

Original article

IMPROVEMENT OF MEDICAL EDUCATION THROUGH THE ESTABLISHMENT OF A MEDICAL CHIEF RESIDENT POSITION IN RWANDA

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ABSTRACT

Background: The Chief Medical Resident (CMR) role is a well-established, one-year position that has existed in the United States (US) for many years. Through collaboration between Yale University Primary Care Internal Medicine Residency Program and the University of Rwanda/College of Medicine and Health Sciences, the Internal Medicine Residency Program in Rwanda began a collaborative training program for Rwandan medical chief residents two years ago.

Aims: This paper describes the selection and collaborative training process of the new Rwandan CMRs in teaching hospitals in Rwanda. We also report on evaluation of the role, its impact, and evolving challenges from the perspectives of the current residents through a quantitative survey.

Methodology: A survey was directed to residents of the Internal Medicine residency training program. The survey was conducted at the two tertiary teaching sites in Rwanda: Butare University Teaching Hospital (CHUB) and Kigali University Teaching Hospital (CHUK) where chief residents are assigned. On a Likert scale, a group of continuing residents were asked to grade items assessing a change in several educational aspects. The second group of residents, which consisted of

first-year residents, was mainly asked questions directed at describing their perception on the chief resident role.

Results: In total, 38 residents out of the 40 at the two tertiary hospitals took the survey. Of the 38 residents who took the survey, 74% of respondents agreed or strongly agreed on the statement about improvement in educational conferences. 69.6 % of residents noted an improvement in medical education due to having a chief resident in the program. An overall improvement of the residency training program was observed by 78.3% of our study participants. In general (73.7%), residents perceive chief residents as their role model, with first-year residents (100%) being the most enthusiastic about this statement.

Conclusion: The chief resident role establishment has made a positive impact in medical education in Internal Medicine/ University of Rwanda. Chief residents play a big role in medical education and are regarded as role models by their fellow residents.

Keywords: Chief resident; Rwanda; Education, medical; Internship and Residency; Education, Medical, Graduate

INTRODUCTION

The mastery of clinical medicine does not only involve knowledge in patient care but also leadership skills. Residency training should equip trainees with organizational and leadership skills to prepare them for the managerial role of a specialist clinician.

In the United States, the chief resident position has existed for many years in the residency program and provides with candidates an invaluable opportunity to develop leadership and teaching skills. This opportunity has not existed in Rwanda since the residency program started in 1997.

Cooperation Between University Of Rwanda And Yale University

Through collaboration between Yale University and University of Rwanda, the chief medical residency position was started 2 years ago in attempt to develop academic leaders in medicine in Rwanda, which is still limited in human resources in Medicine.

The collaboration between Yale University and the National University of Rwanda began in 2010, through

funding from the Johnson and Johnson International Health Scholars program. Through this funding, third-year Yale Internal Medicine or fourth-year Medicine-Pediatric residents have traveled to Rwanda for six-week rotations where they receive training in the care of patients in the resource-poor environment. In turn, they are able to provide bedside teaching in clinical medicine and in evidence-based medicine alongside their counterparts in Rwanda. This collaboration has evolved to enable both US and Rwandan faculty to travel to other institutions to share experience in bedside teaching, evidence-based medicine, small and large group teaching, and resident evaluation and mentorship. The collaboration has been further strengthened by Yale University's participation in a US-Rwanda Ministry of Health Human Resources for Health (HRH) program to train faculty for Rwanda's health professions training institutions (1). To date, two chief residents for the year 2016/2017 were selected by the faculty and have completed an observership at Yale New Haven Hospital where they worked for one-month with Yale Internal Medicine Chief Residents.

American Chief Resident Role Description

Teamwork and leadership are important components of effective medical practice (2). Chief residents play a critical role in the educational mission of residency programs (3). Administrative, educational, and clinical tasks of chief residents have been detailed, and "leadership" and "teamwork" are readily identified by residency directors as important elements of the job (4).

