Notice of Request To Renew an Approved Information Collection: Specified Risk Materials
DOCKET NUMBER Docket No. FSIS-2022-0027 Singeltary Submission

Greetings FSIS, USDA, et al,

Thank you kindly for allowing the public to comment on ;

(a) whether the proposed collection of information is necessary for the proper performance of FSIS' functions, including whether the information will have practical utility;

(b) the accuracy of FSIS' estimate of the burden of the proposed collection of information, including the validity of the method and assumptions used;

(c) ways to enhance the quality, utility, and clarity of the information to be collected; and

(d) ways to minimize the burden of the collection of information, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques, or other forms of information technology.

I will be commenting mostly on a, b, and c, because d, is wanting to minimize the burden of collection, and i do not think that is possible if "These statutes mandate that FSIS protect the public by verifying that meat, poultry, and egg products are safe, wholesome, and properly labeled and packaged.", is truly the intent of these statutes, and i would kindly like to explain why, and why it is so critical that these Specified Risk Materials SRM TSE Prion Statues are so important for public health, and WHY there is an urgent need to enhance them, considering the risk factors of Chronic Wasting Disease CWD TSE Prion in Cervid.

THIS collection of SRM materials information should be done all the time, year after year, and ending it EVER would be foolish, imo, not scientific, and will lead to future risk to public health, if you consider just how bad USDA/FSIS/APHIS/FDA failed so badly with the FDA PART 589 TSE PRION FEED BAN, the SRM REMOVAL, THE BSE SURVEILLANCE AND TESTING PROGRAMS, THEY FAILED ALL OF THEM TERRIBLY IMO, AND BY CONTINUING TO INSIST ON TESTING 25K CATTLE FOR BSE IS A DISASTER WATING TO HAPPEND IMO!
SPECIFIED RISK MATERS

Specified Risk Materials SRMs, are the most high risk infectious materials, organs, of a cow that is infected with Bovine Spongiform Encephalopathy, Transmissible Spongiform Encephalopathy, BSE TSE Prion. the atypical BSE strains are, like atypical L-type BSE are more infectious that the typical C-type BSE. Also, Science of the BSE TSE has evolved to show that there are more infectious tissues and organs than previously thought. I wish to kindly post all this evidence, as to show you why this information collection of SRMs are so vital to public safety, and why they should be enhanced for cattle, cervid, sheep, and goats, oh, and not to forget the new livestock prion disease in camel, the Camel Prion Disease CPD.

ONE other thing, you must remember, SCIENCE AND TRANSMISSION STUDIES have now shown that CWD and Scrapie can transmit to PIGS by Oral route. This should be included in any enhancement of the SRM or FDA PART 589 TSE PRION FEED ban.

NOT to forget Zoonosis of all of the above, i will post the latest science to date at the bottom of the attached files.

Thank You, terry

Notice of Request To Renew an Approved Information Collection: Specified Risk Materials DOCKET NUMBER Docket No. FSIS-2022-0027

Terry S. Singeltary Sr. Submission Specified Risk Materials DOCKET NUMBER Docket No. FSIS-2022-0027

Notice of Request To Renew an Approved Information Collection: Specified Risk Materials

DOCKET NUMBER Docket No. FSIS-2022-0027

FEDERAL REGISTER TYPE Notice of availability and request for comments

POSTED DATE Oct 26, 2022

RULE DOCKET Docket No. FSIS-2022-0027

COMMENT PERIOD Oct 26, 2022 - Dec 27, 2022

View on Regulations.gov

Summary

In accordance with the Paperwork Reduction Act of 1995 and Office of Management and Budget (OMB) regulations, FSIS is announcing its intention to renew the approved information collection regarding specified risk materials in cattle. The approval for this information collection will expire on March 31, 2023. FSIS is making no changes to the information collection.

Dates

Submit comments on or before December 27, 2022.

Addresses

FSIS invites interested persons to submit comments on this Federal Register notice. Comments may be submitted by one of the following methods:

Federal eRulemaking Portal: This website provides commenters the ability to type short comments directly into the comment field on the web page or to attach a file for lengthier comments. Go to https://www.regulations.gov. Follow the on-line instructions at that site for submitting comments. Mail: Send to Docket Clerk, U.S. Department of Agriculture, Food Safety and Inspection Service, 1400 Independence Avenue SW, Mailstop 3758, Washington, DC 20250-3700.

Hand- or Courier-Delivered Submittals: Deliver to 1400 Independence Avenue SW, Jamie L. Whitten Building, Room 350-E, Washington, DC 20250-3700. Instructions: All items submitted by mail or electronic mail must include the Agency name and docket number FSIS-2022-0027. Comments received in response to this docket will be made available for public

inspection and posted without change, including any personal information, to https://www.regulations.gov.

Docket: For access to background documents or comments received, call (202) 205-0495 to schedule a time to visit the FSIS Docket Room at 1400 Independence Avenue SW, Washington, DC 20250-3700.

For Further Information Contact

Gina Kouba, Office of Policy and Program Development, Food Safety and Inspection Service, USDA, 1400 Independence Avenue SW, Mailstop 3758, South Building, Washington, DC 20250-3700; (202) 720-5627.

https://www.fsis.usda.gov/policy/federal-register-rulemaking/federal-register-notices/notice-request-renew-approved-20

https://www.fsis.usda.gov/sites/default/files/media_file/documents/FSIS-2022-0027.pdf

"Summary In accordance with the Paperwork Reduction Act of 1995 and Office of Management and Budget (OMB) regulations, FSIS is announcing its intention to renew the approved information collection regarding specified risk materials in cattle. The approval for this information collection will expire on March 31, 2023. FSIS is making no changes to the information collection."

DEPARTMENT OF AGRICULTURE Food Safety and Inspection Service [Docket No. FSIS–2022–0027] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials

AGENCY: Food Safety and Inspection Service (FSIS), U.S. Department of Agriculture (USDA).

ACTION: Notice and request for comments.

SUMMARY: In accordance with the Paperwork Reduction Act of 1995 and Office of Management and Budget (OMB) regulations, FSIS is announcing its intention to renew the approved information collection regarding specified risk materials in cattle. The approval for this information collection will expire on March 31, 2023. FSIS is making no changes to the information collection.

DATES: Submit comments on or before December 27, 2022.

ADDRESSES: FSIS invites interested persons to submit comments on this Federal Register notice. Comments may be submitted by one of the following methods:

• Federal eRulemaking Portal: This website provides commenters the ability to type short comments directly into the comment field on the web page or to attach a file for lengthier comments. Go to https://www.regulations.gov. Follow the on-line instructions at that site for submitting comments.

• Mail: Send to Docket Clerk, U.S. Department of Agriculture, Food Safety and Inspection Service, 1400 Independence Avenue SW, Mailstop 3758, Washington, DC 20250–3700. • Hand- or Courier-Delivered Submittals: Deliver to 1400 Independence Avenue SW, Jamie L. Whitten Building, Room 350–E, Washington, DC 20250–3700.

Instructions: All items submitted by mail or electronic mail must include the Agency name and docket number FSIS– 2022–0027. Comments received in response to this docket will be made available for public inspection and posted without change, including any personal information, to https:// www.regulations.gov.

Docket: For access to background documents or comments received, call (202) 205–0495 to schedule a time to visit the FSIS Docket Room at 1400 Independence Avenue SW, Washington, DC 20250–3700.

FOR FURTHER INFORMATION CONTACT: Gina Kouba, Office of Policy and Program Development, Food Safety and Inspection Service, USDA, 1400 Independence Avenue SW, Mailstop 3758, South Building, Washington, DC 20250–3700; (202) 720–5627.

SUPPLEMENTARY INFORMATION: Title: Specified Risk Materials. OMB Number: 0583–0129.

Type of Request: Renewal of an approved information collection. Abstract: FSIS has been delegated the authority to exercise the functions of the Secretary (7 CFR 2.18, 2.53) as specified in the Federal Meat Inspection Act (FMIA) (21 U.S.C. 601, et seq.), the Poultry Products Inspection Act (PPIA) (21 U.S.C. 451, et seq.), and the Egg Products Inspection Act (EPIA) (21 U.S.C. 1031, et seq.).

These statutes mandate that FSIS protect the public by verifying that meat, poultry, and egg products are safe, wholesome, and properly labeled and packaged. FSIS requires official establishments that slaughter cattle or process carcasses or parts of cattle to develop written procedures for the removal, segregation, and disposition of SRMs. The Agency requires that these establishments maintain daily records to document the implementation and monitoring of their procedures for the removal, segregation, and disposition of SRMs, as well as any corrective actions that they take to ensure that the procedures are effective (9 CFR 310.22).

FSIS also requires official slaughter establishments that transport carcasses or parts of cattle 30 months of age and older and containing vertebral columns to other federally inspected establishments to maintain records verifying that the receiving establishments removed and properly disposed of the portions of the vertebral column designated as SRMs (9 CFR 310.22(g)).

This monitoring and recordkeeping is necessary for establishments to ensure, in a manner that can be verified by FSIS, that meat and meat products distributed in commerce for use as human food do not contain SRMs. The approval for this information collection will expire on March 31, 2023. There are no changes to the existing information collection. FSIS has made the following estimates for the renewal information collection: Estimate of Burden: FSIS estimates that it will take respondents an average of approximately .116 hours per response.

Respondents: Official establishments that slaughter cattle or process parts of cattle.

Estimated No. of Respondents: 3,512. Estimated No. of Annual Responses per Respondent: 303.

Estimated Total Annual Burden on Respondents: 123,916 hours.

All responses to this notice will be summarized and included in the request for OMB approval. All comments will also become a matter of public record. Copies of this information collection assessment can be obtained from Gina Kouba, Office of Policy and Program Development, Food Safety and Inspection Service, USDA, 1400 Independence Avenue SW, Mailstop 3758, South Building, Washington, DC 20250–3700; (202) 720–5627.

Comments are invited on: (a) whether the proposed collection of information is necessary for the proper performance of FSIS' functions, including whether the information will have practical utility; (b) the accuracy of FSIS' estimate of the burden of the proposed collection of information, including the validity of the method and assumptions used; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques, or other forms of information technology. Comments may be sent to both FSIS, at the addresses provided above, and the Desk Officer for Agriculture, Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Washington, DC 20253. Additional Public Notification Public awareness of all segments of rulemaking and policy development is important. Consequently, FSIS will announce this Federal Register publication on-line through the FSIS web page located at: https:// www.fsis.usda.gov/federal-register. FSIS will also announce and provide a link to this Federal Register publication through the FSIS Constituent Update, which is used to provide information regarding FSIS policies, procedures, regulations, Federal Register notices, FSIS public meetings, and other types of information that could affect or would be of interest to our constituents and stakeholders. The Constituent Update is available on the FSIS web page. Through the web page, FSIS can provide information to a much broader, more diverse audience. In addition, FSIS offers an email subscription service which provides automatic and customized access to selected food safety news and information. This service is available at: https://www.fsis.usda.gov/subscribe. Options range from recalls to export information, regulations, directives, and notices. Customers can add or delete subscriptions themselves and have the option to password protect their accounts.

USDA Non-Discrimination Statement In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, USDA, its Mission Areas, agencies, staff offices, employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Program information may be made available in languages other than English. Persons with disabilities who require alternative means of communication to obtain program information

(e.g., Braille, large print, audiotape, American Sign Language) should contact the responsible Mission Area, agency, or staff office; the USDA TARGET Center at (202) 720–2600 (voice and TTY); or the Federal Relay Service at (800) 877–8339. To file a program discrimination complaint, a complainant should complete a Form AD–3027, USDA Program Discrimination Complaint Form, which can be obtained online at https://www.ocio.usda.gov/document/ ad-3027, from any USDA office, by calling (866) 632–9992, or by writing a letter addressed to USDA. The letter must contain the complainant's name, address, telephone number, and a written description of the alleged discriminatory action in sufficient detail to inform the Assistant Secretary for Civil Rights (ASCR) about the nature and date of an alleged civil rights violation. The completed AD–3027 form or letter must be submitted to USDA by: (1) Mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue SW, Washington, DC 20250–9410; or (2) Fax: (833) 256–1665 or (202) 690– 7442; or (3) Email: program.intake@usda.gov. USDA is an equal opportunity provider, employer, and lender. Paul Kiecker, Administrator. [FR Doc. 2022–23265 Filed 10–25–22; 8:45 am] BILLING CODE 3410–DM–P

https://www.fsis.usda.gov/sites/default/files/media_file/documents/FSIS-2022-0027.pdf

Greetings FSIS, USDA, et al,

Thank you kindly for allowing the public to comment on ;

(a) whether the proposed collection of information is necessary for the proper performance of FSIS' functions, including whether the information will have practical utility;

(b) the accuracy of FSIS' estimate of the burden of the proposed collection of information, including the validity of the method and assumptions used;

(c) ways to enhance the quality, utility, and clarity of the information to be collected; and

(d) ways to minimize the burden of the collection of information, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques, or other forms of information technology.

I will be commenting mostly on a, b, and c, because d, is wanting to minimize the burden of collection, and i do not think that is possible if "These statutes mandate that FSIS protect the public by verifying that meat, poultry, and egg products are safe, wholesome, and properly labeled and packaged.", is truly the intent of these statutes, and i would kindly like to explain why, and why it is so critical that these Specified Risk Materials SRM TSE Prion Statues are so important for public health, and WHY there is an urgent need to enhance them, considering the risk factors of Chronic Wasting Disease CWD TSE Prion in Cervid.

THIS collection of SRM materials information should be done all the time, year after year, and ending it again in 2023 is, imo, not scientific, and will lead to future risk to public health, if you consider just how bad USDA/FSIS/APHIS/FDA failed so badly with the FDA PART 589 TSE PRION FEED ban, the SRM removal, the BSE surveillance and testing programs, they failed all of them terribly imo., and by insisting now to only be testing 25k cattle for BSE is a disaster waiting to happen imo.

Specified Risk Materials SRMs, are the most high risk infectious materials, organs, of a cow that is infected with Bovine Spongiform Encephalopathy, Transmissible Spongiform Encephalopathy, BSE TSE Prion. the atypical BSE

strains are, like atypical L-type BSE are more infectious that the typical C-type BSE. Also, Science of the BSE TSE has evolved to show that there are more infectious tissues and organs than previously thought. I wish to kindly post all this evidence, as to show you why this information collection of SRMs are so vital to public safety, and why they should be enhanced for cattle, cervid, sheep, and goats, oh, and not to forget the new livestock prion disease in camel, the Camel Prion Disease CPD.

ONE other thing, you must remember, SCIENCE AND TRANSMISSION STUDIES have now shown that CWD and Scrapie can transmit to PIGS by Oral route. This should be included in any enhancement of the SRM or FDA PART 589 TSE PRION FEED ban.

NOT to forget Zoonosis of all of the above, i will post the latest science to date at the bottom of the attached files.

Thank You, terry

BSE pathogenesis in the ileal Peyer's patches and the central and peripheral nervous system of young cattle 8 months post oral BSE challenge

Ivett Ackermann[a], Reiner Ulrich[b], Kerstin Tauscher[c], Olanrewaju I. Fatola[a], Christine Fast[a], Markus Keller[a], James C. Shawulu[a,d], Mark Arnold[e], Stefanie Czub[f], Martin H. Groschup[a], and Anne Balkema-Buschmann[a]

[a]Friedrich-Loeffler-Institut, Institute of Novel and Emerging Infectious Diseases, Greifswald-Insel Riems, Germany; [b]Institute of Veterinary Pathology, Faculty of Veterinary Medicine, Leipzig University, Germany; [c]Friedrich-Loeffler-Institut, Department of Experimental Animal Facilities and Biorisk Management, Greifswald-Insel Riems, Germany; [d]Department of Veterinary Anatomy, University of Abuja, Nigeria; [e]Animal and Plant Health Agency Sutton Bonington, Sutton Bonington, Loughborough, England; [f]Canadian Food Inspection Agency, Lethbridge Laboratory, Lethbridge, Alberta, Canada

Aims: After oral exposure of cattle with classical bovine spongiform encephalopathy (C-BSE), the infectious agent ascends from the gut to the central nervous system (CNS) primarily via the autonomic nervous as the first entry port to system. However, the early timeline of the progression from the gut to the brain has so far remained widely undetermined. To shed light on the early BSE pathogenesis in unweaned calves, we orally infected calves at six to eight weeks of age with a high dose of classical BSE, and followed the pathogenesis within the first eight months post infection.

Material and Methods: 18 unweaned Simmental calves aged 4 to 6 weeks were orally challenged with 100 g each of a classical BSE brainstem pool, while two calves served as negative controls. The animals were euthanized and necropsied at predetermined time points of 1 week as well as 2, 4, 6 and 8 months post infection (mpi). Two infected cattle were kept until the development of clinical symptoms of BSE and served as positive controls. For each of the 18 infected and two negative control calves, samples of the ileal Peyer's patches as well as the CNS and peripheral nervous system (PNS) were examined by immunohistochemistry (IHC), protein misfolding cyclic amplification (PMCA) and by transgenic Tgbov XV mouse bioassay.

Results: In the ileal Peyer's patches, BSE prions were detectable as early as two mpi by PMCA and transgenic mouse bioassay. From four mpi, PrP^{Sc}accumulation was detectable by IHC in tingible body macrophages (TBMs) of the IPP follicles and already in follicular dendritic cells (FDCs). We were also able to show that as early as 8 mpi, the thoracic spinal cord as well as the parasympathetic nodal ganglion of these animals may contain $PrP^{BSE}$and BSE

infectivity. The positive control animals developed clinical signs of BSE after incubation periods of 32 mpi and 36 mpi, respectively.

Conclusions: Our study demonstrates for the first time PrP^{BSE}(by PMCA) and prion infectivity (by mouse bioassay) in the ileal Peyer's patch (IPP) of young calves as early as 2 months after infection. From 4 mpi nearly all calves showed PrP^{BSE}positive IPP follicles by IHC. We could also show that the centripetal prion spread starts early after challenge at least in this age group, which represents an essential piece of information for the risk assessments for food, feed and pharmaceutical products produced from young calves.

Funded by: This research was funded by WALA Heilmittel GmbH. The sponsors had no role in the design, execution, interpretation, or writing of the study.

Acknowledgement: We thank the Scientific Advisory Group (SAG), namely Thierry Baron (ANSES Lyon), Michael Beekes (RKI Berlin), Jim Hope, Marion Simmons, John Spiropoulos (all APHA Weybridge) and Paul Brown (NINDS Bethesda, USA) for their advice and input regarding the design and interpretation of this study. Julia Neumeister, Daniel Balkema and Bärbel Hammerschmidt are acknowledged for their skillful technical assistance. We are thankful to Lukas Steinke, Nicole Sinkwitz, Kerstin Kerstel and Doreen Fiedler for their excellent care of the bioassay mice. We are grateful to Stefanie Marzahl, Ben Schiller and Volker Netz for the great care and handling of the experimental cattle.

PRION 2022 ABSTRACTS, AND A BIG THANK YOU TO

On behalf of the Prion2020/2022 Congress Organizing Committee and the NeuroPrion Association, we heartily invite you to join us for the International Conference Prion2020/2022 from 13.-16. September 2022 in Göttingen.

Prion 2022 Conference abstracts: pushing the boundaries

https://www.tandfonline.com/doi/full/10.1080/19336896.2022.2091286

Classical BSE prions emerge from asymptomatic pigs challenged with atypical/Nor98 scrapie

Belén Marín1,7, Alicia Otero1,7*, Séverine Lugan2 , Juan Carlos Espinosa3 , Alba Marín-Moreno3 , EnricVidal4 , Carlos Hedman1 , Antonio Romero5 , Martí Pumarola6 , Juan J. Badiola1 , Juan MaríaTorres3 , OlivierAndréoletti2 & Rosa Bolea1

Pigs are susceptible to infection with the classical bovine spongiform encephalopathy (C-BSE) agent following experimental inoculation, and PrPSc accumulation was detected in porcine tissues after the inoculation of certain scrapie and chronic wasting disease isolates. However, a robust transmission barrier has been described in this species and, although they were exposed to C-BSE agent in many European countries, no cases of natural transmissible spongiform encephalopathies (TSE) infections have been reported in pigs. Transmission of atypical scrapie to bovinized mice resulted in the emergence of C-BSE prions. Here, we conducted a study to determine if pigs are susceptible to atypical scrapie. To this end, 12, 8–9-month-old minipigs were intracerebrally inoculated with two atypical scrapie sources. Animals were euthanized between 22- and 72-months post inoculation without clinical signs of TSE. All pigs tested negative for PrPSc accumulation by enzyme immunoassay, immunohistochemistry, western blotting and bioassay in porcine PrP mice. Surprisingly, in vitro protein misfolding cyclic amplification demonstrated the presence of C-BSE prions in different brain areas from seven pigs inoculated with both atypical scrapie isolates. Our results suggest that pigs exposed to atypical scrapie prions could become a reservoir for C-BSE and corroborate that C-BSE prions emerge during interspecies passage of atypical scrapie.

snip...

Discussion

The outbreak of C-BSE was followed by the appearance of TSE in species that had never been diagnosed with prion diseases and the emergence in humans of vCJD16–18. However, no natural prion disease has been described in pigs, even though they were exposed to C-BSE contaminated feed12. Posterior experimental challenges in pigs and mice expressing porcine PrP have demonstrated that, although they are not completely resistant, pigs present a robust transmission barrier for C-BSE prions4,14,19.

However, the possible transmission of a TSE to swine is a public health concern due to the wide use of pork as a source of human food, and the increasing use of pigs as tissue donors, being reported a case of vCJD in a human patient receiving a swine dura mater graf20. Although pigs are apparently non-susceptible to C-BSE after oral challenge4,5,21, infectivity has been detected in tissues from pigs orally inoculated with classical scrapie or CWD10,11. In addition, these positive orally inoculated pigs are often subclinical, what could represent a public health concern, considering that these animals could reach the slaughterhouse without showing signs suggestive of prion disease.

In the present study, we evaluated the transmissibility of atypical scrapie to pigs. Pigs were euthanized between 22- and 72-months post inoculation (mpi), and their tissues tested for PrPSc accumulation and infectivity. We did not find evidence of transmission of atypical scrapie to any of the animals by EIA (Table 2), western blotting, or mouse bioassay (Table 3). PrPSc accumulation can be detected in BSE-challenged pigs at 34 mpi4 , and at 22 mpi when inoculated with SBSE7 . Although scrapie or CWD-inoculated pigs do not show clinical signs, PrPSc presence can be found in scrapie-challenged animals at 51 mpi11 and as early as 6 mpi in the case of CWD10.

Our main goal was to test the ability of atypical scrapie/Nor98 strain to propagate in swine, given that mice expressing porcine PrP (PoPrP-Tg001/tgPo mice) showed to be susceptible to atypical scrapie inoculation. One atypical scrapie isolate adapted to this transgenic line, reaching a 100% attack rate and rapid incubation periods in serial passages13, a similar adaptation to that observed with the C-BSE agent19. However, when this atypical scrapie isolate was tested for propagation in tgPo mice again, together with other atypical scrapie isolates, no positive results were obtained, in vitro nor in vivo14. These results, together with the negative transmissions showed in the present study, reinforce the conclusion that porcine species is highly resistant to atypical scrapie. However, we only performed one passage in tgPo mice, and further passages in this line and/or PMCA analysis of tgPo brains to detect any possible prion replication would be of interest.

However, it was demonstrated that C-BSE prions can be present as a minor variant in ovine atypical scrapie isolates and that C-BSE can emerge during the passage of these isolates to bovine PrP mice15. Considering that the aforementioned atypical scrapie isolate also acquired BSE-like properties when transmitted to tgPo mice13, and that C-BSE is the only prion that efficiently propagates in swine PrP4,7,14, we decided to investigate whether C-BSE prions could emerge from atypical scrapie during the ovine-porcine interspecies transmission.

Interestingly, PMCA reactions seeded with brain material from 7 pigs propagated in tgBov substrate showing PrPres with identical biochemical characteristics to those of C-BSE (Fig. 1). Positive C-BSE amplification was detected in the brain of pigs inoculated with either the PS152 or TOA3 atypical scrapie isolates, at minimum incubation periods of 28- and 35-months post inoculation, respectively. From each animal, positive reactions were not obtained from all brain areas tested (Supplementary table 1). Although PrPres amplified from the pigs showed C-BSE biochemical characteristics, further bioassays in tgBov mice are required to know whether these prions replicate the neuropathological features of C-BSE.

Altogether, our results and data obtained from transmission studies of prions to pigs, tgPo mice and in vitro studies using porcine substrate have shown that pig PrP has a very limited ability to sustain prion replication. No significant polymorphisms have been described for pig PRNP22, and it has been suggested that the conformational flexibility of pig PrP sequence is very low, limiting the number of PrPSc conformations able to produce misfolding14. No differences have been found between pig and minipig PrP sequences either23, suggesting that the conclusions obtained here could be extrapolated to domestic, non-experimental pigs. However, using tgBov substrate, we have demonstrated in vitro the presence of C-BSE seeding activity in some pig brain areas, suggesting that C-BSE prions emerged during the transmission of ovine atypical scrapie prions to pigs. Interestingly, C-BSE prions did not emerge from brain material of all the pigs, and, of those from which it did emerge, it was not detected in all brain areas tested. No correlation between time after inoculation and BSE emergence was found either. When the emergence of C-BSE from atypical scrapie in PMCA was described, it was associated to low levels of C-BSE prions that were present in the original atypical scrapie isolates15. It is possible that this result is related to the great

resistance that pigs present to prion diseases, making the penetrance of the BSE prions that could be present in the original inoculum incomplete. In addition, considering that the amount of C-BSE conformers in the atypical scrapie inocula is probably very reduced and perhaps not homogeneously distributed throughout the isolate, it is also possible that not all the pigs received a sufficient amount of C-BSE conformers capable of being detected by PMCA. Finally, we should consider that PMCA amplification of prions is sometimes a stochastic phenomenon, which could explain why no C-BSE propagation was obtained from some of the pigs. It could be also discussed that C-BSE emergence from the pig brains could be related to persistence of the original atypical scrapie inoculum. However, C-BSE amplification was not obtained from all of the pigs and, in some of them (i.e. P-1217 and P-1231) C-BSE propagation was detected in caudal regions of the brain (cerebellum or occipital cortex) but not in more rostral areas (such as parietal cortex). If C-BSE amplification from pig brain samples were associated to inoculum persistence and not bona fide propagation of C-BSE prions it would be expected that such amplification would be detected mainly in the most rostral areas of the brain. Finally, even though the titer generated was not enough to produce disease in the pigs, these results evidence again the issue that pigs could act as subclinical reservoirs for prion diseases as observed with scrapie and CWD, and that the presence of prions can be detected in pigs short after exposure to prions7,10,11.

In conclusion, our findings suggest that, although pigs present a strong transmission barrier against the propagation of atypical scrapie, they can propagate low levels of C-BSE prions. The prevalence of atypical scrapie and the presence of infectivity in tissues from atypical scrapie infected sheep are underestimated24,25. Given that pigs have demonstrated being susceptible to other prion diseases, and to propagate prions without showing signs of disease, the measures implemented to ban the inclusion of ruminant proteins in livestock feed must not be interrupted.

https://hal.inrae.fr/hal-03352651/document

https://www.nature.com/articles/s41598-021-96818-2.pdf

***> Our results suggest that pigs exposed to atypical scrapie prions could become a reservoir for C-BSE and corroborate that C-BSE prions emerge during interspecies passage of atypical scrapie.

***> However, the possible transmission of a TSE to swine is a public health concern due to the wide use of pork as a source of human food, and the increasing use of pigs as tissue donors, being reported a case of vCJD in a human patient receiving a swine dura mater graf20. Although pigs are apparently non-susceptible to C-BSE after oral challenge4,5,21, infectivity has been detected in tissues from pigs orally inoculated with classical scrapie or CWD10,11. In addition, these positive orally inoculated pigs are often subclinical, what could represent a public health concern, considering that these animals could reach the slaughterhouse without showing signs suggestive of prion disease.

Research Project: TRANSMISSION, DIFFERENTIATION, AND PATHOBIOLOGY OF TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES Location: Virus and Prion Research

Title: Disease-associated prion protein detected in lymphoid tissues from pigs challenged with the agent of chronic wasting disease

Author item MOORE, SARAH - Orise Fellow item Kunkle, Robert item KONDRU, NAVEEN - Iowa State University item MANNE, SIREESHA - Iowa State University item SMITH, JODI - Iowa State University item KANTHASAMY, ANUMANTHA - Iowa State University item WEST GREENLEE, M - Iowa State University item Greenlee, Justin Submitted to: Prion Publication Type: Abstract Only Publication Acceptance Date: 3/15/2017 Publication Date: N/A Citation: N/A Interpretive Summary:

Technical Abstract: Aims: Chronic wasting disease (CWD) is a naturally-occurring, fatal neurodegenerative disease of cervids. We previously demonstrated that disease-associated prion protein (PrPSc) can be detected in the brain and retina from pigs challenged intracranially or orally with the CWD agent. In that study, neurological signs consistent with prion disease were observed only in one pig: an intracranially challenged pig that was euthanized at 64 months post-challenge. The purpose of this study was to use an antigen-capture immunoassay (EIA) and real-time quaking-induced conversion (QuIC) to determine whether PrPSc is present in lymphoid tissues from pigs challenged with the CWD agent.

Methods: At two months of age, crossbred pigs were challenged by the intracranial route (n=20), oral route (n=19), or were left unchallenged (n=9). At approximately 6 months of age, the time at which commercial pigs reach market weight, half of the pigs in each group were culled (<6 month challenge groups). The remaining pigs (>6 month challenge groups) were allowed to incubate for up to 73 months post challenge (mpc). The retropharyngeal lymph node (RPLN) was screened for the presence of PrPSc by EIA and immunohistochemistry (IHC). The RPLN, palatine tonsil, and mesenteric lymph node (MLN) from 6-7 pigs per challenge group were also tested using EIA and QuIC.

Results: PrPSc was not detected by EIA and IHC in any RPLNs. All tonsils and MLNs were negative by IHC, though the MLN from one pig in the oral <6 month group was positive by EIA. PrPSc was detected by QuIC in at least one of the lymphoid tissues examined in 5/6 pigs in the intracranial <6 months group, 6/7 intracranial >6 months group, 5/6 pigs in the oral <6 months group, and 4/6 oral >6 months group. Overall, the MLN was positive in 14/19 (74%) of samples examined, the RPLN in 8/18 (44%), and the tonsil in 10/25 (40%).

Conclusions: This study demonstrates that PrPSc accumulates in lymphoid tissues from pigs challenged intracranially or orally with the CWD agent, and can be detected as early as 4 months after challenge. CWD-infected pigs rarely develop clinical disease and if they do, they do so after a long incubation period. This raises the possibility that CWD-infected pigs could shed prions into their environment long before they develop clinical disease. Furthermore, lymphoid tissues from CWD-infected pigs could present a potential source of CWD infectivity in the animal and human food chains.

https://www.ars.usda.gov/research/publications/publication/?seqNo115=337105

https://www.ars.usda.gov/research/publications/publication/?seqNo115=326166

Research Project: Pathobiology, Genetics, and Detection of Transmissible Spongiform Encephalopathies
Location: Virus and Prion Research

Title: The agent of chronic wasting disease from pigs is infectious in transgenic mice expressing human PRNP

Author item MOORE, S - Orise Fellow item Kokemuller, Robyn item WEST-GREENLEE, M - Iowa State University item BALKEMA-BUSCHMANN, ANNE - Friedrich-Loeffler-institut item GROSCHUP, MARTIN - Friedrich-Loeffler-institut item Greenlee, Justin Submitted to: Prion Publication Type: Abstract Only Publication Acceptance Date: 5/10/2018 Publication Date: 5/22/2018 Citation: Moore, S.J., Kokemuller, R.D., West-Greenlee, M.H., Balkema-Buschmann, A., Groschup, M.H., Greenlee, J.J. 2018. The agent of chronic wasting disease from pigs is infectious in transgenic mice expressing human PRNP. Prion 2018, Santiago de Compostela, Spain, May 22-25, 2018. Paper No. WA15, page 44.

