at grassroots level and sharing the visual feedback with the community using community forums improved the livelihood of the communities (AMREF Health Africa, 2010). See Figure 2 and 3 above. This result is similar with Ndwiga and Verbree, Lau et al who stated that having access to accurate and reliable information on the health of communities was essential in order to be able to provide appropriate services and also concurs with the study by RHINO that identified timeliness and accessibility of the minimum data sets as



**Figure 4:** Availability of data collection and reporting forms

**Table 2.** Use of Information technologies (n=44)

| Type of technology used | Frequency | Percent    |
|-------------------------|-----------|------------|
| Mobile phones           | 4         | 9.1        |
| Flip chart              | 7         | 15.9       |
| Chalk/white board       | 33        | 75         |
| <b>Total</b>            | <b>44</b> | <b>100</b> |

barrier for their utilisation (Lau et al., 2007; Ndwiga and Verbree, 2010; MoH, (2014c); MoH 2006; MoH, 2010).

### Technical factors affecting utility of community health information

#### Results

The most important aspect of an information system is its design. The results indicated that 14(32%) of the Community units (CUs) were involved in designing the Community health information system.

The availability of data collection and reporting tools was inadequate 39(89%). Moreover, 42(95%) of the community units had been trained on use of the community health information system tools with 30(68.2%) availability of the procedure for information management (Figure 4).

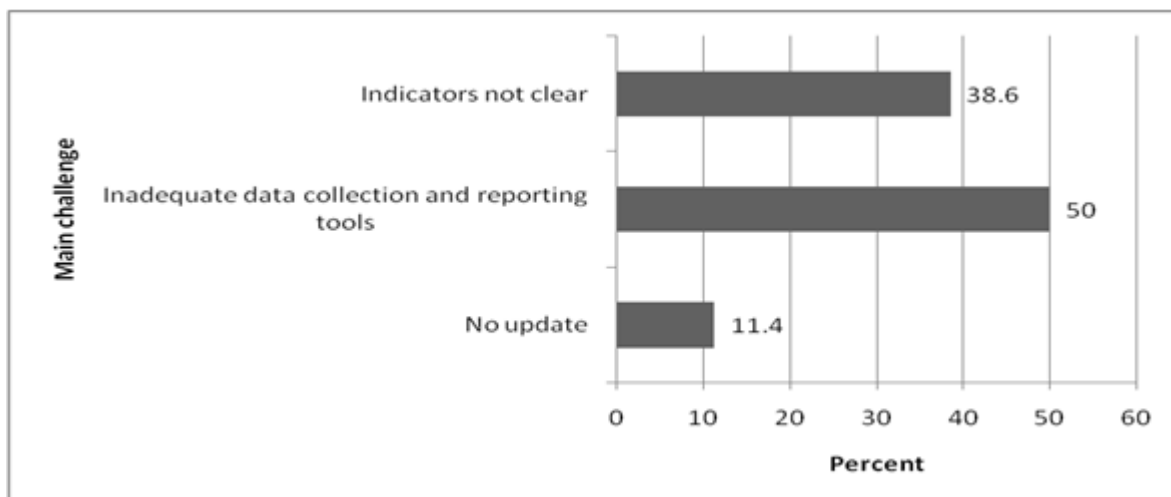
The results showed that 33(75%) of the community units use chalkboards/whiteboards as the primary technology in sharing the community health information and 29(65.9%) of the community units were trained on use of the technology (Table 2).

#### Discussions

This partly agrees with Odhiambo-Otieno on developing the evaluation criteria for health management information systems that staff were not involved in designing information systems and fully agree with another article by Odhiambo-Otieno in assessing communities and facilities in Bungoma that community health workers were involved in

designing, development and building capacity of implementers in dissemination and use of the data and information (Odhiambo-Otieno, 2005a and 2005c). Similarly, programmes that empowered communities were likely to be acceptable since communities' participated in guiding them access to the broader health information and willingness of the communities to analyse local problems and take actions. However, Tolentino and Marcelo have argued that developing community information system was a challenging task, closely approximating the level of difficulty found in development of the hospital clinical systems (Tolentino and Marcelo, 2004).

