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**IN AFRICA: AN INNOVATIVE
DISTANCE-LEARNING MODEL**

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ABSTRACT

This article describes the development and implementation of a distance graduate public health education program in Africa by Loma Linda University, Loma Linda, California, U.S.A. The program started in March 2000 and ended in September 2003 with formal teaching sessions on-site held twice a year at the University of Eastern Africa, Kenya. The instruction was given in English and French. Of the cohort of 67 students from 20 African countries who started the program, 57 received an M.P.H. degree and six received a certificate in public health. The experiential learning model allowed students to immediately put into practice what they had learned. Challenges included security-related problems, accommodation/travel logistics and communication. In addition to the graduates, successful outcomes included the formation of the Pan-African Public Health Association. The new cadre of trained public health professionals represents enhancement to public health capacity in Africa.

Africa faces complex public health problems and challenges due to major diseases causing significant disabilities, death and loss of productivity (Badri, M., Douglas, W., Wood, R, 2002; Morris, 2001; Siringi, 2000; Siringi, 2001; Walker, N., Schwartlander, B., Bryce, J., 2002; Ramakrishnan, 2002), as well as a fragile political, socio-economic environment frequently threatened by conflicts and disasters (Ashraf, 2001). The weak public health infrastructure and few resources found in many countries are only worsened by a dearth of trained public health professionals. Of the few indigenous public health professionals, many often leave the continent in the absence of viable opportunities in Africa for continuing education and professional growth (Pang, T., Lansang, M.A., Haines, A., 2002; Siringi, 2001). In light of the factors cited, and in keeping with its commitment to global service and education, the School of Public Health at Loma Linda University, a health sciences institution in southern California, U.S.A., developed a distance learning graduate public health training program in Africa. In accordance with the recommendations of the Institute of Medicine, the program targeted individuals in senior-level leadership positions and mid-career professionals (Institute of Medicine, 1991).

THE LOMA LINDA UNIVERSITY SCHOOL OF PUBLIC HEALTH AND DISTANCE EDUCATION

The mission of Loma Linda University School of Public Health is “to prepare and support public health professionals for service locally, nationally and internationally.” The distance education programs offered by the school started 25 years ago in response to growing health professional needs in the field. Since that time, more than 950 individuals have received their master of public health (M.P.H.) degrees through the “off-campus” program. The primary purpose of distance education programs is to provide graduate training in public health to motivated mid-career health professionals who otherwise

would not be able to pursue this line of study. This format is ideally suited for working mid-career professionals who may be located in remote regions, such as those in Africa. The condensed format also allows them to obtain the desired course work with minimal interruption of their work responsibilities.

Students obtained the course outline, syllabus, reading materials and assignments several weeks prior to an intensive, interactive session that took place over three to five days in a classroom setting with two to four sessions held each year. The condensed format retains the same number of academic contact hours as traditional on-campus courses and continues to be used in a modified form according to specific needs of a given site. The course content is similar to on-campus courses but is modified as appropriate to meet the needs of a particular setting. Students read the materials and prepare pre-course assignments prior to the intensive session. Lectures, audio-visual presentations, student reports and group activities take place throughout the intensive session that is conducted full time over the specified days. After the intensive session, students are allowed several additional weeks to complete further assignments and take a final examination, as appropriate to the course. Although the format is called “condensed” the course work is actually completed over a time period equivalent to an academic quarter.

PROGRAM DESCRIPTION

The MPH program in Africa was offered on the campus of the University of Eastern Africa, Baraton (UEAB) in the highlands of western Kenya. The first session was held in the spring of 2000 and the program ended in September 2003. Of the cohort of 67 students from 20 African countries who began the program, four dropped for various reasons and 64 students completed the program; 57 received the M.P.H. degree and six received a certificate in public health. The majority of students were between 40-49 years of age (Table 1). They were employed in various positions in hospitals, clinics, educational institutions and government agencies. Forty-six percent of the students were physicians, with the remainder being dentists, nurses, hospital administrators, health educators and other public health professionals; one was a national director of HIV/AIDS programs in Kenya (Table 2). Thirty-three percent of the students were women (Table 3). Employing organizations agreed to grant students release time to participate in the MPH program.