Interpretive Summary:

Technical Abstract: We have previously shown that the chronic wasting disease (CWD) agent from white-tailed deer can be transmitted to domestic pigs via intracranial or oral inoculation although with low attack rates and restricted PrPSc accumulation. The objective of this study was to assess the potential for cross-species transmission of pig-passaged CWD using bioassay in transgenic mice. Transgenic mice expressing human (Tg40), bovine (TgBovXV) or porcine (Tg002) PRNP were inoculated intracranially with 1% brain homogenate from a pig that had been intracranially inoculated with a pool of CWD from white-tailed deer. This pig developed neurological clinical signs, was euthanized at 64 months post-inoculation, and PrPSc was detected in the brain. Mice were monitored daily for clinical signs of disease until the end of the study. Mice were considered positive if PrPSc was detected in the brain using an enzyme immunoassay (EIA). In transgenic mice expressing porcine prion protein the average incubation period was 167 days post-inoculation (dpi) and 3/27 mice were EIA positive (attack rate = 11%). All 3 mice were found dead and clinical signs were not noted prior to death. One transgenic mouse expressing bovine prion protein was euthanized due to excessive scratching at 617 dpi and 2 mice culled at the end of the study at 700 dpi were EIA positive resulting in an overall attack rate of 3/16 (19%). None of the transgenic mice expressing human prion protein that died or were euthanized up to 769 dpi were EIA positive and at study end point at 800 dpi 2 mice had positive EIA results (overall attack rate = 2/20 = 10%). The EIA optical density (OD) readings for all positive mice were at the lower end of the reference range (positive mice range, OD = 0.266-0.438; test positive reference range, OD = 0.250-4.000). To the authors' knowledge, cervid-derived CWD isolates have not been successfully transmitted to transgenic mice expressing human prion

protein. The successful transmission of pig-passaged CWD to Tg40 mice reported here suggests that passage of the CWD agent through pigs results in a change of the transmission characteristics which reduces the transmission barrier of Tg40 mice to the CWD agent. If this biological behavior is recapitulated in the original host species, passage of the CWD agent through pigs could potentially lead to increased pathogenicity of the CWD agent in humans.

https://www.ars.usda.gov/research/publications/publication/?seqNo115=353091

cwd scrapie pigs oral routes

> However, at 51 months of incubation or greater, 5 animals were positive by one or more diagnostic methods. Furthermore, positive bioassay results were obtained from all inoculated groups (oral and intracranial; market weight and end of study) suggesting that swine are potential hosts for the agent of scrapie. <

>*** Although the current U.S. feed ban is based on keeping tissues from TSE infected cattle from contaminating animal feed, swine rations in the U.S. could contain animal derived components including materials from scrapie infected sheep and goats. These results indicating the susceptibility of pigs to sheep scrapie, coupled with the limitations of the current feed ban, indicates that a revision of the feed ban may be necessary to protect swine production and potentially human health. <***

***> Results: PrPSc was not detected by EIA and IHC in any RPLNs. All tonsils and MLNs were negative by IHC, though the MLN from one pig in the oral <6 month group was positive by EIA. PrPSc was detected by QuIC in at least one of the lymphoid tissues examined in 5/6 pigs in the intracranial <6 months group, 6/7 intracranial >6 months group, 5/6 pigs in the oral <6 months group, and 4/6 oral >6 months group. Overall, the MLN was positive in 14/19 (74%) of samples examined, the RPLN in 8/18 (44%), and the tonsil in 10/25 (40%).

***> Conclusions: This study demonstrates that PrPSc accumulates in lymphoid tissues from pigs challenged intracranially or orally with the CWD agent, and can be detected as early as 4 months after challenge. CWD-infected pigs rarely develop clinical disease and if they do, they do so after a long incubation period. This raises the possibility that CWD-infected pigs could shed prions into their environment long before they develop clinical disease. Furthermore, lymphoid tissues from CWD-infected pigs could present a potential source of CWD infectivity in the animal and human food chains.

https://www.ars.usda.gov/research/publications/publication/?seqNo115=353091

https://www.ars.usda.gov/research/project/?accnNo=432011&fy=2017

https://www.ars.usda.gov/research/publications/publication/?seqNo115=337105

Research Project: TRANSMISSION, DIFFERENTIATION, AND PATHOBIOLOGY OF TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES Location: Virus and Prion Research

Title: Scrapie transmits to white-tailed deer by the oral route and has a molecular profile similar to chronic wasting disease

Author

item Greenlee, Justin item Moore, S - Orise Fellow item Smith, Jodi - Iowa State University item Kunkle, Robert item West Greenlee, M - Iowa State University Submitted to: American College of Veterinary Pathologists Meeting Publication Type: Abstract Only Publication Acceptance Date: 8/12/2015 Publication Date: N/A Citation: N/A

Interpretive Summary:

Technical Abstract: The purpose of this work was to determine susceptibility of white-tailed deer (WTD) to the agent of sheep scrapie and to compare the resultant PrPSc to that of the original inoculum and chronic wasting disease (CWD). We inoculated WTD by a natural route of exposure (concurrent oral and intranasal (IN); n=5) with a US scrapie isolate. All scrapie-inoculated deer had evidence of PrPSc accumulation. PrPSc was detected

in lymphoid tissues at preclinical time points, and deer necropsied after 28 months post-inoculation had clinical signs, spongiform encephalopathy, and widespread distribution of PrPSc in neural and lymphoid tissues. Western blotting (WB) revealed PrPSc with 2 distinct molecular profiles. WB on cerebral cortex had a profile similar to the original scrapie inoculum, whereas WB of brainstem, cerebellum, or lymph nodes revealed PrPSc with a higher profile resembling CWD. Homogenates with the 2 distinct profiles from WTD with clinical scrapie were further passaged to mice expressing cervid prion protein and intranasally to sheep and WTD. In cervidized mice, the two inocula have distinct incubation times. Sheep inoculated intranasally with WTD derived scrapie developed disease, but only after inoculation with the inoculum that had a scrapie-like profile. The WTD study is ongoing, but deer in both inoculation groups are positive for PrPSc by rectal mucosal biopsy. In summary, this work demonstrates that WTD are susceptible to the agent of scrapie, two distinct molecular profiles of PrPSc are present in the tissues of affected deer, and inoculum of either profile readily passes to deer.

https://www.ars.usda.gov/research/publications/publication/?seqNo115=317901

EFSA

***> AS is considered more likely (subjective probability range 50–66%) that AS is a non-contagious, rather than a contagious, disease.

https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2021.668

Experimental Oral Transmission of Atypical Scrapie to Sheep

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3321785/pdf/10-1654_finalR.pdf

Transmission of the atypical/Nor98 scrapie agent to Suffolk sheep with VRQ/ARQ, ARQ/ARQ, and ARQ/ARR genotypes

Eric D. Cassmann,Najiba Mammadova,S. Jo Moore,Sylvie Benestad,Justin J. Greenlee

Published: February 11, 2021

https://doi.org/10.1371/journal.pone.0246503

2.3.2. New evidence on the zoonotic potential of atypical BSE and atypical scrapie prion strains

PLEASE NOTE;

2.3.2. New evidence on the zoonotic potential of atypical BSE and atypical scrapie prion strainsNo

Olivier Andreoletti, INRA Research Director, Institut National de la Recherche Agronomique (INRA) – École Nationale Vétérinaire de Toulouse (ENVT), invited speaker, presented the results of two recently published scientific articles of interest, of which he is co-author: ‘Radical Change in Zoonotic Abilities of Atypical BSE Prion Strains as Evidenced by Crossing of Sheep Species Barrier in Transgenic Mice’ (MarinMoreno et al., 2020) and ‘The emergence of classical BSE from atypical/Nor98 scrapie’ (Huor et al., 2019).

In the first experimental study, H-type and L-type BSE were inoculated into transgenic mice expressing all three genotypes of the human PRNP at codon 129 and into adapted into ARQ and VRQ transgenic sheep mice. The results showed the alterations of the capacities to cross the human barrier species (mouse model) and emergence of sporadic CJD agents in Hu PrP

expressing mice: type 2 sCJD in homozygous TgVal129 VRQ-passaged L-BSE, and type 1 sCJD in homozygous TgVal 129 and TgMet129 VRQ-passaged H-BSE.

https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/sp.efsa.2020.EN-1946

Prion Infectivity and PrPBSE in the Peripheral and Central Nervous System of Cattle 8 Months Post Oral BSE Challenge

Ivett Ackermann 1 , Reiner Ulrich 2 , Kerstin Tauscher 3 , Olanrewaju I. Fatola 1,4 , Markus Keller 1 , James C. Shawulu 1,5, Mark Arnold 6 , Stefanie Czub 7 , Martin H. Groschup 1 and Anne Balkema-Buschmann 1,*

1 Institute of Novel and Emerging Infectious Diseases, Friedrich-Loeffler-Institute, 17493 Greifswald-Insel Riems, Germany; Ivett.Ackermann@fli.de (I.A.); fatolan@yahoo.com (O.I.F.); Markus.Keller@fli.de (M.K.); james.shawulu@ymail.com (J.C.S.); Martin.Groschup@fli.de (M.H.G.) 2 Institute of Veterinary Pathology, Faculty of Veterinary Medicine, Leipzig University, 04103 Leipzig, Germany; reiner.ulrich@vetmed.uni-leipzig.de 3 Department of Experimental Animal Facilities and Biorisk Management, Friedrich-Loeffler-Institute, 17493 Greifswald-Insel Riems, Germany; Kerstin_Tauscher@gmx.de 4 Neuroscience Unit, Department of Veterinary Anatomy, Faculty of Veterinary Medicine, University of Ibadan, Ibadan 200284, Nigeria 5 Department of Veterinary Anatomy, Faculty of Veterinary Medicine, University of Abuja, Abuja 900105, Nigeria 6 Animal and Plant Health Agency Sutton Bonington, Sutton Bonington, Leicestershire LE12 5RB, UK; Mark.Arnold@apha.gov.uk 7 Canadian Food Inspection Agency, Lethbridge Laboratory, Lethbridge, AB T1J 3Z4, Canada; stefanie.czub37@gmail.com * Correspondence: anne.buschmann@fli.de

Abstract: After oral exposure of cattle with classical bovine spongiform encephalopathy (C-BSE), the infectious agent ascends from the gut to the central nervous system (CNS) primarily via the autonomic nervous system. However, the timeline of this progression has thus far remained widely undetermined. Previous studies were focused on later time points after oral exposure of animals that were already 4 to 6 months old when challenged. In contrast, in this present study, we have orally inoculated 4 to 6 weeks old unweaned calves with high doses of BSE to identify any possible BSE infectivity and/or PrPBSE in peripheral nervous tissues during the first eight months postinoculation (mpi). For the detection of BSE infectivity, we used a bovine PrP transgenic mouse bioassay, while PrPBSE depositions were analyzed by immunohistochemistry (IHC) and by protein misfolding cyclic amplification (PMCA). We were able to show that as early as 8 mpi the thoracic spinal cord as well as the parasympathetic nodal ganglion of these animals contained PrPBSE and BSE infectivity. This shows that the centripetal prion spread starts early after challenge at least in this age group, which represents an essential piece of information for the risk assessments for food, feed, and pharmaceutical products produced from young calves.

snip...

5. Conclusions

In summary, we detected PrPBSE and BSE infectivity as early as 8 mpi in the nodal ganglion as well as in the thoracic spinal cord from one calf challenged before weaning in this study and also at eight mpi in the thoracic spinal cord sampled from cattle challenged at 4 to 6 months of age during an earlier pathogenesis study [5,20]. This current study considerably expands the existing data on the early C-BSE pathogenesis by demonstrating that after challenge with an unnaturally high dose of 100 g BSE-positive brainstem tissue, parts of the peripheral and central nervous system from cattle may already contain PrPBSE and BSE infectivity after short time periods up to 8 months after oral infection, which should be considered relevant information for risk assessments for food and pharmaceutical products.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10 . 3390/ijms222111310/s1 .

Keywords: prion protein; BSE; infectivity; PrPBSE; cattle; peripheral and central nervous system; protein misfolding cyclic amplification (PMCA)

https://www.mdpi.com/1422-0067/22/21/11310

https://www.mdpi.com/1422-0067/22/21/11310/pdf

PRION 2009 CONFERENCE

P.9.21 Molecular characterization of BSE in Canada

Jianmin Yang1, Sandor Dudas2, Catherine Graham2, Markus Czub3, Tim McAllister1, Stefanie Czub1 1Agriculture and Agri-Food Canada Research Centre, Canada; 2National and OIE BSE Reference Laboratory, Canada; 3University of Calgary, Canada

Background: Three BSE types (classical and two atypical) have been identified on the basis of molecular characteristics of the misfolded protein associated with the disease. To date, each of these three types have been detected in Canadian cattle. Objectives: This study was conducted to further characterize the 16 Canadian BSE cases based on the biochemical properties of there associated PrPres.

Methods: Immuno-reactivity, molecular weight, glycoform profiles and relative proteinase K sensitivity of the PrPres from each of the 16 confirmed Canadian BSE cases was determined using modified Western blot analysis.

Results: Fourteen of the 16 Canadian BSE cases were C type, 1 was H type and 1 was L type. The Canadian H and L-type BSE cases exhibited size shifts and changes in glycosylation similar to other atypical BSE cases. PK digestion under mild and stringent conditions revealed a reduced protease resistance of the atypical cases compared to the C-type cases. N terminal- specific antibodies bound to PrPres from H type but not from C or L type. The C-terminal-specific antibodies resulted in a shift in the glycoform profile and detected a fourth band in the Canadian H-type BSE.

Discussion: The C, L and H type BSE cases in Canada exhibit molecular characteristics similar to those described for classical and atypical BSE cases from Europe and Japan. This supports the theory that the importation of BSE contaminated feedstuff is the source of C-type BSE in Canada. * It also suggests a similar cause or source for atypical BSE in these countries.

*** It also suggests a similar cause or source for atypical BSE in these countries. ***

Discussion: The C, L and H type BSE cases in Canada exhibit molecular characteristics similar to those described for classical and atypical BSE cases from Europe and Japan. *** This supports the theory that the importation of BSE contaminated feedstuff is the source of C-type BSE in Canada. *** It also suggests a similar cause or source for atypical BSE in these countries. ***

=====

October 2009

O.11.3

Infectivity in skeletal muscle of BASE-infected cattle

Silvia Suardi1, Chiara Vimercati1, Fabio Moda1, Ruggerone Margherita1, Ilaria Campagnani1, Guerino Lombardi2, Daniela Gelmetti2, Martin H. Groschup3, Anne Buschmann3, Cristina Casalone4, Maria Caramelli4, Salvatore Monaco5, Gianluigi Zanusso5, Fabrizio Tagliavini1 1Carlo Besta” Neurological Institute,Italy; 2IZS Brescia, Italy; 33FLI Insel Riems, D, Germany; 4CEA-IZS Torino, Italy; 5University of Verona, Italy

Background: BASE is an atypical form of bovine spongiform encephalopathy caused by a prion strain distinct from that of BSE. Upon experimental transmission to cattle, BASE induces a previously unrecognized disease phenotype marked by mental dullness and progressive atrophy of hind limb musculature. Whether affected muscles contain infectivity is unknown. This is a critical issue since the BASE strain is readily transmissible to a variety of hosts including primates, suggesting that humans may be susceptible.

Objectives: To investigate the distribution of infectivity in peripheral tissues of cattle experimentally infected with BASE. Methods: Groups of Tg mice expressing bovine PrP (Tgbov XV, n= 7-15/group) were inoculated both i.c. and i.p. with 10% homogenates of a variety of tissues including brain, spleen, cervical lymph node, kidney and skeletal muscle (m. longissimus dorsi) from cattle intracerebrally infected with BASE. No PrPres was detectable in the peripheral tissues used for inoculation either by immunohistochemistry or Western blot.

Results: Mice inoculated with BASE-brain homogenates showed clinical signs of disease with incubation and survival times of 175±15 and 207±12 days. Five out of seven mice challenged with skeletal muscle developed a similar neurological disorder, with incubation and survival times of 380±11 and 410±12 days. At present (700 days after inoculation) mice challenged with the other peripheral tissues are still healthy. The neuropathological phenotype and PrPres type of the affected mice inoculated either with brain or muscle were indistinguishable and matched those of Tgbov XV mice infected with natural BASE.

Discussion: Our data indicate that the skeletal muscle of cattle experimentally infected with BASE contains significant amount of infectivity, at variance with BSE-affected cattle, raising the issue of intraspecies transmission and the potential risk for humans. Experiments are in progress to assess the presence of infectivity in skeletal muscles of natural BASE.

=====

P.5.3

Differences in the expression levels of selected genes in the brain tissue of cattle naturally infected with classical and atypical BSE.

Magdalena Larska1, Miroslaw P. Polak1, Jan F. Zmudzinski1, Juan M. Torres2 1National Veterinary Institute, Poland; 2CISA/INIA

Background: Recently cases of BSE in older cattle named BSE type L and type H were distinguished on the basis of atypical glycoprofiles of PrPres. The nature of those strains is still not fully understood but it is suspected that the atypical BSE cases are sporadic. Hitherto most BSE cases were studied in respect to the features of PrPSc. Here we propose gene expression profiling as a method to characterize and distinguish BSE strains.

Objectives: The aim of the study was to compare the activities of some factors which are known to play a role in TSE's pathogenesis in order to distinguish the differences/similarities between all BSE types. Methods: 10 % homogenate of brain stem tissue collected from obex region of medulla oblongata from 20 naturally infected BSE cows (8 assigned as classical BSE, other 8 and 4 infected with atypical BSE L type and H type respectively) was used in the study. As negative control animals we've used 8 animals in the age between 2.5 and 13 years. The genes were relatively quantified using SYBR Green real time RT-PCR. Raw data of Ct values was transformed into normalized relative quantities using Qbase Plus®.

Results and Discussion: In most of the tested genes significant differences in the expression levels between the brain stem of healthy cattle and animals infected with different BSE types were observed. In c-type BSE in comparison to healthy and atypical BSE the overexpression of the gene of bcl-2, caspase 3, 14-3-3 and tylosine kinase Fyn was significant. Simultaneously in atypical BSEs type-L and type-H the levels of prion protein, Bax and LPR gene was elevated in comparison to c-BSE. Additionally L-BSE was characterized by the overexpression of STI1 and SOD genes compared to the other of BSE types. The downregulation of the gene encoding NCAM1 was observed in all BSE types in comparison to healthy cows. Different gene expression profiles of bovine brains infected with classical and atypical BSE indicates possible different pathogenesis or source of the disease.

O.10.1

Transmission of uncommon forms of bovine prions to transgenic mice expressing human PrP: questions and progress

Vincent Béringue, Hubert Laude INRA, UR 892, Virologie Immunologie Moléculaires, France

The active, large-scale testing of livestock nervous tissues for the presence of protease-resistant prion protein (PrPres) has led to the recognition of 2 uncommon PrPres molecular signatures, termed H-type and L-type BSE. Their experimental transmission to various transgenic and inbred mouse lines unambiguously demonstrated the infectious nature of such cases and the existence of distinct prion strains in cattle. Like the classical BSE agent, H- and L-type (or BASE) prions can propagate in heterologous species. In addition L-type prions acquire molecular and neuropathologic phenotypic traits undistinguishable from BSE or BSE-related agents upon transmission to transgenic mice expressing ovine PrP (VRQ allele) or wild-type mice. An understanding of the transmission properties of these newly recognized prions when confronted with human PrP sequence was therefore needed. Toward this end, we inoculated mice expressing human PrP Met129 with several field isolates. Unlike classical BSE agent, L-type prions appeared to propagate in these mice with no obvious transmission barrier. In contrast, we repeatedly failed to infect them with Htype prions. Ongoing investigations aim to extend the knowledge on these uncommon strains: are these agents able to colonize lymphoid tissue, a potential key factor for successful transmission by peripheral route; is there any relationship between these assumedly sporadic forms of TSE in cattle and some sporadic forms of human CJD are among the issues that need to be addressed for a careful assessment of the risk for cattle-to-human transmission of H- and L-type prions.

O.4.3

Spread of BSE prions in cynomolgus monkeys (Macaca fascicularis) after oral transmission

Edgar Holznagel1, Walter Schulz-Schaeffer2, Barbara Yutzy1, Gerhard Hunsmann3, Johannes Loewer1 1Paul-Ehrlich-Institut, Federal Institute for Sera and Vaccines, Germany; 2Department of Neuropathology, Georg-August University, Göttingen, Germany, 3Department of Virology and Immunology, German Primate Centre, Göttingen, Germany

Background: BSE-infected cynomolgus monkeys represent a relevant animal model to study the pathogenesis of variant Creutzfeldt-Jacob disease (vCJD).

Objectives: To study the spread of BSE prions during the asymptomatic phase of infection in a simian animal model.

Methods: Orally BSE-dosed macaques (n=10) were sacrificed at defined time points during the incubation period and 7 orally BSE-dosed macaques were sacrificed after the onset of clinical signs. Neuronal and non-neuronal tissues were tested for the presence of proteinase-K-resistant prion protein (PrPres) by western immunoblot and by paraffin-embedded tissue (PET) blot technique.

Results: In clinically diseased macaques (5 years p.i. + 6 mo.), PrPres deposits were widely spread in neuronal tissues (including the peripheral sympathetic and parasympathetic nervous system) and in lymphoid tissues including tonsils. In asymptomatic disease carriers, PrPres deposits could be detected in intestinal lymph nodes as early as 1 year p.i., but CNS tissues were negative until 3 – 4 years p.i. Lumbal/sacral segments of the spinal cord and medulla oblongata were PrPres positive as early as 4.1 years p.i., whereas sympathetic trunk and all thoracic/cervical segments of the spinal cord were still negative for PrPres. However, tonsil samples were negative in all asymptomatic cases.

Discussion: There is evidence for an early spread of BSE to the CNS via autonomic fibres of the splanchnic and vagus nerves indicating that trans-synaptical spread may be a time-limiting factor for neuroinvasion. Tonsils were predominantly negative during the main part of the incubation period indicating that epidemiological vCJD screening results based on the detection of PrPres in tonsil biopsies may mostly tend to underestimate the prevalence of vCJD among humans.

O.4.4

PrPSc distribution pattern in cattle experimentally challenged with H-type and L-type atypical BSE

Anne Buschmann1, Ute Ziegler1, Leila McIntyre2, Markus Keller1, Ron Rogers3, Bob Hills3, Martin H. Groschup1
1Friedrich-Loeffler-Institut, INEID, Germany; 2Faculty of Veterinary Medicine, University of Calgary, Canada; 3Health Canada, Ottawa, Canada

Background: After the detection of two novel BSE forms designated H-type and L-type BSE, the question of the pathogenesis and the agent distribution in cattle affected with these forms was fully open. From initial studies, it was already known that the PrPSc distribution in L-type BSE affected cattle differed from that known for classical BSE (C-type) where the obex region always displays the highest PrPSc concentrations. In contrast in L-type BSE cases, the thalamus and frontal cortex regions showed the highest levels of the pathological prion protein, while the obex region was only weakly involved. No information was available on the distribution pattern in H-type BSE.

Objectives: To analyse the PrPSc and infectivity distribution in cattle experimentally challenged with H-type and L-type BSE.

Methods: We analysed CNS and peripheral tissue samples collected from cattle that were intracranially challenged with Htype (five animals) and L-type (six animals) using a commercial BSE rapid test (IDEXX HerdChek), immunohistochemistry (IHC) and a highly sensitive Western blot protocol including a phosphotungstic acid precipitation of PrPSc (PTA-WB). Samples collected during the preclinical and the clinical stages of the disease were examined. For the detection of BSE infectivity, selected samples were also inoculated into highly sensitive Tgbov XV mice overexpressing bovine prion protein (PrPC).

Results: Analysis of a collection of fifty samples from the peripheral nervous, lymphoreticular, digestive, reproductive, respiratory and musculo-skeletal systems by PTA-WB, IDEXXHerdChek BSE EIA and IHC revealed a general restriction of the PrPSc accumulation to the central nervous system.

Discussion: Our results on the PrPSc distribution in peripheral tissues of cattle affected with H-type and L-type BSE are generally in accordance with what has been known for C-type BSE. Bioassays are ongoing in highly sensitive transgenic mice in order to reveal infectivity.

see page 176 of 201 pages...tss

http://www.prion2009.com/sites/default/files/Prion2009_Book_of_Abstracts.pdf

http://www.neuroprion.org/resources/pdf_docs/conferences/prion2009/prion2009_bookofabstracts.pdf

http://web.archive.org/web/20130722061805/http://www.neuroprion.org/resources/pdf_docs/conferences/prion2009/prion2009_bookofabstracts.pdf

P03.137

Transmission of BSE to Cynomolgus Macaque, a Non-human Primate; Development of Clinical Symptoms and Tissue Distribution of PrPSC

Yamakawa, Y1; Ono, F2; Tase, N3; Terao, K3; Tannno, J3; Wada, N4; Tobiume, M5; Sato, Y5; Okemoto-Nakamura, Y1; Hagiwara, K1; Sata, T5 1National Institure of Infectious diseases, Cell biology and Biochemistry, Japan; 2Corporation for Production and Research Laboratory Primates., Japan; 3National Institure of Biomedical Innovation, Tsukuba Primate Reserch Center, Japan; 4Yamauchi Univ., Veterinary Medicine, Japan; 5National Institure of Infectious diseases, Pathology, Japan

Two of three cynomolgus monkeys developed abnormal neuronal behavioral signs at 30-(#7) and 28-(#10) months after intracerebral inoculation of 200ul of 10% brain homogenates of BSE affected cattle (BSE/JP6). Around 30 months post inoculation (mpi), they developed sporadic anorexia and hyperekplexia with squeal against environmental stimulations such as light and sound. Tremor, myoclonic jerk and paralysis became conspicuous during 32 to 33-mpi, and symptoms become worsened according to the disease progression. Finally, one monkey (#7) fell into total paralysis at 36-mpi. This monkey was sacrificed at 10 days after intensive veterinary care including infusion and per oral supply of liquid food. The other monkey (#10) had to grasp the cage bars to keep an upright posture caused by the sever ataxia. This monkey was sacrificed at 35-mpi. EEG of both monkeys showed

diffuse slowing. PSD characteristic for sporadic CJD was not observed in both monkeys. The result of forearm movement test showed the hypofunction that was observed at onset of clinical symptoms. Their cognitive function determined by finger maze test was maintained at the early stage of sideration. However, it was rapidly impaired followed by the disease progression. Their autopsied tissues were immunochemically investigated for the tissue distribution of PrPSc. Severe spongiform change in the brain together with heavy accumulation of PrPSc having the type 2B/4 glycoform profile confirmed successful transmission of BSE to Cynomolgus macaques. Granular and linear deposition of PrPSC was detected by IHC in the CNS of both monkeys. At cerebral cortex, PrPSC was prominently accumulated in the large plaques. Sparse accumulation of PrPSc was detected in several peripheral nerves of #7 but not in #10 monkey, upon the WB analysis. Neither #7 nor #10 monkey accumulated detectable amounts of PrPSc in their lymphatic organs such as tonsil, spleen, adrenal grands and thymus although PrPSc was barely detected in the submandibular lymph node of #7 monkey. Such confined tissue distribution of PrPSc after intracerebral infection with BSE agent is not compatible to that reported on the Cynomolgus macaques infected with BSE by oral or intra-venous (intra-peritoneal) routs, in which PrPSc was accumulated at not only CNS but also widely distributed lymphatic tissues.

P04.27

Experimental BSE Infection of Non-human Primates: Efficacy of the Oral Route

Holznagel, E1; Yutzy, B1; Deslys, J-P2; Lasmézas, C2; Pocchiari, M3; Ingrosso, L3; Bierke, P4; Schulz-Schaeffer, W5; Motzkus, D6; Hunsmann, G6; Löwer, J1 1Paul-Ehrlich-Institut, Germany; 2Commissariat à l´Energie Atomique, France; 3Instituto Superiore di Sanità, Italy; 4Swedish Institute for Infectious Disease control, Sweden; 5Georg August University, Germany; 6German Primate Center, Germany

Background: In 2001, a study was initiated in primates to assess the risk for humans to contract BSE through contaminated food. For this purpose, BSE brain was titrated in cynomolgus monkeys.

Aims: The primary objective is the determination of the minimal infectious dose (MID50) for oral exposure to BSE in a simian model, and, by in doing this, to assess the risk for humans. Secondly, we aimed at examining the course of the disease to identify possible biomarkers.

Methods: Groups with six monkeys each were orally dosed with lowering amounts of BSE brain: 16g, 5g, 0.5g, 0.05g, and 0.005g. In a second titration study, animals were intracerebrally (i.c.) dosed (50, 5, 0.5, 0.05, and 0.005 mg).

Results: In an ongoing study, a considerable number of high-dosed macaques already developed simian vCJD upon oral or intracerebral exposure or are at the onset of the clinical phase. However, there are differences in the clinical course between orally and intracerebrally infected animals that may influence the detection of biomarkers.

Conclusions: Simian vCJD can be easily triggered in cynomolgus monkeys on the oral route using less than 5 g BSE brain homogenate. The difference in the incubation period between 5 g oral and 5 mg i.c. is only 1 year (5 years versus 4 years). However, there are rapid progressors among orally dosed monkeys that develop simian vCJD as fast as intracerebrally inoculated animals.

The work referenced was performed in partial fulfilment of the study “BSE in primates“ supported by the EU (QLK1-2002-01096).

http://www.neuroprion.org/resources/pdf_docs/conferences/prion2007/abstract_book.pdf

http://web.archive.org/web/20171222021848/http://www.neuroprion.org/resources/pdf_docs/conferences/prion2007/abstract_book.pdf

Bovine spongiform encephalopathy: the effect of oral exposure dose on attack rate and incubation period in cattle

G. A. H. Wells,1 T. Konold,1 M. E. Arnold,1 A. R. Austin,1 3 S. A. C. Hawkins,1 M. Stack,1 M. M. Simmons,1 Y. H. Lee,2 D. Gavier-Wide´n,3 M. Dawson1 4 and J. W. Wilesmith1 1 Correspondence G. A. H. Wells

g.a.h.wells@vla.defra.gsi.gov.uk

1 Veterinary Laboratories Agency, Woodham Lane, New Haw, Addlestone, Surrey KT15 3NB, UK

2 National Veterinary Research and Quarantine Service, Anyang, Republic of Korea

3 National Veterinary Institute (SVA), SE-75189 Uppsala, Sweden

Received 27 July 2006

Accepted 18 November 2006

The dose–response of cattle exposed to the bovine spongiform encephalopathy (BSE) agent is an important component of modelling exposure risks for animals and humans and thereby, the modulation of surveillance and control strategies for BSE. In two experiments calves were dosed orally with a range of amounts of a pool of brainstems from BSE-affected cattle. Infectivity in the pool was determined by end-point titration in mice. Recipient cattle were monitored for clinical disease and, from the incidence of pathologically confirmed cases and their incubation periods (IPs), the attack rate and IP distribution according to dose were estimated. The dose at which 50 % of cattle would be clinically affected was estimated at 0.20 g brain material used in the experiment, with 95 % confidence intervals of 0.04–1.00 g. The IP was highly variable across all dose groups and followed a log-normal distribution, with decreasing mean as dose increased. There was no evidence of a threshold dose at which the probability of infection became vanishingly small, with 1/15 (7 %) of animals affected at the lowest dose (1 mg).

snip...

DISCUSSION

The study has demonstrated that disease in cattle can be produced by oral exposure to as little as 1 mg brain homogenate (¡100.4 RIII mouse i.c./i.p. ID50 units) from clinically affected field cases of BSE and that the limiting dose for infection of calves is lower than this exposure...

snip...end

https://www.microbiologyresearch.org/docserver/fulltext/jgv/88/4/1363.pdf?expires=1623186112&id=id&accname=guest&checksum=AE3A4C280431A05B70DE66DEC2E841B4

https://www.microbiologyresearch.org/content/journal/jgv/10.1099/vir.0.82421-0#tab2

P04.27

Experimental BSE Infection of Non-human Primates: Efficacy of the Oral Route

Holznagel, E1; Yutzy, B1; Deslys, J-P2; Lasm�zas, C2; Pocchiari, M3; Ingrosso, L3; Bierke, P4; Schulz-Schaeffer, W5; Motzkus, D6; Hunsmann, G6; L�wer, J1 1Paul-Ehrlich-Institut, Germany; 2Commissariat � l�Energie Atomique, France; 3Instituto Superiore di Sanit�, Italy; 4Swedish Institute for Infectious Disease control, Sweden; 5Georg August University, Germany; 6German Primate Center, Germany

Background:

In 2001, a study was initiated in primates to assess the risk for humans to contract BSE through contaminated food. For this purpose, BSE brain was titrated in cynomolgus monkeys.

