HYGIEA INTERNATIONALIS

An Interdisciplinary Journal
for the History of Public Health

Volume 10, No. 2, 2011

ISSN, Print: 1403-8668; Electronic: 1404-4013
URL: http://www.ep.liu.se/ej/hygiea/

Copyright

Table of Contents

Volume 10, No. 2, 2011

Introduction

Sam Willner

In this issue we are proud to present three interesting articles. Two articles are dealing with the history of public health care initiatives in developing countries during the first half of the 20th century, while the third article discusses health policy and debates regarding publicly funded non-therapeutic circumcision of males in Australia during the last decades.

Sri Lanka is often mentioned as an example of a country having achieved good health outcomes despite having comparatively poor economic indicators. Hewa Soma presents the historical development of primary health care in Sri Lanka in the early twentieth century and its contribution to overall health achievements during the past decades. According to the author Sri Lanka represents a *selective* health care approach, in opposition to the *comprehensive* primary health care as recommended by the Alma Ata Declaration of the WHO in 1978. This community-based primary health care program, also known as the "health unit system," was an earlier concept of *selective* primary health care developed by the International Health Board of the Rockefeller Foundation and Sri Lankan public health experts. A key strategy of the health unit program was to identify the most common and serious infectious diseases in each health unit area and control them through improved sanitation, health education, immunization and treatment with the help of local communities.

Zanzibar has a long and mostly successful history in malaria control programs. Amina Issa examines malaria and public health measures in colonial urban Zanzibar during the first half of the 20th century, particularly focusing on malaria control programs such as reclamation of creeks and swampy grounds, vector control programmes by using chemical pesticides or fishes eating mosquito larvae as well as distribution of anti-malarial drugs.

In 1985 the Australian Government sought to delete circumcision of infants from the benefits payable under its newly established universal health scheme, Medibank. The decision was soon reversed and still today Australia is providing automatic coverage for non-therapeutic circumcision of male infants and boys through a nationally funded health insurance system. Robert Darby presents a detailed narrative of this affair and the political games concerning the debate over public funding of non-therapeutic circumcision in Australia.

Sri Lanka's Health Unit Program:
A Model of "Selective" Primary Health Care

Soma Hewa

Introduction

Thirty years ago vigorous debates on primary health care articulated at least two main approaches to health promotion in developing countries. The Alma-Ata Declaration of the World Health Organization (WHO) kicked off the debate in 1978 by urging all nations to promote health through primary health care. Reaffirming the 1946 WHO charter that recognized health as a "state of complete physical, mental and social well-being," the Declaration recommended a *comprehensive* primary health care program, which included at least the following key sectors: "education to inform prevailing health problems and measures to control them, food security and improved nutrition, supply of clean water and sanitary services, maternal and child care services including family planning, immunization against communicable diseases, the control of locally endemic disease, and the supply of essential drugs for critical health problems." In allocating resources to these key sectors of the primary health care, the Declaration recommended, countries must ensure "equality," "affordability" and "community participation."[1]

An alternative to this approach was promoted mainly by the representatives of the United States Agency for International Development, the Rockefeller Foundation and the World Bank who argued that *comprehensive* primary health care would be prohibitively costly to implement for most nations.[2] One of the

1 World Health Organization, Primary Health Care. *Report of the International Conference on Primary Health Care*, Geneva, WHO, 1978. Also, see WHO, *Targets for Health for All by the Year 2000*, ALMA-ATA: WHO, Geneva, 1978.

2 M. Cueto, "The Origins of Primary Health Care and Selective Primary Health Care," *American Journal of Public Health*, 94, No.11, 2004, pp. 1864–1874. Analyzing the primary care model proposed by the Alma-Ata Declaration, and the institutional background of the personalities involved in this campaign, Cueto argues that the Declaration and the response it received were heavily influenced by Cold-War politics.

leading critics of the *comprehensive* primary health care was Kenneth S. Warren, who spent a quarter of a century working as an expert on tropical medicine in Africa, Asia and Central America. Warren maintained that relatively inexpensive and "community based" primary health care could easily deal with

most widespread infectious diseases, and could substantially increase the life expectancy of millions of people in developing countries.[3] Thus, he argued that a "state of complete physical, mental and social well-being is an unattainable ideal." He pointed to the fact that in developed industrialized countries, where physical wellbeing had improved, mental illness has risen considerably. Likewise, he argued, although social wellbeing had improved within and between nations in recent decades, the economic disparities have increased.[4]

In a paper, co-authored with Julia A. Walsh, Warren argued: "We believe that a *selective* attack on the most severe public health problems facing a locality should be considered in order for us to have the greatest chance to improve health and medical care in less developed countries."[5] They called it an "interim strategy" for disease control in developing countries.

In order to formulate a clear-cut framework of *selective* primary health care, the Rockefeller Foundation sponsored a conference in 1979 titled, "Health and Population in Development." In summarizing the conference proceedings, David E. Bell, the vice president of the Ford Foundation, argued that several models of primary health care have been in operation in the global south for decades, which have "resulted in a remarkable reduction in infant and child mortality rates and increase in life expectancies."[6]

The basic premise of the *selective* primary health care is that traditional indicators of health, such as infant mortality and life expectancy, are composites of many different health problems endemic to less developed countries. Some health problems are more serious than others in terms of their impact on mortality and morbidity. Thus, the *selective* primary health care listed infectious disease in the developing world in the order of their importance based on prevalence, mortality and morbidity, and the feasibility of effective control by using the available technology. It classified the diseases into three priority groups: high, medium and low. The diseases in the high priority group, for example, "represent infections causing the greatest amount of most easily preventable illness and death." The

---

3 K. S. Warren, "The Alma-Ata Declaration: Health for All by the Year 2000?" *Britannica Book of the Year, Encyclopedia Britannica*, Inc., Chicago, 1990, pp. 21–30. Warren served as the director of health services at the Rockefeller Foundation from 1977–88.

4 J. A. Walsh and K. S. Warren, "Selective Primary Health Care: An Interim Strategy For Disease Control in Developing Countries," *Social Science and Medicine*, 14C, 1980, pp. 145–163 (Proceedings of the Bellagio Conference).

5 *Ibid.*, p. 145.

6 D. E. Bell, "Introduction," *Social Science and Medicine*, 14C, 1980, pp. 63–65.

medium and low priority groups included diseases of "lesser importance or less amenable to containment." Four types of interventions, based on "reasonable cost" in controlling these diseases, were identified as part of a program to improve health in the developing world: 1) vaccination against infectious diseases, 2) oral rehydration, 3) maternal and child health programs including the promotion of breast feeding, and 4) supply of drugs for malaria. The action plan was only tentative, and countries may expand their primary health care, as they become economically developed to incorporate advanced technology and medical procedures.[7]

This was followed in 1985 by another conference titled "Good Health at Low Cost," which brought together a group of experts in epidemiology, demography and health economics to analyze four case studies namely China, Sri Lanka, Kerala State in India and Costa Rica, which were considered models of good health in spite of being low-income countries. It was argued that these populations have achieved good health at low cost simply by *prioritizing* their development goals to health, education and food security as fundamental objectives of their social and political organization. Thus, "after examining the results presented at the conference, the participants unanimously adopted the following recommendations: The four states which have achieved 'good health at low cost' have all clearly made a political and social commitment to…three additional factors, [which] appear to have played a major role in their success as measured principally by a marked decline in infant and child mortality rates, resulting in a commensurate increase in life expectancy approaching that of the developed world. These factors constitute recommendations for program-development in other countries: Equitable distribution and access to public health and health care; uniformly accessible educational system and; assurance of adequate nutrition at all levels of society."[8] The conclusion of the conference was that if these four case studies were models of "Good Health at Low Cost," they provided the key to identify parameters, and to define strategies and the scope of similar models for other developing nations.

A strong case in favor of selective primary care can be made on the basis of Sri Lanka's primary health care system and its contribution to outstanding health indicators of that country.

The purpose of this paper is to examine the historical development of primary health care in Sri Lanka in the early twentieth century, and its contribution to overall health achievements during the past few dacades. The paper will argue that the community-based primary health care program, also known as the "health unit

---

7 Keneth S. Warren, "The Evolution of Selective Primary Health Care," *Social Science and Medicine*, Vol. 26, No. 9, 1988, pp. 891–898.

8 S. B. Halstead, J. A. Walsh and K. S. Warren, (eds.) *Good Health at Low Cost: Proceedings of a Conference at the Bellagio Conference Centre*, Italy, 29 April to 3 May 1985, Rockefeller Foundation, New York, 1985.

system," was an earlier concept of *selective* primary health care developed by the International Health Board (IHB)[9] of the Rockefeller Foundation and Sri Lankan public health experts. The first health unit established in 1926 at Kalutara, Sri Lanka served as a "model" of *selective* primary health care, which was gradually expanded across the country, and later introduced to other countries in South and Southeast Asia by the IHB in the early twentieth century. A key strategy of the health unit system was to identify the most common and serious infectious diseases in each health unit area and control them through improved sanitation, health education, immunization and treatment with the help of local communities. The health unit system was strengthened as part of the national health care program in the post-colonial period, and the first health unit established at Kalutara became Sri Lanka's National Institute of Health Sciences, which today is the country's premier training centre of public health personnel. Drawing from archival and secondary sources gathered at the Rockefeller Archive Center in New York, and the National Archives in Colombo, Sri Lanka this paper will discuss the key aspects of the health unit program and its contribution to the development of primary health care in Sri Lanka, which is considered one of best in the region.[10]

Background: Rockefeller Philanthropy in Sri Lanka

The Rockefeller philanthropic medicine arrived in Sri Lanka in 1916, when the hookworm infection was an epidemic among Indian immigrant workers on the plantations in Sri Lanka. The British plantation owners, who recruited South Indian labourers for their estates in Sri Lanka, were responsible for the welfare of their workers. The laissez-faire policy of the colonial government allowed the plantation owners to conduct their business according to their economic interests. As a result, planters ignored even the most basic requirements such as latrines in the living quarters of their workers. In the extremely poor sanitary conditions on the plantations, immigrant workers and their families faced the threat of numerous diseases, such as hookworm infection, typhoid, cholera and smallpox, which often became epidemics on the plantations.[11] Despite the fact that a large number of the immigrant labourers arriving in Sri Lanka each year died of various diseases, the

9 The Rockefeller philanthropy in public health was first channelled through the Rockefeller Sanitary Commission created in 1909, which was renamed the International Health Board in 1916. In 1927, it was renamed again as the International Health Division. Throughout this paper, I will use IHB to represent Rockefeller philanthropic programs in public health in Sri Lanka.

10 Editorial, "Is there hope for South Asia? Yes, if we can replicate the models of Kerala and Sri Lanka," *British Medical Journal*, Vol. 328, April 2004, pp. 777–8.

11 S. V. Balasingham, *The Administration of Sir Henry Ward, Governor of Ceylon, 1855–60*, Tisara Prakasakayo, Dehiwala, Sri Lanka, 1968, pp. 51–55.

planters were not bothered with the high death toll. According to K. M. de Silva, for example, in the years from 1841 to 1848, about 70,000 (10,000 per year) or 25 percent of the immigrant workers died of various causes. The planters saw no dearth of cheap labour available in India.[12]

Following an agreement with the colonial government and the Plantation Owners' Association, the IHB began a mass treatment campaign for hookworm disease in the Matale district comprising 24 estates, with approximately 10,000 people. The representatives of the IHB, Drs J. E. Snodgrass, W. C. Sweet and W. P. Jacocks developed a working plan for Sri Lanka. The program was gradually extended to other estates. Besides the treatment of those infected, the campaign consisted of a study of suitable types of latrines for the estates, and an information campaign of the cause and prevention of hookworm disease. The information campaign included lantern lectures, distribution of pamphlets and demonstrations. In addition, they trained estate pharmacists to diagnose the infection using microscopic and clinical observations and to administer proper doses of chenopodium oil as treatment.

By the end of 1917, the hookworm control campaign had treated about 40,000 people. Of these, approximately 80 per cent were pronounced cured upon microscopic re-examination. In addition, morbidity statistics gathered from several estates showed a marked improvement in general health following the treatment for hookworm disease. The District Medical Officer of Matale reported that only 2,604 patients were admitted to hospitals in 1918, compared to 3,694 hospital admissions before the hookworm control program was begun, a reduction of 27 per cent.[13]

In spite of these improvements in the health of workers, they were not sufficient to convince the planters to undertake the major sanitary reforms recommended by the IHB. As the crucial requirement for the control of hookworm disease was the prevention of soil pollution, it was essential to construct adequate latrines. Although the planters had agreed at the beginning of the campaign to construct latrines, they did not honour their commitment. While the government introduced legislation making it compulsory for all the estates to provide sufficient latrines for their workers, it did not enforce the law.[14] The unabated soil pollution on the plantations and the arrival of infected new workers from India ensured a high rate of re-infection. At the end of 1919, three years after the completion of treatment, an examination of a sample of about 3,000 workers showed that the infection had not declined.

---

12 S. Hewa, "The Hookworm Epidemic on the Plantations in Colonial Sri Lanka," *Medical History*, Vol. 38, No. 1, 1994, pp. 73–90.

13 Rockefeller Archive Center, (hereafter RAC), *Relief and control of hookworm disease in Ceylon, 1918*, pp. 27–37, Record Group (RG.) 5, Series (Se.) 2, Box 47.

14 *Ibid.,* p. 8.

The hookworm control campaign on the plantations could not achieve its goal because the sanitary conditions were not improved while the treatments were being carried out.[15] At this point, it became clear to the IHB that neither the government nor the Planters' Association were seriously concerned about the hookworm problem. Although sharing the cost of the program, the government was not fully committed to the objective of improving sanitary conditions on the estates. It did not want to antagonize the powerful Planters' Association by forcing them to construct latrines, nor did it want to takeover the construction of latrines on the estates, as this might appear to be a change of the government's policy toward the plantations. The planters, for their part, believed that they could overcome the persistent complaints against them by letting the hookworm control campaign treat their labourers. However, anything that required capital spending was not something that they were prepared to undertake.

In April 1921, Dr Victor Heiser, the director of the IHB's operations in Asia, visited Sri Lanka and informed the IHB decision to stop its work on the plantations after 1922. He met with the government's officials, the Planters' Association and the medical personnel of the project to discuss the future of the campaign. The project director, Dr W. P. Jacocks, pointed out that given the state of sanitation, it would be futile to continue treatment activities on the plantations.[16] After nearly six years of hookworm treatment program on the plantations and spending almost $200,000 by 1922, the IHB could neither reduce nor eradicate the hookworm infection on the plantations because sanitary conditions were not improved. Under these circumstances, Dr Jacocks advised that the IHB should shift its hookworm control campaign to selected villages and towns on the rest of the island. For an initial program, he recommended the Western province given its relatively better infrastructure facilities at that time. He also proposed that in addition to carrying out treatment for hookworm infection in villages and towns, a survey should be taken to determine the prevalence of major health problems and their underlying causes across the island.

Although the hookworm control campaign on the plantation failed to achieve its intended goal, it provided a window of opportunity for the IHB representatives in Sri Lanka to gain first-hand knowledge about the socio-economic condition vis-à-vis health across the country under colonial rule. It also gave them an opportunity to reflect more closely on the importance of sanitation and public health in preventing disease. Unlike on the plantations, the hookworm campaign in the towns and villages in the Western province received better response from both the

15 RAC, *Relief and control of hookworm disease in Ceylon*, pp. 18–20, 1920, RG. 5, Se. 2, Box 47.

16 RAC, *European Planting Community in Regard to Medical Aid and Sanitation*, p. 1, 1921. RG. 5, Se. 2, Box 47.

people and the government officials.[17] In particular, there was a considerable interest in public health work among people, who cooperated with the hookworm program while voicing their criticisms of its limited scope in view of their wide-ranging health problems. Life outside the plantation was relatively free from repressive and callous exploitation underwent by the immigrant labourers. People were able to question or criticize the hookworm campaign without being subjected to punishment or dismissal from employment, as was the case on the plantations.[18] The hookworm campaign provided people an opportunity to express their grievances regarding the lack of public services in their communities. They demanded attention to their more urgent health problems, and questioned the rationale of giving treatment for hookworm infection when there were numerous other diseases such as typhoid, smallpox, dysentery, malaria etc., which were more serious and debilitating.[19] In the end, the Rockefeller doctors themselves became critical of their own work. The juxtaposition of Western medicine and the pragmatic response of the villagers changed the main thrust of Rockefeller philanthropic medicine in Sri Lanka. A decade of public health activities in Sri Lanka convinced the Rockefeller doctors that *no* effective public health program could be developed overnight and that a carefully planned system must be established through demonstration and education over a long period. More importantly, for the success of such a program the active involvement of the local communities and leadership must be a vital component.[20] For the program to be effective, the IHB officials discovered, it had to recognize as legitimate the needs and living experiences of the villagers. That is, these villagers had to be "heard" – their understanding, consent and participation were required.

---

17 For a detailed discussion, see Soma Hewa, *Colonialism, Tropical Disease and Imperial Medicine: Rockefeller Philanthropy in Sri Lanka*, University Press of America, Lanham, MD, 1995.

18 Sri Lanka National Archives (hereafter SLNA), *Despatch* No.6, April 21, 1847, 5/34. Even if the workers understood their rights, they could do absolutely nothing against the planters. Commenting on the helpless situation of the workers, a pioneer coffee planter observed the following: "What redress could the poor coolies, for instance, have against his European master who ill-treated him, miles away in the jungle, far from a magistrate or a court, with all his fellows up in arms against him, lest they should lose their employment, and his wife and family almost at the complete mercy of his persecutor, or of that persecutor's assistants?" W. Knighton, *Forest Life in Ceylon*, London, 1854, p. 124.

19 It should be noted that the development of clinical symptoms of hookworm disease is a long process, a fact that influenced the public reaction to the treatment campaign. The disease does not make someone sick suddenly; it gradually weakens the infected person as the intensity of the disease increases, making the person vulnerable to other virulent infections. Consequently, most villagers were puzzled by the vigorous campaign of hookworm control when they were not even aware of any sign of the disease. RAC, *Summary Report, Anchylostomiasis Campaigns-Ceylon*, p. 12, 1921. RG. 5, Se. 3, Box 193.

20 RAC, *Preliminary Report on Health Units*, p. 3, 1926. RG. 5, Se. 2, Box 48.

An equally important development was the government's about-face, following decades of indifference to issues related to the health needs of those beyond the urban centres. The government was itself responding to a variety of conditions, including growing concern for public health in the Western world generally, and the increasing agitation of Sri Lankan intellectuals – part of a growing middle class – who were making known the need for education and health in the countryside. The government's reorientation toward public health in the country created space for the IHB to play an active role without being perceived as interfering with the government's affairs. An understanding was reached between the IHB and the government that a program must be developed to address basic sanitary services, vaccination for communicable disease, the maternal and childcare, and public health education and training in the country. If successful results could be achieved in developing an effective program in one district, it should be used as a model for others. A public health campaign of such magnitude would inevitably take time.[21] The IHB, together with local health officials, developed a complex plan that was embedded into the governmental administrative mechanism, which they directed for many years. Positions were added to the existing administrative apparatus, and their mandates were extended and animated to carry out new duties related to public health. This program became the framework and impetus for the remarkable achievements in public health in Sri Lanka.[22]

Conceptual Framework of the Health Unit Program

Although the IHB had experimented with the health unit concept in the southern United States, it did not implement the same program in Sri Lanka. Instead, while recognizing the universality of public health principles, the authors of the Sri Lanka's health unit program focused on the specific health problems in Sri Lanka. Although the general objective of the health unit program was "to meet the health needs of populations living in rural and semi-rural areas," the core principles of the program were disease prevention and health education: "It is based on standard public health organizations in which all recognized health activities are carried out. In addition to its routine work, the unit may be regarded as an area for testing methods of procedure – that is, a field laboratory – for application elsewhere."[23]

It was argued that every community across the country experienced more or less the same health problems, the root causes of which were the poor sanitary conditions and the inadequate public health services. In this context, when

21 *Ibid.,* pp. 3–5.

