# ESTABLISHING THE FIRST GERIATRIC MEDICINE FELLOWSHIP PROGRAM IN GHANA

## A Collaboration between the University of Michigan and the Ghana College of Physicians and Surgeons.

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**Running Title: First Geriatric Medicine Fellowship in Ghana**

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**Abstract**

As life expectancy in Ghana improves, there is a large and growing population of older adults requiring health care. Despite governmental support for care of older adults, there have been no geriatricians and no in-country educational path for those desiring to become specialists in this field. In fact, 23 of 54 countries in sub-Saharan African lack even a single geriatrician. We describe a novel and collaborative approach used to develop the first geriatric training fellowship in Ghana. Faculty from the Ghana College of Physicians and Surgeons and the University of Michigan worked together to develop a rigorous and evidence-based geriatrics curriculum, based on U.S. standards but adapted to be appropriate for the cultural, economic, educational, and social norms in Ghana. This approach led to a strong training model for care of older adults while also strengthening the on-going collaboration between the two partner universities in Ghana and the U.S. The fellowship has been inaugurated in Ghana and can serve as a concrete educational model for other countries in sub-Saharan Africa.

**Key Words**: Ghana, geriatrics, training, Graduate Medical Education, older adults

## BACKGROUND

The older adult population in Ghana is increasing in tandem with the global pattern.[1] Ghana's population of about 29 million has an estimated older adult (60+) population of 7.1% in 2015; an increase from 4.5% in 1960.[1-3] This proportion is projected to rise to 9.8% (about 5 million) by 2050.[1,4] Life expectancy at birth has increased from an average of 52 years in 1984 to 63.4 years in 2016 for both sexes.[2,5] Despite a substantial need in Ghana, there is a dearth of trained geriatricians[6] and no existing training program to educate physicians about the specialized care of the older adult.

Studies on ageing in Ghana have mostly emerged only in the last two decades. The WHO Study on global AGEing and adult health (SAGE)–Wave 1, is the most comprehensive population-based study on health status of older adults in Ghana.[7] According to the study, older adults in Ghana report a high prevalence of one or more chronic medical conditions such as hypertension, coronary artery disease, diabetes, anemia, and depression, along with substantial prevalence of geriatric-specific conditions such as falls and mobility issues, urinary incontinence and dementia. Clinical data from the study showed that the true prevalence of measured hypertension was much higher than the self-report, suggesting that for every person who reports a diagnosis, another three likely have undiagnosed hypertension. Among older adults, about two in five have one or more deficiencies in Activities of Daily Living (ADL) and one in five have deficiencies in Instrumental Activities of Daily Living (IADL).

Systematic health delivery designed for older adults as well as data from health facilities on this population is still almost non-existent in Ghana. When we started developing this fellowship, no geriatric medicine training program existed in Ghana and we were unaware of any practicing geriatricians.[5,6] Routine primary care for older adults is provided by family/general practitioners. In rural settings there are even fewer healthcare providers and access to healthcare is hampered by distance and transportation costs. There is a lack of training and virtually no resources to manage geriatric syndromes like falls, mobility problems and cognitive impairment. Though physical and occupational therapy services are covered by health insurance, they are

limited to regional and tertiary health facilities, making access problematic. Ten percent of older persons cannot access needed health care and only two in five perceive their health status to be good.[7,8]

Most Ghanaians provide help for their ageing parents and older persons in general, but this time-honoured respect and care for older persons is fast eroding. Migration of the youth from rural areas to cities, increasing work and study demands on the younger workforce, stigmatization of older adults – especially those that are frail or have dementia – have contributed to increasing isolation and neglect of older persons in African societies. A new trend where working children decline to remit ageing parents contradicts the cultural expectation of reciprocity in social and economic support that exist for most Africans, including Ghanaians.[9-11]

However, there is strong in-country support for improving care of older adults. The Ministry of Employment and Social Welfare has developed a National Ageing Bill and the National Health Insurance has a policy that exempts persons 70 years and above from paying premium to cover basic care.[12,13] Ghana nonetheless has a well-organized district health system to deliver health at the primary level through district hospitals, subdistrict health centers and community clinics known as Community-based Health Planning and Services (CHPS).[14] There is an emerging long-term home care industry spearheaded by Non-Governmental Organizations (NGO) and the private sector.[15]

