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CHRONIC WASTING DISEASE OVERVIEW: HUNTER INFORMATION

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Introduction

Chronic Wasting Disease (CWD) is a Transmissible Spongiform Encephalopathy (TSE) that affects white tail deer, black tail deer, elk, and mule deer (cervidae). Presently, it appears that these cervidae are the only species affected, although other species, including humans, can be infected with other TSEs. CWD is fatal to the infected animal and the agent responsible for the disease is not completely understood to date. The leading scientific theory suggests that the cause is a rogue protein, called a prion (a "small proteinaceous infectious particle which is resistant to inactivation by most procedures that modify nucleic acids."(Prusiner,1982)), in the brain.

While the origins and treatment of CWD and the other TSEs are clearly important, many people are most concerned about their transmission from infected species to humans. Some TSEs have been transmitted between species, including from animals to humans. Although no transmission relationship has been established between CWD and other TSEs, many states are recommending that hunters take certain precautions when hunting in areas where CWD has been detected. Hunters need to be familiar with the specifics of the disease, where it is located, and what regulations specific states

have in place to combat the spread of the disease. Hunters also play a role in broader understanding of CWD by following reporting and testing recommendations implemented in a number of states. Insight to these topics will give hunters a more informed position on deer and elk hunting.

Disease Specifics and Research

The transmission of CWD between white tail, black tail, elk and mule deer is believed to occur from the exchange of saliva, feces, and/or urine. Transmission of CWD to these species is also believed to occur from living in environments highly contaminated with the infectious agent.

The principal clinical symptoms of CWD are loss of body condition, abnormal behavior, repetitive movement, drooping head and ears, consumption of lower than normal amounts of food, excessive drinking and urinating, drooling, tremors, and an abnormally wide stance. Infected animals typically become symptomatic 12 to 14 months from infection and die within a few weeks of the first clinical signs of the disease. As a result, infected animals may not display the common symptoms of the disease and may appear to be healthy.

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Research conducted on Bovine Spongiform Encephalitis (BSE), another in the family of TSEs, has shown that the consumption of BSE infected spinal, lymphatic, and cranial material has probably led to the development of new variant Creutzfeldt-Jacobs Disease (nvCJD) in humans (Bruce *et al*, 1997). As a result, there is concern about whether the consumption of CWD infected meat or other cervid products will affect humans. Although no connection between CWD to the infection of a TSE in humans has been established, to date, many authorities recommend preventive measures to avoid the consumption of spinal, lymphatic, and cranial material from deer, elk, and mule deer.

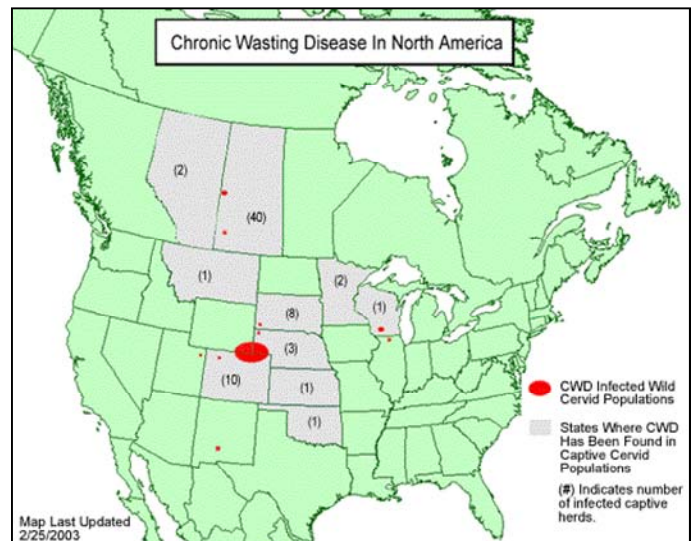
Areas affected by Chronic Wasting Disease

CWD was first observed at a Colorado research facility in 1967 and is now thought to be a naturally occurring (endemic) disease in northeastern Colorado, southeastern Wyoming and a small portion of Nebraska. For approximately 35 years the disease has been confined to these areas. However, through the inter-state trade of live animals for cervid farming and game ranches, the disease has entered populations of previously healthy herds in other locations (Knight, 2002). Concerns of an epidemic are sufficient to cause all 50 states to impose restrictions on live cervidae importation up to and including outlawing importation completely in some cases (CWDA, 2003).

