Journal of Social Sciences and Humanities
Vol. 1, No. 4, 2015, pp. 297-307
http://www.aiscience.org/journal/jssh

The Application of a Community College Model in Recruiting Community Health Workforce in Western Kenya

M. Kaseje*

Great Lakes University of Kisumu, Faculty of Arts and Sciences, Kisumu, Kenya

Abstract

Background: Community Health Volunteers (CHVs), also known as Community Health Workers (CHWs) though not considered as part of the mainstream health workforce play a major role in reaching households with health information and linking them to health facilities. Training provided to this health workforce equips them with relevant skills and knowledge. However the training varies in content, mode of delivery and duration and lacks accreditation and career development. This study assessed the initial results of a two-year Community College training Model consisting of short modular, in-service, work-based training developed by Great Lakes University of Kisumu (GLUK). The training aimed at strengthening the capacities of CHVs for effective community level service delivery and providing a career path and increased numbers of skilled personnel for household level health uptake. *Methods:* A qualitative approach was used to assess outcomes of the Community College Model initiated in January 2013 and offered to CHVs working in 5 sites in Western Kenya. Focus group discussions with trainee groups were analyzed for thematic content, while trend analysis was carried out on class attendance and continuous assessment tests offered to trainees. *Results:* From the initial enrollment of 173 trainees, a total of 169 (98%) continued with the program and were consistent in their attendance and completion of practical work during the first semester of instruction (January to March 2013). Trainees' performance indicated success with over 60% scoring 40% (pass mark) and above in the taught units. Trainees voiced appreciation for the Community College Model as having brought academic and practical learning in their vicinity while enabling them to improve on their household visits for health promotion and referrals of those needing health facility care. *Conclusions and recommendations:* Indications are that the modular, work-based Community College Model strengthens the capacity of the community level health workforce through hands-on, real-life experiences and illustrates a practical example of health systems strengthening. The Model may also contribute to motivation and retention of the community level health workforce. Further documentation and analysis should be carried out to determine the effectiveness and impact of the Community College Model in enhancing CHV skills, career progression and household health outcomes.

Keywords

Community Health Workers, Community College, Competence Training, Curriculum, Community Volunteers, Health Workforce, Health Systems

Received: April 9, 2015 / Accepted: May 10, 2015 / Published online: June 14, 2015

1. Background

Health systems in sub-Saharan Africa are currently challenged due to new infections, rising costs of health care, political uncertainties, environmental issues, population changes and a constrained health workforce. The need for a well-trained health workforce that is able to deliver care in

*corresponding author
E-mail address: mkaseje@gmail.com

the midst of such challenges is urgently needed. Meeting health goals beyond 2015 that are sustainable requires sufficient numbers and trained health workforce that can lend their skills and knowledge to address health priorities such as maternal and child health, and communicable and non-communicable diseases (Accorsi S, Bilal NK, Farese P, Racalbuto V., 2010; Bhutta ZA, Soofi S. and Memon Z., 2008). With a constrained workforce at all levels of health systems, particularly in resource constrained settings, the training of health workers is key to sustained health services provision (Frenk; Chen; Bhutta, Z., Lassi, Z., Pariyo, G. and Huicho, L., 2010; Bakeera S, Wamala S, Galea S. and State A., 2009). Community Health Volunteers (CHVs) or Community Health Workers (CHWs) provide an important link between health service points and households and therefore their training is decisive and needs to be aligned to health priorities.

Given the constrained resources for health care and inadequate numbers of professional health workers, training of the community health workforce is one way of contributing to health systems strengthening. Basic level workers can contribute towards improving health, particularly where there are inadequate numbers of health professionals (Bhutta et al., 2008); Global Health Workforce Alliance, 2010; Dussault and Franceschini, 2006). These workers provide preventive health education on communicable diseases and health promotion (Ministry of Health, Kenya 2006).

1.1. Standard Curriculum for Training CHVs

In order for CHVs to be more effective in dispensing essential services to households in the context of task shifting, there is need for well-planned training that uses standard curriculum. Adherence or compliance to established standards by training institutions ensures effective and quality health worker training and the attendant positive health outcomes for society. In the health care system in Kenya, the training should address the essential link between Tier 2 health facilities (dispensaries, health centres) and households which are at Tier 1 at the community level (Figure 3). These households are largely located in rural and peri-urban areas where health seeking behavior at times depends on external promoters. For this link to be robust there is need for a CHV training curriculum that addresses both health priorities and skills and knowledge competencies required of CHVs. Though not considered as part of the mainstream health workforce, CHVs play a major role in reaching households with health information and provide the link between households and health facilities.

Training provided to this health workforce by the government and other partners in health aim to equip them with relevant skills and knowledge applicable to their roles and responsibilities. Current training programs in Kenya provide single intervention capacity building interventions, largely based on available funding and with a focus on the funder's priorities. The informal training of volunteer health workers varies in content, mode of delivery, duration and required competencies and lacks accreditation. The training is largely driven by theoretical considerations with minimal hands-on practical orientation, where learners are left to apply the theory on their own. Thus gaps exist on training of community level workers despite numerous evidences (Bhutta et al., 2008) on their contribution to rural and community level health services uptake.

1.2. Why Recruit CHVs

Evidence points to the direct link between the size of a country's health workforce and its health outcomes (WHO, 2010). While numbers of health professionals and their coverage affect health outcomes (Anand and Barnighausen, 2004), the training of these workers and their competence determines how effectively they perform their roles. Strengthening the community level workforce is essential for a responsive health system in Kenya, given the high indicators for maternal and child mortality, other health problems such as HIV infection, diarrhea and low utilization of essential health services for preventive health (Ministry of Health, Kenya 2006). Trained lay health workers can assist households in addressing preventable health problems and treating minor ailments as well as linking households to health facilities through referral and follow-up of those needing specialized care.

