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Research Paper

Community Health Information System Utility: A case of Bungoma County, Kenya

Wanjala D. Pepela[1] and George W. Odhiambo-Otieno[2]

[1]Ministry of Health
[2]Department of Health Systems Management, Kenya Methodist University.

*Corresponding author e-mail: wanjala2p@yahoo.com

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ABSTRACT

A wealth of data is available within the healthcare systems more so at community level. However, lack of effective use of information shared during dialoguing at the community level posed a great challenge despite efforts by governments' in recognising community care services as critical level of service delivery. This article attempts to document the extent the community units' use health information processes to improve community health information for improved community health actions during action days. The article provides for different responsibilities accrued to the community health volunteers as a factor to delay reporting. The article has also outlined procedures used in data collection, analysis and dissemination to guarantee knowledge translation. The different kinds of information required, community involvement and modes of sharing community information has also been highlighted. Finally, the article denoted the right to access, tools used in sharing the community information for evidence-based decisions and procedures at the community level for utility of information for improved health outcomes.

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

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

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-represent populations while collecting data that do not link to any standardized 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 (African Medical Research and Foundation, 2010). Rarely, communities use the information for programming;

Table 1. Sample size population.

S/N	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
	Total	54

evaluate programme effectiveness and efficient use of scarce resources in prioritization of the health interventions (Bhutta et al, 2004). As a result, community units/organizations have failed to link evidence to decisions and adequately respond to the priority needs of the community they serve.

According to Odhiambo-Otieno (2005b) information systems introduced have been weak, lacked back up with health information policies, technical personnel and had proliferation of many tools for reporting. 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; Lau et al., 2007).

It is important to note 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 (Lau et al., 2007). Similarly, Routine Health Information Network Organization has emphasized that timeliness and accessibility of tools were barriers to utilization of health information (Odhiambo-Otieno, 2005a). 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 utilization, promote use of community health information to improve health outcomes. The main objective was to determine the community health information system utility to improve health outcomes in Bungoma County. The specific objectives were to assess the community units level of use of information processes for improved community health services; to identify the technical tools for sharing information during community dialogue and action days; establish community health information system capacities affecting sharing of available information and determine what organisational factors influence sharing and use of community health information.

MATERIALS AND METHODS

The study was a descriptive cross-sectional design. 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 (1999), (Neyman, 1934) recommendations for populations less than 100. The target population was (N =163) with a sample size of nh =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 Sub-county. The study employed proportionate sampling based on population size with the proportional allocation for the stratum h. With respect to h_{th} stratum h=1, 2, 3,……,H, size was N_h such that:

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

Then, using proportion allocations (Neyman, 1934; Ministry of Health, 2014c)

for the stratum h was:

$$n_h = \frac{N_h}{N} n$$

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 generated univariate frequencies and interpretation using tables and charts. The expected outcome was utility of health information.

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
Total	44	100

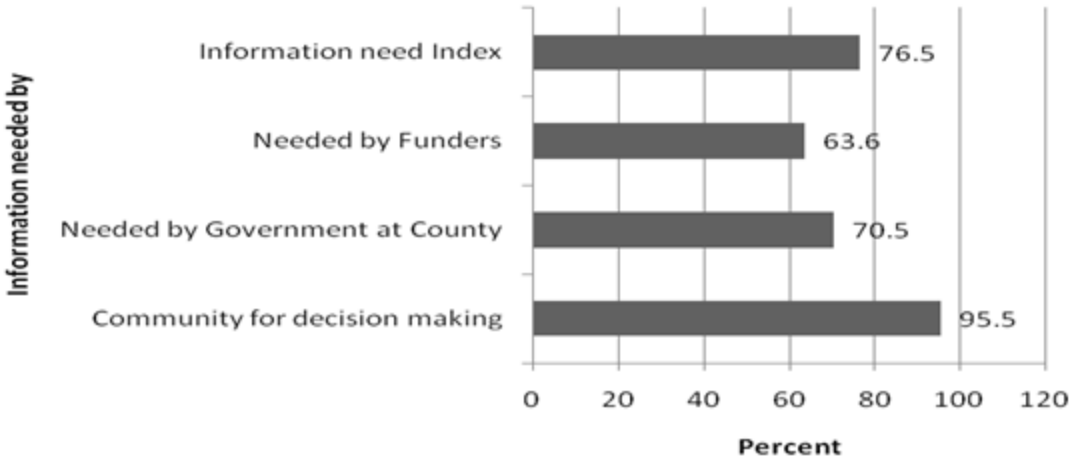

Figure 1. Level Information is needed.

