

# Perspectives of Primary Health Facility Leaders on the Contributions of Clinical Residents During Community Placement in Southwestern Uganda

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**Background:** The Mbarara University of Science and Technology (MUST)'s First Mile Community Health Program (FMCH) has facilitated community placement of clinical residents at Primary Healthcare (PHC) facilities within the MUST catchment area in southwestern Uganda. While community-based training of medical residents is common in sub-Saharan Africa, little is known about how PHC facility leaders perceive its effect on service delivery in Uganda. This assessment aimed to describe the perspectives of PHC facility leaders on the impact of clinical residents' community placements on PHC services in southwestern Uganda between 2018 and 2023.

**Methods:** From July 2018 to December 2023, 152 clinical residents from ten specialties were placed at PHC facilities in southwestern Uganda. This was a cross-sectional study based on qualitative data-collection techniques. This study focused on MUST clinical residents and PHC facilities in the MUST catchment in southwestern Uganda. We conducted KIIs with 15 health facility leaders until no new ideas emerged. Data were deductively analyzed using WHO's five strategic directions. Transcripts were transcribed verbatim, repeatedly reviewed, and coded into predefined categories. Interviewers bracketed their own experiences to ensure facility leaders' perspectives were accurately captured.

**Results:** Of the 15 facility leaders interviewed, most were male and from government HC IVs. Leaders reported that resident placements improved health service delivery through community engagement, enhancing care models through training, mentorship and low-cost innovations, and improving service coordination, including establishing specialized clinics and promoting better use of equipment. Residents also supported advocacy and resource mobilization. However, short placements, inconsistent outreach, staff shortages and lack of specialists limited continuity and sustainability.

**Conclusion:** Facility leaders reported perceived improvement in strengthening PHC services by the clinical residents. Sustaining these gains will require institutionalized partnerships and evaluation of long-term impact. This could contribute to the advancement of primary healthcare services.

**Keywords:** universal health coverage, health systems strengthening, community placement, service delivery gaps, health professional, medical practice

## Introduction

The 2018 Declaration of Astana underscores the critical role of primary health care (PHC) in ensuring health for all (individuals, families, and communities) and calls for concerted efforts to strengthen PHC systems globally.<sup>1</sup> Uganda delivers PHC through its National Minimum Health Care Package, which aims to provide equitable access to essential services from county-to-village health levels.<sup>2,3</sup> However, owing to the lack of adequately trained personnel, and shortage of human resource, inadequate physical resources and limited specialist health services, health service delivery at rural primary healthcare facilities in western Uganda still faces a range of challenges that must be urgently addressed.<sup>4-8</sup>

Challenges, including limited mentorship, supervisory skills, and clinical tasks, are among the training needs of PHC providers in rural Uganda.<sup>7,9</sup> In sub-Saharan Africa (SSA), facility placements of clinical resident students significantly contribute to primary health care by providing direct patient care, conducting community health education, mentorship and offering valuable support to overworked staff.<sup>10</sup> These initiatives promote active learning, foster collaboration among peers, and contribute to junior doctors' professional development in supportive environment.<sup>11</sup> It also increased competency among primary care providers thus strengthens the overall healthcare system.<sup>5,12</sup>

Mbarara University of Science and Technology (MUST) places a strong emphasis on Community-Based Education and Research Services (COBERS) for undergraduate and postgraduate clinical students as part of their residency programs which are designed to develop competencies relevant to community healthcare needs but also support in health service delivery at lower-level health facilities within the MUST catchment area. The program aims to improve community health and socio-economic development while developing socially accountable health professionals who can provide care in rural and underserved areas. Facility leaders play a critical role by overseeing student learning, providing guidance, and acting as liaisons with the community and university. However, the perspectives of local facility leaders on clinical placements have not been assessed. Therefore, evaluating their views on resident placements and their contribution to PHC service delivery is timely. This study explored the PHC facility leaders' perspectives on how MUST clinical residents contributed to health service delivery during their community placement in southwestern Uganda from 2018 and 2023.

## Materials and Methods

### Study Design and Study Setting

This cross-sectional study was based on qualitative data collection techniques. This study focused on perspectives of PHC facility leaders at Health centers level III–IV and general hospitals (Figure 1B) in southwestern Uganda (Figure 1A).

### Uganda's Demographic Characteristics at District Level

Based on data from the Uganda Bureau of Statistics and District Profiles, the districts span approximately 28,063.4 square kilometers and have a population of 5,810,672, with 51% being female. Children under five years of age make up 15.3% of the population, while women aged 15–44 years account for 25%. The vast majority of the residents (82–89%) lived in rural areas.