This was in agreement with the results that highlighted that the main challenges in all established units with data was lack of data collection tools and data quality, timeliness and accessibility of the minimum data sets as barriers to their utilisation (Nadia, 2011 and Aung and Whittaker, 2010) (Figure 5). But the results differs with the study by Odhiambo-Otieno that identified that proliferation of many different tools for reporting existed and were barriers for reporting (Odhiambo-Otieno, 2005b). The results agree with evidence from implementing of community strategy in Nyanza that well-coordinated actions across sectors at the community level would increase efficiency in improving health outcomes and "*AfyaYetu, JukumuLetu*" (MOPHS, 2013). This was contrary that none of the communities had been trained or sensitized on use of the available tools, most personnel handling data were unskilled and that all health facilities cited lack training in health management information systems (Odhiambo-Otieno, 2005a, MoH, 2009 and Ndwiga, 2004). However, the result agrees with



**Figure 5:** Main challenges in use of CHIS tools

Berkman et al that volunteerism of community health workers compiled and continuously updated the data sets (Berkman et al., 2004).

This disagrees with Odhiambo-Otieno and Ministry of Health which emphasized that the system had many parallel data collection and reporting systems that also lacked integration and information was poorly coordinated (Odhiambo-Otieno, 2005b and MoH, 2009). But again agrees with Odhiambo-Otieno that most of the information systems were still manual and data could not be shared easily for evidence based-decision making (Odhiambo-Otieno, 2005b). However, the results are contrary to Haines et al that community health workers expressed the need to reduce the paper burden associated with the community health information systems which presented a flawed data collection process (Haines et al., 2007).

This was also supported by Ndwiga that this contributed to poor collection and analysis of data that could have helped in effective decision-making and raised questions about the usefulness of the tailor-made software if most users were not trained on how to use it (Ndwiga, 2004). Further, the results agree with Berkman et al in his study on literacy and health outcomes that disparities in access to health information, service utilization and technology would result in lower usage rates of preventive services, less knowledge of chronic diseases, management and poorer reported health status as echoed by community units (Berkman et al., 2004).

### **Behavioural factors influencing utility of community health information**

#### **Results**

The results indicated that knowledge on the type of information needed was available in 26(59.1%) of the community units, 28(63.6%) had knowledge on importance

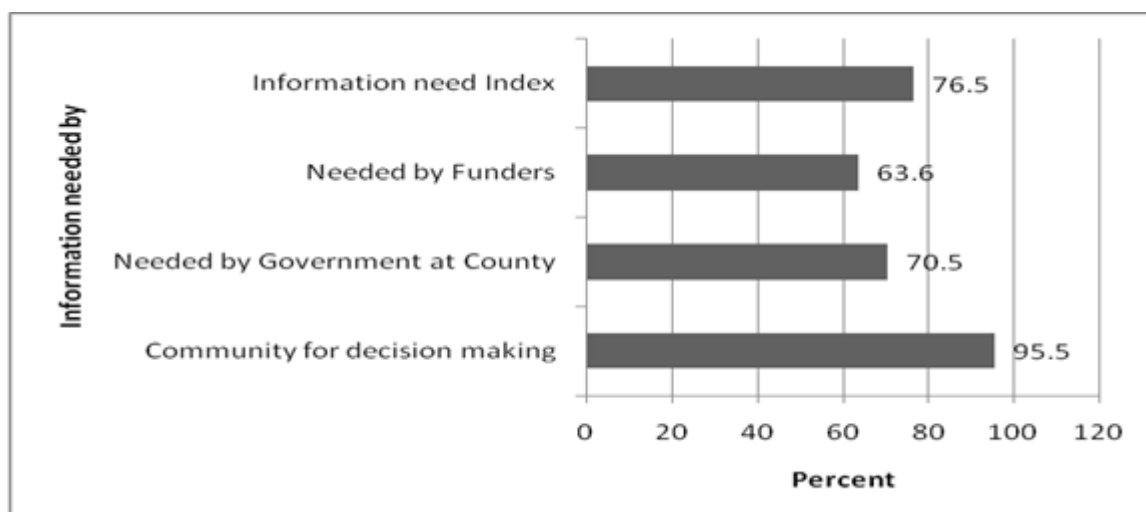
of the information and used information for corrective actions, while 14(31.8%) used the community information for planning and management of the community health services. More than three quarters 33(76.5%) of the community units appreciated the importance information needed at the community level by various entities. The level at which community health information was needed could not be over emphasized with 42(95.5%) of community units identified with the need of information for decision making, 31(70.5%) of community units needed by county government while 28(63.6%) identified that community information was needed by funders (Figure 6).

