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Cost Variations in the Implementation of the Community Health Strategy by Socio-economic Setting in Kenya

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Abstract

Background: A Community Health Unit is the basic unit for implementing a Community Health Strategy that was embraced by the Kenyan government in 2006. Despite the country-wide existence of these units, no studies have been undertaken to determine the costs in the different socio-economic, geographic and cultural settings and in rural, peri-urban and nomadic regions. Yet the information would be important for planning and policy towards effective health utilization by community members. Objective: This study aimed to determine costs of establishing community health units as the basic functional community structures for supporting uptake of health services. *Methods*: This longitudinal study carried out in 2011 examined the costs incurred for setting up and implementing Community Health Units in rural, peri-urban and nomadic regions over a period of 12 months. Both qualitative and quantitative methods were used. *Results*: The findings showed that the cost of setting up and implementing a functional community health unit varied in the different contexts studied (rural agrarian at US$ 4,152, peri-urban at US$ 65,461 and nomadic at US$31,948). *Conclusion*: The variation of cost in starting and implementing the Community Health Units in the different settings is related to the operational direct and indirect costs, with the peri-urban having the highest cost in the overall establishment of a Community Health Unit. Determining cost will assist in annual planning and policy for the different settings.

Keywords

Cost Analysis, Community Health Strategy, Health Indicators, Community Health Units, Community Health Worker

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1. Background

Kenya instituted a Community Health Strategy in 2006 [1] that was rolled out in the country. The strategy and policy guideline outlined the type of services to be provided at Tier 1 which was the community level in order to address declining health indicators. The policy further identified the required human resource for this level, predominantly consisting of community health workers, who would support service delivery and the minimum commodities, supplies and management arrangements to be used [2]. It is important to note that decisions on delivering an essential and effective package of health to communities require cost data. A Community Health Unit in Kenya's health strategy is the lowest level of facility that is directly linked to communities, therefore costs of providing services at this level is crucial to ensure availability and uptake of health services by communities.

The overall goal of the Community Health Strategy is linked to the achievement of the Millennium Development Goals and beyond to achieving Sustainable Development Goals (SDGs). The SDGs seek to improve community access to health care, reversing the upward trend of indicators such as maternal and child deaths, and promoting a dignified

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livelihood for communities through reduction of poverty and ill health. The Community Health Strategy seeks to improve the knowledge and skills of members of the community to strengthen their participation in health especially in the uptake of health services.

Evidence on cost of health care delivered through the Community Health Strategy is therefore crucial for public health planning, monitoring, evaluation and policy making. The costs of providing basic and essential health care remain a challenge to health ministries in sub-Saharan Africa [3]. Costs of services has been identified as a constraining factor in service uptake [4,5] and determining elements of the Community Health Unit and their costs, provides some leeway to cost-saving measures by the management of these units.

The Community Health Strategy provides a critical and essential link with health systems and is a powerful force for promoting healthy behaviors in resource-constrained settings. As devolution of health services take effect in Kenya, there is need to provide realistic cost information that will guide the central and decentralized county health governments in continuing to implement the Community Health Strategy in counties. In addition, these cost estimates provide important information especially with the current increased advocacy for the scale-up of Community Health Units.

This study aimed to determine the costs of implementing the Community Health Strategy in different socio-economic, demographic and cultural contexts in Kenya in order to provide valuable information for the implementation of efficient, feasible and sustainable Community Health Units as part of the national health strategy. While studies have been carried out on costs of health strategies and vertical services uptake [6-12], for example, in family planning, immunization, and their impact on household health, few studies have examined the costs of establishing community level health units that provide such services, especially in different settings such as in rural, peri-urban and nomadic environments as examined in this particular study. As closer attention is being paid on the health workforce in resource constrained settings, the costs of community level workers and the cost of establishing community units need to be determined for their efficient use.

The creation of devolved county systems since 2013 requires evidence to guide in planning and provision of health services that reach communities and households. In addition, information on cost can be used to enhance sustainability of Community Health Units by enabling efficient utilization of local resources. This is particularly crucial because a high proportion of the Community Health Units largely depend on donor support, and hence affecting long-term sustainability. Having evidence on the cost of implementing Community Health Units would assist in highlighting the importance of incorporation of locally available resource components in planning health service delivery. The information can be applied in other settings with similar health structures.

The critical question that remains unanswered from previous studies is the cost of implementing a Community Health Strategy bearing in mind variations in geographic, socio-economic and cultural settings. To date there has been paucity of information and poor understanding regarding such costs in different parts of the country that would inform the Government of Kenya, policy makers and Africa in general. This study aims to provide such information.

