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The Evolution of International Health Research: A Patchy Personal Perspective

by

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“He only earns his freedom and existence who daily conquers them anew.”
Goethe in Faust

With an audience of experts in international health my remarks in this lecture might more appropriately be entitled, “Fables from the Ancient History of International Health Research”. Much of what I have to say has an autobiographical component. I urge you to think of my remarks in the same context as D.H. Lawrence described his writings “Not me. Not me. It’s the wind blowing through me.” This gives me license to be longwinded!

I have a confession. Throughout my career I have had difficulty holding down a job! What follows will help you to understand why.

I first joined the Faculty of Medicine of the University of Toronto over 40 years ago and left five years later still with the lofty academic rank of Associate in the Department of Medicine. During that period the University was in the process of taking over Sunnybrook Hospital from the Department of Veteran Affairs and expanding enrolment from 175 to 250 medical students per year. Infused with the spirit of medical adventure I, along with young Turks from other departments of the Faculty, rashly put forward some proposals for change: devolution of the undergraduate medical program to 3 or 4 hospital sites to allow different educational approaches; wresting control of the early years of the undergraduate curriculum from departments to an interdisciplinary committee; and introducing an approach to learning based on clinical problems rather than disciplinary content. These suggestions actually reached the Faculty Council for

debate in 1964. They were soundly rejected. In retrospect it's amazing that they got a hearing at all. The following year, McMaster University announced plans for a new medical school in Hamilton as recommended by Mr. Justice Hall's Royal Commission. The creation of a new school opened up the opportunity to introduce ideas rejected at the University of Toronto, in particular, problem-based learning for medical students.

In addition, the rudiments of population-based medicine emerged with particular emphasis on primary medical care meeting the health needs of the whole community not just the individuals who came to a doctor's office or hospital. And, under the leadership of David Sackett, epidemiological measures to evaluate medical interventions critically and scientifically were promoted and the concept of evidence-based medicine took shape.

The new medical school at McMaster was certainly different: no disciplinary teaching, no lectures, no labs, no examinations and very few faculty with conventional credentials. The new school was aptly described by its Latin motto "Melius est Urinam Facere quam Amovere"! (It's more fun to make a mess than clean one up!) Backing into International Health Research It was the concepts of population-based medicine and clinical epidemiology developed at McMaster which served as my introduction to international health research. WHO had organized two extra budgetary research programs, one for human reproduction and the other for six tropical diseases. The WHO Advisory Committee on Medical Research (ACMR) strongly supported the extension of global research programs to other major health needs of less developed countries, for example, to fields such as mental health and to operational research to improve the effectiveness and reach of health services, particularly primary health care.

The WHO ACMR was very dynamic in the 1970's and included such luminaries as Sune Bergstrom, Chairman of the Nobel Foundation, David Hamburg, President of the Institute of Medicine in the United States, V. Ramalingaswami, President of the Indian Council of Medical Research and others who were very receptive to new and more aggressive approaches to apply the power of research to the health needs of developing countries. Notwithstanding the quality of the ACMR members and the intrinsic merit of their recommendations virtually none were translated into action during the six years of my membership on the Committee. Recommendations tended to get lost in bureaucratic processes, internal rivalries and competition for limited funds. The deliberations were creative and exciting but tangible results were seldom realized.

Public Health in the Academy By 1978 I had, once again, joined the ranks of the unemployed having run unsuccessfully in a federal by-election. Having me around the house was a harrowing ordeal for my family but fortunately the Rockefeller Foundation in New York came to their rescue by assigning me the task of evaluating schools of public health.

The Rockefeller Foundation has an unassuming motto, “The Wellbeing of Mankind Throughout the World”! One of its early programs, beginning in the 1920’s, was to found schools of public health. The first was at Johns Hopkins and the third at the University of Toronto. Some fifty years later, the Foundation sensed that the intended objective for the schools was not being realized. Since many of the schools of public health had been established in developing countries and international health was a primary concern of the Foundation, a review was commissioned.

I was asked to undertake the review of the schools for two reasons: first, the interest of Rockefeller staff in the programs of clinical epidemiology and evidence-based medicine developed at McMaster and, second, the decision to terminate the School of Public Health at the University of Toronto taken during my tenure as President.