The results also showed that 39(89%) of the community units' were involved and utilized information collected with the primary function of health promotion and education 39(88.6%), Planning 36(81.8%) and treatment of minor illnesses was 29(65.9%) (Table 3). Moreover, 27(61.4%) of the community units trained on community health information systems, performed analysis and interpretations of the results. Half 21(51.2%) of the community units trained on community health information systems are likely able to analyse and interpret community while 14.6% of those not trained are not likely to interpret the community health data. A third 14(31.7%) of the units had neither trained nor were able to analyse their data promptly.

Slightly half 23(52%) of the community units stated to have a form of incentives. Cash or stipend was 16(36.4%) (Table 4). While, in "Nasusi" community unit the backbone of "Dini YaMsambwa" religion during focus group discussions, volunteers were constantly involved in decision making and income generating activities that kept them together.

#### **Discussions**

These results was in agreement by Viswanathan et al in



**Figure 6:** Level Information is needed

**Table 3.** Community units' health information use (n=44)

| community health Information use | Frequency | Percent     |
|----------------------------------|-----------|-------------|
| Health promotion and education   | 39        | 88.6        |
| Planning                         | 36        | 81.8        |
| Treatment of minor illnesses     | 29        | 65.9        |
| Health Issues                    | 32        | 72.7        |
| <b>Overall index</b>             | <b>34</b> | <b>77.3</b> |

**Table 4.** Kind of incentives received (n=44)

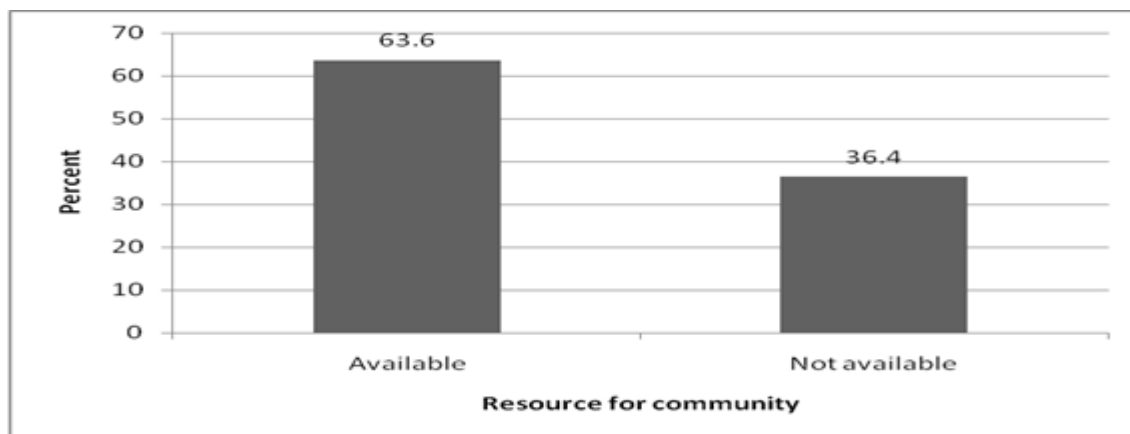
| Kind of incentive                   | Frequency | Percent    |
|-------------------------------------|-----------|------------|
| Cash ( stipend)                     | 16        | 36.4       |
| IGAs                                | 2         | 4.5        |
| Materials                           | 1         | 2.3        |
| Workshop/training                   | 3         | 6.8        |
| Special services at health facility | 1         | 2.3        |
| None                                | 21        | 47.7       |
| <b>Total</b>                        | <b>44</b> | <b>100</b> |

their evidence report from 53 articles that emphasized through continuous community involvement and participation, that they were motivated to address their own health needs and cultivated knowledge sharing among the community members and this would promote sustainability mechanisms in improving their own health (Viswanathan et al., 2009). However, this was contradicted by Lehmann and Sanders that the concept of community ownership and participation was ill-conceived and poorly understood as by-product of programmes initiated from the centre (Lehmann and Sanders, 2007).

These results agree with Odhiambo-Otieno in his emphasis that lack of involvement of the communities in decision making on individual health and increased poverty levels was driving communities to backslide in voluntary service delivery and use of information for primary interventions (Odhiambo-Otieno, 2005a). Further similar

results was endorsed by community health workers engagement that expected to diffuse community change to individuals, reduce disparities through improving access to care, providing culturally competent health education, counselling and sometimes rendering direct health services. This evidence also agrees with AMREF Health Africa on community participation where 40(91%) of the respondents identified community participation and cost-sharing was used to encourage community participation and generated a strong sense of ownership and volunteerism (AMREF Health Africa, 2010). On the other hand the result was in contrary with that of Health Resources and Services Administration that involvement of the community health workers varied from making them an integral part of the care delivery team as navigators, education providers or outreach agents (HRSA, 2007).

