Report of a WHO meeting on elimination of African trypanosomiasis (*Trypanosoma brucei gambiense*)

Geneva, 3–5 December 2012

« Le but n'est pas toujours placé pour être atteint mais pour servir de point de mire »

"The goal is not always meant to be reached, but to serve as a mark for our aim."

Joseph Joubert, 1754–1824

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Introduction

Joint efforts by the World Health Organization (WHO) and partners since 2000 have led to a decline in the number of new cases of human African trypanosomiasis (HAT) being reported to WHO annually.[1] This process has been associated with improvements in the epidemiological knowledge of the disease.[2]

In May 2007, representatives of countries in which HAT is endemic gathered in Geneva, Switzerland, to consider elimination of the disease as a public-health problem.[3] In 2011, WHO's Strategic and Technical Advisory Group (STAG) for neglected tropical diseases (NTDs) deemed elimination to be technically feasible and included HAT in the WHO Roadmap on NTDs with a target date for elimination of 2020.[4]

In January 2012, a number of partners from the public and private spheres came together in London, United Kingdom, to launch the largest coordinated effort against NTDs. The ensuing *London Declaration on Neglected Tropical Diseases*[5] represents a new, coordinated approach for accelerating progress towards eradication, elimination or control of 10 NTDs by 2020. Partners at the meeting pledged to work together to improve the lives of the 1.4 billion people worldwide affected by NTDs – most of whom are among the world's poorest people – and to enhance the supply of existing medicines, stimulate collaborative research for new treatments and increase the funding needed for control or elimination activities. During the meeting, HAT was targeted for elimination alongside five other diseases, and the WHO Roadmap was endorsed by the participants, officially launching the elimination and control processes.

On 3–5 December 2012, WHO convened a meeting of national sleeping sickness control programmes (NSSCPs), experts from WHO collaborating centres and a member of the STAG at its headquarters in Geneva to discuss strategies, tools and criteria for the process of eliminating HAT (*Trypanosoma brucei gambiense*).

There are two forms of HAT: Gambiense trypanosomiasis caused by infection with the parasite *Trypanosoma brucei gambiense* (prevalent in the west and central part of Africa, south of the Sahara); and Rhodesiense trypanosomiasis caused by infection with *Trypanosoma brucei rhodesiense* (found in the eastern part of the continent). Both forms of the disease have distinct epidemiological characteristics that require different approaches for surveillance and control. Today, Gambiense trypanosomiasis accounts for some 98% of all reported cases of HAT; thus immediate attention must be given to this form of the disease.

Rhodesiense trypanosomiasis has been shown to be a zoonotic disease with both domestic and wild hosts, which complicates control activities and the sustainability of zero cases in humans. Approaches to elimination must therefore be adapted to accommodate zoonotic transmission. Vector control will undoubtedly play a substantially more important role in achieving the elimination objective in Rhodesiense trypanosomiasis than in Gambiense HAT.

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[1] Simarro PP et al. The Human African Trypanosomiasis Control and Surveillance Programme of the World Health Organization 2000–2009: the way forward. *PLoS Neglected Tropical Diseases*, 2011, 5:e1007.

[2] Simarro PP et al. The Atlas of human African trypanosomiasis: a contribution to global mapping of neglected tropical diseases. *International Journal of Health Geographics*, 2010, 9:57.

[3] *Report of a WHO informal consultation on sustainable control of human African Trypanosomiasis. Geneva, 1–3 May 2007*. Geneva, World Health Organization, 2007 (WHO/CDS/NTD/IDM/2007.6; also available at http://whqlibdoc.who.int/hq/2007/WHO_CDS_NTD_IDM_2007.6_eng.pdf; accessed 28 February 2013).

[4] *Accelerating work to overcome the global impact of neglected tropical diseases: a roadmap for implementation*. Geneva, World Health Organization, 2012 (WHO/HTM/NTD/2012.1; also available at http://www.who.int/neglected_diseases/NTD_RoadMap_2012_Fullversion.pdf; accessed 28 February 2013).

[5] *The London Declaration on Neglected Tropical Diseases* (available at http://www.unitingtocombatntds.org/downloads/press/london_declaration_on_ntds.pdf; accessed 28 February 2013).

For these reasons, and given the particularities of both forms of the disease, the meeting focused on Gambiense trypanosomiasis. Elimination of Rhodesiense trypanosomiasis will be addressed more precisely at a later stage.

