Editorial/Van die Redaksie

South Africa and the World Health Organisation

The South African delegation, led by the Prime Minister General J.C. Smuts, played a prominent part in the establishment of the United Nations Organisation in San Francisco after World War II. South Africa also played a leading role in the establishment of one of its most successful agencies, the World Health Organisation. The South African delegation to its inaugural meeting was headed by Dr H.S. Gear, then Deputy Chief Health Officer of the Union Health Department. He was also Chairman of the Executive Board of the WHO for the 6th and 7th sessions and was then appointed as Assistant Director-General, a post he held for 7 years. Several senior members of the headquarters staff in Geneva were South Africans.

During this time the WHO instituted health and research programmes, mainly to meet the needs of the developing regions of the world. To consider these needs, a number of expert advisory panels were appointed and a number of expert committee meetings were called to advise on specific problems. A number of study groups met to consider and recommend programmes of research. South Africans played a leading role in many of these expert committees and study groups. Indeed, South Africa, with its advanced medical schools and research institutions, was favourably situated to take a lead in these activities. Staff members of these institutions who served on these committees and study groups included some of the leading authorities in the fields of nutrition, haematology, pathology, virology, bacteriology, entomology and tropical diseases.

These South African medical scientists brought to the discussions of these expert committees and study groups an unrivalled knowledge of African conditions and were able to advise particularly on methods of treatment and control. In addition, South African experts were invited by the WHO to visit most of the countries of sub-Saharan Africa to investigate their problems and to recommend solutions. Examples of such help were the contributions made to the understanding of the epidemiology of malaria and, in particular, the identification of its most important transmitters, and the outstanding success of the methods of control of these mosquito vectors developed in South Africa. These were applied with great success in Brazil as well as in many countries of Europe, Asia and Africa.

The valuable contributions to the control of veterinary diseases by vaccines developed and produced by the Onderstepoort Veterinary Research Institute are well known. Not so well known is the assistance provided by the medical institutions to the countries of sub-Saharan Africa. An example of such assistance was the provision of smallpox vaccine, which led finally to the eradication of this disease from Africa. Also, over the years, rabies vaccine has been supplied to treat patients with bites from dogs and other animals, potentially rabid, in most of the countries of Africa. Both these vaccines were produced in the State Health Department's Vaccine Institute in Cape Town.

Yellow fever and poliovirus vaccines and a number of bacterial vaccines produced in South Africa have been provided to meet the needs of African countries. Other biological products have included the antivenins produced in South Africa. These have been sent not only to the countries of Africa, but to Europe and the USA, often on life-saving missions.

For several years after it was established, South Africa thus occupied an honoured place in the WHO, and the contributions made by South Africans to its work were of major importance. On balance, South Africa gave much more than she received. It was thus most regrettable that this country's privileges of membership were suspended in 1964 and we were forced to withdraw from active participation in its work.

Since then, and in spite of the official banning of contacts with South Africa, many of the countries of Africa in time of need have appealed to the authorities here for help in dealing with medical emergencies. This help has been given without reservation, and has often been life-saving. Such assistance has included acceptance of patients in urgent need of specialist treatment and their admission to South African hospitals. In the outbreak of highly lethal haemorrhagic fever in Zaire, South African medical scientists rendered vital assistance in bringing it under control. Incidentally, hospital care was provided for an American Peace Corps worker suspected of having acquired this infection and who was refused admission to the USA and Britain. The anomalous situation has thus arisen that South Africa, in spite of official banning, continues to provide much needed and indeed vital assistance to the countries of sub-Saharan Africa beyond its borders.

The time has surely arrived for the international community, and in particular for the WHO, to recognise the role South Africa continues to play in the field of health and, even more, its potential to provide assistance in this field, and to invite South Africa, without reservation, to resume her rightful place.

J.H.S. Gear

Multiple authorship

In returning his report on an article recently submitted to him for review, one of our referees commented on the apparently excessive number of authors (nine), all of whom he felt could not possibly have made a meaningful contribution towards the compilation of the paper concerned. He requested that the *SAMJ* should 'take a stand' on the number of authors allowed to put their names to a paper. The idea of taking a stand is attractive, but difficulties arise when trying to decide just what stand to take. Once a person has been listed as a co-author, it becomes extremely difficult for the principal author to remove him or her at an editor's request, and any such attempt would probably be vigorously resisted. What is needed is considerably more care on the part of the principal author in deciding which of his or her co-workers can legitimately be listed as co-authors. The question of entitlement to co-authorship is not new and is one that is faced by all journal editors, particularly at the present time when research has become so complex that a project may frequently need a large number of specialists in their individual fields, all of whom are essential to the project's completion. Should they, however, be listed as authors?

Author inflation, as it has been termed, is a by-product of modern complexity, and is in many ways a quite legitimate development. More worrying is the 'publish or perish philosophy', which has led to a description by Edward Huth, former Editor of the *Annals of Internal Medicine*, of papers in preparation as 'academic life-rafts onto which potential authors scramble for a place, another chance to survive in the stormy sea of academic competition'.[1] In some cases this tendency is taken to extremes, and it is by no means uncommon for a co-author to be contacted by our editorial staff with a query when the corresponding author is not available only to find that he or she has only the haziest knowledge of what the final paper is all about. This is clearly undesirable, and brings us to the basic question — what is an author? The best definition is probably contained in the style manual published by the Council of Biology Editors (CBE).[2] This is so well expressed that it is worth quoting here in full: 'The authorship of a paper should be decided, if possible, before the paper is written, even if the decision is only tentative. This decision should come from the scientist who has been most engaged in designing and executing the research. Any conflicts on authorship or content of the paper should be resolved among the co-workers. The basic requirement for authorship is that an author *should be able to take public responsibility for the content of the paper* [our italics]. An author should be able to indicate why and how the observations were made, and how the conclusions follow from the observations. An author should be able to defend criticisms of the paper as, for example, in a letter to the editor responding to published criticisms. These abilities should come from having participated in the design of the study, in observing and interpreting the reported findings, and in writing the paper.'

