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Control of tropical diseases

Report by the Director-General

The Division of Control of Tropical Diseases (CTD) was established on 8 January 1990 and since its inception has promoted, advocated and coordinated tropical disease control activities to improve community and population health. During 1995 and 1996, this mandate was extended and special attention was given to the integrated control of tropical diseases, as well as a number of other serious communicable diseases, within primary health care. Part I of this report reviews tropical disease control activities and suggests the possibility of eliminating lymphatic filariasis as a public health problem. Part II describes the situation with regard to lymphatic filariasis. Part III summarizes the steps taken by the Director-General to strengthen the malaria prevention and control programme. Part IV describes the progress made towards dracunculiasis eradication and Part V draws attention to the express wish of the Member States in Africa that WHO lead a coordinated African trypanosomiasis prevention and control programme. Part VI refers to four resolutions adopted by the Executive Board at its ninety-ninth session, which recommend resolutions for adoption by the Health Assembly.

I. REVIEW OF TROPICAL DISEASE CONTROL ACTIVITIES

1. The Division of Control of Tropical Diseases, established to strengthen activities and improve coordination in the field of tropical diseases, was formed by the amalgamation of the Malaria Action Programme, the Parasitic Diseases Programme, the Division of Vector Biology and Control, and the Leprosy Programme. The latter became a separate Action Programme for the Elimination of Leprosy in December 1994. In February 1996, the Intestinal Parasites unit was transferred to the Division, becoming, with the former Schistosomiasis Control unit, the new programme on Schistosomiasis and Intestinal Parasites.

2. The Division's main areas of responsibility are the eradication, elimination or control of malaria, dracunculiasis, African trypanosomiasis (sleeping sickness), American trypanosomiasis (Chagas disease), leishmaniasis, lymphatic filariasis, schistosomiasis and intestinal parasites, onchocerciasis (in collaboration with other international agencies) and the vectors of dengue. With regard to support activities, the Division is also responsible for training and capacity-building in disease control, epidemic/emergency action, health mapping using geographical information systems, and the WHO pesticides evaluation scheme (WHOPES). In carrying out these responsibilities the Division works very closely with all WHO regional offices and other technical programmes at headquarters, in particular the World Bank/UNDP/WHO Special Programme for Research and

Training in Tropical Diseases, and the Division of Emerging and other Communicable Disease Surveillance and Control.

3. Over the past year, the Division has established a new basis for better collaboration with Member States in the control of tropical diseases. These diseases do not receive sufficient attention, although they affect millions of marginalized and deprived people. Furthermore, if effective control and surveillance measures are not sustained, they are resurgent, malaria particularly.

4. The many factors involved in perpetuating the transmission of these diseases are clearly described in *The world health report 1996*. Control strategies need to be developed in a manner fully consistent with national health development policies and jointly planned in such a way as to alleviate major local constraints.

5. WHO has adopted an integrated approach to the control of tropical and a number of other communicable diseases, which necessitates collaboration across programmes. Consultations with countries have already taken place and action plans have been jointly developed, for example, in the Islamic Republic of Iran, Saudi Arabia, United Republic of Tanzania (Zanzibar) and Yemen. These plans are designed to control the priority endemic diseases in each country (not only tropical diseases) and include support activities, of which training, surveillance and health mapping are the most prominent. Initially, implementation will take place in selected districts and provinces, and this invaluable experience will then be applied to future activities.

6. Opportunities for mutual support exist at all stages of planning, implementation and evaluation. Particularly important is capacity-building to ensure the continuing presence of well-trained and highly-motivated workforces at each level of the health care structure in all endemic countries. WHO emphasizes the training of trainers, the training of a nucleus of expertise and the preparation of training materials to meet the needs of endemic countries.

7. The development of information systems to evaluate impact, as well as to assure accountability and effective planning, is essential. To make full use of technological advances in mapping and geographical information systems, a WHO/UNICEF joint programme on data management and mapping for public health (HealthMap) has been established. The programme is administered by WHO. Initially developed to provide technical support to national governments in the identification and mapping of dracunculiasis endemic villages, it has now evolved into a general mapping activity. The data bank, which contains public health information on over 80 000 villages in 20 African countries, is now being expanded to cover other programmes and countries.

