



World Health Organization  
Organisation mondiale de la Santé

FORTY-NINTH WORLD HEALTH ASSEMBLY

Provisional agenda item 18.1

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**Communicable disease prevention and control:  
Smallpox eradication - destruction of  
variola virus stocks**

**Report by the Director-General**

This report contains a brief outline of one of the major issues remaining after the declaration of the global eradication of smallpox in 1980 - the retention or destruction of the last known stocks of variola virus. It takes into account the discussion in the Executive Board at its ninety-seventh session, to which an earlier version of the report was submitted (document EB97/14). During its discussion, the Executive Board adopted resolution EB97.R24 on smallpox eradication and the destruction of variola virus stocks, recommending a resolution for adoption by the Health Assembly.

**BACKGROUND**

1. Since the global eradication of smallpox was declared on 8 May 1980, stocks of variola virus have been gradually reduced and are now restricted to two laboratories: the WHO Collaborating Centre on Smallpox and other Poxvirus Infections designated at the Centers for Disease Control and Prevention, Atlanta, Georgia, USA, and the Russian State Research Centre of Virology and Biotechnology, Koltsovo, Novosibirsk Region, Russian Federation.
2. The members of the Committee on Orthopoxvirus Infections which met in March 1986 unanimously recommended the destruction of these last remaining virus stocks. The Committee noted that the variola gene pool could be cloned into non-expressing sites of bacterial plasmids for future studies of variola virus and that archival records of variola virus would be satisfied by such cloned DNA. The Committee also considered that the cloned DNA would provide sufficient reference material to resolve any future diagnostic problem involving suspected smallpox.
3. The meeting of the *Ad Hoc* Committee on Orthopoxvirus Infections in December 1990 confirmed the recommendation and proposed a deadline of 31 December 1993 for the destruction. The Committee recommended that, in the meantime, the complete nucleotide sequence of the genome of at least one variola virus strain should be determined. It considered that the sequence information might represent a useful and potentially safer record than the cloned material for archival purposes.

4. The WHO Technical Committee on the Analysis of Nucleotide Sequences of Variola Virus Genomes reviewed the data obtained in the sequencing project at a meeting in January 1994. It acknowledged that the information obtained in the project exceeded the minimum requested by WHO.

5. The publication of the *Ad Hoc* Committee's recommendation to destroy the variola viruses had, however, given rise to mixed reactions among the public and in the scientific community. In view of the controversy over this crucial subject and the fact that the destruction of the virus is irrevocable, WHO once more asked the advice of the *Ad Hoc* Committee on Orthopoxvirus Infections, bearing in mind the arguments raised since the meeting in December 1990.

6. The *Ad Hoc* Committee discussed the issues related to the destruction of the last stocks of variola virus thoroughly during a meeting on 9 September 1994. It unanimously agreed that at some date all remaining stocks of variola and whitepox viruses, viral genomic DNA and clinical specimens and other material containing infectious material should be destroyed.<sup>1</sup>

7. Eight of the ten members of the *Ad Hoc* Committee favoured destruction by 30 June 1995 on the grounds that the genomic sequence information from several strains of variola virus, with the availability of other sequences cloned in bacterial plasmids, satisfied the need for an archival record of the virus. They noted that these cloned DNA fragments would provide sufficient reference material to resolve any future diagnostic problem involving suspected smallpox and allowed for future studies of properties of variola virus genes and proteins. They also stressed that escape of variola virus from the laboratory would be a serious risk to the increasing proportion of the population that lacks immunity to smallpox. Destruction of the stocks of variola virus was seen as the last step in the complete and final global eradication of smallpox. Two members of the Committee were in favour of extending the archival storage of the variola virus for a further five years. They considered that the rapid advances in science and technology now occurring would enable new questions to be addressed in the future and that it was therefore too early to take this irrevocable step in 1995.

8. The Executive Board at its ninety-seventh session supported the recommendation that the remaining stocks of variola virus should be destroyed. The date for the destruction was discussed, and the Board recommended to the Forty-ninth World Health Assembly that the remaining stocks be destroyed on 30 June 1999 after a decision has been taken by the Health Assembly to that effect, the intervening period being used to enable a broader consensus to be reached on destruction.

## **KEEPING OF CLONED MATERIAL**

9. Cloned DNA fragments of the variola virus genome are themselves not infectious but safe and provide a useful resource and tool for analysing variola virus genes and protein structure and function. The majority (9/10) of the members of the *Ad Hoc* Committee recommended that such cloned material be kept. The Committee also recommended the establishment of two international repositories for the storage, maintenance, distribution and monitoring of the cloned DNA fragments of the variola virus genome - one at the WHO Collaborating Centre for Smallpox and other Poxvirus Infections, Centers for Disease Control and Prevention, Atlanta, Georgia, USA and the second at the Russian State Research Centre of Virology and Biotechnology, Koltsovo, Novosibirsk Region, Russian Federation.

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<sup>1</sup> The report of the meeting (document CDS/BVI/94.3) is available in English.

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## RESERVE OF SMALLPOX VACCINE

10. The *Ad Hoc* Committee also recommended that 500 000 doses of smallpox vaccine should be kept by WHO in case of an emergency and that the smallpox vaccine seed virus (vaccinia virus strain Lister Elstree) be maintained in the WHO Collaborating Centre on Smallpox Vaccine at the National Institute of Public Health and Environmental Protection, Bilthoven, Netherlands.

## MATTERS FOR THE PARTICULAR ATTENTION OF THE HEALTH ASSEMBLY

11. The Health Assembly is invited to consider the resolution recommended by the Executive Board in its resolution EB97.R24.<sup>1</sup>

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<sup>1</sup> Document EB97/1996/REC/1.