Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.5, No.5, 2014

Retention of Medical Doctors in Ghana through Local Postgraduate Training

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Abstract
This study examines the role of postgraduate training in retention of medical professionals, using a primary data from Ghana. The sample consists of medical specialists who have either completed a postgraduate training program and currently in practice or has enrolled in the program and nearing completion. The study made use of descriptive analysis and a logit regression model. The findings identified three main factors that influence doctors to migrate, these are; economic in the form of a quest for higher pay and better working condition; the need to pursue postgraduate medical training to achieve maximum learning potential and to become a certified specialist; and to avoid living in a country with a poor social structure in which there is a high level of poverty. The logit estimation shows that satisfaction of postgraduate training program significantly affects physicians/doctors to consider leaving. The results also showed that physicians/doctors would be willing to live and practice in Ghana if additional resources (in the form of funding, equipment and others) are made available to enhance the postgraduate programs and practice conditions.
Keywords: Brain Drain, Doctors, Emigration, Postgraduate Medical Education, Ghana

Acknowledgement
The authors express their appreciation to Isaac Baah, Samora Cann, Olga Armah, Ivy Acquaye and Hetty Laing for the support they offered. They are also grateful to Dr. Nalita James of the Centre for Labour Market Studies, University of Leicester for the guidance and direction. Finally, we would like to express our appreciation to all doctors who participated in the study.

1. Introduction

In recent times, challenges associated with medical training have taken centre stage in the policy discourse. This is primarily, due to the increasing brain drain phenomenon associated with medical professionals. Indeed, the effect of brain drain on institutional development has resulted in a lot of discussion among specialists and governments, notably in developing countries. Broadly, brain drain is defined as "the emigration abroad of tertiary educated persons at such levels and for such durations that their losses are not offset by their remittances home, by transfer of technology, or by investment or trade from the recipient country" Lowell and Finlay (2001). According to Dovlo (2004), brain drain is deemed to have occurred once "a professional is not in the employment of the home or source country of training". In undertaking this situation, we observed that the brain drain phenomenon that occurs in most emerging and developing countries is associated with various categories of professionals, including physicians. In a number of these countries, there is a perceived notion that the quest by a professional to emigrate is driven solely by financial gains. However, for most medical professionals, the reasons for leaving home vary and are partly due to pressures for intellectual pursuit. Also, prospects of working under rather harsh conditions such as ill-equipped and understaffed hospitals with limited chances for professional advancement are major push factors. In reading around the literature, we noted that for most physicians, the only chance of attaining career advancement and access to research facilities was to emigrate.

Ghana is a low middle income country and the lack of health personnel and well-equipped hospital infrastructure has had a significant impact on health care delivery, and in the process threatens the achievement of health equity. For Ghana, the intensity of mass emigration of medical specialists and other health-related personnel prior to the 2000s became a major source of concern due to its impact on the health care systems. However, with the establishment of the Ghana College of Physicians and Surgeons targeting postgraduate medical education (PGME), there are emerging signs that emigration is slowing down. Against this backdrop, the purpose of the study is to examine whether the introduction of postgraduate training medical training helps to slowdown the pace of emigration and retain medical doctors, using the case of Ghana. Specifically, the study investigates what role, if any, the availability of local postgraduate training opportunities has played in the high retention of trained doctors in Ghana. We examined qualitative factors underlying the emigration of Ghanaian physicians and specific reasons why in recent times doctors in Ghana have resisted the temptation to emigrate.

The adoption of structured interviews to gather information from physicians on whether local postgraduate medical training has had any impact on the brain drain and understand and compare reasons why doctors emigrate or not, the study identified the following research questions which need to be answered. These are:

1. What are the main factors that motivate physicians to migrate?
2. Would a physician be willing to remain in Ghana if the challenges of the push factors are addressed locally?
3. What other factors would impact positively on the physician's potential to stay home?

The scope of the study will cover medical doctors or specialists who have either enrolled in or undertaken the local postgraduate training program. In seeking deeper understanding on the topic of emigration of doctors, we noted that very few of such studies have focused on postgraduate training as a tool to lower emigration of medical professionals especially in developing countries. This study is an extension of that of Clinton et al. (2010) which examines local postgraduate training in only obstetrics and gynaecology. This study therefore seeks to contribute to the research gap by examining the effect of postgraduate medical training of several specialties on retention of medical professionals. The study is significant due to its intended contribution to the ongoing debate of local postgraduate medical training in countries where there are considerable levels of "physician flight." In addition, its qualitative nature attempts to fill gaps in earlier research studies by using structured interview techniques to examine how local Post Graduate Medical Training can mitigate the migration of physicians in Ghana. The policy implication of the study is to be able to train and retain specialists locally to improve the health care delivery system and meet the country's health needs. Among others, the analysis will help policymakers understand the fundamental causes of specialist migration in the medical profession and suggest policy recommendations to lower the trend. This forms part of the capacity building strategy of the Ministry of Health in Ghana.

The remaining sections of this paper are organized as follows; section two discusses postgraduate medical education in Ghana, section three examines literature review, section four explores the methodology for the study, section five discusses the results and section six concludes and provides areas of further research.

2. Postgraduate Medical Education in Ghana

The choice of Ghana as a case study stems from the fact that the country accounts for a significant share of migrating physicians from the West African sub region to North America and Europe. The statistics show that with a population of about 24 million, the country had about 2,026 practicing physicians in 2007, which results in a physician-population ratio of 1:11,000. There are plans to increase the ratio to at least 1:1,000 by 2025, which is still far lower than the current ratio. To meet the 2025 target, Ghana would have to train about 32,000 physician's vis-à-vis the anticipated population growth (Sodzi-Tettey, 2010).