8. At the global level, a network of technical expertise from various sectors and agencies has been established to ensure coordination of efforts and the exchange of information. A bulletin board on the Internet (health-gis@who.ch) has been set up, facilitating communication between more than 500 members. In addition, information about tropical disease control activities is available on the World Wide Web.

9. The WHO pesticides evaluation scheme (WHOPES) is the only international programme which promotes the development and evaluation of new pesticide products, formulations and application equipment for use in public health. WHOPES works in very close collaboration with national diseases control programmes, international organizations, industry and the Pesticide Manufacturers Association. An informal consultation, held in Geneva from 7 to 11 October 1996, on the evaluation and testing of insecticides, focused on updating and reviewing testing methods. A major recommendation was to expand the activities of WHOPES and include studies on biopesticides and household pesticides.

10. Headway is being made against other tropical diseases. Based on current data on vector control, blood bank surveys and serology in the under fives, transmission of Chagas disease was interrupted in Uruguay in 1996, and it is predicted that it will be interrupted in the coming years in Chile (1997), Brazil (1998), Argentina (1999), Bolivia and Paraguay (2000). In Brazil, which accounted for over 40% of prevalence of Chagas disease,

transmission of the disease has been virtually eliminated, and it is predicted that the certification of the interruption of transmission will occur in 1998. These achievements are within the framework of the Southern Cone Initiative, launched in 1991. Similar initiatives have been developed, since 1994, for the Andean and Central American countries. It has been shown that economic losses due to Chagas and other tropical diseases can be reduced by relatively modest investments.

11. *Leishmania*/HIV as a co-infection is an emerging disease which requires urgent attention. The surveillance network has been extended to include 15 institutions in 10 countries and a standardized case report form has been introduced for the compilation and analysis of data worldwide. Preliminary results on the use of insecticide-impregnated mosquito nets in a focus of anthroponotic cutaneous leishmaniasis indicate that this approach is likely to be a valuable vector control method in this particular epidemiological situation.

II. LYMPHATIC FILARIASIS

12. Lymphatic filariasis infects 120 million people in 73 countries worldwide and continues to be a worsening problem, especially in Africa and the Indian subcontinent. Elephantiasis, lymphoedema and genital pathology afflict 44 million men, women and children; another 76 million have parasites in their blood and hidden internal damage to their lymphatic and renal systems. Earlier tools and strategies for control were inadequate, but during the past decade dramatic research advances have led to new understanding of the severity and effects of the disease, new diagnostic and monitoring tools, and, most important, new treatment tools and control strategy.

13. The new strategy focuses on treating the human population through community-wide (mass) programmes. Programmes employing such a strategy have already been drawn up in Egypt, Fiji, French Polynesia, India and Samoa. A single annual dose of two drugs (ivermectin plus either diethylcarbamazine (DEC) or albendazole) reduces blood microfilariae by 99% for a full year; even single-drug use can result in 90% reduction, and field studies indicate that transmission of infection can be interrupted. Industry is generously providing the necessary ivermectin to countries collaborating with WHO to demonstrate that filariasis can be eliminated using this drug alone or in combination with others once yearly for two to five years. An alternative approach, equally effective in clearing microfilaraemia, is the daily use of DEC-fortified salt instead of regular table or cooking salt for periods of nine to 12 months. Recognition of the remarkable technical advances, the successes of recent control programmes, and the fact that humans are the only reservoir hosts for this infection, has led to the present proposal that WHO should assist Member States to develop programmes for the elimination of lymphatic filariasis as a public health problem.

14. Three WHO regions, the Region of the Americas, the South-East Asia Region and the Western Pacific Region, have now drawn up guidelines or strategies concerning dengue and are assisting selected Member States in the elaboration and implementation of national strategies for dengue prevention and control. This is of extreme urgency, in view of the unprecedented number of outbreaks in 1995-1996. In 1995, the 32 countries in the Americas reported 275 000 cases, with 104 deaths, while by September 1996, more than 160 000 cases of dengue and 2000 cases of dengue haemorrhagic fever were reported. The epidemics are not limited to the Americas, however. In India, in 1996, there were thousands of hospitalized cases, with the associated mortality, and many children were affected. Reasons for the increase are, *inter alia*, the expanded circulation of multiple dengue serotypes, increased densities of the vector mosquito, larger urban populations, insufficient water supply and inadequate solid waste management. Also, disease and vector surveillance and control measures require improvement.

