Collaboration is a Long Distance Run: The University of Michigan and Ghana

William Barsan, MD
Professor of Emergency Medicine
Co-Principal Investigator, Ghana-Michigan MEPI
University of Michigan
Path to Collaboration

- Obstetrics & Gynecology
- Medicine, Public Health, Nursing, Engineering
- Emergency Medicine
- Surgery—Breast Care Center
- Physical Medicine and Rehabilitation
- Family Medicine
- Pediatrics
- Medical Education
- Urology
- Otolaryngology
Obstetrics & Gynecology

- Led by Dr. Tim Johnson - Chair of Dept of Obstetrics and Gynecology
- 20 year collaboration - established in 1989
- Partnered with UG, KNUST, MOH, Ghana Health Service
- Developed in-country postgraduate training program for Obgyns
- Produced 85 Obgyns - all but 2 still practice in Ghana

Ghana postgraduate obstetrics/gynecology collaborative residency training program: Success story and model for Africa

Cecil A. Klufio, MBBS, a E. Y. Kwawukume, MBBS, a K. A. Danso, MBBS, b
John J. Sciarra, MD, PhD, c and Timothy Johnson, MD d

Accra and Kumasi, Ghana, Chicago, Ill, and Ann Arbor, Mich

September 2003
Am J Obstet Gynecol
Obstetrics & Gynecology

- Developed Critical Mass (over 80 trained, retention nearly 100%, faculty development, medical student and house officer education, “trickle down”)
- Post-Training Experience for leaders (Maternal fetal medicine, MPH, ultrasound, oncology, urogynecology, family planning)
- One Dean and 8 department chairs all graduates of the program
- Pipeline (faculty, private sector, regional hospitals) critical mass for distribution to meet Health Services needs.
Obstetrics & Gynecology
Lessons learned

- In Country Training
- Economic stability and future
- National and social responsibility
- Success in post-graduate training stimulates specialty training
- Positive impact on undergraduate medical education
Collaboration Spreads

- Medicine, SPH, Nursing join for a $3M Bill & Melinda Gates Foundation Grant

- Development of the Ghana-Michigan CHARTER

- Broad interdisciplinary initiative in training of human resources for health in Ghana
Collaboration Spreads

- One key piece of CHARTER: research capacity development
- Research methods workshops
- Small group mentoring
- Fellowships to come to Ann Arbor
- Pilot grant funding
Emergency Medicine: Ghana EM Collaborative

- Began collaboration in 2007
- Create model system of acute injury and emergency care across Ghana
- Expansion to tertiary medical centers and schools in Ghana
- Build this model system on a platform transportable to West Africa
Emergency Medicine

- $500,000 UM EM Departmental support

- Bill and Melinda Gates Foundation-funded CHARTER initiative

- NIH Fogarty Medical Education Partnership Initiative (MEPI)
  - $250,000 /5 years
FIRST BATCH OF EMERGENCY MEDICINE RESIDENTS ADMITTED

The first batch of residents for the Membership programme in Emergency Medicine has been admitted. The College's Emergency Medicine programme is run at the Komfo Anokye Teaching Hospital with support from the University of Michigan and the University of Utah.

With the 8 residents who were interviewed for admission are Professor Paul Nyame, Rector of the Ghana College of Physicians and Surgeons. Dr. Conrad Buckle (1st from right), Dr. Daniel Wachter (2nd from right) and Dr. George Oduro (3rd from left) are all Emergency Medicine Specialists who will be part of the faculty to help with the training.
Emergency Medicine

- First graduating Specialists in 2012
- Incoming class has 11 residents with 2 from Nigeria
- Fellowship programs in development
Emergency Medicine
Planned Outcomes: 2015

- 40 EM Physician leaders trained from various regions across Ghana
- 200 other specialty physicians exposed to optimal EM methods of care
- 80 EM nurses trained
- 200 medical students exposed to state of art EM care as part of standard curriculum
- 60 EMS providers trained
SPECIAL CONTRIBUTION

Optimizing Clinical Operations as Part of a Global Emergency Medicine Initiative in Kumasi, Ghana: Application of Lean Manufacturing Principals to Low-resource Health Systems

Patrick M. Carter, MD, Jeffery S. Desmond, MD, Christopher Akanbobnaa, MBA, DPMD, Rockefeller A. Oteng, MD, Sarah D. Rominski, MPH, William G. Barsan, MD, and Rebecca M. Cunningham, MD

Skills and educational needs of accident and emergency nurses in Ghana: An initial needs analysis

Sarah Rominski a*, Sue Anne Bell b, Dorothy Yeboah c, Kristen Sarna d, Heather Hartney e*, Rockefeller Oteng f, d

Bypassing proximal health care facilities for acute care: a survey of patients in a Ghanaian Accident and Emergency Centre

A. Q. Yaffee1, L. K. Whiteside1, R. A. Oteng1, P. M. Carter1, P. Donkor2, S. D. Rominski1, M. E. Kruk3 and R. M. Cunningham1

