Schmallenberg virus infection in ruminants in the EU – risk for human infections ?

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Distribution in animals

As of 28 March 2012 - 8 European MS have reported animal disease:

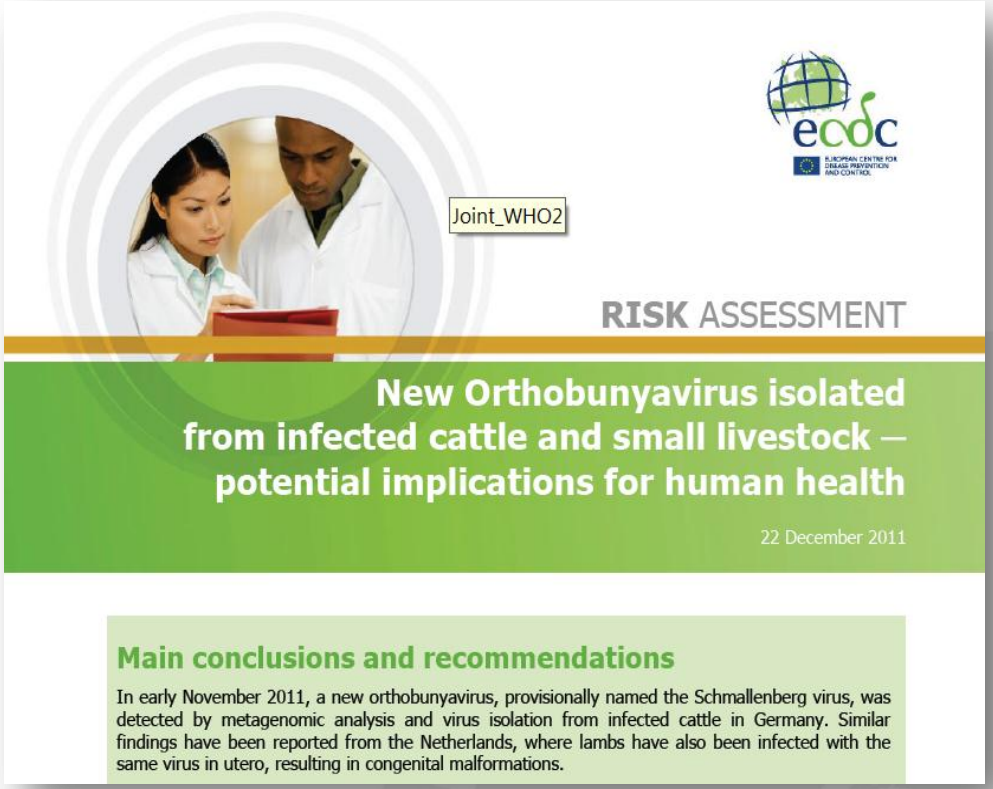
- Germany
- The Netherlands*
- Belgium
- UK
- France
- Italy
- Luxembourg
- Spain

* A study conducted in cattle (1.Nov 2011-1 Feb 2012) revealed 70% of the cattle being anti-SBV Ag+
** Midges collected in Oct 2011 in Denmark were tested positive

What is the risk for humans ?

ECDC Risk assessment
22 December 2011

"it is unlikely that this virus will cause disease in humans.."



Microbiological analogy

- Most closely related viruses within the Simbu seroroup are Shamonda, Aino, and Akabane viruses, which are causing primarily lifestock diseases.

- Only more distantly related viruses in the Simbu serogroup (e.g. Oropouche and Iquitos viruses both found in Central and South America) are zoonotic and can cause disease in humans.

- However, phylogenetic analysis distinguishes Simbu viruses that affect ruminants (Shamonda, Akabane and Aino) from the medically relevant ones as Oropouche and Iquitos suggesting that they are different.

Would cases in humans be detected and reported ?

Surveillance in:
- The Netherlands
- Germany
- UK

A **probable case** is a person who develops fever within two weeks following contact with an infected animal;

A **confirmed case** is a person who develops fever within two weeks following contact with an infected animal and blood tested positive by RT-PCR positive and confirmed by genome sequencing or NT.

- Current focus on high risk groups - occupationally exposed to affected newborn animals and birth products.
- It is likely that the seroprevalence in animals is underestimated and the number of exposed persons is high.

Syndromic surveillance

- Overall no excess morbidity has been reported from the affected areas
  - UK: no indication of unexplained increases in syndromic surveillance data on fever diagnosis August-October 2011.

- Ongoing passive surveillance in individuals with close contacts to potentially infected animals (farmers, veterinarians, etc.) has not revealed an increase in signs of illness that could be related to Orthobunyavirus infections.

Diagnostic capacity in humans

- RT-PCR is widely available.
- Serological test (IFA and virus neutralisation assays) are established but need continuous validation.

Constraints:

- Potential cross-reactivity with Simbu serogroup members or Orthobunyaviruses with European circulation like:
  - Batai virus (Bunyamwhere serogroup)
  - Tahyna virus (California encephalitis serogroup)
  - Inkoo virus (California encephalitis serogroup)
- Validation of an emerging virus difficult !

Serological studies

Key Questions:

- Can the virus infect human?
- If yes, what is the impact on human health and what are the consequences for pregnant women and their babies?

Serological studies in Germany and the Netherlands:

- In highly exposed persons
- Serology (IFA + VNT)

→ **As of 29 March, all sera tested were negative**

Conclusion

- Up to date there is no indication for SBV causing disease in humans.
- All sera tested from persons with exposure to SBV infected animals so far were negative.
- Further studies are ongoing to conclude on the zoonotic potential of SBV – results are expected April-May 2012.
- Depending on the outcome of the serologic studies the risk for pregnant women will need to be further investigated.
- Final interpretation of results is pending validation of tests.
- The risk assessment still holds true and will be updated in collaboration with the Member States according to new evidence available.

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Thank you

For more info visit our dedicated webpage:
http://ecdc.europa.eu/en/healthtopics/schmallenberg-virus/Pages/index.aspx