III. MALARIA

15. Globally, the malaria situation is serious and worsening, particularly in poorer countries. It is estimated that 300 to 500 million clinical cases and 1.5 to 2.7 million deaths due to malaria occur each year, 90% of which

are in Africa south of the Sahara. Malaria undermines the health and welfare of families, endangers the survival and education of children, and debilitates the active population, thereby limiting their ability to contribute to economic and social development. Finally, it taxes both countries' and people's scarce resources.

16. The malaria problem is increasing because of a lack of financial and human resources, as well as because of land degradation, deforestation, and the expansion of agricultural exploitation and mining, as populations migrate and countries strive to improve their economies. War, civil unrest and climatic change all contribute dramatically to the malaria burden.

17. While acknowledging the intensive efforts of WHO's technical staff to deal with the global malaria situation despite limited resources available for the purpose, the Health Assembly in 1996, in resolution WHA49.11, noted that WHO's response was inadequate to deal with the explosive situation. It urged Member States to participate fully in a re-established action programme on malaria and asked regional committees to ensure that regional and subregional plans of action were prepared and adequate resources allocated. The Health Assembly also requested the Director-General to explore the possibility of establishing a special programme on malaria, to intensify efforts to increase resources for WHO's actions in malaria control, and to reinforce the training programme at the country, regional and global levels.

18. In response to this resolution, the Director-General established a task force on malaria prevention and control to conduct an external review of the malaria problem worldwide, assess progress being made towards control, and recommend means by which WHO can best support Member States in the effective control of global malaria.

19. The task force met in Geneva in October 1996 and endorsed the global malaria control strategy.[1] It emphasized the need for the leadership of WHO, as a coordinating, high profile and technical advisory agency, to be restored, for collaboration with the United Nations system to be strengthened, and for the WHO programme to be restructured, with consideration being given to the creation of an independent advisory body. It further recommended that operational multidisciplinary malaria research as well as training be seen as essential components of the global malaria control strategy and be effectively integrated with the malaria control programme.

20. The task force also recommended that the political commitment of countries should be expressed in practical terms, by the allocation of resources, and the highest priority given to control of malaria mortality in Africa south of the Sahara. Core funding for programmes needs to be guaranteed irrespective of external grants or loans, and sufficient technically competent staff and other resources should be made available.

21. In spite of the spread of drug and insecticide resistance, malaria can be prevented and cured with the tools at present available. The key to success is to apply the right combination of measures in the right place and at the right time. The basic principle of the global malaria control strategy is that the malaria control activities should be adapted to the evolving local situation.

22. There are, however, constraints affecting the implementation of the strategy, particularly the acute shortage of funds available for malaria control. International political commitment has not been translated into the provision of training and financial resources. Thus, national programmes lack the financial and human resources necessary to plan, implement, supervise and evaluate malaria control at the provincial/district and peripheral levels, and cannot ensure that the public and private sectors follow common policies. In addition, not enough resources are available for the monitoring, prevention and timely control of malaria epidemics and emergencies, and existing information systems are inadequate for rapid situation assessment and evaluation of control activities.

[1] *A global strategy for malaria control.* Geneva, World Health Organization, 1993.

23. Essentially, WHO lacks the human and financial resources to respond in a timely manner to the increasing demands of Member States for assistance in resource mobilization and the planning, implementation and evaluation of their malaria control activities.

24. The WHO Action Plan for Malaria Control (1995-2000), adopted by the United Nations Economic and Social Council in its resolution 1995/63, gives priority to country support activities, based on the development of realistic and affordable national plans of action, drawn up after an assessment of needs and priorities. Training and operational research are part of national plans for malaria control, which emphasize partnership among all United Nations organizations and other agencies involved in malaria control, the integration of malaria control into general health services and other health programmes, as well as strengthening the community's role in prevention and control.

