

Terrestrial Animal Health Standards Commission
Report

October 2008

~~CHAPTER 4.11.~~

~~CATEGORISATION OF DISEASES AND
PATHOGENIC AGENTS~~

~~Article 4.11.1.~~

~~In 2004, the Research Subcommittee of the International Embryo Transfer Society (IETS) Health and Safety Advisory Committee again reviewed available research and field information on infectious *diseases* which have been studied regarding the *risk* of their transmission via *in vivo* derived embryos. As a result of this review, the IETS has categorised the following *diseases* and pathogenic agents into four categories. Please note that this categorisation applies only to *in vivo* derived embryos.~~

~~The following methodology is used by the Research Subcommittee to categorise infectious *diseases* with regard to the *risk* of their transmission:~~

- ~~1. Research procedures used to handle and process the embryos will comply with criteria that have been set out by A. Bielanski and W.C.D. Hare in Appendix A of the IETS Manual[†].~~
- ~~2. The data used by the Subcommittee to categorise or re-categorise *diseases* will have been published in peer-reviewed articles in reputable scientific journals. This is to ensure that scientific procedures and results, as well as the interpretation of results, have undergone another level of review.~~
- ~~3. Decisions regarding *disease* categorisation are based on a consensus judgement which is taken annually by the Subcommittee. The names of members of the Subcommittee who are present when the decisions are made are recorded, as are the names of any others whose opinions were solicited in the decision-making process.~~
- ~~4. Questions considered in the decision-making process include the following:~~
 - ~~a) What is the nature of the *disease*? For example, is the causal agent a uterine pathogen? Does it occur in blood? Does it persist in blood? Do asymptomatic shedders occur? What is the minimum infective dose?~~
 - ~~b) Has the causal agent been found in the ovarian/oviductal/uterine (OOU) environment?~~
 - ~~e) Is the causal agent's presence in the OOU environment incidental or is it a consequence of the pathogenesis of the *disease*?~~
 - ~~d) Is the causal agent's presence in the OOU environment consistent with obtaining viable embryos?~~
 - ~~e) Has the causal agent been found in flushing fluids?~~

- f) Has the causal agent been found to penetrate or cross the intact zona pellucida (ZP)?
- g) Has the causal agent been found to adhere to the ZP?
- h) Is the causal agent removed by washing the embryo?
- i) Will special treatments (e.g. with trypsin) remove or inactivate the causal agent?
- j) How many embryos have been transferred with or without *disease* transmission?
- k) What is the accumulated evidence for non-transmission of the *disease* by embryo transfer?
- l) What evidence is there that the *disease* could be transmitted by embryo transfer?
- m) Have negative (or positive) results been duplicated by the same or different investigators?
- n) Has evidence been accumulated for different animal species as well as for a range of different types and strains of the causal agent?

~~Article 4.11.2.~~

Category 1

Category 1 *diseases* or pathogenic agents are those for which sufficient evidence has accrued to show that the *risk* of transmission is negligible provided that the embryos are properly handled between collection and transfer according to the IETS Manual[†].

The following *diseases* or pathogenic agents are in category 1:

- Aujeszky's disease (pseudorabies) (swine): trypsin treatment required
- Bluetongue (cattle)
- Bovine spongiform encephalopathy (cattle)
- *Brucella abortus* (cattle)
- Enzootic bovine leukosis
- Foot and mouth disease (cattle)
- Infectious bovine rhinotracheitis: trypsin treatment required.

~~Article 4.11.3.~~

Category 2

Category 2 *diseases* are those for which substantial evidence has accrued to show that the *risk* of transmission is negligible provided that the embryos are properly handled between collection and transfer according to the IETS Manual[†], but for which additional transfers are required to verify existing data.

The following *diseases* are in category 2:

- ~~Bluetongue (sheep)~~
- ~~Caprine arthritis/encephalitis~~
- ~~Classical swine fever (hog cholera)~~
- ~~Scrapie (sheep).~~

~~Article 4.11.4.~~

Category 3

~~Category 3 diseases or pathogenic agents are those for which preliminary evidence indicates that the risk of transmission is negligible provided that the embryos are properly handled between collection and transfer according to the IETS Manual⁴, but for which additional *in vitro* and *in vivo* experimental data are required to substantiate the preliminary findings.~~

~~The following diseases or pathogenic agents are in category 3:~~

- ~~Bovine immunodeficiency virus~~
- ~~Bovine spongiform encephalopathy (goats)~~
- ~~Bovine viral diarrhea virus (cattle)~~
- ~~*Campylobacter fetus* (sheep)~~
- ~~Foot and mouth disease (swine, sheep and goats)~~
- ~~*Haemophilus somnus* (cattle)~~
- ~~Maedi visna (sheep)~~
- ~~*Mycobacterium paratuberculosis* (cattle)~~
- ~~*Neospora caninum* (cattle)~~
- ~~Ovine pulmonary adenomatosis~~
- ~~Porcine reproductive and respiratory disease syndrome (PRRS)~~
- ~~Rinderpest (cattle)~~
- ~~Swine vesicular disease.~~

~~Article 4.11.5.~~

Category 4

~~Category 4 diseases or pathogenic agents are those for which studies have been done, or are in progress, that indicate:~~

1. ~~that no conclusions are yet possible with regard to the level of transmission risk; or~~

2. ~~the risk of transmission via embryo transfer might not be negligible even if the embryos are properly handled according to the IETS Manual¹ between collection and transfer.~~

The following *diseases* or pathogenic agents are in category 4:

- African swine fever
- Akabane (cattle)
- Bovine anaplasmosis
- Bluetongue (goats)
- Border disease (sheep)
- Bovine herpesvirus-4
- *Chlamydia psittaci* (cattle, sheep)
- Contagious equine metritis
- Enterovirus (cattle, swine)
- Equine rhinopneumonitis
- *Escherichia coli* 09:K99 (cattle)
- *Leptospira borgpetersenii* serovar *hardjobovis* (cattle)
- *Leptospira* sp. (swine)
- *Mycobacterium bovis* (cattle)
- *Mycoplasma* spp. (swine)
- Ovine epididymitis (*Brucella ovis*)
- Parainfluenza 3 virus (cattle)
- Parvovirus (swine)
- Porcine circovirus (type 2) (pigs)
- Scrapie (goats)

- *Trichomonas foetus* (cattle)

- ~~*Ureaplasma/Mycoplasma* spp. (cattle, goats)~~
- ~~Vesicular stomatitis (cattle, swine).~~
- + ~~Manual of the International Embryo Transfer Society.~~