



**REPORT OF THE ELECTRONIC CONSULTATION OF AN OIE EXPERT GROUP
ON EQUINE PIROPLASMOSIS¹**

Paris, July-August 2019

1. Background

In February 2019, the OIE Headquarters updated the Terrestrial Animal Health Standards Commission (Code Commission) on the work being conducted in consultation with OIE Reference Laboratory experts to review or develop provisions for the temporary movement of horses for Chapter 12.2. Contagious equine metritis and Chapter 12.7. Equine piroplasmosis. The Code Commission considered that these chapters were outdated and not aligned with the more recent disease-specific chapters in the *Terrestrial Animal Health Code* (Chapter 12.2. has not been revised since its first adoption in 1982 and Chapter 12.7. had only a minor amendment made since its adoption in 1982) and requested OIE Headquarters to evaluate the need for a comprehensive review and revision of these chapters, not just limited to the development of articles for the temporary movement of horses.

2. Process of the electronic consultation

Based on the review by the OIE Headquarters of the OIE Standards on equine piroplasmosis in the *Terrestrial Animal Health Code* (*Terrestrial Code*) and the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (*Terrestrial Manual*), and other relevant OIE documents such as the OIE Handbook for the Management of High Health, High-Performance Horses, some critical areas were identified for which experts' advice was consulted electronically. An expert group (the Group) comprised of four members from OIE Reference Laboratories in which Dr Peter Timoney acted as chair and Dr Alf-Eckbert Füssel acted as rapporteur; a representative of the Code Commission and an observer from the International Horse Sport Confederation (IHSC) participated in the electronic consultation.

The electronic consultation was conducted between July and August 2019. All experts signed the forms for undertaking of confidentiality and declaration of conflicts of interest. The declared interests were reviewed by the OIE and it was agreed that none represented a potential conflict in the revision of the chapter. The list of participants is presented in [Appendix I](#).

The reference to articles in this report are related to the new drafted chapter on Equine Piroplasmosis and not to the current OIE Chapter 12.7.

3. Review of Chapter 12.7. on Equine piroplasmosis of the *Terrestrial Code*

Article 12.7.1. General Provisions

The Group suggested that the definition of 'equine piroplasmosis' should be restricted to indicate clinical diseases caused by one of the tick-borne or iatrogenic transmitted agents in equids, and also supported the OIE in continuing to define infection separately from disease. The definition of equine piroplasmosis should include the infection with *Theileria Equi* (*T. equi*), *Babesia Caballi* (*B. caballi*), or both.

¹ 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 2020 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 Group assessed the different susceptible species to be considered in the chapter and concluded that domestic and wild equids are the species with epidemiological relevance for equine piroplasmosis. Nevertheless, it suggested to mention that old world camelids could act as potential reservoirs^{2,3,4}.

With regard to the species of ticks (competent vectors) that act as a source of infection, three tick genera (*Dermacentor*, *Rhipicephalus* and *Hyalomma*) were routinely described in literature. The genus *Amblyomma* was also a tick genus proven competent to transmit *T. equi*, with unequivocal proof that *Amblyomma cajennense* was a natural transmitter of *T. equi* with respect to the spread of equine piroplasmosis.

Concerning the definition of infection with *T. equi* or *B. caballi*, three possible options were proposed in accordance with the identification methods described in the *Terrestrial Manual*. It was agreed that this definition comprises the detection of antigens or genetic material by microscopic examination or by PCR, respectively, as well as the detection of antibodies, in equids with or without clinical signs.

For the purpose of the *Terrestrial Code*, the incubation period was established as 30 days, based on the incubation period of 12 to 19 days for *T. equi* and the incubation period of 10 to 30 days for *B. caballi*, covering the time elapsed for the onset of clinical signs as well as the period for the detection of the agent in the case of subclinical infections. The Group concluded that the infective period was lifelong.

The Group also updated and aligned the definition of temporary importation with Chapter 4.17.

Article 12.7.2. Safe commodities

Although unlikely, semen and embryos could pose a threat in transmitting *T. equi* or *B. caballi* if contaminated with blood. Therefore, the Group proposed to make reference to Chapters 4.9. and 4.10. for the collection, storing and processing of embryos. As there was no specific chapter describing the provisions for the collection of semen from stallions in the *Terrestrial Code*, the Group added that semen should be collected in a way that ensures no contamination with blood. Based on the same principle of safety, sterile filtered horse serum was listed as a safe commodity since the red blood cells would have been removed.

Article 12.7.3. Country or zone free from infection with *T. equi* and *B. caballi*

With reference to the report of an OIE *ad hoc* Group on Harmonisation of the *Terrestrial Code* chapters on bluetongue, African horse sickness, and epizootic hemorrhagic disease in 2013, the Group agreed that historical freedom would not apply to equine piroplasmosis, as it is a vector-borne infection which is widely distributed and where asymptomatic infections exist. Furthermore, based on the severe impact on trade, the Group concluded that freedom from equine piroplasmosis could only be established through surveillance in accordance with draft article 12.7.9.