25. Priority is given to African countries in establishing control programmes. This involves strengthening general health services, supporting health care providers and communities by providing early diagnosis and prompt treatment, and responding adequately to the increasing incidence of epidemics and emergency situations.

26. Recent increases in malaria cases and epidemics in other regions, including Europe, have necessitated devoting additional attention to those areas. In such cases, priority is given to the integration of the principles of the global strategy into existing malaria control programmes, as well as to improving the provision of basic curative services at all levels of health care, the promotion of rational drug use and the selective use of disease prevention methods, including vector control.

27. Managerial training for malaria control is essential, and senior programme managers from every malaria endemic country in Africa have been trained in WHO-sponsored courses. In addition, high priority is accorded to the in-country instruction of trainers of members of the district health team and health officers. Over 400 laboratory technicians have been trained in basic microscopy and nearly 16 000 persons in disease management.

28. By the end of 1995, a total of 38 malaria endemic countries in Africa had completed plans for malaria control; but implementation is only at an initial stage because of the limited availability of resources. Outside Africa, 55 countries have reoriented their malaria control programmes in line with the global strategy. Many of these countries that have not completed their action plans, especially in Africa, have been hampered by political instability, civil war and natural disasters.

29. WHO has provided limited financial support to 65 malaria endemic countries, 43 of which are in Africa. However, this input falls short of even the minimum requirements for the implementation of effective programmes. WHO is currently collaborating with UNDP, UNICEF, the World Bank, the European Commission and other funding and nongovernmental organizations in drawing up and providing financial support to malaria control programmes in nine countries.

30. During 1995-1996, WHO, in close cooperation with bilateral, international and nongovernmental organizations, provided technical assistance for malaria prevention and control among displaced populations and refugees in Azerbaijan, Burundi, Rwanda, United Republic of Tanzania and Zaire, as well as for malaria epidemic control in 11 countries affected by epidemics.[1]

31. Guidelines on partnerships for change and on communication for malaria programmes were published in 1996 in collaboration with the Malaria Consortium of the United Kingdom of Great Britain and Northern Ireland. The guidelines aim to help managers define the malaria situation in their area and develop suitable

[1] Azerbaijan, Bangladesh, Botswana, India, Iraq, Sudan, Swaziland, Tajikistan, Turkey, Yemen and Zimbabwe.

strategies for health promotion and community action. WHO has prepared new guidelines on malaria control for community health workers.

32. Guidelines have been produced on the selective use of preventive measures, including vector control, and on the operational implementation in Africa of insecticide-treated mosquito nets and other materials. Workshops on vector control have been held for entomologists from 35 national programmes, and ways of using insecticide-impregnated materials in malaria control have been outlined.

33. Guidelines for malaria control among displaced populations and refugees were also published in 1996. A manual on malaria epidemic control is being finalized. Training in epidemic preparedness and control has been carried out for general health service staff in epidemic-prone areas of 20 countries in three WHO regions.

34. Malaria control is part of the United Nations Secretary-General's Special Initiative on Africa, which aims to bring together basic education, health sector reform and sustainable livelihoods to reduce the major causes of mortality and morbidity, including malaria.

35. Extrabudgetary resources for WHO's global antimalarial activities provided to the special account for malaria in 1994-1995 were US$ 6 277 634, comprising US$ 4 847 405 for specified activities and US$ 1 430 229 for unspecified activities. The contributions for global activities for 1996-1997 as of October 1996 were US$ 3 992 097 specified funds and US$ 59 173 unspecified. There has, however, been a renewed interest in the malaria problem on the part of development organizations.

36. In response to resolution WHA49.11, the Director-General has allocated US$ 10 million as additional support to accelerate the implementation of malaria control activities in Africa in 1997. Plans of action for the use of these funds in 24 African countries are being finalized in collaboration with the countries concerned and the Regional Offices for Africa and the Eastern Mediterranean.

37. It is estimated that the external investment needed for malaria control in Africa, in the current decade, is approximately US$ 14 million annually to undertake basic programme activities related to disease management, plus an additional US$ 12 million annually for comprehensive control activities, including epidemic control. These costs do not include short-term technical assistance or the training of specialized staff at international courses, but do include in-country training and operational research.