Aims:

The primary objective is the determination of the minimal infectious dose (MID50) for oral exposure to BSE in a simian model, and, by in doing this, to assess the risk for humans. Secondly, we aimed at examining the course of the disease to identify possible biomarkers.

Methods:

Groups with six monkeys each were orally dosed with lowering amounts of BSE brain: 16g, 5g, 0.5g, 0.05g, and 0.005g. In a second titration study, animals were intracerebrally (i.c.) dosed (50, 5, 0.5, 0.05, and 0.005 mg).

Results:

In an ongoing study, a considerable number of high-dosed macaques already developed simian vCJD upon oral or intracerebral exposure or are at the onset of the clinical phase. However, there are differences in the clinical course between orally and intracerebrally infected animals that may influence the detection of biomarkers.

Conclusions:

Simian vCJD can be easily triggered in cynomolgus monkeys on the oral route using less than 5 g BSE brain homogenate. The difference in the incubation period between 5 g oral and 5 mg i.c. is only 1 year (5 years versus 4 years). However, there are rapid progressors among orally dosed monkeys that develop simian vCJD as fast as intracerebrally inoculated animals.

The work referenced was performed in partial fulfilment of the study "BSE in primates" supported by the EU (QLK1-2002-01096).

http://www.prion2007.com/pdf/Prion%20Book%20of%20Abstracts.pdf

http://web.archive.org/web/20171222021848/http://www.neuroprion.org/resources/pdf_docs/conferences/prion2007/abstract_book.pdf

https://prionconference.blogspot.com/

look at the table and you'll see that as little as 1 mg (or 0.001 gm) caused 7% (1 of 14) of the cows to come down with BSE;

Risk of oral infection with bovine spongiform encephalopathy agent in primates

Corinne Ida Lasm"zas, Emmanuel Comoy, Stephen Hawkins, Christian Herzog, Franck Mouthon, Timm Konold, Fr"d"ric Auvr", Evelyne Correia, Nathalie Lescoutra-Etchegaray, Nicole Sal"s, Gerald Wells, Paul Brown, Jean-Philippe Deslys Summary The uncertain extent of human exposure to bovine spongiform encephalopathy (BSE)--which can lead to variant Creutzfeldt-Jakob disease (vCJD)--is compounded by incomplete knowledge about the efficiency of oral infection and the magnitude of any bovine-to-human biological barrier to transmission. We therefore investigated oral transmission of BSE to non-human primates. We gave two macaques a 5 g oral dose of brain homogenate from a BSE-infected cow. One macaque developed vCJD-like neurological disease 60 months after exposure, whereas the other remained free of disease at 76 months. On the basis of these findings and data from other studies, we made a preliminary estimate of the food exposure risk for man, which provides additional assurance that existing public health measures can prevent transmission of BSE to man.

snip...

BSE bovine brain inoculum

100 g 10 g 5 g 1 g 100 mg 10 mg 1 mg 0"1 mg 0"01 mg

Primate (oral route)* 1/2 (50%)

Cattle (oral route)* 10/10 (100%) 7/9 (78%) 7/10 (70%) 3/15 (20%) 1/15 (7%) 1/15 (7%)

RIII mice (ic ip route)* 17/18 (94%) 15/17 (88%) 1/14 (7%)

PrPres biochemical detection

The comparison is made on the basis of calibration of the bovine inoculum used in our study with primates against a bovine brain inoculum with a similar PrPres concentration that was

inoculated into mice and cattle.8 *Data are number of animals positive/number of animals surviving at the time of clinical onset of disease in the first positive animal (%). The accuracy of

bioassays is generally judged to be about plus or minus 1 log. ic ip=intracerebral and int****ritoneal.

Table 1: Comparison of transmission rates in primates and cattle infected orally with similar BSE brain inocula

Published online January 27, 2005

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)17985-9/fulltext

It is clear that the designing scientists must

also have shared Mr Bradley's surprise at the results because all the dose

levels right down to 1 gram triggered infection.

http://web.archive.org/web/20090506002904/http://www.bseinquiry.gov.uk/files/ws/s145d.pdf

6. It also appears to me that Mr Bradley's answer (that it would take less than say 100 grams) was probably given with the benefit of hindsight; particularly if one considers that later in the same answer Mr Bradley expresses his surprise that it could take as little of 1 gram of brain to cause BSE by the oral route within the same species. This information did not become available until the "attack rate" experiment had been completed in 1995/96. This was a titration experiment designed to ascertain the infective dose. A range of dosages was used to ensure that the actual result was within both a lower and an upper limit within the study and the designing scientists would not have expected all the dose levels to trigger infection. The dose ranges chosen by the most informed scientists at that time ranged from 1 gram to three times one hundred grams. It is clear that the designing scientists must have also shared Mr Bradley's surprise at the results because all the dose levels right down to 1 gram triggered infection.

http://web.archive.org/web/20090506004507/http://www.bseinquiry.gov.uk/files/ws/s147f.pdf

***> cattle, pigs, sheep, cwd, tse, prion, oh my!

***> In contrast, cattle are highly susceptible to white-tailed deer CWD and mule deer CWD in experimental conditions but no natural CWD infections in cattle have been reported (Sigurdson, 2008; Hamir et al., 2006).

Sheep and cattle may be exposed to CWD via common grazing areas with affected deer but so far, appear to be poorly susceptible to mule deer CWD (Sigurdson, 2008). In contrast, cattle are highly susceptible to white-tailed deer CWD and mule deer CWD in experimental conditions but no natural CWD infections in cattle have been reported (Sigurdson, 2008; Hamir et al., 2006). It is not known how susceptible humans are to CWD but given that the prion can be present in muscle, it is likely that humans have been exposed to the agent via consumption of venison (Sigurdson, 2008). Initial experimental research suggests that human susceptibility to CWD is low and there may be a robust species barrier for CWD transmission to humans (Sigurdson, 2008), however the risk appetite for a public health threat may still find this level unacceptable.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733407/DEFRA_QRA_TSE_in_cervids_June2018_v1.pdf

https://pubmed.ncbi.nlm.nih.gov/16423572/

http://chronic-wasting-disease.blogspot.com/2012/08/susceptibility-of-cattle-to-agent-of.html

PLEASE NOTE, FEED BAN, THE UK IS WORRIED ABOUT CWD AND FEED;

In the USA, under the Food and Drug Administration's BSE Feed Regulation (21 CFR 589.2000) most material (exceptions include milk, tallow, and gelatin) from deer and elk is prohibited for use in feed for ruminant animals. With regards to feed for non-ruminant animals, under FDA law, CWD positive deer may not be used for any animal feed or feed ingredients. For elk and deer considered at high risk for CWD, the FDA recommends that these animals do not enter the animal feed system. However, this recommendation is guidance and not a requirement by law. Animals considered at high risk for CWD include:

1) animals from areas declared to be endemic for CWD and/or to be CWD eradication zones and

2) deer and elk that at some time during the 60-month period prior to slaughter were in a captive herd that contained a CWD-positive animal.

Therefore, in the USA, materials from cervids other than CWD positive animals may be used in animal feed and feed ingredients for non-ruminants.

The amount of animal PAP that is of deer and/or elk origin imported from the USA to GB can not be determined, however, as it is not specified in TRACES.

END...SEE;

DEFRA

Friday, December 14, 2012

DEFRA U.K. What is the risk of Chronic Wasting Disease CWD being introduced into Great Britain? A Qualitative Risk Assessment October 2012

snip.....

In the USA, under the Food and Drug Administration's BSE Feed Regulation (21 CFR 589.2000) most material (exceptions include milk, tallow, and gelatin) from deer and elk is prohibited for use in feed for ruminant animals. With regards to feed for non-ruminant animals, under FDA law, CWD positive deer may not be used for any animal feed or feed ingredients. For elk and deer considered at high risk for CWD, the FDA recommends that these animals do not enter the animal feed system. However, this recommendation is guidance and not a requirement by law. Animals considered at high risk for CWD include:

1) animals from areas declared to be endemic for CWD and/or to be CWD eradication zones and

2) deer and elk that at some time during the 60-month period prior to slaughter were in a captive herd that contained a CWD-positive animal.

Therefore, in the USA, materials from cervids other than CWD positive animals may be used in animal feed and feed ingredients for non-ruminants.

The amount of animal PAP that is of deer and/or elk origin imported from the USA to GB can not be determined, however, as it is not specified in TRACES.

It may constitute a small percentage of the 8412 kilos of non-fish origin processed animal proteins that were imported from US into GB in 2011.

Overall, therefore, it is considered there is a __greater than negligible risk___ that (nonruminant) animal feed and pet food containing deer and/or elk protein is imported into GB.

There is uncertainty associated with this estimate given the lack of data on the amount of deer and/or elk protein possibly being imported in these products.

snip.....

36% in 2007 (Almberg et al., 2011). In such areas, population declines of deer of up to 30 to 50% have been observed (Almberg et al., 2011). In areas of Colorado, the prevalence can be as high as 30% (EFSA, 2011). The clinical signs of CWD in affected adults are weight loss and behavioural changes that can span weeks or months (Williams, 2005). In addition,

signs might include excessive salivation, behavioural alterations including a fixed stare and changes in interaction with other animals in the herd, and an altered stance (Williams, 2005). These signs are indistinguishable from cervids experimentally infected with bovine spongiform encephalopathy (BSE). Given this, if CWD was to be introduced into countries with BSE such as GB, for example, infected deer populations would need to be tested to differentiate if they were infected with CWD or BSE to minimise the risk of BSE entering the human food-chain via affected venison. snip..... The rate of transmission of CWD has been reported to be as high as 30% and can approach 100% among captive animals in endemic areas (Safar et al., 2008).

snip.....

In summary, in endemic areas, there is a medium probability that the soil and surrounding environment is contaminated with CWD prions and in a bioavailable form. In rural areas where CWD has not been reported and deer are present, there is a greater than negligible risk the soil is contaminated with CWD prion. snip..... In summary, given the volume of tourists, hunters and servicemen moving between GB and North America, the probability of at least one person travelling to/from a CWD affected area and, in doing so, contaminating their clothing, footwear and/or equipment prior to arriving in GB is greater than negligible... For deer hunters, specifically, the risk is likely to be greater given the increased contact with deer and their environment. However, there is significant uncertainty associated with these estimates.

snip.....

Therefore, it is considered that farmed and park deer may have a higher probability of exposure to CWD transferred to the environment than wild deer given the restricted habitat range and higher frequency of contact with tourists and returning GB residents.

snip.....

https://web.archive.org/web/20170404125557/http://webarchive.nationalarchives.gov.uk/20130822084033/http://www.defra.gov.uk/animal-diseases/files/qra_chronic-wasting-disease-121029.pdf
http://chronic-wasting-disease.blogspot.com/2021/03/

a review of a few banned mad cow feed in the USA, too many to list all of them;

BANNED MAD COW FEED IN COMMERCE IN ALABAMA

Date: September 6, 2006 at 7:58 am PST PRODUCT

a) EVSRC Custom dairy feed, Recall # V-130-6;

b) Performance Chick Starter, Recall # V-131-6;

c) Performance Quail Grower, Recall # V-132-6;

d) Performance Pheasant Finisher, Recall # V-133-6.

CODE None RECALLING FIRM/MANUFACTURER Donaldson & Hasenbein/dba J&R Feed Service, Inc., Cullman, AL, by telephone on June 23, 2006 and by letter dated July 19, 2006. Firm initiated recall is complete.

REASON

Dairy and poultry feeds were possibly contaminated with ruminant based protein.

VOLUME OF PRODUCT IN COMMERCE 477.72 tons

DISTRIBUTION AL

_____

http://www.fda.gov/bbs/topics/enforce/2006/ENF00968.html

http://web.archive.org/web/20080229052729/http://www.fda.gov/bbs/topics/enforce/2006/ENF00968.html

PRODUCT Bulk custom dairy pre-mixes,

Recall # V-120-6 CODE None RECALLING FIRM/MANUFACTURER Ware Milling Inc., Houston, MS, by telephone on June 23, 2006. Firm initiated recall is complete. REASON Possible contamination of dairy animal feeds with ruminant derived meat and bone meal.

VOLUME OF PRODUCT IN COMMERCE 350 tons

DISTRIBUTION AL and MS

_____

PRODUCT

a) Tucker Milling, LLC Tm 32% Sinking Fish Grower, #2680-Pellet, 50 lb. bags, Recall # V-121-6;

b) Tucker Milling, LLC #31120, Game Bird Breeder Pellet, 50 lb. bags, Recall # V-122-6;

c) Tucker Milling, LLC #31232 Game Bird Grower, 50 lb. bags, Recall # V-123-6;

d) Tucker Milling, LLC 31227-Crumble, Game Bird Starter, BMD Medicated, 50 lb bags, Recall # V-124-6;

e) Tucker Milling, LLC #31120, Game Bird Breeder, 50 lb bags, Recall # V-125-6;

f) Tucker Milling, LLC #30230, 30 % Turkey Starter, 50 lb bags, Recall # V-126-6;

g) Tucker Milling, LLC #30116, TM Broiler Finisher, 50 lb bags, Recall # V-127-6

CODE All products manufactured from 02/01/2005 until 06/20/2006 RECALLING FIRM/MANUFACTURER Recalling Firm: Tucker Milling LLC, Guntersville, AL, by telephone and visit on June 20, 2006, and by letter on June 23, 2006. Manufacturer: H. J. Baker and Brothers Inc., Stamford, CT. Firm initiated recall is ongoing.

REASON Poultry and fish feeds which were possibly contaminated with ruminant based protein were not labeled as "Do not feed to ruminants".

VOLUME OF PRODUCT IN COMMERCE 7,541-50 lb bags

DISTRIBUTION AL, GA, MS, and TN

END OF ENFORCEMENT REPORT FOR AUGUST 9, 2006

###

http://www.fda.gov/bbs/topics/ENFORCE/2006/ENF00964.html

http://web.archive.org/web/20070223174152/http://www.fda.gov/bbs/topics/ENFORCE/2006/ENF00964.html

Subject: MAD COW FEED RECALL AL AND FL VOLUME OF PRODUCT IN COMMERCE 125 TONS Products manufactured from 02/01/2005 until 06/06/2006

Date: August 6, 2006 at 6:16 pm PST PRODUCT

a) CO-OP 32% Sinking Catfish, Recall # V-100-6;

b) Performance Sheep Pell W/Decox/A/N, medicated, net wt. 50 lbs, Recall # V-101-6;

c) Pro 40% Swine Conc Meal -- 50 lb, Recall # V-102-6;

d) CO-OP 32% Sinking Catfish Food Medicated, Recall # V-103-6;

e) "Big Jim's" BBB Deer Ration, Big Buck Blend, Recall # V-104-6;

f) CO-OP 40% Hog Supplement Medicated Pelleted, Tylosin 100 grams/ton, 50 lb. bag, Recall # V-105-6;

g) Pig Starter Pell II, 18% W/MCDX Medicated 282020, Carbadox -- 0.0055%, Recall # V-106-6;

h) CO-OP STARTER-GROWER CRUMBLES, Complete Feed for Chickens from Hatch to 20 Weeks, Medicated, Bacitracin Methylene Disalicylate, 25 and 50 Lbs, Recall # V-107-6;

i) CO-OP LAYING PELLETS, Complete Feed for Laying Chickens, Recall # 108-6;

j) CO-OP LAYING CRUMBLES, Recall # V-109-6;

k) CO-OP QUAIL FLIGHT CONDITIONER MEDICATED, net wt 50 Lbs, Recall # V-110-6;

l) CO-OP QUAIL STARTER MEDICATED, Net Wt. 50 Lbs, Recall # V-111-6;

m) CO-OP QUAIL GROWER MEDICATED, 50 Lbs, Recall # V-112-6 CODE

Product manufactured from 02/01/2005 until 06/06/2006

RECALLING FIRM/MANUFACTURER Alabama Farmers Cooperative, Inc., Decatur, AL, by telephone, fax, email and visit on June 9, 2006. FDA initiated recall is complete.

REASON Animal and fish feeds which were possibly contaminated with ruminant based protein not labeled as "Do not feed to ruminants".

VOLUME OF PRODUCT IN COMMERCE 125 tons

DISTRIBUTION AL and FL

END OF ENFORCEMENT REPORT FOR AUGUST 2, 2006

###

http://www.fda.gov/bbs/topics/enforce/2006/ENF00963.html

http://web.archive.org/web/20060821195949/http://www.fda.gov/bbs/topics/enforce/2006/ENF00963.html

MAD COW FEED RECALL USA EQUALS 10,878.06 TONS NATIONWIDE Sun Jul 16, 2006 09:22 71.248.128.67

RECALLS AND FIELD CORRECTIONS: VETERINARY MEDICINE -- CLASS II

PRODUCT

a) PRO-LAK, bulk weight, Protein Concentrate for Lactating Dairy Animals, Recall # V-079-6;

b) ProAmino II, FOR PREFRESH AND LACTATING COWS, net weight 50lb (22.6 kg), Recall # V-080-6;

c) PRO-PAK, MARINE & ANIMAL PROTEIN CONCENTRATE FOR USE IN ANIMAL FEED, Recall # V-081-6;

d) Feather Meal, Recall # V-082-6 CODE

a) Bulk

b) None

c) Bulk

d) Bulk

RECALLING FIRM/MANUFACTURER H. J. Baker & Bro., Inc., Albertville, AL, by telephone on June 15, 2006 and by press release on June 16, 2006. Firm initiated recall is ongoing.

REASON

Possible contamination of animal feeds with ruminent derived meat and bone meal.

VOLUME OF PRODUCT IN COMMERCE 10,878.06 tons

DISTRIBUTION Nationwide

END OF ENFORCEMENT REPORT FOR July 12, 2006

###

http://www.fda.gov/bbs/topics/enforce/2006/ENF00960.html

http://web.archive.org/web/20070223180551/http://www.fda.gov/bbs/topics/enforce/2006/ENF00960.html

10,000,000+ LBS. of PROHIBITED BANNED MAD COW FEED I.E. BLOOD LACED MBM IN COMMERCE USA 2007

Date: March 21, 2007 at 2:27 pm PST

RECALLS AND FIELD CORRECTIONS: VETERINARY MEDICINES -- CLASS II

PRODUCT

Bulk cattle feed made with recalled Darling's 85% Blood Meal, Flash Dried, Recall # V-024-2007

CODE

Cattle feed delivered between 01/12/2007 and 01/26/2007

RECALLING FIRM/MANUFACTURER

Pfeiffer, Arno, Inc, Greenbush, WI. by conversation on February 5, 2007.

Firm initiated recall is ongoing.

REASON

Blood meal used to make cattle feed was recalled because it was cross- contaminated with prohibited bovine meat and bone meal that had been manufactured on common equipment and labeling did not bear cautionary BSE statement.

VOLUME OF PRODUCT IN COMMERCE

42,090 lbs.

DISTRIBUTION

WI

PRODUCT

Custom dairy premix products: MNM ALL PURPOSE Pellet, HILLSIDE/CDL Prot- Buffer Meal, LEE, M.-CLOSE UP PX Pellet, HIGH DESERT/ GHC LACT Meal, TATARKA, M CUST PROT Meal, SUNRIDGE/CDL PROTEIN Blend, LOURENZO, K PVM DAIRY Meal, DOUBLE B DAIRY/GHC LAC Mineral, WEST PIONT/GHC CLOSEUP Mineral, WEST POINT/GHC LACT Meal, JENKS, J/COMPASS PROTEIN Meal, COPPINI - 8# SPECIAL DAIRY Mix, GULICK, L-LACT Meal (Bulk), TRIPLE J - PROTEIN/LACTATION, ROCK CREEK/GHC MILK Mineral, BETTENCOURT/GHC S.SIDE MK-MN, BETTENCOURT #1/GHC MILK MINR, V&C DAIRY/GHC LACT Meal, VEENSTRA, F/GHC LACT Meal, SMUTNY, A- BYPASS ML W/SMARTA, Recall # V-025-2007

CODE

The firm does not utilize a code - only shipping documentation with commodity and weights identified.

RECALLING FIRM/MANUFACTURER

Rangen, Inc, Buhl, ID, by letters on February 13 and 14, 2007. Firm initiated recall is complete.

REASON

Products manufactured from bulk feed containing blood meal that was cross contaminated with prohibited meat and bone meal and the labeling did not bear cautionary BSE statement.

VOLUME OF PRODUCT IN COMMERCE

9,997,976 lbs.

DISTRIBUTION

ID and NV

END OF ENFORCEMENT REPORT FOR MARCH 21, 2007

http://www.fda.gov/Safety/Recalls/EnforcementReports/2007/ucm120446.htm

http://web.archive.org/web/20091104111717/http://www.fda.gov/Safety/Recalls/EnforcementReports/2007/ucm120446.htm

MONDAY, OCTOBER 10, 2022

Docket No: 2002N-0273 (formerly Docket No. 02N-0273) Substances Prohibited From Use in Animal Food and Feed Scientists Comments December 20, 2005

https://bovineprp.blogspot.com/2022/10/docket-no-2002n-0273-formerly-docket-no.html

This information is critical, and should continue to be collected.

The TSE prion is spreading across the USA in Cervid as in CWD TSE Prion.

The mad cow surveillance, feed ban, testing, and SRM removal there from, has been, and still is, a terrible failure.

WE know that the USA Food and Drug Administration's BSE Feed Regulation (21 CFR 589.2000) of August 1997 was/is a colossal failure, and proven to be so year after year, decade after decade, and this was just admitted by the FDA et al (see below FDA Reports on VFD Compliance Sept. 2019 report).

God, all these decades you hear from all the warning letters on SRM that were released to the public for consumption, that even if they did eat a SRM, the BSE Feed Regulation (21 CFR 589.2000) of August 1997 would save that tissue from that animal from having a TSE Prion, was nothing but lies. what about those children all across the USA that were fed the most high risk cattle for mad cow disease, i.e. dead stock downer cows via the USDA School lunch program, who will watch those kids for the next 50 years for cjd tse prion aka mad cow disease, let alone all the folks consuming SRMs that have been exposed to mad cow type disease in different livestock species, due to the fact the USA colossal failure of the BSE Feed Regulation (21 CFR 589.2000) of August 1997. it's all documented below, see for yourself; SUNDAY, SEPTEMBER 1, 2019 FDA Reports on VFD Compliance

Tuesday, September 10, 2019

FSIS [Docket No. FSIS–2019–0021] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials Singeltary Submission

https://www.regulations.gov/comment/FSIS-2019-0021-0002

https://downloads.regulations.gov/FSIS-2019-0021-0002/attachment_1.pdf

https://www.regulations.gov/comment/FSIS-2019-0021-0002

http://specifiedriskmaterial.blogspot.com/2019/09/fsis-docket-no-fsis20190021-notice-of.html

-------- Original Message --------

Subject: re-BSE prions propagate as either variant CJD-like or sporadic CJD

Date: Thu, 28 Nov 2002 10:23:43 -0000

From: "Asante, Emmanuel A" e.asante@ic.ac.uk

To: '"flounder@wt.net"' flounder@wt.net

Dear Terry,

I have been asked by Professor Collinge to respond to your request. I am a Senior Scientist in the MRC Prion Unit and the lead author on the paper. I have attached a pdf copy of the paper for your attention.

Thank you for your interest in the paper.

In respect of your first question, the simple answer is, ***yes. As you will find in the paper, we have managed to associate the alternate phenotype to type 2 PrPSc, the commonest sporadic CJD. It is too early to be able to claim any further sub-classification in respect of Heidenhain variant CJD or Vicky Rimmer's version. It will take further studies, which are on-going, to establish if there are sub-types to our initial finding which we are now reporting. The main point of the paper is that, as well as leading to the expected new variant CJD phenotype, BSE transmission to the 129-methionine genotype can lead to an alternate phenotype which is indistinguishable from type 2 PrPSc.

I hope reading the paper will enlighten you more on the subject. If I can be of any further assistance please to not hesitate to ask. Best wishes.

Emmanuel Asante

<<Asante et al 2002.pdf>>

Dr. Emmanuel A Asante MRC Prion Unit & Neurogenetics Dept. Imperial College School of Medicine (St. Mary's) Norfolk Place, LONDON W2 1PG Tel: +44 (0)20 7594 3794 Fax: +44 (0)20 7706 3272
email: e.asante@ic.ac.uk (until 9/12/02) New e-mail: e.asante@prion.ucl.ac.uk (active from now)

"This study demonstrates that the H-type BSE agent is transmissible by the oronasal route. Cattle with the EK211 genotype are oronasally susceptible to small doses of the H-BSE agent from either EK211 or EE211 (wild type) donors. Wild-type EE211 cattle remained asymptomatic for the duration of the experiment with this small dose (0.1g) of inoculum. These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains."

Moreover, sporadic disease has never been observed in breeding colonies or primate research laboratories, most notably among hundreds of animals over several decades of study at the National Institutes of Health25, and in nearly twenty older animals continuously housed in our own facility.

Even if the prevailing view is that sporadic CJD is due to the spontaneous formation of CJD prions, it remains possible that its apparent sporadic nature may, at least in part, result from our limited capacity to identify an environmental origin.

https://www.nature.com/articles/srep11573

ATYPICAL BOVINE SPONGIFORM ENCEPHALOPATHY OIE

OIE Conclusions on transmissibility of atypical BSE among cattle

Given that cattle have been successfully infected by the oral route, at least for L-BSE, it is reasonable to conclude that atypical BSE is potentially capable of being recycled in a cattle population if cattle are exposed to contaminated feed. In addition, based on reports of atypical BSE from several countries that have not had C-BSE, it appears likely that atypical BSE would arise as a spontaneous disease in any country, albeit at a very low incidence in old cattle. In the presence of livestock industry practices that would allow it to be recycled in the cattle feed chain, it is

likely that some level of exposure and transmission may occur. As a result, since atypical BSE can be reasonably considered to pose a potential background level of risk for any country with cattle, the recycling of both classical and atypical strains in the cattle and broader ruminant populations should be avoided.

https://www.oie.int/fileadmin/SST/adhocreports/Bovine%20spongiform%20encephalopathy/AN/A_AhG_BSEsurv_RiskAss_Mar2019.pdf

Annex 7 (contd) AHG on BSE risk assessment and surveillance/March 2019

34 Scientific Commission/September 2019

3. Atypical BSE

The Group discussed and endorsed with minor revisions an overview of relevant literature on the risk of atypical BSE being recycled in a cattle population and its zoonotic potential that had been prepared ahead of the meeting by one expert from the Group. This overview is provided as Appendix IV and its main conclusions are outlined below. With regard to the risk of recycling of atypical BSE, recently published research confirmed that the L-type BSE prion (a type of atypical BSE prion) may be orally transmitted to calves1 . In light of this evidence, and the likelihood that atypical BSE could arise as a spontaneous disease in any country, albeit at a very low incidence, the Group was of the opinion that it would be reasonable to conclude that atypical BSE is potentially capable of being recycled in a cattle population if cattle were to be exposed to contaminated feed. Therefore, the recycling of atypical strains in cattle and broader ruminant populations should be avoided.

The Group acknowledged the challenges in demonstrating the zoonotic transmission of atypical strains of BSE in natural exposure scenarios. Overall, the Group was of the opinion that, at this stage, it would be premature to reach a conclusion other than that atypical BSE poses a potential zoonotic risk that may be different between atypical strains.

4. Definitions of meat-and-bone meal (MBM) and greaves

snip...

REFERENCES

SNIP...END SEE FULL TEXT;

http://web.oie.int/downld/PROC2020/A_SCAD_Sept2019.pdf

Moreover, sporadic disease has never been observed in breeding colonies or primate research laboratories, most notably among hundreds of animals over several decades of study at the National Institutes of Health25, and in nearly twenty older animals continuously housed in our own facility.

Even if the prevailing view is that sporadic CJD is due to the spontaneous formation of CJD prions, it remains possible that its apparent sporadic nature may, at least in part, result from our limited capacity to identify an environmental origin.

https://www.nature.com/articles/srep11573

SO, WHO'S UP FOR SOME MORE TSE PRION POKER, WHO'S ALL IN $$$
SO, ATYPICAL SCRAPIE ROUGHLY HAS 50 50 CHANCE ATYPICAL SCRAPIE IS CONTAGIOUS, AS NON-CONTAGIOUS, TAKE YOUR PICK, BUT I SAID IT LONG AGO WHEN USDA OIE ET AL MADE ATYPICAL SCRAPIE A LEGAL TRADING COMMODITY, I SAID YOUR PUTTING THE CART BEFORE THE HORSE, AND THAT'S EXACTLY WHAT THEY DID, and it's called in Texas, TEXAS TSE PRION HOLDEM POKER, WHO'S ALL IN $$$

***> AS is considered more likely (subjective probability range 50–66%) that AS is a non-contagious, rather than a contagious, disease.

SNIP...SEE;

THURSDAY, JULY 8, 2021

EFSA Scientific report on the analysis of the 2-year compulsory intensified monitoring of atypical scrapie

https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2021.6686

https://efsa.onlinelibrary.wiley.com/doi/full/10.2903/j.efsa.2021.6686

https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2021.6686

https://efsaopinionbseanimalprotein.blogspot.com/2021/07/efsa-scientific-report-on-analysis-of.html

Atypical L-type BSE

Emerg Infect Dis. 2017 Feb; 23(2): 284–287. doi: 10.3201/eid2302.161416 PMCID: PMC5324790 PMID: 28098532

Oral Transmission of L-Type Bovine Spongiform Encephalopathy Agent among Cattle

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5324790/

Our study clearly confirms, experimentally, the potential risk for interspecies oral transmission of the agent of L-BSE. In our model, this risk appears higher than that for the agent of classical BSE, which could only be transmitted to mouse lemurs after a first passage in macaques (14). We report oral transmission of the L-BSE agent in young and adult primates. Transmission by the IC route has also been reported in young macaques (6,7). A previous study of L-BSE in transgenic mice expressing human PrP suggested an absence of any transmission barrier between cattle and humans for this particular strain of the agent of BSE, in contrast to findings for the agent of classical BSE (9). Thus, it is imperative to maintain measures that prevent the entry of tissues from cattle possibly infected with the agent of L-BSE into the food chain.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3310119/

Atypical H-type BSE

Research Project: Pathobiology, Genetics, and Detection of Transmissible Spongiform Encephalopathies
Location: Virus and Prion Research

Title: The agent of H-type bovine spongiform encephalopathy associated with E211K prion protein polymorphism transmits after oronasal challenge

This study demonstrates that the H-type BSE agent is transmissible by the oronasal route.

These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains.

https://www.ars.usda.gov/research/publications/publication/?seqNo115=353094

P98 The agent of H-type bovine spongiform encephalopathy associated with E211K prion protein polymorphism transmits after oronasal challenge

Greenlee JJ (1), Moore SJ (1), and West Greenlee MH (2) (1) United States Department of Agriculture, Agricultural Research Service, National Animal Disease Center, Virus and Prion Research Unit, Ames, IA, United States (2) Department of Biomedical Sciences, Iowa State University College of Veterinary Medicine, Ames, IA, United States.

With the experiment currently at 55 months post-inoculation, no other cattle in this study have developed clinical signs suggestive of prion disease. This study demonstrates that the H-type BSE agent is transmissible by the oronasal route.

These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains.

PRION CONFERENCE 2018 CONFERENCE ABSTRACT

Published: 23 June 2011

Experimental H-type bovine spongiform encephalopathy characterized by plaques and glial- and stellate-type prion protein deposits

The present study demonstrated successful intraspecies transmission of H-type BSE to cattle and the distribution and immunolabeling patterns of PrPSc in the brain of the H-type BSE-challenged cattle. TSE agent virulence can be minimally defined by oral transmission of different TSE agents (C-type, L-type, and H-type BSE agents) [59]. Oral transmission studies with H-type BSE-infected cattle have been initiated and are underway to provide information regarding the extent of similarity in the immunohistochemical and molecular features before and after transmission. In addition, the present data will support risk assessments in some peripheral tissues derived from cattle affected with H-type BSE.

