Development of the Instituto de Medicina Tropical Alexander von Humboldt of the Universidad Peruana Cayetano Heredia

Plus some reflections on tropical medicine research in developing countries in the 21st century...

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Alexander von Humboldt by the Orinoco (fragment)
Oil painting by WG Weitsch (Berlin, 1806)

HISTORY OF THE INSTITUTO DE MEDICINA TROPICAL ALEXANDER VON HUMBOLDT

Dr Hugo Lumbreras

The IMT AVH was founded by the Universidad Peruana Cayetano Heredia on March 25 1968, with Dr Hugo Lumbreras (1924-1985) as its organizer and first director.

Dr Lumbreras was a distinguished physician and parasitologist, who contributed significantly to the development of several related disciplines in Perú. He was also the first specialist in tropical medicine to be hired as such by a Peruvian Hospital, which was the Hospital Docente del Rímac ("Rímac Teaching Hospital"), now Hospital Nacional Cayetano Heredia. Professor Lumbreras, who received training in Germany under an Alexander von Humboldt research fellowship, gave the Institute the name of the well-known German explorer and naturalist, with the additional intention to foster scientific exchange with Germany and other European countries, as a path to rapid development of necessary disciplines and skills in Peruvian health scientists. A man of prodigius energy and productivity, Dr Lumbreras taught clinical courses, developed laboratory procedures in parasitology, led scientific expeditions, had intense teaching sessions, guided many individual students toward significant research and advanced degrees through their theses, wrote profusely, and cared for each and every one of his very many patients in an extremely busy outpatient office within the University Hospital.... all this while suffering for the last 18 years of his life from a lymphoma, and with bouts of severe infectious problems. Dr Lumbreras died in December 1985, of a *Pseudomonas aeruginosa* pneumonia.

The goal of the Instituto, following Dr Lumbreras' ideas and inclinations, is to contribute with its efforts to the solution of national and regional health problems, specially in the area of infectious diseases. Fully conscious that diagnosis, clinical management and treatment of individual patients will not be enough to deal successfully with such diseases, the members of the Instituto have promoted scientific research in many disciplines linked to prevention and control, including clinical aspects, diagnosis, epidemiology, socio-anthropological observations, ecological issues, and methods for developing primary health care with genuine community participation. All this research is closely linked with the direct application of the findings to health care strategies, always with the primary objective of improving well-being. This has been the case, in many examples, some of which follow. The use in the field of various diagnostic procedures for leishmaniosis, including molecular techniques (polymerase chain reaction, PCR) since 1989, resulted in greater national fo-

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cus on the disease, experimental therapeutic approaches, and community efforts toward control, with a very favorable outcome: the originally very high "accumulated prevalence" of severe, disfiguring mucocutaneous (Espundia) cases has been reduced so much that it's more difficult to stage further medical trials. Epidemiological research in viral diseases, such as Hepatitis B, dengue, HTLV-1, promoted increased awareness, the development of appropriate tools and adoption of control methods, such as early vaccination for hepatitis being included in the expanded immunization campaigns in highly endemic areas; heightened community concern and anti-*Aedes* activities for dengue; increased attention toward the syndromes caused by HTLV-1 and international recognition of the importance of HTLV-1 infection in South American populations. Malaria research has included entomological, serological, clinical, therapeutic and control studies; one of the most interesting has resulted in the formulation of community participation strategies involving novel and truly grassroots activities with schoolchildren, the education system, and the health authorities, using the biolarvicide *Bacillus thuringiensis* var. *israelensis* (Bti), grown by community groups in ordinary coconuts (the nutrient medium and sterile vessel), as a control tool against *Anopheles* larvae. Work on etiology, epidemiology and management of diarrheal diseases of children helped train many pediatricians, improving the situation in the whole country, and making the application of oral rehydration to great numbers of victims of severe dehydration an extremely useful tool when Perú was the entry point of the huge cholera epidemic in 1991. The efforts with tropical dermatology, emphasizing leprosy, made this disease much better known, improved its management, and the official estimates of its prevalence were greatly reduced when a whole province in the jungle was studied in earnest, giving much smaller values than expected. Clinical trials with very many antibiotic, antiparasitic, and antimycotic products have provided much experience in the subject, helping the introduction and proper use of many of them.

