The Implementation and Success of Community Based Education and Research Services and Inter-Profession Education Programme at a Rural Health Sciences Faculty in Uganda: Case of Busitema University

Rebecca Nekaka[1], Paul Oboth[1], Yahaya Gavamukulya[2], Joseph Mpagi Luwaga[3], Lydia Ssenyonga[4], Julius Wandabwa[5], Julius Nteziyaremye[5*], Paul Waako[5] and Jacob Iramiot Stanley[3]

[1]Department of Community and Public Health, Busitema University, Mbale, Uganda
[2]Department of Biochemistry and Molecular Biology, Busitema University, Mbale, Uganda
[3]Department of Microbiology and Immunology, Busitema University, Mbale, Uganda
[4]Department of Nursing, Busitema University, Mbale, Uganda
[5]Department of Obstetrics and Gynaecology, Busitema University, Mbale, Uganda

Corresponding Author*

Julius Nteziyaremye
Department of Obstetrics and Gynaecology,
Busitema University,
Mbale, Uganda
E-mail: jntezi@gmail.com

Received: August 17, 2023, Manuscript No. JHMR-23-110571; **Editor assigned:** August 19, 2023, PreQC No. JHMR-23-110571 (PQ); **Reviewed:** September 02, 2023, QC No. JHMR-23-110571; **Revised:** January 03, 2024, Manuscript No. JHMR-23-110571 (R); **Published:** January 10, 2024, DOI: 10.35248/JHAR.24.06(1).001

Abstract

Busitema University (BU) was the first and only multi-campus public university in Uganda. The BU Faculty of Health Sciences (BUFHS) was established in 2013 to rum health sciences courses. Unique about the university is the admission of 1/3 of the class as mature-age entrants. This was coined in to solve the problem of poor retention of doctors in rural areas of Uganda.

The BUFHS curriculum was also specially designed with a strong Community-Based Education, Research and Services (COBERS) program right from year 1 of the students' study programme. The faculty over time in 2016 introduced yet another innovative way of integrating Inter-Professional Education (IPE) approach into COBERS with the ultimate target of creating different professionals of health workers that will appreciate learning and working together rather than run in silos to solve community health needs yet recognising the identity and uniqueness of oneself and the others. The program did not only allow the university to rethink traditional learning strategies and programs but also improved the skills of the academic staff, preceptors and students.

This communication is aimed at providing a platform from which health training institutions can learn from the COBERS-IPE experience.

Keywords: Community-based education • Research services • Inter-professional education • Busitema university

Introduction

Community Based Education and Service (COBES) are those "learning activities that use the community as a learning environment, in which not only students but also teachers/lecturers, members of the community, and representatives of other sectors are actively engaged throughout the students' educational experience" [1].

The introduction of the research component in this model transforms COBES to COBERS. As Mbalinda, et al. noted, COBES is meant to introduce the students early in their training to the real problems (primary health care and public) of their communities through creation of community partnerships that are with whom goals, responsibilities and power are shared for the benefit of the community and the students [2,3].

There is a body of evidence that shows using COBES and Problem-Based Learning (PBL) can be used to prepare and acclimatise healthcare professionals to work in rural areas and bring equity in the distribution of health professionals to benefit rural communities and therefore could solve the problem of brain-drain [4,5].

Therefore, internationally, the focus of education in medical schools has shifted from traditional hospital-based training to learning in the community [6]. The development of community-based medical education has been driven by the desire to train doctors and nurses where they will base their future practice–A practice that occurs increasingly within communities. This is in contrast with the more traditional method of teaching students from large urban hospitals. Underlying this change is the idea that medical practice is place-dependent, and that learning in one location does not necessarily equip the student to practice somewhere else [7]. The training of health workers who can, and who want to, practice in rural communities is best done experientially in rural settings [8,9].

According to the World Health Organization (WHO), Inter-Professional Education (IPE) is an experience that "occurs when students from two or more professions learn about, from, and with each other. It therefore enables each health profession to create identity and take pride in what it achieves best during the provision of health services and such an innovation improves health professions education, with a goal of improving the health of the public.

Busitema University was established as the first public multi-campus university in Uganda under the universities and other tertiary institutions Act 2001 under instrument 2007. The Busitema University Faculty of Health Sciences (BUFHS) opened her doors to the first bunch of medical students in 2013. Being the fourth public medical school in Uganda, after Makerere University College of Health Sciences, Mbarara University of Science and Technology, and Gulu University, the challenge was how to make BUFHS different.