RESULTS

Results showed that knowledge on data management was 39 (88.6%) and generated monthly summaries with 34(77.3%) overall utility of community information using white/chalkboards (table 2). 27(60.6%) provided feedback and shared information during dialogue days monthly at 41(93.2%). Information design was weakly involved 14(32%), unavailability of data tools was 39(89%). Slightly more than half 26(59.1%) had knowledge on the kind of information required; 27(61.4%) analysed while, 42(95.5%) used information for evidence based-decision making. IGAs was supported by partners in 6(13.6%) of the units. Community formal structures were in 32(72.7%) units and shared information through dialogue 54(100%) in "Barazas" 36(81.8%) while, 31(70.5%) was through health promotion and education. Majority 40(90.7%) were empowered through support supervision using standard procedures and checklists.

Regression analysis using ANOVA[a] showed that results were moderately correlated with utility of community information with correlation Coefficients [a]0.017at β 0.538[b], while Pearson Chi-Square Tests compared with the use of information with linear association of 0.910 had a likelihood ratio of Fisher's Exact Test of 0.658 thus, the result was moderately significant.

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 quarter 33(76.5%) of the community units appreciated the importance of 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 1).

These results were in agreement with the study of Lehmann and Sanders (2007) who in their evidence report from fifty-three articles emphasized through continuous community involvement and participation, that they were motivated to address their own health needs and cultivated knowledge shared among the community members and this would promote sustainability mechanisms in improving their own health. However, this was contradicted that the concept of community ownership and participation was ill-conceived and poorly understood as a by-product of programmes initiated from the centre (Health Resources and Services Administration, 2007).

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

T**able 3.** 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
Total	44	100

education 39(88.6%). Planning was 36(81.8%) and treatment of minor illnesses 29(65.9%). These results is in line with the study of Aung and Whittaker (2010) 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. Further similar results was encored by community health workers engagement expected to diffuse community change to individuals, reduce disparities through improving access to care, providing culturally competent health education, counseling and sometimes rendering direct health services. This evidence also agrees with African Medical Research and Foundation (2010) 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. On the other hand, the result was contrary in 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 (Smedley et al., 2003).

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 the community data 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 analyze their data promptly. This result agrees with Health Resources and Services Administration (2007) that also outlined Community Health workers were able to make an effective contribution when they are carefully selected, appropriately trained and adequately and continuously supported. This was also supported by the study of 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 (Aung and Whittaker, 2010).

Slightly half 23(52%) of the community units stated to have a form of incentives, cash or stipend as was 16(36.4%) (table 3). In "Nasusi" community unit, the backbone of "DiniYaMsambwa" religion during focus group discussion were volunteers who were constantly involved in the decision making and income generating activities that kept them together. The results agree with the study of Mate et al. (2009) 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. Further, the results is consistent with evidence from ministry of public health services implementation of community strategy in Ministry of Health (2009) whereby individuals were responsible for the day-to-day up keep of the household affairs as well as, participating in community organized activities and this formed the first level of care that was universally available. Again, nurturing communities to economic empowerment and transformation enhanced access to the means of production and marketing paid attention to the social determinants of health.

The result also agrees with the result of Ministry of Health (2009) 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. 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 Africa (2010) 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. 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.

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 and a third 31(72.7%) understood the standard

Table 4. Community unit supervision (n=44).

Supervised by	Frequency	Percent (%)
CHEWs	40	90.9
SCHMTs	20	45.5
CHCs	17	38.6
Donors	8	18.2

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. 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. Formally designed supervisory checklists were used by 22(54.6%) of the units (table 4).