References...END

https://veterinaryresearch.biomedcentral.com/articles/10.1186/1297-9716-42-79

Exploration of genetic factors resulting in abnormal disease in cattle experimentally challenged with bovine spongiform encephalopathy

Sandor Dudas , Renee Anderson , Antanas Staskevicus, Gordon Mitchell , James C. Cross & Stefanie Czub
Pages 1-11 | Received 29 Oct 2020, Accepted 22 Dec 2020, Published online: 04 Jan 2021 Download citation https://doi.org/10.1080/19336896.2020.1869495

ABSTRACT

Since the discovery of bovine spongiform encephalopathy (BSE), researchers have orally challenged cattle with infected brain material to study various aspects of disease pathogenesis. Unlike most other pathogens, oral BSE challenge does not always result in the expected clinical presentation and pathology. In a recent study, steers were challenged orally with BSE and all developed clinical signs and were sacrificed and tested. However, despite a similar incubation and clinical presentation, one of the steers did not have detectable PrPSc in its brain. Samples from this animal were analysed for genetic differences as well as for the presence of in vitro PrPSc seeding activity or infectivity to determine the BSE status of this animal and the potential reasons that it was different. Seeding activity was detected in the brainstem of the abnormal steer but it was approximately one million times less than that found in the normal BSE positive steers. Intra-cranial challenge of bovinized transgenic mice resulted in no transmission of disease. The abnormal steer had different genetic sequences in non-coding regions of the PRNP gene but detection of similar genotypes in Canadian BSE field cases, that showed the expected brain pathology, suggested these differences may not be the primary cause of the abnormal result. Breed composition analysis showed a higher Hereford content in the abnormal steer as well as in two Canadian atypical BSE field cases and several additional abnormal experimental animals. This study could point towards a possible impact of breed composition on BSE pathogenesis.

Snip...

To our knowledge, this is the first study exploring potential reasons for unexpected results in cattle challenged orally with classical BSE. While initial testing suggested that steer 3 was negative for BSE, in vitro conversion demonstrated the presence of amyloid seeds that could be amplified from the brainstem, although at very low levels. Transgenic mouse bioassay did not, by contrast, detect infectivity in this brain tissue. Based on the evidence to date, it appears that differences in the PRNP gene itself do not fully account for the abnormal presentation but that other genetic differences are important. Previous studies have indicated that breed effects can overshadow PRNP polymorphisms and breed has been identified as a risk factor for BSE in a German cohorts [23,24]. Breed composition analysis indicates that, in our small cohort of experimental animals and Canadian BSE field cases, a high Hereford breed composition corresponds with abnormal or atypical BSE. Further exploration of high density SNP genotyping used for the breed composition analysis will hopefully identify particular genomic regions and associated genes which may be contributing to the Hereford breed associated BSE abnormalities.

https://www.tandfonline.com/doi/full/10.1080/19336896.2020.1869495

Low levels of classical BSE infectivity in rendered fat tissue

Vet Res. 2018; 49: 122.

Published online 2018 Dec 20. doi: 10.1186/s13567-018-0618-7

PMCID: PMC6302288

PMID: 30572960

Low levels of classical BSE infectivity in rendered fat tissue

Christine Fast, Markus Keller, Martin Kaatz, Ute Ziegler, and Martin H. Groschupcorresponding author

Author information Article notes Copyright and License information Disclaimer

Abstract

BSE infectivity in mesentery fat is most likely associated with embedded nervous tissue. To prove this mesentery containing celiac ganglion was taken from oral BSE infected cattle in different stages of the disease and from one control animal. Fat was rendered according to standard tallow production methods and the prion infectivity therein analysed in transgenic mouse bioassay. Rendered fat of the clinical animal revealed low infectivity levels, whereas preclinical and control animals remained negative. This study, although not representative, provides a proof of principle, indicating the potential contamination of melted mesenteric fat by embedded nervous structures during standard tallow production.

snip...

Discussion The results presented here indicate that a certain amount of BSE infectivity must be present in the mesentery to contaminate the rendered fat in a detectable level during tallow production methods. As shown by [8] BSE infectivity increases in the CMGC of orally BSE infected cattle from early to late preclinical up to the highest levels at clinical stage. Hence, it comes without surprise that the infectious fat presented here originates from the CMGC of the clinical animal, which also showed a clear PrPSc accumulation pattern [8]. Additionally these results are in accordance with the infectivity data reported for fat tissue of CWD infected deer at later stages of the disease [12].

In our hands only low level of infectivity were found. However, the experimental adipose/CMGC tissue dilution factor needed for the fat rendering should also be considered, so the actual infectious load of the samples might be higher. However, the low infectivity load found here might explain why earlier studies failed to detect BSE infectivity in adipose tissue. For one reason this studies did not definitely regard nerves and ganglia which are involved in the pathogenesis of BSE and for another reason less susceptible conventional wild type mice were used [10, 15, 16]. Interestingly omental fat of deer infected with CWD at a clinical stage revealed a much higher infectivity level as compared to our results [12]. Therefore, it is tempting to speculate that these differences might be due to the qualitative and quantitative more widespread CWD distribution in bodily tissues [17] as compared to cattle BSE. However, it has to bear in mind that the two TSE strains are different, different mouse line were used and neither for CWD samples nor for our BSE sample a calibration curve for infectivity exist. Nevertheless, it would be of interest to what extent rendered fat could be contaminated by using mesentery from sheep and goats infected with classical scrapie or BSE, all entities showing in most cases a higher PrPSc accumulation in the autonomous nervous system than BSE infected cattle [18–21].

Our results, in particular the close relationship with the infectivity/PrPSc data of the CMGC samples, clearly support the widespread accepted assumption that infectivity in the mesentery is most probably associated with nerves and autonomous ganglia [9], whereas the direct involvement of fatty cells is uncertain [11]. Another source of infectivity could be in mesentery fat embedded lymph nodes. However, no infectivity has ever been detected in mesenterial lymph nodes of BSE infected cattle so far [13, 22] and all grossly evident lymphoreticular tissue was removed from our samples. Additionally a long term study showed that full blood transfusion from clinical BSE infected cattle to naïve calves did not transmit BSE [23]. Therefore, a blood contamination of the sample as possible source of infectivity is highly unlikely. Furthermore, as all tissue remnants in the rendered fat were removed by a centrifugation step before inoculation, all infectivity must be bound to the liquid fat solely.

These results might not be representative due to the small sample size and therefore provide only a proof of principle. In particular with regard to the negative early and late preclinical samples, there still remain some uncertainties, which can only be resolved by a more extended, that say statistical profound study. However, the inocula were generated according to standard tallow production methods [9], therefore our results clearly show that such a contamination is conceivable. Rendered fat can been used for food (i.e. premier jus, frying agent), pet food and feed application [24], therefore BSE/TSE infectivity could enter both the food and feed chain. At the time of writing the current SRM legislation prevented the usage of mesentery fat from animals whose origin is from countries with controlled or undetermined BSE risk. However, this regulation is still under discussion and might be changed in near future (EU Commission, personal communication).

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6302288/pdf/13567_2018_Article_618.pdf

P169 Low levels of classical BSE infectivity in rendered fat tissue

Dr. Christine Fast1, Dr. Markus Keller2, Dr. Ute Ziegler3, Prof. Dr. Martin Groschup4 1Friedrich-Loeffler-Institut, Greifswald, Germany, 2Friedrich-Loeffler-Institut, Greifswald, Germany, 3Friedrich-Loeffler-Institut, Greifswald, Germany, 4Friedrich-Loeffler-Institut, Greifswald, Germany

Aims: Specified Risk Materials (SRM) are the animal tissues potentially containing the highest levels of Bovine Spongiform Encephalopathy (BSE) prions; and their removal is the most important consumer protection measure against BSE. BSE infectivity in the mesentery fat is most likely associated with embedded nervous tissue. To date, it is unclear if contamination of the rendered fat could have occurred during tallow production at a slaughterhouse.

Methods: Samples were taken from five cattle originating from the German BSE pathogenesis study. Two animals were at preclinical, one at late preclinical and one animal at clinical stage of disease; one control animal was included. For all cattle, mouse bioassay results for the celiac and mesenteric ganglion complex (CMGC) were generated previously, showing either no, mild, moderate or substantial infectivity loads. Fat was rendered from CMGC samples embedded in mesentery fat by incubating for 20 minutes at 95°C, according to standard tallow production methods. Subsequently, the melted fat was 1:5 diluted in physiological saline and thoroughly vortexed. The liquid fat was cleaned by a short centrifugation at 10.000 rpm. Finally, 7-12 bovine prion protein overexpressing transgenic mice (Tgbov XV) were i.c. inoculated with 25-30 µl of the supernatant. Mice were

sacrificed after 730 days or when showing clinical symptoms and mouse brains were subsequently examined by biochemical and immunohistochemical methods.

Results: Neither the control and the preclinical nor the late preclinical animals showed signs of infectivity in mouse bioassay of the fat samples after up to 730 days p.i. In contrast, low levels of infectivity were detected in the fat of the clinical animal as one mouse displayed a clear accumulation of pathological prion protein in the brain after an incubation period of 598 days p.i.

Conclusions: Our results clearly indicate the potential contamination of melted mesenteric fat by embedded nervous structures during standard tallow production. However, the BSE infectivity level was weak and detectable only in the fat rendered from one sample with documented high infectivity load in the ganglion itself (Kaatz et al. 2012). Albeit, this study is not representative as only one clinical animal was included, it provides a proof of principle. A broader examination would allow a better insight into temporal and spatial distribution pattern of BSE infectivity in rendered fat tissues of different origins. Such estimates have a critical role in qualitative and quantitative risk assessments and in providing advice on the designation and removal of certain SRM tissues.

=====

http://web.archive.org/web/20190305183011/http://prion2017.org/wp-content/uploads/2017/05/PRION-2017-A-Z-of-Abstracts-by-Presenter_2-2.pdf

https://www.youtube.com/watch?v=Vtt1kAVDhDQ&t=3718s

PRION2017 CONFERENCE VIDEO UPDATE

PRION2017 CONFERENCE VIDEO UPDATE 23 – 26 May 2017 Edinburgh

https://www.youtube.com/embed/_G-8DJqMqt0

https://twitter.com/hashtag/PRION2017?src=hash

"Such estimates have a critical role in qualitative and quantitative risk assessments and in providing advice on the designation and removal of certain SRM tissues."

PRION 2018 CONFERENCE

P98 The agent of H-type bovine spongiform encephalopathy associated with E211K prion protein polymorphism transmits after oronasal challenge

Greenlee JJ (1), Moore SJ (1), and West Greenlee MH (2)

(1) United States Department of Agriculture, Agricultural Research Service, National Animal Disease Center, Virus and Prion Research Unit, Ames, IA, United States (2) Department of Biomedical Sciences, Iowa State University College of Veterinary Medicine, Ames, IA, United States.

In 2006, a case of H-type bovine spongiform encephalopathy (BSE) was reported in a cow with a previously unreported prion protein polymorphism (E211K).

The E211K polymorphism is heritable and homologous to the E200K mutation in humans that is the most frequent PRNP mutation associated with familial Creutzfeldt-Jakob disease.

Although the prevalence of the E211K polymorphism is low, cattle carrying the K211 allele develop H-type BSE with a rapid onset after experimental inoculation by the intracranial route.

The purpose of this study was to investigate whether the agents of H-type BSE or H-type BSE associated with the E211K polymorphism transmit to wild type cattle or cattle with the K211 allele after oronasal exposure.

Wild type (EE211) or heterozygous (EK211) cattle were oronasally inoculated with either H-type BSE from the 2004 US Htype BSE case (n=3) or from the 2006 US H-type case associated with the E211K polymorphism (n=4) using 10% w/v brain homogenates.

Cattle were observed daily throughout the course of the experiment for the development of clinical signs.

At approximately 50 months post-inoculation, one steer (EK211 inoculated with E211K associated H-BSE) developed clinical signs including inattentiveness, loss of body condition, weakness, ataxia, and muscle fasciculations and was euthanized.

Enzyme immunoassay confirmed that abundant misfolded protein was present in the brainstem, and immunohistochemistry demonstrated PrPSc throughout the brain.

Western blot analysis of brain tissue from the clinically affected steer was consistent with the E211K H-type BSE inoculum.

With the experiment currently at 55 months post-inoculation, no other cattle in this study have developed clinical signs suggestive of prion disease.

This study demonstrates that the H-type BSE agent is transmissible by the oronasal route.

These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains.

=====

O10 Zoonotic potential of atypical BSE prions: a systematic evaluation

Marín-Moreno A (1), Espinosa JC (1), Douet JY (2), Aguilar-Calvo P (1), Píquer J (1), Lorenzo P (1), Lacroux C (2), Huor A (2), Lugan S (2), Tillier C (2), Andreoletti O (2) and Juan María Torres (1)

(1) Centro de Investigación en Sanidad Animal, CISA-INIA, Carretera Algete-El Casar s/n, Valdeolmos, 28130 Madrid, Spain.(2) UMR INRA ENVT 1225, Interactions Hôtes Agents Pathogènes, Ecole Nationale Vétérinaire de Toulouse, France.

Bovine Spongiform Encephalopathy (BSE) is the only zoonotic prion recognized to date. The transmission of BSE to humans caused the emergence of variant Creutzfeldt-Jakob disease (vCJD). In 2004 two new atypical prion agents were identified in cattle: H- and L- BSE prion strains.

The zoonotic potential of atypical BSE prions was assessed by inoculating three different isolates of cattle H- and L-BSE in transgenic mouse lines that overexpress the human PrP covering the three different genotypes of the aminoacid 129 (TgMet129, TgMet/Val129 and TgVal129). This polymorphism is known to be a key element involved in human resistance/susceptibility to BSE. In addition, TgMet129 and TgVal129 were challenged with one H- and L-BSE isolates adapted to sheep PrP expressing hosts to assess if intermediate passage in sheep could modify the capacity of these prions to cross the human species barrier.

Our results confirm that L-BSE transmits to TgMet129 even better than epidemic BSE. However, atypical L-BSE agent was unable to infect TgVal129 or TgMet/Val129 mice, even after passage in TgMet129. No transmission was observed with H-BSE in any mice model inoculated, irrespectively of the 129 polymorphism. After passage in sheep PrP expressing host, the properties of both H and LBSE including their capacity to cross the human species barrier were dramatically affected, emerging prion strains features that resemble those of sporadic Creutzfeldt-Jakob disease (sCJD).

To date, this is the more extensive and complete analysis of the zoonotic potential of atypical BSE prions. These results advise not to ignore the zoonotic potential of these agents.

=====

P77 In vitro approach to estimate the human transmission risk of prions

Iwamaru Y (1) Imamura M (2) Matsuura Y (1) Kohtaro Miyazawa (1) Takashi Yokoyama (3)

(1) National Institute of Animal Health, Prion Disease Unit, Ibaraki, Japan (2) University of Miyazaki, Division of Microbiology, Miyazaki, Japan (3) National Institute of Animal Health, Department of Planning and General Administration, Ibaraki, Japan.

Prion diseases are fatal neurodegenerative disorders in humans and animals. The key event in the pathogenesis of these disease is the conversion of host-encoded normal cellular prion protein (PrPC) into its pathogenic isoform (PrPSc) and its accumulation in the central nervous system. One of the characteristics of prion is the species barrier that limits the transmission between different species. Currently, bioassays using transgenic mice (Tg) overexpressing PrP of different species have become valuable tools for assessing cross species transmissibility of prions.

The recent reports describing the emergence of novel bovine spongiform encephalopathy (BSE) from H-BSE and the transmission of chronic wasting disease to swine have generated concerns of human infections of newly identified prions. Although Tg expressing human PrP have been used to model human susceptibility to animal prions, these experiments are costly and time-consuming. In addition, the results of bioassays are influenced by the lines of transgenic mice used and the lifespan of the challenged animals. These factors are needed to be taken into account when assessing the human risk of prions.

In attempt to develop the more time- and cost-saving method for assessment of the human transmission risk of prions, we performed experiments using protein misfolding cyclic amplification (PMCA) technique to investigate whether PMCA can be compatible with bioassay. Using brain homogenates of Tg expressing bovine PrP as the PrP substrate, we optimized the versatile PMCA condition that could amplify PrPSc from cattle affected with C-, H- or L-BSE. We measured the 50% PMCA seeding activity dose and the 50% lethal dose in 1 g equivalent of C-, H- or L-BSE cattle brain tissue by using PMCA or bioassay, respectively, and assessed the correlations between these doses.

=====

P98 The agent of H-type bovine spongiform encephalopathy associated with E211K prion protein polymorphism transmits after oronasal challenge

Greenlee JJ (1), Moore SJ (1), and West Greenlee MH (2) (1) United States Department of Agriculture, Agricultural Research Service, National Animal Disease Center, Virus and Prion Research Unit, Ames, IA, United States (2) Department of Biomedical Sciences, Iowa State University College of Veterinary Medicine, Ames, IA, United States.

reading up on this study from Prion 2018 Conference, very important findings ;

***> This study demonstrates that the H-type BSE agent is transmissible by the oronasal route.

***> These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains.

http://bovineprp.blogspot.com/2018/08/the-agent-of-h-type-bovine-spongiform.html

Cattle with the EK211 PRNP polymorphism are susceptible to the H-type bovine spongiform encephalopathy agent from either E211K or wild type donors after oronasal inoculation

Cattle with the EK211 PRNP polymorphism are susceptible to the H-type bovine spongiform encephalopathy agent from either E211K or wild type donors after oronasal inoculation

Research Project: Elucidating the Pathobiology and Transmission of Transmissible Spongiform Encephalopathies Location: Virus and Prion Research

Title: Cattle with the EK211 PRNP polymorphism are susceptible to the H-type bovine spongiform encephalopathy agent from either E211K or wild type donors after oronasal inoculation

Author item Greenlee, Justin item Cassmann, Eric item MOORE, SARA JO - Oak Ridge Institute For Science And Education (ORISE) item WEST GREENLEE, HEATHER - Iowa State University

Submitted to: Meeting Abstract

Publication Type: Abstract Only

Publication Acceptance Date: 6/24/2022

Publication Date: 9/16/2022

Citation: Greenlee, J.J., Cassmann, E.D., Moore, S., West Greenlee, H.M. 2022.

Cattle with the EK211 PRNP polymorphism are susceptible to the H-type bovine spongiform encephalopathy agent from either E211K or wild type donors after oronasal inoculation.

Prion 2022 Conference abstracts: pushing the boundaries. 16(1):150. https://doi.org/10.1080/19336896.2022.2091286.

DOI: https://doi.org/10.1080/19336896.2022.2091286

Interpretive Summary:

Technical Abstract:

In 2006, a case of H-type bovine spongiform encephalopathy (H-BSE) was reported in a cow with a previously unreported prion protein polymorphism (E211K). The E211K polymorphism is heritable and homologous to the E200K mutation in humans that is the most frequent PRNP mutation associated with familial Creutzfeldt-Jakob disease. Although the prevalence of the E211K polymorphism is low, cattle carrying the K211 allele develop H-type BSE with a rapid onset after experimental inoculation by the intracranial route. The purpose of this study was to investigate whether the agents of H-type BSE or H-type BSE associated with the E211K polymorphism transmit to wild type cattle or cattle with the K211 allele after oronasal exposure. Wild type (EE211) or heterozygous (EK211) cattle were oronasally inoculated with the H-BSE agent from either the US 2004 case (wild type donor; n=3) or from the US 2006 case with the E211K polymorphism (n=4). Cattle were observed daily throughout the course of the experiment for the development of clinical signs. When signs were noted, animals were euthanized and necropsied. Cattle were confirmed positive for abnormal BSE prions by enzyme immunoassay (EIA; Idexx HerdChek BSE Ag Test), anti-PrP immunohistochemistry (IHC) on brainstem, and microscopic examination for vacuolation. Three-out-of-four (75%) calves with the EK211 genotype developed clinical signs of H-BSE including inattentiveness, loss of body condition, weakness, ataxia, and muscle fasciculations and were euthanized. Two of the positive EK211 steers received H-BSE US 2004 inoculum (Incubation Period (IP): 59.3 and 72.3 months) while the other positive steer received the E211K H-BSE

inoculum (IP: 49.7 months). EIA confirmed that abundant misfolded protein (O.D. 2.57-4.0) in the brainstem, and IHC demonstrated PrPSc throughout the brain. All cattle in the EE211 recipient group remain asymptomatic for the duration of the experiment (approximately 7 years post-inoculation). This study demonstrates that the H-type BSE agent is transmissible by the oronasal route. Cattle with the EK211 genotype are oronasally susceptible to small doses of the H-BSE agent from either EK211 or EE211 (wild type) donors. Wild-type EE211 cattle remained asymptomatic for the duration of the experiment with this small dose (0.1g) of inoculum. These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains.

https://www.ars.usda.gov/research/publications/publication/?seqNo115=395351

"This study demonstrates that the H-type BSE agent is transmissible by the oronasal route. Cattle with the EK211 genotype are oronasally susceptible to small doses of the H-BSE agent from either EK211 or EE211 (wild type) donors. Wild-type EE211 cattle remained asymptomatic for the duration of the experiment with this small dose (0.1g) of inoculum. These results reinforce the need for ongoing surveillance for classical and atypical BSE to minimize the risk of potentially infectious tissues entering the animal or human food chains."

SATURDAY, OCTOBER 8, 2022

Cattle with the EK211 PRNP polymorphism are susceptible to the H-type bovine spongiform encephalopathy agent from either E211K or wild type donors after oronasal inoculation

https://bovineprp.blogspot.com/2022/10/cattle-with-ek211-prnp-polymorphism-are.html

Moreover, sporadic disease has never been observed in breeding colonies or primate research laboratories, most notably among hundreds of animals over several decades of study at the National Institutes of Health25, and in nearly twenty older animals continuously housed in our own facility.

Even if the prevailing view is that sporadic CJD is due to the spontaneous formation of CJD prions, it remains possible that its apparent sporadic nature may, at least in part, result from our limited capacity to identify an environmental origin.

https://www.nature.com/articles/srep11573

O.05: Transmission of prions to primates after extended silent incubation periods: Implications for BSE and scrapie risk assessment in human populations

Emmanuel Comoy, Jacqueline Mikol, Valerie Durand, Sophie Luccantoni, Evelyne Correia, Nathalie Lescoutra, Capucine Dehen, and Jean-Philippe Deslys Atomic Energy Commission; Fontenay-aux-Roses, France

Prion diseases (PD) are the unique neurodegenerative proteinopathies reputed to be transmissible under field conditions since decades. The transmission of Bovine Spongiform Encephalopathy (BSE) to humans evidenced that an animal PD might be zoonotic under appropriate conditions. Contrarily, in the absence of obvious (epidemiological or experimental) elements supporting a transmission or genetic predispositions, PD, like the other proteinopathies, are reputed to occur spontaneously (atpical animal prion strains, sporadic CJD summing 80% of human prion cases).

Non-human primate models provided the first evidences supporting the transmissibiity of human prion strains and the zoonotic potential of BSE. Among them, cynomolgus macaques brought major information for BSE risk assessment for human health (Chen, 2014), according to their phylogenetic proximity to humans and extended lifetime. We used this model to assess the zoonotic potential of other animal PD from bovine, ovine and cervid origins even after very long silent incubation periods.

*** We recently observed the direct transmission of a natural classical scrapie isolate to macaque after a 10-year silent incubation period,

***with features similar to some reported for human cases of sporadic CJD, albeit requiring fourfold long incubation than BSE. Scrapie, as recently evoked in humanized mice (Cassard, 2014),

***is the third potentially zoonotic PD (with BSE and L-type BSE),

***thus questioning the origin of human sporadic cases.

We will present an updated panorama of our different transmission studies and discuss the implications of such extended incubation periods on risk assessment of animal PD for human health.

==========

thus questioning the origin of human sporadic cases

==========

***our findings suggest that possible transmission risk of H-type BSE to sheep and human. Bioassay will be required to determine whether the PMCA products are infectious to these animals.

==========

PRION 2015 CONFERENCE

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5019500/

***Transmission data also revealed that several scrapie prions propagate in HuPrP-Tg mice with efficiency comparable to that of cattle BSE. While the efficiency of transmission at primary passage was low, subsequent passages resulted in a highly virulent prion disease in both Met129 and Val129 mice.

***Transmission of the different scrapie isolates in these mice leads to the emergence of prion strain phenotypes that showed similar characteristics to those displayed by MM1 or VV2 sCJD prion.

***These results demonstrate that scrapie prions have a zoonotic potential and raise new questions about the possible link between animal and human prions.

http://www.tandfonline.com/doi/abs/10.1080/19336896.2016.1163048?journalCode=kprn20

PRION 2016 TOKYO

Saturday, April 23, 2016

SCRAPIE WS-01: Prion diseases in animals and zoonotic potential 2016

Prion. 10:S15-S21. 2016 ISSN: 1933-6896 printl 1933-690X online

Taylor & Francis

Prion 2016 Animal Prion Disease Workshop Abstracts

WS-01: Prion diseases in animals and zoonotic potential

Transmission of the different scrapie isolates in these mice leads to the emergence of prion strain phenotypes that showed similar characteristics to those displayed by MM1 or VV2 sCJD prion.

These results demonstrate that scrapie prions have a zoonotic potential and raise new questions about the possible link between animal and human prions.

http://www.tandfonline.com/doi/abs/10.1080/19336896.2016.1163048?journalCode=kprn20

Title: Transmission of scrapie prions to primate after an extended silent incubation period)

*** In complement to the recent demonstration that humanized mice are susceptible to scrapie, we report here the first observation of direct transmission of a natural classical scrapie isolate to a macaque after a 10-year incubation period. Neuropathologic examination revealed all of the features of a prion disease: spongiform change, neuronal loss, and accumulation of PrPres throughout the CNS.

*** This observation strengthens the questioning of the harmlessness of scrapie to humans, at a time when protective measures for human and animal health are being dismantled and reduced as c-BSE is considered controlled and being eradicated.

*** Our results underscore the importance of precautionary and protective measures and the necessity for long-term experimental transmission studies to assess the zoonotic potential of other animal prion strains.

http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=313160

Evidence That Transmissible Mink Encephalopathy Results from Feeding Infected Cattle Over the next 8-10 weeks, approximately 40% of all the adult mink on the farm died from TME.

snip...

The rancher was a "dead stock" feeder using mostly (>95%) downer or dead dairy cattle...

https://web.archive.org/web/20090506002258/http://www.bseinquiry.gov.uk/files/mb/m09/tab05.pdf

https://web.archive.org/web/20090506001031/http://www.bseinquiry.gov.uk/files/mb/m09a/tab01.pdf

https://web.archive.org/web/20090506024922/http://www.bseinquiry.gov.uk/files/yb/1987/06/10004001.pdf

In the USA, USDA et al sometimes serves SRM's up as appetizers or horderves.

Thursday, November 28, 2013

Department of Justice Former Suppliers of Beef to National School Lunch Program Settle Allegations of Improper Practices and Mistreating Cows

http://madcowusda.blogspot.com/2013/11/department-of-justice-former-suppliers.html

seems USDA NSLP et al thought that it would be alright, to feed our children all across the USA, via the NSLP, DEAD STOCK DOWNER COWS, the most high risk cattle for mad cow type disease, and other dangerous pathogens, and they did this for 4 years, that was documented, then hid what they did by having a recall, one of the largest recalls ever, and they made this recall and masked the reason for the recall due to animal abuse (I do not condone animal abuse), not for the reason of the potential for these animals to have mad cow BSE type disease (or other dangerous and deadly pathogens). these TSE prion disease can lay dormant for 5, 10, 20 years, or longer, WHO WILL WATCH OUR CHILDREN FOR THE NEXT 5 DECADES FOR CJD ???

Saturday, September 21, 2013

Westland/Hallmark: 2008 Beef Recall A Case Study by The Food Industry Center January 2010 THE FLIM-FLAM REPORT

http://downercattle.blogspot.com/2013/09/westlandhallmark-2008-beef-recall-case.html

DID YOUR CHILD CONSUME SOME OF THESE DEAD STOCK DOWNER COWS, THE MOST HIGH RISK FOR MAD COW DISEASE ???

this recall was not for the welfare of the animals. ...tss you can check and see here ; (link now dead, does not work...tss)

http://www.fns.usda.gov/fns/safety/pdf/Hallmark-Westland_byState.pdf

http://web.archive.org/web/20100413182327/http://www.fns.usda.gov/fns/safety/pdf/Hallmark-Westland_byState.pdf

http://downercattle.blogspot.com/2013/09/school-food-authorities-affected-by.html

Sunday, November 13, 2011

*** California BSE mad cow beef recall, QFC, CJD, and dead stock downer livestock

http://transmissiblespongiformencephalopathy.blogspot.com/2011/11/california-bse-mad-cow-beef-recall-qfc.html

Wednesday, March 2, 2016

RANCHO He did not know that they were placing healthy cow heads next to suspect carcasses BSE TSE Prion

http://madcowusda.blogspot.com/2016/03/rancho-he-did-not-know-that-they-were.html

Sunday, June 14, 2015

Larry's Custom Meats Inc. Recalls Beef Tongue Products That May Contain Specified Risk Materials BSE TSE Prion

http://web.archive.org/web/20150728075819/http://www.fsis.usda.gov/wps/wcm/connect/FSIS-Content/internet/main/topics/recalls-and-public-health-alerts/recall-case-archive/archive/2015/recall-090-2015-release

http://madcowusda.blogspot.com/2015/06/larrys-custom-meats-inc-recalls-beef.html

Thursday, June 12, 2014

Missouri Firm Recalls Ribeye and Carcass Products That May Contain Specified Risk Materials 4,012 pounds of fresh beef products because the dorsal root ganglia may not have been completely removed

http://web.archive.org/web/20150724192714/http://www.fsis.usda.gov/wps/portal/fsis/topics/recalls-and-public-health-alerts/recall-case-archive/archive/2014/recall-034-2014-release

http://madcowusda.blogspot.com/2014/06/missouri-firm-recalls-ribeye-and.html

Saturday, November 10, 2012

Wisconsin Firm Recalls Beef Tongues That May Contain Specified Risk Materials Nov 9, 2012 WI Firm Recalls Beef Tongues

http://web.archive.org/web/20121114001151/http://www.fsis.usda.gov:80/News_&_Events/Recall_073_2012_Release/index.asp

http://bseusa.blogspot.com/2012/11/wisconsin-firm-recalls-beef-tongues.html

Saturday, July 23, 2011

CATTLE HEADS WITH TONSILS, BEEF TONGUES, SPINAL CORD, SPECIFIED RISK MATERIALS (SRM's) AND PRIONS, AKA MAD COW DISEASE

https://www.perishablenews.com/meatpoultry/ohios-valley-farm-meats-issues-beef-recall/

https://www.foodsafetynews.com/2011/07/ohio-company-recalls-beef-products/

http://transmissiblespongiformencephalopathy.blogspot.com/2011/07/cattle-heads-with-tonsils-beef-tongues.html

Sunday, October 18, 2009

Wisconsin Firm Recalls Beef Tongues That Contain Prohibited Materials SRM WASHINGTON, October 17, 2009

http://web.archive.org/web/20100304181234/http://www.fsis.usda.gov/News_&_Events/Recall_055_2009_Release/index.asp

http://madcowfeed.blogspot.com/2009/10/wisconsin-firm-recalls-beef-tongues.html

Thursday, October 15, 2009

Nebraska Firm Recalls Beef Tongues That Contain Prohibited Materials SRM WASHINGTON, Oct 15, 2009

http://web.archive.org/web/20100710162028/http://www.fsis.usda.gov/News_&_Events/Recall_053_2009_Release/index.asp

http://madcowfeed.blogspot.com/2009/10/nebraska-firm-recalls-beef-tongues-that.html

Thursday, June 26, 2008

Texas Firm Recalls Cattle Heads That Contain Prohibited Materials

http://web.archive.org/web/20100410065321/http://www.fsis.usda.gov/News_&_Events/Recall_020_2008_Release/index.asp

http://madcowfeed.blogspot.com/2008/06/texas-firm-recalls-cattle-heads-that.html

Tuesday, July 1, 2008

Missouri Firm Recalls Cattle Heads That Contain Prohibited Materials SRMs

http://web.archive.org/web/20100410065251/http://www.fsis.usda.gov/News_&_Events/Recall_021_2008_Release/index.asp

http://madcowfeed.blogspot.com/2008/07/missouri-firm-recalls-cattle-heads-that.html

Friday, August 8, 2008

Texas Firm Recalls Cattle Heads That Contain Prohibited Materials SRMs 941,271 pounds with tonsils not completely removed

http://web.archive.org/web/20100410064923/http://www.fsis.usda.gov/News_&_Events/Recall_028_2008_Release/index.asp

http://web.archive.org/web/20100410064932/http://www.fsis.usda.gov/PDF/RC_028-2008_SP.pdf

http://madcowfeed.blogspot.com/2008/08/texas-firm-recalls-cattle-heads-that.html

Saturday, April 5, 2008

SRM MAD COW RECALL 406 THOUSAND POUNDS CATTLE HEADS WITH TONSILS KANSAS

http://web.archive.org/web/20100410071432/http://www.fsis.usda.gov/News_&_Events/Recall_012_2008_Release/index.asp

http://cjdmadcowbaseoct2007.blogspot.com/2008/04/srm-mad-cow-recall-406-thousand-pounds.html

Wednesday, April 30, 2008

Consumption of beef tongue: Human BSE risk associated with exposure to lymphoid tissue in bovine tongue in consideration of new research findings

https://www.efsa.europa.eu/en/efsajournal/pub/700

CONCLUSION The consumption of bovine tongue involves a limited risk to public health because the lingual tonsil is not completely removed by the excision method currently employed. By establishing the exact location of the lingual lymphoid tissue an alternative incision is proposed here that combines the maximum removal of the lingual tonsil, and thus a maximum reduction in the risk to public health, with minimal loss of lingual muscle tissue. Recent studies of the occurrence and spread of prions in laboratory animals and sheep, however, suggest that, even if the bovine tongue is completely free from lymphoid tissue, there is possibly still a certain risk. Action must be taken at

European level if we are to continue to guarantee that food of animal origin is 100% safe for the consumer.