Busitema University promotes a rich culture of service-learning, a commitment that extends to every faculty in the university. Informed by the wider place-based education movement, it is this idea that led to the development of the community based education research and service program and the integration of IPE into it at the faculty of health sciences, Busitema University.

The university's commitment to the Community-Based Education Research and Service (COBERS) program was built on several basic values that continue today: The fundamental dignity of all; poverty and lack of opportunity breed problems; and to understand community problems, one must live in and embrace the community. These values are very evident in BUFHS's educational, research and service program.

The BUFHS's mission statement is "To promote innovations in teaching, learning, and research for enhanced access to quality health care."

To carry out this mission, four of the BUFHS six institutional goals are related to community service-learning programs:

- To increase the number of high-quality health professionals in the country.
- To produce graduates with high morale and motivation to work in rural (including hard-to-reach) areas as their training will be based in such communities.
- To strengthen the district hospitals and health centres through a strong community training and research program.
- To maintain a leadership role in forming health care policy at the university, district, and national levels.

Related to its mission and goals, BUFHS has a set of competency statements, many of which are related to community programs: A graduate of the medicine and nursing programs at BUFHS will be competent to:

- Apply the fundamental principles of the behavioural sciences as they relate to patient-centred approaches for promoting, improving, and maintaining health
- Employ the interpersonal and communication skills necessary to provide health care to a diverse patient population and to function in a multicultural work environment
- Evaluate various models of health care management and delivery.
- Apply the principles of ethical reasoning and professional responsibility as they relate to patient care and practice management.

COBERS was designed to connect classroom-based learning with meaningful community involvement by preparing students to be participating members of a community through health care delivery and wellness promotion which, in turn, advances sustainable socio-economic development. As a faculty we are well cognizant of the fact that this can be achieved through introduction of IPE. Inter-professional teams learning and working in a collaborative way enhance the quality of patient care, lower costs, decrease patients' hospitalisation and length of hospital stay, and reduce medical errors. Not surprising the Institute of Medicine (IOM) declared that "health professionals should be educated to deliver patient-centred care as members of an interdisciplinary team [10].

Additionally, rural communities struggle to retain doctors and this contributes to health inequities characterized by higher rates of disease morbidity and mortality. Increasing access to health care services in rural communities remains a key priority at BUFHS. We describe the elements of the community based education research and service program, introduction of inter-profession education therein at BUFHS and the environment that has helped it become successful.

Materials and Methods

The community COBERS' sites

These sites included Moroto regional referral hospital, Katakwi General Hospital, Amuria Health Centre IV (HCIV) currently upgraded to a level of a general hospital, Serere HCIV, Ngora HCIV, Bukedea HCIV, Busiu HCIV, Busolwe Hospital, Kibuku HCIV, Busia HCIV, Masafu Hospital, Kidera HCIV, Bugono HCIV, Bududa Hospital, Bugobero HCIV, Muyembe HCIV, Kapchorwa General Hospital, Kaproron HCIV, and Bukwo General Hospital (Figure 1).

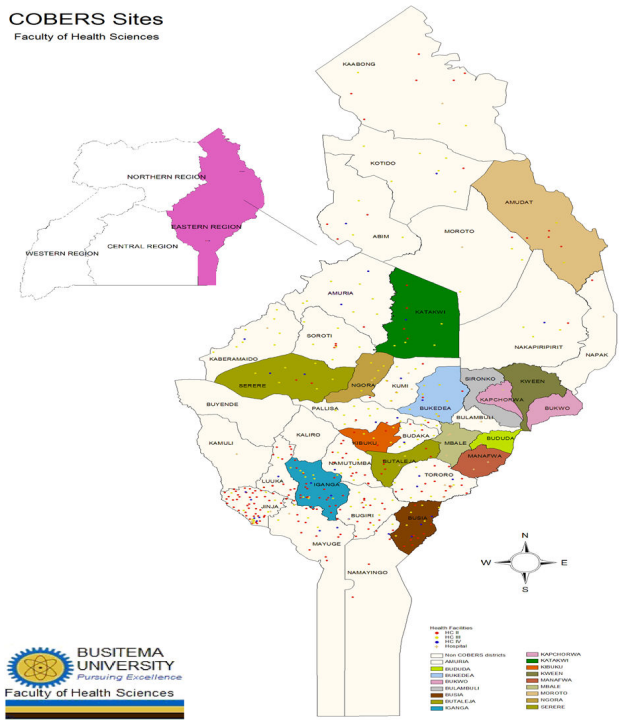

Figure 1. Map showing the 19 COBERS sites.