Africa has only 3% of the required health workers for its population, indicating an acute shortage of health workers. Alternatives are needed to ensure health care for communities. One informal cadre of the health workforce at the community level is the Community Health Volunteers (CHVs). The CHVs have been instrumental in health promotion since Alma Ata's Declaration in 1978 that recognized them as key resource people in the implementation of primary health care, particularly in resource limited settings. CHVs play a critical role in referral and in promoting household practices in prevention, care and health seeking services. In some cases, the deployment of these workers considered to be basic health workers are the only means through which health care reaches households (Bhutta et al., 2010). However, their formal role in the health sector has not been adequately addressed. Currently the roles of CHVs are being acknowledged, with initiatives such as the campaign for one million CHVs by 2015 aimed at increasing access to primary care through greater engagement with them. Despite this recognition, the training of CHVs has not been

optimal for their assigned tasks.

As in other parts of Africa, Kenya has significant shortages of health workers in the key categories of general practitioners, clinical officers and nurses, compared to the World Health Organization (WHO 2010) recommended workforce density per population. Kenya has 0.03 doctors for every 1000 people and 0.5 nurses per 1000 population (Ministry of Medical Services and Ministry of Public Health and Sanitation, Kenya 2013) and needs to increase the number of general practitioners and nurses by more than 50% to meet WHO norms. The government is unable to meet this requirement in the short-term, thus there is a need for a feasible strategy of increasing health services reach to households where key indicators such as skilled delivery is only 69% (Ministry of Health, Kenya 2014). Given the shortage of the health workforce in Kenya, there was need to improve health through promotion of individual and community health and one way of achieving this was to recruit additional health workers, with a larger pool being available at Tier 1 of the Kenya health system. At this Tier, basic outpatient health services are provided at facilities with strong linkage to households through Community Health Units (CHUs) who support the CHVs. To strengthen service uptake at the community level, Kenya's Ministry of Health formulated a Community Health Strategy (Ministry of Health, Kenya 2006) which was a policy framework that guided implementation of the community level health services (Wangalwa, G., Cudjoe, B., Wamalwa, D., Machira, Y., Ofware, P., Ndirangu, M., and Ilako, F. 2012).

1.3. Opportunities and Career Paths for CHVs

Opportunities for the lower cadre in the health system to advance through a recognized curriculum have been missing in Kenya, leading to de-motivation, low retention rates and redundant training. While the Kenya government through its Community Health Strategy provides guidelines on the role of CHVs, there is no accredited, professional training that enables them to upgrade their current skills and knowledge for enhanced managerial or service delivery roles. The lack of career progression influences motivation and retention of CHVs as indicated by some studies which demonstrate that where there are options for career ladders, there is more likelihood of decreased staff turnover (Buchan 1999), staff satisfaction and professional development (Ward and Goodrich, 2007; Sherman, R. and Pross, 2010).

A trained workforce enables communities to access care within their context and facilitates linkage to higher level health facilities. Training of the health workforce strengthens the health system for meeting national and global health goals, including the MDGs and beyond for sustainable development. Tier 1 of the Kenya health system which is the community (Figure 3) requires strong interface between households and health facilities at Tier 2 that provide outpatient services. A well-trained CHV has the potential to provide this link. Furthermore, there is potential for task shifting or task sharing between skilled CHVs and health facility professionals. Interventions to address the health workforce shortages include training and ensuring recruitment and retention, as well as task shifting. For example, the tasks of preventive and promotive care can be shifted to community level workers, thereby freeing the higher level professional health workers of nurses and clinical officers to provide primary referral services, and secondary and specialized services at Tiers 3, 4 and 5 of the health system. However, while such changes require policy direction, the process of policy implementation to effect health workforce roles and task shifting takes time. In the meantime, strategies are needed to quickly roll out effective training, deployment and motivation of the health workforce, particularly at the community level where basic health needs are greatest.

1.4. Training Community Volunteers Through a Community College Model

Following the Alma Ata in 1978, Kenya embarked on a Primary Health Care (PHC) strategy to reach its population with health care and resulted in PHC being implemented in the country, largely through faith-based health providing organizations, including health training institutions. The strategy called for rapid training of health workers, particularly of volunteer workers to scale up health services for the majority of the population that comprised rural households. The training resulted in the production of training curricula and manuals from various organizations. However, health worker shortages increased, creating a need to train and equip lower level health workers such as CHVs. An in-service training approach for continuous learning, professional development and effective leadership was considered appropriate. In the context of a shortage of well-trained, motivated and retained community level workers, Great Lakes University of Kisumu (GLUK) in Kenya developed a two-year Community College training Model provided at the community level for CHVs. The Model used a standard training curriculum to build the competencies of CHVs for enhanced service delivery as outlined below.

1.5. Developing a Standard Curriculum for CHV Training

The Community College training Model was developed in 2013 and took into account the national health priorities for households, policy directions as articulated in the Community Health Strategy, Kenya's strategic health plans,

and the 2030 Vision for the country's development. GLUK aimed to develop a standardized curriculum that had institutional anchoring and which was responsive to the health needs of communities. The training program had three objectives. First, it aimed to address the knowledge, skills competence and attitudes of CHVs in order to strengthen their capacities for effective health promotion and referral for household level health services. Secondly, the program provided a career path in the health profession by enabling the CHVs to graduate with an accredited and recognized certificate. Lastly, the CHVs were trained to undertake entrepreneurial activities that aimed to provide them with an income, thus alleviating over-dependence on donor-funded projects.