Thymuses from veal calves may be eaten with an easy mind because of the late spread of prions to this organ

https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2008.700

http://cjdmadcowbaseoct2007.blogspot.com/2008/04/consumption-of-beef-tongue-human-bse.html

Friday, October 15, 2010

BSE infectivity in the absence of detectable PrPSc accumulation in the tongue and nasal mucosa of terminally diseased cattle

In this manuscript we report for the first time that BSE infectivity can be accumulated in the tongue and nasal mucosa of cattle in the clinical phase of a BSE infection. This fact may pose a health risk for the consumer, since to date tongue muscular tissue is not listed as specified risk material and is regularly consumed. Although we were able to demonstrate the high sensitivity of our Tgbov XVadapted PMCA protocol, we were unable to decipher any PrPSc accumulation in these tissues that, however, contained considerable amounts of BSE infectivity.

https://pubmed.ncbi.nlm.nih.gov/20943888/

https://www.microbiologyresearch.org/docserver/fulltext/jgv/92/2/467.pdf?expires=1670185093&id=id&accname=guest&checksum=EDE46E920ADEE225E4DCC12840281115

http://bseusa.blogspot.com/2010/10/bse-infectivity-in-absence-of.html

Wednesday, January 23, 2019

CFIA SFCR Guidance on Specified risk material (SRM) came into force on January 15, 2019

https://specifiedriskmaterial.blogspot.com/2019/01/cfia-sfcr-guidance-on-specified-risk.html

SPECIFIED RISK MATERIALS SRMs

https://specifiedriskmaterial.blogspot.com/

http://madcowspontaneousnot.blogspot.com/2008/02/specified-risk-materials-srm.html

Research Project: Pathobiology, Genetics, and Detection of Transmissible Spongiform Encephalopathies Location: Virus and Prion Research
Title: Successful transmission of the chronic wasting disease (CWD) agent to white-tailed deer by intravenous blood transfusion

Author item MAMMADOVA, NAJIBA - Orise Fellow item CASSMAN, ERIC - Orise Fellow item Greenlee, Justin

Submitted to: Research in Veterinary Science

Publication Type: Peer Reviewed Journal

Publication Acceptance Date: 10/14/2020

Publication Date: 12/20/2020

Citation: Mammadova, N., Cassman, E., Greenlee, J.J. 2020. Successful transmission of the chronic wasting disease (CWD) agent to white-tailed deer by intravenous blood transfusion. Research in Veterinary Science. 133:304-306. https://doi.org/10.1016/j.rvsc.2020.10.009.

DOI: https://doi.org/10.1016/j.rvsc.2020.10.009

Interpretive Summary: Chronic wasting disease (CWD) is a fatal disease of cervids that causes damaging changes in the brain. The infectious agent is an abnormal protein called a prion that has misfolded from its normal state. Chronic wasting disease may be transmitted from ingestion of prions shed in bodily fluids (e.g. feces, urine, saliva, placenta tissue) of infected animals. Few studies have also reported detection of infectious prions in blood. To determine if CWD-infected blood can transmit prion disease, recipient deer were inoculated intravenously (IV) with blood derived from a CWD-infected white-tailed deer. We found that two out of three animals developed disease. This study complements and supports an earlier finding that CWD can be transmitted to deer by intravenous blood transfusion from white-tailed deer with CWD. This information is useful to wildlife and agricultural officials that are involved in efforts to control the spread of chronic wasting disease.

Technical Abstract: Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy (TSEs) that affects free-ranging and captive cervid species. The infectious agent of CWD may be transmitted from ingestion of prions shed in bodily fluids (e.g. feces, urine, saliva, placenta tissue) of infected animals, contaminated pastures, and/or decomposing carcasses from dead animals. Studies have also demonstrated prion infectivity in whole blood or blood fractions of CWD infected animals. To determine if CWD-infected blood contained sufficient levels of prion infectivity to cause disease, recipient deer were inoculated intravenously (IV) with blood derived from a CWD-infected white-tailed deer. We found that the CWD agent can be successfully transmitted to white-tailed deer by a single intravenous blood transfusion with a mean incubation period of approximately 35 months and an attack rate of 100%. This study complements and supports an earlier finding that CWD can be transmitted to deer by intravenous blood transfusion from white-tailed deer with CWD.

Successful transmission of the chronic wasting disease (CWD) agent to white-tailed deer by intravenous blood transfusion

Najiba Mammadovaa,b, Eric Cassmanna,b, Justin J. Greenleea,* aVirus and Prion Research Unit, National Animal Disease Center, USDA, Agricultural Research Service, 1920 Dayton Avenue, Ames, IA 50010, USA bOak Ridge Institute for Science and Education (ORISE), USA ARTICLE INFO

Keywords: Blood transfusion Cervid CWD Prion disease Prions in blood White-tailed deer

ABSTRACT

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy (TSEs) that affects free-ranging and captive cervid species. The infectious agent of CWD may be transmitted from ingestion of prions shed in bodily fluids (e.g. feces, urine, saliva, placenta tissue) of infected animals, contaminated pastures, and/or decomposing carcasses from dead animals. Studies have also demonstrated prion infectivity in whole blood or blood fractions of CWD infected animals. To determine if CWD-infected blood contained sufficient levels of prion infectivity to cause disease, recipient deer were inoculated intravenously (IV) with blood derived from a CWD- infected white-tailed deer. We found that the CWD agent can be successfully transmitted to white-tailed deer by a single intravenous blood transfusion. The incubation period was associated with recipient prion protein genotype at codon 96 with the GG96 recipient incubating for 25.6 months and the GS96 recipient incubating for 43.6 months. This study

complements and supports an earlier finding that CWD can be transmitted to deer by intravenous blood transfusion from white-tailed deer with CWD.

Chronic wasting disease (CWD) is a naturally occurring transmissible spongiform encephalopathy (TSEs) of cervids. Other TSEs include scrapie in sheep and goats, bovine spongiform encephalopathy (BSE), and sporadic and familial Creutzfeldt-Jakob disease (CJD) in humans. The CWD agent has a wide host range among various species of free- ranging and captive cervids, including mule deer (Odocoileus hemi-onus) (Williams & Young, 1980; Spraker et al., 1997; Miller & Wild, 2004), white-tailed deer (Odocoileus virginianus) (Spraker et al., 1997; Miller & Wild, 2004), Rocky Mountain elk (Cervus elaphus nelsoni) (Williams & Young, 1982), moose (Alces alces shirasi) (Baeten et al., 2007; Kreeger et al., 2006), and reindeer (Rangifer tarandus tarandus) (Benestad et al., 2016; Moore et al., 2016). The infectious agent of CWD may be transmitted from ingestion of prions shed in bodily fluids (e.g. feces, urine, saliva) or placenta tissue of infected animals, contaminated pastures, and/or decomposing carcasses from dead animals (Haley et al., 2011; Haley et al., 2009; Mathiason et al., 2010; Mathiason et al., 2006). A limited number of reports have demonstrated prion infectivity in whole blood or blood fractions of CWD infected animals (Mathiason et al., 2010; Mathiason et al., 2006; Kramm et al., 2017). To determine if CWD-infected blood contained sufficient levels of prion infectivity to cause disease, recipient deer consisting of three female deer of approximately 2 years of age were inoculated intravenously (IV) with 100 mL of blood immediately after collection from a CWD-infected white-tailed deer (animal ID: 936). Deer 936 was a 21.8-month-old male white-tailed deer that was intracranially (IC) inoculated with 1 mL of a 10% (wt./vol) brain homogenate (derived from a pool of white- tailed deer brainstem material from Wisconsin) at 3 months of age. The procedure for IC inoculation of fawns has been described previously (Greenlee et al., 2011). Donor deer 936 presented with clinical signs of neurologic disease approximately ~17.8 months post inoculation at which time blood was collected by jugular venipuncture into 50 mL syringes containing 7 mL of citrate phosphate dextrose adenine solution anticoagulant (CPDA-1) that were immediately pooled and used as inoculum. Deer 936 was determined CWD positive based on accumu-lation of abnormal prion protein (PrPSc) by immunohistochemistry (IHC) in the brainstem at the level of the obex, the palatine tonsil, and the retropharyngeal lymph node (RLN). Recipient deer were initially housed in separate biosafety level 2 facilities following exposure to CWD. Non-inoculated control deer (n =3) were kept with the CWD-free herd on pasture at the National Animal Disease Center. All white-tailed deer (including donor animals) were genotyped and determined to be homozygous QQ at codons 95 and 226, but there were polymorphisms at codon 96. The donor deer (936) and two recipient deer (940, 942) were homozygous G at codon 96, and a single recipient deer (941) was het-erozygous GS at codon 96.

The animals were fed pelleted growth and maintenance rations that contained no ruminant protein, and clean water was available ad libi-tum. Deer were observed daily for the development of clinical signs of CWD (e.g., behavioral abnormalities, excess salivation, and emaciation) and were euthanized at the onset of unequivocal clinical signs of disease, or at the end of the observation period. At necropsy, duplicate tissue samples were collected and either frozen or stored in 10% buffered neutral formalin. For detection of PrPSc, slides were stained by an automated immunohistochemistry (IHC) method using primary anti-body F99/F96.7.1, described previously (Greenlee et al., 2012; Greenlee et al., 2006).

At the completion of the study, two of the three IV inoculated deer were determined CWD positive. The two positive deer presented with clinical signs and were euthanized at 25.6- and 43.6-months post inoculation. These deer had detectable pathogenic prion protein (PrPSc) in the CNS and various non-CNS tissues (lymphoid tissues comprised of retropharyngeal lymph node (RPLN), tonsils (palatine and pharyngeal), spleen, recto-anal mucosa-associated lymphoid tissue (RAMALT), gut- associated lymphoid tissue (GALT) of the small intestines, and the enteric nervous system (Table 1). Deer #942 was euthanized 2.9 months post inoculation due to intercurrent disease, and no PrPSc was detectable by IHC, although it's probable that this deer would have developed CWD given a longer duration of incubation.

This study complements and reinforces earlier findings that CWD can be transmitted to deer by intravenous blood transfusion from white- tailed deer with CWD (Mathiason et al., 2010; Mathiason et al., 2006). In a previous study, a group of eight, 6-month-old fawns were IV inoculated with ~250 mL of whole blood derived from experimentally IC inoculated CWD positive white-tailed deer (Mathiason et al., 2010). In this study, all eight deer were determined to be CWD positive by IHC of all relevant tissues, and began to show clinical signs of TSE between 15 and 26 months post inoculation (Mathiason et al., 2010). While similar results were obtained in our study, we determined that only 100 mL of CWD-infected blood contained sufficient levels of prion infectivity to cause disease compared to the 250 mL of whole blood used by Mathiason et al. (Mathiason et al., 2010). In an earlier study, a cohort of three 6-month-old white-tailed deer fawns were exposed to the agent of CWD via either a single intraperitoneal (IP) inoculation (n =2) or an IV transfusion (n =1) of blood derived from a naturally infected CWD positive mule deer (Mathiason et al.,

2006). Similar to our findings, the fawn that received blood via IV transfusion had detectable PrPSc in the CNS (medulla at the level of the obex), tonsil, and retropharyngeal lymph nodes (Mathiason et al., 2006); however, it did not present with clinical signs and was euthanized 18 months post inoculation (Mathia-son et al., 2006).

We demonstrate here that the CWD agent can be successfully transmitted to white-tailed deer by a single intravenous blood trans-fusion from CWD-infected white-tailed deer. The incubation period appeared to be associated with recipient genotype with the GG96 deer (940) incubating for 25.6 months, while the GS96 deer (941) incubated for 43.6 months; however, we take into consideration the limitation of the small sample size in this study. While a previous and larger study showed similar results, we determined that only 100 mL of CWD- infected blood (~2.5 times less than previously shown in (Mathiason et al., 2010)) contained sufficient levels of prion infectivity to cause disease. The identification of blood-borne transmission of the CWD agent is important in reinforcing the risk of exposure to CWD via blood as well as the possibility of hematogenous transmission of the CWD agent through insect vector. Finally, these results further highlight the importance of developing a sensitive and reproducible blood-based test to detect pre-clinical CWD, and warrant the continued advancement and evaluation of sensitive antemortem diagnostic tests for the detection of PrPSc in blood of asymptomatic cervids early in the incubation period.

We demonstrate here that the CWD agent can be successfully transmitted to white-tailed deer by a single intravenous blood trans-fusion from CWD-infected white-tailed deer. The incubation period appeared to be associated with recipient genotype with the GG96 deer (940) incubating for 25.6 months, while the GS96 deer (941) incubated for 43.6 months; however, we take into consideration the limitation of the small sample size in this study. While a previous and larger study showed similar results, we determined that only 100 mL of CWD- infected blood (~2.5 times less than previously shown in (Mathiason et al., 2010)) contained sufficient levels of prion infectivity to cause disease. The identification of blood-borne transmission of the CWD agent is important in reinforcing the risk of exposure to CWD via blood as well as the possibility of hematogenous transmission of the CWD agent through insect vector. Finally, these results further highlight the importance of developing a sensitive and reproducible blood-based test to detect pre-clinical CWD, and warrant the continued advancement and evaluation of sensitive antemortem diagnostic tests for the detection of PrPSc in blood of asymptomatic cervids early in the incubation period.

Funding This research was supported in part by an appointment to the Agricultural Research Service (ARS) Research Participation Program administered by the Oak Ridge Institute for Science and Education (ORISE) through an interagency agreement between the U.S. Department of Energy (DOE) and the U.S. Department of Agriculture (USDA). ORISE is managed by ORAU under DOE contract number DE- SC0014664. All opinions expressed in this paper are the author's and do not necessarily reflect the policies and views of USDA, ARS, DOE, or ORAU/ORISE. This research was funded in its entirety by congressionally appropriated funds to the United States Department of Agriculture, Agricultural Research Service. The funders of the work did not influence study design, data collection and analysis, decision to publish, or the preparation of the manuscript.

www.sciencedirect.com/science/article/pii/S003452882031047X/pdfft?md5=a5dcc2fc3d28cc1b83104420277a1ea4&pid=1-s2.0-S003452882031047X-main.pdf

www.sciencedirect.com/science/article/pii/S003452882031047X?via%3Dihub

PRION CONFERENCE 2022 ABSTRACTS CWD TSE PrP ZOONOSIS and ENVIRONMENTAL FACTORS

Chronic wasting disease detection in environmental and biological samples from a taxidermy site

Paulina Sotoa,b, J. Hunter Reedc, Mitch Lockwoodc, and Rodrigo Moralesa,b aDepartment of Neurology, McGovern Medical School, University of Texas Health Science Center at Houston, Texas, USA; bUniversidad Bernardo O'Higgins, Santiago, Chile; cTexas Parks and Wildlife Department, Texas, USA

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy affecting captive and free-ranging cervids (e.g., mule deer, white-tailed deer, elk, reindeer, and moose). Nowadays, CWD is widely distributed in North America. It is suggested that CWD spreads due to direct animal contact or through exposure to contaminated environments previously inhabited by infected animals. CWD may also be spread through the movement of infected animals and carcasses. Taxidermy practices involve processing deer tissues (or whole animal carcasses). In many cases, the CWD status of processed animals is unknown. This can generate risks of disease spread and transmission. Taxidermy practices include different steps involving physical, chemical, and biological procedures. Without proper tissue handling or disposal practices, taxidermist facilities may become a focus of prion infectivity.

Aims: In this study, we evaluated the presence of infectious prions in a taxidermy facility believed to be exposed to CWD. Detection was performed using the Protein Misfolding Cyclic Amplification (PMCA) technique in biological and inert environmental samples. Methods: We collected biological and environmental samples (plants, soils, insects, excreta, and others) from a taxidermy facility, and we tested these samples using the PMCA technique. In addition, we swabbed different surfaces possibly exposed to CWD-infected animals. For the PMCA reaction, we directly used a swab piece or 10 µL of 20% w/v homogenized samples. Results: The PMCA analysis demonstrated CWD seeding activity in some of the components of this facility, including insects involved in head processing, soils, and a trash dumpster.

Conclusions: Different areas of this property were used for various taxidermy procedures. We were able to detect the presence of prions in

i) soils that were in contact with the heads of dead animals,

ii) insects involved in the cleaning of skulls, and

iii) an empty dumpster where animal carcasses were previously placed.

This is the first report demonstrating that swabbing is a helpful method to screen for prion infectivity on surfaces potentially contaminated with CWD. These findings are relevant as this swabbing and amplification strategy may be used to evaluate the disease status of other free-ranging and captive settings where there is a concern for CWD transmissions, such as at feeders and water troughs with CWD-exposed properties. This approach could have substantial implications for free-ranging cervid surveillance as well as in epidemiological investigations of CWD.

Carrot plants as potential vectors for CWD transmission

Paulina Sotoa,b, Francisca Bravo-Risia,b, Claudio Sotoa, and Rodrigo Moralesa,b
aDepartment of Neurology, McGovern Medical School, University of Texas Health Science Center at Houston, Texas, USA; bUniversidad Bernardo O'Higgins, Santiago, Chile

Prion diseases are infectious neurodegenerative disorders afflicting humans and other mammals. These diseases are generated by the misfolding of the cellular prion protein into a disease-causing isoform. Chronic wasting disease (CWD) is a prevalent prion disease affecting cervids (captive and free-range). CWD is thought to be transmitted through direct animal contact or by indirect exposure to contaminated environments. Many studies have

shown that infectious prions can enter the environment through saliva, feces, or urine from infected animals and decaying carcasses. However, we do not fully understand the specific contribution of each component to disease transmission events. Plants are logical environmental components to be evaluated since they grow in environments contaminated with CWD prions and are relevant for animal and human nutrition.

Aims: The main objective of this study is to study whether prions are transported to the roots and leaves of carrots, an edible plant commonly used in the human diet and as deer bait.

Methods: We have grown carrot plants in CWD-infected soils. After 90 days, we harvested the carrots and separated them from the leaves. The experiment was controlled by growing plants in soil samples treated with brain extracts from healthy animals. These materials were interrogated for their prion seeding activity using the Protein Misfolding Cyclic Amplification (PMCA) technique. Infectivity was evaluated in mouse bioassays (intracerebral injections in Tg1536 mice). The animals were sacrificed when they showed established signs of prion disease. Animals not displaying clinical signs were sacrificed at 600 days post-inoculation.

Results: The PMCA analysis demonstrated CWD seeding activity in soils contaminated with CWD prions, as well as in carrot plants (leaves and roots) grown on them. Bioassays demonstrated that both leaves and roots contained CWD prions in sufficient quantities to induce disease (92% attack rate). As expected, animals treated with prion-infected soils developed prion disease at shorter incubation periods (and complete attack rates) compared to plant components. Animals treated with soil and plant components exposed with CWD-free brain extracts did not display prion-associated clinical signs or evidence of sub-clinical prion infection.

Conclusions: We show that edible plant components can absorb prions from CWD contaminated soils and transport them to their aerial parts. Our results indicate that plants could participate as vectors of CWD transmission. Importantly, plants designated for human consumption represent a risk of introducing CWD prions into the human food chain.

Large-scale PMCA screening of retropharyngeal lymph nodes and in white-tailed deer and comparisons with ELISA and IHC: the Texas CWD study

Rebeca Benaventea, Paulina Sotoa, Mitch Lockwoodb, and Rodrigo Moralesa
aDepartment of Neurology, McGovern Medical School, University of Texas Health Science Center at Houston, Texas, USA; bTexas Park and Wildlife Department, Texas, USA

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy that affects various species of cervids, and both free-ranging and captive animals. Until now, CWD has been detected in 3 continents: North America, Europe, and Asia. CWD prevalence in some states may reach 30% of total animals. In Texas, the first case of CWD was reported in a free-range mule deer in Hudspeth and now it has been detected in additional 14 counties. Currently, the gold standard techniques used for CWD screening and detection are ELISA and immunohistochemistry (IHC) of obex and retropharyngeal lymph nodes (RPLN). Unfortunately, these methods are known for having a low diagnostic sensitivity. Hence, many CWD-infected animals at pre-symptomatic stages may be misdiagnosed. Two promising in vitro prion amplification techniques, including the real-time quaking-induced conversion (RT-QuIC) and the protein misfolding cyclic amplification (PMCA) have been used to diagnose

CWD and other prion diseases in several tissues and bodily fluids. Considering the low cost and speed of RT-QuIC, two recent studies have communicated the potential of this technique to diagnose CWD prions in RPLN samples. Unfortunately, the data presented in these articles suggest that identification of CWD positive samples is comparable to the currently used ELISA and IHC protocols. Similar studies using the PMCA technique have not been reported.

Aims: Compare the CWD diagnostic potential of PMCA with ELISA and IHC in RPLN samples from captive and free-range white-tailed deer. Material and Methods: In this study we analyzed 1,003 RPLN from both free-ranging and captive white-tailed deer collected in Texas. Samples were interrogated with the PMCA technique for their content of CWD prions. PMCA data was compared with the results obtained through currently approved techniques.

Results: Our results show a 15-fold increase in CWD detection in free-range deer compared with ELISA. Our results unveil the presence of prion infected animals in Texas counties with no previous history of CWD. In the case of captive deer, we detected a 16% more CWD positive animals when compared with IHC. Interestingly, some of these positive samples displayed differences in their electroforetic mobilities, suggesting the presence of different prion strains within the State of Texas.

Conclusions: PMCA sensitivity is significantly higher than the current gold standards techniques IHC and ELISA and would be a good tool for rapid CWD screening.

https://www.tandfonline.com/doi/full/10.1080/19336896.2022.2091286

SEE THE LATEST ON CWD TSE PRION ZOONOSIS;

MONDAY, SEPTEMBER 12, 2022

Transmission of prion infectivity from CWD-infected macaque tissues to rodent models demonstrates the zoonotic potential of chronic wasting disease

https://chronic-wasting-disease.blogspot.com/2022/09/transmission-of-prion-infectivity-from.html

RE: Inactivation of porcine endogenous retrovirus in pigs using CRISPR-Cas9

TERRY S. SINGELTARY SR.

- retired
- Mr.

seems that the USA feed ban for ruminant protein is still a serious problem, so there seems to still be a risk factor for pigs and Transmissible Spongiform Encephalopathy TSE prion disease. now with the updated science showing that pigs are susceptible to the Chronic Wasting Disease TSE Prion ORALLY, and cwd running rampant in the USA, any use of porcine organs should be tested for the CWD TSE Prion...

Research Project: TRANSMISSION, DIFFERENTIATION, AND PATHOBIOLOGY OF TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES

Location: Virus and Prion Research

Title: Disease-associated prion protein detected in lymphoid tissues from pigs challenged with the agent of chronic wasting disease

Author item Moore, Sarah item Kunkle, Robert item Kondru, Naveen item Manne, Sireesha item Smith, Jodi item Kanthasamy, Anumantha item West Greenlee, M item Greenlee, Justin

Submitted to: Prion Publication Type: Abstract Only Publication Acceptance Date: 3/15/2017
Publication Date: N/A Citation: N/A Interpretive Summary:
Technical Abstract: Aims: Chronic wasting disease (CWD) is a naturally-occurring, fatal neurodegenerative disease of cervids. We previously demonstrated that disease-associated prion protein (PrPSc) can be detected in the brain and retina from pigs challenged intracranially or orally with the CWD agent. In that study, neurological signs consistent with prion disease were observed only in one pig: an intracranially challenged pig that was euthanized at 64 months post-challenge. The purpose of this study was to use an antigen-capture immunoassay (EIA) and real-time quaking-induced conversion (QuIC) to determine whether PrPSc is present in lymphoid tissues from pigs challenged with the CWD agent.

Methods: At two months of age, crossbred pigs were challenged by the intracranial route (n=20), oral route (n=19), or were left unchallenged (n=9). At approximately 6 months of age, the time at which commercial pigs reach market weight, half of the pigs in each group were culled (<6 month challenge groups). The remaining pigs (>6 month challenge groups) were allowed to incubate for up to 73 months post challenge (mpc). The retropharyngeal lymph node (RPLN) was screened for the presence of PrPSc by EIA and immunohistochemistry (IHC). The RPLN, palatine tonsil, and mesenteric lymph node (MLN) from 6-7 pigs per challenge group were also tested using EIA and QuIC.

Results: PrPSc was not detected by EIA and IHC in any RPLNs. All tonsils and MLNs were negative by IHC, though the MLN from one pig in the oral <6 month group was positive by EIA. PrPSc was detected by QuIC in at least one of the lymphoid tissues examined in 5/6 pigs in the intracranial <6 months group, 6/7 intracranial >6 months group, 5/6 pigs in the oral <6 months group, and 4/6 oral >6 months group. Overall, the MLN was positive in 14/19 (74%) of samples examined, the RPLN in 8/18 (44%), and the tonsil in 10/25 (40%). Conclusions:
This study demonstrates that PrPSc accumulates in lymphoid tissues from pigs challenged intracranially or orally with the CWD agent, and can be detected as early as 4 months after challenge.

CWD-infected pigs rarely develop clinical disease and if they do, they do so after a long incubation period. This raises the possibility that CWD-infected pigs could shed prions into their environment long before they develop clinical disease.

Furthermore, lymphoid tissues from CWD-infected pigs could present a potential source of CWD infectivity in the animal and human food chains.

www.ars.usda.gov/research/publications/publication/?seqNo115=337105

EXPERIMENTAL PORCINE SPONGIFORM ENCEPHALOPATHY

While this clearly is a cause for concern we should not jump to the conclusion that this means that pigs will necessarily be infected by bone and meat meal fed by the oral route as is the case with cattle. ...

http://web.archive.org/web/20031026000118/www.bseinquiry.gov.uk/files/yb/1990/08/23004001.pdf

we cannot rule out the possibility that unrecognised subclinical spongiform encephalopathy could be present in British pigs though there is no evidence for this: only with parenteral/implantable pharmaceuticals/devices is the theoretical risk to humans of sufficient concern to consider any action.

http://web.archive.org/web/20030822031154/www.bseinquiry.gov.uk/files/yb/1990/09/10007001.pdf

Our records show that while some use is made of porcine materials in medicinal products, the only products which would appear to be in a hypothetically "higher risk" area are the adrenocorticotrophic hormone for which the source material comes from outside the United Kingdom, namely America China Sweden France and Germany. The products are manufactured by Ferring and Armour. A further product, "Zenoderm Corium implant" manufactured by Ethicon, makes use of porcine skin - which is not considered to be a "high risk" tissue, but one of its uses is described in the data sheet as "in dural replacement". This product is sourced from the United Kingdom.....

http://web.archive.org/web/20030822054419/www.bseinquiry.gov.uk/files/yb/1990/09/21009001.pdf

snip...see much more here ;

Terry S. Singeltary Sr.

https://www.science.org/do/10.1126/comment.697946/full/

Very low oral exposure to prions of brain or saliva origin can transmit chronic wasting disease

Nathaniel D. Denkers ,Clare E. Hoover ,Kristen A. Davenport,Davin M. Henderson,Erin E. McNulty,Amy V. Nalls,Candace K. Mathiason,Edward A. Hoover

Published: August 20, 2020

https://doi.org/10.1371/journal.pone.0237410

We report that oral exposure to as little as 300 nanograms (ng) of CWD-positive brain or to saliva containing seeding activity equivalent to 300 ng of CWD-positive brain, were sufficient to transmit CWD disease. This was true whether the inoculum was administered as a single bolus or divided as three weekly 100 ng exposures. However, when the 300 ng total dose was apportioned as 10, 30 ng doses delivered over 12 weeks, no infection occurred. While low-dose exposures to prions of brain or saliva origin prolonged the time from inoculation to first detection of infection, once infection was established, we observed no differences in disease pathogenesis. These studies suggest that the CWD minimum infectious dose approximates 100 to 300 ng CWD-positive brain (or saliva equivalent), and that CWD infection appears to conform more with a threshold than a cumulative dose dynamic.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237410

TUESDAY, NOVEMBER 29, 2022

CHRONIC WASTING DISEASE DETECTION AND MANAGEMENT: WHAT HAS WORKED AND WHAT HAS NOT?

https://chronic-wasting-disease.blogspot.com/2022/11/chronic-wasting-disease-detection-and.html

Control of Chronic Wasting Disease OMB Control Number: 0579-0189 APHIS-2021-0004 Singeltary Submission

https://www.regulations.gov/comment/APHIS-2021-0004-0002

https://downloads.regulations.gov/APHIS-2021-0004-0002/attachment_1.pdf

Docket No. APHIS-2018-0011 Chronic Wasting Disease Herd Certification

https://www.regulations.gov/document/APHIS-2018-0011-0003

https://downloads.regulations.gov/APHIS-2018-0011-0003/attachment_1.pdf

APHIS Indemnity Regulations [Docket No. APHIS-2021-0010] RIN 0579-AE65 Singeltary Comment Submission

Comment from Singeltary Sr., Terry

Posted by the **Animal and Plant Health Inspection Service** on Sep 8, 2022

https://www.regulations.gov/comment/APHIS-2021-0010-0003

https://downloads.regulations.gov/APHIS-2021-0010-0003/attachment_1.pdf

2019

FSIS [Docket No. FSIS–2019–0021] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials Singeltary Submission

Subject: FSIS [Docket No. FSIS20190021] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials

Singeltary Submission

Food Safety and Inspection Service [Docket No. FSIS20190021] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials

Greetings FSIS et al,

I would kindly like to comment on the following docket;

[Docket No. FSIS20190021] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials

Federal Docket SRM TSE Prion

DEPARTMENT OF AGRICULTURE

Food Safety and Inspection Service [Docket No. FSIS20190021]

Notice of Request To Renew an Approved Information Collection: Specified Risk Materials

AGENCY: Food Safety and Inspection Service, USDA.

ACTION: Notice and request for comments.

https://www.govinfo.gov/content/pkg/FR-2019-09-10/pdf/2019-19443.pdf

This information is critical, and should continue to be collected.

The TSE prion is spreading across the USA in Cervid as in CWD TSE Prion.

The mad cow surveillance, feed ban, testing, and SRM removal there from, has been, and still is, a terrible failure.

WE know that the USA Food and Drug Administration's BSE Feed Regulation (21 CFR 589.2000) of August 1997 was/is a colossal failure, and proven to be so year after year, decade after decade, and this was just admitted by the FDA et al (see below FDA Reports on VFD Compliance Sept. 2019 report).

God, all these decades you hear from all the warning letters on SRM that were released to the public for consumption, that even if they did eat a SRM, the BSE Feed Regulation (21 CFR 589.2000) of August 1997 would save that tissue from that animal from having a TSE Prion, was nothing but lies. what about those children all across the USA that were fed the most high risk cattle for mad cow disease, i.e. dead stock downer cows via the USDA School lunch program, who will watch those kids for the next 50 years for cjd tse prion aka mad cow disease, let alone all the folks consuming SRMs that have been exposed to mad cow type disease in different livestock species, due to the fact the USA colossal failure of the BSE Feed Regulation (21 CFR 589.2000) of August 1997. it's all documented below, see for yourself;

SUNDAY, SEPTEMBER 1, 2019

FDA Reports on VFD Compliance

LET THIS STATEMENT SINK IN!

Before and after the current Veterinary Feed Directive (VFD) rules took full effect in January, 2017, the FDA focused primarily on education and outreach to help feed mills, veterinarians and producers understand and comply with the requirements. Since then, FDA has gradually increased the number of VFD inspections and initiated enforcement actions when necessary.

