

Obstetric Capacity Strengthening in Ghana Results in Wide Geographic Distribution and Retention of Certified Obstetrician-Gynecologists: A Quantitative Analysis

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Abstract

Objectives: Our primary objectives are to determine the cumulative retention of Ob/Gyns since the inception of the Ghana post-graduate Ob/Gyn programs, to determine the demographic and practice characteristics of all Ob/Gyns who have been trained, and to compare the geographic distribution of Ob/Gyns throughout Ghana between 2010 when a prior study was conducted and the current practice locations of all graduates in 2017.

Design: Cross-sectional, Quantitative Investigation

Setting: Fieldwork for this study was conducted in Ghana between June 21, 2017, and August 20, 2017.

Methods: A roster of certified Ob/Gyns, year certified, and email contact information was obtained from the Ghana College of Physicians and Surgeons, a roster of practice locations was obtained from Ghana Medical Board.

Main Outcome Measures: retention of Ob/Gyns, geographic distribution of providers, and comparison of geographic spread between 2010 and 2017 practice locations

Results: Significant geographic spread and increase in in-country medical programs have occurred over the seven-year period. In recent years, Ob/Gyn certifications through the Ghana College of Physicians and Surgeons have significantly increased.

Conclusion: The establishment of the GCPS created a national certification opportunity that made Ob/Gyn certification more accessible. This provides a cadre of certified Ob/Gyns that can be trained and retained in low-income settings, and allows for long term commitment in multiple relevant sectors that may serve to establish a comprehensive obstetric and gynecology capacity beyond urban centers.

Keywords: capacity strengthening, post-graduate training program, global health, obstetrics and gynecology

Introduction

Eliminating preventable maternal and early neonatal mortality will only occur when all countries can train and retain health professionals that can comprehensively address the obstetric issues of the mother and fetus and the antenatal period, in addition to many complications of labor and delivery, and the post-partum period. Most well-resourced settings have the capacity to train and certify physicians to provide modern, comprehensive and evidence based obstetric and gynecologic care. In contrast, low resource settings are less likely to have developed a health care system to comprehensively address obstetric care and often rely more on vertical problem-based interventions instead of horizontal programming. Vertical programs focus on interventions targeting a single obstetric complication (i.e., heat-stable oxytocin for post-partum hemorrhage), or task-shifting of surgical or other specific procedures to non-physicians (i.e., caesarean sections) (1). These interventions are filling gaps that exist due the lack of professional capacity. In this paper, we examine an approach that provides a compelling development model for long-term capacity strengthening.

West Africa is unique in that the West African College of Surgeons (WACS), established in Nigeria, provides a 5-year regional certification for physicians who have completed prescribed course work, obtained relevant training experiences, obtained requisite recommendations, and passed both written and oral exams offered in limited sub-region locations to be certified as a

Fellow of WACS. In 2003, the Ghana College of Physicians and Surgeons (GCPS) developed a national (Ghanaian) certification program alternative. Through GCPS, medical graduates have the option to either pursue a 3-year membership option to be a generalist Ob/Gyn or a 5-year fellowship option with advanced subspecialty training and dissertation requirement for academic career preparation. Fellowship is required in order to attain faculty appointment with Ghanaian universities. Both GCPS and WACS were established based on international standards and provided an opportunity to reverse the “brain drain” of physicians who pursued post-graduate training abroad and seldom returned (2).

A previous study examining the post-graduate training program from 1989 to 1990 demonstrated that 84 of 85 physicians trained, certified as Ob/Gyns, and remained in Ghana to practice (3). An examination of retention factors suggested that the presence of a viable training program in-country, the economic viability of staying in the country and lack of travel costs, and the desire to maintain current social and familial contacts were primary contributors (4, 5). This study also demonstrates that graduates participate and have competency in a wide range of clinical procedures including cesarean section, hysterectomy, tubal ligation, IUD placement, fistula surgery, laparoscopic surgery, and myomectomy, amongst other obstetric and gynecologic skills (3).

In this report, we revisit the Ob/Gyn post-graduate training program in Ghana in order to pursue the following specific aims: 1) to determine the cumulative retention of Ob/Gyns since the inception of the program 2) to determine the demographic and practice characteristics of all Ob/Gyns who have been trained by the Ghana postgraduate Ob/Gyn programs and 3) to compare the distribution of Ob/Gyns throughout Ghana between 2010 when a prior study was conducted and the current practice locations of all graduates in 2017 (3).