2.1 Various Postgraduate Programs

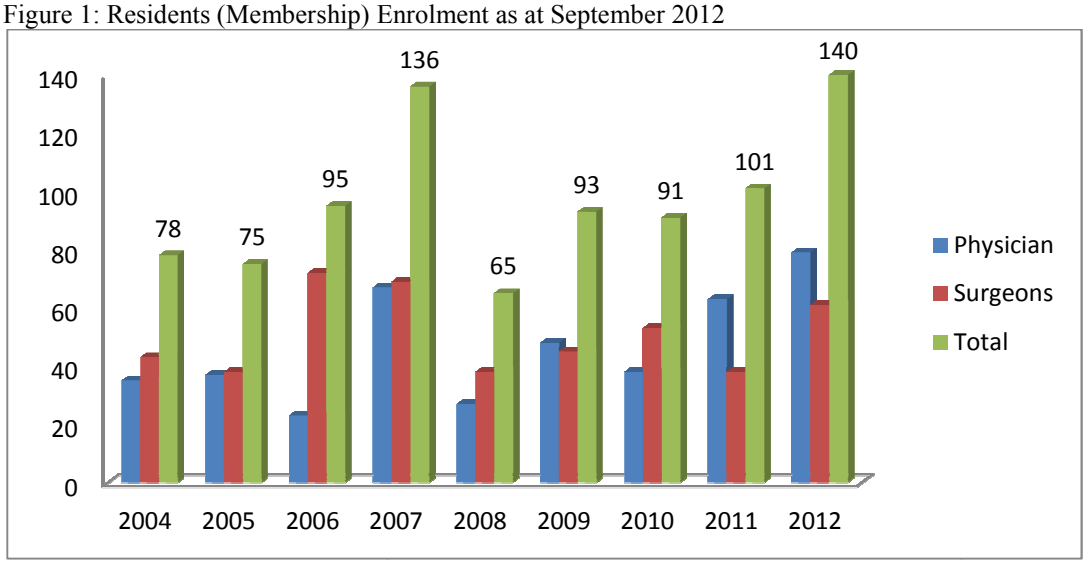
At the time of this study, Ghana had four medical schools and three teaching hospitals. The medical schools are: University of Ghana Medical School (UGMS), Kwame Nkrumah University of Science and Technology School of Medical Sciences (KNUST SMS), the University for Development Studies School of Medicine (UDSSM), and University of Cape Coast Medical School (UCCMS). Despite the increasing numbers of medical schools, the Class of 2011 from all four medical schools cumulatively produced 357 doctors, with the highest of 227 from the UGMS. In seeking to boost the numbers towards the 2015 target, plans are underway to at least double the number of doctors produced across the country by 2016 (Amonoo-Kuofi, et al 2012). As noted by Dovlo et al (2004), on the average, between 50 to 75 per cent of UGMS graduated doctors emigrate 4.5 to 9.5 years after graduation for various reasons, including pursuit of specialist programs.

Ghana has since 1973, instituted training of postgraduate medical specialists in collaboration with the United Kingdom (UK). Trained specialists are permitted to take examinations administered by the Royal Colleges for certification. These trainees subsequently earn the "Member Royal College of Physicians or Member Royal College of Surgeons" title and qualify to work in the UK as well. Given the infrastructural development and better remuneration of specialists in the UK compared to Ghana, this arrangement paved the way for Ghanaian medical specialists who undertake the Royal Colleges certification to stay and with time, very few physicians returned to Ghana to practice. This translated to loss of much needed medical personnel since the number of the physicians who did not return after qualifying was significant. It also posed a huge financial drain on the economy because the training was paid for by the Government of Ghana with its limited foreign exchange resources.

To address the emigration problems associated with training specialists abroad, countries in West Africa established the West African Postgraduate Medical College to oversee training of specialists in the sub-region. Unlike the UK program, the West African Postgraduate Medical College required trainees to acquire the "Fellowship" from the specialty in which they are training before graduating. This process took time, sometimes ten or more years, leading to trainee over staffing in teaching hospitals to the disadvantage of regional and district hospitals. In view of these challenges, a national post graduate medical college with a national agenda

was proposed for Ghana. The Ghana College of Physicians and Surgeons (GCPS) was established in 2004, with the first enrolment of 78 trainees. Significant progress has been made since then. Currently, the postgraduate training is organized under the following specialties: Anaesthesia and Intensive Care; Dental Surgery and sub-specialties, Emergency Medicine, Family Medicine, Internal Medicine and Laboratory Medicine. The rest are Obstetrics and gynaecology, Pediatrics and Child Health, Psychiatry, Public Health, Radiology and Radiotherapy; Surgery and sub-specialties.

Figure 1: Residents (Membership) Enrolment as at September 2012



Source: Ghana College of Physicians and Surgeons (Annual General and Scientific Meeting (2012) Program)

From a total of 78 enrolments, made up of 34 physicians and 44 surgeons in 2004, the GCPS had 140 enrolments as at August 2012, made up of 77 physicians and 63 surgeons (see Figure 1). Further disaggregation of the enrolment numbers show that over the past nine years, the GCPS top three physician enrolments by division were in internal medicine (100), child health (91) and public health (62) as shown in Figure A1 (see appendix). Surgeon enrolments also show the top three divisions as general surgery (162), Obstetrics & Gynaecology (142) and Dental surgery (38) as shown in Figure A2 (see appendix). The increasing number of enrolled physicians and surgeons at the GCPS is beginning to reflect in the number of post graduate trainees in the medical field. From 2007 to September 2012, the GCPS has produced a total of 354 physician and surgeon specialists in different divisions (see Table A1 and Figure A3 in appendix), boosting the country's capacity building in the medical field. Looking forward, however, the question is whether the availability of the GCPS is a sufficient condition for retaining medical specialists in the country.

3.0 Literature Review

3.1 Review of the Empirical Literature on Physician Migration

Countries in the West African sub region, including Ghana, have experienced mass migration of highly trained and skilled workers to developed countries. The phenomenon also known as 'brain drain' refers to the migration of highly trained or skilled labour from one country to another (Beine et al., 2003; and Dodoo et al., 2006). There have been discussions among researchers on the negative impact this human capital flight has on the economic viability of the already impoverished nations in developing countries. Earlier academic studies on the issue of brain drain focused primarily on its causes, effects and consequences. Studies by Dovlo et al. (1999); Martineau et al (2002); Padarath et al (2002); and Meeus et al. (2003) are some of the studies that have made significant contributions to the debate on brain drain and how to lessen its impact. However, there have been very few studies on the effect of local postgraduate medical training (PGME) on brain drain.

Postgraduate Medical Education is how physicians become competent practitioners, post basic medical qualification, in an apprentice-like setting, working under the supervision of more experienced physicians before becoming fully licensed. According to global standards, after basic medical training, physicians require Postgraduate medical education to specialize and continuing professional development to remain competent (World Federation, 2003). The studies of Klufio et al (2003), Anderson et al (2007), Clinton et al (2010), deepened the debate and addressed the issue of local postgraduate medical training in relation to brain drain. While these studies focused on the gains made in local postgraduate training in specific specialties, only a few focused on the reasons why some physicians opt for the local medical training programs and whether they still have plans to relocate to another country after training. Hence the need to research further into what motivates physicians to enrol in local postgraduate medical programs and to practice in the home country.

Using primary data from Palestinian Arab (and Jordanian) students, graduates and professionals, Jaafari (1973) examined the reasons for migration to and settlement in the United States. The author found that though the number of Palestinians migrating to the United States appeared minimal, "the critical few, that is, the highly qualified professionals who could effect change and improve the traditional environments – choose not to return home after receiving education and/or training". In addition, the study brought to the fore that the absence of such skilled personnel in the home country is a result not only of the economic incentives of the United States but also of the unattractive political and educational conditions at home.

Chen and Su (1995) presented a model based on the assertion that the efficacy of on-the-job training, as well as the productivity of skills, depends on the social stock of capital. From their study it was evident that as the degree of dependency of on-the-job training on capital stock increases, the problem of brain drain becomes more severe and more difficult to correct. According to the authors, the model may account for reasons why the failure of foreign-educated students to repatriate is a more prevalent form of brain drain than outright migration of skilled labour. Thus, the paper notes that the model is consistent with the repatriation pattern of Taiwanese students who received post-secondary education in Japan.