The results agrees with the study of Ministry of Health (2014a) 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. Also, the findings concurs with the study (Odhiambo-Otieno, 2005a) 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. 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 (Aung and Whittaker, 2010).

The results disagrees entirely with the study of Nadia (2011) that the organization 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. On the other hand, the results agree with the report of Dustin (2010) that community governance and linkages had received emphasis in the National Health Sector Strategic Plan 2005 to 2010 and Kenya Health sector strategic and investment plan 2014 to 2018 (Ministry of Health, 2009).

Additionally, the Ministry of Health Kenya health policy 2014 to 2030 (Ministry of Health, 2014(a), (c) (Dustin, 2010) had provided for organization 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 (Ministry of Health, 2009).

Community health volunteers need to be identified by wearing parches, specially designed bags or T-shirts as identifiable marks. Moreover, community mechanisms that used to resolve the aforementioned challenges was through dialogue 17(38.6%), sharing with the sub-counties and conflict resolution at 12(27.3%). Consequently, Dustin agreed with these results that accessibility to healthcare depended on the purchasing power of individuals and stated that distance, poverty levels, and economic problems are keys 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. The results have been presented using the conceptual framework (adapted from Lippeveld, 2009) (figure 2).

DISCUSSION

Community health information system process factors affecting utility of community health information

This section has outlined data collection processes and the implications of the added responsibilities to the community focal persons and volunteers. It has also provided for the knowledge on tools used for collecting Community Health Information System (CHIS) and the frequency of data collected. It also provides for data processing mechanisms, data analysis at the community level with mechanisms for verifications and detecting errors in community information. Critical tools for displaying community information and the mechanisms for data transmission have been outlined with the modes of feedback used in sharing community information.

The result indicated that data transmission (79.5%) and compilation (98%) was effectively done by Community