This result agrees with Lehmann and Sanders that also



**Figure 7:** Community resources

outlined Community Health workers were able to make an effective contribution when they are carefully selected, appropriately trained and adequately and continuously supported (Lehmann and Sanders, 2007). This was also supported by the study with Odhiambo-Otieno for Implementing Community Based Health Management information systems in Bungoma which emphasized that programmes that empowered communities were likely to be acceptable since communities participated in guiding them (Odhiambo-Otieno, 2005a).

The results agree with Smedley, Stith and Nelson that emphasized community health workers engagements would additionally sensitize members of families to minimize barriers to health care results from health beliefs and health values (Smedley, Stith and Nelson, 2003). Further, the results is consistent with evidence from ministry of public health services implementation of community strategy in Nyanza where by individuals were responsible for the day-today up keep of the household affairs as well as participating in community organized activities and this formed first level of care that was universally available (MOPHS, 2013). Again nurturing communities to economic empowerment, transformation, enhanced access to the means of production, marketing paid attention to the social determinants of health.

The result also agrees with the result by Ministry of public health and Sanitation Nyanza that communities had their own social networks and information sharing platforms (forums) that attracted negotiation tables to build mechanisms to self-sustainable projects with elaborated communications and linkages (MOPHS, 2013). Community participation and in some cases cost-sharing play a more active role in using health information for evidence-based decision-making and encourages community health workers to remain and support the programme. This evidence again agrees with AMREF Health Africa on community participation where 40(91%) of the respondents identified community participation and cost-sharing was used to encourage community

participation and generated a strong sense of ownership and volunteerism (AMREF Health Africa, 2010). As advocates of community strategy, use of Income Generating Activities (IGAs) are likely to keep the community together and would facilitate them address their interventions with passionate.

### **Organisational factors influencing use of community health information**

#### **Results**

Community dialogue meetings were carried out Monthly 40(91%), while 4(9%) was taken up quarterly. The results also indicated that 30(68.2%) community units had fully functional organizational structures while less than a third 27(61.4%) had knowledge on specific team composition more than two a thirds 31(72.7%) understood the standard community unit structure in the guidelines. The results also showed that out of the monthly meetings carried out 21(47.7%) of the CHCs met regularly and recorded minutes.

The result showed that 28(63.6%) could be identified for having at least a resource (Figure 7). The most applicable resources were; Chalk/whiteboard 26(59.1%), Bicycles 16(36.4%), and income generating activities 2(3.6%). Three quarters 33(75%) of the units left their resource management to the link health facility. However, Community health facility linkage seemed to be weak at 15(32%). The community health volunteers during focus group discussion expressed this as a challenge and over 29(70%) of them practiced Merry -go-round as avenues to generate resources while, in "Nasusi", partners had helped them purchase milk goats, plant bananas, chicken rearing among other incomes. On supervision, 43(97.7%) of the community units were supervised. This was basically done by the CHEWs 40(90.9%), CHMTs 20(45%), CHCs 17(38.6%) and 8(18.2%) by donors (Table 5). Formally



**Table 5.** Community unit supervision (n=44)

| <b>Supervised by</b> | <b>Frequency</b> | <b>Percent</b> |
|----------------------|------------------|----------------|
| CHEWs                | 40               | 90.9           |
| SCHMTs               | 20               | 45.5           |
| CHCs                 | 17               | 38.6           |
| Donors               | 8                | 18.2           |

**Table 6.** Sharing of community information (n=44)

| <b>Sharing information</b>        | <b>Frequency</b> | <b>Percent</b> |
|-----------------------------------|------------------|----------------|
| Community dialogue                | 44               | 100            |
| Health education in public places | 31               | 70.5           |
| Health days                       | 20               | 45.5           |
| Community outreaches              | 29               | 65.9           |
| Stakeholders meetings             | 19               | 43.2           |
| Chiefs Baraza                     | 36               | 81.8           |
| Market days                       | 5                | 11.4           |
| <b>Overall index</b>              | <b>26</b>        | <b>59.8</b>    |

**Table 7.** Handling of issues raised in community dialogue days (n=44)

| <b>Handling Issues during dialogue</b>       | <b>Frequency</b> | <b>Percent</b> |
|--|------------------|----------------|
| Organise action days                         | 41               | 93.2           |
| Organise Community meetings                  | 19               | 43.2           |
| Stakeholders assistance                      | 16               | 36.4           |
| Visiting and discussing with affected groups | 21               | 47.7           |
| Issues are never resolved                    | 3                | 6.8            |
| <b>Overall index</b>                         | <b>20</b>        | <b>45.5</b>    |

designed supervisory checklists were used by 22(54.6%) of the units.