To address the lack of geriatricians, the Ghana College of Physicians & Surgeons (GCPS) approved a fellowship program to train Family Medicine and Internal Medicine graduates in the discipline of Geriatric Medicine. The program leverages the collaboration between the Faculty of Family Medicine of the GCPS and the Department of Family Medicine, University of Michigan (UM); this collaboration has been in existence since 2008 and aims to build capacity for faculty training and facilitate residency/fellowship program development, through educational exchange visits between Ghana and Michigan. We have used this international collaboration to develop a new Geriatric Medicine fellowship program within the Faculty of Family Medicine, GCPS. (See Supplementary Figure S1)

## METHODS

We utilized the University of Michigan African Presidential Scholars (UMAPS) program to allow a senior Ghanaian faculty member to engage in focused clinical observational experiences in geriatrics and obtain academic and administrative training to run a new fellowship program. The Department of Family Medicine at UM has extensive experience developing faculty via training and fellowships and was able to support a special training experience embedded within both the Division of Geriatric and Palliative Medicine and the Department of Family Medicine. The Ghanaian fellowship lead (AE) spent six months at the University of Michigan from August 2015 – February 2016.

### Clinical training objectives

Clinical training entailed active observation of patient care in outpatient geriatric primary care and consultation, geriatric inpatient consultation, geriatric inpatient care in Acute Care for the Elderly (ACE) Unit; and community-based care facilities, including a Program of All-inclusive Care for the Elderly (PACE) model of care, and assisted living and extended care facilities. Clinical instruction also included access to patient electronic health records (after Privacy & Health Insurance Portability and Accountability Act – HIPAA - training and certification), participation in patient interviews, observation of use of technology and application of clinical guidelines, and discussion of cases with attending geriatric physicians.

### Educational objectives

The Ghanaian faculty member participated in monthly teaching workshops organized by the Faculty Development Institute (FDI) within the UM Department of Family Medicine to help new faculty gain expertise in education and teaching. Frequent consultative meetings on training and curriculum development were held with the UM Geriatric Medicine Fellowship program directors and coordinators to guide the process of developing the fellowship curriculum.

In developing the curriculum, an extensive literature search was conducted to assess the status of geriatric care and training on the African continent. The curriculum drew from the

established educational bodies, organizations and experts,[16-18] and was amended to be consistent with the culture and structure of health care in Ghana. The content was organized around six main themes - 1) Assessment of the geriatric patient; 2) The geriatric syndromes; 3) Geriatric interdisciplinary approach to care; 4) Systems of care; 5) Faculty development (teaching and administration); and 6) Research *(modified from Raymond Yung, M.B.,Ch.B., personal communication, 9th September, 2015).* An initial draft was reviewed by an internal curriculum project team of family physicians and educational and curriculum experts. Their inputs were incorporated into a second draft reviewed by Geriatric and Palliative Medicine experts, the project team, and other stakeholders in UM and Ghana. The third draft was circulated to the project team and a final copy submitted to the Academic Board of the GCPS in February 2016. In addition, a portfolio of educational, clinical and research activities for trainees was developed. Portions of the portfolio were based on *'The Geriatric Medicine Milestones Project'* to track fellows' progress across accepted milestones during fellowship training with the goal of ensuring that graduating Geriatric Medicine fellows from the Ghana program achieve clinical competency across specific domains including: Patient Care, Medical Knowledge, Systems-based Practice, Practice-Based Learning and Improvement, Professionalism, and Interpersonal and Communications Skills.[19]

**Research objectives**

Research experience for the UMAPS fellow was supported through participation in weekly Academic Writing workshops organized by UMAPS. The primary mentor (KG) provided hands-on experience in questionnaire design, data analysis and manuscript writing. Guidelines were developed on research supervision in fellowship and residency programmes. A designated personal librarian at the UM Taubman Health Sciences Library provided exposure to the virtual library and trained the faculty in new search engines and citation management software.

**Administrative objectives**

This training involved scheduled meetings with administrators, administrative assistants, and clinical case managers within the various training sites. Discussions dwelt on organizing

schedules and periodic assessments for fellows, recruiting and managing the program, and providing clinical services in geriatrics.

