Van die Redaksie/Editorial

Poliomyelitis — countdown to eradication

In 1974, when smallpox was nearing extinction, the World Health Organisation developed a far-reaching strategy called the Expanded Programme on Immunisation (EPI). This programme, inspired by the success of the smallpox eradication campaign, set itself the target of providing immunisation for six vaccine-preventable diseases — tuberculosis, measles, diphtheria, pertussis, tetanus and poliomyelitis — for all children of the world by the year 1990, a goal referred to as UCI-90 (Universal Childhood Immunisation — '90). Initially the goals of the EPI were greeted with considerable scepticism and, when the programme was launched, less than 5% of children in the developing world were protected by these vaccines. However, by December 1987 just over 50% had received their third dose of poliomyelitis and diphtheria/pertussis/tetanus vaccines and in July 1989 this figure had reached the 67% mark.[1] At that immunisation coverage, the EPI has calculated that 2,2 million deaths from measles, neonatal tetanus and whooping cough as well as 335 000 cases of poliomyelitis were being prevented annually.

During the early to mid-1980s considerable misgivings were expressed by Henderson, Fenner and other pioneers of the smallpox eradication campaign about the possibilities of the total eradication of any other infectious disease.[2] In spite of this, however, an attempt was launched to eliminate measles from the USA by 1 October 1982.[3] For a number of reasons this elimination effort failed, and the feasibility of the eradication of human disease beyond the seemingly fortuitous success with smallpox suffered a significant setback.

After an initiative launched by the Pan American Health Organisation (PAHO) in May 1985 to eliminate the indigenous transmission of wild-type poliomyelitis from the Americas by the year 1990, the World Health Assembly passed resolution WHA 41.8, committing the WHO to the global eradication of poliomyelitis by the year 2000.[4] A 7-point blueprint for action was drawn up by the WHO; this largely exploited knowledge gained in the smallpox eradication campaign.[5] An essential component of the campaign was that efforts at eradication were pursued in ways that strengthened the development of EPI and in turn fostered primary health care. Non-governmental bodies, acting in concert with the WHO programme, have also made major commitments to polio eradication, and Rotary International, with its PolioPlus Campaign, has played a particularly significant role.

On the basis of their status with regard to poliomyelitis the countries of the world have been divided into four categories[6] ranging from group A, with immunisation coverage of over 80% and where no indigenous cases of poliomyelitis have been observed for the past 3 years, to category D with more than 10 cases per year and with immunisation coverage less than 50% or unknown. Efforts are at present being focused, via the 7-point plan, on countries in the lower categories, and from 1995 an intensified global assault will be launched on those countries and districts falling outside category A.

There is, of course, in all of this a fundamental medical philosophical question that needs to be answered. Why, in the face of health problems of such gigantic proportions as malnutrition, gastro-enteritis, substance abuse, overpopulation, AIDS, malaria and tuberculosis, should the poliomyelitis eradication campaign command so significant a proportion of WHO resources?

In the first instance it must be re-emphasised that the poliomyelitis campaign has been deliberately structured to interact with and strengthen existing global health programmes such as EPI, the diarrhoeal diseases programme and others. But even as a goal in its own right the eradication of poliomyelitis will confer major benefits on mankind. To begin with, one need only look back on the cost-effectiveness of smallpox eradication. The total financial costs of that campaign were calculated at $313 million, while the cost saving from cessation of immunisation alone was estimated to be $1 000 million per year.[6]

The comprehensive costs of the poliomyelitis eradication campaign from 1989 to 2000 have been estimated at $155 million, over and above routine EPI operations, which are estimated at $3 - 6 million per year during the 1990s.[5] The financial savings in costs of disease, hospitalisation, rehabilitation, appliances and savings in young lives have yet to be calculated, but in countries of the developing world it would clearly be a substantial proportion of their budgets, so desperately needed for other health burdens.

A further benefit relates to the interaction of poliovirus with rotavirus,[7] the most important cause of infantile gastro-enteritis, the foremost cause of death in the Third World. During the eradication campaign poliomyelitis vaccine will have beneficial effects in preventing rotavirus infection by interference, and after the need for poliomyelitis vaccine has been dispensed with, the problem of interference, which could well handicap rotavirus vaccination programmes, would be removed.