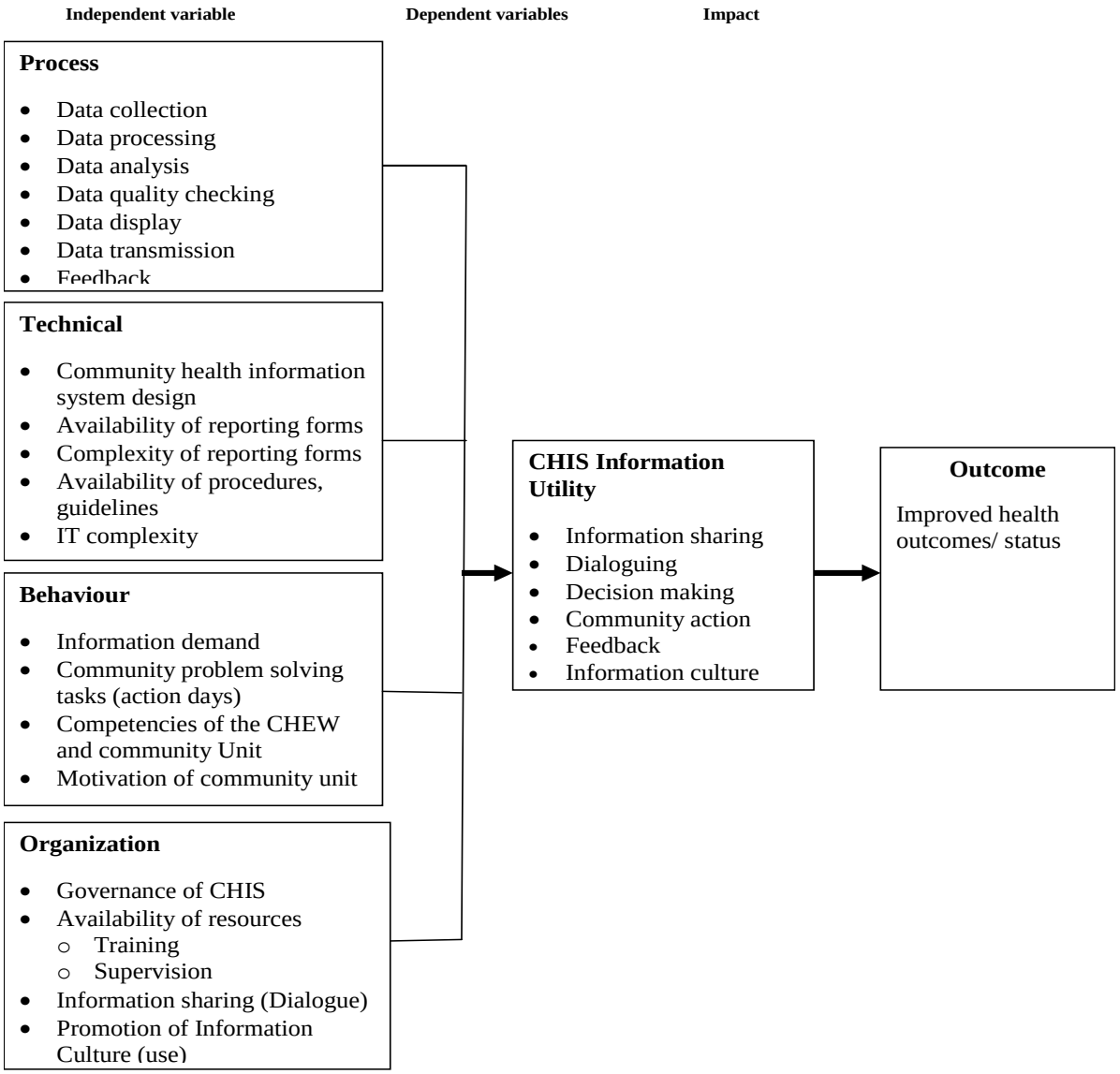

Figure 2. Conceptual framework (adaptation; Lippeveld et al., 2009).

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%). The result agrees with Lau et al. (2007) that community health workers are volunteers with responsibilities and accountability was not definite. At the same time, Community Health Workers (CHWs) were non-literate requiring special attention (Aung and Whittaker, 2010; Mugenda and Mugenda, 1999).

Most community units (95%) analyzed their data using the CHEW summaries (79.5%) and provided feedback through monthly review meetings (38.6%) using chalkboards (20.5%) (figure 3). These results agrees with the results that four out of five units reviewed utilized manual systems processes and results could not be shared easily for evidence-based decision-making (Lau et al., 2007; Ndwiga et al., 2010). The results were however, contrary to the one that identified proliferation of many different tools for reporting and were barriers for reporting (Odhiambo-Otieno, 2005b).

Community feedback was given through use of dialogue (93.2%), discussions (93.2%) and also provided verbally (84.1%) (figure 3). 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 (African Medical Research and Foundation, 2010) (Figure 2). This result is similar with Mugenda and Mugenda (1999) who stated that having access to accurate and reliable information on the health of communities was essential in

