Prion Disease

Prion = abnormal (misfolded) proteins

Targets the central nervous system

Results in holes in the tissue
CWD is part of a group of prion diseases called TSEs

Other TSEs:
BSE (mad cow)
Scrapie
Creutzfeldt Jakob Disease

Different diseases
Rarely cross species
Human Health Risk?

No direct evidence that humans can get CWD.
There has never been a human case of CWD.

Any animal suspected or confirmed to have CWD should NOT enter the food chain.
Only the species in the deer family (cervids) are susceptible to CWD

In the wild - CWD mainly affects deer
Small number of cases in moose and elk
Recently detected:

**Reindeer** in Norway (wild)

**Red Deer** in Quebec (farmed) and Norway (wild)

Other cervids are considered susceptible - no cases yet

Only the species in the deer family (cervids) are susceptible to CWD
Always fatal
No vaccine or treatment

Long incubation - symptoms do not develop for 18+ months – but prions shed throughout course of disease

Advanced stages - weight loss, poor coordination, stumbling, trembling, frequent drinking
Prions are shed:

- Through saliva, urine and feces
- Infected carcass or tissue

Prions persist in the environment for years, maybe decades

No practical way to destroy prions
Resistant to high heat and disinfectants

No practical way to detect prions in the environment
Transmission occurs by:

- Contact between animals
- Contact with a contaminated environment
  - prions in the soil
  - prions in food, water
Research:
Prions and Plants

- Prions form a chemical bond on plant surface
- Plants uptake prions from soil
- Prions move through plant tissue

Pritzkow et al 2015
Research:
Prions and Scavengers

Infectious prions can be passed through digestive track of scavengers (crows, coyotes)

Potential for transmission to new areas
What makes CWD so challenging

- Long incubation
- Prion shedding
- Environmental contamination
- Persistent and Resistant

Difficult to detect early and manage spread

- Few management strategies measured / evaluated
- Limited options
Two ways CWD may enter BC

1) **By natural animal movement**
   Spread across landscape – linked to animal distribution and corridors

2) **By imports of infected animals or contaminated material**
   Infected carcass, tissues, fluids, feed, scents
   Can introduce prions to the environment
BC CWD PROGRAM

- PREVENTION
- OUTREACH
- SURVEILLANCE

Delivered by: BC Wildlife Health Program
Provincial and Regional Working Groups
Canadian and NA CWD Forum
Hunters and Trappers
Staff, volunteers
If you hunt in areas with CWD, don’t bring the high risk tissues back to BC

High risk = brain, spinal cord, lymph nodes, organs

REDUCE THE RISK
Regulatory Tools

**CARCASS IMPORT**
CWD Regulation - Prohibits possession of intact cervid carcasses and high risk tissues harvested outside BC

**CERVID SCENTS**
New Regulation - Prohibits the use of scents or attractants made from any part or derivative of a cervid
Other Initiatives

**CWD-POSITIVE MEAT DISPOSAL**
Working with Hazardous Waste Program to develop options for disposal by incineration

**IMPORT OF PLANT MATERIAL**
Engaging with partners in Agriculture, Range Program and Stakeholders to increase awareness and reduce risk
BC CWD SURVEILLANCE

Head submission has been voluntary
Harvested, road killed or clinical “sick” cervids
3900+ samples – No positives!

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CHRONIC WASTING DISEASE

2005

Map showing the distribution of CWD in free-ranging populations and captive facilities across the United States in 2005. The map includes a legend indicating the areas impacted by CWD, with specific locations marked for depopulated and current cases. The map was produced by the USGS National Wildlife Health Center in Madison, Wisconsin, and updated in November 2005. All locations are approximations based on best-available information.
Montana
First cases in 2017
Hunter Samples
White-tails and mule deer
East of Rockies

June 2019 ★
CWD cases in Libby Montana
Clinical “sick” white-tailed deer
First cases West of Rockies

Significantly increases risk for BC!!!
Multiple cases of CWD in white-tailed deer
BC’s Response to CWD in Montana
Summer/Fall 2019

Collaborative Approach
CWD Advisory Committee & Regional Working Group

Objectives:
1. Confirm if CWD has reached BC
2. Maintain confidence in a healthy wildlife resource

Surveillance and Response Plan for CWD in BC
*Available online*
Thank you!

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