In developing a standard curriculum for the Community College Model, a combination of experiences and engagement with key people provided a base. Experience was drawn from working with CHVs over more than two decades in the geographical area of trainee recruitment (Kaseje, M., Kaseje, D. Spencer, H. 1987) and evidence of the contribution of community health workers in improving health indicators (Haines A, Sanders D, Lehmann U, Rowe AK, Lawn JE, Jan S, Walker DG, Bhutta Z. 2007). A two-way process was used to develop the training content. First, community members were engaged through dialogue in determining areas of priority for the curriculum. The community health information system that documented health seeking behaviors of households and their interactions with link health facilities was used to select priority curriculum content and competencies required of the community volunteers. For example, the need for mothers to attend antenatal clinics and to immunize their children guided the content of the curriculum. The curriculum content was further guided by national and sub-national health trends, population projections and priority population health needs with the aim of equipping trainees with core competencies to address the identified health areas. Secondly, dialogue with trainees was used to verify the training content and its relevance to the CHVs' context and working environment.

In the first year of training, CHVs undertook the basic or core modules where three learning modules were delivered over a three-month period, with weekly three-hour, face-to-face instruction and practical hands-on training. The focus was on practical aspects of health promotion and referral at community levels and continuing CHV work in the community. In addition to attending the Community College sessions, each trainee was attached to 10 households drawn from household registers through a systematic sampling technique. For these households, the trainees carried out health promotion and referred those requiring further management to the health facilities. They were supervised and supported by a Community Health Extension Worker stationed at a Community Unit (Figure 3) which is linked to a health facility. Trainees were expected to select a project at the end of the first semester which they would implement throughout the training period and which would be assessed at the end of the program. GLUK staff helped the CHVs to design and implement viable small enterprises projects that aimed to assist the CHVs to generate income.

The training modules covered the following content areas: community mobilization, community entry and situational analysis, primary health care, district health systems, entrepreneurship, communication and advocacy, environmental causes of diseases and food security. These modules provided skills in critical analysis of a community's socio-economic and development status. The modules further addressed community mobilization, primary health care, management of common ailments, community nutrition and food security; community based health information systems and business enterprises. In the second year, the CHVs were expected to major in selective modules that would enable them to follow a career path in any of the following three areas: health information systems; ii) health promotion and disease surveillance; and iii) entrepreneurship for small scale businesses.

On completion of the two-year modular course with ongoing community work, the CHVs obtain a Certificate in Community Health and Development and have career path options as health promotion assistants at household and community levels, including referral of clients to health facilities; as field research assistants and as managers of health information records and data. Furthermore, the training offers a career path entry into the government scheme of services for Community Health Services personnel since they are employable as Community Health Assistants (CHAs) and can advance to senior levels that support Tier 1 health delivery structure in Kenya.

The minimum core trainer skills-set for conducting CHV training was a diploma or a higher level degree qualification in Community Health and Development, or in a related field. Other core skills and knowledge competencies and requirements for a trainer were the following:

- Facilitation of participatory problem-based learning;
- Skills in developing and managing a Community Based Information System e.g. household registers and chalk board;
- Skills in community entry and mobilization;
- Basic management skills including planning, implementing, monitoring and evaluating community health and development activities;

- Supervisory skills;
- Competency in at least one element of the Kenya health care package (e.g. maternal health, child health, school health, adolescent health, non-communicable disease control, communicable disease control, food and nutrition, livelihood development and entrepreneurship, crop and animal production, reproductive health, HIV/AIDS.

To ensure quality instruction, the GLUK trainers were degree graduates with skills in facilitation and coordination of health related activities at the sub-regional level. The trainers were selected based on both their technical and facilitation competencies. Training was offered in the community at a central location in each of the sites, with minimal costs to the learner. In between the class-room learning, the trainees were expected to apply their knowledge and skills in addressing needs in the communities. Appropriate community sites were identified as learning centres and comprised of space such as found in schools, churches and community meeting halls. Some of the learning took place at the Community Health Units and at trainees' individual project sites.

1.6. Training Content Delivery

Trainers from GLUK developed lesson notes based on the standard curriculum. Content delivery was through short modular, in-service, work-based modules where a variety of methods were used consisting of lectures, class demonstrations, role plays, small group discussions, practical work and field visits to assist the trainees to identify and address health problems in their communities. The trainees had access to the University library through a mobile service. Training materials consisted of newsprint, trainees' notebooks, wall charts or chalk boards, felt pen markers with newsprint for collating ideas, experiences and course contents, and. These materials were kept to a minimum in order to contain costs and to be relevant to the learning context. The expected learning outcomes consisted of both theoretical and experiential knowledge to enable the trainees to put into practice their acquired leadership skills in promoting health at community levels.

1.7. Assessment of CHVs

Both knowledge and skills-based assessments were undertaken for each CHV and criteria for passing examinations were according to the University regulations. GLUK instructors provided supervision and feedback on performance in the class and during visits to households assigned to each CHV. Sitting examinations and continuous assessments were used as assessment tools for the trainees' knowledge while practical demonstrations were used to test their skills development. Class attendance sheets were used to capture the willingness of the trainees to attend the training.

2. Methods

2.1. Study Design

A qualitative approach was used to assess outcomes of the Community College Model initiated in January 2013 and offered to CHVs working in 5 sites in Western Kenya. The sites (2 in western region and 3 sites in Nyanza region) were purposively selected in November 2012 due to the presence of CHVs in these locations and their engagement in promoting health at household levels. Criteria for recruitment of the CHVs as trainees consisted of academic qualification (secondary level education with a minimum grade of 'D' and above) or an equivalent, including experience in community level work, aged over 18 years and having recommendations from the community health committees.