The study found most of the schools were quite fragile and not at the cutting edge of increasingly complex and serious public health problems. The schools tended to follow classical academic organization with disciplinary departments but experienced difficulty in attracting highly qualified faculty. The schools were not problem oriented as was originally envisaged when Johns Hopkins School of Public Health was established to eliminate hookworm infestation in the southern United States.

In any case, the evolution of public health problems had been much more rapid than turnover of academic staff in the schools with the result that most schools were ill equipped to deal with emerging health problems.

The report concluded that public health was a constantly evolving set of problems which needed to be addressed by a changing mix of disciplines found throughout the university and that academic programs in public health were better served by a problem oriented than an academic discipline oriented culture. It recommended two generic capabilities, measurement and management, as the basic training in public health: measurement representing the skills for gathering evidence, problem assessment and evaluation; and management, the skills and processes necessary to implement solutions.

In support of the Report’s conclusions Dr. William Foege, a great contemporary public health physician and former head of the Centers for Disease Control in Atlanta is recently alleged to have said, “Students in public health shouldn’t take courses. They should be given a problem. If they solve it they should receive their degree.”

International Agencies: A lesson in politics and patience! While completing my report on public health, I was invited to join the World Bank in Washington, DC to initiate a new program of lending for population, health and nutrition.

The Bank was dominated by the culture of economics. It was comfortable with large loans for infrastructure projects like dams and roads with tangible investment returns. The health sector was seen as consumption rather than investment. Small loans, often oriented to strengthening human resource capability for health programs, did not fit with the Bank's performance metrics used to evaluate loan officers. It proved difficult both at the Bank and, more importantly, at the government desks in developing countries to gain acceptance for using loans to finance health. How could the payback be generated? At that time there was very limited information on the indirect economic benefits of health investment.

Although the development of the lending program was painfully slow another function of the bank looked extremely promising. The Bank had given creative program and financial leadership to a series of international agricultural research centres located in developing countries. These centres were set up to generate improved crops and strengthen agricultural support services. They reinforced each other through the Consultation Group in Agricultural Research, CGIAR, a forum for exchange of ideas and mobilization of donor support hosted by the Bank.

It seemed logical to emulate this model for the health sector. A consortium of representatives from the World Bank, UNDP and WHO had already been established to provide oversight and mobilize donor support for the two extra budgetary programs of WHO, the Human Reproduction Program and the Tropical Disease Research Program. Building on this base an initiative was envisaged to increase the level of support and broaden the scope of research mobilizing the best scientists from around the world to address other major causes of morbidity and mortality in developing countries and to strengthen the delivery systems for health services. The vision was bright but, regrettably, concerns at WHO that the World Bank was encroaching on its mandate truncated this promising initiative.

Working Outside Official Limits Fortunately, good ideas often find a sponsor and in this case it was the Rockefeller Foundation. By the 1970's the Foundation was committing two-thirds of its annual expenditures to health, population and agriculture in developing countries. Dr. Kenneth Warren had already underway a research program focused on Great Neglected Diseases of tropical countries. A second program was proposed by Dr. Kerr White, an extraordinary Canadian graduate of McGill University and, in my opinion, the father of population-based thinking in health care. Based in part on the earlier report to the Rockefeller Foundation on schools of public health Dr. White launched the International Clinical Epidemiology Network (INCLIN). Two of its four global resource centres were in Canada: the McMaster Department of Clinical Epidemiology and Biostatistics led by David Sackett and a University of Toronto program with more emphasis on management led by Claire Bombardier.

To further expand the scope and functioning of international health research the Independent Commission on Health Research for Development was launched in 1987 with financial support from IDRC, SAREC and a variety of internationally oriented private foundations, IDRC and SAREC. Its independent origin was an expression of frustration that the logical international agencies seemed incapable of action to promote urgently needed health research. Since the Commission was not sponsored by WHO, the World Bank or UNDP the mandate did not require approval by these agencies.

Superb people were willing to join as commissioners. They were dominantly from developing countries and represented a broad mix of disciplines selected specifically to ensure that health was kept in a broad context of development.

The Commission was treated as a maverick initiative by WHO and its report was not recognized. The Commission recommendations, however, made their way to the World Health Assembly and were given positive affirmation thanks to the leadership of a distinguished Nigerian delegate, Dr. Ransome Kute.

