Medical Education: Team Training of Physicians in Cameroon

Training of Generalist Physicians for Third World Needs

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Abstract

Cameroon is confronted with under-five-years child mortality of over 260 per 1,000 births and a single doctor for each 26,000 people. Myriad infectious, parasitic and public health problems must be met on a health budget of less than $3 per year. In 1969, a new school attuned to tropical third world needs was opened for the training of physicians and other health personnel. Cameroon hopes to curtail physician misutilization, maldistribution and "doctor drain" by team training with intensive rural exposure, early exposure to community outpatient care and careful post-graduate education. If successful, its example may prove useful to wealthier western nations.

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That all nations must have doctors is uncontested. The critical number of physicians and their relation to other health personnel required to assure "adequate" care is another issue hotly contested and defined in terms of existing numbers, funds and politics. It has been suggested that the provision of "good" primary care in the United States requires 133 physicians per 100,000 population. Neither the United States nor Western Europe would seriously consider accepting the ratio of one physician per 12,000 population posed by the World Health Organization in the sixties as a goal for developing nations. What then of the changing views held among the agencies aiding nations to build their health structures which increasingly question the validity of the "doctor factory investment"?

When resources are limited, is it a worthwhile investment to prepare a doctor, or will less costly trained personnel suffice for most needs? In addition to the development of some 20 new schools of medicine in the 1964-74 decade in the United States there has been a proliferation of programs producing extended role nurses giving direct care traditionally given by physicians. The numerous and highly varying programs yielding "physician extenders" of even briefer training reflect the thought that still shorter and less costly training may often suffice. With the proper employment of nurse practitioners, the Burlington studies indicated that two thirds of primary care did not require a physician for patient satisfaction and a desirable outcome. The problem of status and expectation may be simpler in developing nations where medical assistants and nurses may already enjoy prestige and acceptance equal to that accorded physicians.

In the developing nation producing physicians, what will be the effect of imposing a well-trained but very small number of doctors atop a faulty existent manpower structure? Can a health care personnel base of poorly trained, ill supervised and maldistributed workers be improved by the superimposition of an educational elite? Further, will it be possible to assure an effective distribution of physicians to posts at which the need for a physician's competence is evident but where the professional and social aspects are inadequate to meet his and his family's needs? In rural developing nations, as in the rural United States, is the dilemma of the elegantly trained professional placed in an inelegant environment an inevitable social failure, as Fendall believes?

In 1975 the University Center for the Health Sciences in Cameroon graduated 29 young doctors who have entered the services of the Ministry of Health for a projected 10 year term of service. What will be their reception and what will be their performance? Will they indeed be a new type of doctor fashioned for the needs of the Third World Nations with what Professor David Morley has called the "two dollar health budget"?

The purpose of this communication is to describe the University Center for the Health Sciences in Cameroon, one of Africa's newer centers for the production of health care manpower for sub-Saharan black Central Africa, the health problems of the area, the medical and social traditions and the efforts being made to avoid conventional pitfalls in the training of health manpower for developing nation service.

The Decision to Educate Doctors in Cameroon

Cameroon shares the health problems of other countries in Central Africa, those typical of low-income, largely agrarian developing nations with large areas in relative isolation from modern transport and developed health care facilities. From the human dimension Cameroon has the typically young...
population seen in a tropical nation with an estimated half of the population age 19 and under and less than 5% over 60. It shares in the endemicity of infectious and parasitic diseases, of which malaria is a formidable cause of morbidity and mortality and of widespread latent malnutrition. Cameroon shares the Sahel, the drought-stricken sub-Saharan band across Africa. It has a population growth rate in excess of 2.0 per cent per year, and infant mortality probably falls between 75 and 200 per 1,000 live births compared to 20 or fewer in more developed western nations. The under-five years mortality rate was estimated as 265 in 1972. With independence there was a surge of assessments of existing needs and planning. In 1963 the government requested that the World Health Organization study the feasibility of creating a school of medicine. The medical needs and assets of not only Cameroon but also of its closest neighbours were appraised in light of the economic, cultural, and educational intercourse existing between the four nations. A resident WHO advisor on medical education assisted a Cameroon planning commission to seek faculty and resources, and by October 1969, 40 students were admitted to study medicine under a modest faculty of seven. In 1976, following technical assistance given by United States, France, Canada and the World Health Organization, the majority of the faculty of sixty are Cameroonian.

