Wild Tiger Health Centre Information Sheet

Disease threat: Transmissible spongiform encephalopathies

Hazard description: Transmissible spongiform encephalopathies (TSEs) are neurological diseases, caused by a prion protein. Characterised by long incubation period (months/years) (Aguilar-Calvo et al. 2015).

Host species: Examples: CJD (Creutzfeldt-Jabob disease) – humans; BSE (bovine spongiform encephalopathy – cattle; CWD (chronic wasting disease) – deer and elk; scrapie – sheep and goats.
Most TSEs show a degree of host specificity, For example, to date there seems to be strong species barrier for CWD with no reports of transmission to man or scavenger/predator species (Gavier-Widen 2012). BSE however, has crossed species barriers to infect man, felids and ungulates (Aguilar-Calvo et al. 2015).
FSE (feline spongiform encephalopathy) affects domestic cats and captive wild felids including tigers. Infection is suspected to be acquired from consumption of BSE (bovine spongiform encephalopathy) infected meat (Sigurdson & Miller 2003). In the UK, the feeding of ruminant-derived meat and bone meal to ruminants (the likely cause of the BSE epidemic in the UK) has been banned since 1998 (Smith & Bradley 2003), and in other countries, similar legislation applies. Cases have been reported in domestic cats and captive wild felids, originating largely from the UK (Eiden et al. 2010).

Pathogenesis: Aggregation and accumulation of prion protein in the brain leading to degenerative, progressive, fatal neurological disease (Aguilar-Calvo et al. 2015).

Diagnosis: Clinical signs and post-mortem confirmation from brain material.

Vaccination: None.

Free-ranging tiger occurrence: No reports found.

Distribution: BSE Britain and Europe; scrapie largely worldwide (Aguilar-Calvo et al. 2015). CWD in North America and recently northern Europe (Norway) (Benestad et al. 2016).

Assumptions: For FSE, transmission is by ingestion of BSE affected/infected CNS tissue. Other ruminant (and potential tiger prey species) TSEs are more host restricted.

Limitations: None.