In another study on medical graduates from Lahore, Pakistan, Imran et al. (2011) examined post-graduation migration intentions and the influencing factors. They found that a huge percentage of medical graduates from Lahore intended to leave their home country mainly to the US for postgraduate training. Other motivating factors identified in the research were financial conditions, ready job opportunities and better working conditions. Moreover, Mills et al. (2011) examined the financial cost of doctors emigrating from sub-Saharan Africa. They realized that in the nine sourced countries, the estimated government subsidized cost of medical training per trainee ranged between $21,000 and $58,700. Also, the overall estimated loss of returns from such investments for all doctors currently working in the destination countries was approximately $2.17 billion, with varying costs per country. The paper noted that Zimbabwe and South Africa had the largest losses of returns to medical training. In relation to the destination countries, UK and USA benefitted greatly from emigrated trained doctors.

In more recent times, experts such as Guest (2011) and Ozden (2007) have countered the negative concepts of brain drain by enumerating its benefits. These benefits may be economic, such as remittances from emigrants to relatives in their home countries to subsidize household incomes and being a source of foreign exchange to home governments. In 2002, African countries received about 15 per cent of US$80 billion in migrant labour remittances to developing countries made through official financial system transfers; an underreported total of which Sub-Saharan Africa received nearly one-third of the amount to Africa (Samba and Maimbo, 2003). Ghanaian expatriates remit almost US$400 million annually to Ghana, making remittances the fourth highest source of foreign exchange to the nation (UNESCO 2004).

Another benefit of brain drain is the transfer of technology, skills and knowledge. Emigrants enhance their skills and gain relevant experience so that when they eventually return to their home countries, they apply the acquired knowledge in setting up businesses, teaching or working leading to economic development. This also known as "reverse brain drain." Modern economists have determined that brain drain also leads to a reduction of global poverty (Guest, 2011). The mass migration is of people with marketable skills trying to avoid poverty and the remittances they make lift some household from poverty. People invest in and pursue tertiary education with the goal of acquiring marketable skills to facilitate finding a job abroad.

Regardless of these benefits, the issue of "brain drain" in sub-Saharan Africa is most evident and well documented in the area of health care in which there continues to be a mass exodus of medical professional, mostly physicians and nurses. The exodus puts the health of the home country's population at risk. According to Hagopian et al (2005), mass exodus of physicians leads to reduced health care services; impedes the home country's health care system's ability to respond to change; and shrinks a vital component of economic units, the middle class, that facilitates economic development on those countries. UNESCO (2004) reports that national medical associations in developing countries have warned of shortages in medical skills making health care services available to those that can afford it, the wealthy; losses that nations like Ghana and Nigeria have not done enough to stem. Since 2000, African countries have lost at least 20,000 skilled workers per annum to industrialized countries.

Despite the seeming lack of consensus among researchers on fundamental causes and effects of brain drain of physicians, there have been a number of studies that have investigated the reasons why health personnel especially doctors emigrate to developed countries. The research methodologies adopted have varied between statistical analyses to qualitative studies to investigate what motivates individuals (African professionals) migrate to the West. According to Hagopian et al (2005), physician migration generates three main areas of concern, that is, the loss of health services available to the populace; the health sector's ability to organize and expand; and depletion of a critical mass of the middle class stratum across West Africa. Also, Dovlo (2004) suggests that when health professionals in Africa undergo postgraduate training in countries other than their own it often leads to continued residence in the country of training. The pull factors therefore outweigh those in the home country. Apart from financial gains, the availability of developed health care infrastructure improves the

working environment and gives doctors job satisfaction.

Meeus (2003) and Dovlo (1999) (cited in Dovlo, 2004), used 'push' factors to describe factors within source countries that induce professionals to emigrate whilst 'pull' factors arise within recipient countries and attract intellectuals into their own systems. Some 'push' factors were identified as the excessive workload, low remuneration, poor conditions of service and training system, low job satisfaction, lack of professional development, political and ethnic problems. Other studies by Martineau et al (2002) and Padarath et al (2002) cited the 'pull' factors as 'attractive remuneration, new career and personal development prospects'. These factors are also cited by Iman et al (2011), which found that large proportions of medical graduates migrate to the United States for postgraduate training and the "motivating factors are financial conditions, ready job opportunities and better working conditions". It has also been suggested by Korner (1998) that "as a result of increasing globalization of economic relationships, professionally and academically qualified workers are still migrating from country to country". Korner (ibid) suggested further that "such migration is no longer due solely to optimizing decisions by individuals seeking employment but increasingly also by decisions of multinational corporations, which recruit experts …"

3.2 Postgraduate Medical Training and Physician Retention

The role of postgraduate training for specialists in developing countries as a possible intervention to reduce brain drain and migration has not been fully explored by researchers. A review of existing literature showed very limited empirical studies that examine the effect of postgraduate training on the retention of physicians in their home countries. Clinton et al. (2010) revealed that a combination of the presence of local PGME opportunities, commitment to serve the local community and a feeling that physicians can be "successful" economically contributes immensely to the retention of physicians in Ghana. This assertion was confirmed by Adebonojo et al. (2003), who found that obtaining postgraduate training in the United States is highly competitive for foreign trained doctors such as Ghanaians. The competition usually is a disincentive for Ghanaians and other foreigners to travel to the US for training and makes local training more attractive.

Gregory et al. (2006) explored the merits of a three-year postgraduate training program in Laos which aimed at preparing a core group of local physicians to deliver healthcare. The findings show that five out of six physicians in the first graduating class remained in-country where the vast majority of the training takes place. Hence, this prevents the "brain drain" that occurs when nationals of developing countries train abroad. Moreover, the use of personnel, facilities and technology which are available locally helped prepare the graduates to serve the needs of the people in Laos. Further, the study carried out by Anderson et al. (2007) show that the single-most important factor in the retention of medical school graduates which led to specialty qualification in obstetrics and gynecology was the availability of a training program in Ghana. This, they said, offer medical school graduates "a viable and high-quality option to stay in Ghana for their postgraduate work." Moreover, they cited economic and social factors as major elements in a graduate's decision to stay in Ghana to practice. They recommended based on their findings that if medical school graduates in developing countries perceived that by training in-country they could practice their skills and function well, both economic- and social-based brain drain could be reduced. In a counter argument, Martey et al. (1995) explained that based on the Ghanaian experience, the training of medical students is an incomplete process. According to the study, medical students who had migrated cited better postgraduate training programs, and the ability to afford the basic life amenities as the main reasons for departure.

It was further emphasized by Phadke and Bagga (2005) that medical postgraduate local training must focus on the socio-economic and cultural framework of the local community in order to retain graduates. The paper recommended that emphasis should be on prevention, early diagnosis of common diseases, the optimum management with available resources and locally prevalent diseases. Similarly, Brobby and Ofosu-Barko (2002) noted that graduates from the School of Medical Sciences (KNUST) were also emigrating. This has resulted in the establishment of a postgraduate medical curriculum which takes into account the needs and demands of local communities to ensure quality specialist care and equitable distribution of existing health resources.