Initially the Institute consisted of only a few professionals in the clinical and laboratory diagnosis areas. Since 1977, as an organ of the Universidad Peruana Cayetano Heredia, it occupied, by an Agreement with the Ministry of Health, the building and surrounding area (10,000 m^2) of the new Unidad Clínica de Enfermedades Infecciosas y Tropicales (now Department of Transmissible and Dermatologic Diseases) at the Hospital Nacional Cayetano Heredia. The Institute and Department now share 5 outpatient clinical rooms, 36 hospitalization beds, 9 laboratories focusing on helminthic and protozoal parasites, bacteria, fungi, viruses, arthropod vectors, field and community work, immunology and molecular biology, a specialized Library linked electronically to the Central University Library (the main medical library of the country), modern teaching facilities, including seminar and computer rooms, and an animal house primarily intended to house infected research animals.

The greater clinical and research responsibilities beginning in 1977 demanded more significant support. Thanks to the activities in research, teaching and service, the initial group of professionals grew, with more physicians, microbiologists, biochemists, epidemiologists and other scientific specialists. There were early contributions from the Alexander von Humboldt Foundation, from the British Council, from some pharmaceutical companies, and later through research projects, notably from the UNDP, World Bank and WHO Special Programme for Research and Training in Tropical Diseases (TDR), the USAID, US National Institutes of Health, the International Development Research Centre (IDRC, Canada), the European Community, etc. Most often research was performed in collaboration with other scientific groups, with support from different national and international agencies. At present, the Instituto has earned prestige, and many of its members serve in working groups in different service and scientific organizations in Perú and internationally.

During the last few years the teaching and training effort is specially intense, and besides the undergraduate course on infectious and tropical diseases, which consistently receives the best evaluations from the students, and is considered the best undergraduate medical course at our University, the Instituto is responsible for the Residency in Infectious and Tropical Diseases, the extracurricular course for national and foreign students, several short courses addressed to health professionals per year, and longer training periods in clinical research, in the laboratories, in field epidemiology, etc. More recently, the 4-semester Curso Internacional de Maestría en Enfermedades Infecciosas y Tropicales (International Master´s Course in Infectious and Tropical Diseases) is being offered with 20 vacancies. In addition, together with the University of Alabama at Birmingham (UAB), the 9-week International Gorgas Course in Clinical Tropical Medicine, wholly in English, has been organized with a multiinstitutional teaching faculty, and has already graduated 128 participants in 5 annual editions; the 2-week Gorgas International Expert Course, instituted in 1999, will take place every other year; the next course will be in 2001.

Research in Infectious and Tropical Diseases in the 21st Century

Integrated Health Research is Essential for Equitable Development

Ignorance is MUCH more expensive than knowledge...

Is there a conflict between Biomedical Research and Health Research?

Biomedical Research	**Health Research**
Oriented to individual health recovery and prevention	Community oriented, linked to development
Favored by developed societies and Academia	Favored by some donor agencies and NGOs
Leads to publications and international recognition	Leads to local results and local recognition
Sometimes results in financial success	Sometimes results in local popularity and power

....but in fact we need both types of health research....
And we need MORE, now....
we need INTEGRATED health research

The concept of integration is relevant not only to health oriented research, but to all research with true human development as a goal.

Matters of global importance must be investigated all over the world in all regions and countries, in significant, day-to-day, hand-in-hand collaboration, between scientists with like orientations, whatever their nationality.

Specially, research in the basic sciences has to be earnestly pursued throughout the world to allow the rise and development of the appropriate scientific quadres in each and every region and country, since they are urgently needed to tackle the really global problems.