## RESULTS

While most fellowship programs in the US and other countries are typically shorter, the Ghanaian program will be 2 years to conform to the GCPS requirements for fellowship programs. This also allows fellows to continue to provide some care at their base hospitals. The overall aim of the program is to produce a physician with the requisite knowledge, skills and attitudes to provide specialized care for older adults and to have the competency to teach and conduct research in geriatrics and gerontology. The physician should be able to provide leadership for the multidisciplinary team of health, social and other inter-professional team members involved in the care of the older adult within the context of primary care. During the initial 5 years, the program will admit 2 fellows each year. The entry requirement is the completion of a 3-year residency (Membership) in Family Medicine or Internal Medicine, post-membership work experience, a valid registration with the Medical and Dental Council and a selection interview. Trainees can opt for either government (e.g. the Ministry of Health, MOH) sponsorship or other forms of sponsorship. The Ghana program incorporates clinical rotations, educational, research and administrative activities as outlined in Table 1.

In Table 2 we illustrate a typical working week for a trainee undergoing both longitudinal and block rotations. A session may last between 4 – 6 hours. Typically, family medicine fellows in training work an average of 40 hours a week including on-call duty, excluding educational, administrative and research activities.

### Trainers and training sites

Core trainers will include the principal investigator (AE), the project team in Ghana and mentoring faculty from UM. Specialists from the department of internal medicine and allied health disciplines shall be engaged for the sub-specialty rotations. The main training site will be the family medicine clinic in the Korle-Bu Teaching Hospital, Accra. Sub-specialty rotations

shall take place within internal medicine, allied health and family medicine. Additional training sites will include private practices and community-based facilities (e.g. adult day care programs).

**Assessment and evaluation**

To provide formative fellow assessment as well as program evaluation, the fellowship will require fellows to develop a portfolio (Table 3) including the following:

1. List of instructive cases, procedures and academic activities from longitudinal rotations which shall be reviewed by the program director (AE) or a designated faculty semiannually.
2. Feedback forms (adapted from the UM Geriatric Fellowship Program Manual) filled and signed by supervisors of block rotations. This should be reviewed by designated faculty at the end of every block rotation and preferably before commencement of the next.
3. Oral presentations, posters, quality improvement projects, and publications.
4. Progress report (based on *"The Geriatric Medicine Milestones Project"*) developed twice-yearly by the faculty for each fellow.
5. Personal program evaluations conducted annually for each fellow.

**Certification**

The qualifying examinations shall consist of defence of a dissertation and the training portfolio plus a general oral examination. Certification shall be provided by the Ghana College of Physicians and Surgeons.

## DISCUSSION

In a recent survey of 54 Sub-Saharan African (SSA) countries, 23 (including Ghana) had no geriatricians, only 7 had postgraduate programs and 5 had undergraduate teaching programs.[6] In the West African sub-region, the University of Dakar, Senegal is noted to have developed an innovative training program in geriatrics and gerontology to support the government's "Plan Sesame", a national free health care program for older adults.[20] Although specialist geriatric services exist in some West African countries e.g. Nigeria, La Cote d'Ivoire, and Senegal, formal fellowship programs are non-existent. Efforts are being made by the Postgraduate Colleges in the

sub-region to begin fellowship programs though none has started yet. To the best of our knowledge this will be the first in the West African sub-region. We believe the current partnership could inspire the establishment of similar Geriatric Medicine fellowship programs in the sub-region and beyond and provide Geriatric Medicine consultation and expertise for other West African countries.

The curriculum conforms to the expectations of established programs in both well-resourced and under-resourced countries.[16-20] The six thematic areas cover the essential components of general geriatrics. The longitudinal rotations take up one half day each week and are concurrent with the block rotations to provide year-round continuity of practice (a fundamental aspect of family medicine). Thus, the longitudinal rotations offer a foundation on which the block rotations serve as building blocks to allow for acquisition of expertise in specific areas. Another important content is the opportunity for Ghanaian fellows to participate in an elective program in Michigan. This will provide much-needed exposure to best practices in a well-resourced center, build fellows' confidence and provide opportunity for continual international collaboration and standards for the program. To adapt to needs in Ghana, our fellowship has a required duration of two years instead of one year. Trainees will maintain posts in their respective base hospitals (all within the city of Accra) where they will complete their block rotations in internal medicine and family medicine, ensuring that critical physician manpower is not compromised. While there may be some variation by rotation, we anticipate trainees will be at their base hospitals two days weekly and will attend lectures, rotations and clinical training at the Teaching Hospital and other training sites three days a week.