Age	Number	Percent
20-29	8	12%
30-39	23	34%
40-49	33	49%
50-59	3	5%

Occupation	Number
Physician	31
Nurse	11
Administrator	8
Pastor	6
Teacher	7
Dentist	2
Accountant	2

Gender	Number	Percent
Male	45	67%
Female	22	33%

After careful consideration at the School of Public Health, a competency-based (O'Neil, 1993; Stauffer, 1990) generalist public health major was deemed appropriate for this setting because it provided the flexibility to offer a wider variety of courses. The curriculum was built upon themes of maintaining a sustainable environment, supporting cultures and families, and advocating for vulnerable populations. By the end of the program, students were expected to demonstrate competency in the following areas of responsibility: assessing capacity, systems and resources; planning comprehensive, integrated systems; managing programs; evaluating community-based programs; promoting collaboration between sectors; advocating for social justice; contributing to operational research. The courses in the curriculum and learning objectives were chosen in consultation with public health representatives from Africa. The program was formally reviewed and finally approved by all the appropriate school and university committees. As the program progressed, adaptations were made to accommodate requests from students for additional, advanced course work in certain topical areas. The course work included 56 graduate quarter units followed by a 400-hour field practicum (Table 4).

Spring 2000		
HADM 509	Principles of Health Administration	3 units
INTH 564	Primary Health Care Programs I	3 units
SHCJ 605	Philosophy of Public Health	1 unit
Fall 2000		
ENVH 509	Principles of Environmental Health	3 units
INTH 566	Primary Health Care Programs II	3 units
NUTR 534	Maternal and Child Nutrition	3 units

TABLE 4 CONTINUED

Spring 2001

HPRO 509	Principles of Health Behavior Change	3 units
STAT 509	General Statistics	4 units

Fall 2001

EPDM 509	Principles of Epidemiology	3 units
HPRO 536	Program Planning and Evaluation	3 units
STAT 515	Grant and Contract Proposal Writing	3 units

Spring 2002

HADM 604	Health-System Strategic Planning	3 units
STAT 564	Survey and Advanced Research Methods	3 units

Fall 2002

EPDM 544	Epidemiology of Infectious Diseases	3 units
ENVH 559	Environmental Health for Developing countries	3 units
HADM 542	Managerial Accounting for Health Care Organizations	3 units

Spring 2003

HADM 605	Health Care Quality Management	3 units
EPDM 534	Epidemiology of Maternal-child Health	3 units

Fall 2003

RELE 534	Ethics in Public Health	3 units
SHCJ 695	Field Practicum	400hours
INTH 547	Refugee Health (elective)	3 units

TABLE 5-AFRICA M.P.H. PROGRAM: FIELD PRACTICUM PROJECTS

- HIV screening in Osgobo Western Nigeria
- Malaria in Pregnancy
- Evaluation of clients needs at Hospice Mbarara
- Child Survival Project
- Establishment of Quality Home Based Care Centres in Rural Matebele Land South in Zimbabwe
- Mwami Adventist School of Nursing Development Strategic Plan
- A Nutritional Health Center as a source of education, treatment, prevention and support for malnourished patients
- Mildmay/HAPAC II CBO/MOH Home-based care (HBO) Project
- Health care seeking behavior in the community of Tigray, Northern Ethiopia