Mullan (2005) and Hagopian et al. (2004) also found that at least one in eight doctors trained in Sub-Saharan Africa is lost to a developed nation and future shortages are predicted to be even greater than those seen at present. This is in line with the finding of Clemens and Pettersen (2007), who assert that as many as 6 out of 47 sub-Saharan African countries have lost over 60 percent of doctor work force to migration and estimates the amount of lost investment at between US$0.18 million and US$0.50 million for each departing doctor (Kirigia et al., 2006). In a similar study, Ronaghy et al (1976) examined physician migration through the US foreign aid as a means of providing US manpower. Using data from the American Medical registry on US-trained Iranian physicians who have returned to practice in Iran, the study revealed that less than one-third of specialists who completed training in the US had returned to practice in Iran. Also, the group with the highest rate of return to Iran is the one with combined surgery subspecialties, that is, neurosurgery, thoracic surgery, orthopaedic surgery and plastic surgery. On the other hand, the specialist groups with the lowest rates of return were pathology, anaesthesiology and psychiatry. Arnold (2011) explained the historical background behind the brain drain to

Europe with specific reference to South Africa. The findings show that apartheid South Africa has been hardest hit with brain drain due to its colour differentiation and the country ranks high among the donor countries to the medical work force in Europe.

3.3 Local Postgraduate Medical Training

The absence of in-country postgraduate education is considered a major factor in the emigration of health professionals (Eastwood et al., 2005). An important factor limiting the retention of health professionals in developing countries is the educational structure. Dovlo (2004) suggested that "the education of health professionals may be said to interface with their retention and motivation in a number of ways." Boelen and Heck (1995) cited in Dovlo (2004), "proposed that medical schools have a social accountability to the communities they served suggesting that medical schools must adapt and proactively help shape the future of their health systems." Local postgraduate medical education therefore has a role to play in creating the systems that ensure retention of graduates to serve in the various communities. The structure and design of the curricula of such training programs should take into account the socio-economic and cultural framework of the communities in the country. Therefore there is the need to develop innovative training programs to retain physicians.

There is various success stories of training programs tailored to the needs of developing countries. Phadke and Bagga (2005) considered the development of specialists in the area paediatric nephrology with emphasis on prevention, early diagnosis of common diseases and optimal management within available resources. In the discussions, it was noted that training should focus on locally prevalent renal diseases and diseases which are more common in tropical countries; the trainee should be equipped with management skills to develop a paediatric nephrology service at his/her country of origin. Under this framework, a 3-year postgraduate training program was set up in Laos, which targeted the training of a core group of local physicians to deliver health care (Gordon et al., 2006).

4. Methodology

4.1. Sampling Design and Technique

The sample for this study is drawn from a team of medical specialists who at one stage or the other have either completed a postgraduate training program and currently in practice or has enrolled in a postgraduate program and nearing completion. The resulting stratified sample reflects a cross-representation of physician characteristics "so they will be distributed in the same way as the entire population" (Fowler, 2002). The study adopts the snowballing technique to identify and sample the respondents.

4.2. Methods of Data Collection and Analysis

In the study, respondents reached through primary sources were contacted by electronic mail, telephone, and face-to-face interviews. In most cases personal contacts were made, while in some others, the secondary source was used to contact respondents prior to a follow-up. This study makes use of qualitative and quantitative analyses in order to answer the research questions. In relation to the qualitative analysis, the various reasons given by the respondents to explain how postgraduate training leads to retention of medical specialists are discussed. In relation to the quantitative analysis, the study first conducted a descriptive analysis of respondents' demographic and educational characteristics and of the outcome variables of interest (abroad traveling intention, reasons for the travel, satisfaction of local postgraduate program and the nature of the program), frequencies and percentages for categorical variables. Secondly, a bivariate analysis was carried out using the Chi-Square test to determine which demographic and educational characteristics are associated with each of the outcome variables of interest. Also the study evaluated whether the "satisfaction of the local postgraduate program" variable was associated with the "considered leaving" variable.

Furthermore, a binary model (specifically a logit) is carried out to examine the variables which significantly affect a doctor's or physician's decision to leave abroad. In our logit estimation, we have "considered leaving" as the dependant variable. This variable takes on the value 1 if the individual has considered leaving and 0 otherwise. The model specification is given as;

$$ConsideredLeav = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 MaritalStat + \beta_4 Sat\,\mathrm{Prog} + \beta_5 SatDur + \varepsilon_t$$

Where ConsideredLeav is the considered leaving variable; it the value 1 if the individual have considered leaving and 0 if otherwise,

Age is the age of the respondent and it is a continuous variable,

Gender represents the gender of the respondent; it's a dummy variable which takes value 1 if the respondent is a male and 0 if female,

MaritalStat represents marital status; it's a dummy variable which takes value 1 if single and 0 if otherwise,

SatProg represents satisfaction of program; it's a dummy variable which takes value 1 if the respondent is satisfy with the postgraduate program and 0 otherwise,

SatDur represents satisfaction of duration of the program; it's a dummy variable which takes value 1 if the

respondent is satisfy with the duration and 0 otherwise,

β_i represents the coefficient of the respective variable, where i=1, 2,..,5 and ε_t is the error term.

From the logit model we also estimate the marginal effect at the mean values of the explanatory variables. In logit models the marginal effect is slope of the probability curve relating the explanatory variable to the probability that the dependent variable will be equal to one holding other explanatory variables constant. The marginal effect measurement is mostly used to interpret the effect of the regressors on the dependent variable in binary models.

5. Discussion of Results

5.1 Characteristics of Respondents

An effort was made to include physician respondents with diverse characteristics based on gender, marital status, and area of specialization to ensure that the information gathered on physicians' knowledge of the issue fully described the research objectives and gives weight to any conclusions drawn. The total number of respondents to the questionnaire was 58, comprising 42 male and 16 female (Table 1). About three in every four respondents were under 40 years with nearly 45 per cent in the 31 to 35 age range; only 6.8 per cent were over 50 years old. More than 72 per cent of the physicians interviewed were married, compared to 20.7 per cent single and 3.4 per cent widowed. Respondents were nearly evenly split between KNUST (44 percent) and UGMS (48 per cent) trainees. Additionally, physician specializations were in eight of the 21 offered by the Ghana College of Physicians and Surgeons (GCPS), that is; surgery (20.7 percent), internal medicine (17.2 per cent), public health (17.2 per cent), OBS/GYN (13.8 per cent), radiology (13.8 per cent), family medicine (10.3 per cent), urology (3.4 per cent), and eye health (3.4 per cent).