2.2. Data Collection and Analysis

The study used process data emanating from the training program. Focus Group Discussions (FGDs) were carried out with the trainees at each site. Data were analyzed for thematic content on the trainees' affective characteristics consisting of their views about the program, reasons for undertaking the course and the importance they placed on the learning program. The experiences of the trainees were compared and contrasted for explicit and implicit patterns of connections and grouped for broader analysis. Trend analysis was carried out on class attendance, sitting examinations and on the continuous assessment tests offered to trainees. Descriptive analysis was used for the demographic characteristics of the trainees. The study was limited to sites where GLUK had initiated linkages with communities. Thus findings may be limited to these settings.

3. Results

Table 1. Demographic characteristics of Community College students.

Community College Sites	Population	%
Katito	35	24
Nyalenda	22	15
Nyahera	25	17
Shiatsala	31	22
Butere	31	22
Total	144	100
Gender		
Male	60	42
Female	84	58
Total	144	100
Age in Years		
<21	20	14
21-30	52	36
31-40	46	32
41-50	23	16
51-60	3	2
Total	144	100
Level of Education		

Community College Sites	Population	%
Kenya Certificate of Secondary Education (KCSE)	80	56
Post KCSE	44	31
Informal Training	20	13
	144	100

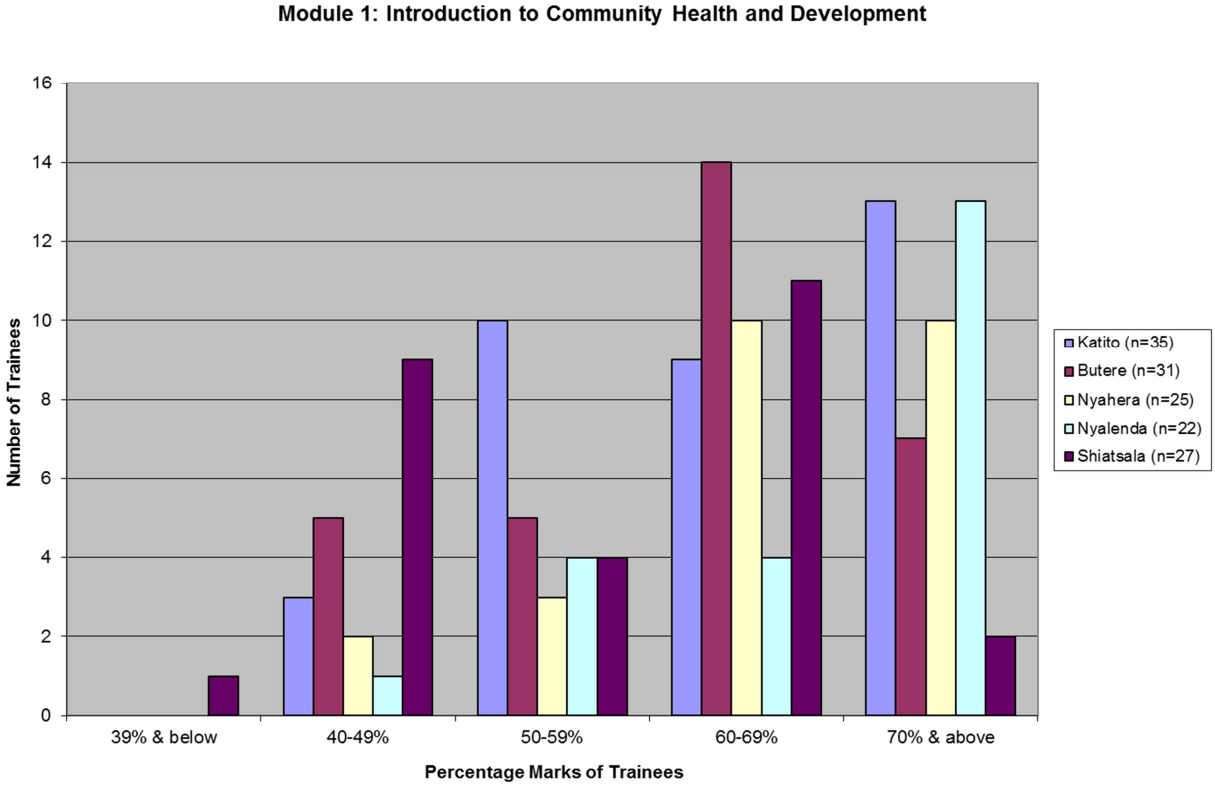
Females (58%) were the majority of the trainees. Trainees' ages were mostly in the range of 21 to 40 years (Table 1). The educational entry point varied, with the majority (56%) having secondary education, while others had taken various post-secondary level certificate courses or informal community courses.

From an initial enrolment of 173 trainees, 169 (98%) trainees completed the first semester of training. Dropouts (2%) were as a result of other engagements or difficulty in paying training fees. Of the 169 trainees, a total of 144 (85%) CHVs completed fee payments and were allowed to sit for examinations according to University regulations. Trainees' performance indicated success with over 60% of trainees scoring 40% (pass mark) and above in the taught modules (Figure 1). Absenteeism during the training period was minimal with class attendance and completion of practical assignments averaging 90% over this initial first semester. The majority of trainees (93%) cited appreciation for the location of the training at the community level which was within their locality. A rural site (Shiatsala) demonstrated varied performances indicating the more diverse educational backgrounds as compared to the other four sites. Performance was not related to the trainees' educational backgrounds that included primary and secondary levels of education and equivalent experience (Figure 2).