A further consequence of eradication would benefit both the developing and the developed world by the removal of the need for poliomyelitis vaccination. This would eliminate the small but present risk of paralysis induced by the vaccine itself (about 1 in 5 - 10 million people receiving vaccine) and thus lessen the unreasonable Western public preoccupation with the relatively minute risks of vaccination.

Conceptually, the most important advantage of poliomyelitis eradication would be that it would further demonstrate that infectious diseases are eradicable and would disprove the earlier contentions of Henderson, Fenner and others that the elimination of smallpox was due to a very advantageous, one-off, fortuitous set of circumstances that could not be repeated with other diseases. The expertise gained in the poliomyelitis campaign could then be applied to other diseases (perhaps measles would be the next in line) in the same way as the smallpox campaign paved the way for the eradication of poliomyelitis.

The extinction of smallpox and poliomyelitis may, however, not necessarily see the end of their respective vaccines, which could in the future well be used as carriers of genes for other infective agents artificially engineered into them. The vaccine virus used in smallpox vaccination, vaccinia virus, has already been extensively exploited as a vehicle for delivering vaccinating antigens of a number of other infective agents.[8] More recently, poliomyelitis vaccine virus has also been genetically engineered to carry, among others, antigens that could have relevance as vaccines against the AIDS virus.[9] The vast experience gained in using the poliomyelitis vaccine virus could thus well be put to profitable use in future vaccination campaigns.

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A copy of the full report, published by the University of the Witwatersrand Press, from which this editorial was taken can be obtained from: The Director, National Institute for Virology, Private Bag X4, Sandringham 2131 RSA.

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Focus on Valkenberg — a microcosm of psychiatry in South Africa

The origins of Cape Town's Valkenberg Psychiatric Hospital, which celebrates its centenary on 20 February 1991, go back to a time when psychiatric patients were kept on Robben Island alongside lepers and political prisoners. Conditions there were appalling and mortality and suicide rates were high.

In 1881, Valkenberg, originally a farm granted by Jan van Riebeeck to two Vryburgers in 1661, was bought by the government for the establishment of a reformatory. A mental institution was to be put up in Tokai, but the two sites were exchanged because of Tokai's inaccessibility. In February 1891, 36 patients were admitted to Valkenberg from Robben Island and housed in the reformatory buildings, which actually survived until demolished in 1975. In 1894 the Valkenberg Act was passed and £40 000 allocated to the erection of a new institution. Completed in 1899, it was the first asylum in South Africa opened solely for the treatment of mental illness.

In the early days of the hospital patients were still bled 'to rid the brain of excess blood' and underwent electroconvulsive and insulin shock therapy. Hot-water baths were believed to calm mania; malaria infection was used to treat advanced syphilis (GPI) because it was thought that high temperatures killed off the disease. Patients were also kept under lock and key. Then, in the early 1950s, Delay and Denker discovered the remarkable effect of chlorpromazine on psychosis. The discovery of iproniazid, the benzodiazepines and lithium soon followed and these drugs revolutionised the treatment of mental illness. Locked wards were opened and hospitalisation was reduced from years to months. The concept of a therapeutic team was developed in the 1960s and psychotherapy and family therapy also gained ground.

Valkenberg, today, serves the city and its environs, not only within its fine open wards straddling the Liesbeeck River, but in far-flung community centres. The emphasis is on striving to ensure the optimal functioning of the patient within the community rather than his or her admission to the hospital. The hospital forms part of the University of Cape Town/Groote Schuur teaching complex and many thousands of psychiatrists, nurses and psychologists have received their training at the hospital.

Most of Valkenberg's wards are now open and patients have freedom of movement, some with the right to leave the grounds. The new Valkenberg, which was extensively added to in the early 1980s, includes a psychogeriatric unit, a forensic unit for patients sent for observation by the courts, the physically ill unit (where some AIDS patients have been treated), and the outpatients unit. Like similar institutions in South Africa, Valkenberg has, throughout its long history, been the victim of the statutory segregation of races. It is fitting that in this hundredth year of its existence the desegregation of Valkenberg has taken place.

After a century of service Valkenberg Hospital is indeed well founded and equipped to look back on the past with pride and to the future with optimism. Steeped not only in the very history of psychiatry but in the history of this land, Valkenberg is a haven when the demands of life have become too burdensome to carry alone. It represents hope for those who are mentally ill and happiness for the very many the hospital has already, and shall in the future, help cross the bridge between the despair of mental illness and the joy and rich rewards of mental health.

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