TABLE 5 CONTINUED

- Care and support of people living with HIV/AIDS in the Sabo Community of Ile-Ife, Osun State, Nigeria
- Reduction of incidence of Malaria in Mwanza Tanzania
- Youth HIV/AIDS Prevention
- Projet de Sante Publique sur HIV/AIDS dans les ecoles de la ville de Kigali, au Rwanda
- Community attitudes towards voluntary HIV tests around Heri Hospital Tanzania
- Malamulo Integrated Family Planning, Sexually Transmitted Infections, HIV/AIDS and Home Based Care Services
- Empowerment of Bulawayo Poly Peer Group Students With Lifestyle Behaviour
- HIV/AIDS -- Antenatal Clinic
- Post Abortion Care in Arusha Hospital
- Incidences of Food and Water Related Infectious Diseases in Nandi District, Kenya
- Establishment of Quality Home Based Care Curriculum for in Rural area, Matebeleland North
- Spiritual Counseling Support Program for Pregnant Women Tested HIV Positive at Kanye Hospital
- Epidemiological surveillance system assessment for Nandi district
- Education For Life: Behavioral Change Seminars
- Nutrition and health education program
- Water and Personal Hygiene Project
- Prevention of mother to child transmission (PMTCT) of HIV in Thyolo district
- Evaluation of nursing students practicum satisfaction in the clinical area
- Knowledge, attitude and practices of University Students in Ghana to hazards of Noise pollution
- Provision of safe drinking water for mixed communities Kaduna state of Nigeria
- Integrated rural health program
- HIV/AIDS Counselors Training Program
- ADRA/SCUS Machinjiri Home Base Care Project
- Stop Smoking pogram for Malagasy people
- Situational Analysis of the ADAPA SDA hospital 2002
- Development of a more effective administrative structure for the improvement of health care institutions
- Voluntary testing promotion and intervention methods in HIV/AIDS
- Malaria control project in the district of Bujumbura, Burundi
- Evaluation of nursing students practicum satisfaction in the clinical area
- Staff job satisfaction at the Ile-Ife seventh day Adventist hospital
- Malnutrition Screening and Nutrition Education for under-five children
- Strategy to provide effective and lower-cost health care

Students met twice a year, for two weeks in March and three weeks in September. Each course was comprised of approximately one week of teacher-student interaction with additional time included for study. Often there was overlap between two courses so the teachers could alternate teaching and class preparation, with one teacher taking the morning one day and the afternoon the next day, and so on. Beginning with the first session (spring 2000), materials for the courses to be offered at the second session (fall 2000) were distributed to the students. At the second session (fall 2000), materials were distributed for the third session (spring 2001); this practice was continued to the end of the program. This allowed students to prepare for the courses and optimize in-person interaction during the intensive session. It was also necessary because communication with students was often difficult once they returned to their homes. Only about one-third of students had regular access to electronic mail, another third had it intermittently, and the remainder had to rely on other avenues for communication. Translation was provided for 15 students from Francophone countries (Burundi, Cameroon, Democratic Republic of Congo, Rwanda and Togo) during the class sessions, as well as for course materials and assignments.

Students were required to complete pre-course assignments, exams and post-course assignments. In addition, students participated actively in case studies, class discussions, presentations and group projects. Instructors evaluated the students' performance in these areas as well as through exams and papers. Students' grades and academic progress were reviewed in regular meetings of the Africa MPH Committee and as appropriate compared with Loma Linda University on-campus student performance. Student's satisfaction was evaluated through course evaluation and an exit interview conducted by the program coordinator.

The course work was tailored to address the specific challenges of Africa. Course assignments required students to investigate local situations and provide alternate approaches and solutions to existing problems. The instructors involved in the program were carefully chosen for their ability to interact cross-culturally and to adapt under differing circumstances while still maintaining academic rigor. Cultural and geographic orientation to the program was provided to the instructors and a detailed debriefing was held upon their return. Instructors scheduled to teach at the next session were also invited to the debriefing sessions. These sessions provided opportunities to discuss appropriate adjustments to future course offerings and to deal with logistic issues.

The curriculum was specifically designed to provide experiential learning opportunities to students (Gabbay, 1991; O'Neil, 1993; Stauffer, 1990). A survey administered to students in September 2001 indicated that once students returned home, they were able to put in practice what they had learned. Seventy-one percent of the students had worked "often" on specific problems of their institution/community as part of their assignments. Sixty-two percent had submitted a public health grant proposal for funding since the beginning of the program. Some major outcomes stemming from the MPH program assignments included the organization of public health awareness programs and immunization campaigns; development of institutional strategic planning; creation of monitoring and evaluation tools; acceptance of changes of management style; an HIV/AIDS awareness campaign, including counseling and testing; formulation of new public health

THE FIELD PRACTICUM

The field experience, which is an integral part of public health education (Dyjack, D., Anderson, B., Madrid A., 2001; CEPH, 1999) allows students to integrate and apply the principles and practice of public health in the context of a real world setting. The protocol for this one-year activity was developed and distributed to the students in fall 2001. The field experience provided a range of opportunities for students to apply theoretical knowledge, develop operational skills, evaluate selected approaches to problem solving, and better understand the functions and roles of those employed in public health.

