
**Foot-and-Mouth Disease (FMD), Hand, Foot and Mouth Disease (HFMD),
and Bovine Spongiform Encephalopathy (BSE)**

Subsequent to recent news releases regarding outbreaks of FMD and BSE in Britain and Europe, the Office of Epidemiology has received numerous requests for information on the characteristics of these diseases as well as HFMD. In response to these inquiries we have prepared this newsletter.

Foot-and-Mouth Disease

Foot-and-mouth disease (FMD) is a severe, highly contagious **viral disease of wild and domestic cloven-hoofed animals**, primarily cattle and swine. Sheep, goats and deer may also be affected. The United States has been free of FMD since 1929, when the last of nine U.S. outbreaks was eradicated¹.

The viral agents that cause FMD belong to the Family Picornaviridae, genus *Aphovirus*. There are seven different serotypes responsible for this illness.

FMD is not recognized as a zoonotic disease as infection in humans is extremely rare. The disease is characterized by fever and blister-like lesions followed by erosions on the tongue and lips, in the mouth, on the teats, and between the hooves. Although many animals recover, the disease leaves them debilitated and causes severe losses in the production of meat and milk.

Hand, Foot & Mouth Disease

Hand, foot and mouth disease (HFMD) is a **viral illness that occurs mainly in infants and children** under the age of 10, but cases among adults are not unusual. HFMD is not transmitted to or from pets or other animals². The moderately contagious disease is spread person to person by direct contact with nose and throat discharges or the stool of

infected persons, who are most infectious during the first week of illness.

The viruses that cause HFMD are in the Family Picornaviridae, genus *Enterovirus*. The most common cause is coxsackievirus A16, however, sometimes enterovirus 71 or other strains of enterovirus can cause HFMD.

The disease is characterized by a mild fever, sores in the mouth, a rash with blisters and frequently a sore throat. The fever appears first, followed by sores in the mouth that are usually located on the tongue, gums and inside of the cheeks. The non-itchy skin rash that occurs primarily on the palms, fingers and soles, may persist for seven to ten days.

Bovine Spongiform Encephalopathy/New Variant Creutzfeldt-Jacob Disease

Bovine spongiform encephalopathy (BSE) is a progressive neurological disorder of cattle that results from infection by an unconventional transmissible agent. Currently, the most accepted theory of the nature of the agent is that it is a modified form of a normal cell surface component known as prion protein.

Since 1996, evidence has been increasing for a causal relationship between outbreaks in Europe of BSE and a disease in humans, known as new variant Creutzfeldt-Jacob Disease (vCJD). The latter disease differs from the classic form of Creutzfeldt-Jacob Disease (CJD) in that it predominantly affects younger persons and has atypical clinical features, with prominent psychiatric or sensory symptoms at the time of clinical presentation, and delayed onset of neurologic abnormalities. Both of these diseases, as well as BSE are invariably fatal.

According to the U.S. Department of Agriculture, BSE has not been detected in the United States, despite active surveillance since May 1990³. To prevent BSE from entering the U.S., severe restrictions were placed on the importation of live cattle, sheep and other related animals and their products from all European countries. Further evidence that the U.S. has not been

affected by the outbreak of BSE, is that the incidence of CJD has remained low and cases of vCJD have not been identified in the U.S. Deaths from CJD are extremely rare among persons under 30 years of age in the U.S. in contrast to the United Kingdom, where over half the patients with vCJD were in this young age group⁴.

References

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3. Centers for Disease Control – National Center for Infectious Diseases. BSE and CJD Information and Resources, Web address: <http://www.cdc.gov/ncidod/diseases/cjd/cjd.htm>
4. Centers for Disease Control – National Center for Infectious Diseases. Questions and Answers Regarding Bovine Spongiform Encephalopathy (BSE) and Creutzfeldt-Jacob Disease (CJD), Web address: http://www.cdc.gov/ncidod/diseases/cjd/bse_cjd_qa.htm

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