Objectives

The objectives of the meeting were:

1. To endorse WHO's elimination objective for Gambiense trypanosomiasis.
2. To define the criteria and indicators for elimination.
3. To elaborate the strategies and tools for achieving the elimination objective.
4. To identify the obstacles to be overcome to achieve elimination.

Opening remarks

Dr Lorenzo Savioli, Director of the WHO Department of Control of Neglected Tropical Diseases, opened the meeting, stressing both the current successes in control and the need for sustainable actions in the field to achieve the recently defined elimination objective.

Dr Jean Jannin, Coordinator of the Innovative and Intensified Disease Management unit in the Department, emphasized the importance of this group of participants, which comprised national control programme directors and coordinators, and of this meeting in defining the approaches and criteria for elimination of Gambiense trypanosomiasis. Success in reducing the number of reported cases is due to national ownership of control programmes and strong partnership between disease-endemic countries, bilateral cooperation agencies, nongovernmental organizations, the private sector and WHO. The forthcoming deliberations would be important in defining the milestones and indicators for reaching elimination by 2020.

Dr Anne C. Moore was elected as Chairperson. Mr Pierre Cattand and Dr Jose Antonio Ruiz Postigo were elected as rapporteurs.

Background of disease elimination

Recommendations of the WHO Strategic and Technical Advisory Group for Neglected Tropical Diseases on control, elimination and eradication

The WHO STAG for NTDs is the main advisory group to WHO for the control, elimination and eradication of NTDs. It is mandated to advise WHO on overall global policies and strategies, ranging from epidemiology, monitoring, implementation, and developments in research on delivery of interventions and their linkages with other health interventions.

The STAG is composed of 12–20 members who are appointed by the WHO Director-General. Members serve in their personal capacity and represent a broad range of disciplines covering NTD control activities.

During its meeting in Geneva on 24–25 April 2012, the STAG addressed the long debated issue of operational definitions of eradication and elimination, and recommended that the Department of Control of Neglected Tropical Diseases should hereafter use the following definitions:

- **eradication** to mean "permanent reduction to zero of the worldwide incidence of infection caused by a specific pathogen, as a result of deliberate efforts, with no more risk of reintroduction";
- **elimination** to mean interruption of transmission or "reduction to zero of the incidence of infection caused by a specific pathogen in a defined geographical area, as a result of deliberate efforts; continued actions to prevent re-establishment of transmission may be required";

To facilitate understanding among different disciplines of certain commonly used words, the STAG defined "control" and "elimination as a public-health problem" as follows:

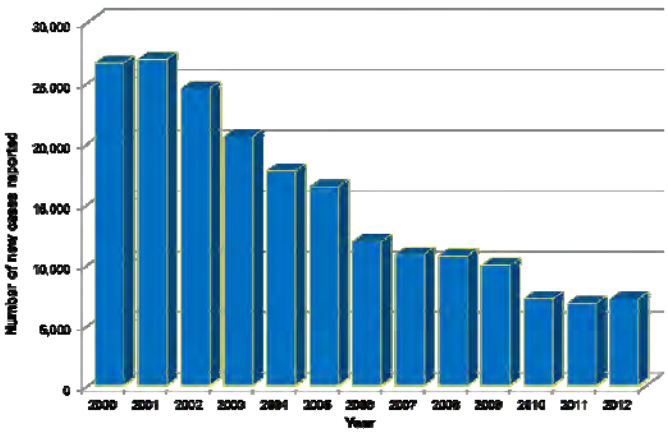
- **control** to mean "reduction of disease incidence, prevalence, morbidity, and/or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction".
- **elimination as a public-health problem** should be used only where necessary for political (rather than scientific) reasons, upon achievement of measurable targets set by Member States in relation to a specific disease.

Why attempt elimination of Gambiense trypanosomiasis?