Community health volunteers need to be identified by wearing patches special designed bags or T-shirts as identifiable marks. Moreover, community mechanisms that were used to resolve the above challenges was through dialogue 17(38.6%), Sharing with the sub-counties and conflict resolution at 12(27.3%).

### Availability of resources

Overall 26(59.8%) of the community units had more than one method of sharing community health information. Dissemination of results was widely done 30(68.2%) using the chalkboards. The sharing of results was through community dialogue 44(100%) during community dialogue days, 36(81.8%) of them used Chief Barazas, 31(70.5%) used health education in public places, 29(65.9%) used also community outreaches while the rest used health days, stakeholders meetings and least was market days with 20(45.5%), 19(43.2%) and 5(11.4%) respectively (Table 6). The handling of issues raised from the dialogue were during the community action days with 41(93.2%) of the community units while 21(47.7%) used a method of visiting and discussing with the affected groups. Most

importantly 41(93.2%) of the community units used the recommended method by organized community action days, household visitation and discussing with the affected groups was 21(47.7%) an indicator of weak delivery of community health messages (Table 7).

Regression analysis using ANOVA<sup>a</sup> showed that results were moderately correlated with utility of community information with correlation Coefficients<sup>a</sup> 0.017 at  $\beta$  0.538<sup>b</sup>. Pearson Chi-Square Tests with linear association of 0.910 had a likelihood ratio of Fisher's Exact Test of 0.658 thus, result moderately significant.

### Discussions

The results agrees with the study by Mate et al. in 2009, that the frequency of supportive supervision to health facilities on the other hand assisted in provision of feedback and cross checked the data quality and helped them make informed decision to avoid future errors (Mate et al., 2009). Also the findings concurs with Odhiambo-Otieno that supervision empowered the community by ensuring that information was regularly fed back to the community and that community members were trained to interpret data through spot-checks (Odhiambo-Otieno, 2005a). Further, data collection was by CHWs or volunteers to improve their

own work, management and output arrangements that would enable them address some of its health-related problems with its own resources at the community level (Odhiambo-Otieno, 2005a).

The results disagrees entirely with Nadia that the organisation and support supervision was an important component that was not taken seriously with two out of five of the CHWs able to be visited once (Nadia, 2011). On the other hand the results agree with the Ministry of Health that community governance and linkages had received emphasis in the National Health Sector Strategic Plan 2005-2010 and Kenya Health sector strategic and investment plan 2014-2018 (MoH, 2014c). Additionally, the Ministry of Health Kenya health policy 2014-2030 had provided for organisation of community health services, innovative service delivery while Ministry of public health services elaborated that structures provided for an opportunity to generate informed dialogue between the health systems and community, create demand for quality services, use community information to promote and design action items and enhance community's responsibilities for actions (MOPHS, 2013).

Consequently, Dustin has agreed with these results that accessibility to healthcare depended on the purchasing power of individuals and stated that distance, poverty levels, and economic problems were key in utilization of healthcare services (Dustin, 2010). This was also elaborated by community volunteers during the in-depth discussions that most communities were poor and raising resources to pay hospital fee was hindrance for those referred by community volunteers.

This result agrees with the information by Ministry of public health services that elaborated that structures provided for an opportunity to generate informed dialogue between the health systems and community, create demand for quality services, use community information to promote and design action items and enhance communities' responsibilities for actions (MOPHS, 2013). This was also supported by an article by Odhiambo-Otieno that stated dissemination of information was done by simply posting the sheets on the notice board at the local health facility and community health workers were to interpret this information (Odhiambo-Otieno, 2005a).

## CONCLUSION AND RECOMMENDATIONS

### Conclusions

The knowledge on data management was consequently very high and sharing of monthly summaries using the chalk/white board. Community health information was shared regularly by use of dialogue days on monthly basis while, majority of the community had mechanisms of providing feedbacks. The level of information process in data management was high and information shared regularly with some feedbacks. Portable Visual aids in sharing of community information is highly recommended

that is using "Carry I See" whiteboards and emphasize on regular feedback for utility of community information.

