

## EDITORIAL

### The important role of medical researchers in Papua New Guinea

Scientific research is very important for the social and economic development of any society, including Papua New Guinea (PNG). Medical research is of paramount importance because it will contribute towards good medical and public health practice, and in turn will help to bring about a healthy and productive society. We in Papua New Guinea should be working towards the World Health Organization (WHO) global concept of "Health for All", though it is abundantly clear that this will not be achieved by the year 2000. The WHO strongly supports and promotes research in controlling diseases associated with poverty, in controlling infectious and noncommunicable diseases in tropical countries, in controlling diseases associated with affluence (tobacco, alcohol, obesity, promiscuity etc), in treating and caring of the sick, and in evaluating health delivery systems (1). All these research areas have relevance to PNG.

Papua New Guinea should be proud because for many years our standard of medical research has been very high and there have been many achievements. Such achievements include the demonstration that neonatal tetanus can be prevented by immunizing pregnant women, the promotion of iodized oil and iodized salt as means of preventing endemic cretinism in iodine-deficient communities, the reduction of pigbel in the highlands due to the successful vaccine trial, the elucidation of the aetiology and epidemiology of kuru, the demonstration that pneumococcal vaccine can reduce mortality from pneumonia in young children, the monitoring of the increase in diabetes in a range of communities, studies on the genetic polymorphisms related to malaria, which show extremely high frequencies in coastal areas of Papua New Guinea, significant new findings on the epidemiology of malaria and progress towards a malaria vaccine, and the demonstration of the effectiveness of insecticide-treated bednets in controlling malaria (2). Research on health systems in PNG has been widely acknowledged for work on the promotion of breastfeeding, and the development and effective use of the concept

of standard treatment manuals for improving clinical management of patients throughout the country. Compared with other developing countries, PNG has a good record in achieving the Essential National Health Research which is being promoted by the Commission on Health Research for Development (3). PNG has a national Institute of Medical Research with a wide-ranging program in research, a functioning scientific and ethical review board, the Medical Research Advisory Committee, and a strong component of research in the National Health Plan.

Before contact with the outside world, the different Papua New Guinean cultures always had their own kinds of 'medical researchers', traditional healers who modified and adapted the traditional knowledge handed down to them. Sorcerers or 'puripuri' men and women performed creative magics and rituals to determine the cause of, prevent and control diseases and deaths within their own belief systems. After the establishment of contact with the outside world, western medical and public health practices were introduced to PNG together with modern scientific medical research. More formal arrangements were made in the 1950s with the appointment of an Assistant Director (Medical Research) in the Department of Health. In 1968 the Institute of Human Biology, which later became the Papua New Guinea Institute of Medical Research (PNGIMR), was established with the aim of improving the health and quality of life of the people of PNG. PNGIMR is a government statutory institution set up primarily to conduct medical research into the major diseases in the country; these include acute respiratory infection (ARI), malaria, gastrointestinal diseases and malnutrition. Apart from the major diseases, research has also been conducted on filariasis, anaemia, asthma, chronic lung disease, kuru, pigbel, sexually transmitted diseases, yaws, goitre and cretinism, maternal mortality, the health aspects of major economic development projects and studies evaluating health systems. New diseases are emerging such as AIDS, and

cardiovascular problems, diabetes and nutritional disorders such as obesity are becoming common, especially among our politicians and professional leaders, and these too are being investigated. Another area of important research is the monitoring of the alarming trend in which many bacterial infections are becoming resistant to the first line of antibiotic treatment. Medical research is also being conducted by the staff of the Faculty of Medicine of the University of Papua New Guinea, who are committed to a program of teaching and research as well as clinical responsibility.

Medical research can be done either as applied or basic research. We are currently limited to doing applied research that is relevant to the goals set by the Department of Health towards improving our health standards. This form of research may be split into biomedical or disease-related research and public health or health systems research. Although the research is medically oriented, it involves a wide range of multidisciplinary professional personnel including clinicians, academics, laboratory scientists, epidemiologists, statisticians and policy makers.

