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MAD COW HITS THE U.S.

Understanding Mad-Cow Disease: Here Are the ABCs About BSE

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Mad-cow disease has affected cattle in Japan, Israel and numerous European countries, most notably Great Britain, but American officials have always been able to say that the malady hasn't turned up in the U.S. -- until now.

The discovery of an infected cow in Washington state this week raises anew questions about the disease and its implications for consumers. Based on information from the U.S. Department of Agriculture, the Food and Drug Administration, and other sources, here is a primer.

Q: What is mad-cow disease?

A: It's a fatal disease in cattle that causes their brains to degenerate, leading to tell-tale symptoms such as staggering and weight-loss. The technical name is bovine spongiform encephalopathy.

Scientists aren't sure where BSE originated, but they know feeding the rendered remains of sick animals to other cattle has spread it. Such feeding practices are blamed for a major outbreak of mad cow in British herds during the 1980s.

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Q: Can people get mad-cow disease?

A: They get a similar illness called variant Creutzfeldt-Jakob disease by eating contaminated beef. It is also suspected they can contract the disease from a blood transfusion if the blood donor had the disease.

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¹ See [full coverage](#)² of the first case of mad-cow disease in the U.S.

Variant CJD is always fatal.

Q: How many people have gotten variant CJD?

A: As of Dec. 1, 143 people in Britain and roughly a dozen others world-wide.

Q: How does that compare with other causes of death?

A: Deaths from variant Creutzfeldt-Jakob disease in Britain, by far the hardest-hit country, have averaged around 20 a year in recent years. In 2001 Britain recorded 140,000 deaths from cancer, 3,000 from vehicle accidents and 185 from accidental drowning.

Q: What causes mad-cow disease?

A: The prevailing theory blames misshapen "prion" proteins. These proteins are a normal component of human and animal brains but if they assume the wrong shape they can spread, building up in the brain and playing a role in the destruction of neurons.

University of California physician Stanley Prusiner won a 1997 Nobel Prize for discovering prions, but exactly how the particles cause disease remains largely a mystery.

Q: Do prions cause other diseases?

A: Prions have been linked to several similar brain-destroying ailments, including scrapie in sheep and chronic wasting disease in deer and elk.

In humans, the most common prion condition is Creutzfeldt-Jakob disease, which kills about one in a million people every year, usually striking late in life. Although the two diseases are similar, CJD shouldn't be confused with the variant form caused by eating infected cattle. Variant CJD often strikes people in their 20s and 30s.

Q: Which parts of infected cattle are considered more risky to eat?

A: The misshapen prions are found mostly in the brain and spinal cord of infected cattle, making them the most dangerous tissues. Material from the central nervous system could be mixed accidentally with some meat products. For example, products that contain mechanically recovered meat are at greater risk, including low-grade precooked hamburger patties, hot dogs, deli meats, beef patés or corned beef. Dairy products are believed to be safe.

Q: Can a supermarket or wholesaler test its beef for mad-cow disease?

A: Not at present. The only reliable way to prove the existence of the disease is by examining an infected cow's brain tissue.

Q: Can cooking meat until well done kill the prions?

A: No. They can withstand radiation and even autoclaves designed to disinfect surgical instruments. Harmful bacteria in meat often can be killed by heat, but prions aren't living creatures like bacteria.

Q: Is "organic" or "grass fed" beef safer than regular beef?

A: Possibly. In 1997, the U.S. banned most feeding of mammalian animal remains to cattle. On the other hand, beef that carries the "USDA Organic" label must come from cattle that haven't been fed any animal byproducts, including blood or poultry remains. Grass-fed cattle often are advertised as not having been given commercial feeds or grains, and so are presumably even less likely to be exposed to BSE.

Q: Is anything done to make sure beef is safe?

A: The U.S. Department of Agriculture tests about 20,000 cattle each year for mad-cow disease, out of about 37 million slaughtered annually. That's a testing rate of about 0.05%. In Europe, by contrast, more than 10 million tests were carried out in 2002, including all cattle more than 30 months old that are destined for human consumption.

Q: Should I eat the beef in my refrigerator?

A: The agriculture department says consumers face very little risk since the sick cow's brain and spinal cord were removed before it was processed.

Tissue from the sick cow was mixed with 19 other carcasses during slaughter on Dec. 9, and from there was shipped to other processors. A recall of about 10,410 pounds of raw beef is now under way.

Caroline Smith DeWaal, head of food safety at the Center for Science in the Public Interest, a consumer group based in Washington, agrees that the risk from a single mad-cow is minimal. What's more worrisome is there could be other cases. "Our concern is not from the meat from this cow but from other possible infected cows that might not have been detected."

--Laurie McGinley contributed to this article.

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