



The Canadian BSE Case and Public Health

Health Canada
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Existing Canadian BSE Prevention Measures

- Prohibition of the importation of products assessed to have a high risk of introducing BSE into Canada.
- Importation of meat and meat products only from countries considered to be free of BSE
- In 1990, designation of BSE as a reportable disease, such that any suspect case of BSE must be reported to a federal veterinarian.
- In 1992, creation of a national BSE surveillance program
- In 1997, implementation of a ban on the feeding of rendered protein products from ruminant animals to other ruminants.
- In 2001, creation of a Canadian Cattle Identification Program for cattle and bison, making it possible to trace individual animal movements from the herd of origin to slaughter.

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Canada in adherence with OIE guidelines on TSE risk management

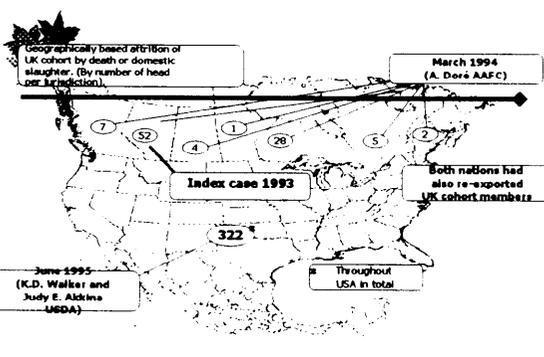
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Canada's First Case of BSE - 1993

- In 1993, diagnosed BSE in a beef cow imported from the UK in 1987
- Exposure of this animal to BSE occurred prior to its arrival in Canada.
- The index herd and all UK cattle imports were destroyed
- It was subsequently determined that the UK herd which was the source of the cow had other infected animals.

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North American disposition of imported UK cohort members prior to their case discovery in 1993

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Canada's First Indigenous Case of BSE

- Jan. 31, 2003: 6-8 yr. downer beef cow from a northern Alberta beef calf herd sent for slaughter to provincially licensed meat facility.
- Alberta Agriculture, Food and Rural Development (AAFRD) Meat Inspector condemns carcass as unsuitable for human consumption
- Head collected and submitted as part of Federal Provincial surveillance program for BSE
- Carcass was sent to inedible rendering

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Canada's First Indigenous Case of BSE

- May 16, 2003, testing completed and tentative diagnosis of BSE, by Alberta Agriculture
- Sample tested at the CFIA's National Centre for Foreign Animal Disease Winnipeg, Manitoba.
- Sample sent to Veterinary Laboratory Agency in Weybridge, England, which is the OIE Reference Centre for BSE
- May 20th, Weybridge, confirmed BSE.
- Immediate notification of the OIE General session

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Response: Epidemiological Investigation

- The case itself (Animal Trace Back)
- Its immediate management (Animal Trace Forward)
- Most probable origins (Animal Exposure)

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BSE Tracing Investigation

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Animal Trace Back Investigation: Index Case Origins

- Index case was 6-8 yr Angus a member of a herd of 80 cows established in a 2 year interval (2001-2002) from two farms.
- Based on dose-response, the expression of clinical BSE at this age offers first epidemiological insight, the probable low level BSE exposure.
- Saskatchewan blue line of inquiry the most probable avenue by which the positive animal moved to the Alberta farm.
- All tests are negative by Prionics Western Blot and immunohistochemistry.

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Trace Back Investigation

- DNA testing results received June 2, 2003 did not return a definitive finding for Saskatchewan blue line of inquiry.
- No definitive match, proceeded with the depopulation and testing of the animals in the Alberta line of inquiry.
- All tests are negative Prionics Western Blot and immunohistochemistry.
- Saskatchewan blue line of inquiry remains the most probable avenue by which the positive animal moved to the Alberta farm.

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Animal Trace Forward Investigation

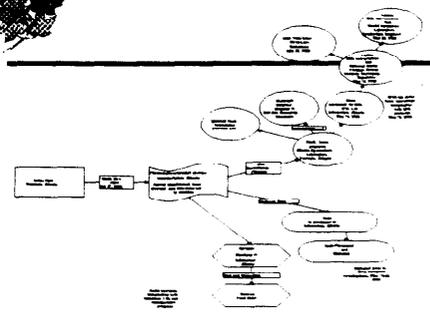
- Movement of cattle from the index herd
- Also, herd which commingled with index herd
- All tested negative by Prionics Western Blot and immunohistochemistry

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Summary: Trace Forward and Trace Back

- 15 premises were quarantined.
- An additional 25 herds were scrutinized in the tracing-out of single animals or cohorts from the Saskatchewan line of enquiry.
- Trace out included the identification and notification of the export of five animals to the U.S. in 1997.
- Culling of more than 2,700 cattle
 - 2,000 animals 24 months of age or older were tested and all were found negative by Prionics Western Blot and immunohistochemistry.



distribution of carcasses of BSE index case



Feed Investigation

- Since the index cow was condemned as unfit for human consumption, its carcass was sent to inedible rendering
- The BSE positive cow DID NOT ENTER THE HUMAN FOOD



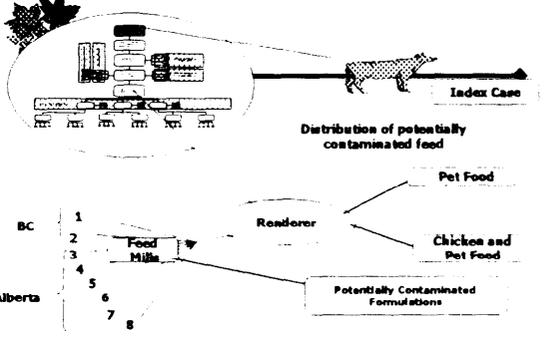
Feed Investigation

- Carcass of the index case was traced by CFIA through the abattoir-renderer-feed mill- producer continuum to its direct allocation into pet food (US and Canada) and poultry meal
- Visits to the renderer and feed mills confirmed adherence to the MBM feed ban legislation on product receipt, segregation, labeling and distribution.