22 *Ibid.,* p. 8.

23 S. F. Chellappah and W. P. Jacocks, 1936, *Guide to Health Unit Program*, Preface to the first edition, Colombo, p. 1

"undertaking general public health measures," argued Dr Jacocks, "it is considered advisable by those most experienced to begin work on a small scale in a restricted area. A lively campaign against *all* preventable diseases should not be immediately undertaken. Even were this possible, it would be unwise, for the method of attack may vary in different countries. The preventable diseases peculiar to the district should be determined by a careful survey and they should be thoroughly studied and attacked in the order of their importance as a cause of morbidity and mortality. The work should then be gradually enlarged to include all the public health problems in the area."[24] We may recall that the key strategy of the *selective* primary health care was to attack health problems on the priority basis – from the most serious infectious diseases causing the greatest number of preventable illness and death to the least preventable disease by the existing methods.

The required personnel to carry out the health unit work clearly suggested the nature of the health unit work. Three major categories of well-trained public health personnel were identified as a permanent staff to carry out the activities of each health unit. For a population of 40,000, the following numbers of health workers were recommended: one medical officer of health, five public health nurses, five sanitary inspectors, and ten midwives. Besides these health care professionals, two office workers and a labourer were required for record keeping and the maintenance purposes. The health care professionals were expected to work as a team and, in particular, the last three groups would assist each other in their field operations. The responsibilities of the each person were clearly spelled out in the program:

1) Medical officer of health,[25] who was to serve as the director of the health unit, expected to coordinate all activities to ensure that "public health inspectors, nurses, and midwives carry out the work as planned. This is accomplished by making frequent visits to each member of the field staff in every part of the area."[i26] The medical officer must investigate health problems in the area, make regular visits to schools, conduct clinics for vaccinations, maternity and child welfare services and provide health education through public lectures and propaganda. It was clearly state that the health units do not provide curative services, except when conducting hookworm and malaria control campaigns. The health units must refer patients to the local hospital or dispensaries for curative services. Further, the medical officer was also responsible for bringing social and economic problems of the community that had health implications to the attention of local authorities and respective

24 RAC, W. P. Jacocks, *Preliminary Report on Health Units*, pp. 4–11, 1926, RG. 462, Se. 2, Box 48.

25 In the event that a health unit had to recruit more than one medical officer, they would be assistants to the senior medical officer.

26 S. F. Chellappah and W. P. Jacocks, 1936 *A Guide to Health Unit Procedure,* Colombo, p. 7.

government departments for action. In collaboration with other government departments, the medical officer must develop supplementary nutritional programs for expectant and nursing mothers and infants. Regular surveys must be conducted to determine the nutritional requirements and to evaluate the progress of on-going activities. As a part of the health education campaigns, the medical officer must develop a nutritional guide advising on how to prepare affordable and healthy daily meals using the available fruits and vegetables grown in most villages.[27]

2) Public health nurses must have an additional training in maternal and childcare, administration of treatment for hookworm and malaria. They must reside in the health unit area and regularly visit communities to discuss health issues, visit schools and local dispensaries to obtain a good sense of prevailing health problems. It was argued that the nurses who would be most effective were "strong in character, sympathetic but forceful, and possessed of commonsense, tact and initiative."

3) Sanitary inspectors must be fully dedicated to sanitary work and be given additional training in malaria control work and the mass administration of hookworm treatment. It was argued that sanitary inspectors must "become well known in the…assigned area and gain the cooperation of the people." They must undertake experiments to determine the appropriate type of latrines and wells for specific terrains in the health unit area, and carry out regular inspections regarding the sanitary condition. They must coordinate all sanitary work with the local authorities, and assist "nurses and midwives whenever practicable." Sanitary inspectors must also organize local voluntary groups to assist their work.

4) Midwives were placed under the immediate supervision of the public health nurses, and each midwife was expected to serve about 4000 people within a radius of three miles. They must live in the area where they work. The midwives were responsible for locating expectant mothers, arranging early medical examinations and attending the birth if the pregnancy was normal. Following the birth, they were required to visit the mother and newborn daily for ten days. In case of medical complications during pregnancy, the midwife must ensure that a doctor was called or that the mother was taken to the hospital. They must follow a standard set of guidelines developed by the medical officer regarding prenatal to postnatal care to ensure the health of both mother and child.[28]

Once the personnel for the health unit were recruited, the next step was to conduct a series of public lectures using lanterns on various aspects of sanitation and disease control to induce interest among the public. "The cooperation of the people is so important that it is given every emphasis…To get lasting results the work must be placed on a cooperative basis which is the foundation of the Health

27 *Ibid.,* pp. 37–38.
28 *Ibid.,* pp. 6–8.

Unit system. *The organization of the people for cooperative assistance is so important that the officer in charge of the Health Unit should consider his plan of work to be unsatisfactory until this is done*."[29] [Original emphasis] It was recommended that the community involvement must be sought in all aspects of the health unit work, and to this end, the most important task was to develop as many voluntary organizations as possible with the help of the local community leaders. The community organizations were seen as a critical tool in assisting the health unit to carry out mass vaccinations, hookworm treatment and major sanitary work in the area. Moreover, it was pointed out that community leaders as opinion makers could play a powerful role in public health education and propaganda work in the community.

The next most important step of the health unit work was to undertake a survey of the health unit area to answer the following critical questions: 1) what was general sanitary situation in the health unit area, 2) what were prevailing major diseases, morbidity and mortality rates, and the affected communities, 3) what was the general public attitude toward the work. Based on the findings, the medical officer should be able to distinguish between the overall health situation, specific health problems and major health problems in the health unit area. It was argued that this information was the key to the future work of the health unit. Following the careful review of the findings, the outstanding health problems were to be "attacked in the order of their importance as a cause of morbidity and mortality" in the area.

Implementation of the Health Unit Program

A "health unit" referred to a geographical area comprising up to 80,000 to 100,000 inhabitants. According to the program, the island would be divided into approximately 63 health units. It was estimated that an average population of a health unit would be about 83,000 people. The first health unit in Asia was established in 1926 at Kalutara-Totamune,[30] a suburb 43 km. south of Colombo. The suitability of Sri Lanka to experiment with the health unit concept was clearly stated in various preliminary reports. "In Ceylon active interest is being manifested

29 *Ibid.,* p. 3.

30 The area that the health unit was initially expected to serve was about 25 square miles with a population of approximately 30,000. The area included 1 urban centre, 27 villages and 7 large rubber plantations. The selected area provided a balanced representation of the island's population and their health problems at the time. Given the importance of the first health unit, Dr S. F. Chellappah, who was one of the authors of the health unit program in Sri Lanka, became the senior medical officer of the Kalutara health unit. Dr W. P. Jacocks of the International Health Board opened the health unit on July 1st, 1926. RAC, *First Annual Report of the Health Unit Kalutara Badda*, p. 1, 1926. RG. 5, Se. 3, Box 198.

in public health in both official and non-official circles," argued Dr Jacocks. Perhaps the most important reasons were the geographical location of the island and its relatively better infrastructure with a small population, which were regarded as ideal for a field experiment on a public health program: "Ceylon lends itself well for the establishment of such organization," argued Dr Jacocks. In addition, the existing administrative system of the country provided an established "framework" for the health unit system that could function alongside the local government. Thus, the relationship between the local administration and the health unit was one of close cooperation and shared responsibilities.[31] The Government Agent and the Assistant Government Agents of the province provided administrative assistance to the medical officer of health in charge of the unit. The local government authority (the Municipal Council/Urban Council) was expected to transfer its health and sanitary work and personnel to the health unit. In addition, the local government was responsible for enacting necessary sanitary regulations to facilitate the activities of the health unit. The local authority in return benefit from the services of a full-time medical officer of health, of public health nurses, and of all the facilities established in the area by the Department of Medical and Sanitary Services.[32]

During the opening ceremony of the first health unit, Dr Jacocks stated that "[this day] will be remembered by health workers in Ceylon as the day on which a real step forward was taken in rural health work along modern lines. Health work up to now in Ceylon has dealt, largely, with the environment, but in this new development the hygiene of the individual is receiving attention in addition."33The first health unit was considered important because it would be used as the model for future programs in other areas of the country: "It was intended to determine, by the experience gained in this unit, standards of work, of procedure, of personnel etc., suitable for local conditions; and also to stimulate interest among the public in this type of health work. Further, this unit was also to be a training centre for personnel to be employed in future health work."34 As seen in Figure 1, the organizational structure of the health unit system became quite complex. A new post of Superintendent of Health was created within the Ministry of Health to promote health education and information throughout the country. As health education was the key to successful promotion of public health, the position was filled by an experienced Sri Lankan, who was given a post-graduate fellowship by the IHB to obtain further training in public health education in the United States.

---

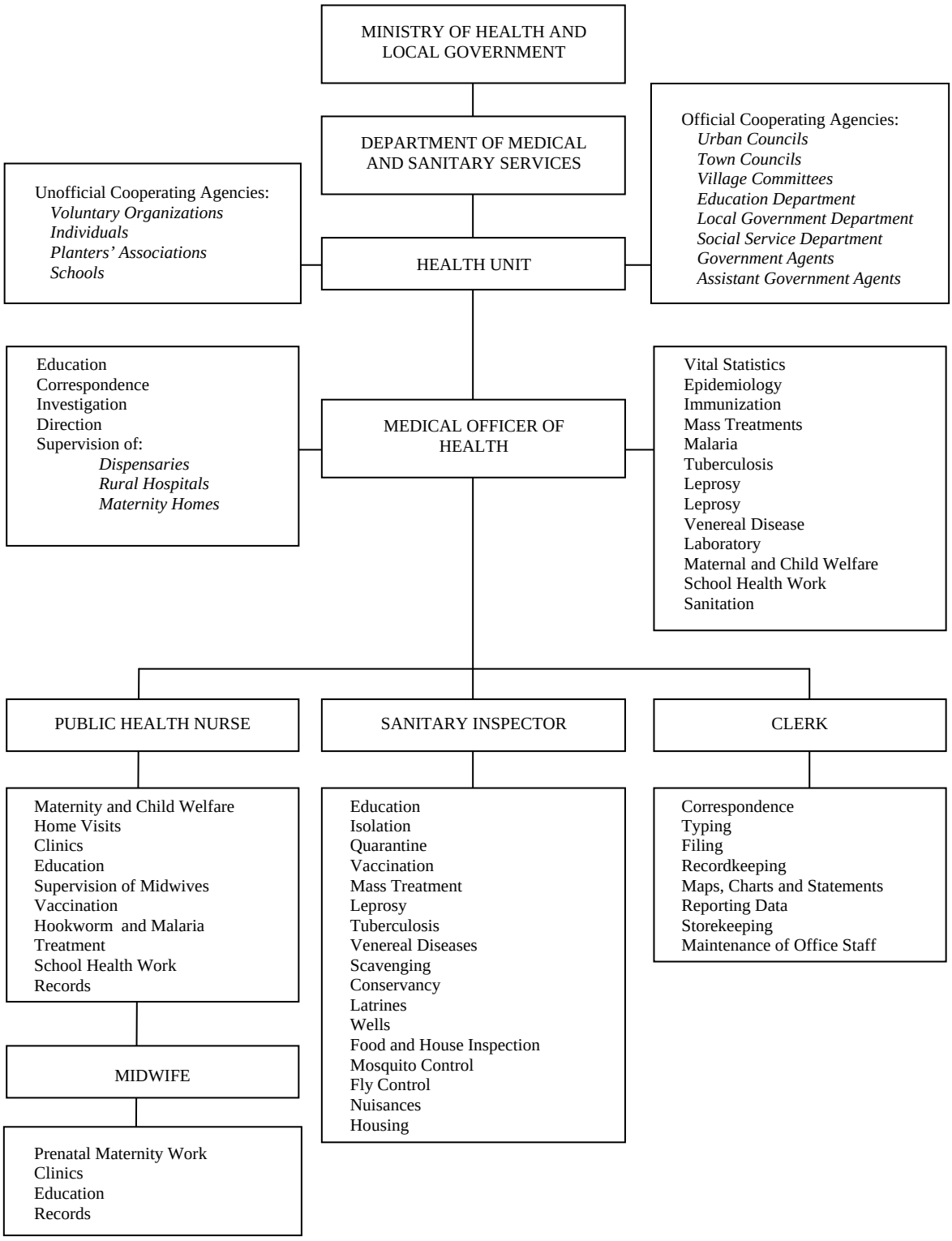
31 RAC, Preliminary Report on Health Units, pp. 4–5, 1926. RG 462. Se. 2, Box 468.

32 RAC, *The First Annual Report of the Health Unit Matara*, pp. 2–8, 1928. RG. 5, Se. 3, Box 201.

33 RAC, *First Annual Report of the Health Unit Kalutara Badda*, p. 1, 1926. RG. 5, Se. 3, Box 198.

34 *Ibid.*, p. 1.

FIGURE 1
Organizational Structure of Health Units



Source: S. F. Chellappah and W. P. Jacocks, *A Guide to Health Unit Procedure*, Colombo, 1936, P. 50.

The health survey of the Kalutara health unit area identified eight infectious diseases as major causes of death among all ages: 1) dysentery, 2) typhoid, 3) hookworm infection, 4) measles, 5) tuberculosis, 6) influenza, 7) smallpox, and 8) whooping cough. In addition, among infants below one year, three major causes of death were identified: 1) convulsion, 2) premature birth, and 3) infantile debility. More than half the deaths occurred during the first three months.

Measures to Control Disease: Education, Sanitation, Immunization and Treatment

Following the health survey, several measures were taken to control disease. In view of a limited number of trained public health workers available to carry out an extensive program, the tasks were organized as "seasons." In one season, for example, health education on disease prevention, followed by latrine construction and water supply programs, vaccination against smallpox, and so on. It was believed that this method would enable every individual employed by the health unit to concentrate on one particular task without interruption from beginning to end.[35] A series of lectures were delivered at market places and schools to educate the public. A number of health exhibitions were held at Kalutara town to encourage mothers for breastfeeding. These exhibitions were part of the regular "Health and Baby Weeks" program, which provided information on postnatal care for young mothers. Saturday conferences with the health unit staff were regular features of the health unit. These conferences were attended by the officials of the local administration, *Ayurvedic* doctors (native physicians), teachers, parents and many local dignitaries. It was argued that these conferences proved very effective in providing basic health education for the local residents, whose cooperation in sanitary reforms was essential. The locally appointed public health nurses, midwives and sanitary inspectors played a key role in organizing these activities. Their services were especially mentioned in almost every annual report.[36] The Kalutara health unit was awarded the "Empire Challenge Shield" for 1929 by the National Baby Week Council of England for organizing the best Baby Week held in the British Empire excluding the British Isles.[37]

By the end of 1929, there were five health units across the country serving approximately 225,000 people, about five percent of the total population of the country. Of these, about 18 percent were living in urban areas. The priority of public health needs was established based on health surveys and the vital statistics

35 *Ibid.,* p. 12.

36 RAC, *Annual Report on Health Unit Work*, pp. 6–8, 1928. RG. 5, Se. 3, Box 199.

37 RAC, *Division of Sanitary Engineering, Ceylon, Report on Ceylon for 1929*, p. 4, 1930, RG. 5, Se. 2, Box 47.

gathered by the health units. The infant mortality rates varied from the lowest in the Western province to the highest in the Northwestern province. Of all the five provinces where health units had been established, the Northwestern province had the lowest birth rate (28.2 per 1000), the highest death rate (31.1), the highest infant mortality rate (248.0) and the highest maternal mortality rate (28.6). The report attributed the higher death rates in the Northwestern province to malaria, which was endemic in the region.[38] Even with the relatively better sanitary conditions in the Kalutara health unit, 46 percent of all deaths among children occurred before the fifth year of life. In the Northwestern province, infantile debility was the main cause of death with pneumonia a close second (198 and 195 per thousand live births respectively) during the first year of life.[39] In 1929, the Kalutara health unit reported the highest incidence of typhoid, chicken pox, dysentery and measles. In addition, all the health units reported the cases of hookworm infection.

In light of these vital statistics from the health unit areas, steps were taken to improve sanitary conditions during the late 1920s. The large-scale sanitary projects were begun in all health unit areas with the inauguration of a sanitary engineering division[40] of the Department of Medical and Sanitary Services in 1927. This particular division spearheaded the campaign to improve public health. The construction of hundreds of private and public latrines, and community wells for drinking water in each health unit area was regarded as one of the most important steps toward the development of public health in the country. In 1929, for example, in the Weudawili Hatpattu (Northwestern province) health unit 421 private latrines were built by the health unit in collaboration with the local government. Other health units, such as Matara (Southern province), Paranakuru Korale (Sabaragamuwa province) and Kalutara also constructed over one thousand private and public latrines during the period.[41] In addition to these new latrines, hundreds of existing ones were restored according to the specifications of the newly created sanitary engineering division. Further, a major water supply scheme was undertaken for the Kurunegala health unit are in the Northwestern province, and a similar project had already been completed at Kalutara. A preliminary investigation had also been done of the water supply for the Trincomalee health unit in the Eastern province. The construction of latrines and water supplies were considered the

38 RAC, *Annual Report on the Health Unit Work*, p. 33, 1929. RG. 5, Se. 3, Box 200. For a discussion on the impact of malaria and hookworm on pregnancy, see G. A. W. Wickramasuriya, *Malaria and Ankylostomiasis in the Pregnant Women*, London, 1936.

39 RAC, *Annual Report: Weudawili Hatpattu*, pp. 16–17, 1930. RG. 5, Se. 3, Box 200.

40 The establishment of a sanitary engineering division, under the leadership H. N. Worth, was a brainchild of W. P. Jacocks, the IHB representative in Sri Lanka. RA, *Anchylostomiasis Campaigns, Ceylon, A Letter to V. Heiser from W. P. Jacocks*, November 28, 1927, RG 1.1, Se 3, Box 1.

41 RAC, *Annual Report on Health Unit Work*, p. 30, 1929. RG. 5, Se. 3, Box 198.

priority of all health units. In most of the rural areas across the country, the water supply was mainly through wells. The sanitary inspectors regularly examined the conditions of these wells. Further, to improve the sanitary conditions in the towns and villages, specific regulations were enacted in 1926 regarding the operation of restaurants, bakeries, butcher shops, fish and vegetable markets, dairy farms and laundries. All trade premises were regularly inspected by sanitary inspectors to insure that the owners complied with regulations. A whole range of sanitary reforms had already been completed or was underway in a number of provinces following the opening of the first health unit. These various sanitary activities clearly showed a serious commitment to deal with basic sanitary problems throughout the country.[42]

Sanitary works were followed by a mass immunization campaign for typhoid and smallpox in all health unit areas. The recurring epidemics of typhoid and smallpox killed thousands of people in many parts of the island. Referring to the successful control of smallpox, C. G. Uragoda, a Sri Lankan medical historian, maintains that the "extensive vaccination, helped by legislation, was largely responsible for this happy situation. Whenever cases of smallpox occurred, energetic vaccination in the area was carried out, thereby preventing further spread."[43] A total of 6128 people were vaccinated against smallpox in 1930.[44] The immunization program at the beginning relied heavily on private donations and charities. The campaign was largely concentrated in the Kalutara health unit area due to the financial assistance received from private individuals in the province. It should be noted that a large number of Europeans and mixed descendants (Burghers) were living in the Western province. Further, it can be suggested that the concentration of a fairly large European population in the province may have attracted the attention of the government as well.

One of the most important activities of the health units was the "child welfare" works, which were organized by the public health nurses of the health units in collaboration with the local schools.[45] The public health nurses visited schools in the province to conduct clinics on sanitary matters. Further, they made regular home visits to advise mothers on childcare. Those in need of these services often outnumbered the available nursing personnel in each health unit, demonstrating that the child welfare work were the most demanding of all activities of the health

42 *Ibid.,* pp. 29–30.