The United States have had residency programs since the early 1900s (5). These programs organize structured education and service provision, and are headed by chief residents. Appointment to this post is often an internal department affair with non-formalized selection criteria. According to one job description, the chief resident is nominated by residents and their roles include preparing rotations, scheduling teaching rounds, organizing the educational program, organizing resident meetings, acting as resident advocate, liaising with senior staff, and orienting new residents. One study has demonstrated that a resident teaching program utilizing chief residents as trainers is an effective method to improve residency teaching program (6).

Rwandan Chief Resident Selection Process

In Rwanda, the Internal Medicine Post graduate training program takes 4 years and awards a Master of Medicine. The teaching staff comprises the local Rwandan Faculty staff as well as international faculty mainly from the US under the HRH program. To date, there hasn't been a chief resident position in Internal Medicine Post-graduate training program in Rwanda.

The first two chief residents in Internal Medicine were selected by faculty on the basis of leadership skills, academic excellence, clinical ability, teaching ability, good English command, and proven desire to teach and lead.

Four site chiefs were selected from third-year residents by all the postgraduates themselves, on the basis of similar criteria for chief residents and these appointments were approved by the faculty.

Rwandan Chief Resident Role Description

The medical chief residents in Rwanda are in their 4th year of a 4-year postgraduate training. Besides completion of the clinical and academic requirements of residency, Chief residents in Rwanda provide and coordinate resident education (such as morning report, team-based learning), oversee resident administration, help to develop future Rwandan teaching faculty, and empower residents to oversee themselves and to have personal accountability for their own professional development. Chief residents also serve as resident leaders and role models and play a critical role in the education of medical students during their clinical clerkships and formal lectures.

Chief residents are supported and supervised by the Clinical Heads of Department at each training site and the

overall Head of the Department of Internal Medicine at the University of Rwanda. The Clinical Heads at each hospital are responsible for leading the local clinical operations of the faculty and residents, and the Head of the Department is responsible for the operation of the entire residency program and all academic, professional and clinical aspects of medical education provided by the program.

This paper aims to look at the impact made with the establishment of the chief resident position in the Rwandan residency program.

METHODS

A survey was directed to residents of Internal Medicine residency training program in 2015. The interview-based survey was oriented to activities performed and the level of importance for administrative, clinical, and educational activities. The survey questionnaire also contained questions aimed at assessing the perception of chief role among the residents for the previous two years.

The Internal Medicine department consisted of 61 residents, around the country, at the time of the survey. The survey was conducted at the two tertiary teaching sites in Rwanda: Butare University Teaching Hospital (CHUB) and Kigali University Teaching Hospital (CHUK) where chief residents are assigned. In total, there were 40 residents at CHUK and CHUB combined. Residents were divided into two categories. The first group consisted of second, third and fourth year residents who had been in program before the chief resident position was established. The survey questionnaire for this group of residents emphasized on the changes they have seen with the program establishment mainly in terms of their teaching and training leadership. On a Likert scale, residents were asked to grade the following items on sliding levels of importance:

- Improvement in quality of educational conferences
- Improvement in medical education
- Chief resident regarded as a role model
- Overall, having a chief resident this year has improved the residency training program

The second group of residents consists of first year residents who started their training program with the chief resident program in place. The first year residents were mainly asked questions directed at describing their perception on the chief resident role.

A verbal consent was obtained before residents received a survey questionnaire and answers were held confidential.

RESULTS

Of the 38 residents who took the survey, first year residents accounted for 39.5%, 2nd year residents were 6 (15.8%) while 3rd and 4th years accounted for 31.6% and 13.2% respectively.