The scientific capacities of developing countries must be improved, and their performance standards raised, so that they can also provide an acceptable minimum quality of life to all their citizens... which is the minimum requirement of true development, not the misgiving average per-capita figures.

The inescapable unfairness of life in extreme poverty makes the need for equitable development an ethical imperative. Without it, the proud "globally interdependent society" will soon decline.

Most specific problems being earnestly studied by health researchers involve other concerns, many outside the scope of "traditional" health research, but which need to be described, evaluated, and given their proper place in both health and development: individual and family occupations and incomes, financial success or failure, education of children and adults, concern for crops and livestock and their health and rentability, energy and fuel sources, safe water supplies, waste disposal, healthy housing, the environment, transportation, pollution, ecology, conservation, etc....

The common "sectorized" approach will not be enough to solve most specific health (and development) problems – true multidisciplinary teams, with a variety of skills and expertise must analize health subjects and start working in synergy.

In all cases we need a starting point, and biomedical research is a most valid one. There are presssing and stressing answers to be obtained in EACH case: diagnosis, pathogenesis, microepidemiology, pharmacologic therapy, immune prevention, etc., ALL are needed!

To solve the need for integrated multidisciplinary research, and to obtain real, applicable answers, collaboration springs up as a most necessary element. Few institutions anywhere can boast "complete" teams to approach the complex problems to be solved.

Moreover, funding problems make it difficult to add new capabilities (i.e., laboratories and personnel) to existing Third World institutions, which are continuously faced with urgently needed solutions. As an example, there is everywhere the need to combat emerging and reemerging infectious diseases, while the institutions attempting to do so are exposed to sometimes extreme fluctuations of their countries' economies and to often capricious official policies toward science, learning, research and health, and specially toward health research.

A stimulating example of collaboration in health research I was privileged to observe was that of the "consortium" of Tropical Medicine In-

stitutes in Europe... DIRECT consultations were often made by phone and personal contact, in minutes...

Decisions to attack specific problems jointly, to train some key individuals in one Institute or another, to distribute the effort (and the funds if available) were taken in a few minutes (or hours), by speedy communication between the directors, often in different countries; sometimes these communications even included direct consultations with funding sources....

The same thing is now possible globally, with the vastly improved communications, the internet, several national health (HIS), epidemiological and geographic (GIS) information systems, etc. The pressing global problems, will NOT go away without concerted action....

Global thinking is a good thing, and local, and in this case regional action is an excellent beginning point.... and I would like to point out a regional initiative toward that purpose.

The Declaration of Iquitos was signed by 31 Latin American health workers, in research (the Academia) and in health service (Health Ministries) institutions on August 8, 1984.... the meeting was one organized by the TDR Strengthening Group to promote health research in tropical diseases, and the stimulating atmosphere led to the consensus document signed. Each individual signing did so as a citizen of his/her country, and promised to take to the national authorities the proposal to organize a network designed to potentiate the efforts for the control of endemic tropical diseases in our continent.

At present, collaboration is easier than ever, often being literally only a few mouse clicks away....

We just have to make interinstitutional cooperation a permanent feature of health research in our institutions in the 21st Century... and we will have taken a very important step toward improved health in all our countries... and, as argued above, this would show the way to the appropriateness of interinstitutional, international cooperation to help solve the many inter-related problems of poverty and underdevelopment in so many of our countries. Improvements in health are immediatelly visible, and rewarding, often strengthening the efforts for improvement. Successful initiatives have a way of being emulated, and that is what we are hoping for: universal improvement of health and living standards, through collaboration in integrated health research.

FEATURES OF HEALTH RESEARCH IN LATIN AMERICA IN THE 21ST CENTURY

Pertinent
Significant
Multidisciplinary
Collaborative
Interinstitutional
Knowledge-based
Outcome-oriented
Striving toward feasible, applicable solutions involving both “hard” and “soft” sciences...

i.e. genomics, molecular and classic biology, chemistry, microbiology, pathology, immunology, pharmacology, epidemiology, ecology, etc.
AND sociology, economics, anthropology, education, etc.