



## **MEETING OF THE OIE AD HOC GROUP ON RABIES<sup>1</sup>**

**Paris, 21 – 23 November 2017**

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A meeting of the OIE *ad hoc* Group on rabies (hereinafter referred to as the Group) was held at the OIE Headquarters in Paris from 21 to 23 November 2017.

### **1. Opening and adoption of agenda and appointment of a chair and rapporteur**

Dr Matthew Stone, Deputy Director General for International Standards and Science of the OIE, welcomed the Group members and the representatives from the Scientific Commission for Animal Diseases (Scientific Commission) and the Terrestrial Animal Health Standards Commission (Code Commission).

Dr Stone remarked that the large majority of human rabies cases were dog-mediated. All those cases were preventable by acting at the animal source and by ensuring adequate post-exposure prophylaxis. Dr. Stone made reference to the ambitious goal of the Global initiative [Zero by 30: The Global Strategic Plan to End Human Deaths from Dog-transmitted Rabies by 2030](#), which was launched by the WHO, OIE, FAO and the Global Alliance for Rabies Control at 2017 World Rabies Day.

Dr Stone also commented on the ongoing work to update the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Terrestrial Manual)* chapter on rabies. He highlighted the important task of the Group to review and align the *Terrestrial Animal Health Code (Terrestrial Code)* chapter on rabies, to relevant international guidelines, such as the draft report of the 3<sup>rd</sup> WHO Expert Consultation on Rabies and WHO Technical Report Series (3<sup>rd</sup> WHO TRS on Rabies) to support OIE Member Countries in their efforts to reach the global elimination goal.

Dr Stone noted that rabies is not a disease for which the OIE officially recognises freedom status. However, he emphasised the work to strengthen and increase the transparency and visibility of the OIE procedure for the self-declaration of freedom from diseases. He highlighted that Members need to comply with OIE international standards should they want to self-declare free from rabies.

Dr Gideon Brückner, President of the Scientific Commission, welcomed the experts, and remarked that the expected outcome of the Group should be an in-depth review of the chapter. He recalled that this review was recommended at the last [Rabies Global Conference](#) (Geneva, 2015), and endorsed by the OIE Members at the 84<sup>th</sup> OIE General Session (Paris, 2016). He also stressed that the modifications should not duplicate but integrate and complement, when appropriate, the WHO's rabies guidelines. Prof Salah Hammami, member of the Code Commission, reminded the Group of the need to support all proposed changes by a well described scientific rationale or by published scientific references.

The meeting was chaired by Dr Thomas Mueller, and Dr Ryan Wallace was appointed as rapporteur. The draft agenda was adopted by the Group.

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<sup>1</sup> Note: This ad hoc Group report reflects the views of its members and may not necessarily reflect the views of the OIE. This report should be read in conjunction with the February 2018 report of the Scientific Commission for Animal Diseases because this report provides its considerations and comments. It is available at: <http://www.oie.int/en/international-standard-setting/specialists-commissions-groups/scientific-commission-reports/meetings-reports/>

The Agenda and list of participants are presented as [Appendices I](#) and [II](#), respectively.

## 2. Summary of the follow up actions after the 2015 Global Conference including the work to update international standards and guidelines

The Group was updated on the actions taken after the last Global Conference on Rabies, and the progress made in developing and implementing the Global Strategic Plan. The representative from WHO informed the Group on the foreseen modifications of the 3<sup>rd</sup> WHO TRS on Rabies (which was still in draft version the time of the meeting). The Group acknowledged that crucial aspects of the 3<sup>rd</sup> WHO TRS on Rabies should be taken into account in the revised version of the chapter.

The Group was informed of the outcomes of the *ad hoc* Group meeting that was convened to review the *Terrestrial Manual* chapter on rabies. It was noted that, for the first time, molecular techniques such as rt-PCR were proposed as a recommended confirmatory test. It was further noted that dog oral rabies vaccination was also considered as a complementary control measure to parenteral mass vaccination of dogs. Although nerve tissue animal vaccines were still produced in certain countries, their use was not recommended by the OIE.