The Uganda health sector is organized in a bottom-up approach with the village health teams at each village level, that feed into and are provided with technical support by the health centre II, the latter feeding into health centre III and health centre into health centre IV, to the general hospital and then to the regional referral hospital and finally to the national referral hospitals. At each level of health care, there is a different level of the target population and the nature of services provided and thus the different skills and technical knowledge and mix of health workers [11].

Each COBERS site had to sign a Memorandum Of Understanding (MOU) with BUFHS. The MOU covers aspects of areas of collaboration (teaching, patient care, and research), data and intellectual property rights, ethical considerations, evaluation of the MOU, review, and amendments of the MOU.

The criteria used for choosing the COBERS sites included; availability of health facility that serves as student base and link to the community, availability of a medical doctor and or graduate nurse to serve as a preceptor for the student's community program and a variety of community disease case burdens for students to learn from. Conversely, highly specialized health facilities were deliberately excluded since the curriculum was designed for general exposure to communities with disease case mix. Health units with a catchment population of above 2,000 people within a distance of 5 km radius to communities and preferably not linked to other universities in the country for implementation of COBERS activity were chosen.

In 2013 a total of 10 sites met the criteria and were used for COBERS placement. In 2014 two of the ten sites were dropped because of the absence of medical officers to work as preceptors. In 2015, with the increase in the number of students, there was a need to increase the number of COBERS sites.

Therefore, between 2015 and 2016 the committee assessed more sites and this took the number to 17 sites. With three groups of students for community placement, namely students in the year I, II, and III, the 17 sites were not adequate hence the number of sites is rose to the current nineteen.

Value

The COBERS program adds value in ways that go beyond caring for

the underserved. First, the program takes students to where patients live, providing first-hand experience with social barriers to care (such as transportation, values, culture, and economics). Second, students gain valuable practice management experience in those settings.

Moreover, practicing in community health facilities provides students with an opportunity to work consistently with a preceptor/mentor. Furthermore, students gain insight into the policies and politics of health facilities and districts. Additionally, they observe the management of many more patients in the health facilities than would be the case in the school-based hospital and gain skills and confidence that come with more clinical experience. Finally, students help to reduce access disparities by assisting in the provision of care to more patients in the community health facilities.

Quality assurance in the program

Every health facility that hosts students has a qualified medical doctor and or graduate nurse called a preceptor, who supervises students during their training in the community. The doctor works closely with a nursing officer at the facility. This is emphasized because of the mix of the students at the sites and the need for them to appreciate inter-professionalism.

The faculty holds training and orientation meetings with preceptors annually to equip them with teaching and learning methods. The faculty also arranges for supervision visits during the community placement. These visits provide an opportunity for faculty staff to interact and support the preceptors during a community placement. The preceptors also participate in assessing students in knowledge, attitude, and skills and give feedback to the faculty. In-house surveys have revealed consistent students' enthusiasm and support of the community attachments and their understanding of underserved patients, communities, and the healthcare delivery system.

Elements of the COBERS program

The COBERS program aims to develop health professional students who are responsive to the needs of local communities and who will become socially accountable and transformative agents of change in the struggling Ugandan healthcare system.

The COBERS program comprises three, 4-week modules in the first, second, and third academic years of the undergraduate medical and nursing curricula. Successful completion of these modules is a prerequisite for graduating from the medical and nursing programs. Clear learning outcomes are prescribed in the curriculum that includes the research process and incorporates scholarship competencies. The 4 weeks are scheduled to follow the recess term. Students are randomly grouped by an independent member into groups of 4 to 6 and randomly assigned to the different sites, ensuring a mix of medical and nursing students to promote inter-professional learning, a mix of direct entrants, and diploma-qualified health workers to promote hand-on training at the sites.

Organization and the curriculum

Before COBERS placement, students are taken through an intense one-week program of first aid and nursing skills as a way of preparing them for the community clinical/nursing work. This is done through lectures and practical skills in taking vitals that are key to patient's monitoring

In the first COBERS module, the students are introduced to basic principles of epidemiology, biostatistics, and demography. The students are tasked to explore communities and understand their structures, including identifying the gatekeepers who must be engaged before accessing the rest of the community. They make a community diagnosis and identify the top five key gaps in their community placement. They are tasked to use a prioritization matrix and chose one of the gaps that they would research. From this, they formulate a relevant PHC research question. Each group then prepares a referenced literature review around the selected research topic and they also prepare a report.

