Capacity building for child health: Canadian paediatricians in Uganda

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JL Brenner, JC Godel. Capacity building for child health: Canadian paediatricians in Uganda. Paediatr Child Health 2005;10(5):273-276.

BACKGROUND: For six years, Canadian paediatricians have worked in partnership with their Ugandan colleagues to promote improved child health in southwestern Uganda.
OBJECTIVES: To describe a collaboration between the Mbarara University of Science and Technology and Canadian partners that aims to build local capacity in child health through support of training at university, community and health centre levels.
METHODS: Three low-cost initiatives are now implemented. At the university level, volunteer Canadian paediatricians support Ugandan faculty colleagues through teaching health care trainees at a busy tertiary referral and teaching hospital. In the community, the Healthy Child Project helps Ugandans train local health volunteers who educate mothers and caregivers about child health. At health centres in the Mbarara and Bushenyi Districts, Canadians support a locally initiated outreach program that provides paediatric consultation and continuing medical education for staff at rural health posts.
RESULTS: Ugandans and Canadians have benefited from this collaboration. Hundreds of Ugandan undergraduate and graduate health care trainees, more than 100 community volunteers and numerous local health practitioners have received child health training through one of these three Canadian-supported paediatric initiatives. More than 25 Canadian paediatricians have benefited greatly from their overseas teaching and clinical experience.
CONCLUSIONS: The strength of this collaboration is a shared interest in improving child health in southwestern Uganda. A strong Ugandan-Canadian partnership has built significant child health capacity with great benefit to both partners. These initiatives may serve as a model for other child health providers wishing to support capacity-building initiatives in less developed countries to improve global health.

Key Words: *Capacity building; Child health; Community-based health care; Education; International health; Less developed countries; Model; Volunteers*

Le renforcement des capacités pour la santé des enfants : Des pédiatres canadiens en Ouganda

HISTORIQUE : Depuis six ans, des pédiatres canadiens travaillent en partenariat avec leurs consœurs et confrères ougandais à promouvoir l'amélioration de la santé infantile au sud-ouest de l'Ouganda.
OBJECTIFS : Décrire la collaboration entre l'université des sciences et de la technologie de Mbarara et des partenaires pédiatres canadiens qui cherchent à construire la capacité locale en santé infantile par le soutien de la formation à l'université, dans la collectivité et dans les centres de santé.
MÉTHODOLOGIE : Trois projets peu coûteux sont maintenant implantés. À l'université, des pédiatres canadiens volontaires soutiennent des consœurs et confrères ougandais de l'université en enseignant aux stagiaires en médecine d'un hôpital d'enseignement et de soins tertiaires achalandé. Dans la collectivité, le projet des enfants en santé aide les Ougandais à former des bénévoles en santé de la localité, qui transmettent de l'information en santé infantile aux mères et aux personnes qui s'occupent des enfants. Aux centres de santé des districts de Mbarara et de Bushenyi, des Canadiens soutiennent un programme d'action directe émanant de ces régions, afin d'offrir des consultations pédiatriques et de la formation médicale continue au personnel de postes de santé ruraux.
RÉSULTATS : Les Ougandais et les Canadiens profitent de cette collaboration. Des centaines de stagiaires ougandais en santé du premier cycle et des cycles supérieurs, plus de cent volontaires des collectivités et d'innombrables praticiens de la santé locaux ont reçu une formation en santé infantile grâce à l'un de ces trois projets en pédiatrie, soutenus par des Canadiens. Plus de 25 pédiatres canadiens ont grandement profité de leur enseignement et de leur expérience clinique outre-mer.
CONCLUSIONS : La force de cette collaboration provient d'un intérêt partagé à améliorer la santé des enfants au sud-ouest de l'Ouganda. Un solide partenariat entre les Ougandais et les Canadiens a permis de renforcer les capacités en santé infantile de manière significative, au grand profit des deux partenaires. Ces projets peuvent servir de modèle pour d'autres dispensateurs de soins aux enfants qui désirent soutenir des projets de renforcement des capacités dans les pays en voie de développement, en vue d'améliorer la santé mondiale.

Worldwide, more than 10 million children younger than five years of age die each year (1). Most die in developing countries, two-thirds from preventable illness (2). Child health problems continue to emerge as a priority in Uganda. As in other Sub-Saharan countries, Uganda's progress toward the United Nations Millennium Development Goal of reducing child mortality has been slow. Uganda's child mortality rate of 140 deaths per 1000 children (2003) is among the world's 40 highest (3) and for the poorest, mostly rural population, the mortality rate is even higher. The life expectancy for a child born today is 47 years (3).