SNIP...

https://www.fda.gov/media/130382/download

the rest is trying to make it sound like compliance was great...let's just see the facts shall we;

https://bovineprp.blogspot.com/2019/09/fda-reports-on-vfd-compliance.html

http://specifiedriskmaterial.blogspot.com/

WEDNESDAY, JULY 31, 2019

The agent of transmissible mink encephalopathy passaged in sheep is similar to BSE-L

https://transmissible-mink-encephalopathy.blogspot.com/2019/07/the-agent-of-transmissible-mink.html

THURSDAY, AUGUST 08, 2019

Raccoons accumulate PrPSc after intracranial inoculation with the agents of chronic wasting disease (CWD) or transmissible mink encephalopathy (TME) but not atypical scrapie

https://chronic-wasting-disease.blogspot.com/2019/08/raccoons-accumulate-prpsc-after.html

In the USA, USDA et al sometimes serves SRMs up as appetizers or horderves.

Thursday, November 28, 2013

Department of Justice Former Suppliers of Beef to National School Lunch Program Settle Allegations of Improper Practices and Mistreating Cows

http://madcowusda.blogspot.com/2013/11/department-of-justice-former-suppliers.html

DID YOUR CHILD CONSUME SOME OF THESE DEAD STOCK DOWNER COWS, THE MOST HIGH RISK FOR MAD COW DISEASE ???

this recall was not for the welfare of the animals. ...tss you can check and see here ; (link now dead, does not work...tss)

http://www.fns.usda.gov/fns/safety/pdf/Hallmark-Westland_byState.pdf

http://web.archive.org/web/20100413182327/http://www.fns.usda.gov/fns/safety/pdf/Hallmark-Westland_byState.pdf

http://downercattle.blogspot.com/2013/09/school-food-authorities-affected-by.html

WEDNESDAY, APRIL 24, 2019

***> USDA Announces Atypical Bovine Spongiform Encephalopathy Detection Aug 29, 2018 A Review of Science 2019

https://bse-atypical.blogspot.com/2019/04/usda-announces-atypical-bovine.html

SATURDAY, JUNE 1, 2019

Traceability of animal protein byproducts in ruminants by multivariate analysis of isotope ratio mass spectrometry to prevent transmission of prion diseases

https://bovineprp.blogspot.com/2019/06/traceability-of-animal-protein.html

CONTINUED IN FILE ATTACHMENT, about 27 pages...terry

https://www.regulations.gov/comment/FSIS-2019-0021-0002

SEE FULL SUBMISSION IN ATTACHMENT;

SRM Federal Docket Singeltary Submission 2019

https://downloads.regulations.gov/FSIS-2019-0021-0002/attachment_1.pdf

downloads.regulations.gov/FSIS-2019-0021-0002/attachment_1.pdf

Tuesday, September 10, 2019

FSIS [Docket No. FSIS–2019–0021] Notice of Request To Renew an Approved Information Collection: Specified Risk Materials Singeltary Submission

https://specifiedriskmaterial.blogspot.com/2019/09/fsis-docket-no-fsis20190021-notice-of.html

WHY IS THE USDA, FSIS, APHIS, FDE, ET AL ONLY TESTING 25K BOVINES FOR MAD COW DISEASE ANNUALLY? ($$$)

USDA, FSIS, APHIS, FDA, HISTORY OF TESTING FOR BOVINE SPONGIFORM ENCEPHALOPATHY BSE TSE PRION AKA MAD COW DISEASE

USDA BSE Surveillance Information Center

Introduction USDA conducts surveillance for Bovine spongiform encephalopathy (BSE), referred to as "mad cow disease", in cattle to determine if, and at what level, the disease is present in the U.S. cattle population. Our surveillance program allows us to assess any change in the BSE disease status of U.S. cattle, and identify any rise in BSE prevalence in this country. Identifying any changes in the prevalence of disease allows us to match our preventive measures - feed ban for animal health, and specified risk material removal for public health - to the level of disease in U.S. cattle.

It is the longstanding system of interlocking safeguards, including the removal of specified risk materials - or the parts of an animal that would contain BSE - at slaughter and the FDA's ruminant-to-ruminant feed ban that protect public and animal health from BSE.

Why did USDA decrease the number of samples per year in 2006? After the first confirmation of BSE in an animal in Washington State in December 2003, USDA evaluated its BSE surveillance efforts in light of that finding. We determined that we needed to immediately conduct a major surveillance effort to help determine the prevalence of BSE in the United States. Our goal over a 12-18 month period was to obtain as many samples as possible from the segments of the cattle population where we were most likely to find BSE if it was present. This population of cattle was exhibiting some signs of disease. We conducted this enhanced surveillance effort from June 2004 - August 2006. In that time, we collected a total of 787,711 samples and estimated the prevalence of BSE in the United States to be between 4-7 infected animals in a population of 42 million adult cattle. We consequently modified our surveillance efforts based on this prevalence estimate to a level we can monitor for any potential changes, should they occur. Our statistical analysis indicated that collecting approximately 40,000 samples per year from the targeted cattle population would enable us to conduct this monitoring.

Why is USDA "only" testing 25,000 samples a year? USDA's surveillance strategy is to focus on the targeted populations where we are most likely to find disease if it is present. This is the most effective way to meet both OIE and our domestic surveillance standards. After completing our enhanced surveillance in 2006 and confirming that our BSE prevalence was very low, an evaluation of the program showed that reducing the number of samples collected to 40,000 samples per year from these targeted, high risk populations would allow us to continue to exceed these standards. In fact, the sampling was ten times greater than OIE standards. A subsequent evaluation of the program in 2016 using data collected over the past 10 years showed that the surveillance standards could still be met with a further reduction in the number of samples collected by renderers and 3D/4D establishments which have a very low OIE point value because the medical history of these animals is usually unknown. Therefore, in 2016, the number of samples to be tested was reduced to 25,000 where it remains today.

How can USDA find every case of BSE in the United States when you are only testing 25,000 animals? The goal of our BSE surveillance program, even under the enhanced program, has never been to detect every case of BSE. Our goal is determine whether the disease exists at very low levels in the U.S. cattle population, and we do

this by testing those animals most likely to have BSE. It is the longstanding system of interlocking safeguards, including the removal of specified risk materials - or the parts of an animal that would contain BSE - at slaughter and the FDA's ruminant-to- ruminant feed ban that protect public and animal health from BSE.

Why didn't USDA continue to test animals at the enhanced surveillance level? USDA's 2004-2006 enhanced surveillance program was initiated in response to the first detection of BSE in the United States and was designed to detect the overall prevalence of the disease in this country. This required a very intensive effort and it allowed us to estimate extremely low prevalence levels of disease. Once that prevalence level was determined, USDA modified its testing levels to monitor any changes in the level of disease. Our current testing of approximately 25,000 targeted animals a year allows USDA to detect BSE at the very low level of less than 1 case per million adult cattle, assess any change in the BSE status of U.S. cattle, and identify any rise in BSE prevalence in this country.

Is USDA's surveillance program a food safety or public health measure? The primary, and most effective, food safety or public health measure is the removal of specified risk materials (SRMs) - or the parts of an animal that would contain BSE - from every animal at slaughter. USDA's BSE surveillance program is not a food safety measure; it is an animal health monitoring measure. However, it does support existing public health and food safety measures. By allowing us to monitor the level of disease in the US cattle population, we can help determine the appropriate level of public health and animal health measures required, and whether they should be increased or decreased.

Why doesn't USDA test every animal at slaughter? There is currently no test to detect the disease in a live animal. BSE is confirmed by taking samples from the brain of an animal and testing to see if the infectious agent - the abnormal form of the prion protein - is present. The earliest point at which current tests can accurately detect BSE is 2 to 3 months before the animal begins to show symptoms, and the time between initial infection and the appearance of symptoms is about 5 years. Therefore, there is a long period of time during which current tests would not be able to detect the disease in an infected animal.

Since most cattle are slaughtered in the United States at a young age, they are in that period where tests would not be able to detect the disease if present. Testing all slaughter cattle for BSE could produce an exceedingly high rate of false negative test results and offer misleading assurances of the presence or absence of disease.

Simply put, the most effective way to detect BSE is not to test all animals, which could lead to false security, but to test those animals most likely to have the disease, which is the basis of USDA's current program.

What animals are USDA testing in the surveillance program? These are random samples at slaughter, aren't they? No. USDA's BSE surveillance program is specifically targeted to the population most likely to have the disease, if it is present. This population is NOT clinically healthy animals that would be presented for slaughter. Rather, it includes animals that have some type of abnormality, such as central nervous system signs; non-ambulatory, or a "downer"; emaciated; or died for unknown reasons. Because these animals would not pass the required ante-mortem inspection requirements at slaughter for human consumption, we collect the majority of our samples at facilities other than slaughter facilities - at rendering or salvage facilities, on-farm, at veterinary clinics or veterinary diagnostic laboratories. With this targeted approach, we can monitor the presence of disease in the US cattle population in a much more efficient and meaningful way. The key to surveillance is to look where the disease is going to occur.

Key Points: BSE Ongoing Surveillance Plan Note: This Fact Sheet is based on the USDA Animal and Plant Health Inspection Service (APHIS) Bovine Spongiform Encephalopathy (BSE) Ongoing Surveillance Plan, July 20, 2006. To learn more, read the complete BSE Ongoing Surveillance Plan (PDF, 187 KB).

KEY POINTS In addition to a stringent feed ban imposed by the Food and Drug Administration in 1997 as well as the removal of all specified risk material which could harbor BSE, USDA has a strong surveillance program in place to detect signs of BSE in cattle in the United States. In fact, we test for BSE at levels greater than World Animal Health Organization standards. The program samples approximately 25,000 animals each year and targets cattle populations where the disease is most likely to be found. The targeted population for ongoing surveillance focuses on cattle exhibiting signs of central nervous disorders or any other signs that may be associated with BSE, including emaciation or injury, and dead cattle, as well as non-ambulatory animals.

Samples from the targeted population are taken at farms, veterinary diagnostic laboratories, public health laboratories, slaughter facilities, veterinary clinics, and livestock markets.

USDA's National Veterinary Services Laboratories (NVSL) in Ames, IA, along with contracted veterinary diagnostic laboratories, use rapid screening tests as the initial screening method on all samples. Any inconclusive samples undergo further testing and analysis at NVSL.

NOT A FOOD SAFETY TEST BSE tests are not conducted on cuts of meat, but involve taking samples from the brain of a dead animal to see if the infectious agent is present. We know that the earliest point at which current tests can accurately detect BSE is 2-to-3 months before the animal begins to show symptoms. The time between initial infection and the appearance of symptoms is about 5 years. Since most cattle that go to slaughter in the United States are both young and clinically normal, testing all slaughter cattle for BSE might offer misleading assurances of safety to the public.

The BSE surveillance program is not for the purposes of determining food safety. Rather, it is an animal health surveillance program. USDA's BSE surveillance program allows USDA to detect the disease if it exists at very low levels in the U.S. cattle population and provides assurances to consumers and our international trading partners that the interlocking system of safeguards in place to prevent BSE are working.

The safety of the U.S. food supply from BSE is assured by the removal of specified risk materials - those tissues known to be infective in an affected animal - from all human food. These requirements have been in place since 2004.

ONGOING BSE SURVEILLANCE PROGRAM SUMMARY USDA's BSE surveillance program samples approximately 25,000 animals each year and targets cattle populations where the disease is most likely to be found. The statistically valid surveillance level of 25,000 is consistent with science-based internationally accepted standards. This level allows USDA to detect BSE at the very low level of less than 1 case per million adult cattle, assess any change in the BSE status of U.S. cattle, and identify any rise in BSE prevalence in this country.

The targeted population for ongoing surveillance focuses on cattle exhibiting signs of central nervous disorders or any other signs that may be associated with BSE, including emaciation or injury, and dead cattle, as well as nonambulatory animals. Samples from the targeted population are taken at farms, veterinary diagnostic laboratories, public health laboratories, slaughter facilities, veterinary clinics, and livestock markets.

USDA's National Veterinary Services Laboratories (NVSL) in Ames, IA, along with contracted veterinary diagnostic laboratories, will continue to use rapid screening tests as the initial screening method on all samples. Any inconclusive samples will be sent to NVSL for further testing and analysis. USDA's surveillance program uses OIE's weighted surveillance points system, which was adopted in May 2005 and reflects international scientific consensus that the best BSE surveillance programs focus on obtaining quality samples from targeted subpopulations rather than looking at the entire adult cattle population.

The number of points a sample receives correlates directly to an animal's clinical presentation at the time of sampling. The highest point values are assigned to those samples from animals with classic clinical signs of the disease. The lowest point values correspond to clinically normal animals tested at routine slaughter.

The goal of this weighted approach is to ensure that countries sample those cattle populations where the disease is most likely to be found. This system is not different from USDA's previous BSE surveillance approach, it is simply a different method for evaluating surveillance programs. Both approaches target those cattle populations where BSE is most likely to be found. The OIE is simply assigning point values to different categories of animals.

USDA has been targeting these subpopulations since BSE surveillance was initiated in 1990, and will continue to do so under the OIE weighted approach. Under the OIE guidelines, points compiled over a period of 7 consecutive years are used as evidence of adequate surveillance. At the current ongoing level of surveillance, the United States will far exceed OIE guidelines under the point system.

https://www.usda.gov/topics/animals/bse-surveillance-information-center

MY BULLSHIT METER PEGGED OUT ON THE ABOVE BSe by USDA et al!

COMPARING the EU, to the USA, on BSE Surveillance and Testing, you can see for yourself why the EU is finding more, because they are testing more, compared to USA.

"USDA's 2004-2006 enhanced surveillance program was initiated in response to the first detection of BSE in the United States and was designed to detect the overall prevalence of the disease in this country."

I would kindly like to remind everyone of this very important document;

BSE research project final report 2005 to 2008 SE1796 SID5

I was very concerned of the BSE testing and even discussed this with Bio-Rad et al;

Audit Report

Animal and Plant Health Inspection Service

Bovine Spongiform Encephalopathy (BSE) Surveillance Program – Phase II

and

Food Safety and Inspection Service

Controls Over BSE Sampling, Specified Risk Materials, and Advanced Meat Recovery Products - Phase III

Report No. 50601-10-KC January 2006

Finding 2 Inherent Challenges in Identifying and Testing High-Risk Cattle
Still Remain Our prior report identified a number of inherent problems in
identifying and testing high-risk cattle.

snip...

https://www.usda.gov/sites/default/files/50601-10-KC.pdf

http://web.archive.org/web/20120620142046/http://www.usda.gov/oig/webdocs/50601-10-KC.pdf

BIO-RAD

> > -------- Original Message --------
> > Subject: USA BIO-RADs INCONCLUSIVEs
> > Date: Fri, 17 Dec 2004 15:37:28 -0600
> > From: "Terry S. Singeltary Sr."
> > To:
> >
> >
> >
> > Hello xxxx and Bio-Rad,
> >
> > Happy Holidays!
> >
> > I wish to ask a question about Bio-Rad and USDA BSE/TSE testing
> > and there inconclusive. IS the Bio-Rad test for BSE/TSE that
complicated,
> > or is there most likely some human error we are seeing here?

> >
> > HOW can Japan have 2 positive cows with
> > No clinical signs WB+, IHC-, HP- ,
> > BUT in the USA, these cows are considered 'negative'?
> >
> > IS there more politics working here than science in the USA?
> >
> > What am I missing?
> >
> >
> >
> > -------- Original Message --------
> > Subject: Re: USDA: More mad cow testing will demonstrate beef's safety
> > Date: Fri, 17 Dec 2004 09:26:19 -0600
> > From: "Terry S. Singeltary Sr."
> > snip...end
> >
> >
> > Experts doubt USDA's mad cow results
>
>
>
> snip...END
>
> WELL, someone did call me from Bio-Rad about this,
> however it was not xxxxxx xxxxx.
> but i had to just about take a blood oath not to reveal
> there name. IN fact they did not want me to even mention
> this, but i feel it is much much to important. I have omitted
> any I.D. of this person, but thought I must document this ;
>
> Bio-Rad, TSS phone conversation 12/28/04
>
> Finally spoke with ;
>
>
> Bio-Rad Laboratories
> 2000 Alfred Nobel Drive
> Hercules, CA 94547
> Ph: 510-741-6720
> Fax: 510-741-5630
> Email: XXXXXXXXXXXXXXXXX
>
> at approx. 14:00 hours 12/28/04, I had a very pleasant
> phone conversation with XXXX XXXXX about the USDA
> and the inconclusive BSE testing problems they seem
> to keep having. X was very very cautious as to speak
> directly about USDA and it's policy of not using WB.
> X was very concerned as a Bio-Rad official of retaliation
> of some sort. X would only speak of what other countries
> do, and that i should take that as an answer. I told X
> I understood that it was a very loaded question and X
> agreed several times over and even said a political one.
>
> my question;
>
> Does Bio-Rad believe USDA's final determination of False positive,
> without WB, and considering the new
> atypical TSEs not showing positive with -IHC and -HP ???
>
> ask if i was a reporter. i said no, i was with CJD Watch
> and that i had lost my mother to hvCJD. X did not
> want any of this recorded or repeated.
>
> again, very nervous, will not answer directly about USDA for fear of

> retaliation, but again said X tell
> me what other countries are doing and finding, and that
> i should take it from there.
> "very difficult to answer"
>
> "very political"
>
> "very loaded question"
>
> outside USA and Canada, they use many different confirmatory tech. in
> house WB, SAF, along with
> IHC, HP, several times etc. you should see at several
> talks meetings (TSE) of late Paris Dec 2, that IHC- DOES NOT MEAN IT IS
> NEGATIVE. again, look what
> the rest of the world is doing.
> said something about Dr. Houston stating;
> any screening assay, always a chance for human
> error. but with so many errors (i am assuming
> X meant inconclusive), why are there no investigations, just false
> positives?
> said something about "just look at the sheep that tested IHC- but were
> positive". ...
>
>
> TSS
>
> -------- Original Message --------
> Subject: Your questions
> Date: Mon, 27 Dec 2004 15:58:11 -0800
> From: To: flounder@wt.net
>
>
>
> Hi Terry:
>
> .....snip Let me know your phone
> number so I can talk to you about the Bio-Rad BSE test.
> Thank you
>
> Regards
>
>
>
> Bio-Rad Laboratories
> 2000 Alfred Nobel Drive
> Hercules, CA 94547
> Ph: 510-741-6720
> Fax: 510-741-5630
> Email: ==========
>
>
> END...TSS
>
>

Audit Report

Animal and Plant Health Inspection Service

Bovine Spongiform Encephalopathy (BSE) Surveillance Program – Phase II

and

Food Safety and Inspection Service

Controls Over BSE Sampling, Specified Risk Materials, and Advanced Meat Recovery Products - Phase III

Report No. 50601-10-KC January 2006

Finding 2 Inherent Challenges in Identifying and Testing High-Risk Cattle Still Remain Our prior report identified a number of inherent problems in identifying and testing high-risk cattle.

snip...

https://www.usda.gov/sites/default/files/50601-10-KC.pdf

http://web.archive.org/web/20120620142046/http://www.usda.gov/oig/webdocs/50601-10-KC.pdf

NOW, Back to this very important document, and what i suspected back then was suspicious, and sure enough, years later, i find this document;

BSE research project final report 2005 to 2008 SE1796 SID5

Executive Summary

7. The executive summary must not exceed 2 sides in total of A4 and should be understandable to the intelligent non-scientist. It should cover the main objectives, methods and findings of the research, together with any other significant events and options for new work.

Studies of Bovine Spongiform Encephalopathy (BSE), carried out in the UK, showed it to be a single strain of prion disease based on histopathological (Simmons et al., 1996) and transmission data (Bruce et al., 1992). First reported in the 1980s (Wells et al., 1987) there appears to have been little change in the characteristics of the disease throughout the epidemic and BSE maintains a distinct molecular profile even following cross species transmission. However, during surveillance programmes in Europe and in North America two other distinct isolates of bovine prion disease have come to light, H and L type, so-called to reflect their unique molecular profiles (Yamakawa et al., 2003; Biacabe et al., 2004).

Reports were also emerging of atypical forms of scrapie that were distinct from classical scrapie isolates and were less easily recognised by the then current diagnostic tests (Benestad et al., 2003; Buschman et al., 2004). This led to concerns that cattle could also harbour a prion disease that was not detected by the current diagnostic tests for BSE. Importantly, approximately 15-20% of the clinical cases submitted for investigation were indeed negative and this proportion of negative cattle did not appear to vary despite increasing awareness of BSE clinical signs by the farming and veterinary community. While there maybe other explanations for this discrepancy (McGill et al., 1993), another underlying undiagnosed prion disease of cattle distinct from classical BSE could not be ruled out.

The study reported here investigated a small number of these BSE negative clinical cases by using more sensitive and modified diagnostic tests for abnormal PrP.

The majority of the cases that we studied were negative by all the tests employed and based on this observation we conclude that there was not a simultaneous epidemic of another form

of bovine prion disease. However, we observed a number of classical cases that were missed prior to the advent of sensitive and rapid diagnostic tests and this provides an estimate of the number of cattle that were mis-diagnosed before 2000. In addition, we observed a few rare cases where the diagnostic tests were not in agreement and these cases were investigated further. One of these unusual samples emerged as a case of idiopathic bovine neuronal chromatolysis (IBNC).

During the study we also reported the first H-type BSE case in the UK (Terry et al., 2007).

snip...

Scientific Objectives as prescribed in the project:

All of the objectives have been met and are described in detail below. Three annexes accompany this report, one with the figures for the results below and two papers for submission to peer-reviewed journals.

Objective 1: To determine the variation of PK sensitivity of bovine PrPc from uninfected cattle brains and compare with bovine PrPsc from classical cases of BSE in order to set thresholds for negative, weak and strong positive values in commercially available rapid diagnostic tests. Objective 2: Determine whether there are a greater proportion of bovine brain samples positive for the rapid diagnostic tests (hereby called reactors) in the clinically-suspect, negative subset of cattle than in healthy negative cattle. (True positives will be determined on the basis of evaluation by IHC but should be strongly positive in both the rapid diagnostic tests). Objective 3: Determine whether the phenotypic and molecular characteristics of PrP from cattle identified in 2 are distinct from normal PrPc and from bovine PrPsc normally associated with classical BSE. Studies of Bovine Spongiform Encephalopathy (BSE), carried out in the UK, showed it to be a single strain of prion disease based on histopathological (Simmons et al., 1996) and transmission data (Bruce et al., 1992). First reported in the 1980s (Wells et al., 1987) there appears to have been little change in the these characteristics of the disease throughout the epidemic; BSE also appear to maintain a distinct molecular profile in cattle and even when experimentally (or naturally) transmitted to other species such as humans and cats. However, during surveillance programmes in Europe, Japan and in North America, two other distinct isolates of bovine prion disease have come to light, H and L type, so-called to reflect their unique molecular profiles (Yamakawa et al., 2003; Biacabe et al., 2004). In the late 1990's, a novel prion disease was discovered in sheep (Benestad et al., 2003; Buschman et al., 2004); this Nor98 or atypical scrapie is widespread in Europe but had previously been missed by histopathological or immunohistological examination. This led to concerns that cattle could also harbour a prion disease that, unlike H- and L-type BSE, was not detected by the current diagnostic tests for BSE. Importantly, approximately 15-20% of the clinical cases submitted for investigation were indeed negative and this proportion of negative cattle did not appear to vary despite increasing awareness of BSE clinical signs by the farming and veterinary community. While there maybe other explanations for this discrepancy (McGill et al., 1993), another underlying undiagnosed prion disease of cattle distinct from classical BSE could not be ruled out. The study reported here investigated a small number of these BSE negative clinical cases by using more sensitive and modified diagnostic tests for abnormal PrP. The majority of the cases that we studied were negative by all the tests employed and based on this observation we conclude that there was not a simultaneous epidemic of another form of bovine prion disease. However, we observed a number of cases

of BSE in this “BSE negative” sub-set that were missed prior to the advent of more sensitive and rapid diagnostic tests and this provides an estimate of the number of cattle that were mis-diagnosed before 2000. In addition, we observed a few rare cases where the diagnostic tests were not in agreement and these cases were investigated further. One of these unusual samples emerged as a case of idiopathic bovine neuronal chromatolysis (IBNC) (Jeffrey & Wilesmith, 1992; 1996; Jeffrey et al., 2009). During the study we also reported the first H-type BSE case in the UK (Terry et al., 2007). Materials and Methods Tissue samples. Test samples: Frozen brain stem from 501 bovine BSE suspects with neurological signs, a) that were negative at the level of the obex for vacuolation by standard histopathological techniques from years 1991-1999 and b) by IHC and diagnostic Bio-Rad PlateliaTM from 2000 onwards. These tissues have been stored at the VLA at –80oC since submission.

Negative controls: Frozen brain stem from 90 cattle investigated as part of the active surveillance programme. These samples were submitted in 2006 to LGC for rapid testing by Bio-Rad TeSeE diagnostic ELISA and were negative. These samples were stored at –80oC prior to testing and were stored for a maximum of 36 months and therefore considerably less time than all experimental samples under investigation.

Cattle with suppurative encephalitis: 10 additional cattle samples were retrieved from the VLA Archive that were negative for BSE but showed signs of suppurative encephalitis and inflammation (lymphocyte cuffing and gliosis). These signs were consistent with listeria infection.

Tests for disease-associated PrP IDEXX BSE Herdchek BSE antigen test kit

All samples were assayed using the IDEXX Herdchek Bovine Spongiform Encephalopathy (BSE) Antigen Test Kit, EIA according to the manufacturer’s instructions and without modification. Briefly, brains were homogenised in the buffer provided by the manufacturer and diluted prior to adding to the seprion (polyanion) coated multiwell plate and incubated prior to washing. The samples were then treated with a conditioning buffer to expose the antigen epitopes. PrPsc was detected by PrP specific antibodies conjugated to horseradish peroxidase and visualised with TMB substrate. Samples were read using a microtitre plate reader (Victor-Perkin-Elmer). The method has no Proteinase K digestion step and has only a mild trypsin treatment that is not required for specificity but aids in the epitope exposure step. The normal curve of negative control samples is provided by the manufacturer and shows the diagnostic cut off value is set higher than most negative controls. The amount of brain added to a single well is approximately 20 mg. Diagnostic Bio-Rad TeSeE EIA

Sample extraction and detection was carried out according to the manufacturer’s instructions for the Bio-Rad TeSeE BSE ELISA. Briefly brain samples were homogenised in buffer provided by the manufacturer and then treated for 10 mins with Proteinase K at 37oC . The PK concentration is not provided by the manufacturer so we refer to it as 4 ul/ml which is the quantity of stock PK to final solution directed by Bio-Rad. A comparison with sigma PK indicated that the concentration is approximately 40 ug/ml. The samples were then precipitated and concentrated by centrifugation. Pellets were reconstituted and diluted in the buffers provided by the manufacturer. The PrPsc was then detected by a sandwich ELISA provided by the manufacturer. Details of the antibodies are not provided. Samples are read using a microtitre plate as above. Cut off values for the ELISA are calculated using the mean of four negative control ODs. The manufacturers indicate that a value of 0.14 should be

added to the negative control mean and samples equal to or greater than this value should be further analysed. The amount of brain added to a single well is approximately 65 mg. BioRad TeSeE EIA with reduced PK digestion (0.3 Bio-Rad TeSeE ELISA)

The PrPsc associated with atypical scrapie is believed to be less PK resistant than classical scrapie (Everest et al., 2006). In order to investigate whether an atypical form of BSE in cattle exists biochemically similar to atypical scrapie a modified version of the Bio-Rad TeSeE protocol, using sub-diagnostic levels of Proteinase K (0.3ul/ml), was used. This quantity of PK was arrived at by titration of PK and digestion of PrPc from 47 cattle brains negative for TSEs.

The Bio-Rad TeSeE BSE diagnostic test was used as directed by the manufacturer with the addition of DNAse prior to the Proteinase K (0.3 ul/ml PK) treatment and Pefabloc was added alongside the kit PK stopping solution. The PK dilution for these assays was prepared from a Sigma stock solution and 0.3 units/ml was the equivalent activity as 0.3 ul/ml of Biorad PK. Bio-Rad TeSeE Western Blot

Sample extraction was carried out according to the manufacturer's instructions (Bio-Rad TeSeE Western Blot) with several modifications. In brief, brain tissue was ribolysed to give 20 % (w/v) homogenate and subsequently incubated with DNAse. The samples were then digested with 0.3, 1, 4 or 20 units/ml PK (Sigma; where units/ml is an in-house nomenclature and 0.3 units/ml is equivalent to 0.3 µl of the Bio-Rad test PK in terms of activity as compared using the TAME test -Pierce) and the reaction stopped with Pefabloc. Following precipitation and centrifugation at 15,000 g for 7 minutes, in accordance with the Bio-Rad TeSeE Western blot protocol, the pellets were re-suspended in Laemmli sample buffer.

For analysis, the supernatants were heated at 100oC for 5 minutes, loaded on a 12% Criterion XT Bis-tris SDS gel (Bio-Rad) and subjected to electrophoresis in XT-MOPS running buffer (Bio-Rad) at 200 V for 50 minutes. Proteins were transferred to a PVDF membrane (Bio-Rad) at 115 V, 60 min using Tris/CAPS transfer buffer (Bio-Rad).