43 C. G. Uragoda, *A History of Medicine in Sri Lanka-from the earliest time to 1948*. Sri Lanka Medical Association, Colombo, 1987, p. 213.

44 RAC, Ceylon Health Units, A Summary of Health Unit Information for the Year 1930, pp. 14, 1931, RG. 1.1, Se. 462, Box 1.

45 Commenting on the declined infant mortality rate from 235 in 1924 to 216 per 1000 live births in 1927 on the island, Dr J. F. E. Bridger, PCMO, attributed the trend to the activities of child welfare associations. *British Medical Journal*, Vol. 1, 1927, p. 538.

units. As a result, a special program of recruiting and training public health nurses and midwives was introduced by the Department of Medical and Sanitary Services in the latter part of 1929. The response of the people with regard to child welfare work was more positive than to any other service provided in most health unit areas. Particularly in the Northern and Eastern provinces, where there was a chronic shortage of doctors, the only public health workers available in most communities were the midwife and the sanitary inspector. Therefore, people "well understood the benefit of having a trained midwife or a sanitary inspector in the community."[46] Because of the growing demand for maternity and child welfare services across country, the number of rural dispensaries increased almost by fivefold during the 1930s

In addition to immunizations, mass hookworm treatment campaigns were carried out in Southern, Western and Northwestern provinces. In 1930, seven health units across the country treated more than 9000 people for hookworm infection. A central laboratory in Colombo examined faecal specimens, blood, urine, sputum, and water samples collected from different provinces. Although the central laboratory for the examination of various samples collected from all over the country was useful at the beginning, it could not meet the increased demand for such services as the number of health units increased. The long delay of analyzing samples often prevented the medical officer of health from taking urgent action to control disease. The advantage of having a laboratory in a province itself was demonstrated when the medical officer of health in the Matara health unit (Southern province) was able to take immediate action to deal with an outbreak of pneumonic plague during year before the local findings were confirmed by the central laboratory in Colombo. As a result, it was recommended that at least one medical laboratory should be established in each province, providing that the central laboratory in Colombo would continue to handle the major examinations.[47]

Malaria Control Work

Despite significant improvements in public health on the island, particularly in the health unit areas, recurring malaria epidemics became a serious health problem in the country.[48] The great malaria epidemic in 1934–35 was preceded by a major drought when the annual rainfall fell considerably below the normal throughout the country. As a result, the water levels of the major rivers, lakes and reservoirs

46 RAC, *The Report on the Work of the Trincomalee Health Unit*, pp. 38–9, 1930, RG. 5, Se. 3, Box 201.

47 *Ibid.*

48 B. L. C. Johnson, *South Asia, Selective Studies of the Essential Geography of India, Pakistan and Ceylon*, Barnes and Noble, New York, 1971, pp. 143–4.

declined providing ideal breeding places for *anopheles*. The epidemic began in the Northwestern province and gradually spread into Western and Southern provinces. At the height of the epidemic, almost the entire population, or more than five million people, were affected by the disease.[49] The epidemic has been described as the "greatest pestilence in the recorded history of the Island, and a catastrophe of the first magnitude."[50] By the end of 1934, the attendance at the government hospitals and treatment centres had reached more than 60,000 patients a day. By the end of 1935, the epidemic had killed more than 80,000 people.[51]

Although sporadic malaria control campaigns had been conducted by various government departments and the local authorities since the late nineteenth century,[52] they had very little effect in controlling the disease. The outbreaks of malaria occurred quite regularly. As a result, the anti-malaria measures were later incorporated with the activities of the sanitary department. The first organized effort to control malaria was begun in 1921 although much of the work was rudimentary in nature. The anti-larval measures such as oiling, application of Paris Green (an early type of insecticide), and minor drainage programs were mainly confined to major urban centres. In most rural areas, there were no regular malaria control measures.[53] As early as 1925, the IHB sponsored two medical experts on malaria – Drs M. E. Barnes and Paul F. Russell 015 – to carry out a survey on the intensity of the malaria problem, and the appropriate measures to control it. They pointed out that malaria was "endemic and occasionally epidemic in Ceylon, and that the disease constitutes a public health problem of sufficient importance to merit special attention."[54] In light of the frequent outbreaks of malaria throughout the country, Barnes and Russell recommended a more comprehensive program for the whole island instead of the scattered effort to control the disease. As they put it, "from the point of view of control, malaria is a local problem. Any plan for effective control should begin on a small scale in a few limited centres, and should gradually extend throughout the island."[55]

---

49 Editorial, "Reports of Societies, The Malaria Epidemic in Ceylon," *British Medical Journal*, 1935, pp. 1015–7.

50 SLNA, *Report on the Malaria Epidemic in Ceylon in 1934–35*, *Sessional Paper 23*, Colombo, 1935, p. 5.

51 For an important analysis on the impact of malaria, see Wickramasuriya, op.cit., pp. 5–33. This study provides an excellent first-hand scientific data on this subject as it was done during the malaria epidemic between 1934–5.

52 For a brief history, see Uragoda, *op.cit.,* pp. 217–31.

53 RAC, *Malaria Eradication in Ceylon*, p. 6, 1948. RG. 5, Se. 2, Box 47.

54 RAC, *A Program for the Control of Malaria in Ceylon*, M. E. Barnes and Paul F. Russell, Colombo, p. 3, 1925, RG 5, Se. 2, Box 48. Deaths from malaria were 5.8 percent of all recorded deaths on the island between 1936 and 1946. See E. J. Pampana, "Effects of Malaria Control on Birth and Death Rates," in *Proceedings of the World Population Conference*, United Nations, New York, 1954, p. 504.

55 *Ibid.,* p. 9.

However, the government did not implement these recommendations due to financial difficulties. After the devastating malaria epidemic in 1934–35, the government began taking some measures to deal with the problem. It started using *pyrethrum* as an insecticide for destroying adult mosquitoes in major endemic areas. The program lasted only a few months because of the outbreak of World War II. The government maintained that it could not afford to spend Rs. 12,000 – 15,000 (about $ 5,000) annually for malaria control given the depressed financial situation of the country. By 1945, malaria had become the leading cause of death in the country.[56]

The turning point of the battle against malaria was the development of DDT during the war.[57] In September 1945, several malaria observation stations carried out experiments with DDT in a number of districts in the North-Central province. The results showed a remarkable decline in malaria incidence within six months. A program of residential spraying of DDT was established in malaria endemic regions. The spraying was carried out on a regular basis (once every six weeks). The program was under the administrative control of the medical officer of health of the district. The IHB representatives provided technical advice in malaria control in those areas where the health units had been established. By this time, there was at least one health unit per province, with many in operation in the Western province. The health units carried out a number of malaria control programs, such as anti-malaria drainage, oiling and the residential spraying of DDT. The medical and sanitary engineers employed by the health units were temporarily assigned to carry out malaria control work in those areas where the problem was acute. Moreover, in all questions concerned with malaria control within the health unit areas, the medical officer in charge assisted in collecting the essential field data, designing the schemes and presenting the detailed plans to the Department of Sanitary Services or to the local authority.

An intensive three-year-program of residential spraying of DDT brought malaria under control.[58] By 1948, the malaria morbidity rate had declined to 109 per

---

56 RAC, *Malaria Eradication in Ceylon*, p. 7, 1948, RG. 5, Se. 2, Box 47. Also see Margaret Jones, "The Ceylon Malaria Epidemic of 1934–35, A Case Study in Colonial Medicine," *Social History of Medicine*, Vol. 13, No. 1, 2000, pp. 87–109.

57 For a discussion on the role of Rockefeller philanthropy in the development anti-malaria technology, see D. H. Stapleton, "Technology and Malaria Control, 1930–1960: the career of Rockefeller Foundation engineer Frederick W. Knipe," *Parassitologia*, Vol. 42, No. 1–2, 2000, pp. 59–68; also by the same author, "Historical Perspectives on Malaria: The Rockefeller Anti-malaria Strategy in the 20th Century," *Mount Sinai Journal of Medicine*, Vol. 76, 2009, pp. 468–73.

58 *Ibid.,* p. 12.

thousand.[59] As one observer noted: "At a reported cost of two dollars per capita, the people of Ceylon acquired a modern life expectancy. A great deal of land previously in the possession of malaria mosquitoes was opened up for cultivation."[60] In comparison with the programs conducted elsewhere, the approach taken by the health units to control malaria in Sri Lanka was cited as an example for others to follow.[61] The effective malaria control campaign developed by the health units in the 1940's in accordance with the unique ecological conditions in the island turned out to be remarkably cost effective. The decline of malaria incidence after the late 1940s directly contributed to the dramatic fall of mortality rate in the country.[62] Sri Lanka, once among Asia's worst affected nations for malaria, is now close to eliminating it.[63]

Community Support for Health Units

One of the core principles of the health unit concept was to build a strong community support for the health unit work, so that the community would be responsible for providing resources and leadership and, above all, carrying out the activities assigned to citizens by public health officials. Such cooperation would ensure the sustainability of the program. In a report titled, *A Guide to Health Unit Procedure,* the authors of the health unit program, Drs Jacocks and his Sri Lankan counterpart S. F. Chellappah described the importance of community involvement as follows: "To get lasting results the work must be placed on a co-operative basis which is the foundation of the Health Unit system. Co-operation is obtained by carefully explaining…the objectives to be attained and assistance which those concerned may give in helping to carry out the program."[64] Clearly, the Health Unit program was designed to draw a collective response to local health needs and to utilize local resources, both material and human. In 1933, writing to IHB's New York office on continuing progress of the health unit program, Dr Jacocks specifically mentioned that the health unit work was receiving "considerable

59 The spleen rate had fallen from 30.6 in March 1936, and 21.2 in March 1938, to 5.18 in March 1948, and 3.5 in September 1948. RAC, Malaria Eradication in Ceylon, p. 31, 1948. RG. 5, Se. 2, Box 27.

60 G. Williams, *The Plague Killers*, Charles Scribner, New York, 1969, p. 180.

61 G. Harrison, *Mosquitoes, Malaria and Man: A History of Hostilities since 1880*, E. P. Dutton, New York, 1978, p. 255.

62 DDT was used until 1977 when it was replaced with Malathion. See Uragoda, op.cit, p. 229.

63 IRIN, *Sri Lanka: on track to eliminate malaria*, UN office for the coordination of humanitarian affairs, 2008.

64 Chellappah and Jacocks, *op. cit.,* p. 3.

assistance" from the people: "In fact the work is popular and its popularity is steadily increasing."[65]

The three levels of co-operation – individual citizens, community organizations and local authorities – were sought and received by health units. Ten years after the first health unit was established, the authors of the program expressed immense satisfaction with the support it had received at various levels. At the individual level, local philanthropists built dispensaries for health units, and others furnished buildings for holding weekly maternity clinics, donated lands, pumps for wells, and a few have offered "Challenge Shields" to stimulate health education among school children.[66] With the growing demand for maternity and child welfare services, the health units relied heavily on the assistance of community organizations such as Social Service Leagues, Child Welfare Leagues and Health Leagues. Health units launched a campaign to promote community health volunteers. In 1931, there were 24 such voluntary organizations working with health units. During that year, these voluntary organizations had contributed Rs. 16,802 (about $ 6000) to health units across the country.[67] The Trincomalee Health League was formed by a group of women who took special interest in child welfare work in the town. The League established three child welfare centres and carried out regular "Health and Baby Week" programs devoted exclusively to help vaccinate children. Many of the Health Leagues across the country were also involved in promoting family planning and breastfeeding among young mothers. Further, the Social Services Leagues played a key role in constructing latrines and wells in many parts of the island.[68] In addition, Social Services Leagues provided free sewing lessons for young mothers. These voluntary organizations were "supported by donations, monthly contributions and special collections, and their activities [were] not a charge against the Health Unit budget."[69] The health volunteer program became very popular among educated women during the post-colonial period. The local authorities, such as municipal and urban councils, welcomed the program as it enabled them to incorporate their regular health and sanitary work with the health units without having to bear additional financial burdens.

---

65 RAC, *Kalutara Health Unit, Ceylon,* A memo from W. P. Jacocks to V. Heiser, May 3, pp. 1–2, 1933, RG. 1.1, Se. 462, Box 1.

66 RAC, *Annual Report: Health Unit Work*, pp. 5, 9, 12, 13, 15, 1928, RG. 5, Se. 3, Box 199. Local philanthropists built several dispensaries for health units across the country. For example, the dispensaries at Dondra and Walgama in the Matara health unit were built by Mr. Pabiris Silva, Mr. Weeratunga, and Mr. Wickremesinghe. RAC, The *Annual Report, Health Unit Matara*, p. 47, 1930. RG. 5, Se. 3, Box 201.

67 RAC, 1932 *Maternity and Child Welfare, Annexure (M)*, p. 3. RG. 462.

68 M. Perera, *Sri Lanka Study of Health Volunteers, International Review of Community Health Workers-Policy and Practice*, Marga Institute, Colombo, 1987, p. 24.

69 Chellappah and Jacocks, *op. cit.,* p. 3.

Conclusion

In the preceding sections, we examined the development of the community-based health unit program, which was the origin of the concept of *selective* primary health care. It was developed by the IHB in collaboration with the Sri Lankan public health experts long before the WHO began to discuss primary health care for developing countries. Unlike the *comprehensive* primary health care of the Alma-Ata Declaration, which recommended broad social and economic reforms to promote health, the health unit program restricted itself to most serious health problems in the community and attacked their root causes in the order of their importance for the health of the people by using available techniques and the local resources. The health unit system was developed in view of local conditions, resources and administrative mechanisms in partnership with the local people. In the process, people became stakeholders of the health unit system. As a result, it was practical and inexpensive. As Uragoda has noted, the health unit work in Sri Lanka differed markedly from other primary health care programs sponsored by the WHO in developing countries, where primary health care combined both curative and preventive medicine. In Sri Lanka, the health unit system seldom utilized curative medicine. Rather it undertook the usual duties of a public health department in a tropical country, including health education, general sanitation, collection of vital statistics, study and control of preventable disease, vaccination, maternal and child welfare, and school hygiene inspection.[70] The main objective of the health unit program in Sri Lanka was to prevent infectious disease or, more specifically, to deal with the most basic sanitary problems in the country. The only curative work that health units undertook were the treatment for hookworm infection and malaria through local dispensaries.

An equally important aspect of the health unit program was its substantially low per capita cost to the health care budget. The cost of health unit works for 1933 was about Rs. 240,205 (about $ 81,000). This represented about 3 percent of the annual budget of the Department of Medical and Sanitary Services. The average per capita cost of health unit work was about Rs. 1.03 (less than $ .50).[71] The regular public health and sanitary work of health units were financed mainly by the government and the local authorities (Municipal/Urban Councils) of the district. It is important to note that the IHB did not undertake direct financial contributions to the health unit program. Its financial support was limited to what it described as "special circumstances" such as an unexpected shortfall of government funding for established programs, the need for recruiting additional personnel for specific programs, and the creation of "special projects" by the representatives of the IHB.

70 Uragoda, *op.cit.,* p. 163.

71 RAC, *Annual Report on Health Unit Work*, p. 3, 1933. RG. 5, Se. 3, Box 192.

One of the most important special projects that the IHB financed was the training of public health workers for Sri Lanka and other South and South-East Asian countries. For example, from the beginning the Kalutara health unit became the model for all the other health units established in Sri Lanka and elsewhere in Asia. Consequently, the Kalutara health unit was chosen as the training centre for public health personnel.[72] In 1933, for example, as part of the IHB's campaign to expand the health unit concept in Asia, a group of 18 medical officers of health and public health nurses from India, Burma, and Java was invited to Kalutara for up to six months training on disease control and health education. In recommending a grant for a special project at the Kalutara health unit, Dr Jacocks wrote, "Kalutara has been, and continues to be, the chief training center for the East. Without the facilities, which it offers our rural work would be immeasurably handicapped."[73] The importance of the Kalutara health unit as a training centre of public health personnel in Sri Lanka grew rapidly during the post-colonial period, when Sri Lanka's health infrastructure began to expand. The Kalutara health unit was expanded and named as the Institute of Hygiene in 1966. It was renamed in 1979 as the National Institute of Health Sciences becoming the premier public health training facility in the country.[74]

The health unit work must also be understood in terms of Sri Lanka's long-term public health achievements. Although it ranks today among the world's middle-income countries, Sri Lanka's record of public health achievements has often been compared to that of industrialized Western nations. High life expectancy at birth (75 years in 2010 estimated) and low mortality rates (5 per 1000) on the island approach the level of high-income countries.[75] These achievements, no doubt, are the result of a host of public health and social programs that were introduced during the last seventy-five years. In 1952, commenting on the Sri Lanka's development achievements, for example, the International Bank of Reconstruction and Development (later World Bank) argued that insofar as it marked the beginning of the IHB's involvement in public health in Sri Lanka, the inauguration of the hookworm campaign in 1916 was "an important landmark in the public health services of the country."[76] With the establishment of the first health unit in 1926, the curative and preventive services were unified under one administration. In 1931, the Departments of Local Government and Health were brought under

72 RAC, *Ceylon, Kalutara Health Unit Designation for Two Years*, p. 1, 1934, RG. 1.1, Se. 462, Box 1.

73 RAC, *Kalutara Health Unit, Ceylon,* A memo from W. P. Jacocks to V. Heiser, May 3, pp. 1–2, 1933, RG. 1.1, Se. 462, Box 1.

74 Ministry of Health, *National Institute of Health Sciences, Kalutara, Sri Lanka*, 1993, pp. 1–5.

75 World Bank, *World Development Indicators*, Washington DC. 2010.

76 International Bank of Reconstruction and Development, *The Economic Development of Ceylon*, Baltimore, 1952, Part II, p. 127.

one Ministry by giving greater responsibility to the local administration for public health matters. The administrative changes brought by the health unit program laid a solid foundation for the development of long-term preventive and curative health services in the country.[77]

Today, every Sri Lankan has access to a primary health care hospital within a radius of two miles. Unlike in most other developing countries, the problem of access to basic health care "virtually does not exist in Sri Lanka."[78] A recent report by the WHO points out that Sri Lanka's success story of health achievements is, in large measure, due to its early start with a solid foundation for "equitable" and "community-based" approach to primary health care. The report specifically acknowledged the "equality of access" to health and education at all levels for both men and women as one of the core principles of national health priorities, and development policies in Sri Lanka that has contributed to outstanding health indicators.[79] Undoubtedly, the health unit system, which was the forerunner to Sri Lanka's continuing commitment to progressive health policies and development strategies, could easily be adopted by other developing countries.

Soma Hewa is an Adjunct Professor at Queen's University, Kingston, Ontario, Canada.

77 Marga Institute, *Intersectoral Action for Health: Sri Lanka Study*, Colombo, 1984, p. 23; Uragoda, *op.cit.,* p. 163.

78 WHO, *Health Care in South-East Asia*, New Delhi, 1989, p. 191.

79 WHO, Report of the Commission on Social Determinants of Health, *Closing the gap in a generation: Health equity through action on the social determinants of health*, Geneva, 2008, pp. 33, 113, 138 and 195.

References

Balasingham, SW*, The Administration of Sir Henry Ward, Governor of Ceylon, 1855–60 (*Tisara Prakasakayo, Dehiwala, Sri Lanka, 1968).

Bell, DE, "Introduction," *Social Science and Medicine,* 14C, (1980), pp. 63–65.

Editorial, *British Medical Journal,* 1, (1927), p. 538.

Chellappah, SF and W. P. Jacocks, *Guide to Health Unit Program,* Preface to the first edition (Colombo, 1936).

Cueto, M, "The Origins of Primary Health Care and Selective Primary Health Care," *American Journal of Public Health,* 94(11) (2004), pp. 1864–1874

Editorial, "Reports of Societies, The Malaria Epidemic in Ceylon," *British Medical Journal,* 1935, pp. 1015–1017.