Infection among captive herds has now been observed in eight states (i.e., Colorado, Kansas, Minnesota, Montana, Nebraska, Oklahoma, South Dakota, and Wisconsin) and two Canadian providences (i.e., Alberta and Saskatchewan). CWD outbreaks for wild ranging cervidae have been documented in Colorado, Illinois, Nebraska, New Mexico, South Dakota, Utah, Wisconsin, Wyoming, and the Canadian province of Saskatchewan.

The spread of CWD has been due to three different sorts of outbreaks:

1. Naturally occurring outbreaks among animals in the endemic areas of Colorado, Wyoming, and Nebraska.
2. Outbreaks within herds on cervid farms that have received infected animals from the endemic areas.
3. Outbreaks in wild deer and elk populations resulting from interaction with infected cervid farms. These outbreaks create new foci of infection other than the original endemic areas (Thorne, 2002).



(Chronic Wasting Disease Alliance, 2003)

Animal infection rates are extremely low even in areas that have had CWD for more than three decades. Mandatory testing in Colorado and Wyoming reveals that 5%-6% of deer and 1% of elk are infected with CWD. Disease prevalence in deer herds tested in Colorado has ranged from 1 to 13% (CWDA, 2003).

Feeding and Baiting

High concentrations of animals increase amount of interaction among animals and the rate of infection within affected populations. High concentrations of cervidae can occur where animals live naturally, from farming practices, and from the practice of feeding and baiting to attract animals for hunting. To combat the spread of CWD to the wild, every farmed cervid herd that was the site of an outbreak of CWD has been exterminated with the exception of three herds (New Jersey Division of Fish and Wildlife, 2002). Nine states do not allow the feeding of cervidae (Alaska, California, Colorado, Georgia, Illinois, Michigan, Montana, Rhode Island, and Wisconsin), three states have restrictions (Alabama, Pennsylvania, and Virginia) and five states are discussing a ban of feeding. Eighteen states (Alabama, Alaska, California, Colorado, Georgia, Idaho, Illinois, Massachusetts, Minnesota, Montana, New Mexico, New York, Pennsylvania, Rhode Island, Tennessee, Virginia, Wisconsin, Wyoming) and one Canadian province (Manitoba) do not allow the baiting of cervidae (CWDA, 2003).

Preventive measures for field dressing and processing

- The first and most important preventive measure is not to shoot, handle or consume an animal that appears to be sick. Hunters should contact the local state wildlife office if a cervid is showing any of the clinical signs of CWD. State officials should be contacted since they have received training on the appropriate method of collection that provides the best samples for CWD testing (Colorado Division of Wildlife, 2003).
- Hunters should avoid shooting the head or the backbone, because this may contaminate the meat (Nevada Division of Wildlife, 2003). Hunters should wear rubber or latex gloves and avoid the handling of brain, spinal cord, lymph nodes and eyes when field dressing a downed animal. People should never consume any of these tissues.
- After completing the procedure hunters should make sure to wash and clean hands along with instruments used in the process. The infectious agent is extremely hard to neutralize, but at this time it is advised that hunters soak knives for an hour in a 50-50-bleach solution (Indiana Board of Animal Health, 2003). The knife used for the removal of the head should only be used for that particular purpose and for no other, and household knives should never be used in the preparation of cervid carcasses.
- Normal field dressing coupled with boning out of the carcass will remove most of the body parts known to house the infectious agent, while the removal of the fatty tissue will remove the lymph nodes. Also, sawing through bone should be avoided and sections of the carcass should be separated by the joints, rather than with a saw.
- It is unknown whether the remains of a CWD infected animal can spread the disease to other wildlife. Therefore, all remains of the animal should be double bagged in plastic sacks and disposed of at a landfill (CWDA, 2003). If a commercial processor is used, the meat should be boned out and individually processed and meat from different animals should not be mixed.

The rogue protein that causes CWD has not been found in the muscle tissue of infected animals. Therefore, no evidence to tie the consumption of generally acceptable cuts of meat to TSEs exist. However, the guidelines provided serve well as preventive measures until more definitive information is available (Wisconsin Department of Agriculture, 2003).

Mandatory/Voluntary testing of animals

The USDA has approved 13 laboratories for CWD testing. Forty-seven states have some CWD testing program for cervidae. Some CWD endemic areas in Colorado require that hunter-harvested cervidae get tested, while the other forty-six states rely on random and voluntary sampling. When cervid hunting takes place in an area where CWD has not yet been documented, the ability to test deer or elk for the disease may be quite limited. If CWD testing is desired for deer or elk, hunters should contact their state wildlife agency and see if a protocol for hunter-harvested testing has been established. The amount of monitoring by state wildlife agencies has increased dramatically; practically every state wildlife agency is now planning increased surveillance to detect CWD.