## 3. Overview of the current OIE procedure for self-declaration of disease freedom

The Group was updated on the OIE self-declaration procedure through which a country or a zone could self-declare freedom from an OIE-listed disease (excluding the six diseases under official disease status recognition). It was pointed out that a self-declaration does not reflect the official position or endorsement by the OIE regarding the disease status in the country.

The Group was informed on the efforts made by the OIE to strengthen and increase the transparency and visibility of the OIE procedure for country self-declaration of freedom from disease. The Group expressed nevertheless, concerns about the self-declaration freedom from rabies, given the potential animal and human health implications of erroneously declared status.

The Group noted that the rabies self-declaration aimed at an objective similar to the ‘verification’ procedure that was being discussed within WHO (i.e. 3<sup>rd</sup> WHO TRS on Rabies). It recommended that OIE and WHO coordinate their initiatives to avoid duplication of procedures and to ensure that the information that is required to support country rabies freedom status claims is harmonised between WHO and OIE. However, it was also acknowledged that the current procedure for self-declaration of freedom from an OIE listed disease would need to meet the requirements outlined in the disease-specific chapter of the *Terrestrial Code*, before being proposed for publication by the OIE.

## 4. Review the OIE Terrestrial Code Chapter 8.14. Infection with rabies virus

### Article 8.14.1. General provisions

The Group recognised that the current use of the term “rabies” throughout the chapter could be misleading as it interchangeably refers to the disease and the pathogen. The Group decided to add an introductory paragraph to clarify that rabies is a disease that is caused by the infection of any species of the genus *Lyssavirus* (Fooks et al., 2014).

The Group noted that the current internationally accepted taxonomic name that refers to the former classical rabies virus, genotype 1, is “*Rabies lyssavirus*” (ICTV, 2015). The Group also emphasised the role of *Rabies lyssavirus* as responsible for the vast majority animal and human rabies cases. The Group pointed out that *lyssavirus* species other than *Rabies lyssavirus* may also cause the disease, but have more restricted geographical distribution and host range, and that public health consequences are limited.

The Group consulted an expert from the International Committee on Taxonomy of Viruses, and concluded that the common name of the pathogenic agent, formerly named as “classical rabies virus, genotype 1”, should be maintained as “rabies virus” throughout the chapter.

The Group discussed the need to include other *Lyssavirus* species in the case definition. The public and animal health impact of other *Lyssavirus* species and the notification implications were discussed. The conclusion was that for the purposes of the *Terrestrial Code*, a rabies case should remain as any animal infected with rabies virus only.

The experts pointed out that the glossary definition of ‘animals’ implicitly includes bats. Therefore, an infection in bats with rabies virus should be considered as a case and therefore, it should be notified to the OIE.

The Group discussed the issue around the difference between a rabies case and an outbreak, in particular regard to notification and enumeration of cases, and noted the definitions of these terms in the Glossary. Because the epidemiologic unit of concern is normally the individual rabies infected animal, it was decided to make references to ‘cases’ and not to ‘outbreaks’ throughout the chapter.

The Group noted that the incubation and infectivity periods for rabies virus were unknown in certain animal species. However, adequate studies had been conducted to characterise these periods in dogs, cats and ferrets that may justify the inclusion of specific time references into the chapter (Tepsumethanon et al., 2004). In the absence of new scientific evidence, the Group decided to retain the currently adopted incubation period of six months for the purpose of the *Terrestrial Code*.

The current version of the *Terrestrial Code* Chapter on rabies chapter does not provide a list of safe commodities, which differs from the approach that has been adopted for other diseases. The Group took note of the limited scientific evidence currently available on the matter, and recommended not to include an article on safe commodities.

To support the Global Strategic Plan, and for the purpose of the *Terrestrial Code*, the Group decided to add a definition of dog-mediated rabies. This was defined as an infection with rabies virus that is **maintained** in the dog population regardless of the source of infection. Therefore, this would require that the rabies virus be transmitted from infected dogs to other dogs or to other susceptible species. The term “mediated” was preferred over “transmitted” as the former is more commonly used by the international scientific community.