IV. DRACUNCULIASIS ERADICATION

38. In resolution WHA44.5, the Health Assembly declared its commitment to the eradication of dracunculiasis by the end of 1995. Resolution AFR/RC45/R8 of the forty-fifth session of the Regional Committee for Africa (1995) "urges all the affected Member States to take appropriate measures to maintain the commitment of communities and other partners until the disease is eradicated." Other bodies have also selected dracunculiasis for global elimination.[1] The World Summit for Children, held in September 1990, set the elimination of guinea-worm disease as one of its health goals, and the United Nations Conference on Environment and Development, held in 1992, included the elimination of guinea-worm disease in its Agenda 21, under the protection and promotion of human health.

39. In 1996, a total of about 100 000 dracunculiasis cases are expected worldwide, with more than 70% occurring in Sudan, of which over 90% are from six southern States. At the end of September 1996, the number of known endemic villages in Sudan was 4623, representing about 40% of the villages known to be endemic

[1] Countries and territories are grouped into five categories: (1) endemic; (2) pre-certification - three-year period; (3) needing to undergo verification - cases of dracunculiasis at some time in the past; (4) not needing to undergo verification - cases in remote past or never known; (5) certified free of transmission.

globally. However, of the 17 other countries still considered endemic, 4 reported fewer than 10 cases, and 6 reported 100 or less cases up to the end of September 1996. In November 1994, cases were confirmed in Yemen (the only endemic country in Asia besides India) and an eradication programme was rapidly implemented; 87% of the 55 cases reported in 1996 (up to July) have been contained. Other than Sudan, the 15 endemic countries in Africa achieved a 73% reduction in the number of cases in 1996 (January to September) as compared with the first nine months of 1995. On average 64.2% of the known cases in the first nine months of 1996 were reportedly contained, the range being from 56% to 100% of cases contained.

40. In 1995, there were 129 834 reported cases, compared with an estimated 3.5 million in 1986. By the end of 1995, case-containment was implemented in more than 85% of endemic villages, i.e., 100% of endemic villages in all but two countries. Under case-containment procedures, the village volunteer is responsible both for reporting cases at the latest 24 hours after the beginning of worm emergence, and for immediate intervention at the patient and village levels so that no spread of the disease can occur.

41. The strategy endorsed by the World Health Assembly in 1991 (in resolution WHA44.5) has proved effective, especially the community-based surveillance systems, community involvement in interventions and case-containment strategies.

42. In view of the programme's success so far, WHO will encourage integration of dracunculiasis activities into primary health care and the implementation of case-containment measures intended to prevent all further transmission, thereby eliminating the last few cases.

43. As recommended by the UNICEF/WHO Joint Committee on Health Policy, which considered dracunculiasis eradication at its May 1996 meeting, WHO will continue to mobilize political support and resources from the endemic countries, as well as from bilateral and international development agencies, nongovernmental organizations and others, encouraging them to continue to support eradication activities until the world is certified to be free of dracunculiasis. In 1996, Canada, Japan, Kuwait, Norway, Spain, the United Kingdom of Great Britain and Northern Ireland, and the Organization of Petroleum Exporting Countries (OPEC) all responded positively to WHO's appeals for support; bilateral funds were also made available.

44. In close collaboration with its partners in the eradication programme, WHO will redouble its efforts in Sudan, which continues to be troubled by civil strife, to help accelerate the interruption of transmission there, while continuing to support the mopping-up phase in the less heavily endemic countries.

45. In 1996, WHO began dracunculiasis eradication certification with the establishment of an International Commission for the Certification of Dracunculiasis Eradication. In January 1997, the Director-General accepted the recommendation of the Commission to certify Pakistan, the Islamic Republic of Iran and 19 other countries as "being free of dracunculiasis transmission". In Pakistan, the last dracunculiasis cases date back to October 1993, while the Islamic Republic of Iran has not reported any cases since the middle of the 1970s. In the other 19 countries - Austria, Barbados, Belgium, Brazil, Bulgaria, Colombia, Cook Islands, Cuba, Dominican Republic, Finland, Kiribati, Mongolia, Papua New Guinea, Romania, Singapore, Solomon Islands, Switzerland, Trinidad and Tobago, and Vanuatu - dracunculiasis has not been reported in this century, or the conditions needed for its transmission do not exist.