As a shared responsibility between the school and host organizations, this exercise enhanced career development and professional growth of students. Although the primary responsibility for obtaining a suitable field practicum placement rested with the students, the program coordinator provided them with necessary support and guidance in this process. After having identified a potential opportunity, students submitted a written proposal for approval using a standardized format. At the end of the field practicum, students submitted a written report on a public health program or project in which they actively participated (see Table 5). The field practicum report critically examined the program (or certain defined aspects of it) and offered specific recommendations for future operation. During the last session (fall 2003), students presented their report to the class.

COORDINATION

A Loma Linda University faculty member originally from Africa coordinated operational and academic aspects the program. The Office of Distance Learning and Continuing Professional Education provided logistic support for the program (ordering books, copying syllabi, procuring and processing class rosters, assisting registration, conducting course/instructor evaluations). Departmental secretaries assisted with procuring tickets and visas for the teaching faculty. The dean at the program initiation, now the university chancellor, and the current dean who was associate dean when the program began, have both been highly supportive of the program. Room and board for the students and the instructors was provided by UEAB at nominal cost. Library and computer facilities were also readily available for the students during their time on campus. Other support services, such as laundry and copying services were also available as needed.

RECRUITMENT

Students were primarily recruited through faith-based health care institutions in Africa. Those organizations were asked to recommend and sponsor students to the program. Acceptance criteria were the same as for on campus students. Applicants were required to make a commitment to continue working for their sponsoring organizations for at least four years after graduation. Only applicants who were sponsored by their organizations and met the existing academic criteria were accepted into the program.

FUNDING

This program was funded by the Chan Shun Foundation, the Swedish Mission Council (SMR)/ Swedish International Development Agency (SIDA) and ADRA/Sweden. Each student paid a minimum fee at each class session. In most cases, the employing organizations paid a portion, or in some cases the entire amount. Some students, however, were responsible for the fee and underwent considerable sacrifice to participate in the program. The entire amount from the fees was then redistributed to the students as a travel subsidy. The amount given to each student was proportional to their travel expenses but not expected to cover them entirely. Faculty workloads were 30 percent for the coordinator and 4.2 percent per unit for instructors. The coordinator was assisted by a work-study student and the Office of Distance Learning.

CHALLENGES

A number of challenges were encountered during the project. One related to on-site translation. That problem was resolved when we found a translator who had a health sciences background. Course outlines, syllabi and pre-and post-course assignments had to be translated into and/or from French for students coming from Francophone countries. We used both a contract translator and a bilingual staff member for these tasks. Some students were not able to attend the first session because of challenges in obtaining visas. We organized a make-up session for them immediately before the second session.

Other challenges included an erratic power supply which impacted the use of electric and electronic equipment; accommodation in Nairobi where students had to spend at least a night to and from UEAB; communication via e-mail and postal systems and time constraints for students to complete assignments in a timely manner. We made arrangements for students who needed extra time to come to UEAB up to three days before the session at no extra cost.

RESULTS

Of the cohort of 67 students from 20 African countries who started the program, 57 received an M.P.H. degree and six received a certificate in public health. The completion rate of 85 percent is similar to the completion rate in the Loma Linda University School of Public Health's traditional M.P.H. program. There was immediate application in local settings through class assignments and the field practicum. At the end of the program, the graduates formed the Pan African Public Health Association that will serve as a forum for sharing ideas, resources, and problem-solving approaches.