Blots to be evaluated using the Sha31 (Bio-Rad) antibody were incubated for one hour with the blocking solution provided by the manufacturers; and antibodies SAF84 (aa 175-180), P4 (aa 89-104) and FH11 (aa 55-65) using a 5% milk powder in PBS supplemented with Tween 20 (PBST). The membranes were incubated for one hour with the primary antibody and then with goat anti-mouse IgG antibody conjugated to horseradish peroxidase (Bio-Rad) prior to visualization by chemiluminescence (ECL; Amersham). Immunohistochemical analysis Formalin-fixed, paraffin wax-embedded tissue blocks were sectioned at 4mm, collected onto frosted charged slides (GmbH) and melted on at 60°C overnight to improve adhesion. Sections were de-waxed in xylene and alcohol and washing in water. They were subsequently put into 98% formic acid (Merck) for 30 minutes, washed in running tap water for 15 minutes and then fully immersed into citrate buffer (200mM trisodium citrate dehydrate (Sigma), 30mM citric acid (Sigma), pH 6.1) prior to being autoclaved for 30 minutes at 121°C. Endogenous peroxidase activity was quenched using 3% hydrogen peroxide (Sigma) and the sections immersed in purified water and stored at 4°C overnight. After warming to room temperature, non-specific antibody binding sites were blocked using normal goat serum (Vector Laboratories) for 20 minutes. Rat monoclonal anti-PrP R145 (VLA) was diluted to 2mg/ml and applied for one hour at ambient (19°C-24°C) temperature. Biotinylated rabbit-anti-mouse IgG (Vector Laboratories) was diluted appropriately and applied for 30 minutes at ambient temperature. Elite ABC (Vector Laboratories) was prepared according to the manufacturers'

directions and applied for 20 minutes at ambient temperature. Sections were washed between each stage using 5mM tris buffered saline supplemented with Tween-20 (5mM tris, 0.85% NaCl, 0.05% tween-20 (all from Sigma), pH 7.6). Diaminobenzidine tablets (Sigma) were prepared in McIlvanes buffer (200mM disodium hydrogen orthophosphate, 100mM citric acid (both from Sigma), pH 6.4) and applied for 10 minutes at ambient temperature. Sections were counterstained in Mayer's haematoxylin and "blued" in running tap water, before being dehydrated through three changes each of absolute alcohol and xylene for three minutes each and finally mounted in DPX (Sigma). Definition of terms

Disease associated isoforms of PrP may be distinguished from normal PrP by its increased resistance to Proteinase digestion in immunoblotting or ELISA tests (PrPres), binding to polyanions or labelling with PrP specific antibodies in fixed and treated paraffin-embedded section (PrPd). Included within the operational definition of PrPd are all those detection systems that do not use Proteinase K digestion. The correlation between prion infectivity and PrPres or PrPd is inexact, and infectivity has been dissociated from PrPres or PrPd in several experiments, putatively this is because only a fraction of abnormal PrP isoforms are infectious. We will therefore use operational definitions for detected abnormal PrP forms and PrPsc for the hypothetical infectious sub-population of PrP isoforms detected by bioassay. Results Brains from cattle previously diagnosed as negative for BSE based on histopathological examination were investigated in this study for evidence of unusual prion diseases. The majority of the cattle investigated were submitted to the VLA as BSE suspect during the years 1997-2005 and were reported to have clinical signs similar to BSE. We applied a combination of modified and previously unused diagnostic tests to this subgroup of cattle including lower concentrations of PK for protein digestion, tests that do not use PK for PrPsc detection and standard Western blot (WB) procedures with Mabs reactive with different regions of the PrP glycoprotein. A flow chart detailing the sequence for the investigation of potential unusual prion diseases of cattle are shown in Figure 1. 1) Determination of the lowest PK concentration that digests PrPc from brains of cattle The minimum concentration of PK required for the elimination of PrPc in the majority of non-exposed control cattle samples, resulting in a negative value in the Bio-Rad TeSeE ELISA, was determined. PK titrations were performed on BSE positive and negative control reference material (CRM) and subsequently on 47 individual confirmed negative brainstems. The brainstems had previously tested negative with the diagnostic Bio-Rad TeSeE ELISA by LGC and were obtained from active surveillance and therefore unlikely to have had clinical signs of disease. An amount of 0.3 µl/ml PK was selected for use in the adapted Bio-Rad TeSeE ELISA (0.3 Bio-Rad) (Table 1). 2) Determination of threshold values for the IDEXX HerdChek and 0.3 modified Bio-Rad rapid tests

The diagnostic tests have cut-off values that are set by the manufacturers. For the 0.3 Bio-Rad ELISA new cut-off values were determined to take account of the modifications. While no modifications were made to the IDEXX HerdChek assay cut-off values were calculated using the same test samples for consistency. 90 confirmed BSE negative brainstems were assayed and threshold values calculated as 3 standard deviations above the mean (Table 2). Threshold values of 0.166 Absorbance Units (AU) and 0.137 AU were set for the 0.3 Bio-Rad TeSeE and IDEXX Herdchek EIAs respectively. A single confirmed negative sample gave a value above the IDEXX threshold limit (0.240AU) on first assay. However, when repeated this sample was negative (0.016AU). 3) Results of assays applied to the test BSE cattle population

The assays described above and mapped in Figure 1 were then applied to the brains from 501 clinically suspect cattle. Following analysis the cattle were divided into five groups and these are described below. The results are summarised in Table 3. Group1: Confirmed negative diagnosis of clinically suspect cattle Brainstems from 501 cattle submitted to the VLA for BSE diagnosis between the years 1991 and 2005 that were subsequently diagnosed as negative by the tests used at time of slaughter, were assayed using the IDEXX and 0.3 Bio-Rad immunoassays for detection of abnormal PrP. 436 (87%) were negative by both tests. All of the samples submitted after 1999 were confirmed negative (see below) (Figure 8). By these criteria we were unable to detect abnormal PrP in the brainstems of these cattle and this subset of clinically suspect cattle is unlikely to harbour a prion disease. However, we were unable to test other areas of the brain from these cattle and PrPsc distribution patterns distinct from classical BSE cannot be ruled out. In addition to the 501 brainstems we also tested 191 cerebella by the same methods, all of which were negative by standard tests. Group 2: Confirmed positive for BSE by all diagnostic tests Sixty five samples remained that were positive in either the IDEXX or the 0.3 Bio-Rad assays or in both of these tests. Of these, 40 were positive by both tests (modified as above) and following retesting were positive using diagnostic concentrations of PK for the Bio-Rad TeSeE (figure 2). Immunohistochemical evaluation of abnormal PrP in the obex demonstrated normal distribution of PrPsc deposits similar to those observed for classical BSE (Figure 8).

To confirm that the PK resistant glycoproteins of abnormal PrP resembled the molecular profile of classical BSE, all 40 cases were immunoblotted using SHa31 MAb (figure 3). In all cases a signature 3 glycoprotein banding pattern was observed with relative mass and glycoprotein ratios indistinguishable from classical BSE. These animals ranged in age from 5 years to 12 years, with a mean age of 6 years, 10 months. All 40 animals were female and comprised 32 Friesians, 2 Holsteins, 2 Herefords, 1 Limousin/Friesian Cross, 2 Holstein/Friesian Cross and 1 Simmental.

The 40 confirmed positive samples were from cattle slaughtered between the years 1997 and 1999. We tested a total of 285 from this period and this represents 14.0% of the clinical suspects that were confirmed negative for BSE at this time. If this is representative of the entire clinical suspect unconfirmed cattle (total 2,426) during this period (1997-1999 inclusive) a total of 340 BSE positive cattle would have been missed. This under-diagnosis is likely to be a result of the diagnostic tests applied at the time. Up until the year 2000, all BSE cases were diagnosed by detection of vacuolation and gliosis in the obex. It is clear that this method is not 100% sensitive for prion diseases either because not all cases present with vacuolation or that vacuolation is a late onset phenomenon during clinical disease (Arnold et al., 2007). Our data showed that there were no additional cases of under-diagnosis after more sensitive diagnostic tests were introduced in 2000. During the years 1997-1999, a total of 12,171 clinical cases were submitted for BSE diagnosis of which 9,745 (80.1%) were confirmed positive with an estimated 2.8% of the total suspects submitted under-diagnosed by our calculations.

Assuming no other factors influenced the levels of correct diagnosis and that the numbers estimated for 1997 to 1999 were a true representation of the potential under-diagnosis of the entire epidemic up until 1999, then the total number of missed cases positive for BSE could have been in the region of 5,500.

A draft version of this manuscript has been prepared.

Group 3: Confirmed positive for BSE by all rapid diagnostic tests but negative by IHC

2 of the 501 negative subset brainstem tested were positive by standard biochemical, diagnostic tests (Table 4) but abnormal PrP deposits were not observed in the obex when evaluated by IHC (Figure 8). This is clearly an unusual finding and both cases were rigorously audited prior to further investigation to determine that the sample for biochemistry was identical to the paraffin-embedded sample. As far as can be determined no errors in sampling and dispatch occurred for these two samples. Further DNA profiling and matching frozen sample to histology processed sample would confirm this. There was insufficient sample to perform any further analysis on one case, but the other case was further investigated using the modified TeSeE Western blot protocol described above – at the diagnostic standard PK concentration of 4 µl/ml for PrPsc digestion. Western blotting of abnormal PrP from this sample confirmed the ELISA data with intense labelling of PK resistant PrP using the PrP-specific antibodies Sha31 and SAF84 (Figure 4a and 4b). The glycoprofile and molecular mass of the PrP bands were indistinguishable from classical BSE A band was labelled strongly with FH11 Mab (that recognises an N terminal PrP epitope) and is therefore likely to represent undigested PrP (Figure 4c). In addition, at 4 µl/ml PK, strong reactivity is also observed with the P4 mAb (Figure 4d). Molecular comparison of this case with classical BSE and with scrapie – using different levels of PK, different dilutions of positive sample and different PrP-specific antibodies, indicates that there is no discernible difference of the test sample with classical BSE. Both cases were extensively followed up by IHC using Mabs to different regions of the PrP molecule but were negative in all cases (data not shown).

Why the PrPsc could not be detected by IHC is unclear. Further analysis by transmission to rodent models of prion disease may shed further light on the characteristics of this sample. Indeed, murine models of prion disease have been reported where PrPsc cannot be detected in the brains but these studies confirmed the lack of PrPsc by all assays including Western Blot. Group 4: IDEXX Herdchek positive, 0.3 Bio-Rad negative, IHC positive. Two brainstem samples (98/00819; 98/02316) were positive by the IDEXX Herdchek EIA (Table 5) but Bio-Rad test negative even following PK digestion at sub-optimal concentrations. Both of these samples demonstrated abnormal PrP deposition in the obex by IHC evaluation (Figure 8). Western blot analysis of PK resistant PrP glycoprotein from sample 98/2316 indicated that low amounts of PrPres could be detected using Sha31 and SAF84 Mabs. From these blots and taking into account the low levels of PrPres detected the banding patterns appeared indistinguishable from classical BSE (Figure 5a and 5b). No further sample was available for 98/00819. The sample contained very low levels of PrPres as shown by the WB data and this is likely to be the reason for lack of signal in the Bio-Rad ELISA. At these levels of abnormal PrP we are at the threshold of detection. The IDEXX HerdChek assay has consistently shown a higher analytical sensitivity for classical scrapie in our hands than the Bio-Rad assays. The values for the IDEXX HerdChek were in the region of 0.15-0.88 and these values are much lower than any of the other samples we have tested in this study. These data suggest that the IDEXX assay is more analytically sensitive than the Bio-Rad TeSeE for BSE. However, there are alternative explanations for the discordance in test results. The Bio-Rad TeSeE ELISA detects PrPres with Mabs that detect 2 regions of the molecule. Any changes in PrP sequence in the region of Mab binding could alter analytical sensitivity. Therefore the bovine PrP open reading frame from 98/02316 was compared with that of two classical BSE samples, all three samples were 6:6 with respect to the octapeptide repeat. The only mutation seen in this unusual sample was at codon 78 and this is a “silent” mutation in that it does not

affect the PrP protein sequence (glutamine, Q78). The Western blot results suggest that the PK cleavage sites of sample 98/02316 were not different from classical cases of BSE. Therefore we conclude that PrPres concentration in this sample was low, as indicated by the control BSE positive brain homogenate, when diluted to a level of 1/250, still producing bands of a far greater density than the test sample when assayed neat. Group 5: Diagnostic Bio-Rad and IDEXX negative, IHC negative but 0.3 Bio-Rad positive

Twenty-one of the clinical suspect brainstems tested by 0.3 Bio-Rad modified protocol had OD values above the calculated cut off point (range 0.166 to 0.857) (Figure 6) but were IDEXX Herdchek negative and IHC negative (figure 8). The samples were also diagnostic Bio-Rad TeSeE negative and the cattle, all female, ranged in age from 3 years to 11.5 years. They comprised Friesian, Friesian/Holsten, Hereford Cross, Aberdeen Angus Cross, Simmental Cross and Limousin Cross breeds. These samples, where sufficient tissue was available, were analysed, for the presence of partially PK resistant PrP, using the Bio-Rad Western blot protocol with digestion carried out at 20 and 0.3 µl/ml of PK and detected using the SHa31 Mab. Following digestion of the samples with 20 µl/ml PK the samples were shown to be negative for the characteristic PrPsc banding patterns when compared to three individual BSE-negative samples and a classical BSE positive sample (Fig 7a). However, faint bands were observed at approximately 16 and 25 KDa for 4 of the samples (T5, T8-T10) but this faint banding is consistent with partially digested PrPc but could also be a result of variable amounts of protein loaded per lane. At 0.3 µl/ml PK, banding is observed for all test samples, with banding consistent with partially digested PrPC, as also observed for the three known BSE-negative samples. In contrast, the classical BSE-positive sample gave a distinct banding pattern, different from that observed for the BSE-negative samples (Fig.7b). Consistent with the above results samples T5 and T8-T10 demonstrated increased intensity of labelling that could result from an up-regulation or increase in PrPc and could also account for the high signals in the modified ELISA.

Variable banding intensity between lanes may also be a result of inconsistent loading of amounts of protein per lane. However, our previous experience of testing protein concentrations PRIOR to PK digestion in the individual samples showed that they were very consistent to within <5% of the total amount. In addition, although we add pefabloc to stop PK digestion it is also likely that there is variation in the PK digestion amongst samples. Both variables could account for the differences in intensities between lanes. However, we cannot exclude the possibilitity that a PK sensitive variant of abnormal PrP is present as demonstrated by Barron et al 2007 who also demonstrated a 22 KDa band following sub optimal PK digestion. The samples were further investigated as below. Encephalitis may up regulate PrPc

One explanation for high values in the immunoassay following digestion with suboptimal concentrations of PK could be high levels of PrPc in the sample. Increased levels of PrPc may occur as a result of up-regulation of PrPc on tissue resident cells or from the influx of inflammatory cells into the site following infection. Differential diagnoses were available for 9 of the 21 animals and nine had confirmed encephalitic lesions and inflammation. Further to this observation we therefore analysed brainstems from 10 BSE negative cattle (but also clinical suspects) by both modified rapid tests that had confirmed encephalitis.

The brainstems from 9 encephalitis cattle were negative by both the 0.3 Bio-Rad TeSeE and IDEXX assays. The brainstem from 1 animal was positive by the 0.3 Bio-Rad assay but

negative by the IDEXX EIA. The result from this sample is similar to the 21 observed above in group 5. It is unclear therefore whether the high levels of PrP are a result of concurrent infection as there is not a 100% correlation. However, PrPc is more susceptible to endogenous proteases and a low signal could be partly explained by inappropriate handling of the tissue at post-mortem. Loss of PrP detection following retesting of group 5 samples.

When all 21 samples were re-analysed from a fresh piece of tissue from the archive (likely to have been frozen and thawed by the archive staff) only one retested as positive (figure 6). Further analysis of this sample (sample number 99/00514) by Western blot has not shown any bands suggesting the presence of an atypical form of prion protein. Any PK sensitive PrP, whether PrPc or unusual prion disease-associated PrP, is likely to be affected by tissue handling techniques including freezing, thawing and the amount of time in storage. This could explain loss of signal. These samples may also represent a small number of outliers in the negative population. This is still higher than we would expect given that only 1/90 negative control samples were outliers in the original testing. Identification of Idiopathic Brainstem Neuronal Chromatolysis (IBNC) in group 5 samples One of the 21 samples identified in group 5 was shown to have IBNC following histological investigation (03/00002) (figure 8). Concurrently, we investigated the PrP distribution in known cases of IBNC (Jeffrey et al 2008; “Idiopathic Brainstem Neuronal Chromatolysis (IBNC): a novel prion protein related disorder of cattle?” BMC Vet Res. 2008 Sep 30;4:38. The IHC and histology profile of this case was very similar to that of the known IBNC cases. Investigation of the distribution and molecular characteristics of PrP from known IBNC See also: Idiopathic Brainstem Neuronal Chromatolysis (IBNC): a novel prion protein related disorder of cattle? Jeffrey M, Perez BB, Martin S, Terry L, González L. BMC Vet Res. 2008 Sep 30;4:38 Further investigations demonstrated that 57% the assays performed on the confirmed IBNC samples, using the 0.3 Bio-Rad TeSeE assay (n=42), gave values above those of the test kit control and also the BSE negative brain pool control. Half brains from six IBNC affected animals were retrieved from the TSE archive alongside the brainstem from a seventh animal. The cortex, brainstem, cerebellum and midbrain from these brains were sub-sampled and the adapted Bio-Rad TeSeE EIA, IDEXX Herdchek and Western Blot protocols applied to these tissues, in order to determine whether they could represent a form of atypical BSE. These samples had previously been found to be negative using the commercial Bio-Rad EIA and re-testing using this assay and the IDEXX Herdchek assay confirmed their negative status. When assayed using the adapted Bio-Rad protocol at 0.3µl/ml PK, 24/42 (57%) of the sample assays performed gave values above those of the test kit control and also the BSE negative brain pool control. Values above twice that of the calculated cut-off levels were found for each case but not for each brain site No PrPres was detected when Western blotting these samples at either 20 or 4µl/ml PK but a signal was detected on the gels when blotted at the 0.12 and 0.3µl/ml PK levels. At 0.12µl/ml PK the IBNC samples were indistinguishable from the negative controls but at the 0.3µl/ml level more PrPres was detected in the IBNC cases than in the controls with each of the antibodies tested (SHA31, F99, SAF84 and P4). Illustrations of the F99 blot are shown in the paper. Other data not shown.

These data suggest that IBNC affected cattle abnormally express or accumulate PrP in brain and that the abnormal PrP is not strongly resistant to protease digestion. The results suggest that either the range of prion diseases is still wider than previously thought or that abnormalities of prion protein expression may be associated with brain lesions unconnected with prion disorders. Biochemical and transmission studies are planned in order to investigate further (under SE2014). First case of H-type BSE identified in GB During the course of this

study, 1/5 frozen brainstem from bovine BSE cases when immunoblotted using the Bio-Rad TeSeE Western blot with antibodies P4, L42, 6H4, Sha31 and SAF84, was found to have a PrP profile indistinguishable from French H-type BSE. This sample was the first case of H-type BSE to be identified in GB. It was a fallen 13-year-old Galloway cow, first tested and confirmed as a case of BSE in November 2005. Due to autolysis its brain was unsuitable for further characterisation by IHC. Its age and reported absence of clinical signs are consistent with other cases of H-type BSE.

When blotting the samples, mAbs Sha31 and 6H4 revealed, in this sample, an unglycosylated band with relative mobility less than BSE, and mAb P4, labelled the sample more strongly than the BSE samples hence supporting the observed similarities with the French H-type sample. Additionally, this study revealed in both this unusual sample and the French H-type a lower molecular weight band with relative mobility of between 6 and 10 kD labelled with the P4 and L42 mAbs. This band is not seen in BSE samples. This data was published in June 2007 (L. A. Terry et al. Veterinary record (2007) 160, 873-875). Discussion and Conclusions Here we report the investigation of 501 cattle samples that were submitted to the VLA for BSE diagnosis but subsequently confirmed as negative by the diagnostic test used at the time of submission. Prior to 2000 this was by histology alone and positive diagnosis was made solely upon the observation of vacuolation and gliosis in the relevant brain regions. As a result, using more sensitive diagnostic assays, we were able to diagnose BSE positive cattle from the years 1997-1999 inclusive that were originally negative by vacuolation. From these data we have estimated that approximately 3% of the total suspect cases submitted up until the year 1999 were mis-diagnosed. This is likely to be due to the relative sensitivities of the methods. In addition, it has been demonstrated in cattle that vacuolation occurs after PrPsc can be detected in the brain stem and that PrPsc is detected prior to clinical disease (Arnold et al, 2007). Thus these cattle may have suffering very early clinical signs. However, we have not ruled out the possibility that there may be a subset of BSE affected cattle where vacuolation at the obex does not occur. The two cattle that were positive by the rapid biochemical tests but negative by IHC is an unexplained observation. The samples both contained high amounts of abnormal prion protein as determined by the OD values from the rapid tests that according to our experience of confirmatory testing should have been easily detected by IHC. Furthermore, epitope mapping of the PK cleaved proteins demonstrated no unusual glycoform patterns and IHC evaluation with the same antibodies still did not reveal PrPd deposition in the wax embedded sections. Thus it is unlikely that lack of detection by IHC is the result of an unusual conformation of the PrPd that masks the epitope of R145, the antibody of choice for IHC evaluation at the VLA.

The two cattle that were positive by all tests except Bio-Rad ELISA are easier to explain. Previously we have demonstrated that the IDEXX HerdChek scrapie antigen EIA is more analytically sensitive for scrapie than the Bio-Rad ELISA (project SE2007) and this also appears to be the case for bovine BSE. Indeed the two samples were positive by the Bio-Rad Western blot but with significantly reduced signals compared to a bovine positive control. Samples in group 5 were only positive in the Bio-Rad ELISA and only if sub-optimal concentrations of PK were used. Several explanations could account for this result. First, the samples may contain a subset of PrP molecules that have a slightly higher resistance to PK digestion than normal PrPc and that it is not sufficiently aggregated to be detected by the IDEXX assay; whether this is related to a prion disease or some other event that confers such properties on normal PrP remains unanswered. There are notable descriptions in the literature of TSE models where disease is not accompanied by the characteristic

accumulation of PK resistant PrP or was found at extremely low levels (Piccardo et al., 2007; Barron et al 2007; Nazor et al., 2005). These findings together might suggest an additional family of neurodegenerative diseases where the infectious form of PrP is not readily detected by our current diagnostic tests.

Second, the higher signal could be the result of an increase in the overall amount of PrPc in the samples as discussed in the results and related to up-regulation of PrP in cells resident in the brain or due to influx of inflammatory cells either as a result of damage or the presence of a non-prion related disease. Third, that the PrP in these samples is bound to an unidentified molecule that confers higher PK resistance, or fourth, inhibits proteinase K. IBNC is likely to represent a subset of this group of cattle. Based on these data, our overall conclusion is that a second type of BSE is unlikely to have co-existed at a high prevalence with the classical form in the cattle population during the UK epidemic.

Final Report - Annex : Atypical prion proteins in cattle (10064k)

Final Report - SID5 : Atypical prion proteins in cattle (201k)

https://randd.defra.gov.uk/ProjectDetails?ProjectID=14257&FromSearch=Y&Publisher=1&SearchText=SE1796&SortString=ProjectCode&SortOrder=Asc&Paging=10

USDA announces expanded BSE surveillance program Filed Under: BSE

By: Marty Heiberg | Mar 15, 2004 Editor's note: Some material was added to this story Mar 16.

Mar 15, 2004 (CIDRAP News) – Secretary of the US Department of Agriculture (USDA) Ann Veneman this afternoon announced an expanded program of surveillance for bovine spongiform encephalopathy (BSE) in the United States. Preparations for the increased testing will begin immediately and the program is expected to be fully operational by June 1. The new testing procedures will be in place for 12 to 18 months, after which an assessment will determine future plans.

"The intensive one-time surveillance effort will allow us to determine more accurately whether BSE is present in the US cattle population, and if so, estimate the level of disease. By expanding our surveillance, we will be able to provide consumers, trading partners, and industry increased assurances about the BSE status of the U.S. cattle population," states the new plan, which was published on the USDA Web site today.

The new plan incorporates last month's recommendations from the international scientific review panel and it is supported by the Harvard Center for Risk Analysis, Veneman said at a press briefing. It calls for testing a much larger number of specimens from the high-risk BSE cattle population than the current 40,000 per year as well as about 20,000 random samples from normal-appearing adult cows.

Cattle at high risk for BSE are estimated to number approximately 446,000 currently in the United States. The definition of high risk, based on experience in the United Kingdom and

Europe, includes adult cattle that are nonambulatory ("downers"), dead on the farm, or showing clinical signs consistent with BSE.

Ron DeHaven, the USDA's chief veterinary officer, said at the briefing that the expanded program would mean testing "as many as we possibly can" of the target population of cattle. He explained that the new testing would allow for identification of BSE at a rate of 1 in 10 million cattle with a confidence level of 95% if 201,000 samples were tested and a confidence level of 99% if 268,000 samples were tested.

Testing will be done at 17 state and university laboratories, with confirmation of any positive results at the National Veterinary Services Laboratory in Ames, Iowa. Funding for the new program totals $70 million.

When questioned about proposals to test 100% of cattle, DeHaven said that science does not justify this level of testing and that, while the USDA is still evaluating the proposals, testing at this level would be solely for marketability and export purposes. The USDA's newly enhanced program, he said, is strictly for surveillance purposes and will determine whether and at what level BSE exists in the target cattle population.

DeHaven said the expanded testing program will rely on rapid screening tests, several of which the USDA is currently evaluating. "We would anticipate in two or three months' time being able to license perhaps a couple or more of those tests," he said.

Because the screening tests are designed to be very sensitive, some false-positive results are expected, DeHaven said, adding, "That's just the nature of the beast." The national laboratory in Ames will use immunohistochemical staining, considered the "gold standard" in BSE testing, to confirm any positives.

DeHaven said the USDA has made no decision yet on the proposal by Creekstone Farms of Arkansas City, Kan., to test all its cattle so the beef can be exported to Japan and other Asian markets.

The USDA will collect samples from high-risk cattle at a variety of places, including federally inspected slaughter plants, farms, rendering plants, veterinary diagnostic laboratories, pet food plants, and livestock sale barns, DeHaven said.

To test a random sample of healthy older cattle, the USDA will focus its main efforts on 40 slaughter plants in 17 states, according to DeHaven. Those plants slaughter more than 86% of all cattle in the nation, he said.

Under questioning, DeHaven refused to give a specific target for the number of high-risk cattle to be tested. "To estimate how many we will be able to collect is simply premature," he said. "It's possible that we would collect somewhere less than 200,000 and still have a very statistically valid sampling."

DeHaven said USDA veterinarians will work with state veterinarians and other state officials to develop plans for collecting cattle samples for testing in each state.

See also:

Transcript of USDA's Mar 15 news briefing http://www.usda.gov/Newsroom/0106.04.html

Robert Roos, CIDRAP News Editor, contributed to this story.

www.cidrap.umn.edu/news-perspective/2004/03/usda-announces-expanded-bse-surveillance-program

USDA did not test possible mad cows

By Steve Mitchell

United Press International

Published 6/8/2004 9:30 PM

WASHINGTON, June 8 (UPI) -- The U.S. Department of Agriculture claims it tested 500 cows with signs of a brain disorder for mad cow disease last year, but agency documents obtained by United Press International show the agency tested only half that number.

https://www.upi.com/Science_News/2004/06/08/USDA-did-not-test-possible-mad-cows/38651086744622/

http://madcowtesting.blogspot.com/2007/10/bse-base-mad-cow-testing-texas-usa-and.html

i almost forgot LOL;

BESIDES THE TEXAS MAD COW THAT WAS RENDERED AND NEVER TESTED;

On Friday, April 30 th , the Food and Drug Administration learned that a cow with central nervous system symptoms had been killed and shipped to a processor for rendering into animal protein for use in animal feed.

FDA, which is responsible for the safety of animal feed, immediately began an investigation. On Friday and throughout the weekend, FDA investigators inspected the slaughterhouse, the rendering facility, the farm where the animal came from, and the processor that initially received the cow from the slaughterhouse.

FDA's investigation showed that the animal in question had already been rendered into "meat and bone meal" (a type of protein animal feed). Over the weekend FDA was able to track down all the implicated material. That material is being held by the firm, which is cooperating fully with FDA. ...

http://www.fda.gov/bbs/topics/news/2004/NEW01061.html

http://web.archive.org/web/20070221032507/http://www.fda.gov/bbs/topics/news/2004/NEW01061.html

USDA orders silence on mad cow in Texas

By Steve Mitchell United Press International Published 5/11/2004 10:16 PM

WASHINGTON, May 11 (UPI) -- The U.S. Department of Agriculture has issued an order instructing its inspectors in Texas, where federal madcow disease testing policies recently were violated, not to talk about the cattle disorder with outside parties, United Press International has learned.

The order, sent May 6 by e-mail from the USDA's Dallas district office,was issued in the wake of the April 27 case at Lone Star Beef in San Angelo, in which a cow displaying signs of a brain disorder was not tested for mad cow disease despite a federal policy to screen all such animals.

The deadly illness also is known as bovine spongiform encephalopathy.

Both the USDA and its Inspector General -- amid allegations that an offsite supervisor overruled the opinion of the inspectors on site and made the final decision not to test the animal -- have opened up investigations to determine why agency policy was violated.

The order, which was obtained by UPI, was issued by Ijaz Qazi, circuit supervisor for the USDA's Food Safety and Inspection Service's Dallas district, which covers the entire state. It reads: "All BSE inquiries MUST be directed to Congressional Public Affairs Phone 202-720-9113 attention Rob Larew OR Steve Khon. This is an urgent message. Any question contact me. Ijaz Qazi."

Although the language might sound innocuous, experienced inspectors familiar with USDA parlance have taken to referring to the notice as a "gag order."

The National Joint Council of Food Inspection Locals -- the national inspectors union -- considers the order a violation of inspectors' freespeech rights and is considering legal action against the USDA for breaching the labor agreement they have with the agency.

Inspectors alleged the order also suggests the agency is concerned about its personnel leaking damaging information about either the Texas case or the USDA's overall mad cow disease surveillance program, which has come under fire since the discovery of an infected cow in Washington state last December.

"Anytime the government suppresses an individual's freedom of speech,that's unconstitutional," Gary Dahl, president of Local 925, the Colorado inspectors union, told UPI.

Stanley Painter, chairman of the National Joint Council, said the USDA has sent out notices in the past stating inspectors cannot talk to reporters.

"It's an intimidation thing," Painter told UPI. Inspectors have the right to talk to anybody about any subject, as long as they clarify they are not speaking on behalf of the USDA and they are not doing it on government time, he said.

USDA spokesman Steven Cohen said he was not familiar with the notice from the Dallas office. He said he would look into it, but did not respond by UPI's publication time. In general,

Cohen said, "There's an expectation any statement on behalf of the agency would come from the office of communications (in Washington.)"

Asked if employees could speak freely as long as they clarified that their views did not reflect those of the agency, Cohen said, "We'd rather that agency policy be communicated by those in a position to speak for the agency."

Qazi told UPI the notice was not issued in conjunction with the Texas case and it was routine agency practice that outside inquiries be referred to the Washington office. He said inspectors are free to talk to outside parties, including reporters, and he did not consider the e-mail a violation of the labor agreement with the inspectors.

Painter said the USDA's efforts to keep its employees from talking about mad cow would be better spent "with issues like protecting the consuming public instead of trying to hide things." He added he would "just about bet his last nickel" agency management was attempting to suppress information about the Texas case.

"To keep federal employees from reporting government waste, misuse ofappropriations -- those types of things -- that's not a good thing either," Dahl said. "If there is something wrong, let's get it out in the open -- let's get it fixed. We're working for the public, the American consumers. I think they have the right to know this," he said.

"And believe me there's so many indicators saying that the USDA's madcow testing program is broken," Dahl added.

At least one member of Congress, Sen. Tom Harkin, D-Iowa, agrees.

Harkin, a long-time critic of the USDA, sent a letter to Agriculture Secretary Ann Veneman on Monday, saying the Texas incident "calls into question the effectiveness and reliability of USDA's current and proposed surveillance system."

The USDA has proposed testing more than 200,000 cows -- or 10 times its current rate -- in an expanded program scheduled to begin June 1. Harkin wrote in the five-page letter, however, that given the realities of the cattle industry, it is "quite doubtful" the USDA will be able to test that many cows, particularly because it had difficulty finding 20,000 last year.

"We simply cannot tolerate a BSE testing system that fails to give valid answers to critical questions for U.S. consumers and foreign customers,"Harkin said in the letter, which sharply criticizes the agency's failure to address explicitly how its new surveillance program will be implemented.

"We look forward to receiving (Harkin's) letter and having the opportunity to review it and respond to him," USDA spokesman Ed Loyd told UPI. "USDA has acknowledged there was a failure in not testing that cow in Texas for BSE, so we are all working to ensure that does not occur again."

Jim Rogers, a spokesman for USDA's Animal and Plant Health InspectionService, which oversees the agency's mad cow surveillance program, told UPI the agency has tested about 15,500 animals since fiscal year 2004 began, on Oct. 1, 2003. However, the agency has

refused to identify the states and facilities from which the cows originated. Rogers said UPI would have to seek that information through the Freedom of Information Act.

The question is central to the USDA's implementation of its expanded surveillance program. Downer cows -- those unable to stand or walk --made up the bulk of the animals the agency tested for mad cow inprevious years, but these were banned from being slaughtered for human consumption in December. This means the agency inspectors no longer can obtain brain samples from these cows at slaughterhouses as they could in the past.

Furthermore, the USDA has not provided any evidence it has worked out agreements with rendering facilities or ranchers, where downers and dead cows are now most likely to be found, to obtain the extra animals for testing.

Loyd said the agency is "working very hard to get animals on the farm that would never show up in a processing facility," and he was "not aware of any issues" that would delay the launch of the new program.

However, he was unable to provide the names or locations of the rendering facilities where the agency will be obtaining cow brains for BSE testing. He said he would look into it but did not return two follow-up phone calls from UPI before publication.

--

Steve Mitchell is UPI's Medical Correspondent. E-mail sciencemail@upi.com

http://www.upi.com/view.cfm?StoryID=20040511-015527-4917r

P01-05 January 30, 2001

Print Media: 301-827-6242 Consumer Inquiries: 888-INFO-FDA Note: On Dec. 23, 2003, the U.S. Department of Agriculture reported that a cow in Washington state had tested positive for bovine spongiform encephalopathy (BSE, or mad cow disease). As a result, information on this Web page stating that no BSE cases had been found in the United States is now incorrect. However, because other information on this page continues to have value, the page will remain available for viewing.

FDA ANNOUNCES TEST RESULTS FROM TEXAS FEED LOT Today the Food and Drug Administration announced the results of tests taken on feed used at a Texas feedlot that was suspected of containing meat and bone meal from other domestic cattle -- a violation of FDA's 1997 prohibition on using ruminant material in feed for other ruminants. Results indicate that a very low level of prohibited material was found in the feed fed to cattle.

FDA has determined that each animal could have consumed, at most and in total, five-and-one-half grams - approximately a quarter ounce -- of prohibited material. These animals weigh approximately 600 pounds.

It is important to note that the prohibited material was domestic in origin (therefore not likely to contain infected material because there is no evidence of BSE in U.S. cattle), fed at a very low level, and fed only once. The potential risk of BSE to such cattle is therefore exceedingly low, even if the feed were contaminated.