#### Article 8.14.2. Control of rabies in dogs

In light of the newly added articles (i.e. draft Article 8.14.3bis.) on dog-mediated rabies free country or zone, Article 8.14.8.ter on OIE endorsed official control programme for dog-mediated rabies, draft Article 8.14.9.bis on Surveillance), the Group decided to delete Article 8.14.2. as the content of this article was considered in the new draft articles.

#### Article 8.14.3. Rabies free country

The adopted chapter only provided provisions to self-declare the whole country free from rabies. The Group discussed the merit and feasibility of declaring a zone free from rabies virus to support Members to progress towards rabies elimination. It was mentioned that several OIE Members were already implementing regionalisation as part of their national control rabies elimination strategies. The Group took note of the definition of zone in the Glossary of the *Terrestrial Code* and discussed the challenges of implementing a zoning approach according to the provisions of the *Terrestrial Code* Chapter 4.3. on zoning and compartmentalization (e.g. the control of dog movement between zones). The Group agreed that this approach could provide benefits to some OIE Members and decided to include the possibility of declaring zones free from rabies in the article. The title of the article was changed accordingly.

The Group discussed the need to include the concept of “terrestrial rabies”. In the most recent scientific literature, this term was defined as the infection of rabies virus in the terrestrial mammals, including bats. Based on the case definition of Article 8.14.1. on general provisions, the Group pointed out that for the purpose of the *Terrestrial Code*, the term infection with rabies virus should be considered as equivalent to “terrestrial rabies”.

The Group decided to add provisions specifying that all susceptible animals showing clinical signs suggestive of rabies should be properly investigated to support the claim of freedom (Tepsumethanon et al. 2005; Wallace et al., 2015).

The Group considered the requirements of Article 1.4.6. on surveillance to demonstrate freedom from disease or infection, according to which a country or a zone free from infection should not have carried out vaccination against the disease. The Group decided to specify that preventive vaccination, which is recommended for rabies elimination and for preventing re-introduction, did not preclude the rabies free status.

The Group remarked that an imported case of rabies in the Order Carnivora or Chiroptera which occurred outside a quarantine station should not jeopardize the rabies free status, provided that an epidemiological investigation according to OIE standards was carried out to demonstrate that the country had not had any indigenous transmission events (Sinclair et al., 2015). Therefore, the Group suggested deleting point 5.

The Group noted the two-year waiting period to claim freedom from disease. The Group discussed the possibility to include a shortcut recovery mechanism as per other diseases, and the public health implications (Charlton et al., 1997). The Group concluded that a shortcut recovery mechanism was not warranted, as rabies maintenance below the level of detection after an introduction was possible with important public health consequences.

#### Article 8.14.3.bis Rabies infected country or zone

The Group drafted this article to clarify that a country that did not fulfil the requirements of freedom should be considered infected.

#### Article 8.14.3ter. Dog-mediated rabies free country or zone

The Group agreed to draft a new article on dog-mediated rabies free country or zone to emphasise the public health importance of dogs as the main source of human rabies and to be in line with the Global Strategic Plan.

The article was drafted following the updated Article 8.14.3. taking into account the specifics of dog-mediated rabies control. The Group agreed that either preventive vaccination or the presence of rabies virus in wildlife should not preclude the dog-mediated rabies free status.

Finally, the Group discussed the current capacity to differentiate rabies virus adapted to dogs from other rabies virus adapted to susceptible animal species other than dogs. The Group concluded that, with the current molecular diagnostic techniques, such differentiation is not always feasible.

The Group considered the OIE self-declaration procedure and recommended that the OIE elaborate a questionnaire to provide guidance for countries to follow for self-declaration of freedom from dog-mediated rabies. The Group noted that existing networks, such as REDIPRA (Reunión de Directores de los Programas de Rabia de las Américas) or PARACON (Pan-African Rabies Control Network), had already developed questionnaires that could be adapted for this purpose.