Editorial, "Is there hope for South Asia? Yes, if we can replicate the models of Kerala and Sri Lanka,*" British Medical Journal,* 328 (April 2004), pp. 777–778.

Halstead, SB, J. A. Walsh and K. S. Warren, (eds.) *Good Health at Low Cost: Proceedings of a Conference at the Bellagio Conference Centre, Italy, 29 April to 3 May 1985* (Rockefeller Foundation, New York, 1985).

Harrison, G, *Mosquitoes, Malaria and Man: A History of Hostilities since 1880 (*E. P. Dutton, New York, 1978).

Hewa, S, "The Hookworm Epidemic on the Plantations in Colonial Sri Lanka," *Medical History,* 38(1) (1994), pp. 73–90.

Hewa, S, *Colonialism, Tropical Disease and Imperial Medicine: Rockefeller Philanthropy in Sri Lanka* (University Press of America, Lanham, MD, 1995).

International Bank of Reconstruction and Development, *The Economic Development of Ceylon* (Baltimore, 1952, Part II).

IRIN, *Sri Lanka: on track to eliminate malaria*, UN office for the coordination of humanitarian affairs, 2008.

Johnson, BLC, *South Asia, Selective Studies of the Essential Geography of India, Pakistan and Ceylon* (Barnes and Noble, New York, 1971).

Jones, M, "The Ceylon Malaria Epidemic of 1934–35, A Case Study in Colonial Medicine," *Social History of Medicine*, 13(1) (2000), pp. 87–109.

Knighton, W, *Forest Life in Ceylon* (London, 1854).

Marga Institute, *Intersectoral Action for Health: Sri Lanka Study,* Colombo, 1984.

Ministry of Health, *National Institute of Health Sciences, Kalutara, Sri Lanka,* 1993.

Pampana, EJ, "Effects of Malaria Control on Birth and Death Rates," in *Proceedings of the World Population Conference* (United Nations, New York, 1954).

Perera, M, *Sri Lanka Study of Health Volunteers, International Review of Community Health Workers-Policy and Practice*, Marga Institute (Colombo, 1987).

Stapleton, DH, "Technology and Malaria Control, 1930–1960: the career of Rockefeller Foundation engineer Frederick W. Knipe," *Parassitologia*, 42(1–2) (2000), pp. 59–68.

Stapleton, DH "Historical Perspectives on Malaria: The Rockefeller Anti-malaria Strategy in the 20th Century," *Mount Sinai Journal of Medicine,* 76 (2009), pp. 468–73.

Uragoda, CG*, A History of Medicine in Sri Lanka-from the earliest time to 1948.* Sri Lanka Medical Association, Colombo, 1987.

Walsh, JA and K. S. Warren, "Selective Primary Health Care: An Interim Strategy For Disease Control in Developing Countries," *Social Science and Medicine*, 14C (1980), pp. 145–163.

Warren, KS, "The Evolution of Selective Primary Health Care," *Social Science and Medicine*, 26(9) (1988), pp. 891–8.

Warren, KS, "The Alma-Ata Declaration: Health for All by the Year 2000?" *Britannica Book of the Year, Encyclopedia Britannica,* Inc. (Chicago, 1990), pp. 21–30.

WHO Primary Health Care. *Report of the International Conference on Primary Health Care* (Geneva, 1978).

WHO, *Targets for Health for All by the Year 2000*, ALMA-ATA: Geneva, 1978.

WHO, *Health Care in South-East Asia* (New Delhi, 1989).

WHO, Report of the Commission on Social Determinants of Health, *Closing the gap in a generation: Health equity through action on the social determinants of health* (Geneva, 2008).

Wickramasuriya, GAW, *Malaria and Ankylostomiasis in the Pregnant Women* (London, 1936).

Williams, G, *The Plague Killers*, Charles Scribner (New York, 1969).

World Bank, *World Development Indicators* (Washington DC. 2010).

Rockefeller Archive Center (RAC)

Relief and control of hookworm disease in Ceylon, 1918, Record Group (RG.) 5, Series (Se.) 2, Box 47.

Relief and control of hookworm disease in Ceylon, 1920, RG. 5, Se. 2, Box 47.

European Planting Community in Regard to Medical Aid and Sanitation, 1921. RG. 5, Se. 2, Box 47.

Summary Report, Anchylostomiasis Campaigns-Ceylon, 1921. RG. 5, Se. 3, Box 193.

A Program for the Control of Malaria in Ceylon, M. E. Barnes and Paul F. Russell, Colombo, 1925, RG 5, Se. 2, Box 48
W. P. Jacocks, *Preliminary Report on Health Units,* 1926, RG. 462, Se. 2, Box 48.
First Annual Report of the Health Unit Kalutara Badda,, 1926. RG. 5, Se. 3, Box 198.
1926 Preliminary Report on Health Units.
Anchylostomiasis Campaigns, Ceylon, A Letter to V. Heiser from W. P. Jacocks, November 28, 1927, RG 1.1, Se 3, Box 1.
The First Annual Report of the Health Unit Matara, 1928. RG. 5, Se. 3, Box 201.
Annual Report on Health Unit Work, 1928. RG. 5, Se. 3, Box 199.
Division of Sanitary Engineering, Ceylon, Report on Ceylon for 1929, 1930, RG. 5, Se. 2, Box 47.
Annual Report: Health Unit Work, 1928, RG. 5, Se. 3, Box 199.
Annual Report on the Health Unit Work, 1929. RG. 5, Se. 3, Box 200.
Annual Report on Health Unit Work , 1929. RG. 5, Se. 3, Box 198.
Annual Report: Weudawili Hatpattu , 1930. RG. 5, Se. 3, Box 200.
Annual Report, Health Unit Matara, 1930. RG. 5, Se. 3, Box 201.
The Report on the Work of the Trincomalee Health Unit, 1930, RG. 5, Se. 3, Box 201.
Ceylon Health Units, A Summary of Health Unit Information for the Year 1930, 1931, RG. 1.1, Se. 462, Box 1.
1932 Maternity and Child Welfare, Annexure (M), RG. 462.
Annual Report on Health Unit Work 1933. RG. 5, Se. 3, Box 192.
Kalutara Health Unit, Ceylon, A memo from W. P. Jacocks to V. Heiser, May 3, , 1933, RG. 1.1, Se. 462, Box 1.
Ceylon, Kalutara Health Unit Designation for Two Years, 1934, RG. 1.1, Se. 462, Box 1.
Malaria Eradication in Ceylon, 1948, RG. 5, Se. 2, Box 47.

Sri Lanka National Archives

Despatch No.6, April 21, 1847, 5/34.
Report on the Malaria Epidemic in Ceylon in 1934–35, Sessional Paper 23, Colombo, 1935, p. 5.

Malaria and Public Health Measures in Colonial Urban Zanzibar, 1900–1956

Amina Issa

Environmental and Sanitary Engineering Campaigns

Early twentieth century environmental and sanitary engineering campaigns implicated three major areas in Zanzibar. As records from the Department of Medicine and Public Health and other administrative files from the Provincial Administration Department and Public Works Department show, they included the reclamation of the Creek and swampy ground. The filling of natural depressions caused by quarrying works started from 1930. These measures were a response to the growing medical understanding that malaria was spread by mosquitoes.

From the early twentieth century, Zanzibar decided to embark on anti-malarial campaigns which focussed on controlling both *Anopheles gambiae* and *A. funestus*. These two malaria species bred in swamps, banks of rivers, potholes, shallow depressions, in hoof-prints of cattle, earthen jars, sailing boats, canoes, lighters, borrow-pit and flooded rice-fields. In 1913, the Colonial Office sent Professor W. J. Ritchie Simpson, a British physician and a pioneer in tropical medicine, to visit British colonies in East Africa. Simpson, who formerly worked as a health officer for Calcutta, India in the 1890s and was a founder of the *Journal of Tropical Medicine* in 1898, was from 1913 an advisor of the Secretary of State for the Colonies on health matters. He visited Zanzibar, Kenya and Uganda to investigate health conditions, and to propose measures to be taken to improve health of the "native" population, (Indians, Arabs and Africans).[1] Simpson's survey confirmed that mosquitoes bred during rainy seasons. He recommended to the Zanzibar authorities that they refill the Creek in order to stop epidemics.

The anti-malarial works that focused on reclamation of land and swamps had just started in the United States of America. Since the early 1900s, the United States had been involved in the campaigns against yellow fever in the Panama Canal area.

1 W. J. Simpson, *Report on Sanitary Matters in East African Protectorate, Uganda and Zanzibar* (London, 1915), pp. 4–5.

In 1901, the famous and influential American physician William Crawford Gorgas established anti-yellow fever brigades in Havana, Cuba during the Spanish American War. The work had also involved controlling the breeding sites of anopheles mosquitoes. Gorgas, chief sanitary officer of the Panama Canal Commission between 1904 and 1913, eliminated the mosquito in the region of the canal and made possible the building of the Panama Canal. Gorgas 'sanitary squads' drained swamps and cleared out weeds, spreading a concoction of carbolic acid, resin and caustic soda.[2] According to Philip Curtin, "the success of American public health officers in combating yellow fever in Cuba and Panama helped raise false hopes for mosquito control in Africa".[3] In Tanganyika, German East Africa, the authorities recruited a malaria control specialist who had formerly worked in the malaria and yellow fever eradication campaigns in Panama, but the project was abandoned with the outbreak of the First World War.[4]

The Reclamation of Creek

The canalization of the Creek which separated Stone Town and Ng'ambo was proposed earlier by the medical and health authorities in Zanzibar.[5] Lack of funds delayed the work. In the eyes of the Europeans who began visiting Zanzibar Town in the mid-nineteenth century, the Creek was more of a 'fetid lagoon', with all the dirt and drainage pollution that ran into it from the town. In 1897, the colonial authorities built embankments around the Creek for the use of the town population. Rev. W. K. Firminger of the Universities' Mission to Central Africa (UMCA), who was stationed in the town at that time, welcomed the decision to build the embankment. Informing William Trevars, Secretary of the UMCA, London, of the government's intention to do this, Firminger declared that "we shall now have a very considerable frontage towards the Creek, which if the Government carry out their intentions of making an embankment will become most valuable. It will improve the station greatly".[6]

---

2 Gordon Harrison, *Mosquitoes, Malaria and Man: A History of the Hostilities since 1880* (London, 1978), p. 161.

3 Philip Curtin, "Medical Knowledge and Urban Planning in Colonial Tropical Africa", in Steven Feierman and John Janzen eds., *The Social Basis of Health and Healing in Africa* (Berkeley, Los Angeles and Oxford, 1992), p. 241.

4 D. Ferguson, "The Political Economy of Health and Medicine in Colonial Tanganyika', in M. H. Y. Kaniki ed., *Tanzania under Colonial Rule* (London, 1980), pp. 307–343, p. 331.

5 Zanzibar composes of two islands, Unguja and Pemba. The bigger Unguja Island is also sometimes refers as Zanzibar. Zanzibar Town which was the colonial administration center and located in Unguja Island was comprises of Stone Town and Ng'ambo (the Other Side).

6 Rhodes House Library (RHL), Mss. W. K. Firminger, Priest in Charge, Zanzibar, Box A1 VIII, p. 556.

The filling-in of the Creek was not undertaken immediately as the matter was somewhat controversial and became a matter of debate among medical officers in Zanzibar. In 1914, soon after the departure of Simpson, Dr. Curwen, the Principal Health Officer (PHO) in Zanzibar wrote that "I think Professor Simpson is wrong in describing it [the Creek] as formerly being a breeding place for mosquitoes in the wet season; it was washed by salt water and too porous for rain water to lodge". Also, the medical and health officers in Zanzibar decided not to fill the Creek for drainage purposes. It was reported that "its tidal waters served to daily remove much offensive drainage that was discharged into creek".[7]

Beginning in 1915, the reclamation work started at the southern part of the Creek at Mnazimmoja area. The embankment was constructed during the low tide in order to stop the sea water to flow again at Mnazimmoja ground. In 1918, excavations were made and a concrete open channel was laid down from the Mnazimmoja ground to the nearby wireless station. In 1919, Kikwajuni Road was built near the embankment.[8] A portion of the nearby 'banjo' area had been reclaimed at the same period as the Mnazimmoja area. The photograph below shows the filling of the Creek at Darajani in 1943.

Figure 1. Filling of the Creek at Darajani in 1935

Source: ZNA AV 23/153, Darajani Bridge before the final reclamation of the Creek

7 Zanzibar National Archives (ZNA) AB 2/264, Professor W. J. Simpson, Report on the Sanitary Matters in the East Africa, Uganda and Zanzibar Protectorate, p. 73.

8 ZNA AE 2/748, Refusal of Access and Right of Way through Government Land at Kikwajuni to Khamisa Aloo Punja.

It was only in 1935 that the serious works on the reclamation of the whole Creek for health and safety reasons had started. The new Director of Medical Services (DOMS), Dr. W. Leslie Webb, who had served in a medical post in Uganda before coming to Zanzibar, felt that it needed to be done. He regarded the Creek as a source of many diseases. The work of filling up was carried out by "putting refuse and a number of old flattened colas [concrete blocks] drums to form a sort of palisade at the base of the dump to keep the refuse in and to keep some of the water out". The work started at the west side of Hollis Road abutting on the premises of Peera Champsi.[9] As late as 1956, refuse tipping continued at the southern part of the Creek above the Darajani Bridge.

Town people born in the early 1930s still remember the existence of the Creek. People used the ferry when it was high tide and crossed by foot when the tide was out. Salama Ali who lived in the Vikokotoni neighbourhood remembers how the Creek was at that time. She recalls that people living nearby were disturbed by mosquitoes which bred near the bank. What her grandmother did was simply to close the windows and doors of their house before sunset. She still remembers people's concern about the Creek filling project. Some people were happy as mosquito breeding was stopped. But other people who used the Creek to earn money by ferrying passengers were not happy.[10]

The work of blocking up the Creek caused a lot of strife. The refuse that was used to fill the Creek attracted flies which then bred in the area. In 1938, a Miss Gunn from the UMCA complained to the medical authorities in Zanzibar about the smell that was caused by rotten refuse. She reported that the smell caused her a sore throat.[11] Indeed, the Indian National Association (INA) registered their disapproval by sending a petition to the Government. Rustom Sidhwa, the Town Council representative from the INA sent a petition to the Sanitary Board.[12] However, the work of filling the Creek continued as planned, although it was only in 1961 that the work came to an end south of the Hollis Bridge. A large area of the Creek north of the bridge at Funguni near the sea still remained to be filled and this was done later, after 1963.[13] Generally, the reclamation work did a lot to restrain epidemics in the town. Nevertheless, it was rather a combination of several anti-malarial measures which halted malaria, typhoid and cholera.

---

9 ZNA AJ 3/36, 'From DOMS to Provincial Commissioner, 19 May, 1935', Creek Filling in Re of.

10 Interview with Bi Salama Ali at Michenzani on 12 March, 2005.

11 ZNA AJ 3/36, 'Miss Gunn to DMS, 3 July, 1938', Creek Filling in Re of.

12 ZNA AJ 15/232, 'From R. Sidhwa to DOMS, 25 August, 1956', Disposal of Town Refuse. In 1957, after the formation of Afro-Shirazi Party (ASP), Rustom Sidhwa became one of its frontline leaders. According to Michael Lofchie some prominent Hindu merchants decided to join ASP to show their opposition and dislike of Oman Arabs landowners. See Norman Bennett, A History of the Arab State of Zanzibar (London, 1978).

13 ZNA AJ 15/134, Annual Report of Health Department, 1962–72.

Canalization of Streams and Swampy Areas

The Canalization of streams and swampy areas was another malaria eradication strategy. For centuries swamps areas were connected with fever. James Webb explains that since first millennium BCE, the Romans had drained swamps in order to stop miasmatic diseases. The Abbasid Caliphate in the seventh century Iraq also reclaimed swamps in order to control fever.[14] From 1902, Ronald Ross supported the reclamation of swamps and drainage as war against *Anopheles gambiae* and *A. funestus*, which prefer to breed on large swamps and on edges of swamps respectively.

Soon after the formation of the Anti-Mosquitoes Brigade in Zanzibar in 1907, the reclamation of the swampy areas started. Ziwani swampy area was given a priority during the early years of the twentieth century as the area was among the serious mosquitoes breeding site. By 1906, a police barrack and a dispensary for treating the local army and their families had already been constructed at the Ziwani area. Ditches were built to allow water from the swamp to flow in the tunnel outlets to the sea.[15] Further canalization works at Ziwani area took place in 1910, after the passing of the '1909 Land Acquisition Decree' issued by F. R. Barton, the First Minister of Zanzibar. About 21.28 acres of land was acquired by the government for the drainage works. The Ziwani Swampy land was owned by the UMCA and the Comorian Community led by Mohamed Mlomri, Mohamed Salim and Jai Kari. They were given another piece of land at Kikwajuni following the introduction of the 'Compulsory Acquisition Act' which was passed in the same year.[16]

Similarly, in Tanganyika, during the Second World War, the British government employed the Royal Army Medical Corps to carry out anti-malarial works. The Corps concentrated on drainage, straightening of streams (to increase the flow of water), oiling of puddles, cleaning the banks of drains in order to facilitate the flow of predatory fish, and surveillance of livestock so that they would be kept far from streams and swamps. Livestock surveillance was aimed at preventing hoof prints in places that could offer conditions for mosquito breeding.[17]

Some people in Zanzibar reported to the Health Department that the filling of marshes caused substantial numbers of problems including soil erosion. In 1935, Bishop Heffernan of the UMCA wrote to the Director of Health arguing against the anti-malarial measures about to be introduced near the Mission area. The Bishop was critical of the decision to fill the well near the mission *shamba* plot at Kiinua Miguu, as he said it would create a water shortage. Also, he was worried that

---

14 James Webb, *Humanity's Burden, A Global History of Malaria* (Cambridge, New York, Madrid, Cape Town, Singapore, São Paulo and Delhi, 2009), p. 129.

15 ZNA AJ 29/243, 'From DMS to the Chief Secretary (CS), 10 June 1911,' Anti-Malarial Drainage Schemes, Suggestions Re For.

16 ZNA AE 2/439, Acquisition of Land for Ziwani Swamp Drainage 1910 March – 1913, August

17 David Clyde, *Malaria in Tanzania* (London: Oxford University Press, 1967), p. 47.

the drainage work near the *shamba* had caused problems of soil erosion.[18] The canalization and filling of wells was however necessary in order to prevent malarial mosquitoes from breeding.

In 1944, growing of rice was prohibited in several swamps in Zanzibar Town, such as on the left of Fumba Road, near the Migombani valley, east side of Sebuleni Swamp, the area adjoining Mto Mpepo and between Saateni Bridge and the sea. This was enforced through, "The Public Health (Prevention of Mosquito-Breeding) (Amendment)" Decree of 1944 which stated that "without the written authority of the MOH first hand and obtained, no person shall plant or cause to be planted rice, or prepare a land for the planting of rice, within a radius of three miles of the General Post Office (at Shangani) in the town of Zanzibar".[19] As a result, people around these areas had to rely more on imported polished rice as a substitute to the local grown rice for their subsistence.