The study findings showed that the technical tools for sharing information during dialogue and action days were generally inadequate hindering community health information use for evidence-based decisions. The involvement of community units in design was also weak. More than two thirds of the community units had availability of the standard operating procedure. Majority of the community units had been trained on use of the community data collection and reporting tools. The technical capacities for data management was weak and inadequate to collect, analyse and share comprehensive information that may be required for decision-making at community level. Use of appropriate information communication technologies should be promoted in close to two thirds of the community units. If Monitoring of Vital Events by use of Information Technologies (MOVE-IT) could be introduced using available mobile phones, will ease the availability and use of quality community health information for improve health outcomes.

The knowledge on CHIS capacities and utilization was above average. Majority of the community units did not have mechanisms for institutionalising CHIS and no evidence of considering community empowerment, to address behaviour and attitudes towards utility of information and health services. While utility of this information at the community units' level was very high. Majority of the community information was used for Health promotion and education, planning and treatment of minor illnesses the core functions of the community units. The sustainability mechanisms that were put in place were unrealistic, not considering community empowerment, weak and not sustainable as there was no evidence that this was supported by the county. Measures should be put in place by counties to mobilise and allocate resources to support community high impact interventions including strengthening community health information system.

The study also concluded that Community Health Information System (CHIS) Organisation was well structured formal system understood by the community units. However, this was not resourced, uncoordinated, lacked structured information to be shared regularly and mechanisms for sustainability. The resources available at community disposal such as chalk/whiteboards, Bicycles and income generating activities were inadequately provided. Majority of the community units conducted monthly meetings and planned community dialogue days and held action days. Most available community structures such as Chief's Barazas, community dialogue days, Health education in public places and community outreach services were used as avenues in community sharing of available information. Supportive supervision were regularly contacted by the CHEWs but tools used for supportive supervision varied with different designed checklists and exercise books. Coordination and stewardship of community units was very critical for the success of the units.

**Recommendations**

- 1.The County and National government to emphasise on regular feedback for utility.
- 2.The County and national government to adequately provide continuous training and mentorship programme.
- 3.The County government should consider financing the community units and providing incentives for the community health volunteers through capacity strengthening and supporting Income Generating Activities (IGAs).
- 4.All stakeholders be engaged during design, initiation, empowerment, dialogue and action days (for institutionalisations).

**Acknowledgements**

My sincere appreciations go to Pioneer Class of the collaborative programme, Health Information Management and lecturers whose work, discussions and experiences cannot be quantified to the researcher. More thanks to my supervisor Professor George W. Odhiambo-Otieno, PhD and Dr. Wanja Mwaura Tenambergen of the Department of Health Systems Management Kenya Methodist University and Dr. Gavin Reagon, University of Western Cape for their relentless support, rich advice and invaluable inputs in this research project.

Extended gratitude go to Director of Medical Services Kenya Dr. Nicholas Muraguri, Professor Dr. Olaf Jacob and Sylvia Göbel, both of Neu Ulm University of Applied Sciences Germany for support and allowing me into this programme.

Special thanks to my wife Peris Lyaka and sons Allan Juma, Wycliffe Wangila and daughter Mercyline Nasimiyu, entire Wanambukos’ and Namunyus’ families for their moral support and encouragement throughout the course.

Finally I am particularly indebted to colleagues Dr. Hillary Kipruto, Dr. Humphrey Karamagi, Dr. Samuel Were, Dr. Benjamin Tsofa, Dr. Judith Bwonya (Commissioner), Dr. Isabella Maina, Dr. Kibet Serگون, Dr. Janet Omuyonga, Professor Miriam K. Were (Laureate, Hideyo Noguchi), Professor William Ogara, Ms. Maureen Adoyo, Dorcas Nyuyo, Samuel Cheburet, Julius Mutiso, Rose Ayugi, Lillian Kaburi, Sarah Mutuku, Caroline Kawila, Jacinta Mbidyu, Dalene Mofokeng, Eva Bursie, Isabell wofork, Gilbert Mboro, Jeton Iseni, Warren Caesar, Sven Krämer, Russel Piguier, Kaala Moomba and Irma Zimri who kept encouraging me throughout my study. May God reward you with endless blessings.

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