The study participation rate to the study was 100% among residents of the first, second and third years. Two PGY 4 residents were on vacation at time of data collection

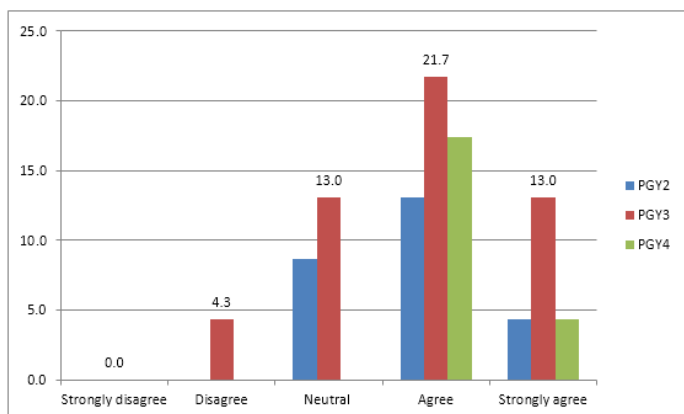
Table 1 Demographic characteristics (n=38)

Variable	Number	Percent	Participation rate (%)
<i>Residency level*</i>			
PGY1	15	39.5	100
PGY2	6	15.8	100
PGY3	12	31.6	100
PGY4	5	13.2	71.4
<i>Placement</i>			
CHUB	18	47.4	
CHUK	20	52.6	
Total	38	100.0	

*PGY: Post-graduate year (level of training)

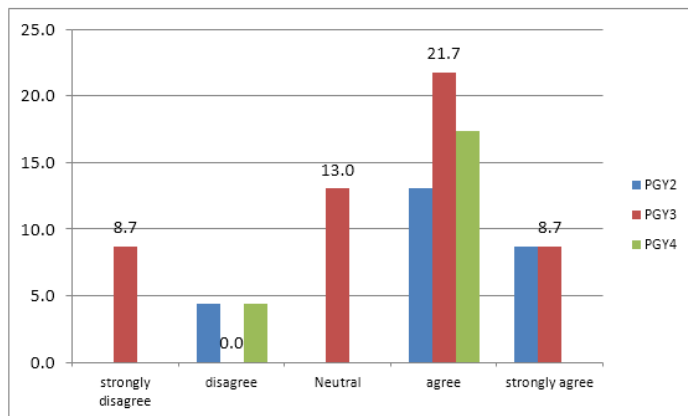
Quality Of Educational Conferences

The majority of participants (17/23, 74%) agreed or strongly agreed with improvement in quality of educational conferences compared to previous year. Few remaining residents (22%) were neutral about this statement, while only one resident (4.3%) disagreed. No resident strongly disagreed. Appreciations of the improvement in quality of educational conferences (**Figure 1**).

Figure 1. Quality of educational conferences, n=23

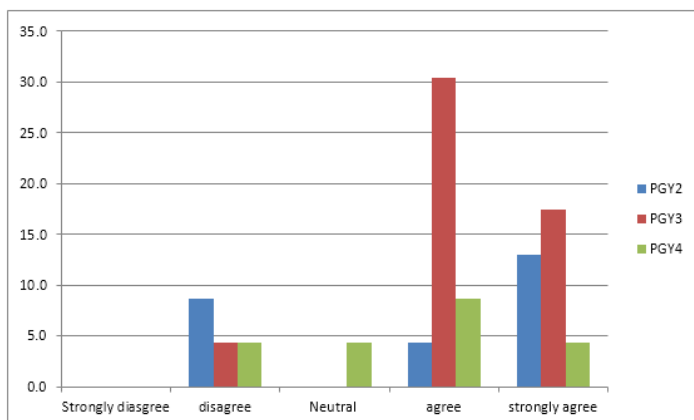
Improvement In Medical Education

Residents in 2nd year and above were asked if they noted any improvement in medical education in Internal Medicine department as compared to the previous year. Sixteen respondents (69.6%) confirmed to have noted an improvement by choosing "I agree" or "Strongly agree" on the Likert scale. Three residents (13%) were neutral while 2 (8.7%) were in disagreement or strong disagreement (**Figure 2**).