Feed Investigation: Potential exposure

- Three additional farms were quarantined when investigation could not preclude the exposure of 63 head of cattle to feed destined for poultry feed.
- The animals were culled and all tested negative by Prionics Western Blot and immunohistochemistry.



mapping feed chain as associated with the disposition of offa from the BSE index case

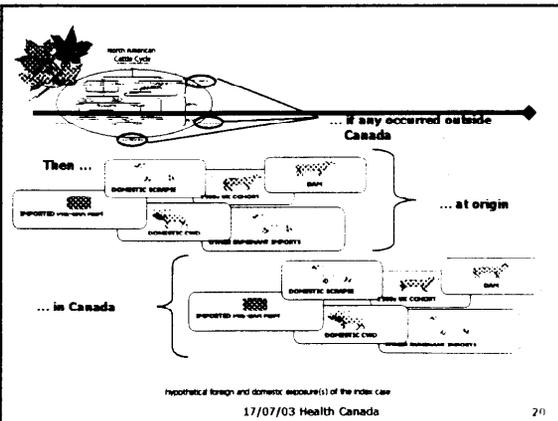


Potential Routes of Exposure for the Index Case

- The following potential routes of exposure that were considered:
 - Maternal transmission
 - Contaminated meat and bone meal used in feed products (Early risk factors - Any U.K. imports slaughtered prior to 1993 or other European imports)
 - TSEs resident in other animals (CWD, Scrapie)
 - Spontaneous
- Feed products are considered the most probable route of exposure

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Hypothetical foreign and domestic exposure(s) of the index case

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Routes of Exposure: Feed

- Two potential MBM epidemiological exposure routes identified
- A feed concentrate and a high energy feed block. Both incorporated MBM.
- Investigation of feed mill records and compounding formulae confirmed that MBM incorporation in both feed products was curtailed in 1997 upon implementation of the MBM feed ban.

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Conclusions

- The discovery of bovine spongiform encephalopathy (BSE) in a cow in Canada proves that active surveillance and the BSE diagnostic programs are working.
- Epidemiological evidence supports the probability that BSE in the case animal was associated with exposure to infective material through the feeding system at some point early in the life of the animal.

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International Expert Review

- Prof. U. Kihm (Switzerland), Prof. W. Hueston (USA) and Dr. D. Heim (Switzerland) convened in Ottawa on 7-9 June 2003. Additional input by phone and e-mail was available from Dr. S. MacDiarmid in New Zealand.
- The team was provided an overview of the epidemiological investigation, all actions taken to date, and the scope of options and measures being considered to adjust domestic policies.
- The panel found that the risk management measures put in place in Canada achieved the desired outcome:
 - Surveillance detected a case of BSE
 - Animal did not enter human food
 - Measures have reduced the spread and amplification

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Summary of Recommendations by the International Team

- Prohibition of Specified Risk Materials (SRMs) in human food and animal feed
 - Including advanced meat recovery
- Tighter controls on non-ruminant feed
 - Enhance audit and compliance
- Strengthen existing cattle identification, tracking and tracing systems
- Enhanced disease testing and surveillance
 - Increase coverage for fallen and dead stock, downer and diseased
- Efforts to improve awareness among producers, veterinarians and the general public.

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Canadian Response to International Team Report

- The Government of Canada will be responding to the recommendations of the International Team.
- Canada will respond through consultation with provinces, territories, Canadian industry, US officials and other trading partners.
- New policy measure for Specified Risk Materials or SRMs is the first step.

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Specified Risk Materials Ban

- 95% of the slaughter is in federally registered establishments
 - the majority being 18-24 months
- 5% of the slaughter is in provincial abattoirs
 - the majority being over 30 months
- Only animals slaughtered at federally registered establishments can be exported
- Removing SRMs at the point of slaughter and disposing of them, removes over 99% of the human exposure to potentially infected material.

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Specified Risk Materials Ban

- The immediate objective of this policy is to establish a requirement that SRMs be removed at the time of slaughter, and removed from human food and use.
- The new policy will define specified risk materials (SRMs) and require removal at slaughter.
 - SRMs – would likely include the brain, spinal cord, dorsal root ganglia, eyes, tonsils, skull, and distal ileum

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Summary of Other Policy Options Being Considered

- Other measures will follow under the five key areas:
 - restrictions on animal feed and processing to protect human and human health;
 - expanded surveillance;
 - expanded food safety plans;
 - comprehensive tracking and tracing;
 - National standards and approaches.

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Websites and Online Resources

- Health Canada website:
www.hc-sc.gc.ca
- Canadian Food Inspection Agency (CFIA) website:
www.inspection.gc.ca
- BSE investigation main page:
<http://www.inspection.gc.ca/english/anim/hesasn/disemala/bseeb/bseebindexe.shtml>
- Narrative background to Canada's assessment of and response to the BSE occurrence in Alberta:
<http://www.inspection.gc.ca/english/anim/hesasn/disemala/bseeb/evala.shtml>
- International report on the actions taken by Canada in response to the confirmation of an indigenous case of BSE:
<http://www.inspection.gc.ca/english/anim/hesasn/disemala/bseeb/internat.shtml>

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