During the second COBERS module in the 2nd academic year, each group is assigned a research mentor who is a member of the faculty. Each group prepares a research protocol informed by structured lectures and mentorship on basic research methods. The students are given chance to present their proposals to staff in the unit, they are given comments and time to improve the proposals. The research protocols are presented to the institutional higher degrees and ethics review board for approval. With informed consent, the students collect data in the COBERS sites and communities. With support from the research mentors, the students analyze the data, write reports, and present scientific research posters to peers and examiners. The students are further encouraged to write manuscripts and publish with the support of the mentors and the faculty.

In the third COBERS module in the third year, health promotion projects informed by the research findings during year II research are implemented hence closing the research cycle. The students also learn primary health care, health systems management and are introduced to clinical clerkship and the nursing process.

The community-based medical education research and service program at BUFHS is not housed in a particular department. It is headed by a coordinator appointed by the dean and supported by the committee appointed by the faculty board (Figure 2).

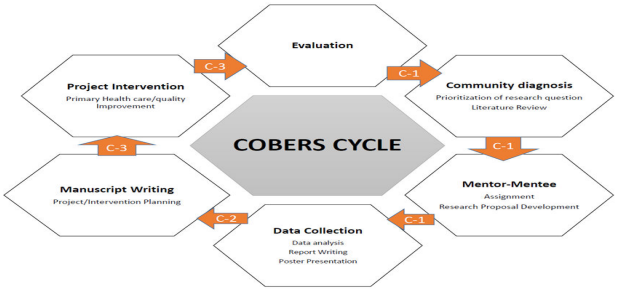

Figure 2. The COBERS cycle at Busitema University Faculty of Health Sciences (BUFHS).

Resources for the COBERS program

The COBERS program is quite resource-intensive but the program objectives and thus outcomes continue to indicate that it is a worthwhile investment. Collaboration with several stakeholders helped ease the resource pressure. The program's success relies much on the commitment of the faculty and the preceptors rather than monetary investments. Funding for this program comes from the university budget. During the routine budgeting process, activities for community placement are routinely included. Funding majorly goes to accommodation facilities, transport for the students to and from the sites, facilitation, and travel for the site supervisors and preceptors' allowances. The students are also provided with gas stoves for cooking and stationery for learning activities. Furthermore, efforts have been taken by the faculty to equip each site (save for very few) with a desktop loaded with e-books and other materials to aid students learning and research.

Program outcomes

Student support for the COBERS program remains strong. The community experiences are valued by students who enjoy the relatively supervised clinical 'independence' while in the community sites. The students have gained skills in problem identification, proposal writing, research methods, and scientific writing. Several papers have been published from the COBERS program. Through the health promotion projects, there has been increased awareness about health issues and general improvement in the quality of health care. The university management continues to offer strong support for the program as evidenced in the budgetary allocation and believes that it is fundamental for a first-class education. Faculty

staff has continued to support the program through the research mentorship, faculty have improved their scientific writing skills and several publications. In turn, the publications have increased the visibility of the university.

As a university, we have been able to reach out to the community through the COBERS program, and through dialogue with the community members, we have been able to identify gaps that need to be addressed.

SWOT analysis for the COBERS program

SWOT analysis for the COBERS program show in Table 1.