Most trainees (91%) mentioned that they found the coursework to be relevant and practical to their situations in their communities. They cited their positive learning experiences and the new opportunities they saw arising from the training program:

> "I will be self-employed and will one day employ others in this community".
>
> "I will know how to generate income for my household and help others to do the same."
>
> "I will be employable by the government since I will have a certificate".

Trainees positively rated the Community College program as having brought academic learning in their vicinity: *"The program will enable me to achieve my academic dreams"*. Some trainees cited the acquired ability to share their newly found skills and knowledge more effectively with community members than before. Others appreciated the recognition they would receive: *"My role and skills as a CHV will be recognized after many years of assisting my community, because now I will have a recognized certificate and not just an attendance certificate for short courses I have attended in the past"*.



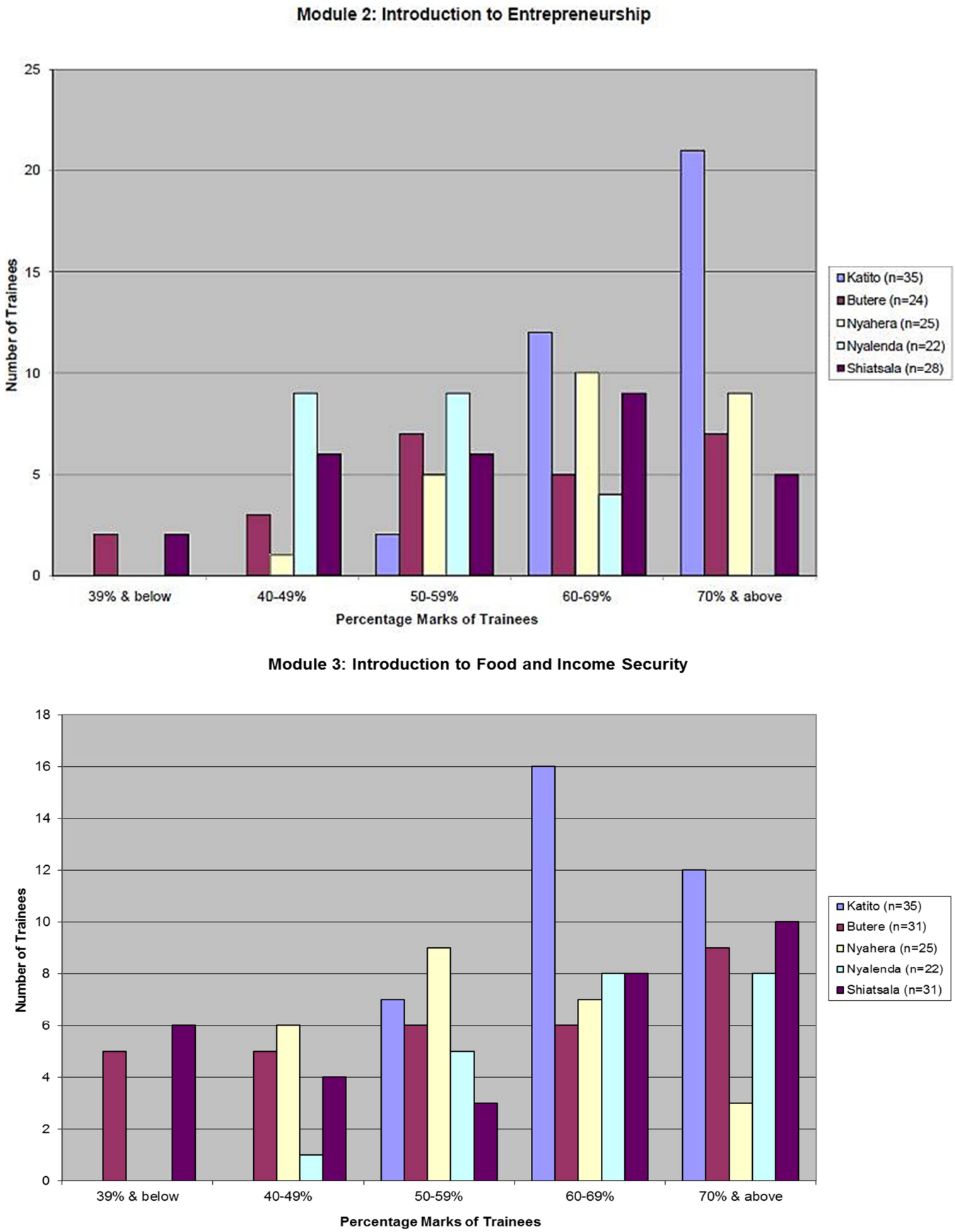


Figure 1. CHV Performance (Semester 1, January – March 2013).