Funding in medical research from the PNG government is small and has not increased over the last decade. When we consider the large magnitude of the health problems that need to be studied in the country, it is evident that more money needs to be invested in research. By the same token, because we are using taxpayers' money our activities and contribution towards the health goals and policies come under scrutiny by politicians and policy makers. Research funding is also available from nongovernment sources through project support from overseas donors, but this source of funding is slowly diminishing and is highly competitive. Stringent control of research funds must be adhered to, because such measures will enable us to achieve our aims and also provide a good financial management record to enable us to obtain more funds for further research work. The PNGIMR has performed commendably in this respect in its 28 years of service.

Creative scientists are the backbone of scientific research. It has been shown that

when it comes to formulating research policies, the problems and concerns of these creative scientists must be addressed because failure to do so may discourage them from participating in the research (4). Problems of concern to a committed scientist are primarily the opportunity to carry out creative research without hindrance but other considerations cannot be ignored; these include the need for communication with policy makers and administrators, the allocation of sufficient funds, the avoidance of unproductive criticism or negative influences from peers and colleagues, regular exposure to national and international scientific and technical meetings, and a measure of achievement. The understanding of factors influencing the creative output of scientists is of utmost importance because without productive scientists doing good research there will be no nationally relevant scientific contribution towards improving the health standards in the country.

Scientific research is not a 'high school' experiment where you must always get a positive result. The scientist must be prepared to accept the results as they are, which will answer the question he or she set out to examine in the research. It takes courage to accept a negative result after much work and commitment, and not to allow one's morale to fall in consequence. World-wide, young scientists have been tempted to take short cuts or frame their results to create favourable impressions and it must be emphasized how bad and destructive this is. There is no place for scientists who do these things to be employed in research. Training of young research scientists in PNG is very important. Undergraduate students should be exposed to research methods and ethical concepts related to research as part of their education in medical and biomedical sciences (5). An aspiring scientist must have a strong aptitude for research and needs to spend a lot of time on training in all aspects of the discipline in which he or she is destined to work. In PNG there is a tendency for graduates to come out with high expectations of the possibility of carrying out research with quick results; however, that is not the case in the real world and this tends to discourage the young scientist. I think a young scientist should listen, learn and be patient: only then will he or she acquire the skills and

knowledge necessary to carve out a career in medical research. "Nothing is achieved overnight".

Apart from being creative, scientists must possess good financial and management skills to enable them to account for the expenditure of their research grants, and to supervise staff and coordinate their research projects. There are very good scientists who cannot carry out successful research because they do not acquire good management skills.

In PNG there are networks or working groups of scientists who consult and cooperate with each other on various issues related to medical research. However, there is room for further improvement in this area because there is the likelihood of lack of cooperation that tends to lead to duplication of research activities. I would like to see better understanding and cooperation between all those concerned in medical research in the country.

There is already a Biomedical and Social Sciences Group that was formed in 1990 and up until 1992 had 50 members including many prominent clinical and nonclinical scientists in the country. The group is supposed to meet annually at the Symposium of the Medical Society of Papua New Guinea and provide a forum whereby nonclinical scientific papers can be presented before the main symposium in the same way as the clinical specialist groups hold their meetings. This group will be reactivated after it has been dormant over the last three years, in order to provide an encounter for those who are working in the areas of biomedical and social sciences on aspects of human health. This is a very important meeting because it will provide a venue for the nonclinical scientists to get together, share ideas and initiate creative scientific interactions, in addition to the forum already well established at the annual medical symposium where a range of clinical and nonclinical scientific papers are presented.

For the benefit of Papua New Guinea the Ministry of Higher Education, Science, Research and Technology (HERST) should be reestablished. Our country needs this ministry to enable us to focus our attention on areas of education, research, science and technology which are vital for the future of PNG. We have the vast natural resources that can generate our economy, but without HERST we will be setting up our country to be exploited by imported manpower and technology. We need to train our people to carry out successful scientific and technological research that is applicable to our own country.

Lastly, I hope that more of our Papua New Guinean clinical and nonclinical health professionals will be encouraged, trained and supported to actively participate in scientific research, because there is still so much more to be done to improve the health of our people.

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