46. WHO will continue to work towards the certification of the eradication of dracunculiasis and will invite non-endemic countries to apply for certification. WHO aims to certify eradication three years after the last case of dracunculiasis is detected.

V. AFRICAN TRYPANOSOMIASIS

47. African trypanosomiasis, or sleeping sickness, is endemic in 36 countries in Africa south of the Sahara, and over 55 million people are at risk. The danger of epidemics is real, with eastern and central Africa currently confronting epidemic outbreaks. Proper surveillance of the population at risk would undoubtedly reveal at least 250 000 to 300 000 cases. Many areas in Africa which are known to be endemic have not been surveyed for years.

48. The total number of sleeping sickness cases reported each year (25 000 to 30 000) represents merely a fraction of the actual number of people suffering from the disease, as not more than 3 to 4 million of the estimated 55 million at risk are currently under surveillance. Sleeping sickness fatality rates can be as high as 70%. Since it is a rural disease, infected individuals, who have no access to any sort of health facility, are not diagnosed and die in their village, their deaths remaining unreported.

49. Sleeping sickness affects social development and inhibits economic growth of rural populations. Tsetse flies and the diseases they transmit destabilize both human and livestock populations. Fertile areas, abandoned for generations, cannot be reclaimed as long as sleeping sickness is a threat to the population. Long-term care of patients with *Trypanosoma gambiense* hampers community development, imposing heavy financial burdens and involving a considerable loss of manpower.

50. The transmission cycle of the pathogenic *Trypanosoma* species involves humans, tsetse flies and wild and domestic animals, none of which are totally controllable. Only drastic changes in the traditional use of land and an improvement in the socioeconomic situation of rural Africa can provide a long-term solution to the sleeping sickness problem. Therefore, the leading principle of sleeping sickness control remains the reduction of the human reservoir through medical surveillance and the treatment of infected individuals, as well as the reduction of human-fly contact through adapted vector control activities.

51. During the early stage of sleeping sickness, before the central nervous system is involved, the cure rate is high and fatal complications are rare, whereas treatment at the advanced stage has serious side-effects with 3-10% of the patients dying - hence the importance of early case detection and treatment. The current policy aims at 10% coverage through active surveillance in priority areas, which are selected on the basis of newly diagnosed cases and past trypanosomiasis history.

52. Among WHO's programme priorities is the implementation of a central African initiative, launched as a "project for the prevention and control of human trypanosomiasis in central Africa and neighbouring foci". Initially involving 10 countries and now extended to 14, with the support of the French Ministry of Cooperation and the Belgian Administration for Development Cooperation, the programme aims for global and coordinated action (i) to reduce the disease burden through sustained surveillance and control activities, (ii) to reinforce the East African trypanosomiasis (animal and human) regional programme involving eight countries, and (iii) to create a joint OAU/FAO/IAEA/WHO project for global collaboration and coordination of action in support of sustainable agricultural development in the context of socioeconomic development. The European Commission is funding a regional tsetse and trypanosomiasis control project for four countries in East Africa.

53. The WHO programme, which promotes sleeping sickness control and provides endemic countries with the expertise to design, establish and maintain control activities, has adopted a three-phase approach to support national programmes:

- situation evaluation, national programme assessment and reformulation; elaboration of a plan of action including technical, personnel and financial needs; establishment of a time schedule and submission of programme documents to potential donors;

- reinforcement of the existing supply line for material, equipment, reagents and drugs; development of locally adapted training material and organization of training courses, seminars and workshops;

- provision of technical assistance for project implementation, follow-up of activities and evaluation of performance.

VI. MATTERS FOR THE PARTICULAR ATTENTION OF THE HEALTH ASSEMBLY

54. The Health Assembly is invited to consider the resolutions recommended by the Executive Board in its resolutions EB99.R17, EB99.R18, EB99.R19, and EB99.R20.

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