Contributions of Malaria Research Officer (MRO)

The post of Malaria Research Officer (MRO) was introduced in 1934, in an attempt to control malaria in Zanzibar. The colonial government in Zanzibar applied for the funds from the Colonial Development Funds (CDF) to sponsor the malaria survey which started in that year. Dr. McCarthy, a Senior Medical Officer (SMO) was appointed as the first MRO to investigate malaria problems in Zanzibar Town and adjoining areas.[20] In 1929, Captain Sydney Price James, a former medical officer in Indian Medical Services (IMS) between 1897 and 1914, suggested for the appointment of a malariologist to investigate malaria problems in East Africa. In 1914, James had been appointed as an advisor on tropical diseases at the Ministry of Health in London after his retirement from IMS services.[21]

In Zanzibar, the MRO concentrated on ascertaining the "splenic index" in and about the town and determining the parasitic infestation indices. The "splenic index" was done through checking the human spleen in order to understand the acuteness of malaria. Normally, enlarged spleens were noticed among those children who were exposed to malaria infection. The MRO was also responsible for investigating all actual and potential mosquito breeding places in and near the town and for the typing of the various anopheline which were found in the area. He was involved in investigating the infection rates of the various species of mosquitoes and

18 ZNA AJ 29/243, 'From Bishop Heffernan to DMS, 29 April, 1935', Anti-Malarial Drainage Schemes, Suggestions Re For.

19 ZNA AB 2/331 The Public Health (Prevention of Mosquito-Breeding) Rules, 1935 and The Public Health (Prevention of Mosquito- Breeding) (Amendment)" Decree of 1944

20 ZNA AB 58/29, 'From British Residence to CS, 8 May, 1934', Colonial Development Fund, 1930–1949.

21 Captain S. P. James had published several works on mosquito taxonomy between 1901 and 1934. He had conducted research on the causation and prevention of malarial fevers and wrote reports for the prevention and treatment of malaria for health care providers.

considering statistical evidence with regard to the correlation of the malaria problem with meteorological conditions, vital statistics and sociological circumstances.[22] In 1935, Dr. McCarthy reported to the Chief Secretary of the State in Zanzibar that the survey progressed smoothly.[23]

The MRO reported that malaria infections were chiefly conveyed by A. *gambiae* and to a lesser degree by A. *funestus* as it had been pointed earlier by Dr. Mansfield-Aders. Dr. McCarthy explained that both types of mosquitoes bred freely all the year round in permanent swamps and streams outside the town boundary. The boundary was roughly one and half miles east of the Shangani Post office and one mile from the main part of the town. He further reported that during the dry season adult anopheline mosquitoes were found only in the areas adjacent to the above mentioned permanent breeding grounds. Anopheline infestation had been found to decrease in the town as the distance from the town boundary increases. The anopheline infectivity rate increased in the town proportionately with the distance from the boundary.[24]

From 1935 onward, a special anti malaria gang under the supervision of Dr. McCarthy was involved in many new programmes that aimed to control malaria in Zanzibar. All owners of land had been requested to clear the bushes and tall grass. This applied to graveyard areas as well. Notice was delivered by the MRO during *Masika* or heavy rain season and reminded the people that it was an offence to keep premises, estates, gardens or *shamba*, plots of land in such a state that unprotected water was allowed to stand and so enable mosquitoes to breed. Leaflets and posters, which indicated measures to be taken by householders, were posted in many areas. The leaflets notified that malaria mosquitoes bred in stagnant water, such as jars, tanks and holes which were excavated for planting trees. The leaflets also instructed that no bottles, whole or broken, tins, broken pieces of earthenware, coconut shells or seashells, calabashes and scrap metal were to be kept lying in the houses' compounds.[25]

The MRO furthermore recommended that quarrying for rock within the Zanzibar Town boundary and for two miles beyond was to be prohibited and that the keeping and grazing of cattle in the town area should be forbidden. He advised too on the formulation of schemes for the better drainage of low lying areas and the extension of the piped water supply to certain parts of Ng'ambo to allow shallow wells to be filled in.[26] In 1935, the Colonial Development Funds (CDF) sponsored

---

22 ZNA AJ 1/37, 'From Dr. McCarthy to CS, 18 November, 1934', Anti-Malarial Measures, Zanzibar.

23 ZNA AJ 1/37, 'From Dr. McCarthy to CS, 7 March, 1935', Anti-Malarial Measures, Zanzibar.

24 ZNA AJ 1/37, 'From Dr. McCarthy to CS, 7 March, 1935', Anti-Malarial Measures, Zanzibar.

25 ZNA AJ 1/37, 'From Dr. McCarthy to CS, 7 March, 1935', Anti-Malarial Measures, Zanzibar.

26 ZNA BA 7/13, Annual Medical and Sanitary Report for the Year ended 31st December, 1934, p. 13.

water supply installation to serve the town of Zanzibar.[27] It was only in the early 1960s that the tapped water system was sufficient to cover the whole urban population.

Moreover, following MRO recommendations, stone quarrying and the keeping of cattle were totally moved outside Zanzibar Town. The prevention of quarrying in the town was introduced as water retained in these holes permitted mosquitoes to breed. Initially, the decree to stop the digging of holes in the town was enforced in 1929. The decree ordered that "no person shall make or cause to be made any excavation, which is likely to foster the breeding of mosquitoes, on any land within any place which has been or may be declared to be a Town under the Towns Decree 1929 or within two miles of the boundary of any such Town". At that time, the decree did not intend to stop the quarrying of stones in Zanzibar Town.

In 1934, the medical authorities accepted the advice of Dr. McCarthy, that quarrying works which were going on at both the Kikwajuni private and government quarries, behind the house of the Commissioner of Police and throughout the town had to be stopped. Dr. Lee, the Director of Medical Services wrote to the Secretary of the Town Board requesting that a rule to be made under section 79 of the Public Health Decree to prohibit all quarrying for stone or digging inside the town boundary or within a distance of two miles from the town boundary.[28] In 1935, the colonial authority in Zanzibar introduced laws to stop quarrying within the Town of Zanzibar.[29]

From 1934 effectively, all cattle and goat pens were removed from the town area. It was established that

> These animals, driven as they are, backwards and forward from Mji Mpia, cut up all the soft grassy places into a mass of hoof marks which, unless carefully watched after the rain season, soon begin to produce A. Costalis in prodigious number… In many swamps the constant daily driving of herds of cattle backwards and forwards across them while they are still wet, pulps the surface of the ground into a honeycombed mass which will neither dry up quickly nor drain normally. These cattle also caused considerable damage to the drains themselves by breaking down the sides and thus blocking the channel.30

The Parsee Indian community, however, resisted the order. They requested the medical and public health authorities to allow them to keep cattle in the town for

---

27 ZNA AB 58/29, 'Report from the Zanzibar Government to the Colonial Office', Colonial Development Fund, 1930–1949.

28 ZNA AJ 16/5, 'From MOH to the Secretary of the Town Board, 8-12-1934', Quarrying in the Township of Zanzibar Prohibition, Control, License, for.

29 ZNA AJ 3/17, 'Zanzibar Town Board Meeting, 15 December, 1934', Cattle in the Township of Zanzibar Prohibition for Keeping Re Of.

30 ZNA AJ 16/5, 'From MOH to the Secretary of the Town Board, 8-12-1934', Quarrying in the Township of Zanzibar Prohibition, Control, License, for.

religious purposes. The medical authority allowed only one cow in total to be kept by their priest.[31]

Vector Control Programmes

In Zanzibar, the use of chemicals in the control of mosquitoes had started in the early 1910s. The Zanzibar malaria eradication brigade had focused on applying kerosene in order to control larvae breeding of mosquitoes to collections of water. For water in ditches, automatic oilers were employed, using either drip cans or a ball of rags soaked in kerosene, as two of my informants explained to me. Kerosening of ditches and holes worked during the dry season but it was impossible to apply kerosene to flowing rain water. Some successes were nonetheless achieved through a combination of different preventive measures.[32]

The introduction of tiny fishes to eat mosquito larva was applied at the same time as to the use of kerosene. In Zanzibar millions of fish (*Haplochilus playfairii*) were distributed by the Unit workers in ponds, fountains, mosque tanks and other places where water was kept permanently.[33] In 1914, larvivorous fish (*Gambusia affinis*) were introduced into Zanzibar by Dr. W. Mansfield-Aders.[34] In 1921, *gambusias* were also introduced by the US Bureau of Fisheries to Spain and later were shipped to Italy in 1924 during the anti-malaria campaigns. While, these fish were able to reduce the multiplication of larva they did not succeeded in eliminating them.[35] According to Richard Tren, in South Africa it was the introduction in the early twentieth century of larvivorous fish (Gambusia affinis), in combination with various additional anti-malaria programmes, which eventually succeeded in reducing malaria.[36]

From 1934, in attempt to eradicate malarial mosquitoes in Zanzibar, Paris green was applied in ponds in urban surroundings. Since, the 1930s, the Rockefeller Foundation which was involved in anti-malarial projects in the America applied Paris green as larvicide against malarial mosquitoes in Puerto Rico. Paris green (a mixture of diesel oil and copper aceto-arsenite), which was long in use against pests of food crops was first used in malaria control in the 1920s in countries like India, South Africa and Brazil. Although it was much cheaper than oil and non- toxic to

31 ZNA AJ 3/17, 'Zanzibar Town Board Meeting, 15 December, 1934', Cattle in the Township of Zanzibar Prohibition for Keeping Re Of; See also: ZNA AB 2/331, 'Rules on Mosquito Breeding', The Public Health (Prevention of Mosquito-Breeding) Rules, 1935.

32 Interview with Mr. Simai Haji and Mr. Mohammed Ali, two retired health officers, at Mwembeladu and Jang'ombe on 1 August, 2007.

33 ZNA BA 7/2, Public Health Report for the Year 1913, p. 43.

34 ZNA AJ 1/37, 'From DOMS to MRO, 25 October, 1935', Anti-Malarial Measures in Zanzibar.

35 Harrison, *Mosquitoes, Malaria and Man*, p.186.

36 Richard Tren and Roger Bate, *Malaria and the DDT* (London, 2001), p. 26.

animals and fish and could be used on ponds it was abandoned in many parts of the world as it was unable to kill adult mosquitoes which fed below surfaces.[37]

The fight against malaria and malarial-carrying mosquitoes took a new turn after the Second World War with the introduction of dichloro-diphenyl-trichloroethane (DDT). In 1941, Paul Muller, a Swiss, synthesized DDT for use by soldiers in as a safe and efficient insecticide for killing the clothes moth. It was later employed as anti-malarial tool. According to Gordon Harrison, "Britain gave the manufacture of DDT the highest war wartime priority along with radar and penicillin".[38] Unlike Paris green, DDT was used to kill adult mosquitoes and it stayed for a very long time. According to Webb, "in most areas of seasonal malaria transmission, two applications per year were enough. Where DDT was laid down, the number of new malarial infectious plummeted toward zero".[39]

The spraying of DDT in urban areas began after the Second World War. The Zanzibar Mosquito Brigade staff sprayed DDT in houses and dhows but the DDT spray was unhelpful in the *makuti* (thatch) huts of Ng'ambo, since, as Prothero explains, "the insecticide may not cling to reed or grass thatch, or to leaves. On any of these materials the toxic effects are soon lost".[40] Similarly, in Tanganyika, larvicidal air spraying was first tried in 1945, and DDT was used for residual spraying in houses in 1946.[41]

As mosquito infestation continued to be a problem, private newspapers owned by individual politicians, wealthy merchants and landlords urged the government to take more strong measures to ensure that mosquitoes were eliminated in the islands. In 1950, the editor of *Mwongozi* wrote an article entitled: 'DDT performs miracle not in Zanzibar'. The editor cites the examples of countries such as Cyprus and British Guiana where several types of anopheles mosquitoes which were the main carrier of malarial viruses had been drastically reduced. He finished his article with the words "but Zanzibar remains where it has been for much too long".[42]

In the early 1950s, the malaria campaigns were linked with other malaria research programmes in East Africa through the East African High Commission. The East African Institute of Malaria and Vector-Borne Diseases at Amani, Tanganyika assisted Zanzibar in the campaigns. The Zanzibar anti-malaria programmes sought advice from the Director of the East African Malaria Unit. In 1951, for instance, Dr. Bagster Wilson, a parasitologist who did research on the health impacts of malaria control measures in north-eastern Tanganyika and south-eastern Kenya, commented that to safeguard the health of the town population, the Zanzibar authorities should put effort into eradicating malaria in rural areas. As a result, "all houses and huts in the first half mile belt outside the Town of Zanzibar were sprayed with DDT-wettable powder. In conjunction with this, mosquito control

37 Harrison, *Mosquitoes, Malaria and Man*, pp. 186–7.
38 Harrison, *Mosquitoes, Malaria and Man*, pp. 211 and 218.
39 Webb, *Humanity's Burden*, p. 160.
40 R. M. Prothero, *Migrants and Malaria* (London, 1965), p. 18.
41 Clyde, *Malaria in Tanzania*, p. 45.
42 ZNA NW 12/2, 'DDT performs miracle not in Zanzibar', Mwongozi, 7 July, 1950, p. 1.

stations were established on the outer and inner side of this treated belt to ascertain the value of the anti-malarial buffer".[43] In order to determine the effectiveness of methods to destroy the mosquito in the larvae stage, at the special control stations in the town, daily visits were paid for adult mosquito catching.[44]

In 1953, Wilson's advice was that to reduce malaria in the town there should be year-round efforts to deal with adult mosquitoes in three rural districts in Zanzibar. In addition a protective belt extending to a depth of one mile outside the Zanzibar Township boundaries, and running from north to south, was regularly kept under control in order to reduce the number of adult mosquitoes entering the town.[45] The use of anti-malaria drugs in the suppression of the diseases was carried on throughout colonial period. The next section looks at the distribution of these drugs in Zanzibar.

Drugs and the War against Malaria

From the early 1900s, quinine increasingly became an important drug for the suppression of malaria. Cinchona or *quina-quina* bark which is used to make quinine tablets probably originated in the Andes mountains area. For a long time, the indigenous population of Andes had used *quina-quina* barks to contain fever. By the 1770s, its uses had dramatically increased in Europe, as more Europeans expanded into tropical areas. In the early 1820, quinine was produced in Western European manufacturing companies. Philip D. Curtin has shown that by the mid 1850, quinine was used by the British soldiers during the conquest of West Africa. He demonstrates for instance that in a campaign in Benin in 1890, malaria attributed to the deaths of British soldiers eighteen times than as among African troops.[46] In 1897, Professor Robert Koch validated the use of quinine as anti-malarial drugs as it destroys malarial parasites in human blood. It also suppresses malaria fever if it is used as prophylactic.

Supplying quinine to colonial populations became a concern for colonial administrations in the early twentieth century, which had not hitherto been the case. The use of quinine was encouraged by the Colonial Office, which supported the malaria prevention approaches proposed by Patrick Manson, a British physician. Manson believed that malaria would be controlled by using mosquito

---

43 ZNA AJ 28/52, 'From DOMS to Provincial Commissioner, 3 July, 1951', Health Department: Malaria Control and Measures.

44 ZNA BA 7/22, Medical and Sanitary Report for the Year ended 31st December, 1953, p. 10.

45 ZNA BA 7/22, Medical and Sanitary Report for the Year ended 31st December, 1953, p. 10.

46 P. Curtin, 'The White Man's Grave: Image and Reality', *Journal of the British Studies*, 1(1) (1961), pp. 94–110; P. Curtin, *Death by Migration, Europe's Encounter with the Tropical World in the Nineteenth Century* (Cambridge, 1995) and P. Curtin, Disease and Empire, *The Health of European Troops in the Conquest of Africa* (New York, 1998).

screens, bed nets and regular quinine dosage. Ronald Ross, on the other hand, questioned the use of quinine as a preventive measure, arguing that it all it did was to suppress the disease. Ross prioritized drainage and the use of larvacides to eliminate mosquito breeding sites.[47] In the event, many countries in Africa, including Zanzibar, adopted a combination of both Manson's and Ross's preventive measures for malaria eradication. Beginning in 1904, the German administration in Tanganyika, adopted a combination of quinine medication and chemical destruction to destroy breeding sites. German physicians in Tanganyika were mostly not convinced that quinine would help to eliminate malaria, as claimed by Professor Koch, an influential German bacteriologist. Koch's researches in Dar es Salaam in 1897 had led him to believe that smaller doses of quinine were effective in treating malaria.[48]

In Zanzibar, quinine tablets were distributed to officers at their work places, to school children in their schools, and in urban and rural areas through local community heads and local leaders, the *Masheha*. Possibly the use of community leaders and the *Masheha* were meant to simplify the anti-malarial programmes. There were precedents elsewhere in the British Empire. For instance in Bengal, India, the distribution of anti-malaria tablets through Post Offices and Vaccination Departments had commenced in 1892.[49] There too, 'native' doctors were used to supply the anti-malarial drugs. The state's decision to use 'native' doctors in this role was prompted by Bengalese resistance, in many cases, to public health campaigns.[50] Up until the 1950s, in Dar es Salaam, Tanganyika, quinine tablets were sold at the Post Office.[51]

The Director of the Public Health Department in Zanzibar wrote in the Annual Report of the Department of Health in 1913 that Headmasters, under directive from Medical Officers, distributed quinine to school children twice a week "in the form of the tannate [a salt of tannic acid] made up of chocolate coating".[52] Though quinine was supplied in schools in major towns and in rural areas, the programme failed to reach its goal as it was found that the medicines caused trouble to empty stomachs. The Department of Health in cooperation with the Department of Education then decided to provide breakfast to school children, while schools decided to introduce vegetable gardens.[53] From 1910 in Accra, Ghana, quinine with

47 Raymond Dumett, 'The Campaign against Malaria and the Expansion of Scientific Medical and Sanitary Services in British West Africa, 1898–1910', *African Historical Studies*, 1(2) (1968), pp. 153–197, p. 165.

48 Ann Beck, 'Medicine and Society in Tanganyika, 1890–1930: A Historical Inquiry', *The American Philosophical Society*, 67(3) (1977), pp. 15–16.

49 Ihtesham Kazi, Malaria in Bengal from 1860–1920: A Historical Study in a Colonial Setting (Unpublished PhD University of Michigan, 1986), p. 78.

50 Arabinda Samanta, *Malarial Fever in Colonial Bengal, 1820–1939, Social History of an Epidemic* (Kolkata, 2002), p. 14.

51 Ferguson, 'The Political Economy of Health and Medicine in Colonial Tanganyika', p. 331.

52 ZNA 7/2, Public Health Department Report for the Year 1913, p. 43.

53 Interview with Mr. Ali Juma, a retired nurse at Kwahani on 27 July 2007.

chocolate candy was also distributed in schools. As K. David Patterson shows, however, the programme was not successful as the chocolate did not obscure the bitterness of quinine. School truancies were noted especially on 'quinine day.' Students would apparently also throw away the medicine they received from their teachers. Despite all these problems the Department of Health in Ghana continued to deliver the drugs to school children.[54]

In Zanzibar, from 1913, the Medical Officers of Health supplied quinine tablets at Police Line, Ziwani to European and local soldiers and their families twice weekly. Indian and Arab government staffs posted to rural areas at Mkokotoni and Chwaka were required to take quinine weekly.[55] The state was plainly determined to see this policy carried out so as not to lose labourers. Officers who refused to take quinine were warned that they "[were] liable to receive no pay if they [were] absent from duty on account of an attack of malarial fever".[56] The archival records go no further on this point. Possibly the government servants were willing to obey orders.

In 1913 the Assistant District Officer, through the Health Department's officers, began to distribute quinine tablets in rural areas. The 1913 Annual Report of the Department of Health states that "a certain amount of sulphate of quinine in powder was sent to the Assistant District Officer at Mwera [a locality in South District] for distribution to Masheha".[57] Sundiata notes that this area posed a particular danger to the health of Omani immigrants there.[58] The medication was sold at one pice (a unit of currency) per packet of five grains. The Health Department also planned to distribute sulphate of quinine to other districts.[59] The establishment of dispensaries in urban areas, suburbs and rural areas gave an added boost to the distribution of quinine and malaria treatment. By 1910 there were dispensaries at Mkokotoni in North District and at Chwaka in South District. By 1924, dispensaries and hospitals had been built in rural Unguja and Pemba, at Selem, Mbiji, Mahonda, Mangapwani, all in North District, at Kizimkazi in South District, on Unguja Island, and at Wete in Pemba. By 1938, Unguja had thirteen dispensaries and one general hospital in the urban area while Pemba had seven dispensaries and three general hospitals located at Wete, Chake and Mkoani.[60]

Further impetus to quinine distribution to treat, or as prophylactic against, malaria was due to its encouragement by the League of Nations. In the early 1920s, a Malaria Commission of the League of Nations insisted on the administration of quinine to reduce mortality from the disease in a short time. However, quinine

---

54 K. David Patterson, *Health in Colonial Ghana: Disease, Medicine, and Socio-Economic Change, 1900–1955* (Massachusetts, 1981), pp. 35–36.

