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Progress reports[1]

Report by the Secretariat

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D. SMALLPOX ERADICATION: DESTRUCTION OF VARIOLA VIRUS STOCKS (resolution WHA60.1)

1. This document summarizes the outcome of the thirteenth meeting of the WHO Advisory Committee on Variola Virus Research (Geneva, 31 October and 1 November 2011).

2. The Advisory Committee received reports at its thirteenth meeting from the two authorized repositories of variola virus (the State Research Centre for Virology and Biotechnology (Koltsovo, Russian Federation) and the Centers for Disease Control and Prevention (Atlanta, Georgia, United States of America)) on the virus collection that they hold. No research involving the use of live virus had been done in the former in 2011. At the latter, secure databases have been created to track the use of live virus.

3. All WHO's archives of its Smallpox Eradication Programme have been digitized and uploaded into a dedicated database. The collection includes some 730 000 paper documents as well as maps, photographs and other records. Plans are in place to make the archives available on the Internet.

4. The Advisory Committee noted that two excellent candidate antiviral drugs (ST-246, (tecovirimat) and CMX001 (hexadecyloxypropylcidifovir)) were in advanced stages of development. Pharmacokinetics from animal studies were being used to determine proposed human doses.

5. Further, two live attenuated smallpox vaccines (LC16m8 and MVA) showed good safety profiles in human beings and protected against disease induced by several orthopoxviruses in animal models.

6. Diagnostic tests based on polymerase chain reactions and developed by researchers in the variola virus repositories in the Russian Federation and the United States of America have proved to be accurate and sensitive. They could detect variola virus DNA and distinguish it from DNA of other orthopoxviruses pathogenic for human beings.

7. The Advisory Committee recommended the further development of the smallpox laboratory network in collaboration and coordination with the Emerging and Dangerous Pathogens Laboratory Network recently launched by WHO.

8. Remaining objectives of the research programme were to improve the reproducibility of the non-human primate model for variola virus infection so that additional data on the effectiveness of antiviral agents and vaccines could be generated. Such data would help regulatory agencies to have greater confidence in the effectiveness of these drugs and vaccines against variola virus and therefore help their progress to licensure. The Committee recommended continuation of this work.

9. Planning for the WHO biosafety inspection visits to the containment facilities in the Russian Federation and the United States of America in mid-2012 is under way. The European Committee for Standardization's Laboratory biorisk management standard, CWA 15793:2008, will form the framework for the forthcoming inspection.

10. The Advisory Committee recommended that the Ad Hoc Committee on Orthopoxviruses be reconvened to discuss an emergency response to a possible future outbreak of smallpox.

11. The Advisory Committee was informed that the membership of the scientific subcommittee had been renewed.

E. ERADICATION OF DRACUNCULIASIS (resolution WHA64.16)

12. In May 2011, the Health Assembly in resolution WHA64.16 called for intensified eradication efforts and requested the Director-General to closely monitor the implementation of the resolution and report every year until eradication of dracunculiasis is certified.

13. Member States where dracunculiasis is endemic have continued to make steady progress towards eradication. During January–August 2011 only 971 new cases were reported from four countries (Chad, Ethiopia, Mali and South Sudan[1]), one third fewer than in the same period in 2010, and the number of villages that reported cases was 441, a decrease of 20% over the same period. Ghana has reported no case since May 2010, an interval of more than 17 months at the time of writing, indicating that transmission has been interrupted, and this endemic country is likely to be in the pre-certification phase in 2012.

14. All countries where the disease is endemic or which are in the pre-certification stage (except Kenya) report to WHO every month, even when there is no case to report. Schemes to reward reporting are in place in all endemic or formerly endemic countries except South Sudan.

15. The International Commission for the Certification of Dracunculiasis Eradication at its next meeting (Geneva, 29 November to 1 December 2011) will review applications from Burkina Faso and Togo, formerly endemic countries, and other countries where the disease has not recently been endemic.

16. The challenge for the eradication of dracunculiasis remains the interruption of disease transmission in the following four countries.

17. **Chad.** Ten years after the country reported its last case, 10 indigenous cases were reported from eight villages in 2010, and none of these cases was contained. In the first eight months of 2011, eight cases were reported from seven villages, and only three cases were contained. Detailed investigation suggests that cases in recent years had been missed, leading to continued transmission. Measures to interrupt transmission are being implemented. However, the lack of access to areas at risk of disease transmission because of insecurity is a major constraint. WHO and The Carter Center have provided technical and financial assistance to reinvigorate the eradication programme and strengthen surveillance.

18. **Ethiopia.** As a result of intensified surveillance and case-containment activities, Ethiopia reported six indigenous cases from four villages in January–August 2011, 60% fewer than in the same period in 2010, and two cases imported from South Sudan. Seven of these cases were contained. Dracunculiasis surveillance has been expanded nationwide through the national Integrated Disease Surveillance and Response system and health education.

[1] To be read as southern Sudan until 9 July 2011.