The University Center for the Health Sciences was conceived as a regional center for the training of health professionals rather than simply a Cameroonian school for physicians. The goal was bold and clear: the training of health personnel of all disciplines and all levels in a fashion that would imbue the idea and practice of team work as the only way to resolve the health problems of Cameroon. The image of the new Cameroonian doctor is precise and ambitious: a new type of physician with a solid background in public health to serve as the head of a team able to truly meet the health needs of the community. He is to be a planner, teacher and supervisor to a large group of paramedical skills able to carry out ongoing preventive medical programs and public health endeavors, and a superior clinician for the medical and surgical problems that surpass the skills of the many others in this team who will deliver the bulk of direct medical care for many years to come.

Cognizant that an isolated physician is of limited effectiveness if he alone of his team has professional training, the planners foresaw that for this concept to be workable the other members of the health team must be ready . . . in quality and in quantity . . . and with the same spirit of service and goals as the young doctor. To meet the need for non-physician manpower, the government has developed schools of nursing, midwifery and social service parallel to CUSS, and CUSS has elected to produce trainees in other disciplines non-existent or in insufficient supply to support the health team effort. CUSS currently trains six non-physician disciplines: Laboratory, pharmacy and sanitation technicians have now been graduated, and both physiotherapists and nurse anesthetists are in training for the needs of other hospitals in Cameroon. Training responsibilities are shared with Ministry of Health hospitals and a private polio rehabilitation center. A two-year post-basic nursing program within CUSS trains advanced level nurse educators and administrators for other French-speaking nations. CUSS will also train technicians capable of basic dentistry and plans to offer graduate level training in health education. In this way planners and teachers will be incorporated with technicians to assure far-reaching and fundamental reorganization of the public health as well as curative medical structures.

Training for Needs of the Back Country

Eighty per cent of Cameroonians are in rural areas. A worry of Cameroon's health planners and those charged with developing the CUSS curriculum for physicians was the examples posed by other African and Asian capitals where the graduates of new schools remained, leaving the rural areas as short of health manpower as before. This was an unacceptable prospect for Cameroon. Of equal concern was the thought that the medical education the students would receive might be more suitable for and more conveniently put to use in Europe or North America than in Central Africa where physicians are so badly needed. With the hopes of creating competent physicians who would find satisfaction and fulfillment in meeting the nation's pressing rural health problems, a new curriculum with non-traditional emphases and a strong rural exposure to successful team efforts seemed essential.

In the second year curriculum, students receive field study assignments, and in the fourth and fifth years spend increasingly longer terms in rural dispensaries under the responsibility of older nurses and physicians. In the sixth or internship year they spend one third of the year in a district hospital under a senior physician's direction. Of the graduating class of Fall 1975, all graduates were assigned to district level hospitals far from Cameroon's major cities of Douala and Yaounde, and this will be repeated for 1976. Most physicians are young, and if they are married their children are still small. It is expected that they will remain in district hospitals for several years, until they are replaced by later graduates, freeing them for additional training and residence in more urban areas where their children may be more easily educated and their professional needs met.

Traditional Medicine: Can African, Chinese and Western Medicine Mix?

Young Cameroonian physicians rapidly discover the rich and diverse practices of traditional or indigenous medicine. Western style medicine has a good deal of well-established competition in...
Working and living at a rural clinic gives these medical, nursing, sanitary and laboratory technology students a better understanding of team work than their teachers often have. (Courtesy U.S.I.S. — Richard Saunders).

Each must teach another: Individual instruction is given to each third year medical and second year nursing student for BCG and other immunizations. It prepares him to teach others and establish effective vaccination programs.

Students learning to teach mothers and personnel effectively: There seem to be few other ways to upgrade poorly prepared staff to reduce the death toll from measles, malnutrition and gastroenteritis.

Regular weighing of children is an uncommon practice in Cameroon: A critical student exercise repeated for three years, it sensitizes them to early malnutrition, a major contribution to death and debility.

Polio victims abound: Urbanization seems to have increased the frequency of this endemic disease which usually strikes in the first two years of life. Vaccination programs are difficult to sustain. (Illustrations A & B).
Difficult competition: This well-respected healer treats common problems and offers help against witchcraft and the occult.

Happy Family: Well-managed MCH clinics provide sound examples of health maintenance and outpatient care.

Poor nutrition and poor medical care: Kwashiorkor and injection site abscesses are typical problems faced by young interns. Post injection tetanus is common.

Bottle baby: The difficulties of bottle feeding prove insurmountable for most and victims crowd the hospitals.

