

Chronic Wasting Disease: An Urgent Need for Critical Preparedness

Summary. Despite mounting evidence demonstrating the potential for chronic wasting disease (CWD) to transmit from cervids (members of the deer family) to other species—including humans and production animals—no contingency plans exist at a national or international level to address the possibility of spillover, which would trigger a global-scale crisis.

- 1) Exposure to CWD prions is increasing, and distinct strains, each of which can have a unique host range, are continuing to emerge.
- 2) Documented transmission of CWD to humans or production animals such as cattle would result in an overnight crisis with significant implications for public health, agriculture and trade, wildlife health, and beyond.
- 3) No state, federal, or international agency is adequately preparing for this potential crisis.
- 4) CIDRAP, together with expert partners, will provide a blueprint for preparedness and response, so that—should a species crossover event occur—we will not be left vulnerable.

CWD Threats. CWD in cervids (e.g., deer, elk, moose, reindeer) has been confirmed in at least 30 US states, 4 Canadian provinces, 3 European countries, and South Korea. While this invariably fatal disease is a recognized and expanding threat to the health of cervid populations worldwide, the risks posed to other populations—including humans and animal agriculture—are growing in tandem with the disease. Analogous to bovine spongiform encephalopathy (BSE)—or “mad cow” disease—the ongoing proliferation of CWD carries with it enormous implications relevant to public health, food security, trade, and wildlife conservation. Examples demonstrating this point include:

- **Increasing frequency of exposure to CWD prions** among cervids, humans, and other animal species, including human consumption of 15,000 infected cervids each year ([Osterholm 2019](#)).
- **Ongoing propagation of novel CWD strains**, each of which can have distinct host ranges ([CIDRAP 2019](#)).
- **Detection of CWD prions in the skeletal muscle** of infected cervids, unlike BSE—where prions were largely confined to central nervous system tissue ([Daus 2011](#), [Li 2021](#)).
- **Evidence of CWD transmission in animal models** such as humanized mice and cynomolgus macaques, demonstrating human adaptation and the zoonotic potential of CWD prions ([Czub 2017](#), [Hannaoui 2022](#)).
- **Evidence that pigs can contract CWD**, including preliminary results from an ongoing study involving the US Department of Agriculture, which found two suspect positive cases of prion disease among feral swine living in a CWD-endemic region of Arkansas ([Feral Swine Task Force 2019](#)).
- **Trade restrictions imposed** by the Norwegian Ministry of Agriculture and Food on hay and straw imports from the US and Canada, which can no longer be sourced from a state or province that has detected CWD ([World Trade Organization](#)).
- **CWD spread can significantly affect hunting.** Alongside its deep-rooted cultural and traditional significance, hunting is a critical mechanism for managing wildlife populations

and disease—with more than 6 million deer harvested across the US each year (National Deer Alliance). However, CWD has reduced hunter participation ([Lyon 2010](#)).

- **Wildlife health and conservation.** Because of the tenacity of CWD and the ever-growing cost associated with it, state wildlife agencies have identified it as the “most important existential challenge confronting agencies in the 21st century” ([Thompson & Mason 2022](#)).

Owing to the severity and significant consequences that will emerge should CWD transmission to humans occur, a proactive and anticipatory approach is essential. In the case of BSE, transmission to humans wasn’t recognized until 1996—a decade after the disease was first detected in cattle. Failure to acknowledge and prepare for this possibility left officials piecing together a response in real-time, and it diminished public trust. We must prepare for this possibility with CWD now.

CWD at CIDRAP. As a trusted source of science-based information, the Center for Infectious Disease Research and Policy (CIDRAP)—which is already home to an online [CWD Resource Center](#) and has longstanding experience in crisis management and emergency preparedness planning—is uniquely suited to lead an effort that can fill the void in critical CWD preparedness.

In response to the overall absence of current, comprehensive, and authoritative information on this topic, CIDRAP launched its [CWD Response, Research and Policy Program in 2019](#). Since its inception, this program has focused on the organization and coordination of cross-disciplinary leadership and expertise to identify priority issues and provide up-to-date, reputable material to stakeholders. As it stands, CIDRAP’s CWD Program receives critical advice and input on initiatives and information from a [60-member Expert Advisory Group](#), which features nationally and internationally renowned experts and leaders in areas such as wildlife health and management, conservation, agriculture, prion biology and diagnostics, human health, and beyond. No other center incorporates all these disciplines focused on CWD risks, and even the CDC features the CIDRAP CWD Resource Center on its list of CWD resources.

With adequate support, CIDRAP is positioned to build off its existing status as a leading source of CWD information and—as it has done in the past with topics such as COVID-19, influenza, Ebola, and antimicrobial resistance—is equipped to facilitate the critical collaborative leadership, assessments, and preparedness documents that are needed. Akin to CIDRAP’s work on various infectious disease roadmaps—including the latest Coronavirus Vaccine Roadmap project—review of the existing barriers and knowledge gaps is needed for multiple areas relevant to CWD. Thus, CIDRAP will convene five working groups, bringing together leading experts to proactively address and prepare for a CWD crisis. High-priority working group topics include:

- CWD, human medicine, and public health
- Human, cervid, and production animal testing and surveillance
- Agriculture and trade
- Disposal issues
- Wildlife health and conservation

Result. We will develop a blueprint for preparedness and response planning documents, including authoritative risk communication, education, and outreach material. The budget for year one activities is \$1,632,612. The anticipated budget for four years is \$6,742,493.