Strengths	Weaknesses
• Focused and committed BUFHS leadership. • Committed and experienced coordinator: Available to run the program. • A team of research mentors willing to guide students in research. • A strong team of preceptors willing to support students while in the community sites. • Cooperating COBERS sites. • Availability of e-books that students can use while in the community. • Access to the E-learning platform. • Accessibility to the national road network and utilities • Goodwill and support of local leaders. • Computers present in 9 of the sites; good asset for effective student learning. • Part of the curriculum. • Continued financial and logistical support from the University.	• Limited staff to run the entire program. • Lack of accommodation facilities at the community sites. • Not all sites have computers. • Lack of internet connectivity at the COBERS sites. • Lack of transport during in-district movements for the students. • High turnover of preceptors in the community sites. • Some districts are hard to reach due to poor road networks. • Temptation of the yet unqualified students to participate directly in the treatment of patients.
Opportunities	**Threats**
• The poor health worker retention in the rural settings will continue to drive demand in the rural facilities. • Districts willingness to provide land for accommodation facilities. • Health facilities were willing to offer vehicles for in-district transport if fuel is provided by the university. • Partnerships with implementing partners within the districts to support student research e.g. RHITES E project. • Grants like HEPI to fund student research projects. • Possibility of undergraduate students to apply for University research fund. • Development of the database on health care/systems in Eastern Uganda.	• Unpredictable retention of key staff due to lack of motivation: Staff turnover. • Unforeseen calamities natural or other could derail progress. • Insecurity to students associated with poor accommodation facilities. • Poor student supervision due to conflicting priorities among preceptors. • Sexual harassment, especially with regard to female students. • Students contracting diseases. • Students developing fear against working in rural areas.

Table 1. SWOT analysis for the COBERS program.

Results and Discussion

Whereas Africa is viewed as a land of opportunity by 2060, these dreams continue to be challenged by extreme poverty and a high burden of disease coupled with poor management of health resources [12,13]. No wonder health care continues to be burdened by an acute shortage of Human Resource for Health (HRH) especially nurses and doctors particularly in rural and remote areas. Whereas approximately a half of the World's population lives in rural areas, they are served by only 38% of the total nursing workforce and 25% of the total physicians' workforce [14]. As Dolea, et al. showed interventions to retain such a workforce in the rural areas includes but is not limited to training from rural areas [15].

In a study to determine the supply and retention of rural primary care physicians, it was reported that rural connection was a key predictive factor in successful retention. Medical educators and policy makers to rethink their strategies if they were to have an impact in this direction [16].

As educators at faculty of sciences Busitema university, we did not only think about community connectedness but also of innovative strategies that would enhance inter-professional collaboration through IPE with the ultimate goal of creating a workforce that and carries knowledge, skills, and value into future practice and focus on improving patient outcomes. Such an innovation has been reported to be a worthwhile venture [17,18]. We hope that the two will increase students' awareness of the real public and primary health care problems of the communities they are likely to serve in addition to enhancing the 'connectedness' of different professionals for the same cause rather than working in silos. We believe if people must work together, it must start during training.

However for the successful implementation of the programme, one must be aware and plan to circumvent challenges such as competing interests of different disciplines, financial and human resources costs and attitudinal change of administrators, faculty and students. It is a new idea that most of the faculty members were not trained through and at times see it as unpractical and time consuming and may not easily appreciate the benefits. Studies elsewhere have reported even more tense challenges at different levels of organisation. A study of Canadian schools identified that the main barriers of IPE were scheduling, rigid curriculum, "turf battles," and lack of perceived value to IPE [19]. Attitudinal differences in health professionals, faculty members, and students also influence implementation of IPE. A lack of resources and commitment can negatively affect the implementation of IPE [20].

Conclusion

Over the last six years, the BUFHS COBERS program and the IPE innovation have significantly improved as a training mode for different health professionals at BUFHS.

In addition to the value of the community experiences to the students, tangible program outcomes have been recorded. Some of the program outcomes include capacity building in research skills for faculty mentors, research skills introduced in undergraduate training, a strong research mentorship program, health promotion in the communities, and a strong relationship between the university and the community training sites. The development of the COBERS program challenged the university to rethink traditional learning strategies and programs. We urge medical schools that are contemplating starting community-based education programs to benchmark with this model.

Suggested Area of Research

How universities harness community resources to substantially contribute resources for this community can based training? These resources may include but are not limited to identifying retired civil servants and other community persons who could offer accommodation to students at no fee as long as the university could meet minimum maintenance costs.

Strength of This Narrative

Authors walk the journey through the programme from its inception and document its invaluable achievements but not forgetting the challenges. This could help inspire other health training institutions planning to have COBERS-IPE in their modules.

Availability of Data and Materials

All data on which conclusions of this manuscript are drawn has been included in this manuscript and whatever may be missing is available on request from the corresponding author.

Ethics Approval

The written ethical approval was considered not applicable for this manuscript by the Busitema University Faculty of Health Science since it is a documentation of the successes and challenges in the implementation of a community based program.

Consent to Participate

Also, no participants were recruited to contribute to the information presented in this manuscript, therefore, consent to participate was not applicable.