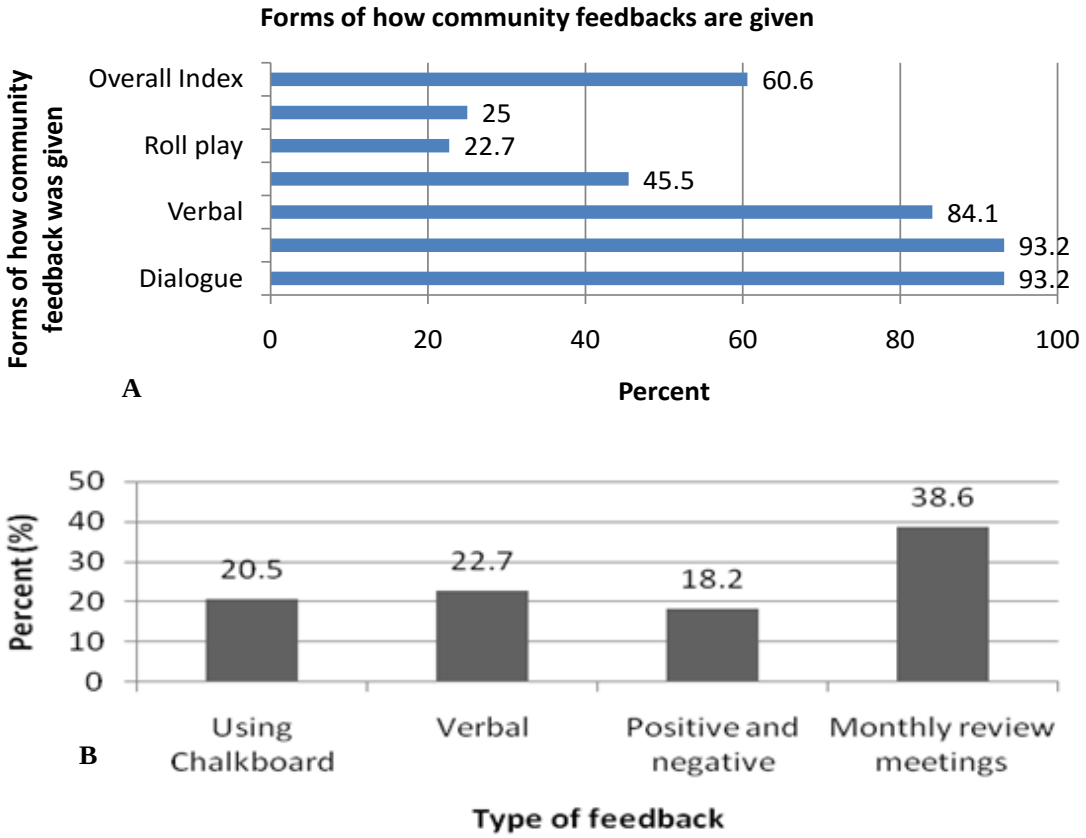

Figure 3. Types of feedback used in sharing community information.

order to be able to provide appropriate services (Republic of Kenya, 2006, 2010; Odhiambo-Otieno, 2005c) and also concurs with the study by RHINO that identified timeliness and accessibility of the minimum data sets as barrier for their utilization (Odhiambo-Otieno, 2005a).

Community health information system technical factors affecting utility of community health information

This section describes the Community Health Information System (CHIS) design and the availability of the data collection and reporting forms. It also provides for the complexity of the forms and challenges experienced in use of the CHIS tools (figure 4). The section also outlined availability of the standard procedures and guidelines to facilitate management of the CHIS. Finally, the section has provided for the type of information technology complexities used in CHIS management.

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. This partly agrees with Odhiambo-Otieno (2005c) and Ministry of Public Health and Sanitation (2013) 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 (2005a) 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. 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, Ministry of Health (2009) argued that developing community information system was a challenging task and closely approximating the level of difficulty found in the development of the hospital clinical systems.

Community health information system behavioural factors influencing utility of community health information

The CHIS behavioural factors encompass the capacity for the community unit to influence information demand at the community level. It has provided for the knowledge on