#### Article 8.14.6. Recommendations for importation of dogs, cats and ferrets from countries considered infected with rabies

The Group discussed the current three month minimum period of vaccination prior to shipment of dogs, cats or ferrets. In light of multiple reports in the scientific literature (Rupprecht et al., 1990; Aubert, 1992; Shimazaki et al., 2003; Muirhead et al., 2008; Brown et al., 2011; Wallace et al., 2017), the Group decided to reduce the time to one month and to maintain the minimum antibody concentration of 0.5 UI/ml as this limit has been broadly accepted by the Veterinary Authorities.

#### Article 8.14.7. Recommendations for importation of domestic ruminants, equids, camelids and suids from countries considered infected with rabies

The Group noted that countries frequently require that wild animals (e.g. carnivores) be vaccinated for rabies prior to importation (Wallace et al. 2016). The Group, therefore, decided to extend the scope of this article to include all animals, except dogs, cats, ferrets and laboratory animals. The title was amended accordingly. The Group recommended the deletion of Article 8.14.9.

The wording was amended to take into account the differences between the provisions for animal identification of domestic and wild animals.

Article 8.14.8. Recommendations for importation from countries considered infected with rabies (For rodents and lagomorphs)

The Group noted that the provisions of this article referred to laboratory animals born and reared in a biosecure facility and that the terms “rodents and lagomorphs” was misleading. For clarity, the text was amended and the term “rodents and lagomorphs” was replaced by “laboratory animals”. The title was also amended accordingly.

References to the *Terrestrial Manual* chapter 1.1.1 were included to clarify the term biosecure.

Article 8.14.8bis. OIE endorsed official control programme for dog-mediated rabies

The Group extensively discussed the importance of a rigorous rabies elimination programme in dogs as part of the national rabies control strategy to sustainably eliminate rabies human deaths and eventually break the cycle of transmission between dogs and humans. The Group discussed the conclusions of the last WHO Expert Consultation on Rabies (April 2017) which highlighted the need to create a ‘validation procedure’ to demonstrate absence of dog-mediated human rabies deaths and a ‘verification procedure’ to demonstrate absence of dog-mediated rabies cases was agreed. The Group also considered the request of some countries to have an international recognition of their progress towards the 2030 goal.

While acknowledging that rabies was not included in the list for which the OIE recognised an official disease status, the Group noted the mandate of the OIE to endorse national control programmes for FMD or PPR to support the global control and eradication strategies for these diseases. The Group, therefore, concluded that creating a mechanism to endorse national rabies elimination programmes in dogs would strongly support and contribute to the Global Strategic Plan for Dog-mediated Human Rabies Elimination. Members may wish to request an endorsement by the OIE to progressively improve their dog-mediated rabies situation and eventually be able to declare themselves free from dog-mediated rabies.

The endorsement of the dog rabies national control programme would also be a strong supporting evidence for countries wanting to validate their zero dog-mediated human rabies deaths status following the WHO procedure. Hence, the Group recommends to the OIE to explore the development of a mechanism to endorse the national control programmes for dog-mediated rabies elimination as a cornerstone of their national rabies elimination strategies.

The Group considered the *Terrestrial Code* Chapter 1.6. and Article 8.14.2. and proposed a draft article to describe the provisions for the endorsement of official national control programmes for dog-mediated rabies.

Article 8.14.9. Recommendations for importation of wildlife from countries considered infected with rabies

This article was deleted and the provisions included in Article 8.14.7.

Article 8.14.9.bis Surveillance

The Group discussed that, for the purpose of the *Terrestrial Code*, the main objective of rabies surveillance should be the detection of infection with rabies virus in all animals, and the collection of epidemiological information to support the maintenance of freedom. The Group noted that the provisions included in *Terrestrial Code* Chapter 1.4. either did not sufficiently cover the needs for rabies surveillance (e.g. such as public awareness, sampling methods), or were inappropriate (e.g. serological surveillance).

The Group took note of the structure and content of surveillance articles of disease-specific chapters of the *Terrestrial Code* as well as other relevant sources of information such as the [OIE Guide to Terrestrial Animal Health Surveillance](#), the 3<sup>rd</sup> WHO TRS on Rabies, and the [Blueprint for Rabies Prevention and Control](#).

