ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

DISCUSSION PAPER

Zika virus – DRAFT risk assessment in relation to the food chain

Issue

Following the recent outbreaks of Zika virus disease globally and ongoing reports of Zika virus transmission, a UK risk assessment was prepared by the cross-Government Human and Animal Risk Surveillance Group (HAIRS), considering mosquito-borne and other routes of transmission of the virus and the risk to the UK population. Given that the UK imports a notable quantity of meat from Zika-endemic Latin American countries, the Agency considers it is prudent to assess the level of risk of Zika virus disease via the food chain from meat imported from such countries. The Secretariat has prepared a first draft of a risk assessment (Annex A) for the Committee's consideration. The Agency would like to ask the Committee to review this risk assessment and also indicate whether it is appropriate to classify the microbiological health risk related to Zika virus via the food chain as **negligible** with a medium level of uncertainty.

Background

1. Prior to 2007, a few outbreaks of Zika virus disease were documented in tropical Africa and in some areas in Southeast Asia. Since 2007, several islands of the Pacific region have experienced outbreaks. In 2015, Zika virus disease outbreaks were reported in South America for the first time. Zika virus disease is now considered as an emerging infectious disease. In total, 64 countries and territories have reported transmission of Zika virus (ZIKV) since 1 January 2007 (WHO, 2016).

2. There is no evidence to suggest involvement of livestock in the epidemiology of ZIKV and it has been documented that non-human primates are the only known reservoir for the virus. However, *A. aegypti,* mosquitos have been documented to bite dogs and other domestic animals, mostly mammals. There is also limited evidence from one study carried out in Indonesia in the late 1970s that horses, cows, carabaos (water buffaloes), goats, ducks, and bats could become infected with Zika virus, but there is no evidence suggesting the animals subsequently develop disease or pose a risk for Zika virus transmission to humans (uncertainty). There is also no evidence to suggest infected food handlers play a role in virus transmission or from food such as fresh produce imported from ZIKV endemic countries. The virus has been reported to be present in saliva and urine and cases with ZIKV infection can report

gastrointestinal symptoms (uncertainty). It is however unclear whether ZIKV has been detected in faeces of infected individuals (uncertainty).

3. Organisations such as the WHO and CDC have not published any material relating to foodborne transmission of ZIKV suggesting it is unlikely that food plays a role (if any) in ZIKV infection. ZIKV was not identified as a foodborne virus in the ACMSF 2015 report on viruses in the food chain. Additionally, the EU has not placed any health restrictions on meat or produce imports from Zika-endemic countries.

4. Nonetheless, it is not clear whether the absence of foodborne transmission reports in the literature are merely a reflection of a lack of studies in this area. Therefore, the ability of Zika virus to infect and establish within animal hosts other than non-human primates, including livestock entering the food chain would benefit from being explored further. Additional factors which may support some consideration of this issue include, reports in the literature of mosquitos biting and infecting animals and reports of other members of the genus *Flavivirus* being shown to infect hosts such as birds and hamsters via the oral route, with viraemic profiles sometimes similar to those observed from mosquito acquired infection.

5. The risk assessment uses EFSA's approach to risk ranking as below in order to classify the level of risk:

Risk Level Classification

Probability Category	**Interpretation**
Negligible	So rare that it does not merit to be considered
Very Low	Very rare but cannot be excluded
Low	Rare, but does occur
Medium	Occurs regularly
High	Occurs very often
Very High	Events occur almost certainly

Table from EFSA (2006) modified from OIE (2004)

6. Based on this approach, the Agency's risk estimation of the microbiological health risk related to Zika virus via the food chain is **negligible.** A medium level of uncertainty has been assigned to this assessment, based largely on three key uncertainties:

   - Very limited information relating to the ability of Zika virus to infect and establish in hosts other than non-human primates

   - A lack of information relating to the role of infected food handlers in transmission generally or via fresh produce from endemic countries

   - A lack of information relating to the detection of ZIKV in faeces.

The Committee is asked:

- To comment on the attached draft risk assessment; and

- To advise whether it is in agreement with the Agency's conclusion that the health risk related to Zika virus via the food chain is **negligible,** with a medium level of uncertainty.

Secretariat
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