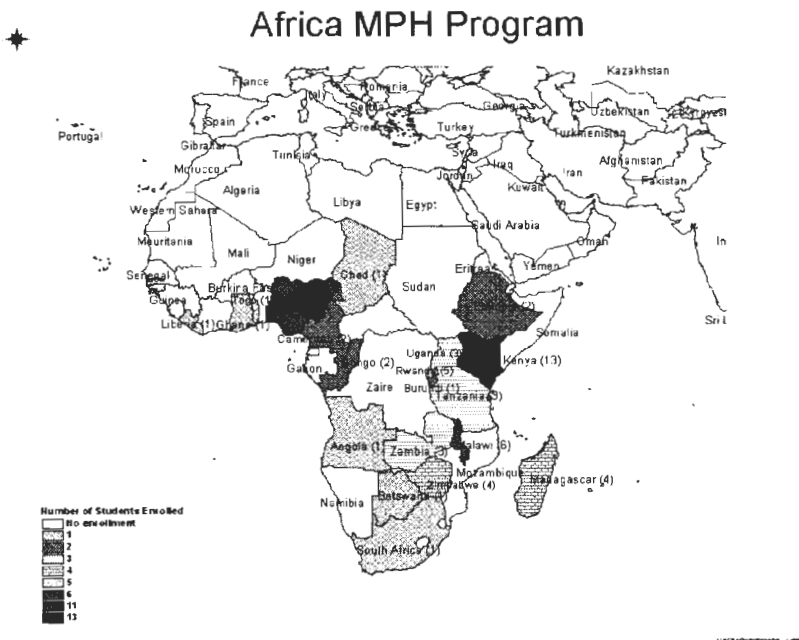
COMMENTS

Offering a graduate public health education in Africa was a timely endeavor to share knowledge, skills and resources with a region that has great need (Badri, M., Douglas, W., Wood, R., 2002; Morris, 2001; Siringi, 2000; Siringi 2001; Walker, N., Schwartlander, B., Bryce, J., 2002; Ramakrishnan, 2002). The program was cost-effective; it cost U.S. \$15,000 per student compared to \$52,000-\$60,000 it would cost in the U.S. (tuition plus living expenses for a year and a half). The cost would be much greater if family members accompanied the student. This program alleviated that cost and kept

Rudatsikira et al., Graduate Public Health Education in Africa: An Innovative Distance Learning Program. When international students study in the U.S. they often chose to remain here rather than return to their homelands (Pang et al., 2002; Siringi, 2001). Since this program was offered in Africa and the students continued their regular employment during the program, this was not a concern. Given their financial situation and professional responsibilities, these students would have never earned an M.P.H. without this opportunity. Teaching abroad was also an opportunity for 20 U.S. faculty members to interact with other cultures and broaden their global perspectives and world views. The program also provided an opportunity for collaborative research in international settings. Educating mid-career professionals, using the training of trainers model can have a significant impact across the African continent.

CONCLUSION

The Africa M.P.H. program provided public health graduate education for 61 professionals who otherwise may not have had such opportunity. Students were trained while continuing to serve in their local communities. The program allowed students to put into practice what they had learned when they returned home after each session. This training has allowed students to network with colleagues working in other African countries. At the end of the program, students formed an association that will allow them to keep in touch and share ideas. The University of Eastern Africa will continue the public health training. A faculty from UEAB, who is the director of the M.P.H. program, is about to complete his doctorate degree program at Loma Linda University School of Public Health. Another graduate from the Africa M.P.H. program is joining Loma Linda University for the Dr.P.H. program. Four faculty members from UEAB graduated from the Africa M.P.H. program. Those faculty will work collaboratively with Loma Linda University to ensure that the M.P.H. education continue at UEAB. The program was an invaluable experience for both the students and the Loma Linda University faculty.



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ABOUT THE AUTHORS

Emmanuel Rudatsikira is an assistant professor of international health in the Loma Linda University School of Public, Loma Linda, California. He coordinated operational and academic aspects the Africa M.P.H. program.

Patricia Johnston, current dean of the School of Public Health, was associate dean for academic affairs when the Africa M.P.H. program began and was instrumental in designing the curriculum and program. She taught in the program and met with students during sessions. She is professor of nutrition and preventive medicine in the schools of public health and medicine respectively.

Richard Hart is the Chancellor of Loma Linda University, Loma Linda, California. He is also a professor of international health and preventive medicine in the Schools of Public Health and Medicine. He used to work in East Africa and was dean during the inception of the program.

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