The Group listed the critical surveillance components to be considered when designing and implementing a rabies surveillance programme that were not sufficiently addressed in the *Terrestrial Code* Chapter 1.4. These components included, public awareness, enhanced clinical surveillance to identify suspected animals, adequate epidemiological investigation, effective sampling strategy and cooperation with other competent authorities.

Regarding clinical surveillance, the Group stressed the importance of investigating suspected cases for the detection of rabies cases (Etheart et al., 2017). The Group noted that the draft chapter referred several times to surveillance and actions in response to suspected rabies virus cases. Therefore, the Group considered it necessary to include a definition of suspected cases for the purpose of the chapter.

Regarding the sampling strategies described in *Terrestrial Code* Chapter 1.4., the Group considered that active surveillance based on probability sampling methods applied to healthy animal populations not involved in human exposure was not recommended as it rarely provides valuable surveillance data (Chang et al., 2016). The Group recommended including specific provisions to clarify that surveillance should target suspected cases.

## 5. Any other issues

The Group noted that in some regions, such as in the Americas, wild carnivorous or haematophagous bats were the main rabies virus reservoirs posing a very high risk for livestock. Even in the absence of dog-mediated rabies, official national control programme to control the disease and reduce the economic and public health burden of the disease should be encourage and promoted by the OIE.

The Group requested the Scientific Commission to consider this recommendation and to decide whether or not it should be specifically mentioned in the draft chapter.

## 6. Finalisation and adoption of the draft report

The Group reviewed and amended the preliminary draft report provided by the rapporteur. The Group agreed that the report and revised chapters would be subject to a short period of circulation in the Group for minor comments and final adoption.

## 7. References

Aubert M.F. (1992). Practical significance of rabies antibodies in cats and dogs. *Rev. sci. tech. Off. int. Epiz.*, **1**:735-60.

Blueprint for Rabies Prevention and Control. <https://caninerabiesblueprint.org/> (Last access: 8 December 2017).

Brown C.M. (2011). Compendium of Animal Rabies Prevention and Control, 2011: National Association of State Public Health Veterinarians, Inc. (NASPHV). Recommendations and Reports. *Centers for Disease Control and Prevention*, **60**:1-14. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6006a1.htm> (last access: 8 December 2017).

Chang SS, Tsai HJ, Chang FY, Lee TS, Huang KC, Fang KY, Wallace RM, Inoue S, Fei CY (2016). Government Response to the Discovery of a Rabies Virus Reservoir Species on a Previously Designated Rabies-Free Island, Taiwan, 1999-2014. *Zoonoses Public Health*, **63**:396-402.

Charlton KM, Nadin-Davis S, Casey GA, Wandeler AI (1997). The long incubation period in rabies: delayed progression of infection in muscle at the site of exposure. *Acta Neuropathol.*, **94**:73-77.

Etheart MD, Kligerman M, Augustin PD, Blanton JD, Monroe B, Fleurinord L, Millien M, Crowdis K, Fenelon N, Wallace RM. (2017). Effect of counselling on health-care-seeking behaviours and rabies vaccination adherence after dog bites in Haiti, 2014-15: a retrospective follow-up survey. *Lancet Glob Health.*, **5**:e1017-e1025.

Fooks AR, Banyard AC, Horton DL, Johnson N, McElhinney LM, Jackson AC (2014). Current status of rabies and prospects for elimination. *The Lancet*. **384**:1389-1399.

Global Elimination of Dog-mediated Human Rabies – The Time is Now. Geneva, 10-11 December 2015 [http://www.oie.int/fileadmin/Home/eng/Media\\_Center/docs/pdf/Rabies\\_portal/EN\\_RabiesConfReport.pdf](http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/Rabies_portal/EN_RabiesConfReport.pdf) (Last access: 8 December 2017).

ICTV Taxonomy history: *Rabies lyssavirus*

[https://talk.ictvonline.org/taxonomy/p/taxonomy-history?taxnode\\_id=20161105](https://talk.ictvonline.org/taxonomy/p/taxonomy-history?taxnode_id=20161105) (Last access: 8 December 2017).