Many child deaths in southwestern Uganda occur from malaria, pneumonia, diarrhea and meningitis. All these are preventable with good primary health strategies, education and basic health facilities. Malnutrition and chronic illness aggravate acute illness. In 2003, 84,000 children in Uganda

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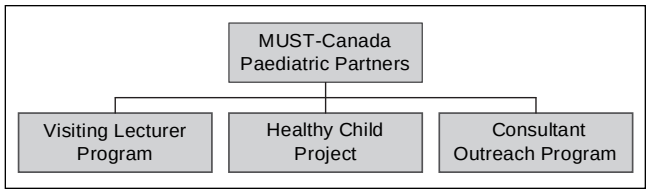

Figure 1) *Model of collaboration: Collaboration linkages. MUST Mbarara University of Science and Technology*

TABLE 1
University affiliation of volunteers (January 1999 – December 2004)

Participating university	Paediatricians/ residents (n)	Total contribution
Dalhousie University, Halifax, Nova Scotia	1	1 month
University of Alberta, Edmonton, Alberta	7	29 months
University of British Columbia, Vancouver, British Columbia	6	8 months
University of Calgary, Calgary, Alberta	6	18 months
University of Manitoba, Winnipeg, Manitoba	1	2 months
University of Ottawa, Ottawa, Ontario	2	3 months
University of Toronto, Toronto, Ontario	2	2 months
Total	25	5 years and 3 months

were estimated to have HIV (3). Nearly 40% of Ugandan children have stunted growth (3). Social factors such as extreme poverty and the large number of HIV orphans complicate community prevention programs and disease management. Poor infrastructure, limited clean water access, low literacy and transportation challenges complicate health education and delivery. Even where accessible, health facilities are often underfunded and understaffed.

A comprehensive model of child health education could help improve child survival. Three capacity-building initiatives implemented to tackle child survival through a Ugandan-Canadian collaboration are described (Figure 1).

UGANDAN PARTNERS: MBARARA UNIVERSITY OF SCIENCE AND TECHNOLOGY

The Mbarara University of Science and Technology (MUST) is located in the town of Mbarara in southwestern Uganda and is home to the second largest medical school in Uganda. Its teaching hospital provides tertiary-level health care to more than 1.5 million people. MUST's health provider training program is community-based, promoting rural practice.

THE UGANDAN-CANADIAN LINK

This Ugandan-Canadian collaboration began as a dream by an Edmonton cardiologist, Dr Zaheer Lakhani. Lakhani was determined to bring help to his hometown of Mbarara, where his family had lived before expulsion by Idi Amin in the 1970s. When the MUST medical school was established in the early 1990s, an opportunity arose. Lakhani initiated discussions with Ugandan colleagues who identified child health education as a high priority, citing extremely high local child mortality. Lakhani enlisted the help of Dr J Godel who, with funding from the Mayfair Rotary Club in Edmonton, Alberta, travelled to Mbarara to assess

Figure 2) *Canadian volunteer Dr J Godel performs a tuberculin test on a young patient*

child health needs. Godel was familiar with Uganda, having previously worked there alongside Canadian Paediatric Society (CPS) colleagues on a Makerere University/Canadian International Development Agency (CIDA) primary health care project during the Ugandan civil war (1982-1989).

Godel's 1999 fact-finding mission renewed Ugandan-Canadian relationships. Six years later, Canadians contribute to Ugandan child health through a comprehensive child health education network. Canadian visits were initially made possible by enthusiastic support from Edmonton Rotarians and the Alberta Wild Rose Foundation, and now private donations and CIDA funding also support partnership programs. All initiatives are closely integrated within the local health system and support national and United Nations Children's Fund (UNICEF) program objectives.

UNDERGRADUATE AND FACULTY EDUCATION: VISITING LECTURER PROGRAM

Since 1999, paediatricians from across Canada have together dedicated more than five years of volunteer time in Mbarara (Table 1). More than 25 Canadian paediatricians have supported MUST child health education programs. Canadian volunteer paediatricians/senior residents are scheduled for consecutive one-month minimum placements at MUST's busy tertiary referral hospital (Figure 2). Here, Canadians work alongside Ugandan colleagues (in coordination with colleagues from the United Kingdom and Health Volunteers Overseas) to support undergraduate and graduate level paediatric training.

Common diagnoses include malaria, severe dehydration, pneumonia and Burkitt's lymphoma. Frequently, children present with advanced diseases such as massive tumours, status epilepticus, profound anemia, and end-stage heart and renal failure. The availability of diagnostic tools is limited; therefore, assessing edema, fever, masses and coma often requires careful clinical examination and thoughtful problem solving.