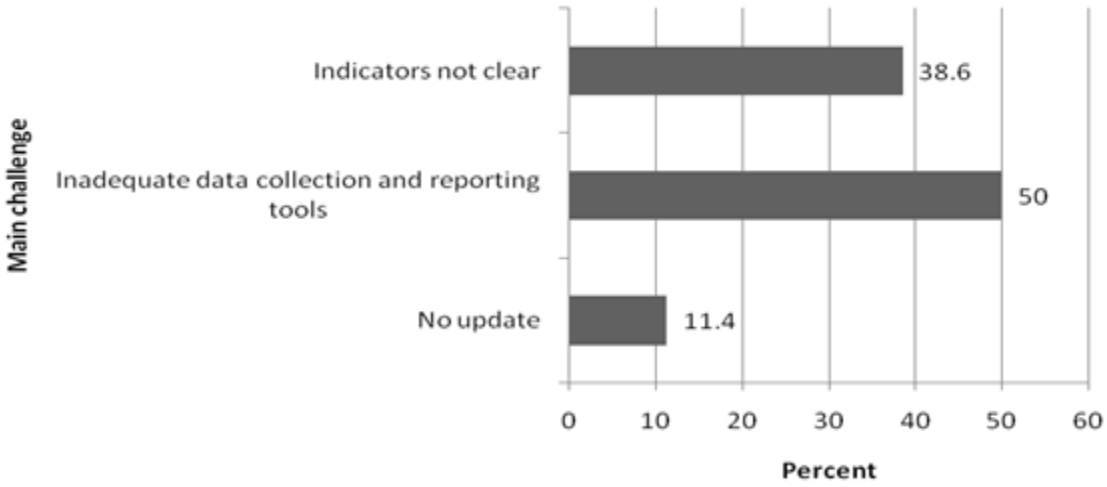

Figure 4. Main challenges in use of CHIS tools.

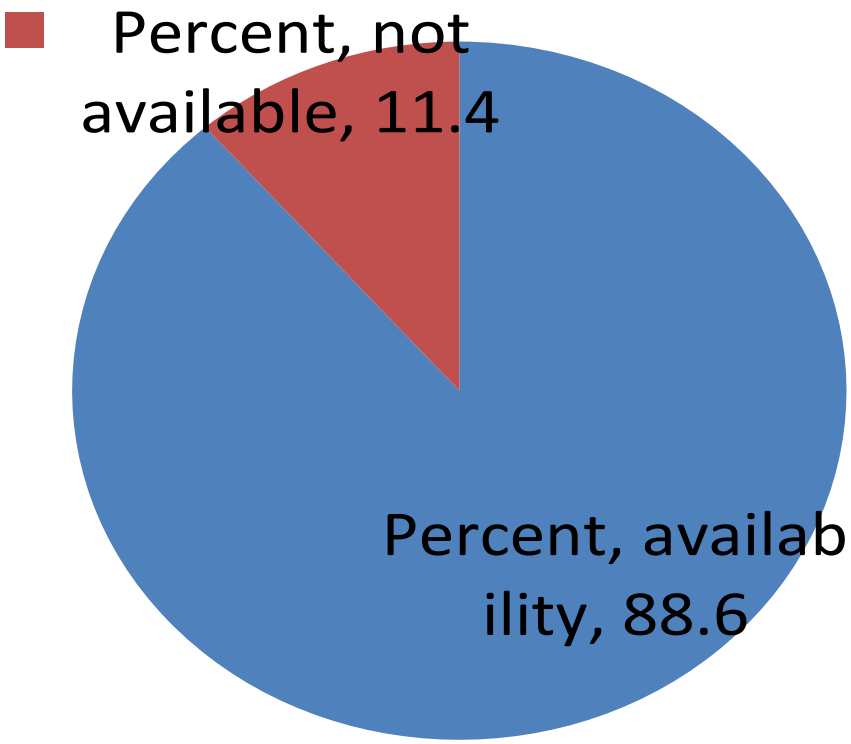

Figure 5. Availability of data collection and reporting forms.

the type of information needed by the community units, the level of the information needed at the community level problem solving tasks using community action days to use information collected. The section has also outlined the various capacities at the community unit to manage the CHIS. Finally, the key motivation factors is encouraged at the unit to always keep them together including establishing of income generating activities for sustainability.

Availability of reporting forms (n=44)

The availability of data collection and reporting tools was inadequate 39(89%) (figure 5). 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 utilization (Nadia, 2011; Aung and Whittaker, 2010). But the results differs

from the study of Odhiambo-Otieno (2005b) that identified that proliferation of many different tools for reporting existed and were barriers for reporting. Moreover, 42(95%) of the community units had been trained on the use of the community health information system tools with 30(68.2%) availability of the procedure for information management. The results agree with evidence from implementing of community strategy in Nyanza (2013), (Ndwiga, 2004) that well-coordinated actions across sectors at the community level would increase efficiency in improving health outcomes and *"AfyaYetu, JukumuLetu"*. This was contrary that none of the communities had been trained or sensitized on the 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; Ministry of Public Health and Sanitation, 2013; Ministry of Health, 2009). However, the result agrees with the Ministry of Public Health and Sanitation (2013) that volunteerism of community health workers compiled and continuously updated the data sets.

