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**CONTROL OF HUMAN AFRICAN TRYPANOSOMIASIS:  
A STRATEGY FOR THE AFRICAN REGION**

**Report of the Regional Director**

**EXECUTIVE SUMMARY**

1. Human African trypanosomiasis (HAT) is caused by trypanosomes that are transmitted by the tsetse fly. HAT is the only vector-borne parasitic disease with a geographical distribution limited to the African continent. Populations in the age group 15-45 years living in remote rural areas are the most affected, leading to economic loss and social misery.
2. In the early 1960s, the prevalence of HAT had been reduced to very low levels (prevalence rate less than one case per 10 000 inhabitants). Unfortunately, due to lack of regular surveillance activities and reduced resource allocation to HAT as well as changing health priorities and nonavailability of drugs, the disease has been neglected.
3. During the 1980s and 1990s, considerable progress was made in the development or improvement of epidemiological tools suitable for HAT control; however, these were not sufficiently used in the field. All this led to the resurgence of the disease in areas where it was previously controlled, reaching epidemic levels in some instances. WHO estimates are that infected individuals number between 300 000 and 500 000.
4. The proposed regional strategy for the control of HAT is aimed at eliminating the disease as a public health problem by 2015. To attain the set targets, the strategy proposes an integrated approach consisting of continuous surveillance of the population at risk, passive and active case detection and treatment, reduction of animal reservoirs through selective or mass treatment of livestock, and intense tsetse control in highly endemic and epidemic areas.
5. Implementation of this strategy should reduce morbidity and mortality due to human African trypanosomiasis and improve the economic and social status of the affected populations.
6. The strategy is therefore submitted to the Regional Committee for consideration and adoption.

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## INTRODUCTION

1. Human African trypanosomiasis (HAT), commonly known as “sleeping sickness”, is caused by trypanosomes that are transmitted by the tsetse fly. The disease was recognized centuries ago. HAT is the only vector-borne parasitic disease with a geographical distribution limited to the African continent. There have been three severe epidemics: one at the end of the nineteenth century, the second during the 1920s, and the third from the 1970s to the present.
2. The disease progresses through two stages following an asymptomatic period of several weeks or months. The early stage is usually characterized by malaria-like symptoms, including fatigue, headache, recurrent fever and swollen lymph nodes. In advanced stages the disease affects the central nervous system, causing severe neurological and mental disorders and making the individual dependent on others. Infected individuals are weakened, often for many years, causing economic loss, poverty and social misery. HAT is completely fatal if untreated.
3. HAT constitutes a major public health problem in the African Region. Given the resurgence of both human and animal trypanosomiasis, the epidemic potential, high fatality rate and significant impact on socioeconomic development, many countries requested more active WHO support to control the disease. The aims of this proposed strategy are to control the intensity of transmission in endemic and epidemic countries in the medium term and to eliminate the disease in the long term.

## SITUATION ANALYSIS

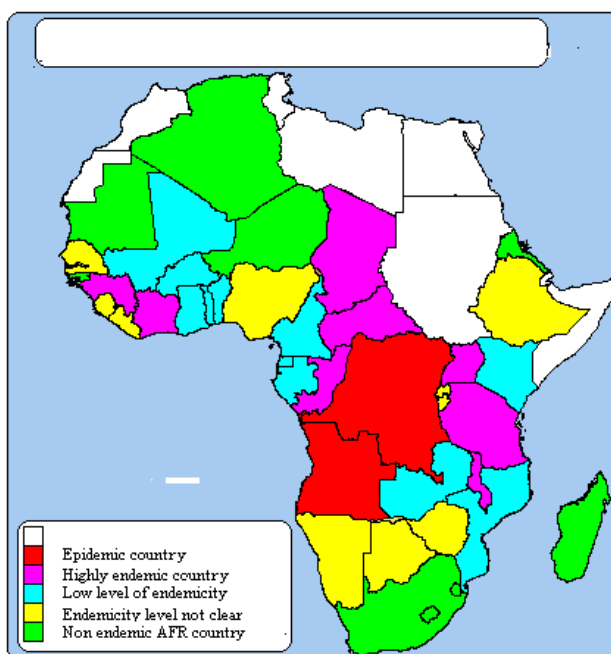
4. During the nineteenth century, HAT was an enormous public health problem. Currently, there are more than 250 active foci within the “tsetse belt” in sub-Saharan Africa, mainly involving countries of the WHO African Region and the Sudan. Within this area, sleeping sickness threatens over 60 million people. Less than 10% of the at-risk population are currently under surveillance. In recent years, an annual average of about 45 000 cases has been reported; however, WHO estimates that between 300 000 and 500 000 individuals are infected.<sup>1</sup>
5. The true number of endemic countries is unknown. It is reported that HAT is endemic in 35 countries in the African Region, but there are different levels of endemicity<sup>2</sup> (see Figure 1). Countries are classified as: (a) non-endemic with no case reported in five or more years; (b) unknown endemicity (0–25 new cases per year); (c) low endemicity (26–100 new cases per year); (d) moderate endemicity (101–500 new cases per year); (e) highly endemic or epidemic (more than 500 new cases per year). In 2003, countries reported about 17 000 new cases to WHO. More than 80% of these cases were reported from Angola (3 000 cases) and the Democratic Republic of Congo (11 000 cases).