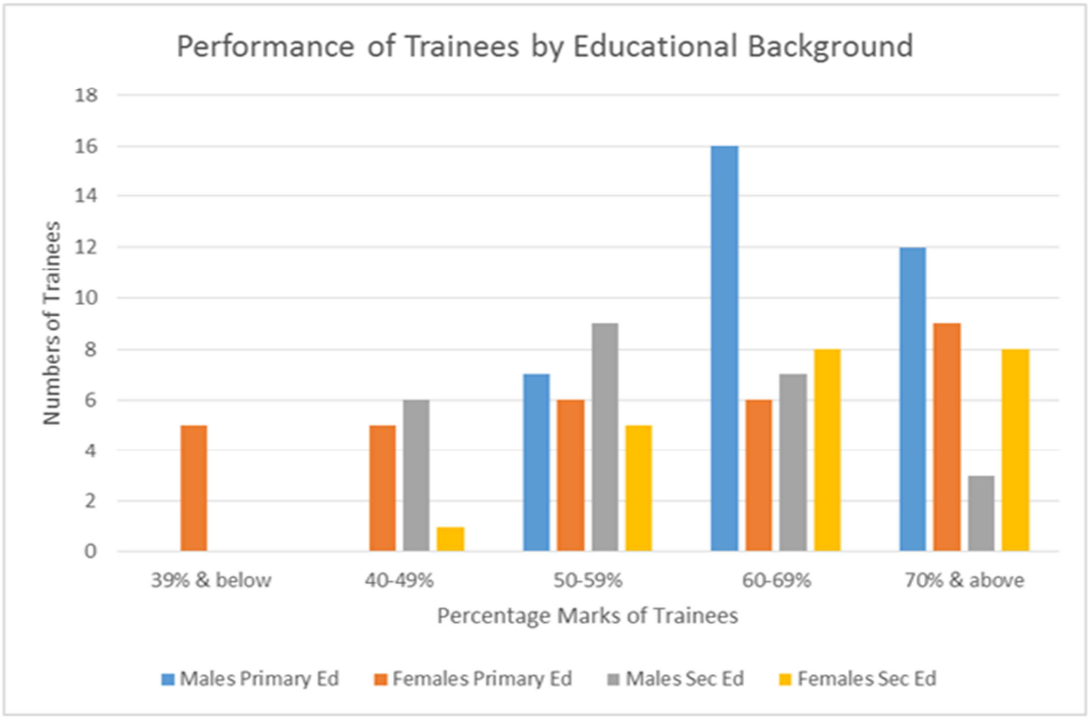


Figure 2. Performance of Trainees by Educational Background.

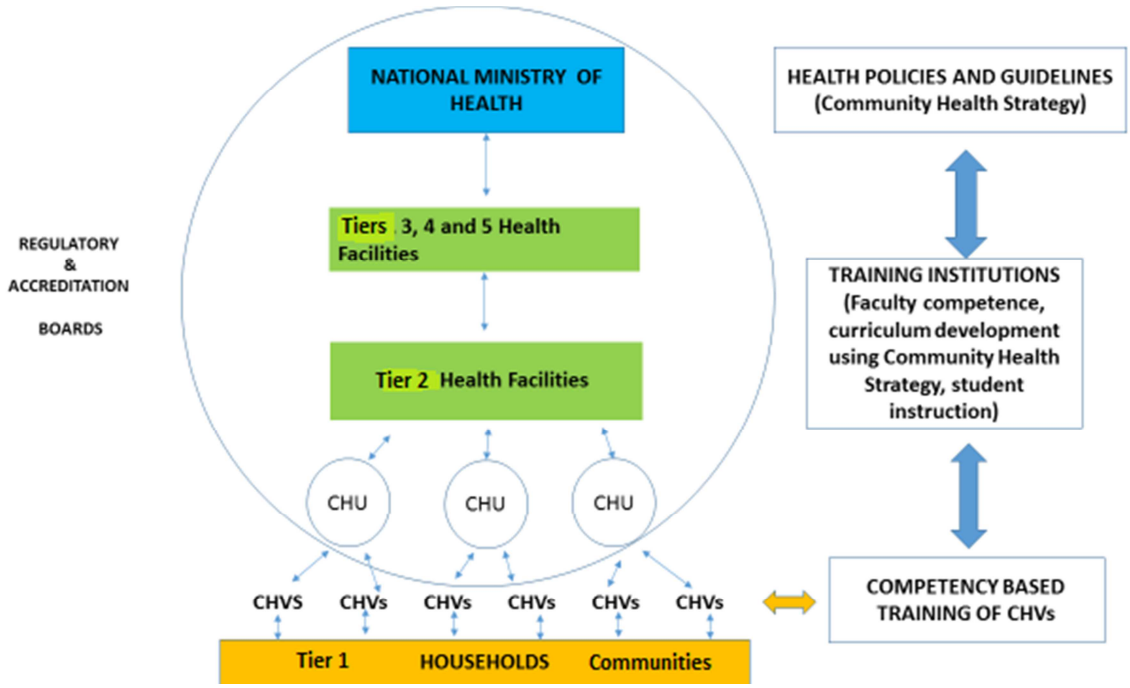


Figure 3. Community level health workforce training using a Community College Model for household health services uptake (Kaseje M., 2015).

CHU Community Health Unit
CHVs Community Health Volunteers trained using the Community College Model developed by Great Lakes University of Kisumu as the training institution

4. Discussions

The Community College Model for training CHVs addresses the development of Human Resource for Health (HRH) which constitutes a critical building block of the Health System (WHO 2007). The Model addresses the human resource capacity needs at the community level with the aim of achieving the MDGs (1, 4, 5, 6 and 7) and sustainable development indicators beyond 2015, Kenya's Vision 2030 and the attainment of national health strategic plans. The Model provides standards in health workforce training for community levels and provides a skills mix for the needed

numbers of health workers. Opportunities for professional progression through this model enhance retention rates while the community approach is both affordable and sustainable. Policy influence of the health system is directly achieved through engagement with policy makers in the development and implementation of the Model.

4.1. Standard Curriculum for Training CHVs

The Community College Model provides a competence based training content and curricula that answers to the need for a modularized and certified curriculum. While meeting both the regulatory and academic requirements, the training is also based on the required skills-mix for community level health workers. GLUK adhered to the process of curriculum development and approval as stipulated by the Commission for University Education in Kenya and also engaged relevant government and implementation stakeholders. Thus the objectives of the training program met accreditation requirements, ensuring that standards for this cadre were adhered to while the certification attested to core competencies achieved from the training. While the Community College concept was conceptualized by GLUK as both an academic and a community oriented training, with required standards and academic regulations, the buy-in of the community was essential for its continuity.