55 ZNA BA 7/1, Medical and Sanitary Report for the Year 1913, p. 6.

56 ZNA BA 7/2, Public Health Department Report for the Year 1913, p. 43.

57 ZNA 7/2, Public Health Department Report for the Year 1913, p. 43.

58 Ibrahim Sundiata, 'Twentieth Century Reflections on Death in Zanzibar', *International Journal of African Historical Studies*, 20(1) (1987), pp. 45–60, p. 51.

59 ZNA 7/2, Public Health Department Report for the Year 1913, p. 43.

60 ZNA AJ 12/13, 'Report on Medical Services, 1910–1950', Medical Services Pemba and Zanzibar.

supply programmes in Zanzibar, like elsewhere in Africa, faced many problems. Many people were not in a position to buy the drugs. As a result, local people continued to depend on their local medicines. People boiled *Neem* (azadirachta) leaves and bark to treat malaria. According to Mr. Ali Juma, these medicines became widely adopted and replaced quinine in urban and rural areas.[61] Urban and rural Arabs continued to employ other familiar therapies such as cauterization in order to overcome swellings of the spleen. In 1920, one Medical Officer stated that many Arab children had "numerous round cicatrices over their upper abdomen and spleen region, due to the barbarous habit of cauterizing with hot copper coins to relieve the pain and swellings".[62] Khalfan Said of Mwera confirmed to me that cauterization was not meant to cure malaria. It was used to reduce the swellings.[63] Distribution of quinine in colonial Ghana faced similar problems. According to Patterson, "individuals benefited, especially those with some cash, education and access to distribution centres, but except for a relatively few elite Africans, the impact on the public was small, and the long-term results negligible".[64]

In the second half of the 1940s, paludrine, another anti-malaria drugs in tablet form, manufactured in Europe began to be used.[65] In Zanzibar, Government officials and their families were given a free issue of paludrine, which was also distributed in schools. Bibi Khamisa Abdulla, a sixty-two year housewife who joined Std. 1 at Kikwajuni Girl's School at Ng'ambo in 1955, told me that they used to receive quinine every month in their school.[66] These anti-malarial tablets helped to reduce death from malaria in combination with other methods.

These anti-malaria programmes had led to high reduction of malaria cases at the government hospitals and dispensaries. Between 1925 and 1934 as the table below shows a number of malaria patients who attended at the hospital and dispensaries at Zanzibar Town in which most of the cases were treated shows a major improvement.

By the late 1950, the anti-malaria programmes that had focused on the environmental engineering and the distribution of drugs had led to the reduction of malaria and the number of people who were diagnosed with malarial fever in Zanzibar. In 1955, £5800 was voted for the drainage purposes of the remaining areas. The 1956 Annual Medical Report shows that the swamp drainage helped to reduce the mosquito breeding. The anti-larval methods were widely employed.[67]

61 Interview with Mr. Ali Juma, a retired nurse, at Kwahani on 27 July 2007.
62 ZNA BA 7/7, Medical and Sanitary Report for the Year 1921, p. 34.
63 Interview with Mr. Khalfan Said, a local practitioner, at Mwera on 1 August, 2007.
64 Patterson, *Health in Colonial Ghana*, p. 36.
65 ZNA AJ 18/28, School Clinic, 1913–45, p. 63.
66 Interview with Bibi Khamisa Abdulla at Kikwajuni, 3 December, 2007.
67 ZNA Annual Report Department of Health, 1955, p. 14.

Table 1. Percentage of the people who were diagnosed with malaria in Zanzibar Town

Year	Percentage
1925	6.75
1926	6.27
1927	5.33
1931	10.1
1932	7.59
1933	7.76
1934	5.63

Sources: Annual Reports Department of Health, 1928, p. 10 and 1934, p. 8.

The reclamation of these former Creek, swampy and old stone quarry areas contributed to the environmental protection. All these former wet areas were transformed into sports grounds. Initially, in 1910s, the 'Mnazimmoja Decree' was passed. The law had allowed the creation of sports activities at the southern part of the former Creek ground. But the lack of enough funds had delayed the reclamation works and the constructions of sports grounds. After the First World War, the Mnazimmoja ground became a center of many games such as football, field hockey, golf and cricket that were played by European, Asian and African communities.[68] Moreover, by 1930, other sports grounds at Ziwani and Mwembeladu were created at the former marshes. In 1935, the area at Saateni, which was used for the excavation of sand which was used for the construction of the town harbour, was used as a football and sports field for the Medical and Municipal departments' staff.[69]

The Kikwajuni old quarry area was transformed into sports ground after the Second World War, when Zanzibar became an active member of the Council of East and Central Africa Football Association's (CECAFA) tournament. CECAFA was launched in Nairobi, Kenya in 1926 and it started a first Gossage Cup competition between Kenya and Uganda teams in 1927. In 1948, Zanzibar became a CECAFA tournament member and in 1949 she decided to organize the Gossage Cup competition. The government in Zanzibar requested the sports authorities to construct a stadium ready for the 1949 competition. The Sports Control Board decided that the former Kikwajuni dump to be converted as a sport ground to accommodate the Gossage Cup competitions.[70] Beginning in 1958, the former swampy areas in Pemba were converted into sports grounds too. Some of these grounds in Pemba included one at Chake and the area which extended from Wete

68 ZNA AE 4/6, Crown Lands, Department, Lease of Old German Tennis Courts to Mnazimmoja Sports Club.

69 ZNA AB 85/3, 'From the Director of Medical Services (DMS) to the Chief Secretary of State (CS), Zanzibar – 9 September, 1935, Re: Football Ground for Medical Staff,' Sports Grounds, September 1935 - September 1955.

70 ZNA AB 12/24a, 'From Sports Association to CS, 24 June and 25 August, 1948,' Sports Association of Zanzibar, 1926–1945.

Prison to the vicinity of the government offices, the area immediately to the north of Wete Port and the area stretching from Chake Jetty to Madungu.[71]

Conclusion

From 1957, the World Health Organization (WHO) and the United Nations International Children's Economic Fund (UNICEF) launched an anti-malaria control programmes in Zanzibar, which successfully eliminated the disease. In 1963, during the end of the British rule in Zanzibar malaria infestations was almost zero percent. In the early phase of anti-malaria programmes that I have explained in this paper, to a great instance malaria infestations in the islands had been reduced nearly to sixty-percent. The Medical and Public Health officers decided to apply insecticides and dry most of the anopheles mosquitoes breeding areas in order to control new breeding. Also, they supplied malaria drugs, which in combination of other methods the disease was reduced.

Amina Issa, PhD, is director of the Department of Museum and Antiques in Zanzibar.

71 ZNA AB 39/279, 'From the office of the Senior Commission to P. H. Nightingale, Hon. Financial Secretary,' Recreation Parks, Land – Playing Fields in Pemba, 1958.

References

Beck, A., 'Medicine and Society in Tanganyika, 1890-1930: A Historical Inquiry', *The American Philosophical Society*, 67(3) (1977), pp. 15–16.

Bennett, N., *A History of the Arab State of Zanzibar* (London, 1978).

Clyde, D., *Malaria in Tanzania* (London: Oxford University Press, 1967).

Curtin, P., 'The White Man's Grave: Image and Reality', *Journal of the British Studies*, 1(1) (1961), pp. 94–110.

Curtin, P., *Death by Migration, Europe's Encounter with the Tropical World in the Nineteenth Century* (Cambridge, 1995).

Curtin, P., *Disease and Empire, The Health of European Troops in the Conquest of Africa* (New York, 1998).

Curtin, P., "Medical Knowledge and Urban Planning in Colonial Tropical Africa", in Steven Feierman and John Janzen eds., *The Social Basis of Health and Healing in Africa* (Berkeley, Los Angeles and Oxford, 1992).

Dumett, R., 'The Campaign against Malaria and the Expansion of Scientific Medical and Sanitary Services in British West Africa, 1898–1910', *African Historical Studies*, 1(2) (1968), pp. 153–197.

Ferguson, D., 'The Political Economy of Health and Medicine in Colonial Tanganyika', in M. H. Y. Kaniki (ed.), *Tanzania under Colonial Rule* (London, 1980).

Harrison, G., *Mosquitoes, Malaria and Man: A History of the Hostilities since 1880* (London, 1978).

Kazi, I., *Malaria in Bengal from 1860–1920: A Historical Study in a Colonial Setting* (Unpublished PhD University of Michigan, 1986).

Patterson, K., *Health in Colonial Ghana: Disease, Medicine, and Socio-Economic Change, 1900–1955* (Massachusetts, 1981).

Prothero, R., *Migrants and Malaria* (London, 1965).

Samanta, A., *Malarial Fever in Colonial Bengal, 1820–1939, Social History of an Epidemic* (Kolkata, 2002).

Simpson, W., *Report on Sanitary Matters in East African Protectorate, Uganda and Zanzibar* (London, 1915).

Sundiata, I., 'Twentieth Century Reflections on Death in Zanzibar', *International Journal of African Historical Studies*, 20(1) (1987).

Tren, R. and R. Bate, *Malaria and the DDT* (London, 2001).

Webb, J., *Humanity's Burden, A Global History of Malaria* (Cambridge, New York, Madrid, Cape Town, Singapore, São Paulo and Delhi, 2009).

Scientific Advice, Traditional Practices and the Politics of Health-Care

The Australian Debate over Public Funding of Non-Therapeutic Circumcision, 1985

Robert Darby

Australia is unusual among comparable developed nations in providing automatic coverage for non-therapeutic circumcision of male infants and boys through a nationally funded health insurance system. This is despite at least one attempt to drop circumcision from the schedule of benefits payable under the scheme (now known as Medicare), and it is surprising given that relevant health authorities have repeatedly stated (1971, 1983, 1996, 2002, 2004 and 2010) that 'routine' circumcision has no valid medical indication and should not generally be performed. Since public hospitals in most states do not provide the surgery, it has become the province of private hospitals, general practitioners and, in recent years, specialist clinics, whose activities are subsidised through Medicare.

Australian practice is thus very different from that in comparable countries. In New Zealand the government health service has never funded circumcision; and in Canada it is funded only in the province of Manitoba.[1] Even in the United States, where policy on Medicaid coverage is also the responsibility of the states, 17 out of the 50 have dropped circumcision from the list of free procedures, and more are likely to do so as fiscal constraints intensify.[2] The British National Health Service has traditionally not covered non-therapeutic circumcision, though in recent times has come under pressure from Muslim and some African immigrant groups, who argue that publicly funded circumcision of their male children is essential to prevent parents from resorting to the services of incompetent operators. In some areas local authorities do perform the operation as a free service, but the question is unsettled and the focus of controversy.[3] In predominantly Muslim countries, where circumcision is performed as a customary or religious ritual, the state does not fund

1 And even there most doctors refuse to charge the state and insist that parents pay: see Manitoba Medical Association 2001, p. 6.

2 Craig and Bollinger 2006; Craig et al. 2001; Iglehart 2011.

3 Shah et al. 1999, Paranthaman et al. 2010.

the procedure through the public health system or any other government agency. A partial exception to this rule may be the mass circumcisions carried out by the Turkish army in Afghanistan and the former Soviet republics of central Asia, where the operation seems to have had neither medical nor religious significance, and was only a temporary measure following the dissolution of the Soviet Union.[4] The traditional practice in Muslim communities is for boys to be circumcised between the ages of 6 and 10 in the course of a celebration organised by the parents; these events have no health significance, and the costs are met by the family.[5] A similar policy prevails in Israel, where the government would no more think of paying for the Jewish rite of circumcision on the eighth day than it would subsidise the celebration of the boy's Bar-Mitzvah or the Feast of the Passover.[6]

In line with recent studies,[7] I take the view that circumcision is a primarily a cultural phenomenon, to be understood in sociological terms, such as parental values and group expectations, not a simple 'precaution' to be explained in terms of its contribution to 'hygiene' or a child's future health. Although medically rationalised circumcision of male infants and boys arose in late Victorian Britain and enjoyed a limited vogue in English speaking countries, including Australia, for several generations,[8] the practice has been rejected as medically unwarranted and ethically problematic by all the medical bodies that have issued a policy on the subject.[9] This attitude may change as a result of the efforts of some health authorities to promote circumcision in certain African nations as a tactic against heterosexually transmitted HIV infection, but such considerations are irrelevant to the Australian situation in the 1980s.

One of the major objectives of the reforming Labor government which came to power in 1972 was to introduce a universal insurance scheme that would ensure affordable health care for all. The plan was strenuously resisted by the medical profession, the private health insurance companies and the Liberal (conservative) Opposition in the Australian parliament; they used their numbers in the second

4 Ozdemir 1997.

5 Abu-Salieh 1994, 2001.

6 Ben-Yami and Zoossmann-Diskin, personal communications; Zoossmann-Diskin adds that the Israeli Absorption Ministry used to have a policy of meeting the costs of circumcision in the case of Jewish immigrants who had not been circumcised but wished to have it done after arrival.

7 For example, Wallerstein 1985; Brown and Brown 1987; Gollaher 2000; Miller 2002; Waldeck 2003.

8 Darby 2001; Darby 2005.

9 These include the American Academy of Pediatrics, 1971, 1975, 1989 and 1999; British Medical Association, 2003 and 2006; Canadian Pediatric Society, 1982, 1989, 1996; Finland Central Union for Child Welfare, 2003; Royal Australasian College of Physicians, 2002, 2004 and 2010; Royal Dutch Medical Association 2010. Most of these statements are collected at http://www.cirp.org/library/statements/ or http://www.circinfo.org/doctors.html. On ethics, see Svoboda et al. 2000; Hodges et al. 2002; Hellsten 2004; Fox and Thomson 2005.

chamber (the Senate) to block the legislation twice, thus creating the conditions for a double dissolution, fresh elections, and the holding of a joint sitting of both houses, where the bill was passed in 1974.[10] The scheme, known as Medibank, reimbursed patients obtaining medical treatment (including circumcision) from doctors at 85 per cent of the scheduled fee, and provided free treatment in standard wards at public hospitals. Hardly had the system been set up when the government changed (in the bitterly fought election of December 1975), and the Liberals took office. Although they had promised to maintain Medibank, the new administration gradually reduced the scope and generosity of the scheme, and by the early 1980s the Labor Opposition had identified the revival of Medibank as a likely election winner. Labor returned to power in 1983, and one of its first moves was to establish a health insurance system along similar lines. Again there was furious opposition from the medical profession and the private health funds,[11] but this time their political allies were weaker, and the measure was carried. Under this scheme, known as Medicare, the Commonwealth medical benefit was set at 85 per cent of the scheduled fee, with a maximum gap of $10 for any one service. Patients could either obtain a cheque and pass it on to the doctor along with their 'co-payment', or pay the doctor up-front and collect the refund from Medicare. Doctors had the options of charging patients more than the scheduled fee at the time of consultation, or of 'bulk-billing', in which case they received only the scheduled fee back from the government. Although the latter option has been discouraged in recent times, it remains popular among both clients and doctors, especially those with practices in low-income areas. The scheme is funded by a 1.5 per cent levy on taxable income. [12] Unlike the U.S. and Canadian schemes, the whole system is funded and regulated by the central (Commonwealth) government, and there is no direct financial contribution made or policy control exercised by the states. Although there has been endless tinkering with the details, the basic structure of this system remains operative today. In relation to the controversy over the funding of routine circumcision that broke out in 1985, the context to bear in mind is that the new system had only just been established after a bitter fight with the private health

10 The use of the double dissolution (calling new elections for both the House of Representatives and the Senate) and the holding of a joint sitting to resolve legislative deadlocks (as provided by Section 57 of the Australian Constitution) had occurred only twice before 1974 (in 1914 and 1951). See Reid and Forrest 1989, pp. 204–6.

11 As Gillespie (1991) shows, Australian medical practitioners have a long history of opposition to government regulation and other 'interference'.

12 There is a considerable literature on the Hawke government generally and the establishment and operation of Medicare specifically. I have been particularly guided by Sax 1984; Scotton and Macdonald 1993; Maskell 1988; Parliament of Australia 2003, esp. chap. 2; and submissions to this inquiry by Professor J.S. Deeble, 26 June 2003, and Royal Australian College of General Practitioners, 18 June 2003.

funds, the Opposition and the doctors, who were still far from happy with it;[13] the last thing the government wanted was a row with the Jewish community. The fact that it got one helps to explain some of the features of the Australian situation today.

Although its own guidelines state that benefits are payable only for services that are clinically necessary, and although it is prohibited from funding circumcision-like operations on girls, Medicare continues to pay for non-therapeutic circumcision of male infants and boys. [14] The Medical Benefits Schedule includes Item 30653 covering circumcision of a male infant under six months; in the 2009–10 financial year 20,246 claims were made on this item, at a cost of $770,360.[15] The policy of making these payments is all the more surprising given that paediatric authorities have repeatedly stated that there is no medical indication for routine (non-therapeutic) circumcision. The most recent policy statement (October 2010) by the Royal Australasian College of Physicians states: 'After reviewing the currently available evidence, the RACP believes that the frequency of diseases modifiable by circumcision, the level of protection offered by circumcision and the complication rates of circumcision do not warrant routine infant circumcision in Australia and New Zealand'.[16] At the same time, Australia has reported a steadily declining incidence of neonatal circumcision (under 6 months) from about 25–30 per cent at the time of Medicare's establishment to 10 per cent in the mid-1990s, suggesting that the continued availability of the rebate has not had as much effect on the popularity of the practice as might have been expected in the light of U.S. experience.[17] These anomalies have prompted calls for the rebate to be dropped, on medical, financial and equity grounds,[18] but the suggestions have not met with enthusiasm in government circles. One reason for this surprising indifference to a proposal with potential cost savings of up to $24 million per year[19] may be the memory of what happened

13 Daniel 1990, chs 7–9.

14 The Medicare website states that does not cover 'medical services which are not clinically necessary' or 'surgery solely for cosmetic reasons' http://www.medicareaustralia.gov.au/public/claims/what-cover.jsp

15 Calculated from data on Medicare website: https://www.medicareaustralia.gov.au/statistics/mbs_item.shtml. It should be noted that this figure is the cost of the rebate alone, and that the real costs to the government will be considerably higher, given that there is likely to have been more than one consultation, anaesthesia is usually charged separately, and parents may be entitled to additional tax deductions for medical expenses associated with childbirth. The issue is too complex to be pursued here.

16 RACP 2010, pp. 5–6.

17 Wirth 1986; Cozjin 2004; Darby 2011. The incidence has increased to about 12 per cent nationally since then, though it also appears that nearly as many boys are circumcised between the ages of 6 months and 10 years, often on the basis of a questionable diagnosis of phimosis. See Spilsbury et al. 2003A and 2003B.