The recommendation is then made that anyone who provided financial support, routine technical assistance, research space or equipment, or any help which had little to do with the intellectual content of the paper should not be included as an author but should be acknowledged in the appropriate section of the paper.

Our reviewer requested us to take a stand on this matter. Our stand is that of the CBE, and we would urge authors to respect these guidelines.

N. C. Lee

1. Huth EJ. Authorship from the reader's side. *Ann Intern Med* 1982; 97: 602-605.
2. CBE Style Manual Committee. *CBE Style Manual*. 5th ed. Bethesda, Md: Council of Biology Editors, 1983: 1-2.

Cost-benefit analysis of hepatitis B vaccination

The availability of the hepatitis B vaccine early in 1982, together with the fact that HBV remains an important occupational hazard for health care workers, would appear to justify the routine vaccination of all such workers. Several studies have shown that there is a lifetime risk of HBV infection among health care workers who have frequent contact with blood of between 15% and 30%[1].

However, the high cost of the vaccine and the pressure for health care cost-containment have prevented routine vaccination. These considerations have stimulated many cost-benefit studies into the appropriate use of hepatitis B vaccines.

Full cost-benefit studies need to take into account all costs involved and total benefits accrued. To be able to make this comparison, costs and benefits must be assigned a monetary value, which creates a difficulty — especially with regard to improvements in the quality of life and the prevention of loss of life.

A common type of alternative is to restrict the study to the economic evaluation of the cost of the vaccine and the savings on medical treatment (direct costs). These are called cost-saving or budgetary studies.

Other studies, in an attempt to be more comprehensive, include in the benefit evaluation the resources gained through reduced work loss — the human capital

model. These models are limited in that they do not take into account the alleviation of pain and suffering.[2]

Moreover, to overcome these problems, some researchers implicitly accept that it is beneficial to vaccinate a potentially high-risk group, such as health care workers. They then adopt the evaluative approach of comparing alternative methods of achieving the desired outcome, these are called cost-effectiveness studies. These types of studies usually examine three alternative strategies: (*i*) vaccinating everyone; (*ii*) screening everyone and then vaccinating those without evidence of immunity; and (*iii*) neither vaccinating nor screening but immunising those with known exposure. These studies have generally found that the current cost of the vaccine and the infection rate to be the most important determinants of cost-effectiveness. This implies that many of these studies are very specific to the prevalence of the virus in groups under consideration in the area or country involved and the local relative costs of the vaccine.

In a sentinel study in the USA, Mulley *et al.*[3] showed a cost-saving for high-risk groups, such as homosexuals, with vaccination after screening, and cost-effectiveness for medium-risk groups, such as surgical residents, with vaccination without prior screening; for the population at large vaccination was not cost-effective. They found furthermore that in the USA vaccination of groups with an annual attack rate of 5% or more was cost-effective for direct costs.

Other health care worker-related studies were not that clear. In Spain an evaluation of cost-benefit ratios indicated that generalised vaccination of hospital personnel was not beneficial (with the exception of specific personnel such as haematology and laboratory workers).[2]

Smith[4] found that in the UK, even in health care workers with the highest attack rates, such as medical haematologists, the cost ratio of preventing a single case compared with both direct and indirect savings was 6,2:1. Smith questioned whether if, at the current costs of the vaccine and scarcity of funds, the practice of vaccinating health care workers on a national scale could be justified.

An article by Schoub *et al.* in this issue of the *SAMJ* (p. 27) examines the cost-effectiveness of the use of HBV vaccine in different population groups and different categories of health workers. The authors conclude that it is justifiable in terms of costs to screen serologically before vaccination those individuals with levels of seropositivity at $\geqslant$ 37%. This article indicates that even simple assessments such as these can be useful in the more rational use of scarce resources.

However, many of the cost-benefit evaluations repeat some common mistakes — apart from the absence of the use of standardised methodology. The more common of these include: excluding the cost of side-effects, omitting or undervaluing vaccine administration costs, and failing to include costs associated with pain, suffering and work loss (the indirect costs). Almost all studies fail to take into account the reduction in the risk of infection from non-vaccinated persons, the positive externalities factor.

In view of the relatively minor nature of most side-effects and the relatively minor cost of administration in comparison with the cost of the vaccine, these two factors do not detract much from these studies. However, indirect costs range from similar to ten times more than direct costs,[2] and neglect of this aspect leads to the general under-estimation of benefits in many studies.

In conclusion, cost-benefit, cost-effectiveness and cost-saving studies can contribute significantly to the rational use of scarce resources. They indicate that regional and subgroup variations in both pre-exposure and risk of acquisition of infection are important determinants of a relevant strategy.

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1. Chin J. The use of hepatitis B virus vaccine (Editorial). *N Engl J Med* 1982; **307:** 678-679.
2. Jönsson B. Cost-benefit analysis of hepatitis B vaccination. *Postgrad Med J* 1987; **63**: suppl 2, 27-32.
3. Mulley AG, Silverstein MD, Dienstag JL. Indications for the use of hepatitis B vaccine, based on cost-effectiveness analysis. *N Engl J Med* 1982; **307**: 644-652.
4. Smith WC. Hepatitis B vaccine: whether and how to use it. *Community Med* 1983; **5**: 295-301.