4.2. Training Content Delivery

The use of a variety of learning methods including the use of didactic lectures, group discussions, practical sessions, household visits and trainee projects allows the CHVs to grasp both theoretical and practical aspects of the curriculum and is likely to lead to effective household interactions by the volunteers. These methods enable the trainees to gather information, analyze health issues in their environment alongside memorized facts and to plan and execute actions that lead to positive health changes at household levels.

The modular approach of training enables the trainees to continue with their community work engagement and to use the theoretical knowledge in a practical manner. Challenges that academic institutions encounter are in translating academic leaning into practical application. Professional education tends to be fragmented, outdated and uses static curricula that do not provide competencies required to address needs of populations or gaps in health systems (Frenk, J., Chen, L., Bhutta, Z., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Yang, K., Kelley, P., et al., 2010). The writers propose a transformative professional education for a better performing health system and where competencies define classification of health professionals. The Community College Model partly addresses these challenges and provides an entry point for first-time academic learners from the community and for youth who have completed secondary education.

The Model strengthens the concept of utilizing community resources and knowledge by building on them in order to produce a cadre of human resources, well equipped to support health interventions at the community level. The science-based content delivered through a problem based methodology accommodates students with different educational backgrounds and allows the curriculum to be taught in different settings and groups, for example, in rural, peri-urban and urban settings.

4.3. Training Location

The advantage of the Community College Model is its location in the community which ensures that there are no disruptions in service delivery by the CHVs. Infrastructure is a key educational resource for delivery of learning outcomes. Training is offered at a central community site with minimal costs to the learner. Use of local structures for learning sites minimizes costs to deliver the training and provides a conducive learning environment in a supportive context where families and community leaders support the trainees to accomplish their learning objectives.

4.4. Selection, Performance and Career Paths of Trainees

Countries in resource constrained settings are likely to achieve the required numbers of health workers if community level workers with varied backgrounds are provided with appropriate standardized training. As evidenced in the Community College Model, trainees were partly nominated by their communities and were admitted into the course based on their academic qualification or equivalent experience in providing support to communities and households in health prevention and in development activities. Performance was not related to the trainees' educational backgrounds that included primary and secondary levels of education and equivalent experience. Some studies indicate that students with higher level entry qualifications perform consistently better than those with lower level qualifications (McCarey, M., Barr, T., and Rattray, J. 2007) while other views point to age (more than 34 years) rather than paper qualifications as good predictors of academic performance (Ofori, 2002).

The involvement of the communities in the selection of the trainees ensured a strong linkage with community structures such as community health committees. This linkage partly ensured supervision of the CHVs. An advantage of community engagement in recruitment is the potential support from the devolved county health system and from communities, a factor likely to contribute to retention.

The training of CHVs contributes to the skills mix of health providers that comprise technical health providers, health managers and health information personnel, among others. The CHV also provides the link between health providers and consumers through referrals and follow-up of clients or patients. The Model presented here addresses the need to supply adequate numbers of skilled Human Resource for Health (HRH) at the community level, which constitutes a critical building block of the Health System (WHO 2007). The Model addresses health systems strengthening through the supply of adequate numbers of well-trained community health workforce in light of evidence that indicates that coverage and numbers of health workers directly impact on health outcomes (Anand and Barnighausen, 2004). The low dropout rate of 2% during the training points to the likelihood of CHV retention for increased numbers of the community level health workforce.

A successful training outcome provides skills and knowledge and exposes students to professional opportunities in labor markets and career pathways. In the Community College program, the trainees' perceptions of opportunities within the government health sector as a career path confirms the seamless opportunity for upgrading and employment in the formal sector. Their perceptions of having gained skills for uplifting their lives through income generating livelihoods attest to the program's positive impact. It is anticipated that some recruits will climb the community health professional ladder as a career pathway and be engaged to work within their communities or externally.

The results from the Community College Model show that CHVs are willing to enrol into academic courses to develop their careers to fit into the formal health sector. There is a higher likelihood of retaining the trainees in their communities through the Model since learners directly employ their knowledge and skills in an interactive learning-application cycle. Most of the CHVs enrolling into the program are long-term members of their communities and are likely to stay on and continue to contribute to the development of their communities. Evidence from one multivariate analysis of a longitudinal study on rural recruitment of medical students (Rabinowitz et al, 1999) found that rural origin was the most single variable most strongly associated with rural practice (OR 4.2; 95% CI 2.8-6.3).

Challenges to the training of CHVs is costs and sustainability, however opportunities may exist for the devolved county health system to budget for community college training, augmented with self-sponsorship by trainees.

4.5. Policy Influence

The training using the Community College Model provides policy direction on pre-service training of community level workforce that is aligned to the Ministry's standards and the Community Health Strategy. The training of the CHVs took place with linkage to the formal health system through engagement of health facility workers (Community Extension Workers) as the supervisors of the CHVs. The government health facilities were used as learning sites for the trainees. As noted by Crisp (2010), integrating training programs into the wider health system augments the delivery of quality health care. An outcome of applying the Model was the strengthening of the partnership between GLUK and the Ministry of Health in developing a national curriculum for training community level workers. The engagement with government health workers who interact with policy makers at county and national levels is likely to lead to policy dialogue on the role of CHVs within the health system and their training using a standardized curriculum. The training which aimed to be responsive to the health needs of the communities also addressed the health system gap of human workforce and service delivery. GLUK applied the model in different regional contexts in the country which may provide national direction for its implementation.