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<sup>1</sup> WHO, Control and surveillance of African trypanosomiasis. Report of WHO expert committee. WHO technical report series, Geneva, World Health Organization, 1998.

<sup>2</sup> Pépin J, Meda AH, The epidemiology and control of human African trypanosomiasis, *Advances in Parasitology*, 49, 71–132, 2001.

**Figure 1: Human African trypanosomiasis endemicity  
in the WHO African Region**



6. Sleeping sickness is mainly a disease of poor, marginalized and rural populations who depend on their land and labour for a livelihood. HAT represents a major threat to economic development because it mainly affects the most productive age group (15 to 45 years) and sustains the disease-poverty-disease cycle.

7. A significant proportion of children are affected by HAT, and many will have considerable delay in mental development even after successful treatment. This will impact negatively on their school performance and eventual lifetime achievements.

8. According to recent estimates,<sup>3</sup> the disability adjusted life years (DALYs) lost due to sleeping sickness was 2.05 million. The same source reported 66 000 deaths in 1999 due to HAT.

9. Given the negative socioeconomic impact of HAT, the Regional Committee, in 1982, adopted Resolution AFR/RC32/R1 recommending Member States to implement trypanosomiasis control activities. This was later endorsed by World Health Assembly resolutions WHA36.31, WHA50.36 and WHA57.2.

10. The disease was brought under control in the early 1960s when the prevalence was dramatically reduced to very low levels (less than one case per 10 000). Active case detection by examination of lymph-node aspirates, treatment with toxic drugs, vector control and mobile teams were utilized.

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<sup>3</sup> WHO, *The world health report 2000: Health systems: Improving performance*, Geneva, World Health Organization, 2000.

11. Unfortunately, these successful results could not be sustained. Regular and systematic surveillance, which is the cornerstone of HAT control, was abandoned because of the progressive shortage of qualified personnel. Population movements following political upheavals and economic crises as well as changing priorities in national policies led to the allocation of fewer resources to the health sector. A substantial proportion of the inhabitants of endemic foci were no longer participating in screening activities. Hence, active case detection was greatly reduced, and drugs for treatment were often not available. All these factors contributed to the resurgence of the disease to epidemic levels.

12. In some countries, control efforts resumed, but the situation continued to worsen. Current HAT control in the Region faces a lot of constraints and challenges: insufficient financial allocations, severe shortage of skilled personnel, inadequate health infrastructure, diagnostic and treatment procedures that are difficult to implement at peripheral level, severe drug side-effects, increased drug resistance, poor community awareness and participation in control activities, remote disease foci, and lack of multisectoral coordinated action to implement disease control programmes.

13. Strong enabling factors for human African trypanosomiasis control do exist. In affected countries, there is strong willingness and commitment to HAT control. The private sector, including pharmaceutical companies and the international community, is expressing willingness to offer support to neglected diseases, including HAT. New tools have been developed for diagnosis and vector control which further facilitate the implementation of control activities.

## **THE STRATEGY**

14. The success of HAT control in the African Region will depend on the following guiding principles:

- (a) Formulation, adoption and implementation of a national policy for HAT control in each affected country;
- (b) Ownership of the control programme by governments and communities of the endemic countries;
- (c) Coordination of stakeholders by national control programmes;
- (d) Sustainability of control programme activities.

15. The goal of the human African trypanosomiasis strategy is to reduce the morbidity and mortality attributed to sleeping sickness in the African Region. The main objective is to support governments to develop HAT control plans and programmes.