Methods

All physicians who had completed certification in Ob/Gyn through either WACS or GCPS prior to August 2017 were considered in order to meet the specific aims. A roster of certified Ob/Gyns, year certified, and email contact information was obtained from the Ghana College of Physicians and Surgeons. These included WACS certifications as well. A roster of practice locations was obtained from Ghana Medical Board. An administrative review at the Ob/Gyn departments at both Komfo Anoyke Teaching Hospital (KATH, Kumasi) and Korle Bu Teaching Hospital (KBTH, Accra) was conducted to verify practice location, current demographic information, and practice type. Any discrepancies or missing information were clarified via the chairs of the Ob/Gyn departments at KATH and KBTH by either directly contacting the physician or contracting their current practice location. Hospital websites were utilized to identify practice type (public, private or mission). Only a graduate’s primary certification was utilized for this study as several graduates had multiple certifications. Graduates who received honorary WACS certification or who were deceased at the time of data collection were included. Graduates that had their practice in Ghana but were deceased at the time of data collection were still identified and included as “retained.”

The original location data points for each graduate’s primary practice location in 2010 were available from the previous study (1). Worksite GPS coordinates for each graduate’s primary practice location was reviewed in 2017 and were found through Google Maps. GPS coordinates were verified by comparison with previous device coordinate information (Garmin E-Trex Legend

GPS, Garmin International, Olathe, KS) when available from the 2010 study. Maps for both time periods were created using ArcGIS software (1).

Results

245 medical school graduates have been trained and certified as Ob/Gyns by either the West African College of Surgeons or the Ghana College of Physicians and Surgeons between the initiation of the program in 1989 and August 2017. 240 were trained and retained in Ghana. Three graduates left Ghana to practice in the Gambia, one left to practice in Liberia, and one moved to the United States. As of August 2017, 29% of graduates were working in the public sector, 18.4% were working in mission hospitals, 36% were working in teaching hospitals, and 10.2% were working solely in the private sector. 91% of graduates were male, and 9% female (*Table 1*).

With the establishment of the Ghana College of Physician and Surgeons certification, the cumulative number of Ob/Gyns and certifications per year began to increase in 2008 as the first participants of GCPS achieved certification (*Figure 1*). Particularly in more recent years, there were significantly more primary GCPS certifications than there were WACS certifications awarded. GCPS certifications sharply increased in 2016. Of note, data for 2017 certifications only included 8-months of follow-up.

The practice locations and geographic distribution for graduates grew between 2010 and 2017, as represented in *Figure 2*. As demonstrated by both maps, graduates cluster in the main urban areas of Accra and Kumasi. However, the 2017 map indicates that an increasing number of graduates with a primary practice in a more rural area. Significant geographic spread has also occurred over the seven-year period. The number of medical schools in Ghana have increased. In between 2010 and 2017, five new medical schools were established. This includes 3 new public medical schools: University for Development Studies School of Medicine in Tamale, University of Cape Coast School of Medical Sciences and the University of Health and Allied Sciences in Ho, Volta Region. Two private medical schools were also opened during this time period, the Family Health Medical School in Accra and the Accra College of Medicine. Graduates of the training program serve as faculty in all of these new medical schools.

Discussion

Main Findings and Interpretations:

A program to increase the cadre of certified Ob/Gyns in Ghana has been successful in supplying the country with 245 specialists to care for the most complicated obstetric and gynecologic cases. 240 have been retained in Ghana. This accomplishment is the result of a policy initiative and complex intervention that has the potential to create a maternal care environment where significant decreases in maternal mortality can be sustained. The high retention of certified obstetricians has been studied previously, yet the current study confirms the continued retention and growth of highly trained physicians (2).

Geographic Spread to Peri-Urban and Rural Areas

Geographic imbalance of health personnel is a long-standing serious problem faced by all countries worldwide and a large contributing factor to health disparities. Urban areas are more

attractive to health professionals for the social, cultural, and professional advantages including better access to amenities and educational opportunities for providers and their families (5). The 2017 geographic distribution contradicts the notion and fear that most of the graduates would move into the private sector or remain solely in Accra and Kumasi. 18% of graduates work in a public, regional, or district hospital and 11% work in some other public sector capacity. Only 5.3% of the graduates practice primarily in a private practice setting. One of these graduates opened a private hospital, with an associated nursing school and medical school. Another graduate, who obtained specialization in reproductive endocrinology, has opened a center for in vitro fertilization and also operates a 24-hour, 7-day emergency room for the community. A significant number of graduates are working in peri-urban and rural areas as well.