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). This disagrees with Odhiambo-Otieno (2005b) and Ministry of Public Health and Sanitation (2013) which emphasized that the system had many parallel data collection and reporting systems that also lacked integration and information was poorly coordinated. But again agrees with Odhiambo-Otieno (2005b) that most of the information systems were still manual and data could not be shared easily for evidence based-decision making. However, the results are contrary to Haines et al. (2007) 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.

This was also supported by Ministry of Health (2009) 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. Further, the results agree with Berkman et al. (2004) 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.

Organizational factors influencing use of community health information

This section looked at the governance of CHIS and its structure, the frequency of the community unit meetings and the availability of resources at the community units. The study emphasized on the supportive supervision and provision of feedback. Issues on dissemination of community information using community dialogue and critical issues on the promotion of information use culture have also been discussed.

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%). 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 5) (figure 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 (table 6). 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).

This result agrees with the information by Ministry of public health services (Ministry of Health, 2009) 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. This was also supported by an article (Aung and Whittaker, 2010) 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.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The knowledge on data management was consequently very high and sharing of monthly summaries was done using the chalk/white. 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 was shared regularly with some feedbacks. Portable Visual aids in sharing of community information is highly recommended that is using "Carry I See" white boards and emphasizing

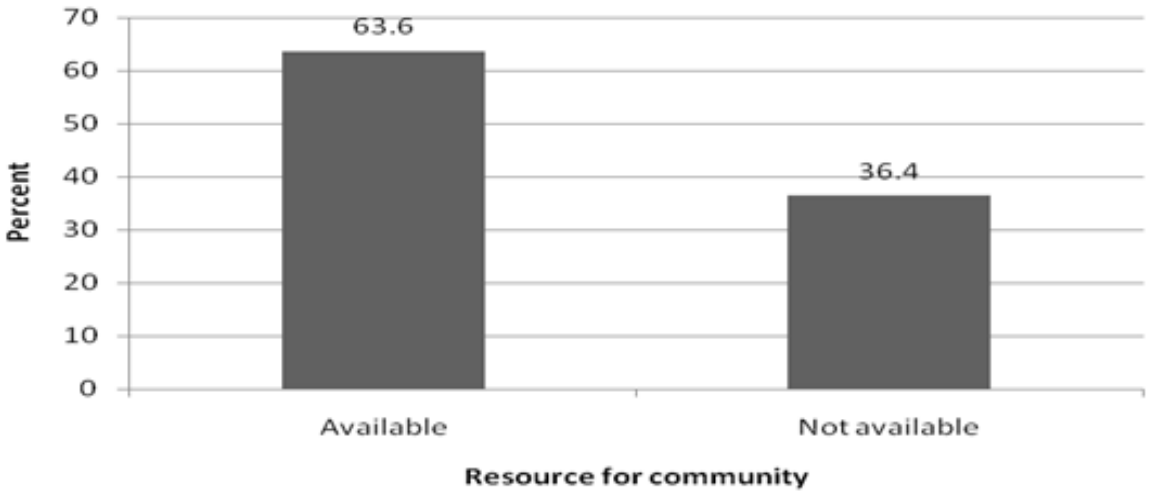

Figure 6. Community resources.

Table 5. Sharing of community information (n=44).

Sharing information	Frequency	Percent (%)
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
Overall index	26	59.8

Table 6. Handling of issues raised in community dialogue days (n=44).

Handling issues during dialogue	Frequency	Percent (%)
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
Overall index	20	45.5

Table 7. 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
Overall index	**34**	**77.3**

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 the 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, it will ease the availability and use of quality community health information for improved 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

In conclusion knowledge was above average; information was regularly shared through community dialogues; while design, technical tools and empowerment of communities were weak and inadequate and finally the system was well structured though not resourced and uncoordinated. It was recommended that both National and County governments should emphasize on regular feedback to promote information utility; adequately provide technical capacities and mentorships, also 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) and finally, consideration of budget allocations, empowerment and institutionalization should be encouraged.

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