The Ugandan health system remains severely under-funded. Patient care is often limited by a short supply of nurses, drugs, blood products and intravenous fluids. Isolettes for premature infants, diagnostic imaging scans and mechanical ventilation are not available. Nurses are hard working but few in number

(often two per 100 patients). Attendants, usually family members, give medications, cook food, perform dressing changes and bathe patients. Although hospitalization is free, medications often must be bought. Families short of money may 'run away' with their child. Overcrowded beds foster cross-infection. Discharge is complicated by transport, financial, hygiene and nutritional problems. Power cuts are frequent. When power fails, oxygen delivery stops. Such challenges frustrate Canadian volunteers accustomed to an efficient and well-supported work environment.

Still, most Canadian volunteers speak of their experiences as being powerful and positive. Ugandan students are eager to learn. Sometimes children recover miraculously from a near-death state despite resource-strapped conditions. Rare diseases previously seen only in textbooks appear daily. Clinical skills, last used during fellowship examinations, are critical and meaningful again. Children smile, resilient in the face of nearly overwhelming challenges. Locals seem remarkably resourceful, able to do so much with so little. Few Canadians leave unchanged.

Since 1999, there have been many improvements. Three new excellent Ugandan paediatricians have completed training at MUST. HIV rates have fallen. Antiretroviral therapy is now used to prevent HIV transmission from mothers to newborns and, more recently, antiretroviral treatment has become more widely available. Routine vaccines include *Haemophilus influenzae* type b vaccine and hepatitis B vaccine. New buildings include a temperature-controlled neonatal unit and a nutrition unit. Running water and soap are available. A measles ward, once busy, is now closed after successful vaccination campaigns. Oxygen and glucose monitoring are now available and a hospital generator provides power during extended electrical outages.

The quality of paediatric training and service delivery is substantially better than before. Canadians' most significant and sustainable contributions have involved the support of student education through tutorials, lectures, bedside teachings and examinations. Since 1999, Canadians have helped teach paediatrics to 35 interns, three paediatric postgraduates and nearly 400 undergraduates. Canadians have introduced problem-based learning modules, objective structured clinical examinations and provided mentorship and collaboration for operational research. A community paediatrics course developed in conjunction with Canadian consultants is part of the Department of Community Health curriculum.

Recently, a long-term agreement formalizing the Canadian visiting lecturer program was signed. Canadians remain committed to continued educational support for MUST in times of need, ensuring regular scheduling of general and subspecialty paediatricians.

COMMUNITY EDUCATION: HEALTHY CHILD PROJECT

Canadian volunteers on the MUST paediatric ward often express frustration that very sick children present suffering from preventable disease. When the MUST Department of Community Health approached Canadian paediatricians in 2000 seeking help with a local community-based child health proposal, a new partnership arm was created.

With CPS support and CIDA funding, the 'Healthy Child Project' began in October 2003. This project aims to reduce mortality and morbidity of children younger than five years of age through the education of caregivers. Capacity is built at multiple levels and Canadian volunteer consultants support the training of Ugandan staff, local child health trainers and village volunteers. Planning is community-based. Input from surveys, focus groups and village meetings help in the planning for the activities needed to achieve the major project goals. The project builds on well-established university-community relationships and now operates in 58 local villages with a combined population of approximately 20,000 (6000 younger than five years of age).

Community volunteers have been key to the project's success. Community-owned resource persons (CORPs) are elected volunteer child health educators from each village who receive child health training. The main role of CORPs is to provide child health leadership, conduct local child health activities and link communities to health centres.

Nine newly-trained health centre 'trainers' use participatory learning methods such as role playing, hands-on demonstrations, songs and discussions during CORPs training. Modules target common diseases such as malaria, diarrhea and cough. The prevention strategies emphasize Ugandan and UNICEF child health guidelines and include good nutrition, hygiene, immunization, antenatal care, early disease recognition, family planning, bed net use and HIV prevention. The factors thought to impede good child health such as poverty, perception of health systems and lack of female empowerment are discussed openly by CORPs.

To date, 117 volunteer CORPs (71% women) have received training and conduct local child health activities. CORPs register all children in their villages, identifying children at risk. Deaths, births and outbreaks are reported monthly to health centre staff. CORPs assess sick children, recommend home treatments and refer patients to health centres when needed. CORPs visit homes and provide individual and group education to mothers. Local initiatives include demonstration gardens, latrine building, village competitions and bed net cost sharing.

'Child Health Days' are held twice yearly in each community (Figure 3). Local children receive immunizations, deworming and growth monitoring. CORPs mobilize families to attend and provide health education at the event using drama and songs. Attendance at each site often exceeds 500 children and their caregivers.

