CANADIAN WILDLIFE HEALTH COOPERATIVE

Wildlife Health Notes

CHRONIC WASTING DISEASE – IMPLICATIONS OF PUBLIC HEALTH RECOMMENDATIONS

RELEVANCE TO CFEZI

CFEZI has a mandate to respond to changing risk perceptions and epidemiological situations to improve Canada's food systems. New but conflicting evidence of the zoonotic potential for Chronic Wasting Disease (CWD) and emerging findings on the persistence of the prion in soil and plants have increased risk perceptions among some groups, creating an increased political profile for the diseases. This was exacerbated by the emergence of CWD in Quebec for the first time in late 2018. Public health recommendations have not accounted for possible contraventions of provincial hunting regulations and fail to account for the implications of limited diagnostic capacities to meet the recommendations goals. This is in turn could reduce compliance with public health recommendations to have cervids tested for CWD before consumption.

BACKGROUND

Zoonotic potential

Ongoing surveillance in the United States and Canada has not documented CWD transmission to humans (1). The US Centers for Disease Control advise that the human health risks from CWD, if any exist, are extremely low. Macaque studies have presented evidence that both refutes and supports the zoonotic potential for the CWD prion (2,3). A Norwegian risk assessment concluded, "Experiments have shown that the species barrier for transmission of CWD prions and other prions from livestock, such as sheep scrapie, to humans, appears to be strong" (4). That risk assessment concluded "currently, we are not aware of data that indicate that there is a need for further reassessment of the zoonotic risk of CWD, thus maintaining the evaluation 'very low risk'" (4).The European Food Safety Agency concluded that, based on the epidemiological investigations

carried out to date, no association has been made between the occurrence of sCJD in humans and exposure to CWD but there is no evidence of an absolute species barrier between CWD-affected cervids and humans (5) . Despite these conclusions, the results of Czub et al (3) has re-ignited and even heightened public health recommendations.

Changing epidemiological situation

In September of this year, CWD was been detected in red deer on a farm in the Laurentians. Efforts were undertaken to assess nearby wild deer. For reasons of public health and safety, the Ministère des Forêts, de la Faune et des Parcs prohibited hunting and trapping over a limited section of hunting zones near the affected farm. Wild cervids killed by hunters in an increased surveillance area were tested free of charge, and the hunters were to be told whether the animals they have killed were carriers of the disease. The affected farm was depopulated. As of January 2019, no affected wild deer were detected but assurances of freedom from disease cannot be proven due to limitations of capacity to sample the population.

Expanded opportunities for environmental exposure continue to be uncovered. Prion contamination of surfaces commonly present in the environment (e.g wood, rock, metals) can be a source of disease transmission in experimental models (6). Studies have shown prions to adsorb strongly to soil components, remain infectious and persist for years (7). Mineral licks can serve as reservoirs of CWD prions and thus may facilitate disease transmission in wild cervids (8). Green plants can take up and transport infections prions (9). This has increased public, some First Nations and some scientific concern about expanding and persistent environmental contamination in Canada, especially as the spatial distribution of the disease continues to expand. The finding of CWD in Norwegian reindeer has resulted in new concerns about risks to caribou, which are critical for northern food security and are species at risk.

PUBLIC HEALTH RECOMMENDATIONS

Health Canada recommends that people avoid consuming meat from animals known to be infected with CWD and in areas where CWD is known to exist in wild cervids, hunters are encouraged to take precautions when handling carcasses and should consider having those animals tested before eating the meat, preparing trophies or tanning hides. The World Health Organization recommends that all products from animals known to be infected with any prion disease should be excluded from the human food chain. The Saskatchewan Ministry of Environment offers free voluntary CWD testing for hunters. Hunters are encouraged to test harvested deer, elk, moose and caribou for CWD before consumption. The government of Alberta recommends that all deer, elk and moose from CWD areas be tested and that no animal should be eaten until a negative test is obtained.

Implications of public health recommendations

CWD testing in Alberta and Saskatchewan is undertaken under the direction of the Ministries of Environment (or equivalent) and not by agencies responsible for food safety testing. Delays between testing and providing results to consumers can be great (>6-8weeks) due to; (i) delays in the provincial Ministry transporting samples obtained from the hunter to the lab; (ii) delays in tissue processing due to small human capacity compared to submission rates during the hunting season; (iii) inherent delays in the testing methods and (iv) delays in communicating the results to the submitter and the hunter. Delays lengths vary between province and time. The testing budget for Alberta is orders of magnitude greater than in Saskatchewan but in both cases, CWD is an added program to existing wildlife health programs. As such the labs responsible for CWD testing also have responsibilities for other wildlife disease surveillance, impacting capacity to rapidly respond to CWD testing needs.

Some have expressed the concern that public health recommendations could contravene hunting regulations. Such regulations generally prohibit a hunter from wasting, destroying or abandoning the edible flesh of a game animal. Given the stance of provincial governments and the Canadian Food Inspection Agency that there is no direct scientific evidence to suggest that CWD may be transmitted to humans, discarding animals tested positive for the disease could be considered wasting or destroying edible flesh.

Previous research has shown strong relationships between perceptions of CWD risk, trust of government agencies, and acceptance of risk management strategies (10). Anecdotal information from the Canadian Wildlife Health Cooperative (which supports CWD testing for the province of Saskatchewan) suggests that delays in acquiring test results is causing frustration among hunters which may be affecting their confidence and trust in government programs.

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