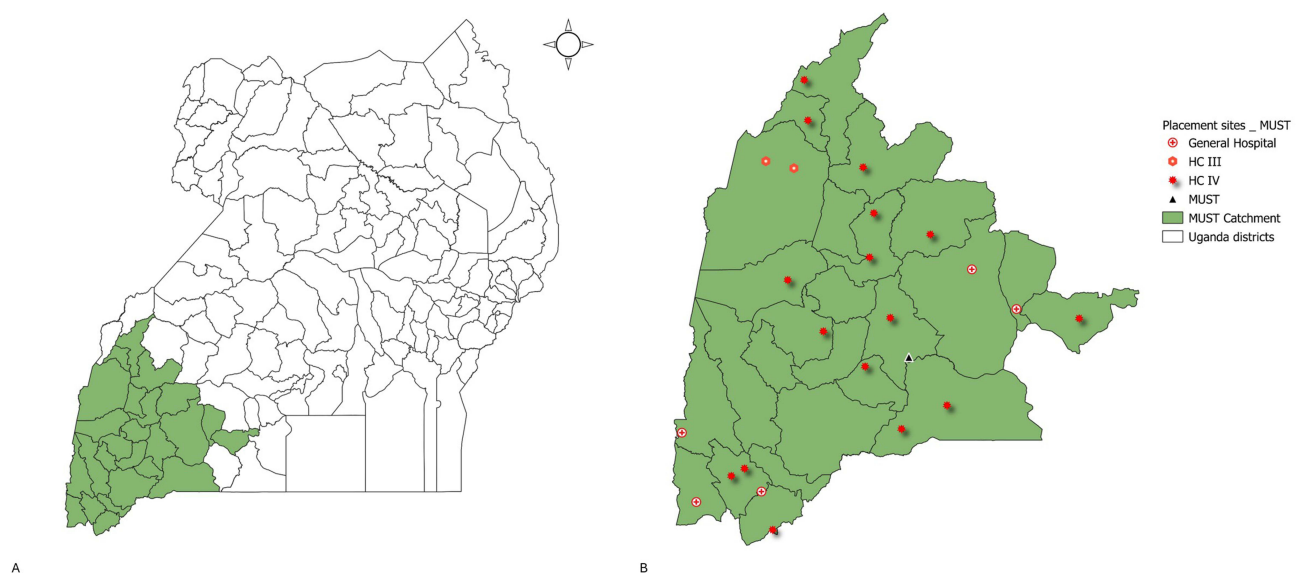


**Figure 1** (A) The Mbarara University of Science and Technology (MUST) Catchment area in Southwestern. (B) The clinical resident community placement sites within the MUST Catchment area in Southwestern, 2018–2023.

## Uganda's Health Systems Structure

Uganda's health system is divided into seven levels based on the administrative units and the targeted capacity of the catchment population. Health facilities ranged from Health Centre Level One (HC I) to Health Centre Level Four (HC IV), General Hospitals, Regional Referral Hospitals, and National Referral Hospitals. The targeted catchment populations for the different levels of health facilities varied from 5000 for HC II to 500,000 for General Hospitals.

Level I HCs: Community health workers (CHWs), also known as Village Health Teams (VHTs), with no physical infrastructure facilitating health promotion, service delivery, community participation, and empowerment in access to and utilization of health services.

Level II HCs: Standalone facilities with a catchment population of 5000 providing preventive, promotive, and outpatient curative health services, outreach care, and emergency services for a parish. Managed by registered nurses trained at the diploma level, these facilities refer patients to HC III facilities.

Level III HCs: Serving a catchment population of 20,000, these facilities provide preventive, promotive, outpatient curative, maternity, inpatient, and laboratory services. Managed by clinical officers with diploma training, they have a limited inpatient capacity and refer patients to HC IV facilities.

Level IV HCs: Catering to a catchment population of 100,000, these centers offer preventive, promotive, outpatient curative, maternity, inpatient health, emergency surgery, blood transfusion, and laboratory services. Patients from these facilities were referred to General Hospitals and managed by medical officers with a bachelor-level training.

General Hospitals: With a catchment population of 500,000, these hospitals provide services available at HC IVs, in addition to training, consultation, and operational research in support of community-based healthcare programs. Patients were referred to Regional Referral Hospitals and managed by specialists or medical officers. There were 1410 healthcare facilities in the western region. The majority of these facilities (64%) were government-owned, whereas the rest were privately owned. The southwestern region had 793 HC IIs, 372 HC IIIs, 69 HC IVs, and 35 General Hospitals.