5. Conclusions and Recommendations

The initial outcome of the Community College Model that consists of an accredited, modular and competency based curriculum suggests that the Model has potential to improve the practical skills and knowledge for community health workers. The Model may lead to retention of those trained and provides them with career progression, ultimately contributing to health systems strengthening. Evidence from the retention and performance of newly recruited CHVs indicates the Model's suitability for retaining community level volunteers in settings with constrained health workforce and high burdens of preventive and promotive heath care needs. Policy and global implications for increasing workforce using the Community College Model is both practical and feasible and points to a module for other settings in sub-Saharan Africa with few and inadequately trained health care providers.

Further assessment and analysis of the effectiveness of the Model is required to conclusively determine its effects on skills and knowledge acquisition and the longer term impact on community level health indicators and outcomes. Research of the Model in different socio-economic contexts including rural, urban and peri-urban settings would provide evidence to guide practice and policy on training of community level health workers and deployment in devolved health systems.

References

[1] Accorsi S, Bilal NK, Farese P, Racalbuto V. (2010). Countdown to 2015: comparing progress towards the achievement of the health Millennium Development Goals in Ethiopia and other sub Saharan African countries. *Trans R Soc Trop Med Hyg* 2010; 104: 336–42.

[2] Anand, S., Barnighausen, T. (2004) Human resources and health outcomes: cross-country econometric study. *Lancet* 2004; 364:1603-09.

[3] Bakeera S, Wamala S, Galea S, State A. Peterson S, Pariyo G. (2009). Community perceptions and factors influencing utilization of health services in Uganda. *Int J Equity Health* 2009; 8: 25.

[4] Bhutta ZA, Soofi S, Memon Z. (2008). Training for Lady Health Workers clarifi ed. *Bull World Health Organ* 2008; 86: B.

[5] Bhutta, Z., Lassi, Z., Pariyo, G., Huicho, L. (2010). Global experience of community health for delivery of health related Millennium Development Goals: a systematic review, country case studies, and recommendations for integration into national health systems. Geneva: Global Health Workforce Alliance, 2010. http://www.who.int/workforcealliance/knowledge/resources/CHVreport/en/index.html. Accessed March 6, 2015.

[6] Crisp, N. (2010). Turning the world upside down: the search for global health in the 21st Century. WHO, Geneva.

[7] Dussault, G., Franceschini, M.C. (2006). "Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce", *Human Resources for Health. 4:12.2006.*

[8] Frenk, J., Chen, L., Bhutta, Z., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Yang, K., Kelley, P., Kistnasamy, B., Meleis, A., Naylor, D., Pablos-Mendez, A., Reddy, S., Scrimshaw, S., Sepulveda, J., Serwadda, D., Zurayk, H. (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world (2010). The Lancet Commissions.

[9] Global Health Workforce Alliance (2010). Community health workers: key messages. Global consultation on community health workers. Montreux, Switzerland, 2010. http://www.who.int/workforcealliance/knowledge/resources/CHVkeymessages/en/index.html (accessed January 20, 2015).

[10] Haines A, Sanders D, Lehmann U, Rowe AK, Lawn JE, Jan S, Walker DG, Bhutta Z. (2007). Achieving child survival goals: potential contribution of community health workers. Lancet 2007; 369: 2121–31.

[11] Kaseje, M., Kaseje, D., and Spencer, H. (1987). The Training Process in Community Based Health Care in Saradidi, Kenya. Annals of Tropical Medicine and Parasitology, Vol. 81, Supplement No 1, 67-76, 1987.

[12] Ministry of Medical Services and Ministry of Public Health and Sanitation, Kenya (2013). Health Sector Strategic and Investment Plan (KHSSP), July 2013 – June 2017.

[13] Ministry of Health, Kenya (2006). Reversing the trends. The Second National Health Sector Strategic Plan of Kenya. Taking the Kenya Essential Package for Health to the Community. Ministry of Health, June 2006.

[14] McCarey, M., Barr, T., and Rattray, J. (2007). Predictors of academic performance in a cohort of pre-registration nursing students. In: Nurse Education Today, Vol. 27, No. 4, 05.2007, p. 357-364.

[15] Ministry of Health, Kenya (2014). Transforming Health: Accelerating Attainment of Health Goals: Analysis of Performance, 2013/14.

[16] Ofori R, Charlton JP. (2002). A path model of factors influencing the academic performance of nursing students. J Adv Nurs 2002; 38: 505-17.

[17] Rabinowitz, H., Diamond J., Hojat, M., Hazelwood, C. (1999). Rural Health Research: Demographic, Educational and Economic Factors Related to Recruitment and Retention of Physicians in Rural Pennsylvania. The Journal of Rural Health, Volume 15, Issue 2, pages 212–218, March 1999.

[18] Sherman, R. and Pross, E. (2010) Growing Future Nurse Leaders to Build and Sustain Healthy Work Environments at the Unit Level. Online Journal of ssues in Nursing, Vol 15-2010, No. 1, 2010.

[19] Wangalwa, G., Cudjoe, B., Wamalwa, D., Machira, Y., Ofware, P., Ndirangu, M., and Ilako, F. (2012). Effectiveness of Kenya's Community Health Strategy in delivering community-based maternal and newborn health care in Busia County, Kenya: non-randomized pre-test post test study. Pan Afr Med J. 2012;13(Supp 1):12.

[20] WHO, (2007). Everybody's Business: Strengthening Health Systems to Improve health Outcomes. 2007. http://www.who.int/healthsystems/strategy/everybodys_business.pdf. Accesses March 9, 2015.

[21] WHO (2010). Increasing access to health workers in remote and rural areas through improved retention. Geneva: World Health Organization, 2010. http://www.who.int/hrh/retention/guidelines/en/index.html. Accessed April 6, 2015.