Muirhead TL, McClure JT, Wichtel JJ, Stryhn H, Frederick Markham RJ, McFarlane D, Lunn DP (2008). The effect of age on serum antibody titers after rabies and influenza vaccination in healthy horses. *J. Vet. Intern. Med.*, **22**:654-61.

OIE Guide to Terrestrial Animal Health Surveillance. OIE – World Organisation for Animal Health (2014). <http://www.oie.int/for-the-media/press-releases/detail/article/a-new-oie-guide-to-better-surveillance-and-detection-of-health-risks-related-to-animals/> (Last access: 8 December 2017).

Rupprecht CE, Gilbert J, Pitts R, Marshall KR, Koprowski H (1990). Evaluation of an inactivated rabies virus vaccine in domestic ferrets. *J. Am. Vet. Med. Assoc.*, **196**:1614-6.

Shimazaki Y, Inoue S, Takahashi C, Gamoh K, Etoh M, Kamiyama T, Makie H (2003). Immune response to Japanese rabies vaccine in domestic dogs. *J. Vet. Med. B. Infect. Dis. Vet. Public Health.*, **50**:95-8.

Sinclair JR, Wallace RM, Gruszynski K, Freeman MB, Campbell C, Semple S, Innes K, Slavinski S, Palumbo G, Bair-Brake H, Orciari L, Condori RE, Langer A, Carroll DS, Murphy J (2015). Rabies in a Dog Imported from Egypt with a Falsified Rabies Vaccination Certificate-Virginia, 2015. *MMWR*. 64:1359-1362.

Taylor LH, Wallace RM, Balaram D, Lindenmayer JM, Eckery DC, Mutoonono-Watkiss, Parravani E, Nel LH (2017). The role of dog population management in rabies elimination – A review of current approaches and future opportunities. *Front. Vet. Sci.*, **4**: 109.

Tepsumethanon V, Wilde H, Meslin FX (2005). Six criteria for rabies diagnosis in living dogs. *J. Med. Assoc. Thai.*, **88**:419-22.

Tepsumethanon V, Lumlertdacha B, Mitmoonpitak C, Sitprija V, Meslin FX, Wilde H (2014). Survival of Naturally Infected Rabid Dogs and Cats. *Clin. Infect. Dis.*, **39**: 278–280.

Wallace RM, Reses H, Franka R, Dilius P, Fenelon N, Orciari L, Etheart M, Destine A, Crowdis K, Blanton JD, Francisco C, Ludder F, Del Rio Vilas V, Haim J, Millien M (2015). Establishment of a High Canine Rabies Burden in Haiti through the Implementation of a Novel Surveillance Program [corrected]. *PLoS Negl Trop Dis.*, **9** (11), 24;9:e0004245.

Wallace RM, Niezgoda M, Waggoner EA, Blanton JD, Radcliffe RA (2016). Serologic response in eight alpacas vaccinated by extralabel use of a large animal rabies vaccine during a public health response to a rabid alpaca in South Carolina. *J. Am. Vet. Med. Assoc.*, **249**: 678-681.

Wallace RM, Pees A, Blanton JB, Moore SM (2017). Risk factors for inadequate antibody response to primary rabies vaccination in dogs under one year of age. *PLoS Negl Trop Dis.*, **11** (7), 11:e0005761.

Zero by 30: The Global Strategic Plan to End Human Deaths from Dog-transmitted Rabies by 2030. World Rabies Day, Geneva, 28 September 2017.

[http://www.oie.int/fileadmin/Home/eng/Media\\_Center/docs/pdf/Rabies\\_portal/EN\\_executiveSummary.pdf](http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/Rabies_portal/EN_executiveSummary.pdf) (Last access: 8 December 2017).

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**Agenda**

1. Summary of the follow up actions after the 2015 Global Conference including the work to update international standards and guidelines
2. Overview of the current OIE procedure for self-declaration of disease freedom
3. Review the OIE Terrestrial Code Chapter 8.14. Infection with rabies virus
4. Any other issues
5. Finalisation and adoption of the draft report
6. References

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## MEETING OF THE OIE AD HOC GROUP ON RABIES

Paris, 21 – 23 November 2017

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