## Description of the Resident Community Placement at Mbarara University of Science and Technology

MUST is a public university that was established in October 1989 and is located in southwestern Uganda 250 km from Uganda's capital city, Kampala. The MUST is affiliated with the Mbarara Regional Referral Hospital (MRRH), a teaching hospital for MUST medical schools. MRRH is a public health facility that offers tertiary healthcare services to more than five million people in its catchment in southwestern Uganda. Clinical residents perform clinical work activities at the MRRH. The clinical postgraduate program is run by the Faculty of Medicine (FoM), the oldest and pioneer faculty of the MUST. FoM is accredited to offer the following postgraduate programs: Obstetrics and Gynecology, Internal Medicine, Pediatrics and Child health, General Surgery, ENT, Pathology, Psychiatry, Dermatology, Emergency Medicine, Anesthesia and Critical Care, Ophthalmology, Radiology. The programmes were delivered through blended clinical clerkships, didactic courses, and self-directed learning to ensure the acquisition of competency-based knowledge and clinical skills relevant to the respective work environments. In line with the MUST community engagement mandate, the Department of Community Health at MUST has supported clinical residents in the Faculty of Medicine (FoM) for community placement for a period of two weeks within the MUST catchment. At the placement site, residents participate in routine service delivery and perform specialized clinical procedures that would otherwise require referral. They also conduct situation analysis and needs assessments, and work with facility teams to address the identified gaps.

The selection of health facilities for the community placement of residents was made by the respective specialty departments with guidance from the Community Health Department. Decisions were based on the level of the facility, availability of special needs (eg, a theater), and the burden of disease in the specialty of interest. For example, surgical disciplines have rotated at PHC facilities at the level of HC IVs and above, because of the availability of operating theatres.

## Characteristics of the Clinical Resident Community Placement

Since its inception, one hundred fifty-two (152) clinical residents from ten (10) specialties were placed at PHC facilities between July 2018 and December 2023. The specialties included internal Medicine, Surgery, Obstetrics and gynecology, Pediatrics and child health, Ophthalmology, ENT, Family Medicine, Medical Laboratory Science, Anesthesia, and Emergency Medicine (Table 1).

## Data Collection

A Key Informant Interview guide was developed to assess the perspectives of health facility leaders on the approaches implemented by clinical residents to strengthen health service delivery at PHC facilities, a Key Informant Interview (KII) guide was developed. The guide sought responses in several key areas: health delivery service gaps identified by the residents; capacity-building interventions proposed or implemented by the residents; service outcomes resulting from these interventions; barriers to the implementation or sustainability of the capacity-building interventions proposed or implemented by the residents; and specialized services or clinics established or revitalized by the residents. KIIs were conducted until no new ideas emerged.

PHC health facility leaders are clinicians who are either medical doctors (Level IV or general hospitals) or medical clinical officers (Level III health facilities). Health facility leaders were purposively selected as respondents for key informant interviews, based on their overall leadership role in health service delivery in their respective catchment areas. In addition, facility leaders were responsible for on-site supervision of clinical residents during their community placement. In this study, we only included health facility leaders from PHC facilities that hosted at least one clinical discipline of clinical residents at the MUST between July 2018 and December 2023.

**Table 1** Distribution of Clinical Residents by Specialty, and Year of Community Placement in the Faculty of Medicine(FoM) at Mbarara University of Science and Technology (MUST), July 2018–December 2023

| Period | Specialty                   | Number of Residents |
|--------|-----------------------------|---------------------|
| 2018   | Obstetrics and Gynecology   | 13                  |
|        | Pediatrics and child health | 4                   |
|        | Medical Laboratory Science  | 5                   |
| 2019   | Surgery                     | 9                   |
|        | Ophthalmology               | 5                   |
|        | Internal Medicine           | 3                   |
|        | Family Medicine             | 1                   |
|        | Medical Laboratory Science  | 10                  |
| 2020*  | Pediatrics and Child health | 2                   |
|        | Ophthalmology               | 7                   |
|        | Surgery                     | 9                   |
| 2022   | Anesthesia                  | 6                   |
|        | Ear, Nose, and Throat       | 6                   |
|        | Emergency Medicine          | 4                   |
|        | Internal medicine           | 10                  |
|        | Medical Laboratory Science  | 13                  |
|        | Obstetrics and Gynecology   | 15                  |
|        | Ophthalmology               | 3                   |
| 2023   | Surgery                     | 8                   |
|        | Ophthalmology               | 6                   |
|        | Obstetrics and Gynecology   | 9                   |

**Notes:** \*In 2020 and 2021, there were hardly any resident community placements due to the COVID-19 pandemic that attracted control measures, including the nationwide lockdown declared in March 2020.