The minimum duration of notifiability was established as 10 years as for other vector-borne diseases. Whilst the duration of absence of disease and the surveillance to demonstrate evidence of infection was established at 6 years, based on the number of tick generations that can harbor *B. caballi*, considering the 3-years lifespan of ticks and transovarial transmission. The same time period was established for the timeframe of the surveillance programme for competent vectors.

The Group discussed the feasibility to designate establishments free from disease, but it was concluded that considering the epidemiology of the disease; mainly the presence of asymptomatic carriers; the life cycle in ticks and the worldwide distribution of the competent vectors; if the country is not free an establishment remains permanently at risk and therefore cannot be assured as free in a prospective sense without effective implementation of ongoing controls.

Article 12.7.4. Recovery of a free status

The Group suggested not to include specific provisions for recovery of status, same as other chapters on vector-borne disease as well as considering the absence of specific surveillance requirements for recovery of status. Countries should follow the provisions of draft article 12.7.3. to regain free status.

² Qablan, M. A., Sloboda, *et al.* (2012). Quest for the piroplasms in camels: identification of *Theileria equi* and *Babesia caballi* in Jordanian dromedaries by PCR. *Veterinary parasitology*, **186**(3-4), 456-460.

³ Sloboda, M., Jirků, M., Lukešová, D., *et al.* (2011). A survey for piroplasmids in horses and Bactrian camels in North-Eastern Mongolia. *Veterinary parasitology*, **179**(1-3), 246-249.

⁴ Bahrami, S., Tabandeh, M. R., & Tafreshi, A. R. G. (2017). Prevalence and molecular identification of piroplasmids in Iranian dromedaries (*Camelus dromedarius*). *Journal of zoo and wildlife medicine*, **48**(4), 1026-1030.

Article 12.7.5. Recommendations for the importation of equids

The Group described the diagnostic tests prior to shipment in accordance with Chapter 3.5.8. of the *Terrestrial Manual*. The Group stressed that while a positive identification by microscopic examination would be sufficient to describe a case, a negative result by microscopic examination would not be sufficient to rule out infection. In this regard, agent identification methods by molecular techniques would also be required prior to shipment.

Article 12.7.6. Recommendations for the temporary importation of equids

The Group updated this article to include the high health, high status subpopulation horses (HHP) defined in Chapter 4.17. The Group agreed on the inclusion of the iatrogenic risk, and that measures would have to be taken by the importing country and not only by the country that dispatches the infected animals.

The Group suggested that for the purpose of this chapter, the temporary importation of equids should have a limit period of 90 days, to be aligned with high health, high status subpopulation horses (HHP) defined in Chapter 4.17 as well as with the European Union regulations.

Articles 12.7.7. & 12.7.8. Protecting equids from ticks & Protection facilities and transports from ticks

Provisions for protecting equids and facilities from ticks were developed similar to those included in Chapter 8.3. on infection with bluetongue virus.

Article 12.7.9. Surveillance

The general principles of surveillance were drafted taking into account the provisions of Chapter 1.4. and other vector-borne disease chapters of the *Terrestrial Code* that were more recently adopted, such as Chapters 8.3. on infection with bluetongue virus and 15.1. on infection with African swine fever virus.

Consideration for the inclusion of a new pathogenic agent in the Chapter:

The Group discussed if a newly discovered species, *Theileria haneyi* should also be added to the chapter. However, in the referenced literature providing the rationale for the inclusion of *Theileria haneyi* as a pathogenic agent for equine piroplasmiasis, there was limited pathogenesis data available on the virulence of *T. haneyi* sp.^{5,6}.

The Group could not reach a consensus regarding the inclusion of *T. haneyi* in this chapter. The Group agreed to forward this issue for consideration by the OIE Scientific Commission for Animal Diseases to assess the relevance of the inclusion of this new pathogenic agent. In case *T. haneyi* would be added to the Equine Piroplasmiasis OIE Code chapter, Chapter 3.5.8. of the *Terrestrial Manual* should be updated accordingly. The chairman, the rapporteur and the expert from OIE reference lab agreed that if there is uncertainty as to whether *T. haneyi* meets the criteria for inclusion on the OIE List, information could be provided first in the OIE Terrestrial Manual chapter to support diagnostic differentiation of this organism from *T. equi* in order to support improved understanding of the distribution and impact of *T. haneyi*.

Adoption of the report

The Group reviewed the draft report provided by the OIE Secretariat and agreed that the report captured the discussions on the electronic consultation.

⁵ Knowles, D. P., Kappmeyer, L. S., Haney, D., *et al.* (2018). Discovery of a novel species, *Theileria haneyi* n. sp., infective to equids, highlights exceptional genomic diversity within the genus *Theileria*: implications for apicomplexan parasite surveillance. *International journal for parasitology*, **48**(9-10), 679-690.

⁶ Sears, K. P., Kappmeyer, L. S., *et al.* (2019). Infection dynamics of *Theileria equi* and *Theileria haneyi*, a newly discovered apicomplexan of the horse. *Veterinary Parasitology*.

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