Experience with the Commission was a lesson in politics and patience. In retrospect it is clear that the failure to win over the hierarchy of WHO to the earlier health research recommendations of its own Advisory Committee on Medical Research and subsequently the recommendations of the Commission were due in significant measure to inadequate skills and diplomacy in marketing the ideas and the naive belief that such good ideas should market themselves! Sophisticated change management skills are an invaluable asset for success in ventures which challenge established practice or erode institutional turf whether at international agency or local country level.

Essential National Health Research In spite of its dubious status the Independent Commission's recommendations created heightened recognition of the critical importance of research at national and international level to advance health and development. The Commission concluded that research is an essential but often neglected investment to improve health and development and that this was particularly the case in developing countries.

The Commission stressed that research at country level is essential for informed decision making on health policy and programs. Health intelligence is essential for intelligent health action just as military intelligence is crucial to successful military campaigns. It encouraged all countries to undertake "Essential National Health Research", a designation chosen to represent research which addresses the special needs and circumstances of a national or regional population. It deemed that this was crucial in countries with the most limited resources to apply to health.

The Commission also recognized the exceptional value of international research

partnerships as a mechanism to mobilize the world's scientific potential to address the neglected health problems of developing countries. It recommended specifically increased international financial support for special programs to develop drugs and vaccines for malaria, drug resistant tuberculosis, HIV and other diseases recognized to be major contributors to the burden of illness in developing countries.

Progress in implementing Essential National Health Research in developing countries 10 years after the Commission Report was recently reviewed at the Bangkok conference for the Council on Health Research for Development (COHRED) by Victor Neufeld and Nancy Johnson. They noted that while the ENHR concept had been widely recognized its implementation in practice was most advanced in a select group of countries in Southeast Asia and South America. It was notably weak in Africa.

One success story in Africa, however, is the CIDA/IDRC supported project in Rufigi, Tanzania led by Dr. Don deSavigny. Health intelligence derived from local operations research is credited as a significant factor in initiating changes which transformed Rufigi from one of the most backward to one of the most effective district health systems in Tanzania. The government now recognizes the value of local problem solving capability and has strengthened its commitment to similar research efforts to upgrade district health systems elsewhere.

At country level the value of ENHR in determining differences in health status among sub-Saharan African countries has been recently illustrated by the Demographic Surveillance Sites Consortium. Real disparities in infant and child mortality rates were detected among sub-populations in these countries, which were not predicted by Model Life Tables, provided the evidence to guide more appropriate interventions.

While most would endorse the importance of ENHR it remains difficult to establish this research as a priority in hard pressed under-funded ministries of health faced with the need for immediate action. Career opportunities are uncertain and recognition meager for scholars in this type of research. Furthermore, it is difficult to sustain morale of researchers when solid evidence from ENHR is inconsistently trumped by political considerations in policy and resource allocation decisions. These factors have also been a problem in most industrialized countries. Few countries have developed the kind of capability established here in Toronto by David Naylor in the Institute for Clinical Evaluative Sciences (ICES). National funding for ENHR capability and research is sorely needed. International partnerships with sustained matching investment may be the most effective means for achieving local recognition of the value of ENHR capability and demonstrating its benefits in practice as has been the case in the Rufigi program.

Public/Private Partnerships In contrast with the patchy progress of ENHR,

support for international health research networks has increased dramatically. During the past decade there has been a distinct shift to public/private partnerships from initiatives based primarily on public expenditures by governments and Official Development Agencies.

The private partners include non-governmental organizations with private sector style of operation, philanthropic foundations such as Rockefeller, Gates and Wellcome, industries such as pharmaceutical companies and private individuals. In general, public/private partnerships governed by an independent board have achieved more focused programs and demonstrated greater agility to respond to local circumstances. Their life rarely outlasts their usefulness! The role of the pharmaceutical industry warrants special mention. The Medicines for Malaria Venture, for example, has strong links with the British pharmaceutical industry. The large research-intensive pharmaceutical firms can be powerful partners in the search for new drug candidates for the diseases which dominate developing countries. At the same time they have been the object of considerable criticism centering on pricing of drugs and protection of intellectual property. While these issues remain contentious it is important to recognize the bigpharmas can provide access to invaluable tools for the development, screening and clinical trial of new drugs. Also credit should be given for the substantial contributions made by Merck of Mectizan for the treatment of onchocerciasis, benefiting more than 30 million people over the past 13 years; the provision of Albendazole by SmithKline for treatment of lymphatic filariasis; Glaxo-Wellcome's donation of Malarone for the treatment of malaria; and Pfizer's provision of Zithromax to treat trachoma. These are examples of very significant, compassionate philanthropy by multinational pharmaceutical firms.