Indigenous treatment: Razor blade slashes over painful or swollen areas are a popular treatment but did little to relieve the edema of kwashiorkor.
Sub-Saharan Africa in the form of native healers of all varieties. Cameroon is no exception, and they enjoy considerable esteem and are usually approached, often repeatedly, before Western medicine is sought. Cameroon’s healers (guérisseurs) have their strong advocates in government too, virtually all of whom are supportive of the University Center as well. Part of the anticipated profits of a future local pharmaceutical industry are to be diverted to research on indigenous medicinally in use by traditional practitioners.

Western trained physicians in Cameroon are accustomed to receiving daily, even in the largest cities, patients with multiple and occasionally fresh scarifications on chest and abdomen at the sites of pains or swellings, or on the joints . . . Children frequently arrive with artistically placed scars from indigenous therapy that is, as likely as not, to be continued concurrently with that prescribed in a dispensary or hospital. The treatment of mental illness seems especially successful and probably depends in part on the empathy and understanding of village and tribal customs of the indigenous practitioners.

The blend of organic disease and mental symptomology of Cameroon may be no different than that in Europe. A visit to a rural healer specializing in mental illnesses revealed among his twenty live-in patients several women with postpartum psychosis, a catatonic, several with paranoid delusions, deep depressions and manias. Treated with native drugs, charms, Christian religious symbols and enemata, his patients rarely require more than six months of care and usually improve.

The young doctor, trained abroad in the theories of bacterial and viral infection and in the multiple causes of disease is flabbergasted by the patient who asks not what made him ill, “but Doctor, who is responsible for my sickness?” The difficulties in ever completing the full payment of a bride price leads many a father with a sick child to suspect his father in law as responsible for the child’s illness. Accordingly, he often makes a payment on the bride price as he pays for his child’s medicine.

The healer’s facilities are usually modest and native; no effort is made to replicate the western doctor’s office. They do not pose the apparent perils of a hospital with its unfamiliar treatments and efforts to keep relatives away from the bedside or the other modern and subtle disparagements of family and village customs. Above all, the healer, who may well have passed a rigorous apprenticeship of four or six years under a tutor does not have the social estrangement from his patients inherent in many foreign-trained Cameroonians. Usually urban in origin in order to receive sufficient education of a quality to qualify them for further study, these doctors may have had no exposure to the realities of rural Cameroon before being ordered to accept a rural or semi-rural assignment. The gulf between the doctor and patients could hardly be larger.

The effectiveness of antibiotics being as well known among native healers as among the population at large, it is not surprising that many use injectable antibiotics as well as herbal remedies. Some diseases such as bacterial meningitis, when clearly beyond the reach of traditional medicine, are rapidly referred to western-style medical practitioners.

While encouraging and subsidizing the production of physicians, Cameroon is encouraging the continuation of traditional medicine and has, as well, recently received several delegations of Chinese medical personnel who are applying in selected geographic areas the varying blends of urban and rural techniques used in China and described by Sidel and Sidel. Far from disappearing in the face of the domestic production of physicians, nurses and paramedical personnel, there is a large number and wide dispersion of highly respected and trusted native healers. Young Cameroon-trained physicians are strongly aware of the importance of healers and the probably effective care given by them for pain, fever, parasites, fractures and a wide variety of other common complaints.

The World Health Organization, recognizing the importance of traditional medical practitioners, has recommended that member nations study and pursue their usage wherever possible for the strengthening of existent health structures and is ready to help further these ends. They are too important a factor to be ignored in a system short of manpower and with predominantly rural needs. Further, in the “demystification” of medical technology proposed by the Director General of the World Health Organization, perhaps they too can be included as knowledge and skills are pushed down the professional tree.

It remains to be seen whether Cameroon will be able to successfully merge the prevailing two systems of medicine to meet service and manpower needs, and perhaps profit from the Chinese presence and example as well. More effective means than have thus far been shown at the University Center for the Health Sciences should be sought to maximize understanding of role and modes between the different systems of treatment and their practitioners.

Meeting Public Health Needs: Team Training for Outpatient Care

A highly important aspect of shared teaching and field experience is in outpatient, rather than inpatient care. Outpatient care is an important reality that, if well organized, can often deal with 90% or more of health care needs and is understandably less costly per person than hospital care. To organize outpatient care and teaching facilities in the local hospital-dominated care delivery system, several free standing outpatient care sources have been created. Two major urban and two local rural centers are in use, primarily for the care of children and their mothers, and students receive extensive exposure during their third, fourth and sixth years to help balance what would otherwise be a solely...
inpatient training experience. A highlight experience is a five week term shared by fifth year medical students, nurses and technicians in remote, nurse-directed network of rural primary health centers which are occasionally visited by a physician. Each student rotates through the duties of laboratory, pharmacy, patient reception and nursing care to enhance his understanding of team responsibility and function under field conditions. Students learn the need for estimating supply needs and the numerous other administrative responsibilities they will have to know.