1 Department of Emergency Medicine, University of Michigan, Ann Arbor, MI, USA
2 Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
3 Department of Health Policy and Management, Mailman School of Public Health, Columbia University, New York, NY, USA

doi:10.1111/j.1365-3136.2012.02984.x
Led by Dr. Lisa Newman
Explores relationship between African ancestry and triple negative breast cancer with samples of breast tumors from AA, Detroit, and Ghana
Physical Medicine & Rehabilitation

- 10 year relationship between Ghana and Michigan
- Initially had an exploratory trip that led to creation of the Ghana Medical Rehabilitation Group
- Developed scholarships to train physical therapists

- Developed proposal with Ghanaian policy makers to have rehab facility built as addition to KATH

Medical rehabilitation in Ghana

M. J. TINNEY¹, A. CHIODO¹, A. HAIG¹ & E. WIREDU²

¹University of Michigan Hospital, Department of Physical Medicine and Rehabilitation, Ann Arbor, Michigan, USA, and
²The University of Ghana, Accra, Ghana
Physical Medicine

- Found only 6 rehabilitation doctors in Sub-Saharan Africa
- Difficult to measure disability using 55 languages
- Developed the Language Independent Functional Assessment (LIFE)
- LIFE has been used and validated on 4 continents
- Shown that the prevalence of disability exceeds previous estimates

*Original Article*

Development of a Language-Independent Functional Evaluation

Andrew J. Haig, MD, Senthil Jayarajan, MD, Eric Maslowski, BA, Karen S. Yamakawa, MS, Melissa Tinney, MD, Klaus P. Beier, PhD, Derek Juang, MD, Lilliene Chan, BS, Tony Boggess, DO, Jesse Loar, BS, Bertha Owusu-Ansah, BS, Claire Kalpakjian, PhD

Arch Phys Med Rehabil Vol 90, December 2009
Family Medicine

- Initial collaboration began in 2008
- Have given over 20 faculty development lectures in Ghana
- Over 30 lectures to residents at Komfo Anokye hospital
- Have assisted residents to prepare for Board exams each year
- Several ongoing research collaborations
Family Medicine

Standout Faculty: Katherine Gold, MD, MS

Working with faculty at KATH in Kumasi around issues of stillbirth, neonatal mortality, and coping with loss

How well do mothers in Ghana understand why their newborn is hospitalized?

Katherine J. Gold¹², Tashya G. Jayasuriya³, Julia M. Silver¹, Kathryn Spangenberg⁴, Priscilla Wobil⁵, Cheryl A. Moyer⁶

Departments of ¹Family Medicine and ²Obstetrics and Gynecology, ³Medical School, University of Michigan, USA, ⁴Family Medicine, Polyclinic Directorate, Komfo Anokye Teaching Hospital, Kumasi, Ghana, ⁵Department of Child Health, Komfo Anokye Teaching Hospital, Kumasi, Ghana, ⁶Minority and Health Disparities International Research Training Program (MHIRT), Department of Medical Education, University of Michigan, USA
Dr. Betsy Lozoff worked with faculty and students on the ground in Ghana beginning in 2003: iron deficiency anemia.

Dr. Drew Campbell followed shortly thereafter: Sickle Cell disease, anemia and malnutrition.
Medical Education

Dr. Cheryl Moyer has been working in rural northern Ghana on SANDS (Stillbirth And Neonatal Death Study) with colleagues from Navrongo.

This mixed methods study combined demographic surveillance data with qualitative interviews to determine factors associated with maternal and child health outcomes.
RESEARCH ARTICLE

Infant nutrition in the first seven days of life in rural northern Ghana
Raymond Akwire Aborigo1*, Cheryl A Moyer2, Sarah Rominski2, Philip Adongo3, John Williams1, Gideon Logonia1, Gideon Affah1, Abraham Hodgson1 and Cyril Engmann4

ORIGINAL ARTICLE

Infant illness spanning the antenatal to early neonatal continuum in rural northern Ghana: local perceptions, beliefs and practices
C Engmann1, P Adongo2, R Akwire Aborigo4*, M Gupta2, G Logonia1, G Affah3, P Waiswa6, A Hodgson1 and CA Moyer2

Tropical Medicine and International Health

VOLUME 17 NO 3 PP 272–282 MARCH 2012

RESEARCH ARTICLE

Clean delivery practices in rural northern Ghana: a qualitative study of community and provider knowledge, attitudes, and beliefs
Cheryl A Moyer1*, Raymond Akwire Aborigo2, Gideon Logonia1, Gideon Affah7, Sarah Rominski2, Philip Adongo3, John Williams1, Abraham Hodgson1 and Cyril Engmann4

Stillbirths and early neonatal mortality in rural Northern Ghana
Cyril Engmann1, Paul Walega2, Raymond A. Aborigo2, Philip Adongo3, Cheryl A. Moyer4, Layla Lavasani1, John Williams2, Carl Bose1, Fred Binka3 and Abraham Hodgson2