18 Rouse 2003; Phillips 2003.

19 Spilsbury 2003A, p. 613.

when, on the advice of the National Health and Medical Research Council, the rebate was withdrawn by the Hawke government in 1985; within a week, protests by Jewish and Muslim religious leaders forced the government into a humiliating backdown, and the decision was reversed.[20]

The suggestion that routine infant circumcision offered no significant health advantages and should not, therefore, by funded by taxpayers through the public health system was not a new idea. Indeed, given the state of medical opinion in 1975 it is perhaps surprising that circumcision was originally included in the schedule of Medibank benefits. The *British Medical Journal* had repudiated the practice over 25 years before,[21] and in 1970 a study at Adelaide Children's Hospital had found that most parents sought circumcision for social or spurious health reasons, that complications ran at 15 per cent and that 9.5 per cent of cases required a second operation to correct the faults of the first. The author recommended that 'hospital waiting lists be unburdened of unnecessary routine circumcisions, and that if parents request the operation as a social ritual, it should be done in private, not public beds'.[22] Leitch's recommendation was supported by R.G. Birrell, who argued that 'the potentially lethal risks of neonatal circumcision surely make "social custom" as the indication quite unjustified', and that if the operation had to be performed it was better to wait until the child was 12 or 15 months old.[23] Another paediatrician backed up these proposals and added that it was the medical profession's duty to 'encourage a basic mood in the community that to be uncircumcised is to be normal'.[24] A decisive moment came in 1971, when the Australian Paediatric Association recommended that male infants should not 'as a routine' be circumcised,[25] and this viewpoint gained strength over the following decades. The context in 1985 was a rapidly falling rate of routine circumcision in Australia; concern at escalating health costs, prompting the idea that unnecessary surgeries like circumcision could be minimised; and a strengthening consensus that the operation was undesirable and that medical authorities should make more effort to discourage parents from requesting and doctors from performing it. Figures compiled by J.L. Wirth show that the incidence of neonatal circumcision had declined from 49 per cent of male births in 1973–74 to 39 per cent in 1979–80, and declined further to

---

20 In preparing this account I have been vitally assisted by the recollections of both the then Minister for Health, Dr Neal Blewett, and his principal advisor, William Bowtell, to both of whom I offer warm thanks. Although both Mr Bowtell and Dr Blewett kindly consented to be interviewed and spoke frankly, they bear no responsibility for the interpretations I have placed on the information they so generously provided.

21 BMJ 1949, p. 1458; 1979, p. 1163.

22 Leitch 1970.

23 Birrell 1970, 67.

24 Durham Smith 1970, 69.

25 Belmaine 1971, p. 1148.

24 per cent in 1982–83.[26] In 1978 a paper on the financing of health services suggested that, among other measures to contain costs, benefits for 'least medically necessary' services such as routine circumcision could be reduced or eliminated.[27] The last of the three factors was probably the most important: visiting Australia in 1982, Edward Wallerstein was told that a national campaign to reduce unnecessary surgery was planned, and that circumcision was high on the list.[28] In an official circular issued that year the NSW Health Commission pointed out that there was 'no valid medical indication for circumcision in the neonatal period', mentioned risks such as infection, meatal ulcers and haemorrhage, directed that hospitals not permit the circumcision of hospitalised infants, and stressed that parents seeking to have a boy circumcised must be given advice on 'the nature, effects, advantages, disadvantages and risks' of the operation.[29] Shortly after this, in 1983, the Australian College of Paediatrics reaffirmed its policy of discouraging circumcision in the male infant,[30] and it was these two statements which prompted the National Health and Medical Research Council (NHMRC) to take action.

Around the same time articles in medical journals revealed the direction in which the tide of professional opinion was running. In a critical review published in 1984, Geoffrey Hirst pointed out that although routine circumcision had once been common in English-speaking countries, it had nearly disappeared in Britain and was a rare procedure on a world scale: 'The mere fact that this procedure has not gained universal acceptance … is a telling count against its necessity'. Hirst argued that neonatal circumcision was inappropriate care and that doctors should try to dissuade parents from having it done, but he noted that controversy would continue until medical bodies took a more proactive role in educating the public:

> Only when people have been educated to believe there is no medical justification for routine circumcision … will the controversy subside. Until the campaign is directed through the lay press rather than solely in the consulting room, it is doubtful that rapid advances will be made.[31]

These words were prescient: the failure of professional and government bodies to communicate this message was a major factor in the debacle of July 1985. Hirst, a

---

26 Wirth 1982; Wirth 1986. Since these figures exclude mothers in private hospitals, private patients in public hospitals, parents who arranged the operation informally and any procedure where a rebate was not claimed, they are almost certainly an underestimate, though Wirth is correct to say that the rapid decline is evidence that Australia was abandoning routine circumcision. At its peak in the 1950s the incidence is thought to be somewhere above 80 per cent. On the rise of circumcision in Australia see Darby 2001.

27 Sax 1981, p. 23.

28 Wallerstein 1985, p. 124.

29 NSW Health Commission 1982.

30 Australian College of Paediatrics, 1983.

31 Hirst 1984, p. 20.

consultant urologist, was supported by two general practitioners, who commented that although there was continuing controversy over some aspects of circumcision, there was consensus on one point: there was no medical indication for its performance on infants. Although the authors noted that the incidence of routine neonatal circumcision (RNC) in Australia was falling rapidly, they found a disturbing level of ignorance and misinformation among family GPs as to normal male anatomy and the correct management of the immature penis, and a surprising degree of apathy on circumcision itself: of 101 doctors surveyed, only 39 were firmly opposed to the practice, 33 were in favour and 28 were indifferent.[32] In 1985 Dr Brian Learoyd included routine circumcision in a list of unnecessary and over-performed surgeries. Citing the 1975 statement of the American Academy of Paediatrics that there was 'no medical indication for routine circumcision of the newborn' rather than the similar policy of Australian paediatricians, Learoyd deplored the high incidence of the practice in New South Wales and laid much of the blame at the door of the medical profession, which had not made adequate efforts to inform the public: 'It is highly improbable that such a large number of operations would be done if parents were put in full command of the facts, viz., that no medical benefit is to be gained'.[33] The increasingly anti-circumcision mood may be judged from the fact that in 1984 a radio talk on the history of circumcision in which the author referred to it as 'a great piece of nonsense' was printed in expanded form in the *Medical Journal of Australia*.[34] One may thus conclude that the assessment of routine infant circumcision as a procedure without medical value and which ought to be discouraged was not the opinion of a radical minority, but the consensus view of the Australian medical establishment.

It was thus entirely proper for the NHMRC to recommend that routine circumcision be dropped from the Medical Benefits Schedule. At a meeting in Adelaide in June 1983 the Council considered a report on RNC from its Medicine Advisory Committee and recommended that the Department of Health draw the attention of the Medical Benefits Schedule Revision Committee (MBSRC) to the Council's statement, namely:

> The Council having considered the opinion of the Australian College of Paediatrics and the Health Commission of New South Wales was of the opinion that there is no medical indication for undertaking routine circumcision on newborn male infants, and that the hazards of the operation at this age outweigh any possible advantages.

32 Broadhurst and Davey 1984, p. 731.
33 Learoyd 1985, pp, 17–18.
34 Hackett 1984, 189.

The Council therefore asked the MBSRC to consider whether the rebate for RNC should be dropped from the MBS.[35] The Committee duly considered the proposal, and some time in the first half of 1985 the Department of Health sent a submission to the Minister for Health (Neal Blewett) containing a number of revisions to the schedule, including the deletion of circumcision, which he approved without much thought. As a spokesman explained later, circumcision of boys under six months had been under investigation by the College of Paediatrics for over two years, and its recommendation against the procedure had been made to the NHMRC in 1983, 'well before Medicare came in'. The NHMRC concluded that the hazards of circumcision at that age outweighed any possible advantage. With a certain rueful hindsight, the spokesman continued: 'The new ruling may prove a little controversial, but when the majority of the medical profession are against it, the ministry must act on their advice'.[36] According to Blewett's principal advisor, Bill Bowtell, there was little in the way of background papers accompanying the submission and no warning that the dropping of the subsidy might pose political risks and prove a hard decision to sell in certain quarters; the government was thus unprepared for the narrowly-based but vigorous opposition which arose.

The decision was to come into force on 1 July, and ten days later both the *Age* and *Sydney Morning Herald* ran small, but front-page, articles giving sympathetic coverage to the disapproving reaction of Jewish community leaders. The president of the Victorian Jewish Board of Deputies, Robert Zablud, 'denounced' the decision as 'an attack on the Jewish people' and warned that his community would 'do everything to fight this discrimination'. He said that the removal of the rebate might seem a small thing, but that it showed 'an attitude to the religious practices of the Jewish people. There is no way that circumcision can be forgone, irrespective of whether the Minister wants to save some money'. In Sydney the reaction was more moderate, the president of the NSW Board merely expressing disappointment that the government had not consulted the Jewish community, but adding that, although he did not consider the intent of the decision to be discriminatory, it had this effect because 'it discriminates against all Jews'.[37] The *Australian Jewish Times* (Sydney) did no more than report the decision, giving considerable space to the government's justification for it, and making no mention of Jewish objections at all.[38] It was hardly a thunderous outcry, but it was exactly the sort of reaction that might have been expected and against which the Health Department should have warned and prepared the Minister. Its failure to communicate clearly, its distortion of the NHMRC recommendation, and a series of coincidences, determined what happened next.

35 NHMRC 1984, p. 13.
36 Anon 1985A.
37 Carbines 1985A, p. 1.
38 Anon 1985A.

The first coincidence was that Dr Blewett was away and, in those distant days before mobile phones, could not be contacted. Responsibility for handling the issue thus fell to his principal advisor, Bill Bowtell, whose concern was to defuse the political fall-out as quickly as possible.[39] Although he was well informed on many public health issues, he had not been briefed on the circumcision proposal and was unaware of current medical policy in the area; he thus regarded the matter as trivial and sought not to defend the government's decision but to placate its opponents. The second coincidence was that the office next door to Blewett's was that of Barry Cohen, from whom Bowtell sought urgent advice. Cohen, a celebrated parliamentary wit and Minister for Home Affairs and Environment, was one of the most prominent Jewish members of the Labor Party, described by W.D. Rubenstein as 'deeply and consciously affected by his Jewish heritage'.[40] He pointed out that religious emotions on the issue would be strong, asked why it was necessary to disturb the status quo and advised that the decision be reversed. The third coincidence was the character and presence, in that old, cramped Parliament House, of the Prime Minister, Bob Hawke, whose close links with the Jewish community and sympathies with Israel were well known.[41] Bowtell did not speak to him personally, but outlined the situation to a member of his staff and asked for direction; word came back in the form of a personal reference and folksy aphorism typical of Hawke's style: 'If it's good enough for me it's good enough for the MBS'. The fourth coincidence was the deadline for getting media releases out in time for the morning newspapers – about 5 pm. To mollify the critics Bowtell had to release a statement by then, and in Blewett's name he announced that the decision would be reconsidered by the MBSRC. Although there was no promise of reversal, everybody seem to have assumed that this is what would happen. Next morning Mr Zablud was delighted, a rabbi in St Kilda praised Dr Blewett's judgement and criticised the original decision as 'ill considered and too expeditious', and a lecturer in Islamic studies commented that he was 'heartened' by the review because 'Moslems believed circumcision was essential for religious and health reasons'.[42] The following week the government announced that the rebate would indeed be restored, 'after an outcry from the Jewish community and intervention by the Health Minister', as the *Age* reported. According to the press release, the government had reversed its decision 'because of the possibility that circumcision might be performed by untrained people if removal of the medical benefit proved an economic hardship'. Dr Blewett added that he still believed that circumcision of young boys should be discouraged

39 For the details in this account I am indebted to the recollections of Bill Bowtell: personal interview, Sydney, 14 November 2003.

40 Rubenstein 1991, p. 301.

41 Rubenstein 1991, pp. 547–50.

42 Carbines 1985B, p. 3.

but that restriction of the rebate was not the appropriate way to do it.[43] What the right way might be was not revealed, and although letters on the matter from health ministers continue to state that the government believes that circumcision should be discouraged through education of parents and doctors, it has never launched or funded any programs with this objective.[44]

Dr Blewett's absence was the decisive factor in these developments. When he returned to Canberra he was annoyed at the action taken in his name, and particularly upset that Bowtell's press release had pre-empted the possibility of other responses. Had Blewett been on the spot it is likely that he would have sought advice on how to defend the original decision and Bowtell would probably not have asked the opinion of Barry Cohen and the PM's office. Hawke's intervention was also crucial. He generally took a strongly collegiate approach to government, left policy decisions to the responsible minister and rarely interfered with the management of their portfolios,[45] and even in this case, where his emotional allegiances and personal experience were involved, he would have been open to argument. Had Blewett been able to discuss the issue with him it would probably have died down as soon as it was realised that the intent of the decision was not to place restrictions on Jewish or Muslim religious observances, but to discourage unnecessary surgery (with its costs and risks) in the wider community. The order and pace of events, however, conspired against such an approach, and by the time Blewett returned to Canberra he had received a phone call from the PM in which Hawke had told him that the decision must reversed because it was arousing too much opposition from forces normally antagonistic to one another: 'You've united Jews and Moslems for the first time in a thousand years, and against us', Blewett recalls him saying (expletives deleted).[46] Looking back at the incident, Bowtell considers that his own reaction was precipitate and acknowledges that the Minister's absence was unfortunate. Although all the government players regarded the issue as trivial and the cost saving as not worth the political flak, he blames the Health Department for failing to warn the Minister that the decision would be controversial and neglecting to devise a strategy to manage the likely opposition. The upshot was the government made no attempt to defend the dropping of the rebate and reversed its decision with hardly a murmur: 'We ran up the white flag and capitulated without a firing a shot', Bowtell comments. The fact that the government did not investigate the policy in comparable countries overseas is in itself telling. The medical bodies which had made the original recommendation on the basis of the best available scientific evidence were themselves not consulted in the backtracking and had every right to feel betrayed by the government's haste.

43 Anon 1985C, p. 5.
44 Information from Mr Michael Glass, Ashbury, NSW; further details below.
45 Blewett 2000, pp. 391–2.
46 Blewett 2003.

It is thus wrong to see the reversal of the decision as a gracious response to widespread public indignation. The opposition was in fact quite limited: although Bowtell recalls some activity on talkback radio, the only newspapers to give space to the opponents of the measure and to report its rescission were the *Age* and the *SMH*, though the *Australian* and *Canberra Times* also picked up the statement that the decision would be reconsidered. There were no editorials on the issue, and the only comments in letters to the editor (four in the *Age*) or by columnists all supported the government's original action. The most significant letter was from the Professor of Paediatrics at Melbourne University, Dr P.D. Phelan, who congratulated the Minister for accepting the recommendations of the NHMRC and drew attention to the professional consensus that there was no medical justification for neonatal circumcision. He expressed concern that some groups were lobbying to have the decision reversed and commented that if parents wished to have infants circumcised out of religious conviction they should pay for it themselves; there was no reason why such procedures should be a charge on the national health budget.[47] A similar viewpoint was put more vehemently by a columnist in the *Sunday Times* (Perth) who roundly criticised those who expected the taxpayer 'to fund the religious practice of circumcision', even though it had been given 'a universal thumbs down by today's paediatricians'. He described circumcision as 'a cruel and unnecessary assault on the vital male organ', pointed out that the incidence of the procedure was now less than 30 per cent nationally and that many doctors refused to perform it, and he berated the Minister for caving in to sectarian pressure. From a surgical point of view, he claimed that circumcision should be classified with 'nose jobs, facelifts and breast implants', and urged the government to stick to its original decision.[48] These points were indeed relevant, but the fact that they never became central to such public discussion as occurred is another indication of the government's failure to set the terms of or even influence the debate.

The government's ability to defend its decision was compromised not only by the ineptitude of the Health Department, but also by a distortion to the NHMRC's recommendation which entered the process at some point. At first sight the complaints of discrimination seem rhetorical, for surely everybody who wanted to circumcise their boys was equally affected by the decision, not just Jewish parents. But in fact the objection of Dr William Wise that it was 'unfair to remove the benefit because they have allowed it for children over six months'[49] was perfectly justified. In the 1980s the MBS was technically a schedule to the Health Insurance (Variation of fees and medical service) (No. 37) Regulations; frequently updated, it gave the details of Medicare rebates, including the definition of the service and the amount payable. By the crucial amendment withdrawing the rebate for circumci-

47 Phelan 1985, p. 12.
48 Sattler 1985.
49 Harris 1985, p. 1.

sion – amendment 1985 No. 149, to come into effect on 1 July – the benefits payable for circumcision were defined as follows: '4319 – circumcision of a person under six months of age, where medically indicated; 4327 – circumcision of a person under ten years of age but not less than six months of age; 4338, 4345 – circumcision of a person ten years of age or over.' It may thus be seen that there *was* discrimination against Jews, since the wording of the schedule maintained coverage for circumcision without medical indication in boys older than six months. The reversal of the decision was simply accomplished by amendment 1985 No. 207, to come into effect on 1 September, which deleted 'where medically indicated' from item 4319.[50]

The path by which the MBSRC or the Health Department got this 'under six months' qualification is unclear. There was nothing authorising such a condition in the NHMRC recommendation, the advice in the NSW Health Commission circular of 1982, or the 1983 policy of the Australian College of Paediatrics. The circular warned against performing the operation earlier than four weeks and recommended that it not be done until the boy was at least a year old, while the ACP policy merely stated that if parents insisted on circumcision, it was 'the responsibility of the medical attendant' to recommend that the operation be performed 'at an age and under medical circumstances that reduce the hazards to a minimum'. It is true that paediatric surgeons now recommend that circumcision should not be performed on boys of less than six months because of the pain and trauma involved and the impossibility of safe anaesthesia.[51] But these guidelines were not issued until 1996, and there was no basis in the advice available to the Health Department in 1983–85 for providing a rebate for circumcision without medical indications in boys older than six months, nor for confining protection to those younger than six months. It is thus impossible to disagree with Rabbi Lubofski's comment that it was 'illogical to distinguish between a child under six months or over';[52] indeed, one wonders why the 'where medically indicated' tag was not simply applied to all age groups. It is true that the paediatricians leading the opposition to circumcision were particularly concerned at the risk of complications and other harm when the operation was performed neonatally or within the first 15 months. This message would appear to have been picked up by the Health Department officials, who then interpreted the NHMRC's advice that there was 'no medical indication for undertaking routine circumcision on newborn male infants' as a recommendation to withdraw the subsidy from the existing code for infants under 6 months, but to make no change to the codes for other age groups.

50 Details can be searched at http://www.comlaw.gov.au/Browse/ByTitle/LegislativeInstruments/Current#top, but because the information is generated from a database it is not possible to give a specific URL.

51 Australasian Association of Paediatric Surgeons 1996.

52 Anon 1985E, p. 11.

However the six-month qualification came to be introduced it was an ill-judged refinement to the NHMRC recommendation that bears much of the blame for upsetting the Jewish community and sinking the whole proposal. Judging from the outcome and reports of the meeting between Health Department officials and Jewish community leaders in Sydney on 11 July, it was this particular means of limiting applicability of the rebate which caused offence. As Graham de Vahl Davis, President of the Jewish Board of Deputies (NSW) explained, the six month rule meant that if circumcision was performed under that age, no benefit was payable; 'since most Jewish males have the operation performed at the age of eight days, this presents a problem'. It appeared that in reaching the original decision the Minister 'did not fully appreciate the position of the Jewish community', and he was concerned 'at the apparent discrimination'. The decision of the meeting was that the Health Department would delete the words 'where medically indicated' from the schedule, and Professor Davis pronounced himself 'very pleased'. Whether it was the optimum outcome from a public policy perspective is not so clear. As reported in the *Australian Jewish Times*, the Health Department explained the reversal of its decision in a convoluted paragraph which betrays its awareness that other options were possible:

> This was an inconsistency in that if no benefit was to be paid under the age of six months if there was medical indication, we realised there would have to be similar medical grounds over this age, so we decided to reinstate the rebate.[53]

It was indeed true that if circumcision was to be performed on boys older than six months there should be a genuine medical indication, and it is not at all clear why the discrimination was not eliminated simply by requiring a genuine medical indication at all ages to qualify for the rebate. Another option would have been to make an exception for parents with conscientious religious beliefs, though there is little doubt that that the other approach would have been both simpler and more equitable. As it was, the government got the worst of all worlds: it enshrined the principle that it was acceptable for the health budget to fund both medically unnecessary procedures and the ritual practices of selected religions; it showed that it was prepared to ignore the advice of specifically charged professional bodies when faced with some minor political flak; and it ensured that an unknown number of boys whose parents were neither Jewish nor Muslim would continue to be circumcised for no valid reason.