An audit trail was maintained throughout the study, documenting each step from data collection to analysis and interpretation. This included raw transcripts, coding frameworks, analytic memos, and reflexive journal entries, ensuring transparency and allowing for external scrutiny of the research process.

The KIIs were conducted by a team of trained research assistants who had not been previously involved in the implementation of the community placement of clinical residents. All the interviews were recorded and transcribed verbatim into MS word.

## Data Analysis

Data were then analyzed using the deductive approach and directed content analysis using the five strategic directions of the WHO people-centered and integrated health services strategy.<sup>13</sup> Interview transcripts served as the unit of analysis and were transcribed verbatim immediately after each interview. The transcripts were repeatedly read to ensure immersion in the data and to capture both explicit and implicit meanings. Relevant meaning units were then identified and systematically coded according to the predefined WHO strategic directions: empowering and engaging people, strengthening governance and accountability, reorienting models of care, coordinating services, and creating an enabling environment. The investigators were public health specialists removed all personal and experience related ideas about health service delivery in PHC facilities while conducting the interviews. This enabled the health facility leaders to present their own perspectives.

## Results

Majority of the facility leaders interviewed were male (13/15, 87%). Over half of the facilities were at health centre IVs, 8/15 (53%), and majority of the facilities were government owned (13/15, 87%) (Table 2).

## Effects of Clinical Resident Community Placement on Primary Health Care Services Delivery

Residents were reported to enhance service delivery at PHC facilities across the following thematic areas: empowering and engaging people, reorienting the care model, coordinating services, and creating an enabling environment.

### Empowering and Engaging People

Most facility leaders noted that residents helped empower individuals and communities to make informed health decisions and become active partners in their own health. Residents were reported to have conducted community

**Table 2** The Characteristics of Participants and Their Health Facilities in a Study That Explored the Health Facility Leaders' Perspectives on How Mbarara University of Science and Technology (MUST) Clinical Residents Contributed to Health Service Delivery During Their Community Placement in Southwestern Uganda from 2018 to 2023

| Characteristic                          | n, N=15 | (%)   |
|-----------------------------------------|---------|-------|
| <b>Level of the health facility</b>     |         |       |
| Hospital                                | 6       | (40)  |
| HC IV                                   | 8       | (53)  |
| HC III                                  | 1       | (6.7) |
| <b>Ownership of the health facility</b> |         |       |
| Government                              | 13      | (87)  |
| Faith based                             | 2       | (13)  |
| <b>Gender of the facility leader</b>    |         |       |
| Male                                    | 13      | (87)  |
| Female                                  | 2       | (13)  |

sensitization and outreach activities that created demand for services and mobilized community engagement. In one hard-to-reach districts, residents even traveled to remote villages to carryout health education.

...There was a mother who had come... She was about 35 years, but had already had 13 children... And so, the doctor was wondering whether such a mother had ever heard of family planning... So, he was compelled to go up into the mountains and find out exactly what type of community this woman was coming from... Respondent 1, HC III

Following visits to the remote communities, the facility reported an increase in the uptake of family planning services.

...We had increased the family planning uptakes after the interventions... And when it came to appointment keeping, we are able now to retain our mothers up to the last day of their gestation period... Respondent 1, HC III

All facility leaders reported that residents made a deliberate effort to understand the challenges faced by individuals and communities in accessing health services.

...They called it mobilization or sensitization, they would go to communities... to find out the gaps, bring to us and help us address these gaps... So in one way or the other, we were able to also know the community challenges and some of the reasons why these patients are not coming on time or why they are shunning the facility services... Respondent 2, HC IV

One health facility leader noted that residents were able to empower people in the area by supporting a community-run club for patients with diabetes.

...Mainly they were concentrating on diabetes patients and hypertension... they revamped a club we had before, a diabetes club... which was not so active... now our club is active... it is having more than 100 patients in that club... So, they come together, they contribute some small money, and they supplement on their medicine from the national medical stores, which are supplied in a quarter... Respondent 3, HC IV

However, a few leaders expressed concerns that some outreach activities were not consistently coordinated with facility schedules, occasionally leading to gaps in service coverage.