Contributions by the private sector are not confined to initiatives from industrialized countries. There is great entrepreneurial capability in developing countries. An excellent example is the Insecticide Treated Bednet Network, a key part of home management of malaria. This inexpensive technology was developed locally in Africa to repel malaria-transmitting mosquitoes. Government programs proved ineffective in distributing the bednets. Working with private sector groups, the Network transformed the program and achieved successful distribution by using operational research, social marketing and performance-based financial incentives.

Pharmaceutical Power

The power of pharmaceuticals has not been fully exploited as an organizing principle in primary health care and this should be an important area for future research. We do not have an epidemiological map to determine whether drugs are reaching the people who need them, whether the intended therapeutic benefit are being realized and whether security of supply is being met by appropriate quality control and inventory management.

Dependence of primary health care programs on efficient pharmaceutical supply was driven home to me during visits to rural and remote health posts in western Nepal. Attendance at health posts fell rapidly as soon as word got out that the supply of drugs was exhausted. Furthermore, the “drug facilitated interaction” of patients with the health post was invaluable not only for treatment of specific illness but also for the credibility of health personnel and the execution of preventive programs such as maternal child health and immunization.

Beyond supply and pricing, effective pharmaceutical management is an essential companion piece for optimal health impact. Critical issues include regulation to reduce misuse, package inserts to enhance patient and provider compliance, distribution systems, inventory management and quality control.

May 2nd was Africa Malaria Day highlighting the efforts to Rollback Malaria in African countries. No situation underlines the importance of effective drug management as convincingly as malaria where resistance to chloroquine and sulfadoxine pyrimethamine (S.P.) in Africa has risen six-fold in the last 12 years. Severe epidemic malaria outbreaks are much more frequent as populations move into highly endemic areas. The artemisinin derivatives, although more costly, offer significant promise in combinations as effective therapy without emergence of parasite resistance. Withdrawal of the use of chloroquine might, in time, allow it to recover its usefulness in anti-malarial drug combinations.

Normal market forces alone are unlikely to achieve the optimal therapeutic practices for anti-malarial drugs. There is a strong case to be made for restrictive regulations and careful oversight of drug use if the efficacy of new anti-malarial combinations is to be sustained. Ineffective therapy regimens which are still being continued in many countries should be discontinued promptly to avoid spread of resistance. Operational research to guide best practices in combination therapy is necessary since circumstances vary widely in different locations. The same case for effective drug management can be made strongly for HIV and for bacterial infections which have a propensity to develop antibiotic resistance.

Health Equity under Threat With structural adjustment and expenditure cutbacks by governments during the past decade, poverty reduction initiatives and publicly financed health programs have been curtailed. At the same time, market driven health reforms such as privatization and direct user payments have selectively disadvantaged the poorer segments of the population.

Amartya Sen has pointed out that the poorer segments of the population are extremely vulnerable to downward trends in Gross Domestic Product. In sub-

Saharan African countries, this vulnerability has resulted in reversal of previous gains in health states as has also been the case in Eastern Europe.

Although there are no clear trend lines the evidence available in sub-Saharan Africa suggests stagnation of health status with widening disparities, even in countries once considered too poor to have significant disparities. The growing number of urban poor now exhibit higher infant and child mortality rates than the rural poor. Health care interventions alone will have a limited impact on health status in these circumstances unless accompanied by measures to alleviate poverty (sufficiently to ensure food and shelter) to develop confidence in human security and to include the disadvantaged in a network rich in social support from families and community. As Judith Maxwell points out in the most recent report of the Canadian Policy Research Network (CPRN) these characteristics are the fundamental enabling conditions for human development. They should be central to any message of advocacy for international health equity within countries and among countries.

Monitoring trends and devising and evaluating determinants of health beyond health care remain an important priority for international health research. Accepting gross disparities in health status is morally unacceptable but it also risks crime, political extremism and terrorism by those who feel they have nothing to lose.

