Food and Agriculture Organization of the United Nations

WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

Destruction of Rinderpest Virus Containing Materials

Date: **May 2016**

Supersedes: **RP12.0**

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Changes to previous version

Section	
All	Formatting document

1. Purpose

The purpose of this document is to define how rinderpest virus (RPV) containing material (RPV and material likely or suspected to contain RPV), as defined in Chapter 8.13 of the OIE Terrestrial Animal Health Code[1], must be destroyed. The SOP does not cover decontamination of water used for hand-washing, clothes-washing or showering after handling RPV-containing material.

2. Background

RPV is a negative-sense RNA genome virus of the morbillivirus genus. It is the causative agent of rinderpest, a fatal disease of cattle capable of devastating epidemic spread. The incubation period ranges from 8 – 11 days and the disease is characterized by pyrexia, nasal and ocular discharges, and necrosis and erosion of the nasal and oral mucosae. Animals develop diarrhoea, and death generally occurs between 7 and 12 days after onset of signs. RPV has poor environmental stability and is sensitive to inactivation by heat, dessication and exposure to sunlight. The last known case of rinderpest was diagnosed in Kenya in 2001, since which time the world has been free of the disease. Interruption of the chain of transmission and spread of infection was achieved by a global eradication campaign organized by the Food and Agriculture Organisation of the United Nations (FAO). and the World Organisation for Animal Health (OIE) have formally accredited global freedom from this disease. The vaccine used against rinderpest is an attenuated strain of RPV, and the possibility of reversion to virulence means that despite its widespread use, the vaccine strain may be handled under the same constraints as virulent strains in the post-eradication era.

The cost and effort of eradication, and the global emergency and severe consequences that are likely to accompany a re-introduction or release dictate that the containment procedures for handling RPV-containing material must be enhanced in the post-eradication era, and that the number of facilities holding RPV-containing material should be reduced. RPV-containing material must now be handled at Biosafety Level 3 (BSL3).Laboratory

Vaccine stocks must be maintained until all RPV-containing material has been destroyed or gathered into internationally regulated repositories. However, the possibility of cross-contamination of vaccine stocks or seed-stocks with virulent virus dictate that vaccine and non-vaccine strains should be stored and handled separately.

RPV is non-infectious to humans and poses no direct hazard to human health. Containment and handling regulations aim to prevent the accidental transport and introduction of the virus to susceptible animals.

3. Training

Training is the responsibility of the Director of the institute/organization where the RPV samples are held, according to the approved guidelines of FAO/OIE. Persons directly involved in the destruction of RPV must be appropriately trained in the handling of dangerous infectious agents, and in the use of the autoclave(s) to destroy RPV samples.

4. Preparation of the Material

The RPV-containing material should be removed from storage (e.g. a freezer) and surface decontaminated with a disinfectant. Suitable disinfectants for surface decontamination are:

- 5% Virkon™ solution. Virkon™ solution must be made fresh on the day of use.
- 10% Chloros solution. Chloros has a manufacturer's shelf life and should only be used if it is "within date" as specified on the container. 10% chloros must be made fresh on the day of use.
- 2% sodium hydroxide.

RPV-containing material should be contained in an autoclave-sensitive vessel (e.g. a polypropylene ampoule or tube) or a vessel with a cap made of such a material (e.g. a polycarbonate tube or bottle with a polypropylene cap or lid). It is essential that the vessel or container should rapidly degrade in the autoclave to allow penetration of steam. The outside of the vessel should be marked with temperature sensitive autoclave indicator tape and the vessel placed in a clear, transparent autoclave bag.

Wherever possible vessels (e.g. vials, tubes, bottles) should not be opened prior to destruction. This is to prevent unnecessary exposure of the RPV-containing material to the environment. The exception to this is when the RPV-containing material is contained in a vessel which is resistant to autoclaving and sealed against the penetration of steam (e.g. a screw cap metal shipping canister or a polycarbonate vessel with a metal cap). If the primary container is autoclave-resistant then the vessel must be opened under appropriate BSL3 conditions utilizing a certified biosafety cabinet and then sealed in another vessel that is sensitive to autoclaving. If an appropriate BSL3 facility is not available, the material must be shipped to an appropriate BSL3 facility under conditions as described in the SOP "Handling, Packaging and Shipping of Rinderpest Materials

5. Witnessing and confirmation of destruction

Destruction of RPV-containing material, except at a facility regulated or approved by FAO and OIE, must be witnessed by appropriate national authorities, to enable

government confirmation to FAO and/or OIE that the material was destroyed in an acceptable manner. Appropriate witnesses should include:

- The Veterinary Authorities or their nominated representative
- The Chief Executive/overall head of the site or organization undertaking the destruction, or his/her nominated representative

Confirmation of destruction should include:

- The address of the facility
- Date of destruction of RPV-containing material
- Inventory of the RPV-containing material that has been destroyed
- Identity and role/position of witnesses
- Signatures of the laboratory head, the Chief Executive/overall head of the site or organization, and the witnesses

6. Destruction

The destruction method is by autoclaving. The autoclave must have been validated within the past twelve months as fully operational, by a trained engineer, and a certificate to confirm this should be checked. If the autoclave has not been used on the cycle to be used for destruction in the past seven days, it should be run on this cycle at least 24 hours prior to the scheduled destruction, to ensure that it operates correctly.

The material should be placed in the autoclave along with autoclave indicator tape. The autoclave must be operated by a named person familiar with its operation, and the material autoclaved at a temperature of 126°C, holding at this temperature for at least 35 minutes.

When the autoclave has finished its cycle and has cooled to the point where it may be opened, it should be opened in the presence of the witnesses who will confirm that the vessel(s) and/or its cap has been destroyed and that autoclave indicator tape has altered appearance accordingly. If the integrity of vessel does not appear to have been damaged, but the autoclave indicator tape has changed appropriately, the autoclave cycle should be performed again. Destruction of the vessel containing the material *and* alteration of the indicator tape shall be taken as evidence that the autoclave performed normally. The witnesses, the laboratory chief, and the person operating the autoclave should each sign and date two letters confirming the destruction of the material. Each should be given a copy of the signed letter and the originals should be sent to FAO[2] and the OIE[3]. After the witnesses have confirmed destruction, the autoclaved material should be sent to the normal waste stream from the autoclave.

If the integrity of the vessel does not appear to have been damaged and the autoclave indicator tape is unchanged, the vessel(s) should be removed from the autoclave and placed in a further container suitable for transporting RPV material as described in the SOP "Handling, Packaging and Shipping of Rinderpest Materials" and either stored securely until the autoclave has been repaired or shipped to another location with a suitable autoclave.

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[1] "RPV-containing material" means field and laboratory strains of RPV; vaccine strains of RPV including valid and expired vaccine stocks; tissues, sera and other clinical material from infected or suspect animals; and diagnostic material containing or encoding live virus. Recombinant morbilliviruses (segmented or non-segmented) containing unique rinderpest virus nucleic acid or amino acid sequences are considered to be rinderpest virus. Full length genomic material including virus RNA and cDNA copies of virus RNA is considered to be RPV-containing material. Sub-genomic fragments of morbillivirus nucleic acid that are not capable of being incorporated in a replicating morbillivirus or morbillivirus-like virus are not considered RPV-containing material.

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