Partnerships Creating Postgraduate Family Medicine in Kenya

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Culminating a decade-long process, the first family medicine residency program in Kenya, among the first in Africa outside Nigeria and South Africa, was launched in 2005. Three diverse stakeholders are collaborating in their individual and joint missions: Moi University Faculty of Health Sciences (MUFHS), educating medical students to serve rural Kenyans; the Institute of Family Medicine (Infa-Med), a church hospital-based nongovernmental organization aiming to introduce family medicine in Kenya; and the Ministry of Health (MoH), working to create an efficient government health care workforce for 32 million Kenyans. MUFHS brings central facilities, enthusiastic academic leadership, and long-term vision. Infa-Med contributes start-up resources, expatriate family medicine faculty, and well-established hospitals for training. MoH is giving political support to the new specialty as well as scholarships to MoH medical officers entering the 3-year residency program leading to the degree of Master of Medicine in Family Health. Among the lessons learned through this process are the importance of melding the missions of all partners, of integrating clinical with community care of the underserved, and of deriving curriculum from African and international evidence on how to marshal available resources to meet Kenya's national needs. Opportunities continue for internal and international collaboration.

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Kenya has 4,000 doctors to serve its 32 million[1] citizens, who live in an area the size of Texas. Half the doctors work for the Government of Kenya Ministry of Health (MoH). A government hospital in each of the 72 districts of Kenya must serve nearly 500,000 people. Based on the rates shown in Table 1, 500,000 Kenyans will annually experience 17,500 births and 6,000 deaths, including deaths of 1,138 infants and 227 maternal deaths.[1] Although 70%–80% of Kenyans are rural, only 16% of Kenya's doctors work in rural areas.[2] While an earlier MoH plan envisioned surgeons, physicians (internists), pediatricians, and obstetricians in each of Kenya's decentralized district hospitals, this now seems unlikely in the foreseeable future since the majority of these MoH specialists now staff the seven more centralized provincial hospitals. The MoH is rethinking its options, one of which is to place district hospitals in the hands of residency-educated family physicians. Given that the district hospital is the intended unit for secondary care throughout Kenya and is the key level for most clinical and community health programs[3] promoted by the World Health Organization,[4] the need for skilled clinical generalists in these hospitals, educated in public health[5] and program management,[6] is clear.

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Challenges to the Kenyan Health System

Obstacles to expanding health and social services in sub-Saharan Africa (SSA) have grown more formidable over the past 2 decades.[7] Funding has decreased, due in part to structural adjustment programs mandated by the World Bank. At the same time, increasing burdens of infectious diseases, especially Acquired Immune Deficiency Syndrome (AIDS) and tuberculosis, are creating greater needs, and Africa remains the continent highest in malaria mortality. An epidemiologic transition is occurring, in which such "Western" chronic

Table 1

Kenya 2003 Vital Health Statistics (Selected)

Population	32,000,000
Doctors	4,000
Doctor: population ratio	1: 8,000
Birth rate (per 1,000)	35
Death rate (per 1,000)	12
Population growth rate (per year)	2.3%
Total fertility rate (births/woman)	4.6
Contraception prevalence (any method)	39%
HIV prevalence (adults)	12%–15%
Maternal mortality ratio (100,000 births)	1,300
Deliveries with skilled attendant	44%
Infant mortality rate (1,000 births)	65
Under-five years mortality ratio (1,000 births)	115
Under-five years children underweight (≥2 SD)	23%
Life Expectancy at Birth (years)	52
Population over 60 years old	4%

Source: Kenya Demographic and Health Survey 2003: www.measuredhs.com/countries. Accessed January 25, 2006.

SD—standard deviation

diseases as hypertension, diabetes, and obesity are now seen in increasing numbers, mainly in Africa's higher socioeconomic groups. Many infectious and chronic diseases are now more complex in diagnosis and management than in the past. And, with Kenya's 2003 initiation of antiretroviral (ARV) drug therapy, the majority of its doctors will need new therapeutic skills if the medications are to benefit the million Kenyans who are candidates for ARV therapy.[8]

Medical Education in Kenya

Independence came for most nations in SSA between 1957 and 1963. At that time, postgraduate training in family and general practice existed nowhere in the world. The year 2000 dawned in SSA without significant family medicine education or specialty recognition, except in Nigeria and South Africa. Medical education in the former British East Africa began in 1924 at Makerere University in Kampala, Uganda.[9]

Until 1968, most Kenyan medical students enrolled in Makerere for the 6-year MBChB curriculum, followed by a year of internship in Kenya, which consisted, both then and now, of 3 months of inpatient rotations in each of the "big four" specialties: internal medicine, pediatrics, obstetrics, and surgery. After the 1968 founding of the first Kenyan medical school at the University of Nairobi, post-internship education began there in these four major specialties in 1972. Others have since been added. Concurrently, the pre-independence cadres of paramedical clinicians (called clinical officers in Kenya) and midwives continue their separate development.