Creation of New Medical Schools

The number of medical schools in Ghana increased from two to seven during this seven-year period. The sustained training of Ob/Gyns provides a source of faculty for the new medical schools and creators of new Ob/Gyn departments and residency programs. As more medical schools and residency programs open in rural and peri-urban areas more distant from the urban centers, graduates are able to find sustainable and rewarding work. Graduates of this program fill many academic and leadership roles. Several graduates are now professors and tenured faculty. Moreover, graduates also hold significant administrative leadership roles such as being Deans of medical schools, founders of new medical schools, and hospital medical directors (2). The initiation of medical schools in peri-urban and rural areas is a significant factor for geographic distribution and reducing unmet need as physicians. The location, structure, recruitment methods, and criteria of medical schools have been shown as contributing factors to specialty and location of practice choices (5, 6). Graduates are more likely to work in areas where they were trained. Therefore, the development of newer medical schools, particularly in areas of peri-urban and rural areas, will contribute to the recruitment and retention of Ob/gyn graduates in areas of unmet need.

National vs. Regional vs. University-based Certification

The initiation of GCPS certification process has increased the access of physicians to become certified and retained as Ob/Gyn specialists in Ghana. Ghana's national certification is unique and contrasts from regional and university-based certification (i.e., Master of Obstetrics and Gynecology) options that are often more prevalent in sub-Saharan Africa. As demonstrated by GCPS, a national certification system, fully supported and funded by the government, ensures a national standard and provides a sustainable opportunity to create ongoing quality assurance. Thus, national certification allows for local growth, authority, and organization. This study suggests that a national certification system allows Ob/Gyn certification, training, and retention to be more accessible to local physicians.

Limitations:

The major limitation of this paper is in fully describing the scope of a graduate's practice. Many of the graduates are involved in multiple practice locations. In this study, we identified the primary practice assignment as determined by institutional records. Although their practice settings may vary, it is still clear that the majority of graduates spend most of the time in public

sector practice. Moreover, the locations for 11 graduates were unable to be obtained and were unable to be included in the 2017 GIS map.

Conclusion:

Establishing an Ob/gyn training program with national certification in a high maternal mortality country provides the context for medical graduates to be trained, retained, and provide obstetric and gynecologic care, education, and leadership thus creating a feasible roadmap to the elimination of preventable maternal and early neonatal mortality. The study demonstrates that a long-term commitment to strengthening obstetric capacity yields exponential growth in access to care and supports sustained and growing educational institutions. This long-term commitment to strengthening obstetric capacity yielded a cadre of Ob/Gyns who are participating in national, regional, and local needs for Ob/Gyn expertise in clinical, educational, research, outreach, and policy spheres. The process requires time, investment, and long-term vision and commitment. The elimination of preventable maternal and early neonatal mortality will not occur until every country can comprehensively address the myriad of issues in obstetrics with modern obstetric practice.

Disclosure of Interests:

All authors declare that they have no competing interests.

Contribution of Authorship:

All authors have read and approved the manuscript. FA, MK, YB, AS, CT, and JP designed the study. MK and YB were the primary data collectors. MK, YB, AS, and JP worked to organize obtain demographic and location information of the graduates. MK and FA conducted the quantitative analysis of demographic and location data. MK created the graphs and tables in the manuscript. MK and FA worked with department statistician to create ArcGIS mapping of graduate locations. MK and FA wrote the final manuscript. All authors contributed to editing the final manuscript.

Details of Ethics Approval:

The University of Michigan Institutional Review Board-HSBS determined that this study was exempt from IRB oversight [HUM00125496], and the study was approved by the University of Ghana College of Health Sciences Ethical and Protocol Review Committee [CHS-Et/M.9C/2016-2017] and the Kwame Nkrumah University of Science and Technology College of Health Sciences Committee on Human Research, Publication and Ethics [CHRPE/AP/370/17].