This paper describes a study that was carried out to determine the costs of implementing the Community Health Strategy in different socio-economic, demographic and cultural contexts in Kenya in order to provide valuable information that can act as a template for the implementation of efficient, feasible and sustainable Community Health Units as part of national health strategies in sub-Saharan Africa. The paper presents the costs of establishing and implementing the Community Health Strategy in different settings in Kenya including rural (Butere), peri-urban (Kisumu Nyalenda) and nomadic (Garissa) contexts.

2. Methods

2.1. Study Sites

The study was conducted in eight Community Health Units located in three regions. Longitudinal data was collected from January 2011 to December 2011 in eight Community Health Units located in three regions. Information was collected from Units that were operational; this assumed that District Health Management Teams had undertaken trainings and meetings as a first activity in initiating the concept of the Community Health Strategy, after which the trained Community Health Extension Workers were meant to train both the Community Health Committees and Community Health Workers on household registration. Hence these activities were pre-requisites for a Community Health Unit to be termed as operational.

2.2. Study Design

The study used both qualitative and quantitative methods. Analysis was based on prospective data from January 2011 to December 2011. It involved a review of existing reports of meetings and trainings conducted over a period of 12 months. In addition, the topics of the meetings were analyzed on whether their agenda was related to the Community Health Strategy and these were analyzed according to themes and

categories. Information was collected on costs incurred for each meeting and training. These included costs of materials used, the number of people who attended the meetings, cash allowances given during the meetings and the mode of transport used and were all considered as variables for analysis. Cost estimates were based on averages for the number of hours that the community health workers would have spent in non-Community Health Strategy activities and may not be a true reflection on actual costs. We therefore estimated 8 hours per day spent by each worker, assuming that each individual would have engaged in an economic activity on the day they were attending Community Health Strategy work. On a normal day for a rural setup, the most common activity is cultivating a farm at an estimated cost of US$3 per 8-hour day. In a peri-urban setting, volunteers are mainly engaged in small scale businesses whose average profit is US$6 per day. For nomadic populations, the main economic activity is herding livestock, equivalent to US$3 per day.

2.3. Study Population

Members of the Community Health Units were the study population since they were the ones implementing the Community Health Strategy and were therefore the key informants. Included were the Community Health Extension Workers, the chairperson of the Community Health Unit and any community health workers who were present in the meetings and had details of the proceedings. Trainings and meetings held that did not address any component of the Community Health Strategy were not considered as relevant to the study.

2.4. Sampling Design

The selection of the sites was based on those sites being operated on by Great Lakes University of Kisumu as partnership research sites. Purposive sampling was done based on the location of the existing research sites for the University in the 3 sites of Butere, Kisumu and Garissa.

2.5. Data Collection Methods and Tools

Meetings held were captured on a weekly basis, then key informant interviews were conducted weekly by identifying participants who had attended the meetings and were able to give details of the meetings.

The final figures on costing summarized the annual cost of implementing the Community Health Strategy which was based on the fact that the Community Health Extension Workers were supposed to supervise the Community Health Units during their weekly meetings. The Community Health Committees were supposed to meet on a monthly basis. It was assumed that once a Community Health Unit was operational, costs for the subsequent years would be budgeted based on running costs.

3. Results

The peri-urban site had a higher start-up cost but medium operational costs, while the nomadic site had the highest start-up costs.

In the different rural, peri-urban and nomadic settings, start-up costs involved a number of components that included costs of training the sub-county health management teams, the Community Health Workers, Community Health Extension Workers and Community Health Committees, as well as costs of the materials used and the number of days and time taken.

Operating costs involved activities aimed at operating the Community Health Unit such as conducting household registrations, regular household visits, dialogue days, health action days, weekly Community Health Workers meetings, Community Health Committee monthly meetings, and health facility meetings.

Rural Agrarian costs for establishing and implementing a Community Health Unit

The start-up direct costs were higher than the operating direct costs. However, start-up indirect costs were lower than operating indirect costs (Table 1). Most meetings were Community Health Worker self-driven. These meetings did not depend on external persons and additional funds to organize since Community Health Workers discussed their own income generating activities that would enable them to improve their livelihoods in these forums.

Peri-urban costs for establishing and implementing a Community Health Unit

The start-up direct costs were higher than the operating direct costs, while the start-up indirect costs were lower than the operating indirect costs (Table 1). More time was spent on household registration since household members were busy during the day which mandated the Community Health Workers to do call-backs to them. These call backs however were undertaken as part of the routine household visits.