Responding to community needs for broadly competent health care, family medicine has evolved in diverse contexts worldwide.[10] Despite this diversity, there are common elements that family medicine can contribute to improve health systems everywhere.[11] Family medicine becomes viable and relevant when the specialty is defined and developed collaboratively with local citizens from community to national (MoH) levels. Medical schools and governments with a vision for this new population-oriented specialty often work collegially with civil society, including nongovernmental organizations (NGOs), to engage consultants and visiting faculty from nations where family medicine is an established discipline.[12,13] Among the diversity of NGOs are mission hospitals and their community health programs.[14]

In Kenya, as in Nigeria, much of the impetus to develop postgraduate familymedicine/general practice education came from physicians, often expatriates, working with rural church hospitals. These hospitals, united by the Kenya Catholic Secretariat and the Christian Health Association of Kenya (CHAK), provide 35% of Kenya's health care, mainly in underserved areas. In 1995, three CHAK hospitals helped form a non-governmental organization (NGO) called the Institute of Family Medicine (Infa-Med).[15] After earlier ill-fated attempts at academic alliances, Infa-Med (originally called Cofa-Med) began an affiliation in 2000 with Kenya's other medical school, the Moi University Faculty of Health Sciences (MUFHS). Located at Eldoret in western Kenya, Moi University was chartered to meet the practical needs of Kenya's citizens, especially in its rural areas. Founded in 1988, MUFHS[16] soon became an active member of the international "Network"[17] of schools devoted to problem-based and community-oriented medical education. With parallel missions, MUFHS and Infa-Med began a partnership to develop a Master's of Medicine in Family Health, or MMed (FH), an academically undergirded residency program oriented to the needs of Kenya's underserved districts.

The second MUFHS dean, a professor of surgery who served from 1999–2005, became a strong advocate for developing family medicine. As a member of the Kenya Board of Medical Practitioners, he was instrumental in having family medicine recognized in 2001 as a medical specialty in Kenya. The painstakingly crafted partnership between CHAK and the academic

culture of Moi University accelerated under the even-handed leadership of Infa-Med and the dean. During the curriculum development process, the Academic Advisory Committee tried to incorporate the needs of current practicing generalists but found there was no organization to represent them. Hence the Kenya Association of Family Practitioners (KAFP) was founded in 2002. KAFP's primary goal is to begin Kenya's first-ever Continuing Professional Development (ie, CME) program.

In contrast to Uganda, where much impetus for primary care generalist careers originated in the Ugandan Ministry of Health, in Kenya the MoH joined this partnership gradually and later in the process. The MoH leadership has begun to strongly support, conceptually and financially, the career aspirations of its MoH medical officers who want postgraduate education in family medicine.

Current Family Medicine Education in Kenya

It is in this context that family medicine education was officially launched in 2004–2005 by MUFHS, collaborating with four rural 200-350 bed district-level hospitals. On April 1, 2004, nine Kenyan doctors who had the requisite 2 or more years' practice experience were accepted by Moi University Family Health Division as registrars (residents) to pursue the 3-year residency leading to the MMed (FH). Each hospital was then matched with two first-year registrars. The exception was the MoH district hospital at Webuye, which has links to the nearby Lugulu Friends (Quaker) Hospital, allowing for three registrars. The other three hospitals are members of the CHAK: Chogoria Hospital (Presbyterian Church of East Africa) east of Mt Kenya; Kijabi Hospital (Africa Inland Church) in the highlands 30 miles northwest of Nairobi, and Tenwek Hospital (Africa Gospel Church) near Bomet in southwest Kenya. After the second and third annual cohorts of eight to nine registrars are admitted, there will be six to nine registrars at each of these hospitals. As the number of accepted and financially supported registrars increase beyond this capacity, one government and one NGO hospital are to be added in phased, tandem expansions. Since medical care in most SSA nations relies on both government and NGO/church facilities, especially in rural areas, the three partner agencies, MUFHS, Infa-Med, and MoH, offer this collaborative program for candidate selection and postgraduate education as a potential paradigm for future partnerships in Kenya and in other nations with similar stakeholders.