Table 1: Characteristics of Respondents

Characteristics	Categories	Frequency	Percent
	Total	58	100.0
Gender	Male	42	72.4
	Female	16	27.6
Age in years	25-30	2	3.4
	31-35	26	44.8
	36-40	16	
	41-45	6	10.3
	51-55	2	3.4
	>70	2	3.4
Marital Status	Married	42	72.4
	Single	12	20.7
	Widow	2	3.4
Local PGME Institute	KNUST	26	44.8
	UGMS	28	48.3
	Other	4	6.9
Field of Specialization	Eye Health	2	3.4
	Family Medicine	6	10.3
	Internal Medicine	10	17.2
	OBS/GYN	8	13.8
	Public Health	10	17.2
	Radiology	8	13.8
	Surgery	12	20.7
	Urology	2	3.4
Rural Experience	Yes	54	93.1
	No	4	6.9
Considered leaving the country	Yes	22	37.9
	No	36	62.1
Know any physician emigrant practicing abroad	Yes	50	89.3
	No	6	10.7

Source: Author's Survey

The structure of the PGME training programs ensured that respondents overwhelmingly (93.1 per cent) had rural experience. Of the total, majority of the respondent (62.1 per cent) had not considered emigrating compared to 38.0 percent who had; and about 90 per cent of respondents knew physician emigrants practicing abroad. Some

of these characteristics influence physicians' opinions of local PGMEs, their availability helps with physician retention and factors that will lead to migrating to other countries to practice.

5.2 Reasons for Leaving or Staying in the Country

Physicians gave a plurality of reasons for leaving the country to practice elsewhere. Specifically, 38 percent said the reasons were economic, that is poor remuneration, unfavourable work conditions and difficulties in supporting extended families; 30.1 per cent said it was because they needed to pursue specialized postgraduate studies; 23 percent said the country had a poor social structure; while 7.7 percent cited political instability (see Table 2). Other studies which found similar reasons for the flight of physicians include Jaafari (1973), Chen and Su (1995), Imran et al. (2011), Dovlo (2004), Meeus (2003) and Mills et al. (2011). This implies that while availability and access to postgraduate medical training ranked high as a cause of physician flight, economic conditions and the poor social structure in the country are also significant factors.

Table 2: Reasons for Leaving the Country

Reasons	Per cent
Economic	**38.5**
Poor remuneration	
Unfavourable working condition	
Difficulties in supporting extended family	
Postgraduate Education	**30.9**
Not achieving full potential academically	
Pursue post graduate studies	
Specialization	
Social	**23.0**
Poor Social Structure	
Political	**7.7**
Political Instability	
Total	100

Source: Author's Survey

On the other hand, over 60 per cent of doctors who decided to stay in Ghana made the choice due family (32.7 per cent) or availability of training program (30.6 percent) reasons. Other reasons by respondents such as helping the vulnerable poor, serving the country, comfortable weather conditions in Ghana, among others, accounted for 18.4 per cent and ranked as the third significant reason. Only about 10 per cent cited inability to secure admission or the high cost of training abroad as a reason to stay in Ghana (see Table 3).

Table 3: Why Medical Doctors Decide to Stay in Ghana

Reasons	Freq.	Per cent of responses	Per cent of cases
To be with family	32	32.7	55.2
Availability of training program	30	30.6	51.7
Other reasons	18	18.4	31.3
Availability of sponsorship	8	8.2	13.8
High cost of training outside	4	4.1	6.9
Unable to secure admission abroad	6	6.1	10.3
Total	98	100	169.0

Source: Author's Survey

5.3 Physician Opinion of Local Postgraduate Medical Education

Overall, most physicians have a positive impression of the quality of the clinical curriculum, clinical instruction, and duration of the local postgraduate training programs. Nearly 90 per cent said clinical curriculum of local PGMEs was normal or well-prepared compared to 11.5 per cent who thought otherwise. Majority, 85.7 per cent, also thought clinical supervision was normal or well-supervised. Subsequently, a majority (88.5 per cent) considered the duration of the program to be satisfactory (see Table 4).

Table 4: Physician Opinion of Program Quality and Duration

	Rating	Freq.	Per cent
Quality of clinical curriculum	Below expectation	6	11.5
	Normal	34	65.4
	Well prepared	12	23.1
	Total	52	100.0
Quality of clinical instruction	Below expectation	6	14.3
	Normal	30	71.4
	Well Supervised	6	14.3
	Total	42	100.0
Satisfied with the duration of program	No	6	11.5
	Yes	46	88.5
	Total	52	100.0

Source: Author's Survey

These results were consistent with what physicians considered the strengths and weaknesses of the six-month rotation program. Respondents attributed some of strengths to: program intensity, exposure to variety of cases and different socio-economic environment, opportunity to learn with practical experience and so on. In contrast, the uniquely cited weaknesses were in reference to resources, such as, reading rooms and inadequate equipment, while separation from family was considered a weakness in the rotation program as shown in Table 5.

Table 5: Strength and Weaknesses of Six-Month Rotation Program

Strength	Weakness
Adequate rotation period	Duration is long
Enough time to adjust	Rushing through the curriculum
Eagerness of consultants to teach	No visit from supervisors
Exposure to variety of cases and socio-economic environment	No motivation
Intensive	Timetable not well followed
Opportunity to learn and perform	Few rooms for reading
Practical experience	Separation from family
Well packaged	Inadequate equipment

Source: Author's Survey

On the issue of respondent's frustrations with the local PGME programs, nearly four in five physicians thought there were inadequate resources to enhance their studies (see Table 6). A significant share, 40 per cent, also thought conditions for practicing outside the three teaching hospitals in Ghana, that is, Korle-Bu, Komfo Anokye and Tamale were unfavourable. Other frustrations were unavailability of sponsorship (32.0 percent), while 24.0 per cent of respondents considered non-availability of trainers as part of the frustrations associated with the PGME programs (see Table 6).

Table 6: Frustrations with Local Postgraduate training

	Freq.	Per cent of responses	Per cent of cases
Inadequate resources to enhance studies	38	36.5	78.0
Conditions for practicing outside teaching hospitals not favourable	22	21.2	44.0
Other (specify)	19	9.6	20.0
No sponsorship	16	15.4	32.0
Non availability of trainers	12	11.5	24.0
Long duration of program	6	5.8	12.0
Total	104	100	208

Source: Author's Survey

5.4 Local Postgraduate Studies and Retention of Medical Specialists

Logit estimation in Table 7 examines factors affecting a physician or doctor to consider leaving. This model passes the fitness test since the p-value is less than 1%. Using the logit estimation, it was found that among the explanatory variables used in our estimation it is only satisfaction of postgraduate training which significantly affect the decision of a physician/doctor to consider leaving or not. Satisfaction of postgraduate program negatively affects the decision of a physician/doctor to consider leaving.