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Table 1: Demographic Information of Ob/Gyn Graduates, as of August 2017

	Frequency	Percent
Gender		
Women	22	9
Men	223	91
Total	245	100
Type of Hospital		
Public/ Unspecified	27	11
Public/ District	19	7.8
Public/ Regional	25	10.2
Mission	45	18.4
N/A-- Not a hospital	6	1.6
N/A--Deceased	4	2
N/A--Moved	4	2
Non-Public/Private- Owned	12	4.9
Private Practice	13	5.3
Teaching	90	36.7
Total	245	100
Primary Certification Type		
Fellow of West African College of Surgeons	77	31.4
Ghana College Fellow	2	0.8
Ghana College Member	166	67.8
Total	245	100

Figure 1: Cumulative Number of Trained and Retained Ob/Gyns in Ghana

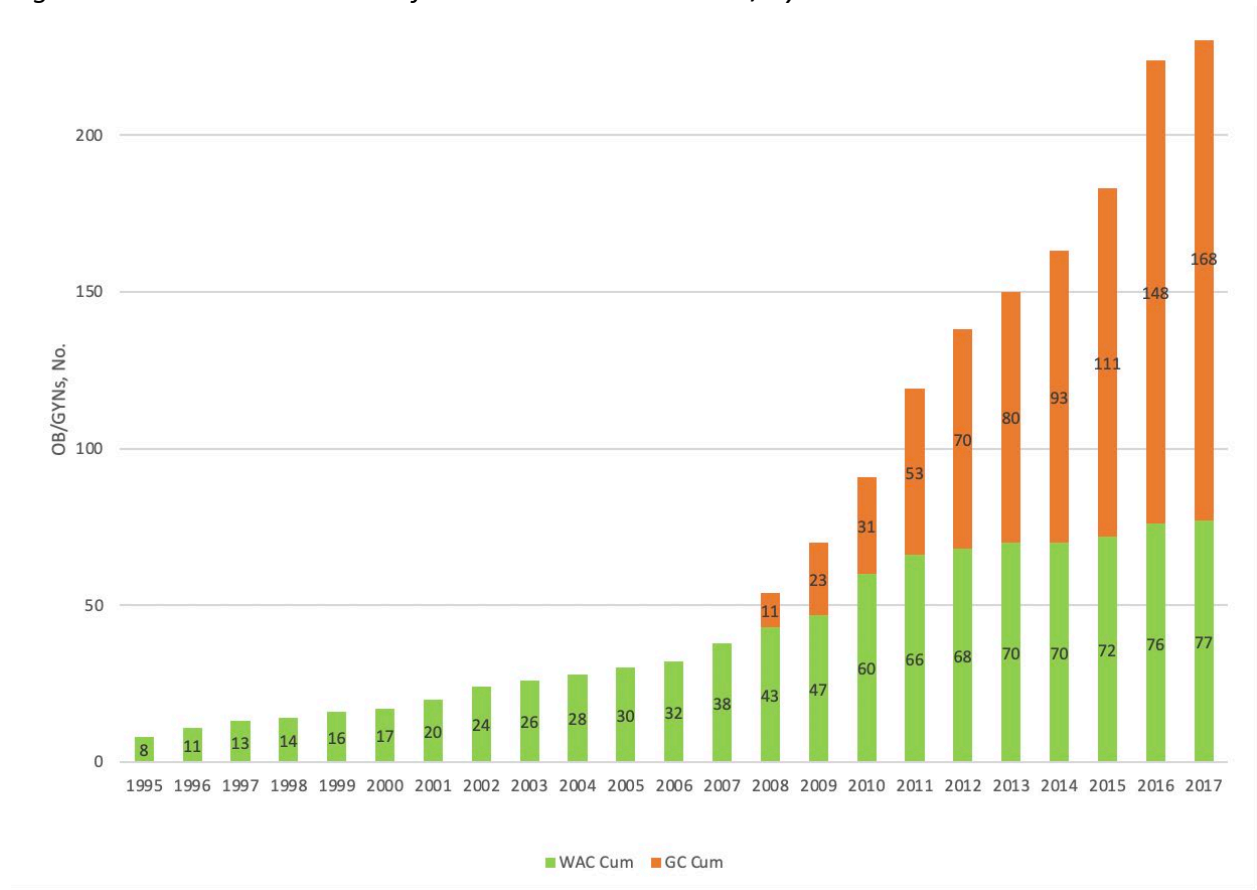


Figure 2: Practice Locations of Graduates in 2010 and 2017