Nomadic costs for establishing and implementing a Community Health Unit

The start-up direct costs were higher than the operating direct costs while the start-up indirect costs were higher than the operating indirect costs. (Table 1). Most time was spent on trainings which was basic for establishing the Community Health Strategy since the political environment was not conducive for regular meetings.

Table 1. Costs for establishing and implementing a Community Health Unit by locality.

Locality	Start up direct costs (Ksh/US$)	Start up indirect costs (time in hours)	Operating direct costs (Ksh/US$)	Operating indirect costs (time in hours)	Total costs
Rural agrarian	Ksh 105,151 US$1,209	92 hours (92 hours/8 hours per day x 250 Ksh x 25 participants)= Ksh 71,875 US$826	Ksh 40,438 US$465	184 hours (184 hours/8 hours per day x 250 Ksh x 25 participants)= Ksh 143,750 US$1,652	US$4,152
Peri-urban	Ksh 4,925,170 US$56,611	181 hours (181 hours/8 hours per day x 500 Ksh x 25 participants)= Ksh 282,813 US$3,250	Ksh 96,590 US$1,110	250 hours (250 hours/8 hours per day x 500 Ksh x 25 participants)= Ksh 390,625 US$4,490	US$65,461
Nomadic	Ksh 2,572,400 US$29,568	125 hours (125 hours/8 hours a day x 300 Ksh x 20)= Ksh 93,750 US$1,078	Ksh 102,500 US$1,178	26 hours (26 hours/8 hours a day x 300 Ksh x 20)= Ksh 19,500 US$224	US$32,048

N/B: exchange rate used is 1US$ to 87 Kenyan shillings (Ksh).

In summary, costs varied across the different settings where start-up direct and indirect costs were highest in peri-urban areas, followed by nomadic settings and were lowest in rural areas (Table 1). However this trend was different for operating direct costs where both peri-urban and nomadic costs were similar and were also higher than in rural settings. Indirect operational costs were lowest in nomadic settings compared to both peri-urban and rural areas.

Community Health Unit Functionality

To accurately determine the standard requirements for starting and operating Community Health Units, we carried out key informant interviews with Community Health Extension Workers, Community Health Workers and members of the Community Health Units in order to identify individual cost items that are basic for implementation of the Community Health Strategy. The cost items were human resource, community worker allowances, time taken for meetings, training and motivation materials, and assets (Table 2). These cost items led to the identification of core elements required for a fully functional Community Health Unit (Table 2).

Table 2. Essential cost items for implementing the Community Health Strategy.

Category	Items
Human resource	a) For a Community Health Unit (overseeing 5,000 households); 50 Community Health Workers per Community Health Unit, each Community Health Worker oversees 100 households.
Human resource – for meetings, referrals, trainings, community outreach…	b) One CHEW to supervise the 50 Community Health Workers and participate as a member of the Community Health Committee; links the community to the health facility c) Community Health Committee – are volunteers and are community supervisors of Community Health Workers d) Facility staff – public health officers/facility-in charges e) Specialists for training CHEW/Community Health Workers on certain subjects f) Local administration - chiefs g) Community leaders
Allowances (cash)	a) Airtime for mobilization b) Petty cash for incidentals c) Community Health Worker stipend d) Funds to purchase action materials and support community dialogue days, facilitation fees
Time (indirect cost)	a) Functional Community Health Units should have Community Health Worker's weekly meetings lasting approximately 3hrs each b) Community Health Committees – at least once a month meeting c) Health facility meetings at least once a month d) Regular visits to households by Community Health Workers and also based on household need e) Supervision of Community Health Workers by CHEWS f) Community dialogue days g) Data collection days/household visits
Materials	a) Stationary b) Badges, t-shirts, caps, etc., to motivate Community Health Workers c) Household registers (Ministry of Health tool (Tool number 513) for household bio-data, maternal and child health indicators, environment cleanliness and sanitation d) Community Health Workers patient referral books e) CHEW summarized report
Motivation	badges, caps, bags, T-shirts, stipend, consideration of Community Health Workers while hiring subordinate staff in the health facilities
Fixed assets	a) Office space/rent and related costs b) Motorbike for CHEW including fuel and maintenance costs c) At least one Computer for data compilation

Category	Items
	d) At least 10 bicycles per Community Health Unit for Community Health Workers
	e) Chalkboard (Ministry of Health Tool number 515) - a summary of MOH 513 health indicators

For a Community Health Unit to be rated as functional, it has to fulfill certain requirements on its human resource requirement, have an active and updated information system that is used for planning, have evidence of leadership and governance, undertake dissemination of health status of specified communities and an effective referral system (Table 3). The presence of these elements which reflect WHO health system building blocks will then support the continuing operation of the unit as an integral community component of the health system.