Components and Core Curriculum of the Moi MMed Program

While the MMed (FH) in Kenya is a 3-year, hospital-based residency program, beyond this there are few similarities to North American family medicine education.[18] Each hospital in Kenya, in contrast to those in the United States, functions within a community public health management team that has responsibility for the health of the district. Since hospitals serve as the home base for community outreach, this facilitates the vital community health and management elements in the family medicine curriculum. In the British Commonwealth tradition, the master of medicine, which builds on the 5–6-year bachelor of medicine/bachelor of surgery (MBChB), a standard medical degree, is viewed as a university postgraduate degree program, rather than as a professional apprenticeship, which is the North American model for residencies. Several implications follow. First, instead of receiving a salary like North American residents, MMed registrars pay tuition to the university. This necessitates, with rare exceptions, that registrars obtain financial underwriting not only for the tuition but also for continuation of their MoH (or NGO) salaries. Second, to be awarded the degree, registrars must complete a master's-level research thesis. Finally, formal courses with specific content and university catalog numbers are prescribed. For registrars working in university teaching hospitals under a central faculty, as in pediatrics or medicine, these courses can meet daily or weekly throughout the year. In this decentralized Kenyan family medicine district hospital model, the majority of these courses must be concentrated into 3-month blocks in years 1 and 2 so that registrars can be taught efficiently by an expanded faculty. After these 3 months, all registrars meet quarterly at one of the four program hospitals for 2 weeks of courses, coupled with skill sessions and formative evaluations.

Several core courses, including epidemiology, biostatistics, research methods, and ethics, are taught in common for registrars from all specialties. The courses specific to family medicine begin simultaneously, with a half day of problem-based classroom instruction and discussion daily for 3 months; in 2005, this spanned January through March. Compared to North American and European counterparts, a family medicine generalist in SSA[4,19] must fill expanded roles and deal with different diseases, demographics, and resources. Beyond the clinical, these roles include team leader, teacher, cultural broker, resource manager, and lifelong learner.[18] Because we believe these contrasts to be both extensive and instructive, the core content areas are listed in Table 2.

Opportunities for Evaluation and Faculty Expansion

Family medicine physician-educators from Africa, or from nations where family medicine is established are needed for short-term or longer-term roles as family medicine grows in East Africa.[20] Like most Commonwealth universities, Moi University mandates "external

Table 2

Seven Core Content Areas for the MMed (FH) at Moi University, Eldoret, Kenya

Family medicine Includes diagnosis, EBM, teaching family medicine
Adult medical problems Includes infectious and chronic diseases
Child health and pediatrics Includes child health programs and IMCI
Maternal and reproductive health Includes family planning, obstetrics, and IMPAC
Surgery Includes trauma and surgical specialties
Behavioral health Includes cultural and spiritual concepts
Community health and program administration Includes epidemiology and research methods

MMed (FH)—Master of medicine in family health
EBM—evidence-based medicine
IMCI—Integrated Management of Childhood Illness
IMPAC—Integrated Management of Pregnancy and Childbirth

Table 3

Seven Cs: Lessons Learned in the Development of the Family Health Residency, Moi University, Eldoret, Kenya

• Collaboration of colleagues from complementary agencies is crucial.
• Christian and other FBOs and NGOs provide valuable assets in African civil society.
• Clinical hospital care is a foundation for community medicine.
• Careers in family medicine are diverse, yet our core constituency is the underserved.
• Curricular content comes from the needs of the nation.
• Cash funding can be complemented by "in-kind" educational contributions.
• Countries in the continent contribute instructive contrasts and key consortia.

FBO—faith-based organization
NGOs—nongovernmental organization

examiners" for its postgraduate degree candidates, in addition to annual objective content tests and logs of clinical procedures and roles. Finally, to assess progress toward Kenyan core competencies akin to those of the ACGME,[21] faculty serving at each teaching hospital must conduct quarterly formative, and later summative, evaluations with each registrar.

All faculty members serving for more than 2 months anywhere within the Moi MMed (FH) program must function in at least two of three roles—teaching (including curriculum and faculty development), hospital-based family medicine, and research or research mentoring. Family doctors (likely expatriates until Kenyan graduates are available)[22] can access these roles through MUFHS, Infa-Med, or the Eldoret-based ASANTE Consortium, led by Indiana University.[23,24]

Lessons Learned Over the Decade of Family Medicine Development in Kenya

Over the years since the 1990s, when work toward family medicine began in Kenya, the lessons learned in this continuing process are summarized in Table 3.

First, collaboration of colleagues from complementary agencies is crucial. In Kenya, collegiality has melded the medical education missions of university (Moi), government (Ministry of Health), and NGO/civil society (Infa-Med/CHAK), the latter as catalyst. While pace, momentum, and leadership may change over time among these partners, all three must remain equal. Equal partnership assures stability of process and sustainability of goals and effort. NGOs, including family medicine organizations, are the "guests" on this team—and, if the agency is expatriate, in the host[25] nation itself. In all of this, as in all of Africa, people and relationships are paramount.