Elimination of Gambiense trypanosomiasis is deemed feasible since:

- Humans are the main reservoirs of the infection, making the disease epidemiologically vulnerable. However, the role of animal reservoirs, although considered negligible, needs to be elucidated.
- Political will exists, as demonstrated in 2000 by the Pan African Tsetse and Trypanosomiasis Eradication Campaign and promoted by the African Union following the declarations of Head of States and Government of African countries. Resolution WHA56.7 on control of human African trypanosomiasis adopted by the World Health Assembly in 2003 commended Member States "to implement a programme for the elimination of African trypanosomiasis as a public health problem". Elimination was endorsed in 2005 in resolution AFR/RC55/R3 during the 55th WHO Regional Committee for Africa and in the conclusions of the International Scientific Council for Trypanosomiasis Research and Control. WHO included in 2011 the elimination of Gambiense trypanosomiasis in its Roadmap on NTDs. Partners including pharmaceutical companies, donors, endemic countries and nongovernmental organizations committed in 2012 to support the Roadmap through the London Declaration and subsequently to sustain, expand and extend programmes to help eliminate, among other NTDs, HAT, by 2020.
- Although better tools are needed to implement more appropriate and sustainable strategies, current control tools and strategies have proven effective in progressively reducing prevalence by 75% since 2000 (Figure 1). The new tools for diagnosis and treatment in the development pipeline have renewed prospects for elimination.
- Current antitrypanosomal medicines are affordable through donations from manufacturers and are available through the WHO distribution system in collaboration with MSF.
- The geographical distribution of the disease is well known and limited.
- There are economic benefits from elimination versus control of a deadly disease.

Figure 1. Number of new cases of Gambiense trypanosomiasis reported to WHO, 2000–2012



Experiences from other WHO elimination programmes

Other active WHO elimination programmes were presented to introduce the adopted approach for managing the elimination process. Two vector-borne disease control programmes were selected: the Global Programme to Eliminate Lymphatic Filariasis and the Onchocerciasis Control Programme.

Global Programme to Eliminate Lymphatic Filariasis

Launched by WHO in 2000, the Global Programme to Eliminate Lymphatic Filariasis aims to eliminate the disease as public-health problem by 2020. The elimination process involves conducting a detailed situation analysis, developing an implementation policy and elaborating a detailed plan followed up by operational actions. This process has culminated in a number of achievements towards the ultimate goal of elimination. Progress is monitored through carefully selected indicators that allow the achievement of various milestones to be assessed. Continuous monitoring and evaluation provides essential information for evaluating achievements, determining new challenges and shaping the next steps for implementation.

Major milestones include:

- the elaboration of guidelines for interrupting transmission and of approaches for post-intervention surveillance (after achieving control); and
- the preparation of guidelines and definition of criteria for verifying the absence of transmission.

Monitoring consists of baseline and follow-up surveys in sentinel and spot-check sites; evaluation is based on specific criteria; surveillance consists of active surveys; and verification of the absence of transmission relies on the elaboration of a dossier.

The elimination process involves an initial assessment of the situation (mapping); interventions; surveillance; verification of the absence of transmission; and certification.

Onchocerciasis Control Programme

Onchocerciasis has had a long history of control since the launch of the Onchocerciasis Control Programme in 1974. The disease has been considered for elimination because of the successes achieved through vector control operations and the subsequent mass distribution of ivermectin (since 1988). It is expected that by 2020, 12 out of 17 targeted countries may achieve elimination, thus protecting more than 60 million people.

The main lessons learnt from the Onchocerciasis Control Programme that are applicable to elimination of HAT are the importance of strong partnerships and the elaboration of appropriate surveillance, monitoring and evaluation methods with clear indicators and criteria for elimination.

Epidemiological situation

Historical background

Human African trypanosomiasis has the extraordinary history of having been almost eliminated in the 1960s only some 60 years after the discovery of the infectious agent and its mode of transmission. At that time, the African continent was reorganizing its recently acquired new social status as independent nations. Preoccupied by this new function, focus on the disease lapsed and it subsequently re-appeared in successive epidemics during the next half century. By the end of the 20th century, some 30 000 cases were reported annually. For the past 12 years, WHO has coordinated massive efforts with disease-endemic countries, bilateral cooperation agencies, nongovernmental organizations and the private sector to control this deadly infection, resulting in a sustained decrease in the number of reported cases during the past 10 years. By 2010, the number of infected individuals had reduced to less than 10 000 new cases. In 2012, the African continent accounted for some 7000 new reported cases.

The history and recent success of intensified control operations that led to such an important reduction in the number of cases were reasons to include HAT in WHO's Roadmap on NTDs, together with international commitment and improved epidemiological knowledge.

Disease distribution and population at risk

WHO assembles comprehensive data on surveillance activities undertaken by mobile teams and health-care facilities involved in HAT control in a centralized repository. The data are