The lack of trained geriatricians in Ghana, compared to the US, poses a challenge to teaching new fellows. This is probably akin to what existed in geriatric fellowship programs in the US in the late 1980's when "many of these programs were extraordinarily weak and had a dearth of faculty".[21] The current geriatric program at UM is well-structured and is ranked among the top 10 programs in the US.[22] The residency and fellowship programs are integrated into the University health system with adequate faculty staffing, funding and administrative support.

Residency and fellowship programs in Ghana are not part of the University system but under the jurisdiction of the Ghana College of Physicians and Surgeons which is an agency of the MOH. Limited faculty, inadequate remuneration, and lack of administrative support pose a constant challenge to the training programs; at present, faculty manage nearly all of the administrative tasks due to lack of help which strains their ability to teach. Hopefully, these challenges will be mitigated by frequent educational materials and visits by mentors from Michigan (at least twice yearly), the use of electronic-based facilities for clinical and research meetings, and use of local expertise in the subspecialties of family medicine, internal medicine, allied health and psychiatry for teaching. The goal is to attain an interdisciplinary approach to the training program though it will take more time to develop a comprehensive interdisciplinary faculty with geriatric subspecialties in Ghana than in a high income country such as the U.S.

Another challenge will be non-availability of suitable training sites for the program as Ghana's health-care infrastructure is inadequate.[7,8] Ghana does not have acute and subacute care facilities specifically dedicated to older people and has limited finances to support long-term care. Like most African countries, existing models of long-term care in Ghana are predominantly family-based. "Aged-friendly" hospitals, adult day care homes, rehabilitation centers and other facilities for long-term care are only now emerging in the country and are largely unregulated.[15] Protocols to manage geriatric syndromes such as falls, and dementia are currently not included in the Standard Treatment Guidelines which guide care in Ghana.[23] There is lack of appropriate and modern equipment for long-term care. Acceptance of homes for older adults is a huge sociocultural challenge in Ghana and Africa. In the wake of this reality, existing facilities will be 'adapted' to suit the training program as much as possible. From a positive viewpoint, we see the fellowship as an opportunity to evaluate, improve and situate long-term care within the sociocultural context of the Ghanaian. The program will help strengthen development of Ghana's inadequate geriatric facilities. In the future, we anticipate hiring some of our graduates to establish new training sites to provide this infrastructure both for the program and for the people of Ghana.

The UM-Ghana Family Medicine partnership builds on existing collaborations in specialties like obstetrics and gynaecology and emergency medicine which help produce the critical numbers of specialists and faculty to provide service and training in these disciplines in Ghana.[24-26] Such collaborations can stem the tide of brain-drain of young African academics and professionals to developed countries. Most emerging academics and professionals from developing countries desire to experience part of their training within highly-regarded institutions in developed countries; however, if they decline to return home after the period of study, there are profoundly negative impacts on health care staffing in the home country. Our fellowship is designed to retain graduates in the country. By policy, the MOH bonds all government-sponsored graduates for 5 years after their training. The graduates will either be retained at their current posts or transferred to other centres depending on training and in-country service needs. Privately-sponsored graduates will be placed according to the terms of their contract. Like all other graduates of the College, they can only practice in Ghana and the West African sub-region. Contact with US faculty will occur during visits by UM faculty to Ghana as well as during elective programs by residents in Michigan. We expect these exposures to best practices to build the confidence of our residents as they practice within the local context. It is our firm belief that a means to curb the brain-drain from Africa is to provide collaborative opportunities to support African academics to succeed as leaders in their home institutions. Well-structured, mutually respecting international collaborations will produce content local African experts who will contribute immensely to the development of their countries.

## CONCLUSION

We have presented an innovative model for developing a fellowship program in a resource-challenged environment. As Ghana's population continues to age, pragmatic steps are being taken at the policy level to address health and social issues relating to older adults. A fellowship program to train geriatricians in Ghana is an essential component of this effort and a comprehensive curriculum is the first step toward that goal. The teaching of geriatrics should

also be incorporated into the residency (membership) and medical students' curricula. Our curriculum has suggested this. The authors intend to report on the implementation phase and outcomes of the fellowship program in due course.