There is no more compelling example of people being left out of the benefits of human development than Africa south of the Sahara. A recent communiqué from Jeffery Sachs (March 27, 2002) depicts sub-Saharan Africa as a continent overwhelmed by AIDS killing 5,000 Africans a day; leaving villages void of working age adults, just children and grandparents; associated with desperate poverty, millions of orphans and hospitals overcrowded with AIDS related illnesses. The devastating epidemic of AIDS is superimposed on a continent of people wracked by poverty, unemployment and insecurity, an environment where far too many really feel they have nothing more to lose.

What is The Challenge for CIH? With such a vast potential terrain in international health research how can the Centre at the University of Toronto make a fundamental difference? Focus and faculty strength will be prerequisites for the Centre to be recognized as a research leader, a credible international advocate and a trusted site for research investment.

Complementarity of the Centre's focus with the strengths of other Canadian university programs could create a powerful consortium of collaborating institutions if individual, institutional and agency egos can be contained.

The Centre can also be a genuinely sought after partner in collaborations with developing country groups if it respects the key basic principles that development objectives should be grounded in local priorities, feasible in local circumstances, sustainable with local resources and steered by local leadership.

Why should a great university with intense competition for resources to pursue new avenues in the fast moving knowledge-driven economy commit a share of those resources to pursue the challenges of the developing world? The global vision of the new knowledge-driven economy must not be allowed to exclude more than half, perhaps four-fifths, of the world population.

Since many of the developing world's challenges do not present a commercial opportunity the role of universities is particularly important. Solutions to the problems will be heavily dependent on new knowledge from research undertaken in industrialized country institutions and creatively applied to suit local circumstances. In 1996 the Task Force "Connecting with the World" chaired by Maurice Strong concluded that Canada's place in the world of development should be earned through intellectual policy leadership and through its strategic advantage as a multi-dimensional knowledge broker. The Strong Task Force recommended that Canada devote at least 15 percent of its funding for development assistance to knowledge-based activities by the year 1999. It also recommended that Canadian development institutions strengthen their ties with the private sector. In the 2001 Killam Lecture I argued that universities, individually and collectively, need to articulate and promote a strategy to include international development research as an integral part of a new public research contract between universities and government. From the government's viewpoint the rewards to Canada will be the opportunity for Canadians to establish personal relationships and mutual trust with individuals who will be the future leaders of developing countries and, in the larger scheme, to contribute to international understanding and trust.

With long-term planning and educational and research investment in international development, Canada could renew its reputation as a preferred and influential partner with the developing world. At a more personal level, for many established scholars and students, the opportunity to participate in international development is transforming in personal values and perspective. It is usually also a daunting professional challenge to address overwhelming health needs in complex circumstances with limited resources but a unique opportunity to work with remarkable human beings with extraordinary wisdom, judgment and ingenuity. For many the experience in a developing country has proved to be one of the most rewarding of the individual's career and closest to what motivated the individual originally to select health as a professional focus.

I hope you will all have heroes. I want to conclude with brief quotations from two of mine. Dr. William Foege challenged Ministers of Health at the World Health Assembly in the year 2000 with a simple assertion that "The world cannot be

allowed to exist half healthy and half sick.”

Dr. Richard Goldbloom, Chancellor of Dalhousie University and one of Canada's truly remarkable physicians, stated, “Our real hope lies in making acts of kindness an obligation of our daily lives; kindness not merely towards those closest to us by blood, religion, tradition, colour or friendship – but especially those who differ from ourselves in those characteristics – that will be the real test of our humanity”. All those associated with the Centre for International Health can participate actively in the greatest acts of kindness by helping the least fortunate ameliorate their human condition and by ensuring that the half who are sick join the healthy.

Returning to the quotation from Faust “He only earns his freedom and existence who daily conquers them anew”, permit me to add the less elegant Evans' family motto, “You're a long time dead.” In that context each of us should ask ourselves, in what way could our faint voice and modest actions make a difference. The time to ask that question is when one still has a chance to make a difference no matter how small. All those responsible for launching the Centre for International Health should feel a deep sense of satisfaction from initiating a program which can truly make a difference. They should feel an equally deep sense of responsibility to ensure that it does.

Thank you.