Since many of the health problems in tropical Cameroon are those associated with water borne diseases and with poor sanitation and with lack of available protection against infectious disease, the education of personnel in preventive health is heavily directed toward environmental and public health problems. At a curriculum level there is an emphasis on demography and on customs and community aspects influencing health beginning in the first year. Community medical endeavours which are both rural and urban are shared between students of medicine, nursing and the technical skills and begin in the second year. In this way all students can learn together about environmental and public health hazards that may be attacked by non-clinical approaches such as protected water sources, sanitary latrines and avoidance of protein deficiency disease and marasmus in young children.

**Existing Health Manpower: Hindrance to Good Training**

A major difficulty in the training of health personnel in Cameroon has been the quality of existing personnel in hospitals and dispensaries which have been used, of necessity, for the training of students. From sheer shortage a great many people have been pressed into delivering primary and secondary care without having had the appropriate training to do so. Poorly trained and often scantily supervised, they too often provide poor technical examples for students to emulate. Deaths from tetanus of unvaccinated hospital nurses and of their children from the complications of measles and misdiagnosed meningitis treated by themselves at home suggest the difficulties.

In general, the national lack of immunization programs offered by fixed health units has resulted in a heavy childhood toll from measles, polio and whooping cough. An earlier inquiry of first-year medical students disclosed that fewer than one-fourth had been immunized against tetanus. In an effort to assure students an adequate exposure to the important preventive medical programs, those allocated to immunizations and ambulatory preventive services for children in the highly vulnerable first five years of life, intensive model outpatient clinics with daily immunization availability have been initiated. Students now pass major blocks of time in their second and third years with carefully-prepared personnel who instruct in sterile techniques, vaccine handling and the systematic surveillance of child weighing and dietary counsel indispensable to avoid an excessive toll from malnutrition and the infectious diseases of childhood. Immunizations are urged upon all health science students, their spouses and children in the same facility to reinforce the importance of regular care.

In mid 1976 the first medical school-operated teaching hospital, a small institution intended to replicate the district level hospital will be opened. It will supervise a network of rural and community dispensaries and provide inpatient services for them and further training for their personnel. With a majority of its space allocated to outpatient mother and child health services, it will attempt to teach the realities and importance of well-organized ambulatory services. It will be able, as well, to assure the quality of training and performance of its own personnel, improving the examples provided to students of patient care, administration and discipline of personnel.

**New Training for Old Problems**

Cameroon, with about 250 doctors to serve the entire nation is doctor-poor and will remain so for many years, although distribution improvement should reduce the inequities in those areas with a doctor ratio of over 1:50,000 inhabitants per practitioner and slowly improve the estimated national ratio of 1:26,000 persons. In the past, at least half of its practitioners have been expatriates who pass brief terms to care for a fast-growing population of over six millions. With an increasing number of government health service career nationals, there will soon be the 40% of stable physicians which is probably indispensable for institutional continuity. Perhaps as important as the gradual increase in numbers will be the anticipated improvement in physician efficiency as delegation of responsibility is increased through effective team structure at district hospitals and satellite dispensary level.

Of the newer medical schools in Africa perhaps none equals the diversity in faculty experience and variety of technical assistance support received by the University Centre. An eclectic approach has been used, hopefully to avoid the old pitfalls of poor preparation for the rural realities of health care need and neglect of health manpower distribution. Beyond the conventional medical curriculum, the Centre has established extensive programs in community health with rural field experience from the earliest years to be shared by all of the disciplines it trains, assuring a critical common experience.

The University Center is also intended to serve as a postgraduate medical facility. The Center will initiate continued training in the capital city for its own graduates and other Cameroonian physicians in an effort to blunt the isolation that accompanies posting far from major medical facilities. The first year's graduates will be regrouped after the first year of service to assess the effectiveness of their preparation.
and for beginning postgraduate educational effort.

The decision having been made to train physicians in Cameroon for the needs of Cameroon and the first graduates having been placed in service, national health planners have high hopes that the enormous investment will prove valid. To meet the health care needs in Cameroon, they will perhaps have been more appropriately trained in terms of site and experience and exposure to their fellow health workers than in most other parts of Africa. They will, it is hoped, be prepared for the realities to be faced in the indefinite future with a modest national health budget and the staggering health problems of an agrarian tropical country with per capita income of $160.— per year.

References