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**AUTHOR CONTRIBUTIONS**

AE, KJG: conception and design, drafting and revision of article, final approval. CV, GT, CC, MG, KS, KO-A, ES and PZ: design, revision and final approval.

**CONFLICTS OF INTEREST**

The authors have no financial conflicts of interest to disclose.

**SPONSOR'S ROLE**

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Supplementary Figure S1: Visual Abstract

**Table 1. Structure for the training program in geriatric medicine fellowship in Ghana**

| Period / Type of Rotation | Rotation | Duration |
|---|---|---|
| Year 1<br>Longitudinal | Outpatient continuity clinics, inpatient care, office procedures<br>Community-based care[a]<br>Educational, Administrative and Research activities. | 44 Weeks<br>(1/2 day/wk) |
| Year 1<br>Block | Sub-Specialty Clinics:<br>Neurology I – General (for family medicine residents) OR<br>Family Medicine I – (for internal medicine residents)<br>Geriatric Psychiatry<br>Geriatric Rheumatology<br>Physical Medicine & Rehabilitation<br>Palliative & End-of-life Care I<br>Neurology II – Cognitive & Movement Disorders<br>Academic Writing Workshop*<br>Faculty Development Workshop<br>Conference, Update Course etc.<br>Vacation | <br>6 weeks<br><br>8 weeks<br>8 weeks<br>6 weeks<br>6 weeks<br>8 weeks<br>2 weeks<br>1 week<br>1 week<br>6 weeks |
| Total | | 52 weeks |
| Year 2<br>Longitudinal | Outpatient continuity clinics, inpatient care, office procedures<br>Community-based care[a]<br>Educational, Administrative and Research activities. | 40 Weeks |
| Year 2<br>Block | Sub-specialty clinics:<br>Geriatric Nephrology<br>Geriatric Endocrinology<br>Geriatric Haematology<br>Palliative & End-of-life Care II<br>Internal Medicine Elective (for family medicine residents) OR<br>Family medicine II (for internal medicine residents)<br>Private Practice Tutelage<br>Academic Writing Workshop[b]<br>Conferences, Course Updates<br>Vacation & Elective abroad (e.g. University of Michigan) | <br>6 Weeks<br>6 Weeks<br>6 Weeks<br>6 Weeks<br>6 Weeks<br><br>8 Weeks<br>2 weeks<br>2 weeks<br>10 weeks |
| Total | | 52 weeks |

| | | |
|---|---|---|

NB: Longitudinal rotations are concurrent and weekly. Block rotations are consecutive and weekly.

[a]Adult daycare centers. [b]Half day sessions.

**Table 2. Typical average weekly sessions for a geriatrics fellow in training**

| Activity | Frequency/Week | Hours |
|---|---|---|
| Geriatric outpatient continuity clinic | 1 session | 6 |
| Family practice/internal medicine outpatient clinic | 1 session | 6 |
| Geriatric inpatient acute care | 1 session | 6 |
| Sub-specialty clinic (rotation) | 1 session | 6 |
| Community-based care | 1 session | 4 |
| Geriatric on-call consult (weekend) | 1 session | 6 |
| Office procedures | 1 session | 4 |
| Didactics and research conference | 2 sessions | 8 |
| Scholarly activity | 1 session | 6 |
| Administrative activity | 1 session | 4 |
| **Total** | **11 sessions** | **56** |

**Table 3. Timelines for Assessment and Evaluation**

| **Time** | **Rotation or Activity** | **Type of Assessment or Evaluation** | **Assessment or Evaluation Leaders** | **Requirements** |
|---|---|---|---|---|
| After each block rotation | Sub-specialty rotation; Private practice | Feedback from rotations/private practice | Sub-specialists; Private practitioner | Filled and signed feedback forms |
| 6 months | All rotations / activities | Progress report | Program director | Listed activities |
| 1 year | 1. All rotations / activities<br>2. Program evaluation | 1. Progress report<br>2. Program evaluation | 1. Program director<br>2. Fellow | Portfolio, Program evaluation form |
| 18 months | All rotations / activities | Progress report | Program director | Listed activities |
| 2 years | 1. All rotations / activities<br>2. Program evaluation | 1. Progress report<br>2. Program evaluation | 1. Program director<br>2. Fellow | Portfolio, Program evaluation form |

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