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ADVISORY COMMITTEE ON DANGEROUS PATHOGENS

World Health Organisation (WHO) Global Action Plan for Laboratory Containment of poliovirus following its eradication

Issue

1. The WHO have drafted the 3rd Edition of the '*Global Action plan to minimise poliovirus facility associated risk in the post-eradication/post OPV era*', in which Annex 4 describes the proposed containment and control measures required for a facility working with poliovirus after its eradication.

This paper informs members about HSE's activity in relation to the Global Action Plan and brings to members' attention the proposed requirements for containment facilities in a post-eradication era.

Background

2. The Global Polio Eradication Initiative, launched in 1988, has been a huge public health effort involving billions of dollars and the immunisation of billions of children with Oral Polio Vaccine (OPV). As of May 2007[1], only four countries (*i.e.* Afghanistan India, Nigeria, Pakistan,) are still considered polio-endemic although Afghanistan has not reported any cases in 2007. The use of targetted monovalent vaccination coupled with more rapid diagnostic tools is purported to increase the likelihood of eradication in the short term, with 2009 being the optimistic prediction for achieving this goal.

3. Once polio has been eradicated, in order to remain polio-free, the intention is to cease the use of OPV and replace it with vaccination using inactivation polio vaccine (IPV). In this situation, those laboratories holding the virus will be the only remaining source and may have potential to reintroduce poliovirus into the population, with resulting major health consequences if and when polio immunisation ceases. The revised WHO's Global Action Plan (GAP) includes:

- Containment of OPV/Sabin strains as well as wild poliovirus;
- Sets the goal of minimising the number of facilities holding or working with these polioviruses and
- Sets out the proposed requirements for these retaining facilities.

4. Annex 4 of GAP is entitled '*Biorisk management standard (BSL-3/polio) for essential poliovirus facilities*' (Annex A) and describes the containment and control measures proposed for a facility working with poliovirus in a post eradication era. This standard is based on the principles of the WHO *Laboratory Biosafety Manual* (3rd Edition, 2004) and assessment of the characteristics of poliovirus, described in scientific literature spanning nearly 7 decades and compiled by Dowdle *et al* 2006 (Annex B). The main route of transmission to workers is considered to be via ingestion.

[1] Monthly situation reported at http://www.polioeradication.org/content/general/current_monthly_sitrep.asp

The UK Action Plan

Phase I - Laboratory survey and inventory

5. In the UK, a laboratory survey and inventory was undertaken, whereby questionnaires were circulated in 2000 and 2001. The inventory identified 106 laboratories with wild poliovirus, vaccine strains or materials potentially contaminated with these viruses (*e.g.* faecal & respiratory specimens, sewage samples). Laboratories have been encouraged to destroy all unneeded material. Laboratories were advised to institute enhanced biosafety level-2 (BSL-2/polio) measures for safe handling of the virus.

6. Prior to embarking on an audit of these laboratories, HSE has assessed the quality and currency of the information on the inventory. Telephone contact with laboratories on the inventory followed by subsequent written confirmation, showed that only 8 laboratories still retain wild poliovirus and a further 44 retain potentially poliovirus or vaccine derived poliovirus (VDPV) contaminated materials. A further 28 laboratories have yet to respond to the telephone survey, but none of these had reported holding wild poliovirus in the original questionnaires. The updated information will be passed to the National Polio Containment Coordinator at the Health Protection Agency. HSE have started to visit these laboratories, as part of HSE's routine inspection programme, to raise awareness of the eradication and containment plans, encourage the destruction of unwanted materials and to assess listed laboratories' compliance with the current WHO biosafety requirements (BSL2/polio). HSE inspectors will report their findings to the UK's National Polio Containment Co-ordinator at the HPA.

Phase II – National Long-term Poliovirus policy and regulations

7. Following completion of the audit of laboratories on the inventory, the UK will need to begin to establish goals and policies for the post eradication/post-OPV cessation era, in line with the requirements of the 3rd Edition of GAP. The UK Working Party for the Laboratory Containment of Poliovirus will take this forward and liaise with WHO. As part of these arrangements, agreement will be necessary on the categorisation for poliovirus and OPV/Sabin strains and the containment/control measures necessary for facilities, which continue to hold these viruses post eradication. As agreed at the ACDP meeting in 2002 any proposal to reclassify poliovirus from hazard group 2 to hazard group 3 should be discussed at a future meeting supported by the relevant risk assessment with the implications for laboratories, and preferably co-ordinated at an EU level.

Action

8. Members are asked to consider Annex 4 of GAP and comment, where appropriate.

Secretariat **June 2007**

Annex A

'*Biorisk management standard (BSL-3/polio) for essential poliovirus facilities*' (Annex 1) - Annex 4 of WHO 3rd Edition '*Global Action plan to minimise poliovirus facility associated risk in the post-eradication/post OPV era*'

Annex B

Dowdle *et al* 2006 '*Containment of polioviruses after eradication and OPV cessation: Characterising risks to improve management*', RA-00123-2006, WHO