

Schmallenberg Disease Fact Sheet

1. Disease overview

Schmallenberg disease is an **infectious, non-contagious, vector-borne viral** disease, caused by **Schmallenberg virus (SBV)** that affects domestic and wild ruminants (sheep, goats, cattle, deer, bison, mouflon), as well as alpaca and llama. There have been also cases reported in dogs and wild boar. The disease is characterized by congenital malformations in newborns and reproductive disorders in adults. Clinical signs in adult animals are usually mild and transient, but infection during pregnancy can lead to severe fetal abnormalities.

Schmallenberg disease is **not** a **WOAH-notifiable disease**.

Schmallenberg disease is **not listed** in the **European Animal Health Law**.

2. Agent

Schmallenberg virus is an **enveloped, negative-sense, segmented, single-stranded RNA virus**. It is classified within the *Bunyaviridae* family and the *Orthobunyavirus* genus. The Schmallenberg virus is a member of the **Simbu serogroup** viruses, which includes viruses as Shamonda, Akabane, and Aino. Sathuperi and Douglas viruses are most closely related to the Schmallenberg virus within the Simbu group.

3. Geographical Distribution

SBV was first identified in Germany in 2011 and rapidly spread across much of Europe. Since then, circulation has been documented in multiple EU Member States and surrounding regions. Sporadic re-emergence continues, often linked to vector activity and climatic conditions.

For more detailed information and dynamic maps, visit the *Epidemiological studies* section of the online **disease profile** (accessible via the button in the top right corner).

4. Animal hosts

4.1. Primary animal species affected

Cattle, sheep, and goats are the main hosts. A systematic literature review conducted by EFSA indicated that Schmallenberg virus infection has been confirmed in cattle and sheep, while antibodies have been detected in alpaca, cattle, goats, llamas, and sheep. Although no cases were initially observed, testing also occurred in saiga antelope (*Saiga tatarica tatarica*).

4.2. Clinical Signs

Experimental infection in cattle and sheep generally resulted in no or only **mild clinical signs**, with an incubation period ranging from 1 to 5 days and viremia lasting similarly for 1 to 5 days. The presentation of clinical signs varies depending on species and age.

Adult ruminants typically exhibit a subclinical or mild acute disease, including fever, anorexia, diarrhoea, and decreased milk production. However, infection during pregnancy is associated with abortions, stillbirths, and congenital malformations. Diarrhoea has also been documented in some instances within both cattle and sheep populations.

In **neonates**, congenital SBV infection can be associated with arthrogryposis, hydranencephaly, scoliosis, brachygnathia, and other malformations. Affected offspring are often stillborn or die shortly after birth.

4.2.1. Incubation Period

The incubation period of Schmallenberg disease, defined as the interval between transmission and the onset of clinical signs, mostly varies from 1 to 8 days post infection with a median of 3 days.

4.2.2. Morbidity and mortality

Morbidity in adult animals is generally low, with transient disease. Mortality is primarily associated with affected neonates, particularly lambs, where losses can be high during outbreaks.

4.2.3. Zoonotic Potential

To date, Schmallenberg virus has **no confirmed zoonotic potential**, and human infection has not been demonstrated.

5. Transmission

SBV is transmitted to vertebrate hosts through the bite of certain species of **Culicoides midges**. Vector activity is seasonal, with transmission peaking in late summer and autumn. Vertical transmission in utero is the primary route leading to congenital disease. There is no evidence of direct horizontal transmission between animals.

→ *Culicoides* vectors have been reported in the EU in the past 2 years.

→ For more information on vector distribution, visit the *Vector* section in the online disease profile.

6. Diagnostic tests

WOAH-recommended tests for **agent detection** are virus isolation, fluorescent antibody test (FAT), immunohistochemistry (IHC), virus neutralisation test (VNT) and real-time RT-PCR.

WOAH-recommended tests for the **detection of immune response** are ELISA and virus neutralisation test (VNT).

The infectious virus can be isolated using cell culture techniques. A variety of cell lines, including insect cells (KC and C6/36), hamster cells (BHK), and monkey kidney cells (Vero), have been successfully employed for this purpose.

Due to the non-specific nature of clinical signs, a differential diagnosis is necessary. For acute infections in adult animals, potential causes of high fever, diarrhoea, and reduced milk production should be investigated. In cases of malformations of calves, lambs, and kids, consideration should be given to other orthobunyaviruses, bluetongue virus, pestiviruses, genetic factors, and exposure to toxic substances.

7. Prevention and control

7.1. Vaccination

There is currently one inactivated vaccine authorised by the European Medicines Agency (EMA) for use in cattle and sheep. Although it is licenced in some Member States, its uptake has been limited.

7.2. Treatment

There is currently no specific treatment for Schmallenberg virus. Management focuses on supportive care for adults and preventing pregnancies during peak vector activity. Rescheduling of sheep breeding outside the vector season may decrease the number of foetal malformations.

Up to the latest update, the systematic literature review performed by EFSA did not find papers investigating treatment efficacy which met the inclusion criteria.