Table 7: Logit Estimation of Considered Leaving

Considered leaving	Coefficient	Standard Err.	Z
Age	0.007	0.098	0.07
Gender	-1.609	1.064	-1.51
Marital Status	-0.570	1.150	-0.50
Satisfaction of Prog.	-2.796***	0.971	-2.88
Satisfy of Duration	0.056	1.400	0.04
Constant	2.751	3.529	0.78
Number of Obs.	46		
LR Chi2 (5)	16.850		
Prob. > Chi 2	0.005		
Pseudo R2	0.274		
Log Likelihood	-22.360		

*** represents significant at 1%

The marginal effect in Table 8 shows that physicians/doctors who are satisfied with the postgraduate training program are approximately 0.6 less likely to consider leaving than those who are not satisfied with the postgraduate training program. It was expected that demographic variables such as age, gender and marital status would significantly affect the physicians/doctors decision to consider leaving, however it did not.

Table 8: Marginal Effect after logit

Variable	dy/dx	Standard Err.	Z
Age	0.0017	0.0233	0.07
Gender~	-0.3816	0.2235	-1.71
Marital Status~	-0.1288	0.2437	-0.53
Satisfaction of Prog.~	-0.5997***	0.1449	-4.14
Satisfy of Duration~	0.0133	0.3282	0.04
y=Pr(Considered Leaving) (Predict) =0.3863			

NB: (~) dy/dx is for discrete change of dummy variable from 0 to 1

*** represents significant at 1%

The conclusion from the logit estimation is further confirmed by the p-value of the chi-squared test in Table 9. It shows a significant relationship between physicians' satisfaction with a local PGME program and having considered leaving Ghana to practice elsewhere. This finding is in line with other empirical studies (see Clinton et al., 2010; Adebonojo et al., 2003; Gregory et al., 2006; Anderson et al., 2007). Most physicians who were satisfied with the programs were more likely to be the ones that never considered leaving the county. Conversely, physicians dissatisfied with the programs were more likely to have considered leaving the country.

Table 9: Relationship between Considered Leaving and Satisfaction of Program

		Considered leaving the country?		
		No	Yes	Total
Satisfied with program?	No	2	14	16
		5.88	*63.64*	*28.57*
	Yes	32	8	40
		94.12	*36.36*	*71.43*
	Total	34	22	56
		100	*100*	*100*
	Pearson Chi2			21.831
	P-value			0.00

Source: Author's Survey

Values in italics are percentages

More generally, physicians (71.4 per cent) who were satisfied with the local postgraduate training program also, largely believed the program was helping to retain doctors (Table 10). Even a significant portion of physicians, 28.6 per cent, who were dissatisfied with the training program were at the same time convinced that the local PGME programs was helping to retain physicians.

Table 10: Relationship between Doctor Retention and Satisfaction with Program

		Program retaining doctors?	
		Yes	Total
Satisfied with program?	No	16	16
		28.6	*28.6*
	Yes	40	40
		71.4	*71.4*
	Total	56	56
		100	*100*

Source: Author's Survey

Values in italics are percentages

The reasons given by respondents to why local postgraduate programs has helped to retain doctors in Ghana was significantly influenced by the consideration of ever leaving the country, according to the p-value of the chi-squared test in Table 11. However, availability of the program locally was cited by respondents (29.2 per cent) as the primary reason for whether a physician had considered leaving the country or not. Physicians that had considered leaving were more likely than those who had not cited that reason; 40.0 per cent compared to 21.4 per cent. The two groups of physicians also agreed that the local PGME have increased the availability of medical doctors locally.

Table 11: Reasons why Postgraduate Program Help Retain Doctors in Ghana

	Considered leaving the country?			
		No	Yes	Total
Reasons why postgraduate program has helped retain doctors	Availability of program	21.4	40.0	29.2
	Trained as specialist are encouraged	21.4	0.0	12.5
	More doctors are now available	14.3	10.0	12.5
	Colleges are reluctant to leave the country	14.3	0.0	8.3
	Bonding system retain doctors	7.1	0.0	4.2
	Good salaries and availability of job	7.1	0.0	4.2
	Improved teaching	7.1	0.0	4.2
	Opportunities to pursue early membership	7.1	0.0	4.2
	Opportunities for career progression	0	10.0	4.2
	Program more accessible	0	10.0	4.2
	Encourages people to specialize	0	10.0	4.2
	Total	100.0	100.0	100.0
	Pearson Chi2			28.4082
	P-value			0.005

Source: Author's Survey

The additional reasons why physicians believed the programs have helped with retention vary with if the physician had considered leaving the country. Those who had no intention to leave the country, felt physicians were being retained because the specialist training made them more hopeful (21.4 percent) while the change to gaining certification locally had made it more difficult to emigrate (14.2 percent). Other reasons include, the bonding system implemented to retain physicians, good salaries, job availability, and increased opportunity to pursue early membership were viewed equally by 7.1 per cent of these physicians as reasons for physician retention. For physicians that had considered leaving Ghana the following additional reasons equally accounted for helping with physician retention: the local PGME programs encourage doctors to specialize, and there are now more opportunities for career progression and early pursuit of membership of a college (Table 11).

6. Conclusion, recommendation and areas of further research

The study has shown that availability of local postgraduate medical training to Ghanaian doctors has been effective in retaining them in the country. This is because the evidence suggests that currently, only a small portion of physicians consider emigrating after completion of basic medical training as opposed to the larger majority that actually migrated in the past. Secondly, a lot more doctors are opting to practice in-country to be closer to their families since there are more training opportunities to specialize, and achieve their full academic potential through quality training programs, hands-on experience, access to quality instructors and become certified as recommended by international standards. Since postgraduate training is not the only reason for physician migration, failure to take additional action, such as providing state of the art equipment for learning and improved working conditions, provide better infrastructure, improve remuneration and career paths, will eventually erode the gains made with establishment of the Ghana College of Physicians and Surgeons. This will mean the quest to increase Ghana's physician-patient ratio to 1:1,000 by 2025 to increase health equity will be

unachievable if the necessary actions are not taken.
Given the limitation of the study in terms of the scope, sample size and the sampling technique, further research can be undertaken in a more rigorous manner by increasing the sample size and using a more scientific approach than the snowballing. In addition, it could have been more interesting to also survey Ghanaian physicians who have emigrated and practicing abroad. This will provide additional insight to the reasons why they study and practice abroad.