Second, Christian and other nongovernmental organizations (NGOs), including faith-based organizations (FBOs), provide valuable assets in African civil society. For more than a century, FBOs have served their local communities with schools, hospitals, and, for nurses and paramedicals, schools within hospitals. By learning to emphasize their ecumenical service role[26] rather than their doctrinal distinctions, the churches have contributed to a "three-way win" for all partners in the new Kenyan family medicine education enterprise—university, government, and NGO/FBO.

Third, clinical hospital care is at the core of community medicine. If a major "contribution of family medicine" is to "[improve] health systems,[11] then our mission and methods must go well beyond the clinical.[4,5] Yet, unless family doctors' core identity is that of adept clinicians, we will not generate the respect prerequisite to effectiveness in medical education and in professional organizations. A rural district hospital is strengthened when its cause is taken up by a respected local clinical "champion"—a dedicated doctor investing decades in the vision and daily work needed to improve that lone, and perhaps lonely, locus of service. And, it will be difficult to enlist support for community

medicine, "the medicine of people in the aggregate"[27] unless we are dedicated to doctoring the diseases of its individual patients. Expanding the family physician's role toward behavioral[28] and public health care management[3,5] are core objectives (Table 2) for the MMed (FH) at MUFHS. Finally, incorporating the leanest of evidence-based approaches to clinical and public health decision-making into every content area can foster optimum utilization of limited resources.[29]

Fourth, careers in family medicine are diverse, yet our core constituency is the underserved. As medical medicine becomes more pluralistic worldwide, so also must planning for family medicine education, especially in countries with a growing "market-based" health sector. This goal can be served by providing training sites across a spectrum of practice types and socioeconomic strata.[10,11,18] Still, if family medicine is true to its historical roots, it will focus on a "preference for the poor," where its ability to use meager resources well can best serve overall national interests.

Fifth, curricular core content must come from the needs of the nation. It follows from the four lessons above that family medicine will seek its curriculum first in its local context. There are abundant practice guidelines and protocols, evidence based on solid regional research, many of these synthesized by multinational scientific groups, including the World Health Organization. Increasingly, this science is the basis for undergraduate curricula[4,17] in developing country medical schools, including MUFHS.[16] North American family medicine guest faculty[25] should build graduate education on these foundations. Because two thirds of the population of developing nations are mothers and their children, and an even larger portion of health problems pertain to them, family medicine must emphasize these demographic and resource realities in its curriculum. Two exemplary international protocols from WHO are the Integrated Management of Childhood Illness (IMCI)[30] and Integrated Management of Pregnancy and Childbirth (IMPAC).[31] IMPAC is one resource for the international adaptation of the Advanced Life Support in Obstetrics (ALSO) course, now in progress.

Sixth, cash funding can be complemented by "in-kind" educational contributions. Infa-Med has raised most of the program's startup funding and provides scholarships for registrars hoping to serve in rural CHAK hospitals. Moi University has provided academic endorsement, office space and personnel, and most recently, two salaried faculty positions. Working with MUFHS, agencies from The Netherlands have strengthened its programs.[32] The Ministry of Health has given scholarship and salary support for all seven MoH medical officers accepted into the first family health MMed cohort of nine. Since the MoH has funds to support only one of every three of its doctors who are accepted by universities for postgraduate education, this is a reassuring vote of confidence.

Finally, countries in the continent contribute instructive contrasts and key consortia. Learning from Nigeria and South Africa, family medicine is now being developed in several other SSA nations. To meet common goals in Kenya, Tanzania, and Uganda,[33] a fledgling Association of Family Physicians in East Africa (AFPEA) is being formed to coordinate resources, curricula, continuing education, and specialty certification.

Conclusions

Each of these lessons was learned as obstacles were overcome during the long process of launching family practice in Kenya. They may prove pertinent as other nations in Africa and elsewhere expand the role of primary care doctors in meeting the growing volume and complexity of their health care challenges. Beyond this lies the hope that such in-country opportunities for postgraduate medical education and career service will help to stop the medical "brain drain."[34]

Dedication: This article is dedicated to the memory of Dr Peter Manshot, a Dutch family physician (huisartsen) with long prior experience in Tanzania, who was a core faculty member in the MMed (FH) program from January–March 2005. He died in August 2005 as a result of a bicycle accident in The Netherlands. Peter was the first faculty member to welcome the new registrars. Sadly, with this account, his fellow faculty members say farewell.

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