

18 Smallpox eradication: destruction of variola virus stocks

Contents

- [In focus](#)
- [Background](#)
- [PHM Comment](#)
- [Notes of discussion](#)

In focus

Extract from DG's consolidated report ([A77/4](#)):

The Executive Board at its 154th session noted the report on smallpox eradication: destruction of variola virus stocks ([EB154/20](#)). In the discussions, Board members suggested that the Secretariat should continue to share information on the state of variola virus and ensure regular inspections of the WHO collaborating centre repository laboratories. They welcomed the information provided on the status of the continuing multicountry mpox outbreak for which smallpox countermeasures had been deployed in many countries. In advance of the Seventy-seventh World Health Assembly, Member States were invited to consider whether and how research on orthopoxviruses and smallpox should continue.

Background

[Tracker links](#) to previous discussions of smallpox and mpox.

See also [A77/8 Add.3: Report of the Review Committee regarding standing recommendations for mpox](#)

PHM Comment

Overview

PHM has repeatedly called for the final destruction of the remaining stocks of variola virus but as recounted in para 1 of [EB154/20](#) the Health Assembly has deferred such action and authorised continuing research subject to conditions outlined in para 2.

As recorded in [A72/28](#) (4 April 2019) the Advisory Committee

- judges that no need exists to retain live variola virus for development of safer smallpox vaccines beyond those studies already approved

- is conflicted as to whether retention of live variola virus remained necessary for the development of diagnostic assays essential for public health; and
- judges that live variola virus was still needed for the further development of antiviral agents against smallpox.

See record of the debate at [WHA72 \(B7\)](#) for explication of country positions on destruction of remaining stocks of variola virus.

The present report (EB154/20):

- summarizes the conclusions and recommendations of the recent meetings of the Advisory Committee on Variola Virus Research; these touch upon diagnostics, vaccines and therapeutics;
- provides an update on biennial biosafety and biosecurity inspections of the two authorized variola virus repositories (in Russia and the USA);
- provides updates on WHO recommendations on smallpox immunization and on WHO's vaccine reserves;
- WHO's response to the multi-country outbreak of mpox since 2022.

Issues

Synthetic smallpox

The Advisory Committee has recommended that genome sequences be placed in the public domain. The Secretariat notes that “advances in synthetic biology and genome reconstruction technology may bring both benefits and risks for smallpox preparedness” and underlines the importance of member states implementing WHO recommended guidelines in national legislation.

(It is ironic that if the last stocks of the variola virus had been destroyed in 1996 as originally mandated the risk of synthesis would not arise because the virus had not been sequenced at that time.)

Safety at the two authorised repositories

The inspection teams continue to suggest ways of improving facilities, protocols and practices. These repositories are not free from risk and their risk management arrangements are open to continuing improvement.

Vaccine stocks and protocols

Vaccine reserves held by WHO and member states range from lymph derived vaccinia virus based vaccines to recently developed fourth generation vaccines based on vaccinia virus from which virulence genes have been deleted. It is not clear that, in the event of a smallpox outbreak, that vaccine stocks would be sufficient, would all be of comparable efficacy and safety, would be equitably distributed, and would be delivered efficiently and appropriately.

Mpox

The development of, and response to, the mpox emergency are described; “the outlook remains concerning”.

WHO’s topic page on mpox advises:

After 1970, mpox occurred sporadically in Central and East Africa (clade I) and West Africa (clade II). In 2003 an outbreak in the United States of America was linked to imported wild animals (clade II). Since 2005, thousands of suspected cases are reported in the DRC every year. In 2017, mpox re-emerged in Nigeria and continues to spread between people across the country and in travellers to other destinations. Data on cases reported up to 2021 are available [here](#).

In May 2022, an outbreak of mpox appeared suddenly and rapidly spread across Europe, the Americas and then all six WHO regions, with 110 countries reporting about 87 thousand cases and 112 deaths. The global outbreak has affected primarily (but not only) gay, bisexual, and other men who have sex with men and has spread person-to-person through sexual networks. More information on the global outbreak is available [here](#) with detailed outbreak data [here](#);

Mpox has been endemic in DRC since 2005 and in Nigeria since 2017 but it was only one month after the global outbreak in May 2022 that it was declared a public health emergency of international concern (June 2022).

The Secretariat has expressed particular concern about the interactions between AIDS and mpox owing to the immunosuppressive effects of the former. In its fifth and final report the Emergency Committee said:

The Committee emphasised the necessity for long-term partnerships to mobilize the needed financial and technical support for sustaining surveillance, control measures and research for the long-term elimination of human-to-human transmission, as well as mitigation of zoonotic transmissions, where possible. Integration of mpox prevention, preparedness and response within national surveillance and control programmes, including for HIV and other sexually transmissible infections, was reiterated as an important element of this longer-term transition. In particular, the Committee noted that the gains in control of the multi-country outbreak of mpox have been achieved largely in the absence of outside funding support and that longer-term control and elimination are unlikely unless such support is provided.

[EB154/20](#) notes that “funding for mpox response remains extremely constrained.”

The emergency declaration was ended in May 2023 and a review committee was appointed under the IHRs which recommended that the DG issue a set of standing recommendations for

mpox. See [A77/8 Add.3: Report of the Review Committee regarding standing recommendations for mpox](#)

Notes of discussion