Communities remain enthusiastic about the Healthy Child Project, citing improvements in child health awareness, nutrition and immunization. Impressive initiatives have been undertaken by CORPs in their villages. CORPs seek further training and together are pursuing leadership and advocacy toward better health access and more balanced gender roles in health decision-making. Health centres and district officials describe improving health indicators and appropriate referrals

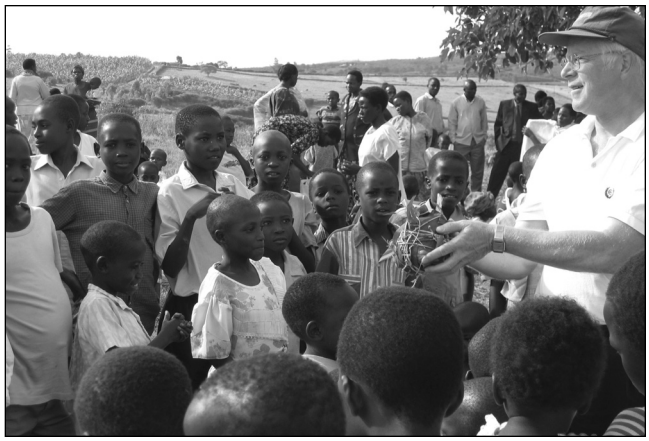

Figure 3) *Canadian Paediatric Society member Dr D McMillan entertains children during a Child Health Day in Katyaco village*

from project communities. The project team is excited that a five-year funding grant from CIDA will link MUST with Canadian universities, supporting further project development and expansion of the Healthy Child Project.

HEALTH CENTRE EDUCATION: CONSULTANT OUTREACH PROGRAM

A new arm was added to the collaboration in 2004 when MUST paediatricians identified the need for increased paediatric outreach for rural health centres. Health workers, often posted more than 100 km from the nearest paediatric referral centre, are isolated from skill training and upgrading opportunities and lack professional support. This results in a limited ability to recognize, stabilize and safely refer sick children and subsequently provide adequate follow-up. A Ugandan paediatrician, Dr Denis Nansera, has worked in conjunction with Drs J Godel and K Chan to develop a program that supports monthly continuing medical education, patient follow-up and consultation services at rural health posts.

CONCLUSIONS

The MUST-Canada collaboration builds child health capacity at three levels: university, community and referral health centres. Identification of local needs by Ugandans, community participation in planning and a focus on training local personnel promote program sustainability, helping people to help themselves.

Ugandan child health problems are significant but they should be reduced with greater local capacity. Whether a newly graduated doctor caring for children in a busy clinic, a volunteer health educator visiting a family with a malnourished son, a lone nurse attending a rural health post during a cholera outbreak or a widowed mother caring for her sick infant with diarrhea, each may contribute to the health of children with child health education. Uganda's most valuable resource is its people. Education can be a most valuable tool. An integrated approach to capacity development through Ugandan-Canadian partnership promotes better health for children in these often forgotten communities.

Canadian paediatricians fortunate enough to visit Uganda return to Canada with more than they can ever give. Learning from the students, faculty, health staff and communities is truly inspiring. On return to Canada, memorable moments add spark to teaching, lend perspective to professional practice and busy personal lives, and motivate us as advocates for the promotion of global child health.

The success of these three simple capacity-building initiatives shows what can be accomplished with volunteers and minimal funding. Modest travel grants from Edmonton Rotarians and the Alberta Wild Rose Foundation and accommodation provided by host university partners combined with volunteer support by Canadian paediatricians, has made significant achievements possible. Through a 'snowball' effect, small contributions have led to CIDA and private funding for the Healthy Child Project and the Paediatric Consultant Outreach Program. Community program costs are kept low by training local health centre staff and community volunteers who are instrumental in instituting change.

The MUST-Canada Paediatric Partnership illustrates that despite the inevitable challenges of international collaborations, such relationships can be rewarding and productive. The common goal of improved health for children in southwestern Uganda holds Canadian volunteers and Ugandan colleagues unified. Expenses are kept to a minimum and sustainability is encouraged through volunteer participation and an emphasis on local capacity. We hope that this project can serve as a model for programming for groups interested in international partnerships.

DISCLOSURE: JCG is the volunteer coordinator for the Visiting Canadian Paediatrician Program and supports the Paediatric Outreach Program along with CPS member Kevin Chan. JLB is a volunteer consultant and Project Director for the Healthy Child Project. CIDA, Mayfield Rotary (Edmonton) and the Alberta Wild Rose Foundation have supported travel for these and other Canadian volunteers.

ACKNOWLEDGEMENTS: The authors acknowledge the support of CIDA and the CPS in child health activities in Mbarara. Numerous physicians, including Canadian volunteers and Ugandan faculty from the Departments of Community Health and Paediatrics at MUST, have participated. Ugandan health workers, project staff and community volunteers have contributed to strengthening this partnership and improving the health of children in southwestern Uganda. The authors thank Dr Kay Wotton for her help with manuscript preparation.

SUPPORT: MUST-Canada Paediatric Partners activities in Uganda have been made possible through support from the Mayfield Rotary Club (Edmonton, Alberta), the Alberta Wild Rose Foundation, the Canadian International Development Agency, the CPS and MUST.

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