Table 3. Requirements for a functional Community Health Unit.

Human resource requirements	a) Trained Community health volunteers, Community health committee, CHEW
	b) Active monthly meeting attendance
	c) Active quarterly meeting attendance
	d) Community Based Health Information System where Ministry of Health reporting tools are available at each level (Ministry of Health tools: 513,514, 515, 516)
	e) Updated data (monthly updates, bi- annual household registration)
	f) Monthly reporting by the CHEW/Community Health Committee
	g) Quarterly reporting by the CHEW
Leadership and governance	a) Quarterly Community Health Committee and HFMT meetings
	b) Community annual operational plans
Information Dissemination	a) Quarterly community dialogue day
	b) Quarterly community- facility dialogue
	c) Quarterly community action days
Referral system	a) Availability of referral forms
	b) Linkage with link facility
	c) Follow ups/defaulter tracing Community Health Workers

4. Discussions

The study objective was to determine the cost variations in a Community Health Unit set-up and its operations in the three different contexts, namely rural agrarian, peri-urban and nomadic settings. While the study did not examine the political factors that may have influenced the cost estimates, its strength was that it examined three markedly different contexts that can apply to other counties. Furthermore, the study contributes to debates and planning regarding the establishment of Community Health Units in different settings and is likely to be of value to county and national planners.

There were wide differences in costs of start-up and operation of the Community Health Units. Costs for establishing and operating community units were lowest in rural areas compared to peri-urban or nomadic settings. Costs of hiring meeting sites were low in rural sites due to the use of churches and schools for meetings, which are not paid for. The overall low costs in rural areas have implications for resource constrained settings and in light of population sizes being reached with the Community Health Strategy [13]. According to the Community Health Strategy, the well trained Community Health Worker is able to regularly visit assigned households for health promotion and referral of household members requiring care at health facilities [14]. The number of hours spent by Community Health Workers in undertaking community health activities was more in the peri-urban site since during household registration and subsequent visits, the Community Health Workers covered more households due to the higher population than in the rural set-up. An additional factor contributing to more time taken for household registration may be due to some household members being away on duty and therefore requiring call-backs.

The high costs for the peri-urban area was also due to the additional effort and time that was required to mobilize the community to establish Community Health Units, hence higher costs in start-up. This can be attributed to higher costs on training, raising awareness on the role of the Community Health Unit at county and community levels, and logistical arrangements. The volunteers were also engaged in other income generating activities that tended to last a whole day therefore the opportunity costs were higher, in contrast to rural activities, e.g., cultivation which was usually completed during early mornings.

Medium costs for the nomadic site may be related to the fewer meetings for the community workers and committees. The reimbursement costs (allowances) were higher than in the peri-urban sites due to long distances covered by participants who are nomadic in nature. Costs of hiring meeting sites were high in the nomadic site during start-up due to the need for regular consultations in this initial phase. However, once established, the nomadic site had the least number of meetings for Community Health Worker and Community Extension Workers during implementation.

Insecurity in the nomadic site contributed to fewer hours of meetings compared to peri-urban or rural sites. The nomadic nature of the population could have contributed to the fewer hours of meetings. This is because most of the community workers and committee members were nomadic pastoralists and were at times not available for meetings since they were busy searching for water and pasture for their livestock. In other instances, there were engaged in selling and buying livestock during market days. For all the sties, the start-up training days were 15 days which is the standard Ministry of Health training hours for this cadre.

The markedly differing costs for human resource and time taken for meetings and trainings as well as required assets played a major role in ensuring a functional community unit in rural, peri-urban and nomadic settings. Overall, the different costs in establishing Community Health Units in the different settings may have been largely due to the variation in economic livelihoods of the community workers and the geographical context.

5. Conclusions

The study estimated the costs of establishing and operating community health units in rural, peri-urban, and nomadic contexts in Kenya. The results indicate marked cost variations in these three settings. These differences related to training costs for the required community level human resource such as Community Health Workers, Community Health Extension Workers and Community Health Committee; logistical variations were in terms of transport costs, mandated meetings, allowances and time taken by both the formal and informal health workers to engage in forming and achieving a functional and productive community unit. Further research is needed to determine the relationship between these costs and health outcomes in the different settings.

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Competing Interests

Authors declared they have no conflicts of interest.

Authors' Contribution

Margaret Kaseje contributed in the analysis and compilation of the research data and led in writing the manuscript.

Maximilla Wanzala contributed in data collection, analysis and in writing the research findings.

Christopher Onyango contributed in data collection, analysis and writing of the research findings.

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