

# Looking harder at mad cow risks

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Little did I realize, when I toured a cattle slaughterhouse as a trainee veterinarian several years ago, that something considerably more sinister than the stench of blood might have been permeating my nostrils. The meat inspectors, who spent less than three seconds confirming the safety of each carcass, appeared similarly unsuspecting.

Prions, those deadly microscopic invaders of mad cow disease and its lethal human equivalent, variant Creutzfeldt-Jakob Disease, were supposed to reside only in nervous tissue. Muscle tissue, we were, and still are told by public officials, is safe to eat.

Little did I suspect, as I watched workers deftly carving up still warm cows with their long knives and band saws, that those same band saws were aerosolizing tiny fragments of spinal cord, contaminating the surrounding meat. Routinely used in slaughterhouses worldwide, a recent study found these same band saws contaminated 100 percent of the carcasses tested with potentially infectious nervous tissue.

Band saws are not the only potential spreaders of infectious prions. Captive bolt pistols are one of several excellent reasons why slaughterhouses do not conduct public tours. At speeds in excess of 200 miles per hour, these pistols slam four-inch bolts into cow brains, hopefully

rendering their recipients unconscious prior to slaughter.

An unfortunate side effect, however, is that plugs of brain tissue are forced into blood vessels and circulated throughout the body. In one experiment, researchers applied a marker onto a stunner bolt, which was later detected within muscle meat. The violence of these stunners was revealed by others who found a 14-centimeter piece of brain in one cow's lung. "It is likely that prion proteins are found throughout the bodies of animals stunned for slaughter," they concluded.

Nevertheless, American officials continue to insist that all nervous tissue is removed at processing, and that the meat supply is safe. In fact many edible products, such as beef stock, beef extract and beef flavoring, are made by boiling skeletal remains, including the vertebral column. Spinal tissue may also be found in hot dogs, hamburgers, pizza toppings and taco fillings.

A 2002 USDA survey showed that approximately 35 percent of high risk meat products included nervous tissue. However, consumer warnings would decrease sales, and the USDA chose not to require them.

USDA Secretary Ann Veneman's reassurances as she publicized her intention to feed beef to her family for Christmas seem uncannily similar to those made by British Agriculture Minister John Gummer in 1990, when he fed a hamburger to his 4-year-old daughter, Cordelia, on national television. Since then 137 Britons are thought to have died from variant Creutzfeldt-Jakob disease, with more deaths expected, and 3.7 million cattle have died or been slaughtered to purge British herds.

Of course, such a disaster could never occur in the United States, we are assured, because U.S. officials have learned from Britain's mistakes and have sophisticated safeguards in place. Approximately

20,000 slaughtered cows were tested for mad cow disease in 2003! Impressive, it would seem, except that for each cow tested, over 1,700 were not.

USDA can say what it likes, but I, for one, will be stocking up on veggie burgers.

Infected cows can take years to display signs and may well be slaughtered before ever revealing them. In fact, it is not improbable that for the one mad cow detected thus far, some 1,700 have passed undetected into the food chain, and that the human form of this lethal disease is silently incubating in numerous unsuspecting beef-eaters at present.

The 1997 ban on the feeding of cows to cows in the form of meat and bone meal is a key element of the supposed "firewall" that protects U.S. herds. Unfortunately, however, officials neglected to include restaurant plate scrapings and leftovers, unsaleable pet food and poultry litter, all of which may include cattle products, and all of which are fed to cows in a never-ending effort to cut costs.

Perhaps least savory of all, spray-dried cow and pig blood is added to agricultural animal feed to provide protein, mixed into drinking water, and, most commonly, used as a milk replacement for dairy calves.

The discovery of a single mad cow has thus far resulted in bans on American beef from some 30 countries, resulting in a potential loss of over \$3.5 billion annually. The greed and shortsightedness of an industry unwilling to give up even such minimal extra profits as those gained by feeding restaurant plate scrapings to cows, aided and protected by public officials who refuse to place warnings on the most dangerous foods, now threaten not only the lives of trusting American consumers, but also the financial future of the industry.

Unlike the Europeans, who test every at-risk animal and burn the most dangerous tissues in high temperature incinerators, we Americans test only rarely and feed nervous tissue to chickens and pigs. The

## REFERENCED VERSION

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<sup>1</sup> Harvard Center for Risk Analysis. Risk Analysis of Transmissible Spongiform Encephalopathies in Cattle and the Potential for Entry of the Etiologic Agent(s) Into the U.S. Food Supply . 2001.  
<<http://www.hcra.harvard.edu/pdf/>>/madcow\_report.pdf>.

<sup>2</sup> Joint WHO/FAO/OIE Technical Consultation on BSE. OIE Headquarters, Paris, 11-14 June 2001.

<sup>3</sup> European Commission Health & Consumer Protection Directorate-General. Scientific Steering Committee Opinion on the Safety of Ruminant Blood with Respect to Risks. 14 April 2000.

An unfortunate side effect, however, is that plugs of brain tissue are forced into blood vessels and circulated throughout the body. In one experiment, researchers applied a marker onto a stunner bolt, which was later detected within muscle meat.<sup>4</sup> The violence of these stunners was revealed by others who found a 14 cm piece of brain in one cow's lung. "It is likely that prion proteins are found throughout the bodies of animals stunned for slaughter," they concluded.<sup>5</sup>

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<sup>4</sup> *Applied and Environmental Microbiology*. 2002 Feb; 68(2): 791-8.

<sup>5</sup> *Lancet* Vol 348 August 31, 1996.

<sup>6</sup> United States General Accounting Office. GAO Report to Congressional Requesters. January 2002 MAD COW DISEASE: Improvements in the Animal Feed Ban and Other Regulatory Areas Would Strengthen U.S. Prevention Efforts. GAO-02-183. [http://www.gao.gov/new\\_items/d02183.pdf](http://www.gao.gov/new_items/d02183.pdf)

<sup>7</sup> "Health and Consumer Groups Urge USDA to Keep Cattle Spinal Cord Tissue Out of Processed Meat" Center for Science in the Public Interest News Release. 10 August 2001.

<sup>8</sup> USDA, Food Safety and Inspection Service, USDA Begins Sampling Program for Advanced Meat Recovery Systems, News Release. 3 March 2002.

<sup>9</sup> USDA Response To GAO Recommendations on BSE Prevention. Release No. F.S. 0071.02.

thought to have died from variant Creutzfeldt-Jakob disease,<sup>10</sup> with more deaths expected, and 3.7 million cattle have died or been slaughtered to purge British herds.<sup>11</sup>

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<sup>10</sup> UK Creutzfeldt Jakob Disease Surveillance Unit. December 2, 2003. CJD statistics. Online at <http://www.cjd.ed.ac.uk/figures.htm>

<sup>11</sup> Free Press News Services. May 27, 2003. 400 cattle killed in mad-cow testing. *Detroit Free Press*. Online at [http://www.freep.com/news/health/madcow27\\_20030527.htm](http://www.freep.com/news/health/madcow27_20030527.htm)

<sup>12</sup> Around 35 million cattle are slaughtered annually in the US.

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<sup>13</sup> Kristi Arellano and Andy Vuong . December 25, 2003. Mad cow scare hits stocks, cattle futures. *Denver Post*. <http://www.denverpost.com/Stories/0,1413,36%257E33%257E1851941,00.html>