The decision has cast a long shadow and limited the government's freedom of action on subsequent occasions. In 1996 it was reported that the Health Minister in the new Liberal administration, then in a cost-cutting mood, intended to include the circumcision rebate among a number of services to be dropped from the MBS,

53 Anon 1985D, p. 1.

but that the plan was abandoned because other government figures feared that the move 'would upset the wealthy Jewish community and the conservative Christian churches'.[54] The idea that there was a 'backlash' against Dr Blewett's decision now seems to be embedded so deeply in the files and corporate memory of the Health Department that when a member of the public writes in to suggest a simple means by which money could be saved and boys spared a surgical alteration they may not want, they receive a reply like this:

> The question of the continued payment of Medicare benefits for male circumcision has been considered on a number of occasions. In fact, a restriction was introduced in 1985 to limit benefits in respect of persons under six months of age to those cases where there was a medical indication. However, implementation of this decision caused a strong reaction from the community at large and the restriction was subsequently withdrawn. It was considered that … male circumcision should be discouraged through better education and informed discussion rather than through … the Medicare Benefits Schedule'.[55]

Just about every statement in this letter is untrue: there was no 'strong reaction from the community at large'; the intent of deleting the rebate was not to discourage circumcision, but to reduce unnecessary surgery and save money; and, as stated earlier, the Australian government has never funded any educational programs with the aim of discouraging circumcision.

Another puzzling feature of the episode, again suggesting failure of communication on the part of the government, was that both supporters and opponents of the original decision responded to it as though it was primarily, by intention or in effect, as an attempt to restrict the power of parents to circumcise their children, not as a measure aimed at reducing unnecessary surgery and containing the cost of the new and expensive Medicare system that had just been established after such a bitter fight. Dr Blewett himself seems to have seen it at least partly in these terms,[56] and a writer to the *Age* commented, 'At last someone is doing something about surgical attacks on children. The sooner this horrible practice is outlawed the better'.[57] A Melbourne doctor criticised the *Age* for presenting the policy change as an anti-Jewish measure, pointing out that 'the vast majority of unnecessary circumcisions are performed on the sons of gentiles of Anglo-Saxon origin', and suggesting

54 Middleton 1996, p. 3.

55 Senator Kay Patterson, Minister for Health and Ageing, letter to Anthony Albanese, member for Grayndler (Sydney), 30 October 2002. Mr Albanese had inquired on behalf of a constituent, Michael Glass. I am grateful to Mr Glass, of Ashbury, NSW, for this information. Letters with almost identical wording were sent by the Department of Health to John Shanahan on 14 April 1993 and 11 April 1997; copies provided by Mr Shanahan and held by the author.

56 Blewett quoted in Anon 1985D.

57 Anon 1985B.

that restoring the rebate would mean that many boys other than Jewish or Muslim babies would continue to be circumcised.[58] And as we have seen, Jewish community leaders interpreted the loss of the rebate as an attack on their religious practices and implied that if it was not available they would unable to perform their most time-honoured and sacred rite. As Rabbi Lubofski stated, 'circumcision is not an operation by choice. It is absolutely indispensable. … Removal of the foreskin for a Jew is as essential surgery as the removal of an inflamed appendix'. Although one aim of the decision was indeed to reduce the incidence of circumcision by sending a hip pocket message to parents, such protestations seem either misinformed or disingenuous: there had been no suggestion that parents' right to circumcise boys would be restricted, merely that they would not receive a public subsidy for doing so. Jewish spokesmen who criticised the loss of the rebate did not claim that circumcision offered any health advantages, only that it was a religious obligation placed on parents. Denying that the removal of the benefit should be interpreted as an expression of anti-Semitism, Rabbi Lubofski said that because circumcision 'was carried out as a religious and not medical requirement, they presumably felt it did not warrant a medical rebate'. Despite this recognition, he believed that 'restoring the benefit was the right thing to do even though for the Jewish community the operation is not carried out for surgical but religious reasons'.[59] Lubofski's feelings are understandable, and evidence of the truth of Barry Cohen's warning, but he made no attempt to explain why a religious practice should be subsidised through the health budget. It is more likely that the question of religiously-motivated circumcision simply never occurred to the health department officials who drafted the original recommendations. If it had they might have handled the matter more tactfully.

Would the withdrawal of the rebate really have made any difference to ritual practices? The sum involved ($24.50) does not seem so great that its loss would have deterred anybody who sincerely regarded the procedure as essential – as several Jewish leaders pointed out. Rabbi Apple, chief minister of the Great Synagogue in Sydney, said that although the new arrangements would disadvantage Jews, he did not think they were being singled out, nor that they would be deterred from having the operation performed:

> Irrespective of changing fashion, Jews will continue to have their male children circumcised. Medical points of view vary from for, neutral and against. But none of these particular fashions affect Jewish practice. Jews will continue regardless of medical benefits.[60]

If that was the case, one wonders what all the fuss was about.

---

58 Smibert 1985.
59 Anon 1985E.
60 Harris 1985, p. 1.

The fuss was related to touchiness about status and fears of discrimination – social, not religious, and certainly not health concerns. Despite the misleading reference to an inflamed appendix (Christian baptism would have been a more accurate analogy), Jewish spokesmen were generally in agreement with the twelfth century philosopher and physician, Moses ben Maimon (Maimonides), that circumcision should be performed strictly for faith, not for any material benefit. An article by a Jewish paediatrician published at the same moment as the Medicare controversy made the point that among Jews circumcision should be performed only for ritual reasons: there were insufficient 'health benefits' to justify it on any other basis.[61] An article in the *Australian Family Physician* some six months later similarly stated that 'Circumcision in Jewish life is a religious ceremony and should … be performed by a Jewish doctor who has been trained to do it and will read the appropriate religious service and name the child'.[62] It was not just a matter of getting rid of the foreskin as expeditiously as possible. Even Muslim doctors concurred on this point. Dr S.N. Khan, expressing 'the official viewpoint of the Australian Federation of Islamic Councils', explained that circumcision was 'encouraged in Islam and widely practised by Muslims … a tradition of the Prophet and an important ritual'. There was no mention of any parental duty to circumcise children, nor of the timing, nor of health benefits, and Dr Khan's cool assessment of circumcision as no more than 'encouraged' contrasts sharply with his advice that 'lesbianism, homosexuality, premarital sex and adultery are prohibited in Islam; they are a sin and a crime. Masturbation is generally prohibited'.[63] According to Khan, these errors were more strongly condemned than circumcision was approved, yet he is not on record as urging the government to outlaw or discourage such practices. Another point to consider is that Jewish sensitivities would have been particularly acute at this time because there were strong murmurings within their own community against the continuation of circumcision; the same issue of the *Australian Jewish Times* which hailed the restoration of the rebate reprinted a letter from the *Jerusalem Post* in which Israel Berkovitch complained of his persecution by co-religionists in England for having suggested 'that we should stop cutting the flesh of Jewish babies in the circumcision ceremony without an anaesthetic'.[64] The anxiety of Jewish leaders in Australia over the Medicare issue might well have been related to fears that it would encourage sentiments such as these within their own commu-

61 Leiter 1985.

62 Levi 1986, p. 19; these comments were in accordance with the recommendations of Weiss 1962.

63 Khan 1986, p. 179.

64 Berkovitch 1985, p. 23; his article was published in the *Observer* (London), and became the subject of a complaint to the Press Council on the ground that it was 'a racist attack on Jews'.

nity, not just that it signalled an unsympathetic attitude on the part of the wider society.

Conclusion

Recent arguments that the rebate for non-therapeutic circumcision of males should be dropped from the Medical Benefits Schedule in Australia are unlikely to be successful because the Commonwealth Government remains haunted by the memory of the public outcry which is supposed to have broken out when this was attempted in 1985. The purpose of this article has been to review the episode and assess whether such apprehension is warranted. My conclusions are that the original decision to drop routine neonatal circumcision from the schedule was justified on medical and public policy grounds; that there was no wide public outcry and, indeed, that the decision was widely approved; and that the rapid reversal of the decision was the result of inept implementation, failure to consult, and a fortuitous combination of subsequent factors, including, vigorous lobbying, by the groups who felt most deeply affected, the pressures of day to day politics and unnecessary haste on the part of the principal advisor to the Minister for Health. The adverse reaction of the Jewish community (and to a lesser extent the smaller Muslim community) was related to concern about their social status, possibly exacerbated by (unvoiced) fears that the dropping of the circumcision rebate would encourage liberal and reforming Jews to abandon the practice, or even that it represented the thin end of a broader wedge, foreshadowing the possibility that parental rights to circumcise their children would be restricted in the future. The strong reaction was certainly the effect of justified touchiness about discrimination and deep concern that the means by which the amendment to the MBS was executed meant that Jewish practice was singled out and thus treated unfairly. The government's failure to anticipate these reactions meant that it neglected to consult; and, in its haste to defuse minor political fallout, it was then unable to resolve the issue on an optimum basis that paid due regard to financial prudence, medical advice, the rights of ethnic/religious minorities, and the well-being and human rights of children. It is to be hoped that the negative lessons of this episode will be taken into account in any future policy reforms in this sensitive area.

Robert Darby is an independent scholar living in Canberra, Australia.

References

Abu-Sahlieh S.A., 'To mutilate in the name of Jehovah or Allah: Legitimization of male and female circumcision', *Medicine and Law*, 13 (1994), 575–622.

Abu-Sahlieh S.A., *Male and Female Circumcision among Jews, Christians and Muslims: Religious, Medical, Social and Legal Debate* (Warren PA, Shangri-La Publications, 2001).

American Academy of Pediatrics, Policy statements on circumcision, 1971, 1975, 1989 and 1999, seen at http://www.cirp.org/library/statements/.

Anon, 'Medicare stops coverage of circumcision', *Australian Jewish Times*, 11 July 1985A, 1.

Anon, 'Circumcision' [letter], The Age (Melbourne, Vic), 12 July 1985B, 12.

Anon, 'Circumcision rebate is restored', The Age, 16 July 1985C, 5.

Anon, 'Rebate reinstated on circumcision', *Australian Jewish Times*, 18 July 1985D, 1.

Anon, 'Clear cut on circumcision: Minister's courage', *Australian Jewish News*, 19 July 1985E, 11.

Australasian Association of Paediatric Surgeons 1996, 'Guidelines for circumcision', seen at http://www.circinfo.org/previous_statements.html.

Australian College of Paediatrics 1983, Statement on circumcision, Parkville, Vic, seen at http://www.circinfo.org/previous_statements.html.

Belmaine S.P., 'Circumcision', *Medical Journal of Australia*, 22 (May 1971), 1148.

Ben-Yami H. 2003, personal communication.

Berkovitch I., 'The practice of circumcision', *Jerusalem Post International Edition*, 20 July 1985, 23.

Birrell R.G., 'Circumcision', *Australian Paediatric Journal*, 6 (1970), 66–67.

Blewett N., telephone interview, 10 December 2003.

Blewett N., 'Robert James Lee Hawke', in Michelle Grattan (ed.), *Australian Prime Ministers* (Sydney, New Holland, 2000).

Bowtell W., interview, Sydney, 14 November 2003.

British Medical Association, Medical Ethics Committee 2003, 2006, *The law & ethics of male circumcision: Guidance for doctors*, London, BMA, seen at http://www.bma.org.uk/ethics/consent_and_capacity/malecircumcision2006.jsp.

BMJ, 'A ritual operation', *British Medical Journal*, 24 December, (1949) pp. 1458–1459.

BMJ, 'The case against circumcision', *British Medical Journal*, 5 (May 1979), pp. 1163–1164.

Broadhurst N. and Davey B., 'Circumcision: A review of the literature and survey of current practice', *Australian Family Physician*, 13 (1984), 731–733.

Brown M.S. and Brown C.A., 'Circumcision decision: Prominence of social concerns', *Pediatrics* 80 (1987), 215–216

Carbines L., 'Protest at circumcision change', The Age, 10 July 1985A, 1.
Carbines L., 'Government's about-turn has the rabbi smiling', The Age, 11 July 1985B, 3.
Cozjin J., 'Incidence of male circumcision in Australia', Unpublished research paper (2004).
Craig A. and Bollinger D., 'Of waste and want: A nationwide survey of Medicaid funding for medically unnecessary, non-therapeutic circumcision', in George C. Denniston et al (eds.), *Bodily Integrity and the Politics of Circumcision: Culture, Controversy and Change* (New York, Springer, 2006).
Craig A. et al., 'Tax dollar funding of medically unnecessary circumcision through Medicaid', Santa Cruz, *International Coalition for Genital Integrity* (2001), pdf available at www.icgi.org
Daniel A., *Medicine and the State: Professional Autonomy and Public Accountability* (Sydney, Allen and Unwin, 1990).
Darby R., 'A source of serious mischief: The demonisation of the foreskin and the rise of preventive circumcision in Australia', in George C. Denniston, Frederick Hodges and Marylin Milos (eds.), *Understanding Circumcision: A Multi-disciplinary Approach to a Multi-dimensional Problem* (London and New York, Kluwer Academic and Plenum Press, 2001).
Darby R., *A Surgical Temptation: The Demonization of the Foreskin and the Rise of Circumcision in Britain* (Chicago, University of Chicago Press, 2005).
Darby R., 'Infant circumcision in Australia, 2000–2010: A preliminary estimate'. *Australian and New Zealand Journal of Public Health*, 35, (2011), 390–391
Durham-Smith E., 'Another view of circumcision', *Australian Paediatric Journal*, 6 (1970), 67–69.
Finland Central Union for Child Welfare, *Position Statement on the Circumcision of Boys* (Helsinki, FCUCW, 2003).
Fox M. and Thomson M., 'Short changed? The law and ethics of male circumcision', *International Journal of Children's Rights*, 13 (2005), 161–181.
Gillespie, J., *The Price of Health: Australian Governments and Medical Politics 1910–1960* (Cambridge University Press, 1991).
Glass M. 2003, personal communication.
Gollaher D., *Circumcision: A History of the World's Most Controversial Surgery* (New York, Basic Books, 2000).
Hackett E., 'The foreskin saga', *Medical Journal of Australia*, 4 August 1984, 187–189
Harris M., 'Muslims, Jews hit by new fund rule', Sydney Morning Herald, 10 July 1985, 1.
Hellsten S.K., 'Rationalising circumcision: From tradition to fashion, from public health to individual freedom – Critical notes on cultural persistence of the practice of genital mutilation', *Journal of Medical Ethics*, 30 (2004), 248–53.

Hirst G., 'Controversies surrounding circumcision', *Patient Management*, 8 (1984), 12–21.
Hodges F. et al., 'Prophylactic interventions on children: Balancing human rights with public health', *Journal of Medical Ethics*, 28 (2002), 10–16.
Iglehart, John K, 'Medicaid at a Crossroads'. *New England Journal of Medicine* 364 (28 April) (2011), 1585–1587.
Khan S.N., 'Religion in medicine: The Islamic viewpoint', *Australian Family Physician*, 15 February 1986, 179.
Learoyd B., 'The unnecessary surgery debate', *New Doctor*, No. 36 (1985), 11–18.
Leitch I.O.W., 'Circumcision: A continuing enigma'. *Australian Paediatric Journal*, 6 (1970), 59–65.
Leiter E., 'No medical evidence against Brith Milah', *Australian Jewish Times*, 18 July 1985.
Levi J.S., 'Religion and medicine: Jewish medical ethics', *Australian Family Physician*, 15 (January 1986), 19.
Manitoba Medical Association, 'Neonatal circumcision: Insured or uninsured?', Inter-Com, November 2001.
Maskell C.A., *Does Medicare Matter?* Canberra: Australian National University Public Policy Program, Discussion Paper No. 9 (1988).
Medicare (Australia) website: http://www.medicareaustralia.gov.au.
Medical Observer, 'Call to take elective circumcision off MBS', *Medical Observer*, 5 September 2003, 1.
Middleton K., 'Backlash fears put a stop to rebate cut', Age, 18 November 1996, 3.
Miller, G., 'Circumcision: Cultural-legal analysis', *Virginia Journal of Social Policy and the Law*, Vol. 9 (2002), 497–585.
National Health and Medical Research Council, *Report of the 95th session* (Canberra, AGPS 1984).
NSW Health Commission, Circular 82/60, 'Neonatal circumcision', 1 March 1982.
Ozdemir E., 'Significantly increased complication risks with mass circumcisions', *British Journal of Urology,* 80 (1997), 136–139.
Paranthaman K., Bagaria J. and O'Moore E., 'The need for commissioning circumcision services for non-therapeutic indications in the NHS: Lessons from an incident investigation in Oxford', *Journal of Public Health* (Advance access, 14 July, 2010).
Parliament of Australia, Senate Select Committee on Medicare, *Medicare: Healthcare or Welfare*? (Canberra, AGPS, 2003).
Phelan P.D., 'Circumcision' [letter], The Age, 13 July 1985, 12.
Phillips W., 'No evidence to support routine circumcision', *Medical Observer*, 26 September (2003), 24.
Reid G.S. and Forrest M., *Australia's Commonwealth Parliament 1901–1988: Ten Perspectives* (Melbourne, Melbourne University Press, 1989).

Rouse R., 'Call to take elective circumcision off MBS', *Medical Observer*, 5 September, 2003.
Royal Australasian College of Physicians, Policy statements on circumcision, 2002 and 2004, seen at http://www.cirp.org/library/statements/.
Royal Australasian College of Physicians 2010, Circumcision of Infant Males, Sydney, available at http://www.racp.edu.au/page/policy-and-advocacy/paediatrics-and-child-health.
Rubenstein W.D., *The Jews in Australia: A Thematic History, Vol 2: 1945 to the present* (Melbourne, Heinemann, 1991).
Sattler H., 'Stop funding circumcision', Sunday Times (Perth, WA), 14 July 1985.
Sax S., *A discussion paper on paying for health care*, cited in Legislative Research Service, Parliamentary Library, *Australian Health Insurance Arrangements 1969–81: The Roles of Public and Private Health Insurance*, Basic Paper No. 4 (1981), 23.
Sax S., *A Strife of Interests: Politics and Policies in Australian Health Services* (Sydney, Allen and Unwin, 1984).
Scotton R.B. and Macdonald C.R., *Making of Medibank* (Sydney, University of NSW School of Health Sciences Management, 1993).
Shah T. et al., 'A circumcision service for religious reasons', *BJU International*, 83(7) (1999), 807–809.
Smibert J., 'Circumcision' [letter], The Age, 13 July 1985, 12.
Spilsbury K. et al., 'Routine circumcision practice in Western Australia 1981–1999', *ANZ Journal of Surgery*, 73 (2003A), 610–614.
Spilsbury K. et al., 'Circumcision for phimosis and other medical indications in Western Australian boys', *Medical Journal of Australia*, 178 (2003B), 155–158.
Svoboda, J.S. et al., 'Informed consent for neonatal circumcision: An ethical and legal conundrum', *Journal of Contemporary Health Law and Policy*, 17 (2000), 61–133.
Waldeck S., 'Using circumcision to understand social norms as multipliers', *University of Cincinnati Law Review*, 72 (2003), 455–526.
Wallerstein E., 'Circumcision: The uniquely American medical enigma', *Urologic Clinics of North America*, (1985) 12.
Weiss C., 'A worldwide survey of the practice of Milah (ritual circumcision)', *Jewish Social Studies*, 24 (1962), 30–48.
Wirth J.L., 'Current circumcision practices in Australia', *Medical Journal of Australia*, 20 February, (1982), 177–179.
Wirth J.L., 'Circumcision in Australia: An update', *Australian Paediatric Journal*, 22 (1986), 225–226.
Zoossmann-Diskin A., personal communication (2003).