Shuni virus infection Fact Sheet

1. Disease overview

virus (SHUV) causes Shuni virus infection, an infectious, non-contagious insect transmitted viral disease. The main hosts are domestic and wildlife ruminants and horses. Clinical signs include fever and neurological symptoms that can lead to death (McIntosh, 1980; Möhlmann et al., 2018; Steyn et al., 2020; van Eeden et al., 2012; WOAH, 2025).

Shuni virus infection is not a WOAH-notifiable disease, and it is not listed in the EU AHL.

2. Agent

SHUV is a negative-sense single-stranded RNA virus with a segmented genome. SHUV is a member of the Simbu serogroup, belonging to the genus *Orthobunyavirus* within the family *Peribunyaviridae*. SHUV is a spherical virus with a diameter of about 100 nm. The RNA genome encodes for four structural and two non-structural proteins. The small (S) genomic segment encodes for the nucleocapsid protein N and in an overlapping reading frame for the non-structural protein NSs. The medium (M) segment encodes for the glycoproteins Gn and Gc, and the non-structural protein NSm. The large (L) segment encodes for the RNA dependent RNA polymerase (McIntosh, 1980; Möhlmann et al., 2018; Steyn et al., 2020; van Eeden et al., 2012; WOAH, 2025).

3. Geographical Distribution

SHUV virus infection is not reportable to WOAH. It has been reported from South Africa, and Middle East countries. Evidence from published studies describing natural infections with this agent, as well as field epidemiological studies, are collected in the EFSA's systematic literature review (updated until 31/12/2025) and summarized in Figure 1. For more detailed information, dynamic maps, and references visit the online disease profile (accessible via the button in the top right corner).

Figure 1. Geographical distribution of epidemiological studies addressing the occurrence of SHUV, as identified by the EFSA's systematic literature review (covering years 1970-2025).

4. Animal hosts

4.1. Susceptible hosts

Based on epidemiological knowledge of host–pathogen–vector interactions and outbreak reports, the main hosts of SHUV are domestic ruminants and horses, whereas humans are considered as dead-end hosts. However, other susceptible species have been identified in the SLR. The SLR summary is given in Table 1.

Table 1. Susceptible host species of Shuni virus.

The systematic literature review reported in the SHUV disease profile, identified the following susceptible species (updated until 31/12/2025, for references see online disease profile)
FIELD
Epidemiological studies carried out in the field **Pathogen was detected in the following animal species:** • Bovidae: *Bos taurus, Capra hircus, Ovis aries* • Equidae: *Equus caballus* **Antibodies were detected in the following animal species:** • No species specified **Outbreaks reported to WOAH included the following species:** • No species specified
EXPERIMENTS
Experimental studies demonstrated infection in: • Bovidae: *Bos taurus, Ovis aries*

4.2. Clinical Signs

In adult ruminants, infection with SHUV can be asymptomatic or may only cause mild clinical signs such as fever and diarrhoea. In horses and in calves, SHUV infection can cause fever and neurological signs, like paralysis, ataxia and recumbency, and can lead to death.

In ruminants, also abortion and malformation of foetuses have been reported.

4.2.1. Incubation Period

The incubation period in experimentally infected calves was 4 days (Sick et al., 2021; and references from the SRL available in the online version).

4.2.2. Morbidity and mortality

No studies were found where the morbidity and case fatality of SHUV infections were assessed.

4.2.3. Zoonotic Potential

Shuni virus infection is a zoonotic disease (Motlou and Venter, 2021).

5. Transmission

SHUV is likely transmitted to vertebrate hosts through the bite of mosquitoes (Diptera; Culicicidae and biting midges of the genus Culicoides (Diptera; Ceratopogonidae). For more information on vector distribution, visit the Vector section in the online disease profile.

Infected animals develop a viremia, which lasts 3 to 4 days, and the virus can be acquired by vectors during blood meals. Infected vertebrates do not transmit the virus directly to humans. (McIntosh, 1980; Möhlmann et al., 2018; Steyn et al., 2020; van Eeden et al., 2012; WOAH, 2025b).

6. Diagnostic tests

There are no WOAH-recommended tests for SHUV specifically, but there are recommendations for the detection of Bunyaviruses (WOAH, 2025b):

Tests for detection of the agent are RT-PCR for orthobunyaviruses or Simbu serogroup viruses (this PCR needs to be followed by confirmation for SHUV by sequencing the PCR fragment), nested PCR with SHUV specific primers, virus isolation, infection of mice followed by virus isolation (and confirmation by PCR).

Viruses of the Simbu group, to which SHUV belongs, can be isolated very well from animals or vectors during viremia, but isolation from pathological material is very difficult.

Tests for detection of immune response: Tests described for detection of antibodies are (indirect) immunofluorescence tests, complement fixation tests and (commercial) ELISA's. Most of these tests detect antibodies against the Simbu serogroup, but there is considerable cross-reactivity between the different viruses of the serogroup (Aino, Peaton, Schmallenberg, Shamonda and Tinaroo viruses), especially for tests that rely on the N protein. Serum neutralisation tests, which detect neutralizing antibodies directed against the glycoproteins, are more specific for a given virus species, but are labour-intensive. A more specific ELISA, based on the Gc-protein, was also developed.

The SLR has not found diagnostic tests evaluation studies meeting the eligibility criteria for inclusion.

7. Prevention and control

7.1. Vaccination

There are currently no licensed vaccines for SHUV in animals.

7.2. Treatment

There is currently no specific antiviral treatment for SHUV infection management is primarily supportive on an individual basis.

8. References

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