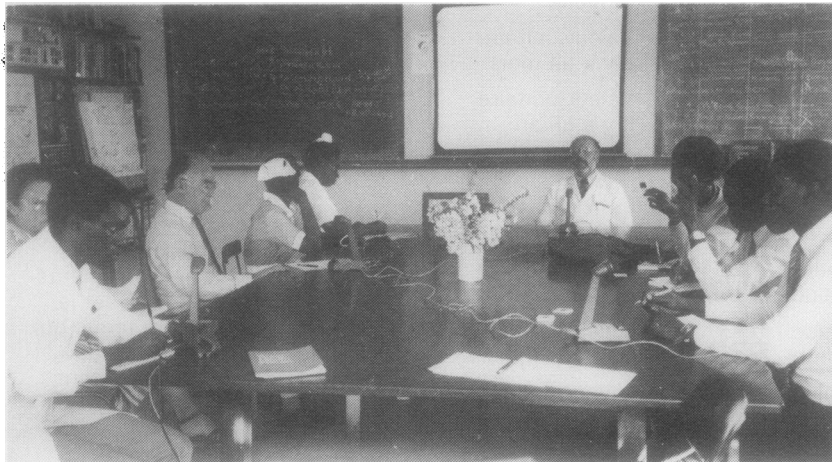


Into Africa: The telemedicine links between Canada, Kenya and Uganda

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Dr. Stuart MacLeod (top) at meeting in Africa

During the past decade teleconferencing systems have gained a substantial role in continuing medical education (CME) in Canada. In fact, the CMA is studying a major CME expansion using these methods right now.

Such systems are particularly useful in maintaining contact between physicians in remote areas

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and those in the city, and teleconferencing has also been used in numerous formats for group consultation on medical problems and for administrative purposes.

It is also seeing increasing use as a diagnostic tool through the transmission of electroencephalograms (EEG) and electrocardiograms and the slow scan transmission of x-rays and other pictures. During this development process teleconferencing in Canada has received support from universities and organizations such as the Royal College of Physicians and Surgeons of Canada and the Canadian College of Family Practice; several public and private granting agencies have also provided funds.

It is against this background of Canadian experience and ex-

perience that initiatives were taken by a group of Canadian physicians and their Kenyan and Ugandan counterparts to develop a satellite link between Canada and East Africa, with ground transmission between Nairobi and Kampala.

There are many similarities between medical practice in East Africa and in rural Canada. Physicians in Kenya and Uganda are, for the most part, isolated from their academic colleagues: There are only two medical schools serving these countries. As well, physicians at the University of Nairobi or at Makerere University in Kampala are themselves isolated — travel is difficult, medical meetings are infrequent and contact with academic colleagues is sporadic at best.

By North American standards the number of faculty members at East African medical schools is low and they often find their time stretched to the limit by clinical practice, teaching and research. Competing demands for time are such that the East African academic has little opportunity for continuing education or self-directed study. The latter is difficult because library facilities are anemic.

For these reasons, it became apparent that teleconferencing as practised in Canada had something to offer in East Africa. Extensive experience with telecon-

ferencing at Memorial University in St. John's, Nfld., led to the development of a link between East Africa and St. John's. In 1982 the telemedicine group at Memorial, with codirectors from the Child and Maternal Health Program (CHAMP) in Uganda [supported by the Canadian International Development Agency (CIDA)] made an attempt to set up an audio teleconference link between the University of Nairobi and Makerere University.

Because of political events this project was impossible to implement at that time, but there was continuing interest in its development because of the CIDA-sponsored program in the Department of Paediatrics at Makerere University. Since 1983, Canadian physicians have been serving at Makerere in a program of social pediatrics developed by pediatricians from Memorial University. Because of time constraints facing members of the pediatric faculty at Makerere and their Canadian counterparts serving in CHAMP, alternative means were required to extend pediatric teaching beyond that normally provided by Canadian visiting professors and their Ugandan counterparts.

To celebrate their 20th anniversary, the International Satellite Organization (Intelsat) and the International Institute of Communications made free satellite circuits available to agencies that would organize health education programs between developed and less developed countries. Called Project SHARE, it made teleconference and telemedicine links between Canada and East Africa economically feasible. Following a planning visit to Kenya and Uganda by the director of Memorial's Telemedicine Centre, Memorial's application for participation in the SHARE project was accepted. In Africa the program was sponsored by CHAMP, with support from CIDA.

Links among the three countries seemed particularly appropriate in view of the medical cooperation that has existed during the past 15 years, dating back

to CIDA-sponsored McGill University involvement in the development of a medical faculty at the University of Nairobi during the late 1960s and early 1970s.

Under that program many of the faculty at Nairobi received training in pediatrics and medicine at McGill and a number of Canadian physicians served as visiting faculty in Kenya.

More recently Canadian pediatricians served in Kampala through CHAMP, aiming to restore the pediatric program at Makerere University to its former stature. Because of these programs, there are numerous close personal contacts between Ugandan, Kenyan and Canadian academic physicians and this has made the organization and execution of educational and consultative telemedicine programs easier.

In 1984-85 support for the project was obtained from several organizations, including CIDA, The Hospital for Sick Children Foundation, the Kenya Post and Telecommunications Corporation, the Uganda Post and Telecommunications Corporation, the University of Nairobi, Makerere University, the Newfoundland Telephone Company and Tele-globe Canada.

The satellite circuits between Canada and Kenya were provided through Project SHARE. Microwave circuits were utilized between St. John's and the international gateway terminal in Montreal and between Nairobi and Kampala. The teleconference system was in place by December 1985 and the official opening of the link between Kenya and Canada took place Jan. 15, 1986. A month later the link was extended to Uganda.

