

All About BSE

The word BSE is short but it stands for a disease with a long name, bovine spongiform encephalopathy. "Bovine" means that the disease affects cows, "spongiform" refers to the way the brain from a sick cow looks spongy under a microscope, and "encephalopathy" indicates that it is a disease of the brain.



What Is BSE?

BSE is a progressive neurologic disease of cows. Progressive means that it gets worse over time. Neurologic means that it damages a cow's central nervous system (brain and spinal cord).

What Causes BSE?

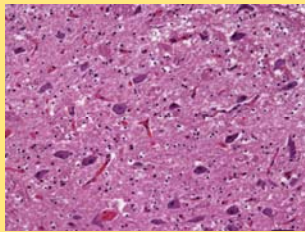
Most scientists think that BSE is caused by a protein called a prion. For reasons that are not completely understood, the normal prion protein changes into an abnormal prion protein that is harmful. The body of a sick cow does not even know the abnormal prion is there. Without knowing it is there, the cow's body cannot fight off the disease.

What Are The Symptoms Of BSE?

A common symptom of BSE is incoordination. A sick cow has trouble walking and getting up. A sick cow may also act very nervous or violent.

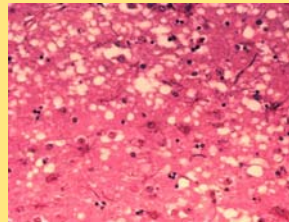
It usually takes four to six years from the time a cow is infected with the abnormal prion to when it first shows symptoms of BSE. This is called the incubation period. During the incubation period, there is no way to tell that a cow has BSE by looking at it. Once a cow starts to show symptoms, it gets sicker and sicker until it dies, usually within two weeks to six months. There is no treatment for BSE and no vaccine to prevent it.

Currently, there is no reliable way to test for BSE in a live cow. After a cow has died, scientists can tell if it had BSE by looking at its brain under a microscope and seeing the spongy appearance. Scientists can also tell if a cow had BSE by using test kits that can detect the abnormal prion in the brain.



Brain from a healthy cow, as seen under a microscope using special stains.

Photo courtesy of Dr. Katie Kelly, Johns Hopkins University



Brain from a cow sick with BSE, as seen under a microscope using special stains. This brain is sponge-like, and the large white spaces are like the "holes" of a sponge.

Photo courtesy of the late Dr. Al Jenny, USDA

How Does A Cow Get BSE?



The parts of a cow that are not eaten by people are cooked, dried, ground into a powder, and used for many purposes, including as ingredients in animal feed. A cow gets BSE by eating feed contaminated with parts that came from another cow that was sick with BSE. The contaminated feed contains the abnormal prion, and a cow becomes infected with the abnormal prion when it eats the feed. If a cow gets BSE, it most likely ate the contaminated feed during its first year of life. Remember, if a cow becomes infected with the abnormal prion when it is one year old, it usually will not show signs of BSE until it is five years old or older.

Can People Get BSE?

There is a human version of BSE called variant Creutzfeldt-Jakob disease (vCJD). As of June 2008, 208 people worldwide are known to have become sick with vCJD. It is thought that they got vCJD from eating food made from cows sick with BSE.

Both vCJD and BSE are not contagious. This means that it is not like catching a cold. A person (or a cow) cannot catch it from being near a sick person or cow. Also, research studies have shown that people cannot get BSE from drinking milk or eating milk products, even if the milk came from a sick cow.



What Is The FDA Doing To Keep Your Food Safe?

The U.S. Food and Drug Administration (FDA) is doing many things to keep the food in the U.S. safe for both people and cows. Since August 1997, the FDA has not allowed most parts from cows and certain other animals to be used to make food that is fed to cows. This protects healthy cows from getting BSE by making sure that

the food they eat is not contaminated with the abnormal prion.

In April 2009, the FDA took additional steps to make sure the food in the U.S. stays safe. Certain high-risk cow parts are not allowed to be used to make any animal feed, including pet food. This prevents all animal feed from being accidentally contaminated with the abnormal prion. High-risk cow parts are those parts of the cow that have the highest chance of being infected with the abnormal prion, such as the brains and spinal cords from cows that are 30 months of age or older.

By keeping the food that is fed to cows safe, the FDA is protecting people by making sure that the food they eat comes from healthy cows.



The FDA also works with the U.S. Department of Agriculture (USDA) to keep cows in the U.S. healthy and free of BSE. The USDA prevents high-risk cows and cow products from entering the U.S. from other countries. The USDA also makes sure that high-risk cow parts, such as the brains and spinal cords, and cows that are unable to walk or that show other signs of disease are not used to make food for people.

The steps the FDA and USDA have taken to prevent cows in the U.S. from getting BSE are working very well. Only three cows with BSE have been found in the U.S. Two of these cows were born in the U.S., and the third was born in Canada. The last cow with BSE in the U.S. was found in 2006.



Can Other Animals Get BSE?

Sheep, goats, mink, deer, and elk can get sick with their own versions of BSE. Cats are the only common household pet known to have a version of BSE. It is called feline spongiform encephalopathy, and the same things that are being done to protect people and cows are also protecting cats. No cat in the U.S. has ever been found to have this disease.

How Can I Get More Information?

- Contact the FDA's Center for Veterinary Medicine at 240-276-9300 or AskCVM@fda.hhs.gov
- Visit the USDA's website at <http://www.usda.gov/wps/portal/usdahome>
- For more information on vCJD, contact the Centers for Disease Control and Prevention at 1-800-CDC-INFO (800-232-4636) or cdcinfo@cdc.gov