Consumption of cervid meat

The World Health Organization (WHO) and the United States Centers for Disease Control (CDC) agree that there is currently no evidence that humans can contract CWD from the consumption of infected meat. The CDC cautions, however, there is no evidence that proves that the consumption of infected meat does not cause CWD transmission to humans (Indiana Board of Animal Health, 2003). The WHO recommends that humans or animals should consume no part of a deer that tests positive for CWD (World Health Organization, 2002).

States differ in their views on the consumption of cervid meat prior to its testing for CWD. In accordance to the statement made by WHO, it is accepted by all state departments of wildlife that CWD positive meat should not be consumed. However testing requires an examination of the brain. CWD testing is not possible in many states that have not detected CWD. In Colorado, waiting for test results does not appear to be an issue since turn around time for results are reportedly 10-14 days. Maine suggests waiting for CWD test results for deer hunted from out of state prior to consuming it (Maine Department of Inland Fisheries and Wildlife, 2002). Wisconsin also suggests waiting for CWD test results prior to consumption, but makes no stipulation on deer from outside the state. Vermont suggests that the only truly safe way to not consume CWD positive meat is not to eat deer or elk harvested from areas where CWD has been documented (Vermont Department of Fish and Wildlife, 2003). However, an Indiana Department of Natural Resources biologist issued a statement claiming that hunters need not wait for results of CWD test prior to consumption (IBOAH, 2003).

Inter-state transport of hunter-harvested cervidae and cervid parts

Multiple states and a Canadian province have implemented regulations that prevent the importation of hunter-harvested cervid parts including; California, Colorado, Illinois, Iowa, North Dakota, New York, Oregon, Rhode Island, Utah, Vermont, and Manitoba. Six states are considering the same types of restrictions on the importation of hunter-harvested cervidae including Michigan, Minnesota, Montana, North Carolina, Oklahoma, and Pennsylvania. The bans allow the importation of meat that is boned out, while the hides must not have the heads attached. The skull plates and antlers cannot have any meat or tissue attached and heads and canines (buglers) can be brought back into the states.

Some states have slight modifications to the above baseline rules. Illinois and California are similar by allowing the importation of hunter harvested carcasses as long as they are taken to a licensed processor within 72 hours of entering the state, while all other rules outlined above apply for these states. Michigan suggests that hunters dispose of carcasses and parts from deer in a landfill, never in the woods or field, but no other rules on importation of hunter-harvested cervidae exist at this time. New York has enacted more specific rules on the importation of hunter-harvested cervidae from CWD infected states, requiring that any cervid parts be labeled with species, origin of animal, name and address of person that took the animal along with the final destination of the meat. Vermont has similar regulations on the labeling of meat, but requires that packaged meat be labeled with hunting license information.

A general breakdown of state regulations is available at <http://www.cwd-info.org/pdf/CWDRestable011403.pdf>. Specific information on separate state's regulations is available from each respective state wildlife division. Links for most state wildlife divisions

can be accessed through Chronic Wasting Disease Alliance <http://www.cwd-info.org/index.php/fuseaction/links.main>. Hunters are responsible to make themselves knowledgeable of the regulations wherever they intend to hunt.

Conclusions

A great deal of important information about the causes, transmission, effects and potential treatment for CWD

remains to be found. Since CWD is related to BSE and since BSE probably created nvCJD in humans, it is quite appropriate to be concerned about possible transmission of CWD to people who handle and consume deer and elk products. Research results to date should mitigate this concern since there are no confirmed cases of transmission of CWD from deer or elk to humans. By practicing recommended preventive measures and avoiding the same tissues that are suspect of transferring BSE to humans, hunters should feel safe from contracting CWD.

Out of the uncertainty surrounding CWD, many states have enacted new legislation and regulations in order to combat the spread of CWD. Legislation and regulation are in a very fluid state at this point and changes are inevitable as understanding of the disease increases. Hunters will be well served to contact the state department of wildlife wherever they plan to hunt in order to maintain currency in recommended and mandatory practices within that jurisdiction. The Chronic Wasting Disease Alliance website also provides excellent current information.

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