Since the inauguration there have been formal weekly conferences as well as informal teaching sessions. The formal, didactic sessions have covered such topics as nutritional status and immune response, the management and treatment of idiopathic thrombocytopenic purpura, hepatitis in pregnant women and the newborn, and the epidemiology of the HTLV-III virus in East Africa.

The Royal College of Physicians and Surgeons of Canada Examinations

The examinations of the Royal College are held in September of each year. Candidates wishing to sit for the examinations should note the following:

1. Every candidate for admission to the examinations must submit an application for assessment of training.
2. Candidates in training in Canada should apply for preliminary assessment of training at least one year before the date on which they expect to sit for the examinations, that is to say not later than September 1 of the preceding year. Candidates who have had training outside of Canada should submit their initial application for assessment at least 18 months before they expect to sit for the examinations, that is by March 1 of the preceding year. Only candidates whose assessment of credentials is complete will be accepted to sit for the examinations.
3. Candidates who desire to sit for an examination, having complied with the above requirement of preliminary assessment of training, must notify the Royal College in writing of their intent before February 1 of the year of the examination. Upon receipt of this notice of intent, the evaluation of the candidate's performance during training will be added to the previously completed assessment of credentials. Each candidate will then receive notification as to eligibility together with an application form for admission to the examination to be completed and returned.
4. The following documents may be obtained from the Royal College office:
 - (a) Application forms for assessment of training;
 - (b) General information booklet on training requirements and examinations;
 - (c) Specific requirements for training and regulations relating to the examinations of each specialty. Requests should indicate the specialty or specialties of interest to the applicant;
 - (d) Listing of specialty training programs in Canada accredited by the Royal College.
5. Address all enquiries to:

**Dr. R.F. Maudsley, Director,
Office of Training and Evaluation,
The Royal College of Physicians
and Surgeons of Canada,
74 Stanley,
Ottawa, Canada
K1M 1P4.
(613) 746-8177.**

The Hospital for Sick Children in Toronto and the Montreal Children's Hospital have also contributed, covering such topics as emergency pediatric medicine, failure to thrive and rickets.

An EEG transmitter was initially used in Nairobi for several weeks before being moved to Kampala, where there is no functioning EEG laboratory. EEGs are transmitted from Mulago Hospital in Kampala to the EEG Department of The General Hospital in the Health Sciences Centre at St. John's twice weekly. The tracings are excellent, and can be interpreted with confidence.

The system also provides a cost-effective means of maintaining communication between North American medical research workers based in East Africa and their home laboratories. Teleconferencing allows group discussion of research objectives, protocol development and data analysis at reasonable cost; the cost of conventional telephone links between East Africa and Canada had been a considerable deterrent to such communication.

It is hoped that teleconferencing may also provide supplementary support to the hard-pressed medical libraries in Kenya and Uganda. They have found it difficult to maintain up-to-date journal files and their facilities for literature searching are limited. An attempt will be made to develop on-line literature searching capacity, with transmission of search requests being made at off-peak hours to minimize costs.

One of the main objectives of the Memorial/SHARE project was the transfer of expertise and technology to the University of Nairobi and Makerere University so that they could have a functioning teleconference system after the SHARE project ended late last year. It is anticipated that other East African countries may participate in such a permanent system.

It is too early to assess fully the impact of the current teleconference link programs at these two universities; however, they promise to become important ad-

adjuncts to teaching in the departments of pediatrics, and probably in related medical departments as well. For example, teleconferencing has been used on several occasions to initiate contact and discussion between the faculties of pharmacy at the University of Nairobi and at the University of

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Toronto. Such contacts may eventually lead to international cooperation in the establishment of a drug information service in Nairobi.

The postgraduate trainees in pediatrics at both universities have shown considerable enthusiasm for the project. Most formal sessions are well attended by trainees, with the level of audience participation increasing steadily as the residents became more familiar with the system.

Of potentially greater importance is the link between the departments of pediatrics in Nairobi and Kampala. At Makerere University the department has seen its efficiency reduced by several years of civil strife and uncertain support. The present ratio of faculty to postgraduate pediatric trainees is unsatisfactory and teleconferencing offers a major opportunity to redress the imbalance.

With the current system it will be possible to establish regular communication between the two universities so that these neighbouring departments will be able to share information about academic activities, including grand rounds, seminar dis-

ussions, case presentations and formal teaching sessions.

The link between the two can be used independently of the Canada-Africa satellite link, so additional teleconferencing can take place during morning hours. It is anticipated that, following last year's project, a commercially available system between Nairobi and Kampala will be financially feasible.

While it is too early to predict the project's outcome, it is already clear that teleconferencing has much to offer East African medicine, and that it is a worthy continuation of Canadian-East African cooperation in the medical field. It is particularly appropriate for Canada to export this type of expertise to countries like Kenya and Uganda, because they share many of Canada's communications problems.

As they help to develop effective telecommunication links between Nairobi and Kampala and eventually among other East African centres, Canadians will also learn more about telecommunications. New approaches to education and consultation through telemedicine can be effectively applied in many countries, including our own. Most importantly, the telemedicine system seems to represent a cost-effective means of exporting medical expertise and of sharing medical knowledge among countries and among regions in a country.

One of the major attractions of the teleconferencing system is its ability to provide optimal access for a wide audience to a variety of experts or teachers. This introduces an element of cost-effectiveness which is lacking in the more conventional medical support programs that require travel and accommodation for visiting physicians.

The medical faculties in Nairobi and Kampala require and deserve contact with a broad spectrum of academic physicians in a variety of disciplines, and at the moment this objective can be most realistically achieved by promoting satellite links such as the one described here. ■