1 University of North Carolina, Chapel Hill, NC, USA
2 Navrongo Health Research Centre, Navrongo, Ghana
3 University of Ghana, Legon, Ghana
4 University of Michigan, Ann Arbor, MI, USA
Urology

- December 2012 trip to discuss collaboration opportunities
- Goal is to establish Michigan-Ghana Urologic Educational Collaborative
- Propose 5 year plan to establish the Michigan-West Africa Endourological Center
- Annual trip in December for 7-8 days for focused surgical workshops
  - Stone disease
  - Pediatric reconstructions
Dr. Jeff Moyer (facial plastics and reconstruction), Dr. David Brown (pediatric otolaryngology), Dr. Mark Prince (head and neck cancer), Dr. Doug Chepeha (microvascular head and neck) have been conducting exploratory meetings since 2012

UM resident spent 4 months in Ghana researching quality of life issues for head and neck cancer patients, comparing QOL scores across Ghana and US

Delegation visiting KATH in October, 2013 to discuss potential for collaboration, exchange and partnership
Fogarty Research grants

- Michigan is part of the Northern Pacific Consortium for Global Health Research Training, funded by a 5-year grant from the Fogarty International Center
- Two 1-year trainees last year– one Ghanaian (Constance Opoku, left) and one from Michigan (Nauzley Abedini, right)

- One Michigan trainee in 2013-14 (Rocky Oteng)
Fogarty Research grants

- **PARTNER (2011-2012)**
  - 1-year interdisciplinary research training grant for Ghanaian post-doctoral fellows
  - 12 came for 4 months
  - 2 came for one full year

- **PARTNER II (2013-2017)**
  - 1-year interdisciplinary research training grant for post-doctoral fellows from US and Ghana
  - 6 months in Ann Arbor
  - 6 months in Ghana
Since 2004, medical students (2-4 per year) have been exchanged between UMMS and UGMS/KNUST - curriculum has been a typical M4 experience.

Expanded in 2008 to 12 Medical students from UGMS and KNUST for “senior clerkships” at UMMS in OBGYN, Pediatrics, Family medicine, Emergency medicine, Internal Medicine or Physical Medicine and Rehabilitation

In 2011, began M3 core OBG clinical clerkship for UM students at KNUST in Kumasi
UM/Ghana Collaboration: Lessons learned

- Long term partnership
- Local decision making based on shared experience
- Bilateral exchange
- Transparency (financial, administration, etc)
- Capacity building
- Long term sustainability
- Personal relationships and commitment
Medical Student Education

Evaluation is a big part of the Ghana-Michigan Model

Between 2008 and 2010, incoming Ghanaian medical students outnumbered outgoing UMMS students 73 to 33.

What is the value of clinical exchanges for Ghanaian trainees?

An evaluation of the Ghana-Michigan partnership

1University of Ghana, Accra/GH; 2University of Michigan, Ann Arbor, MI/US; 3Kwame Nkrumah University of Science and Technology, Kumasi/GH;
4University of Michigan Medical School, Department of Internal Medicine, Global REACH, Ann Arbor, MI/US. *Note: S. Danso-Bamfo and N. Abedini are Co-First Authors

Background

The University of Michigan (UM) Department of Obstetrics and Gynecology has a long-standing relationship with the University of Ghana Medical School (UGMS) at Accra and the School of Medical Sciences, Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi. Since 2007, 73 senior medical students from UGMS and KNUST have rotated at the UM Medical School, while 33 UM medical students have rotated in Ghana. Few medical schools currently engage in such large bilateral exchanges.

Results

50 of 73 current and former medical students have responded to a 45-item online survey. Table 1 illustrates participant demographic characteristics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
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<tr>
<td>Gender</td>
<td>57% female 43% male</td>
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<tr>
<td>Age at time of rotation</td>
<td>Mean: 24.75 68% 18-24 years old 32% 25-29 years old</td>
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<td>Region</td>
<td>73% work or study in Greater Accra</td>
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<tr>
<td>Setting</td>
<td>85% are originally from an urban setting</td>
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<tr>
<td>Duration of rotation</td>
<td>64% 6-week rotation 32% 4-week rotation 4% 5-week rotation</td>
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<tr>
<td>Department of Rotation</td>
<td>78% Obstetrics &amp; Gynecology 15% Emergency Medicine 7% Other</td>
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<tr>
<td>Level of training prior to UM rotation</td>
<td>24% year 2 14% year 3</td>
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<tr>
<td>Previous International electives</td>
<td>75% No previous International electives 25% Yes</td>
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Key Findings:

- 85% of students cited their UM rotation as a valuable part of their medical training
- Students were able to actively participate in patient care (94% observed patient care, 44% examined patients)
- UM could do a better job of soliciting students’ opinions
- The most valuable aspects of the experience for students were
  - Exposure to a different culture
  - Understanding of healthcare in a developing country
  - Gaining exposure to different patient populations
  - Building relationships with Ghanaian peers

[Images of medical students in clinical settings]
Key Ingredients for successful collaboration

- Trust
- Mutual Respect
- Communication
- Accountability
- Transparency
- Leadership
- Sustainability
Thank you for your attention!