16. The specific objectives are:

- (a) To strengthen capacities to plan, implement, monitor and evaluate national HAT control programmes;
- (b) To conduct baseline studies on HAT prevalence, incidence and mortality;
- (c) To promote and coordinate the involvement of public and private sectors in HAT control;
- (d) To promote operational research as a tool to identify and address issues arising from the implementation of national HAT control programmes.

17. The targets of the regional strategy are as follows:

- (a) By 2007, at least 80% of endemic countries in the African Region will have established national policies and control programmes for HAT;
- (b) By 2008, at least 60% of the endemic countries in the African Region will have deployed a sufficient number of skilled personnel for the implementation of national control programmes;
- (c) By 2010, at least 35% of endemic countries in the African Region will have a prevalence rate of one case or less per 10 000;
- (d) By 2012, targeted vector control interventions will have been implemented in epidemic and highly endemic areas (prevalence rates equal to or greater than 1%);
- (e) By 2015, all known endemic countries will have a prevalence rate of less than one case per 10 000 persons at risk.

18. Taking into account the diversity of conditions in the different foci, this strategy should be adapted to local conditions. Rapid reduction of the parasite reservoir in humans is the backbone of the control of human African trypanosomiasis, while reduction of the animal reservoir plays an important complementary role in the control of animal trypanosomiasis. To achieve the set objectives, various interventions should be implemented. These are capacity building, case detection and treatment, vector control, control of animal reservoir, surveillance, health promotion, advocacy and operational research.

19. Capacity building for HAT control should be undertaken as a matter of urgency, and training of nationals should be a priority. Detection and treatment centres should be appropriately equipped, and supervision should be instituted and enforced for strengthening capacity.

20. Case detection and treatment should be carried out at least once a year in each focus, especially in highly endemic and epidemic areas, to ensure rapid reduction of the parasite reservoir in humans. Activities will include setting up and equipping diagnostic and treatment centres; setting up, equipping and staffing mobile teams at district level; ensuring availability of drugs at district level; following-up serological suspects and tracking post-treatment patients.

21. The technology to be used for tsetse control should be determined by individual countries. They may opt for targeted tsetse control after an epidemiological assessment of the disease and vector, perhaps choosing cost-effective tsetse traps.

22. Communities should contribute to sustainability and minimizing costs. Local manufacture of tsetse traps, for example, will promote community ownership of the programme.

23. Strengthening control of the animal reservoir requires intersectoral linkages. All sectors should, therefore, collaborate from planning to implementation phase for control of the animal reservoir in both animal and human trypanosomiasis. Treatment of livestock in areas reporting *T.b. rhodesiense* will reduce the reservoir population. The treatment could be either selective (after diagnosis) or comprehensive (treating all livestock). Farmers should be sensitized and mobilized to present their animals for examination and treatment. The role of animals in *T.b. gambiense* is not clear; therefore, treatment of livestock in endemic areas needs to be evaluated.

24. Efforts should be made to collect HAT data through the integrated disease surveillance approach. Sentinel sites should be set up, and the collected data could be used for mapping disease distribution, monitoring disease trends and resistance to drugs, establishing HAT data banks at decision-making and planning levels, epidemic preparedness and response, and case reporting. Other activities will be the development of data collection and management tools (such as TRYDATA) and promotion of cross-border surveillance through information sharing and meetings.

25. Health promotion should be implemented within the context of the regional health promotion strategy. Individual and community knowledge of HAT can be increased through health education and information-education-communication. Health education should be included in the curricula at primary school level. HAT can be a component of national health education packages and other disease control programmes. Social mobilization can strengthen community action. National programmes should be encouraged to form partnerships with the media to disseminate information about HAT and its control.

26. Advocacy should be aimed at mobilizing resources at national and international levels for the implementation of national programmes. Governments should be encouraged to allocate funds for HAT control interventions to ensure sustainability. Advocacy is also crucial for building public-private partnerships.

27. The Regional Office should support operational research and research on health systems in collaboration with the WHO Special Programme for Research and Training in Tropical Diseases, The United Nations Development Programme and the World Bank. Research issues should arise as a result of the implementation of national HAT control programmes and include treatment failures; relapses; clinical trials of drug combinations; rapid methods for mapping; socioeconomic burden of the disease; knowledge, attitudes and practices of the communities. Meetings should be held to prioritize topics, review findings and strengthen collaboration between research and control activities.