Figure 2 Improvement in medical education, n=23

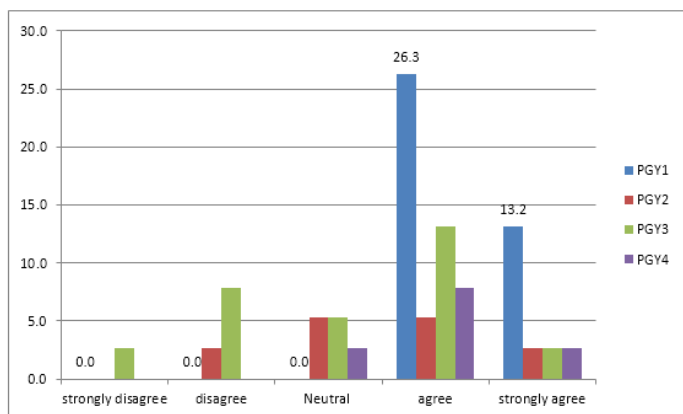
Overall Improvement Of The Residency Training Program

When asked to respond to a statement: "overall, having a chief resident this year has improved the residency training program", 10 (43.5%) respondents agreed while 8 (34.8%) disagreed, which represents a total of 78.3% of agreement with third-year residents being the most enthusiastic about the statement. No resident strongly disagreed with this statement while only 4 (17.4%) respondents disagreed (**Figure 3**).

Figure 3. Overall improvement of the residency training program, n=23

The Chief Residents Are Regarded As Role Models

To the question asking whether chiefs were regarded as a role model by residents, All the 15 (100%) first-year residents regarded the chief residents as role models. The majority of continuing residents (13/23=56.5%) also perceived chief residents as a role model. Overall, 28 residents (73.7%) residents perceive residents as role model and this is a role they would be keen on taking. Only one (2.6%) resident disagreed with this statement while 4 (10.5%) and 5 (13.2%) disagreed or were neutral about it respectively (**Figure 4**).

Figure 4 Chief residents are regarded as role models, n=38

DISCUSSION

The majority of residents observed a significant improvement in educational conferences. One year prior to this survey, chief residents have taken over the organization of video-conferences that were used to make core lectures accessible to all residents in the country. This was a solution as some visiting faculty were present for a short time and were unable to teach at every residency training center. It was hard for residents to move around the country given the heavy workload for residents. By involving themselves in preparation and organization of education conferences, Chief residents have very much contributed to the quality of educational conferences as it was observed through answers provided by respondents. Around 70% of respondents either agreed or disagreed about improvement in medical education in the department of Medicine. Chief residents play big role in writing teaching rosters for medical students and residents. They oversee teaching activities in the department. Chief residents were at two main sites (Kigali and Butare) where they organized educational conferences.

Having chief residents has brought more organization and rigor in medical education activities and has contributed greatly to overcome distance barriers, improving medical education, similar to other studies such as by Knut et al. and Chipps et al. (7) (8).

Only 56.5 % of continuing residents perceive chief residents as role models. This result was not as impressive as anticipated. This could be due to the fact residents knew them before as ordinary colleagues (before being chiefs) and they may not be able to detect the big change and the impact chiefs exert in the training program. On the other hand, 100% of new residents (first-year residents) see chiefs as role models and this is a job they would want to take as they advance in their training. This is a promising attitude for the future and success of the chief resident position and its advantages given the fact it's entirely embraced by a younger generation.

Overall, 78.3% of residents think their training program has improved due to establishment of the chief resident position. This is a significant number after only two years of having chiefs in place.

Limitations

There could be other confounding factors such social and financial aspects which were not explored in this study. In future studies, it would be interesting to explore the perspectives of attending physicians and chief residents about the impact of having the chief resident position in the residency training program.

CONCLUSION

After only two years of its establishment, the chief resident role in Internal Medicine residency program/Rwanda has led to a significant improvement in all residency training aspects as well as in medical education in general. Chief residents play a big role in medical education and are regarded as role models by their fellow residents especially the younger ones.

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