...Residents do not come every month... they come once in a while... this inconsistency makes it hard to maintain momentum... Some services slow down or stop when PGs leave... Respondent 2, HC IV

Most of the facility leaders noted that the duration of residents' placement was sometimes too short to sustain the momentum created in the community.

...The placement period is too short ... By the time residents learn the system and the community becomes aware of their presence, they have already left... Respondent 10, HC IV

## Reorienting the Model of Care

Almost all the facility leaders reported that residents conducted interventions aimed at improving the efficiency and effectiveness of healthcare services through establishing referral linkages, training, mentorship, and skill drills for health care providers.

...They (the residents) even conducted skills drill on how to use an MVA, that is Manual Vacuum Aspirator, for the incomplete abortions... Respondent 2, HC IV

...He even moved there (referring facility) and conducted CMEs to make sure that those colleagues are mentored on what they are supposed to do, and to avoid such gaps when they are working on those patients... Respondent 4, HC IV

...They were also able to handle some complicated cases... especially the gynecological cases... So, for example... we worked with them and did some operation on hysterectomies and some complicated obstetrics... four previous scars... And we were able to do those Caesars... Respondent 5, HC IV

Five facility leaders noted that residents made efforts to improve the quality of health services through developing standard operating procedures (SOPs) and low-cost innovations.

...He (the resident) printed a very good formula for diluting and giving out the dosage of magnesium sulphate... which up to now is still hanged in the labor ward of our maternity department... even currently, the new midwives who were not there then are still currently utilizing that formula... Respondent 1, HC III

...So I remember they innovated something like this... the dryer for the samples I think it is the medical Laboratory team that innovated it... Respondent 2, HC IV

...The medical laboratory resident did internal quality assessment... I remember that time they used to search the laboratory reagent they bring and those other test kits for quality control... Respondent 6, HC IV

...Residents in obstetrics and gynecology installed a monitoring board in maternity ward... they also bought a bell... and taught staff in maternity ward... this bell helps us to call for help whenever we get an emergency... Respondent 13, General Hospital

However, most of the facility leaders expressed concerns about the skill sustainability challenges ranging from skills being complex and not having specialists in place to support sustain the skills taught.

...Some of the skills taught are complex and cannot be mastered in a few days... Without continuous mentorship and follow-up, skills die out over time... Respondent 3, HC IV

...If a trained staff goes on leave, the services become compromised... Respondent 15, General Hospital

## Coordinating Services

More than half of the facility leaders noted that residents made efforts to improve the coordination of service delivery so that patients have better experiences, especially during transitions. This involved coordinating services around the needs of patients and their families, ensuring smooth information sharing, and building long-term, trusted relationships with health providers, decision makers, and community leaders. In addition they lobbied for resources and played an advocacy role in establishing specialized clinics.

...We didn't have ophthalmology clinic... the residents started it... Because they started it, the district got us a clinic officer (ophthalmic)... Respondent 7, General Hospital

...The period they are here is critical, especially for ENT... ENT is a very specialized area, and during their time, the number of cases often increases... This rise in cases provides more learning opportunities for our staff... Respondent 8, General Hospital

...The first high-risk antenatal clinic... The idea of the clinic was started by the first lot of Obstetrics and Gynecology residents... They were able to highlight the major indications of what you call a high-risk mother... so they tried to initiate that one as one of the interventions to reduce maternal morbidity and mortality, same as the neonatal deaths... Respondent 2, HC IV

...Then I remember the first thing when they (residents) came... they emphasized the laboratory blood transfusion services, and since then it has been active... Respondent 2, HC IV

Residents were also reported to have trained PHC providers on the use of equipment, some of which were available but not used at the respective facilities because of lack of training.

...There's a resident who came and he taught us how to use an ECG... which we had, but we have never used it... We had it in the store... Now we are using it... We are doing ECG... Respondent 7, General Hospital

Most of the facility leaders noted internal challenges that hindered implementation and continuity of some of the services initiated or re-vitalized by the residents including: staff shortages, lack of specialists, staff rotations and leave.

...PGs temporarily fill these gaps, but the underlying structural shortage remains... some proposed interventions cannot be fully implemented due to internal limitations... Respondent 11, HC IV

## Creating an Enabling Environment

Residents at their respective placement sites were involved in lobbying, advocacy, and resource mobilization to create an enabling environment for health service delivery.