## **PRIORITY INTERVENTIONS**

28. Priority interventions will include mapping disease distribution, case detection and treatment, setting up a surveillance system, and control of animal reservoirs and vectors. The starting point in HAT control is assessment of the disease situation. This will result in the mapping and delimitation of the foci where the disease prevails and allow better planning of control interventions.

29. Case detection should be passive and active; passive detection being when patients seek intervention on their own initiative; active detection is based on clinical surveys in the field. Interventions should emphasize active case detection, especially in highly endemic and epidemic areas; appropriate treatment based on specific drugs available at treatment centres close to patients' residences; adequately trained health workers; patient follow-up for a period of 18 months.

30. HAT control has been and will continue to be based on passive and active surveillance of populations at risk and the treatment of cases detected, coupled with vector control interventions in hyper-endemic and epidemic areas. Failure to maintain surveillance will result in resurgence and epidemics that will substantially increase morbidity and mortality and require expensive control measures.

31. It is important to carry out selective or mass treatment in order to minimize animal reservoir hosts (especially in *T.b. rhodesiense*). This mainly calls for the treatment of livestock in the endemic areas.

32. In highly endemic foci, case detection must be coupled with tsetse control to achieve more rapid and effective control. Ministries of livestock and agriculture should be involved in vector control activities. Trapping of tsetse flies is effective, simple, environmentally-friendly and preferable to insecticide spraying. Insecticide application in cattle dips can also be used. These methods should involve community participation.

33. The sterile insect technique still poses a series of technical, financial and logistic problems. Therefore, it is not yet recommended in epidemic situations.

## **ROLES AND RESPONSIBILITIES**

### **Country roles**

34. Ministries of health at national level should develop human African trypanosomiasis policies, plans and implementation frameworks. These documents will be the basis for all stakeholder support and will ensure uniform control activities and strong partnerships.

35. Districts will be responsible for planning, implementing, supervising, monitoring and evaluating HAT control activities in countries. Communities should participate and thus own HAT control programmes; they should be involved from the conceptual phase.

36. A national HAT programme manager should be appointed in each country. Multidisciplinary task forces and committees for HAT control should be established at all levels to ensure intersectoral coordination.

37. Diagnosis and management will be decentralized in such a way that each affected district will participate in control of the disease. Vector control will be integrated with other control activities where appropriate.

38. Coordination will ensure standards and uniformity of activities while collaboration will aim at establishing strong partnerships at all levels. Interministerial collaboration will ensure promotion of tsetse control and treatment of animal reservoirs.

39. Ministries of health are responsible for mobilizing resources for the programme and for providing overall coordination, supervision, monitoring and evaluation. They will offer technical support to districts and promote public-private sector partnerships.

40. The public sector will collaborate with the private sector and international bodies to ensure availability of HAT control products and technologies. According to their comparative advantages, nongovernmental organizations will support national programmes and work closely with them. Partners will contribute in advocacy, resource mobilization and capacity building.



**WHO responsibilities**

41. WHO will support the development and implementation of national control programmes through technical support and capacity building (including support to research institutions working on sleeping sickness). Intercountry teams based on epidemiological blocs will be strengthened. WHO will also promote linkages between this strategy and other relevant WHO regional strategies on integrated vector management, health promotion and integrated disease surveillance.

42. WHO will also collaborate with other international organizations and projects such as the African Union, The Food and Agriculture Organization, The United Nations Development Programme, The International Atomic Energy Agency, and The Pan African Tsetse and Trypanosomiasis Eradication Campaign to promote treatment of animal reservoirs and tsetse control. The Organization will monitor and evaluate the regional strategy and national programmes.

**MONITORING AND EVALUATION**

43. Monitoring and evaluation of the national control programmes include continuous internal monitoring and periodic external review and evaluation. The progress and impact of the programme will be assessed and redirected if necessary. Core indicators for monitoring and evaluating will be developed by the WHO Regional Office. Countries will be encouraged to adapt indicators to their specific contexts.

**CONCLUSION**

44. Human African trypanosomiasis is endemic only in Africa where the disease is of great public health importance. The continent is currently facing a third epidemic. The social and economic consequences of the disease impact negatively on the development of the affected countries.

45. HAT control necessitates close collaboration between public and private sectors and strong involvement of communities and NGOs.

46. Implementation of this strategy in the affected countries should reduce morbidity and mortality due to human African trypanosomiasis in the Region and hence eliminate the disease as a public health problem by 2015.

47. The strategy is therefore submitted to the Regional Committee for consideration and adoption.