19. **Mali** is the only country in West Africa where dracunculiasis transmission is still continuing. During January–August 2011, nine cases were reported compared with 13 in the same period in 2010. Four of the nine cases (44%) were contained.

20. **South Sudan** accounts for 97% of all new cases reported in January–August 2011. The total of 946 new cases was 32% lower than in the same period in 2010, and 75% of them were contained; 714 cases (75%), however, were from two Eastern Equatoria State counties which reported significantly more cases in 2011 than in 2010. The probable reasons for the increase in the number of cases in Kapoeta East county (from 259 cases in 2010 to 567 cases in the first eight months of 2011) are that in 2010 only 52% of its endemic villages applied vector control to unsafe water sources, only 6% of endemic villages had at least one safe water source, and 70% of the cases were contained. However, the disease trend since June 2011 is showing an encouraging decline compared to the same period of 2010.

21. Other challenges are the lack of safe drinking-water supply, maintaining effective nationwide surveillance of dracunculiasis and the funding gap. Out of the 441 villages that reported cases in 2011, 367 (83%) do not have one safe source of drinking-water. There is an urgent need to supply localities currently endemic for the disease with adequate safe drinking-water.

22. WHO and The Carter Center estimated a funding gap of US$ 62 million for the period 2011–2015. Efforts on advocacy and fund raising are being made to fill the gap.

F. CHAGAS DISEASE: CONTROL AND ELIMINATION (resolution WHA63.20)

23. Control and elimination of Chagas disease are achievable. The incidence of Chagas disease in the Region of the Americas – the most severely affected of WHO's regions – has been substantially reduced through efforts in vector control and systematic blood screening. The estimated number of new cases has declined by 32%, from 41 000 in 2006 to 28 000 in 2010. The objective of interrupting intra-domiciliary vector-borne transmission has been achieved in seven countries where the disease is endemic and in specific areas of endemicity in seven more countries. Universal blood screening has been implemented in 20 of 21 disease-endemic countries. As a result, the prevalence in younger age groups has decreased, and the number of people at risk globally has declined by 40%, from 108 million in 2006 to 65 million in 2010.

24. Continued vector control efforts have led to: (i) certified interruption of vector-borne transmission of *Trypanosoma cruzi* by *Rhodnius prolixus* in all disease-endemic Central American countries (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua) and Mexico, with support from Canada, Japan and Spain; (ii) certified interruption of transmission by *Triatoma infestans* in the Moquegua and Tacna regions of Peru, with support from Canada and Spain, and in La Paz (Plurinational State of Bolivia); and (iii) significant vector control in the provinces of Catamarca, La Rioja, Misiones, San Luís and Santa Fé, Argentina, with support from Spain, which may soon lead to confirmed interruption of transmission in Misiones and Santa Fé provinces.

25. Strengthening of diagnosis and treatment has had several results. Through subregional initiatives in the Americas supported by WHO and PAHO case detection has increased and access to treatment has broadened, from fewer than 50 treatments with nifurtimox in 2005 to more than 1500 in 2010. Demand for benznidazole has increased, with more than 7000 people now being treated each year. Better diagnosis and treatment have led to increased detection of cases and identification of areas with active transmission (the Chaco region of South America, Amazonia, and the border between

El Salvador and Guatemala), and to increased detection and better management of cases resulting from congenital transmission (in Argentina the number of pregnant women screened rose from 50 000 in 1997 to 130 000 in 2010) and transmission through blood transfusions, accidents and oral procedures, as well as cases of coinfection (with HIV and *T. cruzi*). As part of these strengthening measures, diagnosis and treatment protocols continue to be harmonized, and systems for treatment monitoring and detection of drug-resistance are in place in four countries.

26. Seroepidemiological surveys have been completed by a team led by WHO and PAHO in eight disease-endemic countries in order to determine the status of transmission and certify vector-borne interruption.

27. Measures to address the social determinants of Chagas disease include replacement or improvement of dwellings and peridomiciliary structures in 11 countries and interventions focusing on social and community participation in 18 countries.

28. Partnerships are in place to improve Chagas disease control. The Drugs for Neglected Diseases initiative has been collaborating with the pharmaceutical company producing benznidazole in Brazil, and as a result a paediatric formulation will be available soon. Collaboration between the initiative and PAHO resulted in a software application that Member States can use to estimate their need for benznidazole. Argentina and Colombia have committed resources for research on improved laboratory techniques for diagnosis and treatment monitoring. The UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases is assisting with capacity building and research on improved diagnostic tools and vector control. Collaborating centres in the Americas are working on several initiatives.

29. Access to high-quality nifurtimox is ensured until 2017 through donations from the pharmaceutical company Bayer AG. Access to benznidazole remains a challenge, and discussions are under way with the manufacturer to meet concerns about supply and manufacture.

30. Two networks were created in the European Region and the Western Pacific Region in order to strengthen data collection and standardize norms for Chagas disease control (prevention, control of transmission and health care). In addition, countries that are not endemic for the disease are strengthening surveillance, responding to the risk of transmission through blood transfusion and organ transplantation, and enhancing control of congenital disease.

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