Conflicts of Interest

We declare no conflict of interest

Author Contributions

RN coordinated the COBERS program and conventionalized the documentation of the evolution and success of the program, PO, JN, YG, LS, IJS reviewed the document and also mentored students in the program, JML, JW, P W supervised and mobilized resources for the program. All authors read and approved the final version to be published.

Funding

Whereas Busitema University mobilized resources to run the program, not funding was provided for documenting and publishing this program.

Acknowledgements

We are grateful to the district administration; the chief administrative officers, the district medical officers, the resident district commissioners and our preceptors in the different districts and sites who have continued to immensely contribute to the COBERS program. MEPI/MESAU played a very key role in funding student's activities from the inception of the program and HEPI project was very instrumental in funding the students' research projects. The top administration of Busitema University has always supported the evolution and success of the program from its inception.

References

1. Study Group, W.H.O. "Community-based education of health personnel: Report of a WHO study group." *World Health Organization, Technical Report Series No. 746*, Geneva (1987).
2. Mbalinda, S.N., et al. "Assessing community perspectives of the community based education and service model at Makerere University, Uganda: A qualitative evaluation." *BMC Int Health Hum Rights* 11.Suppl 1 (2011): S6.
3. Anderson, E., et al. " Taking off the suit': Engaging the community in primary health care decision-making." H*ealth Expect* 9.1 (2006): 70-80.
4. McAllister, L., et al. "Rural attachments for students in the health professions: Are they worthwhile?." *Aust J Rural Health* 6.4 (1998): 194-201.
5. Chen, C., et al. "A survey of Sub-Saharan African medical schools." *Hum Resour Health* 10 (2012): 4.
6. Dubé, T.V., et al. "It takes a community to train a future physician: Social support experienced by medical students during a community-engaged longitudinal integrated clerkship." *Can Med Educ J* 10.3 (2019): e5-e16.
7. Kelly, L.,et al. "Community-based medical education: Is success a result of meaningful personal learning experiences?." *Educ Health* 27.1 (2014): 47-50.
8. Ross, B.M., et al. "A qualitative investigation of the experiences of students and preceptors taking part in remote and rural community experiential placements during early medical training." *J Med Educ Curric Dev* 6 (2019): 2382120519859311.
9. Alobaidi, A. "Community-Based Education: Tikrit University College of Medicine Experience. PART ONE: Concept and Rationale of Community–Based Education." *Int J Med Sci* 1.3 (2018): 69-72.
10. Greiner, A.C. "Committee on the health professions education summit." *Health Prof Educ: Bridge Qual* (2003).
11. W.H.O. "Primary health care systems (Primasys): Case study from Bangladesh: Abridged Version." *World Health Organization, Geneva* (2017).
12. Group, A.D.B. "Africa in 50 years' time: The road towards inclusive growth." *African Development Bank, Tunis, Tunisia* (2011).
13. W.H.O. "Report on the review of primary health care in the African region." (2008). W*orld Health Organization, Regional Office for African* (2008).
14. Padarath, A., et al. "Health personnel in Southern Africa: Confronting maldistribution and brain drain." *Durban: Health Syst Trust* (2003): 1-41.
15. Dolea, C., et al. "Evaluated strategies to increase attraction and retention of health workers in remote and rural areas." *Bull World Health Organ* 88.5 (2010): 379-385.
16. Rabinowitz, H.K., et al. "Critical factors for designing programs to increase the supply and retention of rural primary care physicians." *JAMA* 286.9 (2001): 1041-1048.
17. Reeves, S., et al. "Interprofessional education: Effects on professional practice and health care outcomes." C*ochrane Database Syst Rev* 1 (2008): CD002213.
18. Remington, T.L., et al. "Evaluation of evidence for interprofessional education." *Am J Pharm Educ* 70.3 (2006): 66.
19. Curran, V.R.,et al. "Academic administrators' attitudes towards interprofessional education in Canadian schools of health professional education." *J Interprof Care* 19.Suppl 1 (2005): 76-86.
20. Gardner, S.F., et al. "Interdisciplinary didactic instruction at academic health centers in the United States: Attitudes and barriers." *Adv Health Sci Educ Theory Pract* 7 (2002): 179-190.

Cite this article: Nekaka R, et al. "The Implementation and Success of Community Based Education and Research Services and Inter-Profession Education Programme at a Rural Health Sciences Faculty in Uganda: Case of Busitema University". J Health Med Res, 2024, 6(1), 1-5.