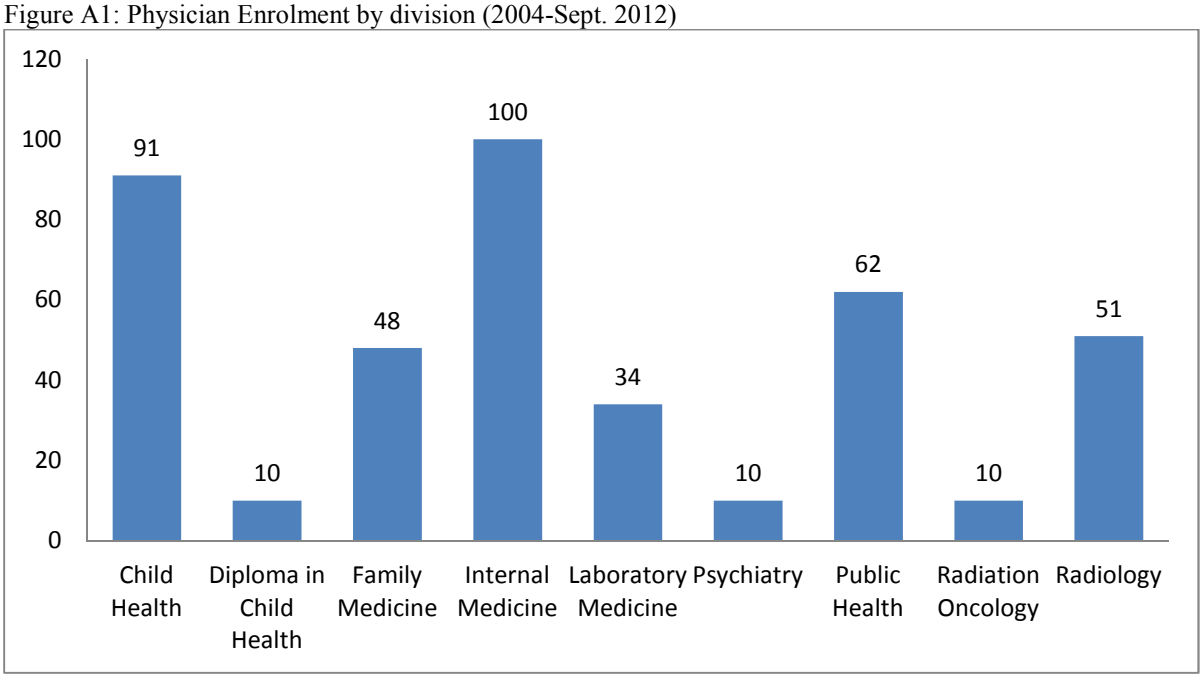
References

Adebonojo SA, Mabogunje OA, Pezzella AT. (2003) "Residency training in the United States: what foreign medical graduates should know". West Afr J Med. 2003 Jan-Mar;22(1):79-87.
Amonoo-Kuofi, Harold S., Danso, Kwabena, Gyader, Edward N., Tettey, Yao, Anderson, Frank W. (2012), "Medical Education in Ghana, Association of American Medical Colleges", Academic Medicine, Vol. 87, No. 2.
Anderson, Anne Marie, and David H. Myers (2007) "Performance and Predictability of Social Screens" Working Paper, Lehigh University
Arnold, P. C. (2011), "Why the ex-colonial medical brain drain?", JR Soc Med 2011: 104; 351-354.
Beine M., F. Docquier, and H. Rapoport (2003), Brain drain and LDCs' growth: winners and losers, IZA Discussion Paper n. 819, IZA, Bonn.
Brobbey, G. W. and Ofosu-Barko, F. O. (2002), "Developing appropriate community-based postgraduate training in a developing country", Education for health, Vol.15, No. 1, 3-9
Chen, T. and Su, H. (1995), "On-the-Job Training as a Cause of Brain Drain", Weltwirtschaftliches Archiv. Bd. 131. H.3, pp. 526-541
Clinton, Y., Anderson, F. W. and Kwawukume, E. Y. (2010), "Factors related to retention of postgraduate trainees in obstetrics-gynecology at the Korle-Bu teaching hospital in Ghana", Academic Medicine, Vol. 85, pp. 1564-1570
Dodoo, F. Nii-Amoo, Baffour K. Takyi, and Jesse R. Mann. (2006). "On the Brain Drain of Africans to America: Some Methodological Observations". Perspectives on Global Development and Technology 5(3): 155-162.
Dovlo, D. (2004). "The Brain Drain in Africa: An Emerging Challenge to Health Professionals' Education". JHEA/RESA Vol. 2, No. 3, pp.1–18
Dovlo, Delanyo, and Nyonator, (1999), "Migration by Graduates of the University of Ghana Medical School: A Preliminary Rapid Appraisal". Human Resources for Health Development Journal 3.1 pg: 40-51.
Eastwood J B, Conroy R E, Naicker S, et al. (2005), "Loss of Health Professionals for sub-Saharan Africa". The pivotal role of the UK. Lancet 365 1893-1900
Finlay, L. (2001) Holism in occupational therapy: elusive fiction and ambivalent struggle, The American Journal of Occupational Therapy, 55(3), 268-278.
Gregory Santoro et al. (2006), "Incentivizing Debt Relief to Solve Michigan's Brain Drain Crisis". chive/2006/12/01/8394995/index.htm.
Guest, Robert, (2011), "In Praise of Brain Drain: Want to Help the Developing World?" Hire Away its Best Minds. Foreign Policy.
Hagopian, A., Ofosu, A., Fatusi A., Biritwum, R., Essel, A., Hart, G. and Watts, C. (2005). "The flight of physicians from West Africa: Views of African physicians and implications for policy". Journal of Social Science & Medicine Vol. 61, p 1750-1760
Hagopian, A., Thompson, M., Fordyce, M., Johnson, K., & Hart, G. (2004). "The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain". Human Resources for Health , 2: 1-10.
Imran et al. (2011), "Brain Drain: Post Graduation Migration Intentions and the influencing factors among Medical Graduates from Lahore, Pakistan", BMC Research Notes, 4:417
Jaafari, L. I. (1973), "The Brain Drain to the United States: Migration of Jordanian and Palestinian Professionals and Students". Journal of Palestine Studies, Vol. 3, No. 1, pp. 119-131
Kirigia, A. Preker, G. Carrin, C. Mwikisa and A.J. Diarra-Nama (2006), "An overview of health financing patterns and the way forward in the WHO African Region", East African Medical Journal, J.M.
Klufio CA, Kwawukume EY, Danso KA, Sciarra JJ, Johnson T. (2003), "Ghana postgraduate obstetrics/gynecology collaborative residency training program: success story and model for Africa". Journal Am J Obstet Gynecol. Sep;189(3):692-6.
Korner, H. (1998), "The "Brain Drain" from developing countries-an enduring problem", Intereconomics.
Martey J.O. et al. (1995). "Maternal mortality and related factors in Ejisu District, Ghana" East African Medical Journal December; 72(12): 774.
Martineau T, Decker K & Bundred P (2002), "Briefing Note on International Migration of Health Professionals: Levelling the Playing Field for Developing Countries", Liverpool School of Tropical Medicine, Liverpool.
Meeus, M.T.H., Oerlemans, L.A.G., & Hage, J. (2003). Interactive learning between industry and knowledge