...He (the resident) also, when he was making his report, and also giving us the feedback, he recommended that we talk to the DHO so that he can be able to recruit more anesthetic officers... Respondent 4, HC IV

...We were able to review with them the structure, how the HC IVs are done, how health services at HC IVs are done... Especially, like we went into the organogram, the organizational structure of the HC IVs, whereby it is headed by the chairman of the health unit management committee, followed by the in-charge and other deputies. So we were able also to review that, the management services, especially... Respondent 5, HC IV

## Discussion

This study assessed health facility leaders' perspectives on how MUST clinical residents contributed to health service delivery in southwestern Uganda. Although resident placements are not new, few studies have captured the views of facility leadership, making this work a useful addition to the limited literature, particularly when compared to COBERS experiences in Uganda and residency initiatives in Nigeria and other SSA contexts. Leaders reported that residents strengthened PHC services across four WHO-aligned areas: empowering and engaging people, reorienting the care model, coordinating services, and creating an enabling environment.

Residents helped empower and engage communities to make informed health decisions about their health and become health co-producers. Residents conducted community sensitization and outreach to create demand for health services and mobilize and engage communities, through outreach and sensitization, even in hard-to-reach areas. This reflects findings from northern Uganda, where community engagement by trainees improved preventive health efforts<sup>5</sup> and aligns with evidence from South Africa showing that community mobilization enhances PHC user experience.<sup>14</sup> Similar to digital health innovations across Africa, resident-led stakeholder engagement also fostered trust and service uptake.<sup>15</sup>

Residents also contributed to reorienting the model of care by improving efficiency and enhancing provider skills through training, mentorship, and development of SOPs and low-cost innovations. These findings are consistent with studies in the UK showing that residents strengthen practical skills<sup>10</sup> and promote collaborative learning.<sup>11</sup> Further, the findings are consistent with evidence from SSA where continuous capacity building in complex settings improves PHC provider competency and overall performance.<sup>12</sup>

In addition, residents improved service coordination by integrating PHC providers with specialized services, revitalizing clinics, and training staff to use previously unused equipment. This helped reduce gaps between intended PHC services and actual capacity. Similar challenges also reported among primary care nurses in Australia.<sup>16</sup> Their coordination role further could have contributed to addressing governance gaps that commonly hinder PHC effectiveness across SSA.<sup>4,17</sup>

Residents also supported the creation of an enabling environment through lobbying, advocacy, and resource mobilization. These efforts could help address persistent challenges such as staffing shortages and inadequate funding documented widely across SSA.<sup>18–20</sup> These actions also mirror findings from Australia where remote primary care settings struggle due to insufficient resources and limited specialist support.<sup>16</sup>

However, the short community placement period and internal constraints such as staff shortages, rotations, and lack of specialists hindered continuity and sustainability of resident-led improvements.

Overall, residents contributed to empowering communities, improving service effectiveness, strengthening coordination, and fostering an enabling environment for PHC delivery, aligning with regional and global evidence while highlighting the unique perspectives of facility leadership.

## Limitation

First, perspectives on the contribution of residents on PHC service delivery were limited to health facility leaders who may have overstated the benefits. Additionally, no triangulation with residents, providers, or patient's perspectives was undertaken. Further, given that these were short-term perceptions, no longitudinal evidence of sustained changes is

presented. However, the findings make an important contribution to the body of knowledge about the role of clinical residents' placement in PHC service delivery.

## Conclusion

Clinical residents contributed perceived short-term improvements in PHC services through training, community engagement, and coordination. To maximize and sustain these contributions, institutional partnerships and longitudinal evaluations are needed. Strategically deploying residents in underserved areas may help address workforce gaps, but should be complemented with structural investments in PHC.

## Abbreviations

CHW, Community Health Worker; COBERS, Community Based Education Research and Services; ENT, Ear, Nose, and Throat; FMCH, First Mile Community Health Program; KII, Key Informant Interviews; MUST, Mbarara University of Science and Technology; PHC, Primary Health Care; VHT, Village Health Team.

## Data Sharing Statement

Data supporting the findings of this study were obtained from the Department of Community Health, Mbarara University of Science and Technology, P.O Box 1410, Mbarara. Data are available upon request from the corresponding author. There were also additional data in the form of technical reports by the clinical residents.

## Ethical Statement

This study was approved by the Mbarara University of Science and Technology Research Ethics committee (MUST-REC) under approval number: MUST-2023-913. Written informed consent was obtained from each participant, covering both their involvement in the study and the publication of anonymized information and direct quotes.

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## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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## Disclosure

The authors declare no conflicts of interest in this work.

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