infrastructure in a high-tech region: an empirical exploration of competing and complementary theoretical perspectives. In R.P.J.H. Rutten & F.W.M. Boekema (Eds.), Economic Geography of Higher Education: Knowledge, Infrastructure and Learning Regions. (pp. 145-170). Londen: Routledge.
Mills et al. (2011), "The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis", BMJ 2011; 343:d7031
Mullan, F. (1997). "The National Health Service Corps and inner-city hospitals". The New England Journal of Medicine , 336, 1601-1604.
Padarath A, Chamberlain C, McCoy D, Ntuli A, Rowson M, Loewenson R. (2003) "Health Personnel in Southern Africa: Confronting Maldistribution and Brain Drain". Equinet Discussion Paper, No. 4. Harare:
Phadke, K. and Bagga, A. (2005), "Training In Pediatric Nephrology For Developing Countries", - Pediatric Nephrology - Vol. 20 - Issue 9 - pp. 1205-1207
Ronaghy, H. A., Zeighami, E. and Zeighami, B., (1976), "Physician Migration to the U.S: Foreign Aid for U.S Manpower", Medical Care, Vol. 14, No.6. pp. 502-511
Sodzi-Tettey S. (2010), "Supporting Ghana's private health sector". Ghana Web. February 4, 2010. Available at: http://www.ghanaweb.com/GhanaHomePage/features/artikel.php?ID=176091#.Accessed February 18, 2013.
United Nations Educational, Scientific, and Cultural Organization (UNESCO), (2004). "From Brain Drain", Focus on Education Today No. 18.
World Federation for Medical Education (2003),"Postgraduate Medical Education Global Standards for Quality Improvement". University of Copenhagen, Denmark

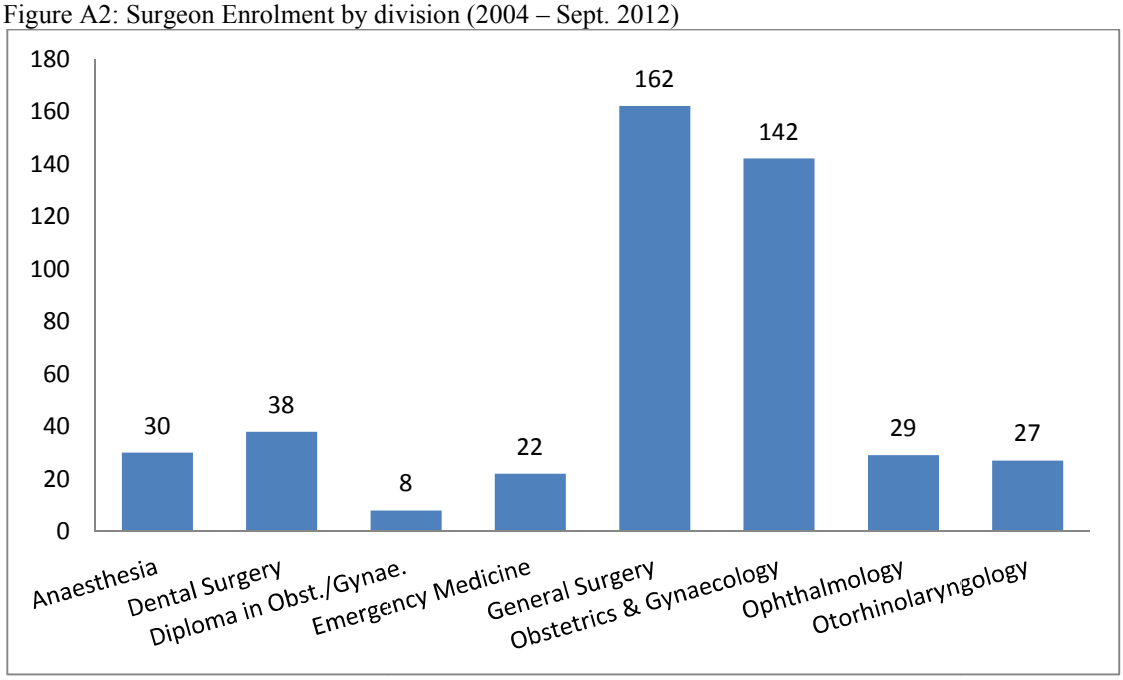
Appendix

Figure A1: Physician Enrolment by division (2004-Sept. 2012)



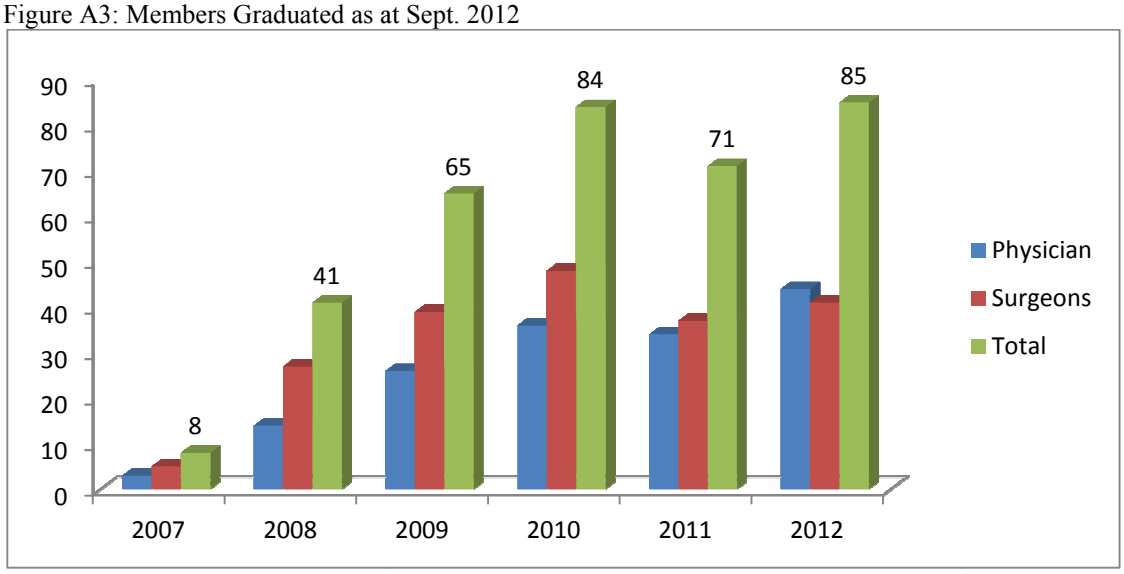
Source: Ghana College of Physicians and Surgeons (Annual General and Scientific Meeting (2012) Program)

Figure A2: Surgeon Enrolment by division (2004 – Sept. 2012)



Source: Ghana College of Physicians and Surgeons (Annual General and Scientific Meeting (2012) Program)

Figure A3: Members Graduated as at Sept. 2012



Source: Ghana College of Physicians and Surgeons (Annual General and Scientific Meeting (2012) Program)

Table A1: Graduated Physicians and Surgeons by divisions

Faculty	**Physicians**	**Faculty**	**Surgeons**
Family Medicine	17	Anaesthesia	20
Internal Medicine	33	Dental Surgery	16
Laboratory Medicine	9	Emergency Medicine	6
Child Health	34	General Surgery	75
Psychiatry	5	Obst./Gynae.	69
Public Health	26	Ophthalmology	13
Radiation Oncology	3	Otorhinolaryngology	10
Radiology	18		
Total	**145**	**Total**	**209**

Source: Ghana College of Physicians and Surgeons (Annual General and Scientific Meeting (2012) Program)