According to Dr. Bernard Schwetz, FDA's Acting Principal Deputy Commissioner, "The challenge to regulators and industry is to keep this disease out of the United States. One important defense is to prohibit the use of any ruminant animal materials in feed for other ruminant animals. Combined with other steps, like U.S. Department of Agriculture's (USDA) ban on the importation of live ruminant animals from affected countries, these steps represent a series of protections, to keep American cattle free of BSE."

Despite this negligible risk, Purina Mills, Inc., is nonetheless announcing that it is voluntarily purchasing all 1,222 of the animals held in Texas and mistakenly fed the animal feed containing the prohibited material. Therefore, meat from those animals will not enter the human food supply. FDA believes any cattle that did not consume feed containing the prohibited material are unaffected by this incident, and should be handled in the beef supply clearance process as usual.

FDA believes that Purina Mills has behaved responsibly by first reporting the human error that resulted in the misformulation of the animal feed supplement and then by working closely with State and Federal authorities.

This episode indicates that the multi-layered safeguard system put into place is essential for protecting the food supply and that continued vigilance needs to be taken, by all concerned, to ensure these rules are followed routinely.

FDA will continue working with USDA as well as State and local officials to ensure that companies and individuals comply with all laws and regulations designed to protect the U.S. food supply.

http://web.archive.org/web/20070305034227/http://www.fda.gov/bbs/topics/NEWS/2001/NEW00752.html

NEWS RELEASE

Texas Animal Health Commission

Box l2966 •Austin, Texas 78711 •(800) 550-8242• FAX (512) 719-0719

Linda Logan, DVM, PhD• Executive Director

For info, contact Carla Everett, information officer, at 1-800-550-8242, ext. 710,

or ceverett@tahc.state.tx.us

For Immediate Release--

Feed Contamination Issue Resolved by FDA

Although many of you may have heard the latest regarding the resolution of the cattle feed contamination situation in Texas, I wanted to ensure that you received this statement issued by the Food and Drug Administration (FDA), the agency in charge of regulating feed components. The FDA has said the cattle involved are to be rendered and the material will not enter ruminant or human food channels. The Texas Animal Health Commission (TAHC) will provided assistance to the FDA as requested and needed.

FDA ANNOUNCES TEST RESULTS FROM TEXAS FEED LOT

Today (Tuesday, Jan. the Food and Drug Administration announced the results of tests taken on feed used at a Texas feedlot that was suspected of containing meat and bone meal from other domestic cattle -- a violation of FDA's 1997 prohibition on using ruminant material in feed for other ruminants. Results indicate that a very low level of prohibited material was found in the feed fed to cattle.

FDA has determined that each animal could have consumed, at most and in total, five-and-one-half grams - approximately a quarter ounce -- of prohibited material. These animals weigh approximately 600 pounds.

It is important to note that the prohibited material was domestic in origin (therefore not likely to contain infected material because there is no evidence of BSE in U.S. cattle), fed at a very low level, and fed only once. The potential risk of BSE to such cattle is therefore exceedingly low, even if the feed were contaminated.

According to Dr. Bernard Schwetz, FDA's Acting Principal Deputy Commissioner, "The challenge to regulators and industry is to keep this disease out of the United States. One important defense is to prohibit the use of any ruminant animal materials in feed for other ruminant animals. Combined with other steps, like U.S. Department of Agriculture's (USDA)

ban on the importation of live ruminant animals from affected countries, these steps represent a series of protections, to keep American cattle free of BSE."

Despite this negligible risk, Purina Mills, Inc., is nonetheless announcing that it is voluntarily purchasing all 1,222 of the animals held in Texas and mistakenly fed the animal feed containing the prohibited material. Therefore, meat from those animals will not enter the human food supply. FDA believes any cattle that did not consume feed containing the prohibited material are unaffected by this incident, and should be handled in the beef supply clearance process as usual.

FDA believes that Purina Mills has behaved responsibly by first reporting the human error that resulted in the misformulation of the animal feed supplement and then by working closely with State and Federal authorities.

This episode indicates that the multi-layered safeguard system put into place is essential for protecting the food supply and that continued vigilance needs to be taken, by all concerned, to

ensure these rules are followed routinely.

FDA will continue working with USDA as well as state and local officials to ensure that companies and individuals comply with all laws and regulations designed to protect the U.S. food supply.

---30--

http://web.archive.org/web/20100125195418/http://www.tahc.state.tx.us/News/pr/2001/101FEED_ISSUE_RESOLVED.pdf

WE know now, and we knew decades ago, that 5.5 grams of suspect feed in TEXAS was enough to kill 100 cows.

THE REST IS HISTORY, more atypical bse mad cow cases were showing up, testing questionable to say the least, i remind you of the infamous BSE ENHANCED and

SUPRESSED BSE SURVEILLANCE AND THE HARVARD BSE BS that followed, and why the infamous ENHANCED BSE SURVEILLANCE AND TESTING WAS SHUT DOWN...terry

Audit Report Animal and Plant Health Inspection Service Bovine Spongiform Encephalopathy (BSE) Surveillance Program – Phase II

and

Food Safety and Inspection Service Controls Over BSE Sampling, Specified Risk Materials, and Advanced Meat Recovery Products - Phase III

http://web.archive.org/web/20120620142046/http://www.usda.gov/oig/webdocs/50601-10-KC.pdf

"These 9,200 cases were different because brain tissue samples were preserved with formalin, which makes them suitable for only one type of test--immunohistochemistry, or IHC."

THIS WAS DONE FOR A REASON!

THE IHC test has been proven to be the LEAST LIKELY to detect BSE/TSE in the bovine, and these were probably from the most high risk cattle pool, the ones the USDA et al, SHOULD have been testing. ...TSS

TEXAS 2ND MAD COW THAT WAS COVERED UP, AFTER AN ACT OF CONGRESS, AND CALLS FROM TSE PRION SCIENTIST AROUND THE GLOBE, THIS 2ND MAD COW IN TEXAS WAS CONFIRMED

THE USDA MAD COW FOLLIES POSITIVE TEST COVER UP

JOHANNS SECRET POSTIVE MAD COW TEST THAT WERE IGNORED

OIG AND THE HONORABLE FONG CONFIRMS TEXAS MAD AFTER AN ACT OF CONGRESS 7 MONTHS LATER

TEXAS MAD COW

THEY DID FINALLY TEST AFTER SITTING 7+ MONTHS ON A SHELF WHILE GW BORE THE BSE MRR POLICY, i.e. legal trading of all strains of TSE. now understand, i confirmed this case 7 months earlier to the TAHC, and then, only after i contacted the Honorable Phyllis Fong and after an act of Congress, this animal was finally confirmed ;

During the course of the investigation, USDA removed and tested a total of 67 animals of interest from the farm where the index animal's herd originated. All of these animals tested negative for BSE. 200 adult animals of interest were determined to have left the index farm. Of these 200, APHIS officials determined that 143 had gone to slaughter, two were found alive (one was determined not to be of interest because of its age and the other tested negative), 34 are presumed dead, one is known dead and 20 have been classified as untraceable. In addition to the adult animals, APHIS was looking for two calves born to the index animal. Due to record keeping and identification issues, APHIS had to trace 213 calves.

Of these 213 calves, 208 entered feeding and slaughter channels, four are presumed to have entered feeding and slaughter channels and one calf was untraceable.

http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2005/08/0336.xml

see new link;

http://web.archive.org/web/20100113185524/http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2005/08/0336.xml

Executive Summary In June 2005, an inconclusive bovine spongiform encephalopathy (BSE) sample from November 2004, that had originally been classified as negative on the immunohistochemistry test, was confirmed positive on SAF immunoblot (Western blot). The U.S. Department of Agriculture (USDA) identified the herd of origin for the index cow in Texas; that identification was confirmed by DNA analysis. USDA, in close cooperation with the Texas Animal Health Commission (TAHC), established an incident command post (ICP) and began response activities according to USDA's BSE Response Plan of September 2004. Response personnel removed at-risk cattle and cattle of interest (COI) from the index herd, euthanized them, and tested them for BSE; all were negative. USDA and the State extensively traced all at-risk cattle and COI that left the index herd. The majority of these animals entered rendering and/or slaughter channels well before the investigation began. USDA's response to the Texas finding was thorough and effective.

snip...

Trace Herd 3 The owner of Trace Herd 3 was identified as possibly having received an animal of interest. The herd was placed under hold order on 7/27/05. The herd inventory was conducted on 7/28/05. The animal of interest was not present within the herd, and the hold order was released on 7/28/05. The person who thought he sold the animal to the owner of Trace Herd 3 had no records and could not remember who else he might have sold the cow to. Additionally, a search of GDB for all cattle sold through the markets by that individual did not result in a match to the animal of interest. The animal of interest traced to this herd was classified as untraceable because all leads were exhausted.

Trace Herd 4 The owner of Trace Herd 4 was identified as having received one of the COI through an order buyer. Trace Herd 4 was placed under hold order on 7/29/05. A complete herd inventory was conducted on 8/22/05 and 8/23/05. There were 233 head of cattle that were examined individually by both State and Federal personnel for all man-made identification and brands. The animal of interest was not present within the herd. Several animals were reported to have died in the herd sometime after they arrived on the premises in April 2005. A final search of GDB records yielded no further results on the eartag of interest at either subsequent market sale or slaughter. With all leads having been exhausted, this animal of interest has been classified as untraceable. The hold order on Trace Herd 4 was released on 8/23/05.

Trace Herd 5 The owner of Trace Herd 5 was identified as having received two COI and was placed under hold order on 8/1/05. Trace Herd 5 is made up of 67 head of cattle in multiple pastures. During the course of the herd inventory, the owner located records that indicated

that one of the COI, a known birth cohort, had been sold to Trace Herd 8 where she was subsequently found alive. Upon completion of the herd inventory, the other animal of interest was not found within the herd. A GDB search of all recorded herd tests conducted on Trace Herd 5 and all market sales by the owner failed to locate the identification tag of the animal of interest and she was subsequently classified as untraceable due to all leads having been exhausted. The hold order on Trace Herd 5 was released on 8/8/05.

Trace Herd 6 The owner of Trace Herd 6 was identified as possibly having received an animal of interest and was placed under hold order on 8/1/05. This herd is made up of 58 head of cattle on two pastures. A herd inventory was conducted and the animal of interest was not present within the herd. The owner of Trace Herd 6 had very limited records and was unable to provide further information on where the cow might have gone after he purchased her from the livestock market. A search of GDB for all cattle sold through the markets by that individual did not result in a match to the animal of interest. Additionally, many of the animals presented for sale by the owner of the herd had been re-tagged at the market effectually losing the traceability of the history of that animal prior to re-tagging. The animal of interest traced to this herd was classified as untraceable due to all leads having been exhausted. The hold order on Trace Herd 6 was released on 8/3/05.

Trace Herd 7 The owner of Trace Herd 7 was identified as having received an animal of interest and was placed under hold order on 8/1/05. Trace Herd 7 contains 487 head of cattle on multiple pastures in multiple parts of the State, including a unit kept on an island. The island location is a particularly rough place to keep cattle and the owner claimed to have lost 22 head on the island in 2004 due to liver flukes. Upon completion of the herd inventory, the animal of interest was not found present within Trace Herd 7. A GDB search of all recorded herd tests conducted on Trace Herd 7 and all market sales by the owner failed to locate the identification tag of the animal of interest. The cow was subsequently classified as untraceable. It is quite possible though that she may have died within the herd, especially if she belonged to the island unit. The hold order on Trace Herd 7 was released on 8/8/05.

http://www.aphis.usda.gov/lpa/issues/bse/epi-updates/bse_final_epidemiology_report.pdf

SEE;

https://www.aphis.usda.gov/animal_health/animal_diseases/bse/downloads/bse_final_epi_report8-05.pdf

Owner and Corporation Plead Guilty to Defrauding Bovine Spongiform Encephalopathy (BSE) Surveillance Program

An Arizona meat processing company and its owner pled guilty in February 2007 to charges of theft of Government funds, mail fraud, and wire fraud. The owner and his company defrauded the BSE Surveillance Program when they falsified BSE Surveillance Data Collection Forms and then submitted payment requests to USDA for the services. In addition to the targeted sample population (those cattle that were more than 30 months old or had other risk factors for BSE), the owner submitted to USDA, or caused to be submitted, BSE obex (brain stem) samples from healthy USDA-inspected cattle. As a result, the owner fraudulently received approximately $390,000. Sentencing is scheduled for May 2007.

snip...

4 USDA OIG SEMIANNUAL REPORT TO CONGRESS FY 2007 1st Half

http://www.usda.gov/oig/webdocs/sarc070619.pdf

SEE;

http://web.archive.org/web/20130408065457/http://www.usda.gov/oig/webdocs/sarc070619.pdf

Audit Report Animal and Plant Health Inspection Service Bovine Spongiform Encephalopathy (BSE) Surveillance Program – Phase II and Food Safety and Inspection Service Controls Over BSE Sampling, Specified Risk Materials, and Advanced Meat Recovery Products - Phase III

UNITED STATES DEPARTMENT OF AGRICULTURE OFFICE OF INSPECTOR GENERAL Washington, D.C. 20250 January 25, 2006 REPLY TO ATTN OF: 50601-10-KC TO: W. Ron DeHaven Administrator Animal and Plant Health Inspection Service Barbara Masters Administrator Food Safety and Inspection Service ATTN: William J. Hudnall Deputy Administrator Marketing Regulatory Program Business Services William C. Smith Assistant Administrator Office of Program Evaluation, Enforcement, and Review FROM: Robert W. Young /s/ Assistant Inspector General for Audit SUBJECT: Animal and Plant Health Inspection Service - Bovine Spongiform Encephalopathy (BSE) Surveillance Program - Phase II and Food Safety and Inspection Service - Controls Over BSE Sampling, Specified Risk Materials, and Advanced Meat Recovery Products - Phase III This report presents the results of our audit of the enhanced BSE surveillance program and controls over specified risk materials and advanced meat recovery products. Your written response to the official draft report, dated January 20, 2006, is included as exhibit G with excerpts of the response and the Office of Inspector General's (OIG) position incorporated into the Findings and Recommendations section of the report, where applicable. We accept the management decisions for all recommendations. Please follow your agency's internal procedures in forwarding documentation for final action to the Office of the Chief Financial Officer (OCFO). We are providing a separate memorandum to the agencies and OCFO that provides specific information on the actions to be completed to achieve final action. We appreciate your timely response and the cooperation and assistance provided to our staff during the audit USDA/OIG-A/50601-10-KC/ Page i

Executive Summary

Animal and Plant Health Inspection Service - Bovine Spongiform Encephalopathy (BSE) Surveillance Program - Phase II and Food Safety and Inspection Service - Controls Over BSE Sampling, Specified Risk Materials, and Advanced Meat Recovery Products - Phase III

Results in Brief This report evaluates elements of the interlocking safeguards in place to protect United States (U.S.) beef from Bovine Spongiform Encephalopathy, widely known as BSE or "mad cow disease." Since 1990, the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), has led a multi-agency effort to monitor and prevent BSE from entering the food supply. After discovering a BSE-positive cow in

December 2003, APHIS expanded its BSE surveillance program. To further protect the food supply, USDA banned materials identified as being at risk of carrying BSE (specified risk materials (SRM)), such as central nervous system tissue. As part of this effort, USDA's Food Safety and Inspection Service (FSIS) required beef slaughter and processing facilities to incorporate controls for handling such materials into their operational plans. Onsite FSIS inspectors also inspect cattle for clinical signs in order to prevent diseased animals from being slaughtered for human consumption. To evaluate the effectiveness of the safeguards, we assessed APHIS' implementation of the expanded surveillance program, as well as FSIS' controls to prevent banned SRMs from entering the food supply.

In June 2004, APHIS implemented its expanded surveillance program; participation by industry in this surveillance program is voluntary. As of May 2005, over 350,000 animals were sampled and tested for BSE. To date, two animals tested positive for BSE; one tested positive after implementation of the expanded surveillance program.

USDA made significant efforts to implement the expanded BSE surveillance program. Much needed to be done in a short period of time to establish the necessary processes, controls, infrastructure, and networks to assist in this effort. In addition, extensive outreach and coordination was undertaken with other Federal, State, and local entities, private industry, and laboratory and veterinary networks. This report provides an assessment as to the progress USDA made in expanding its surveillance effort and the effectiveness of its controls and processes. This report also discusses the limitations of its program and data in assessing the prevalence of BSE in the U.S. herd.

snip...

40 ELISA test procedures require two additional (duplicate) tests if the initial test is reactive, before final interpretation. If either of the duplicate tests is reactive, the test is deemed inconclusive.

41 Protocol for BSE Contract Laboratories to Receive and Test Bovine Brain Samples and Report Results for BSE Surveillance Standard Operating Procedure (SOP), dated October 26, 2004.

42 The NVSL conducted an ELISA test on the original material tested at the contract laboratory and on two new cuts from the sample tissue.

43 A visual examination of brain tissue by a microscope.

44 A localized pathological change in a bodily organ or tissue.

SNIP...

PLEASE SEE FLAMING EVIDENCE THAT THE USDA ET AL COVERED UP MAD COW DISEASE IN TEXAS ;

PAGE 43;

Section 2. Testing Protocols and Quality Assurance Controls

snip...

FULL TEXT 130 PAGES

http://www.usda.gov/oig/webdocs/50601-10-KC.pdf

SEE;

http://web.archive.org/web/20120620142046/http://www.usda.gov/oig/webdocs/50601-10-KC.pdf

Comments on technical aspects of the risk assessment were then submitted to FSIS.

Comments were received from Food and Water Watch, Food Animal Concerns Trust (FACT), Farm Sanctuary, R-CALF USA, Linda A Detwiler, and Terry S. Singeltary.

This document provides itemized replies to the public comments received on the 2005 updated Harvard BSE risk assessment. Please bear the following points in mind:

http://www.fsis.usda.gov/PDF/BSE_Risk_Assess_Response_Public_Comments.pdf

SEE;

http://web.archive.org/web/20100304142653/http://www.fsis.usda.gov/PDF/BSE_Risk_Assess_Response_Public_Comments.pdf

Owens, Julie From: Terry S. Singeltary Sr. [flounder9@verizon.net]

Sent: Monday, July 24, 2006 1:09 PM To: FSIS RegulationsComments

Subject: [Docket No. FSIS-2006-0011] FSIS Harvard Risk Assessment of Bovine Spongiform Encephalopathy (BSE) Page 1 of 98 8/3/2006

Greetings FSIS, I would kindly like to comment on the following ;

http://www.fsis.usda.gov/OPPDE/Comments/2006-0011/2006-0011-1.pdf

SEE;

http://web.archive.org/web/20090801232225/http://www.fsis.usda.gov/OPPDE/Comments/2006-0011/2006-0011-1.pdf

Suppressed peer review of Harvard study October 31, 2002.

October 31, 2002 Review of the Evaluation of the Potential for Bovine Spongiform Encephalopathy in the United States Conducted by the Harvard Center for Risk Analysis, Harvard School of Public Health and Center for Computational Epidemiology, College of Veterinary Medicine, Tuskegee University Final Report Prepared for U.S. Department of

Agriculture Food Safety and Inspection Service Office of Public Health and Science Prepared by RTI Health, Social, and Economics Research Research Triangle Park, NC 27709 RTI Project Number 07182.024

http://www.fsis.usda.gov/oa/topics/BSE_Peer_Review.pdf

SEE;

http://web.archive.org/web/20050308184249/http://www.fsis.usda.gov/oa/topics/BSE_Peer_Review.pdf

FULL TEXT OF GOA REPORT BELOW (takes a while to load)

2. Mad Cow Disease: Improvements in the Animal Feed Ban and Other Regulatory Areas Would Strengthen U.S. Prevention Efforts. GAO-02-183, January 25.

http://www.gao.gov/cgi-bin/getrpt?GAO-02-183

SATURDAY, AUGUST 16, 2008

Qualitative Analysis of BSE Risk Factors in the United States February 13, 2000 at 3:37 pm PST (BSE red book)

https://bseusa.blogspot.com/2010/02/docket-no-fsis-2006-0011-fsis-harvard.html

Tuesday, September 14, 2010

Transmissible Spongiform Encephalopathies Advisory Committee; Notice of Meeting October 28 and 29, 2010 (COMMENT SUBMISSION)

http://tseac.blogspot.com/2010/09/transmissible-spongiform_14.html

FULL TEXT OF GOA REPORT BELOW (takes a while to load)

2. Mad Cow Disease: Improvements in the Animal Feed Ban and Other Regulatory Areas Would Strengthen U.S. Prevention Efforts. GAO-02-183, January 25.

http://www.gao.gov/cgi-bin/getrpt?GAO-02-183

8 hr BSE confirmation turnaround took 7+ months to confirm this case, so the BSE MRR policy could be put into place. ...TSS

-------- Original Message --------

Subject: re-USDA's surveillance plan for BSE aka mad cow disease

Date: Mon, 02 May 2005 16:59:07 -0500

From: "Terry S. Singeltary Sr."

To: paffairs@oig.hhs.gov, HHSTips@oig.hhs.gov, contactOIG@hhsc.state.tx.us

Greetings Honorable Paul Feeney, Keith Arnold, and William Busbyet al at OIG, ...

snip...

There will be several more emails of my research to follow. I respectfully request a full inquiry into the cover-up of TSEs in the United States of America over the past 30 years. I would be happy to testify...

Thank you, I am sincerely, Terry S. Singeltary Sr. P.O. Box , Bacliff, Texas USA 77518 xxx xxx xxxx

Date: June 14, 2005 at 1:46 pm PST

In Reply to:

Re: Transcript Ag. Secretary Mike Johanns and Dr. John Clifford, Regarding further analysis of BSE Inconclusive Test Results

posted by TSS on June 13, 2005 at 7:33 pm:

Secretary of Agriculture Ann M. Veneman resigns Nov 15 2004, three days later inclusive Mad Cow is announced. June 7th 2005 Bill Hawks Under Secretary for Marketing and Regulatory Programs resigns. Three days later same mad cow found in November turns out to be positive. Both resignation are unexpected. just pondering... TSS

*** 2009 UPDATE ON ALABAMA AND TEXAS MAD COWS 2005 and 2006 ***

http://bse-atypical.blogspot.com/2006/08/bse-atypical-texas-and-alabama-update.html

03-025IFA

03-025IFA-2

Terry S. Singeltary

From: Terry S. Singeltary Sr. [flounder9@verizon.net]

Sent: Thursday, September 08, 2005 6:17 PM

To: fsis.regulationscomments@fsis.usda.gov

Subject: [Docket No. 03-025IFA] FSIS Prohibition of the Use of Specified Risk Materials for Human Food and Requirements for the Disposition of Non-Ambulatory Disabled Cattle

http://web.archive.org/web/20060316114732/http://www.fsis.usda.gov/OPPDE/Comments/03-025IFA/03-025IFA-2.pdf

PDF]Freas, William TSS SUBMISSION
File Format: PDF/Adobe Acrobat -

Page 1. J Freas, William From: Sent: To: Subject: Terry S. Singeltary

Sr. [flounder@wt.net] Monday, January 08,200l 3:03 PM freas ...

http://web.archive.org/web/20170301223601/https://www.fda.gov/OHRMS/DOCKETS/AC/01/slides/3681s2_09.pdf

Sunday, January 10, 2021

APHIS Concurrence With OIE Risk Designation for Bovine Spongiform Encephalopathy [Docket No. APHIS-2018-0087] Singeltary Submission June 17, 2019

APHIS Concurrence With OIE Risk Designation for Bovine Spongiform Encephalopathy [Docket No. APHIS-2018-0087] Singeltary Submission

Greetings APHIS et al,

I would kindly like to comment on APHIS Concurrence With OIE Risk Designation for Bovine Spongiform Encephalopathy [Docket No. APHIS-2018-0087], and my comments are as follows, with the latest peer review and transmission studies as references of evidence.

THE OIE/USDA BSE Minimal Risk Region MRR is nothing more than free pass to import and export the Transmissible Spongiform Encephalopathy TSE Prion disease. December 2003, when the USDA et al lost it's supposedly 'GOLD CARD' ie BSE FREE STATUS (that was based on nothing more than not looking and not finding BSE), once the USA lost it's gold card BSE Free status, the USDA OIE et al worked hard and fast to change the BSE Geographical Risk Statuses i.e. the BSE GBR's, and replaced it with the BSE MRR policy, the legal tool to trade mad cow type disease TSE Prion Globally. The USA is doing just what the UK did, when they shipped mad cow disease around the world, except with the BSE MRR policy, it's now legal.

Also, the whole concept of the BSE MRR policy is based on a false pretense, that atypical BSE is not transmissible, and that only typical c-BSE is transmissible via feed. This notion that atypical BSE TSE Prion is an old age cow disease that is not infectious is absolutely false, there is NO science to show this, and on the contrary, we now know that atypical BSE will transmit by ORAL ROUTES, but even much more concerning now, recent science has shown that Chronic Wasting Disease CWD TSE Prion in deer and elk which is rampant with no stopping is sight in the USA, and Scrapie TSE Prion in sheep and goat, will transmit to PIGS by oral routes, this is our worst nightmare, showing even more risk factors for the USA FDA PART 589 TSE PRION FEED ban. The FDA PART 589 TSE PRION FEED ban has failed terribly bad, and is still failing, since August 1997. there is tonnage and tonnage of banned potential mad cow feed that went into commerce, and still is, with one decade, 10 YEARS, post August 1997 FDA PART 589 TSE PRION FEED ban, 2007, with 10,000,000 POUNDS, with REASON, Products manufactured from bulk feed containing blood meal that was cross contaminated with prohibited meat and bone meal and the labeling did not bear cautionary BSE statement. you can see all these feed ban warning letters and tonnage of mad cow feed in commerce, year after year, that is not accessible on the internet anymore like it use to be, you can see history of the FDA failure August 1997 FDA PART 589 TSE PRION FEED ban here, but remember this, we have a new outbreak of TSE Prion disease in a new livestock species, the camel, and this too is very worrisome.

WITH the OIE and the USDA et al weakening the global TSE prion surveillance, by not classifying the atypical Scrapie as TSE Prion disease, and the notion that they want to do the same thing with typical scrapie and atypical BSE, it's just not scientific.

WE MUST abolish the BSE MRR policy, go back to the BSE GBR risk assessments by country, and enhance them to include all strains of TSE Prion disease in all species. With Chronic Wasting CWD TSE Prion disease spreading in Europe, now including, Norway, Finland, Sweden, also in Korea, Canada and the USA, and the TSE Prion in Camels, the fact the the USA is feeding potentially CWD, Scrapie, BSE, typical and atypical, to other animals, and shipping both this feed and or live animals or even grains around the globe, potentially exposed or infected with the TSE Prion. this APHIS Concurrence With OIE Risk Designation for Bovine Spongiform Encephalopathy [Docket No. APHIS-2018-0087], under it's present definition, does NOT show the true risk of the TSE Prion in any country. as i said, it's nothing more than a legal tool to trade the TSE Prion around the globe, nothing but ink on paper.

AS long as the BSE MRR policy stays in effect, TSE Prion disease will continued to be bought and sold as food for both humans and animals around the globe, and the future ramifications from friendly fire there from, i.e. iatrogenic exposure and transmission there from from all of the above, should not be underestimated. …

https://www.regulations.gov/comment/APHIS-2018-0087-0002

https://downloads.regulations.gov/APHIS-2018-0087-0002/attachment_1.pdf

APHIS Indemnity Regulations [Docket No. APHIS-2021-0010] RIN 0579-AE65 Singeltary Comment Submission Comment from Singeltary Sr., Terry

Posted by the Animal and Plant Health Inspection Service on Sep 8, 2022

https://www.regulations.gov/comment/APHIS-2021-0010-0003

https://downloads.regulations.gov/APHIS-2021-0010-0003/attachment_1.pdf

https://usdasearch.usda.gov/search?utf8=%E2%9C%93&affiliate=usda&query=2005+bse&commit=Search

WEDNESDAY, NOVEMBER 30, 2022

USDA Bovine Spongiform Encephalopathy BSE, Scrapie, CWD, Testing and Surveillance 2022 A Review of History

https://animalhealthreportpriontse.blogspot.com/2022/11/usda-bovine-spongiform-encephalopathy.html

Tuesday, May 31, 2022

89th General Session of the World Assembly of OIE Delegates image for WOAH General Summit 2022 Chronic Wasting Disease CWD TSE Prion Discussions and Concerns

https://woahoie.blogspot.com/2022/05/89th-general-session-of-world-assembly.html

FRIDAY, NOVEMBER 25, 2022

USA National Scrapie Eradication Program (NSEP) 2021 to 2003 A Year by Year Review

https://scrapie-usa.blogspot.com/2022/11/usa-national-scrapie-eradication.html

WEDNESDAY, MARCH 16, 2022

SHEEP BY-PRODUCTS AND WHAT ABOUT Scrapie TSE PrP and Potential Zoonosis?

https://transmissiblespongiformencephalopathy.blogspot.com/2022/03/sheep-by-products-and-what-about.html

IBNC Tauopathy or TSE Prion disease, it appears, no one is sure

Terry S. Singeltary Sr., 03 Jul 2015 at 16:53 GMT

PLOS ONE Journal

IBNC Tauopathy or TSE Prion disease, it appears, no one is sure

Terry S. Singeltary Sr., 03 Jul 2015 at 16:53 GMT

***however in 1 C-type challenged animal, Prion 2015 Poster Abstracts S67 PrPsc was not detected using rapid tests for BSE.

***Subsequent testing resulted in the detection of pathologic lesion in unusual brain location and PrPsc detection by PMCA only.

*** IBNC Tauopathy or TSE Prion disease, it appears, no one is sure ***

https://journals.plos.org/plosone/article/comment?id=10.1371/annotation/5adef4ac-a7e4-46a4-8806-c8533d5c862c

WEDNESDAY, DECEMBER 23, 2020

Idiopathic Brainstem Neuronal Chromatolysis IBNC BSE TSE Prion a Review 2020

https://bse-atypical.blogspot.com/2020/12/idiopathic-brainstem-neuronal.html

Bovine Spongiform Encephalopathy BSE TSE Prion Origin USA

https://bovineprp.blogspot.com/2021/10/bovine-spongiform-encephalopathy-bse.html

WEDNESDAY, JANUARY 12, 2022

Bovine Spongiform Encephalopathy BSE TSE Prion Origin USA, what if?

https://bovineprp.blogspot.com/2022/01/bovine-spongiform-encephalopathy-bse.html

PLOS ONE Journal

*** Singeltary reply ; Molecular, Biochemical and Genetic Characteristics of BSE in Canada Singeltary reply ;

https://journals.plos.org/plosone/article/comment?id=10.1371/annotation/4f9be886-69fe-4c7c-922b-85b0ecbe6d53

SATURDAY, SEPTEMBER 24, 2022

Transmission of CH1641 in cattle

https://transmissiblespongiformencephalopathy.blogspot.com/2022/09/transmission-of-ch1641-in-cattle.html

WEDNESDAY, DECEMBER 8, 2021

Importation of Sheep, Goats, and Certain Other Ruminants AGENCY: Animal APHIA, USDA, FINAL RULE [Docket No. APHIS–2009–0095] RIN 0579–AD10

https://animalhealthreportpriontse.blogspot.com/2021/12/importation-of-sheep-goats-and-certain.html

WEDNESDAY, MARCH 24, 2021

USDA Animal and Plant Health Inspection Service 2020 IMPACT REPORT BSE TSE Prion Testing and Surveillance MIA

https://animalhealthreportpriontse.blogspot.com/2021/03/usda-animal-and-plant-health-inspection.html

SUNDAY, MARCH 21, 2021

Investigation Results of Texas Cow That Tested Positive for Bovine Spongiform Encephalopathy (BSE) Aug. 30, 2005 Singeltary's Regiew 2021

https://animalhealthreportpriontse.blogspot.com/2021/03/investigation-results-of-texas-cow-that.html

FRIDAY, APRIL 1, 2022

USDA TAKES THE C OUT OF COOL, what's up with that?

https://naiscoolyes.blogspot.com/2022/04/usda-takes-c-out-of-cool-whats-up-with.html

THURSDAY, AUGUST 20, 2020

Why is USDA "only" BSE TSE Prion testing 25,000 samples a year?

https://animalhealthreportpriontse.blogspot.com/2020/08/why-is-usda-only-bse-tse-prion-testing.html

THURSDAY, JANUARY 23, 2020

USDA Consolidates Regulations for NAHLN Laboratory Testing USDA Animal and Plant Health Inspection Service sent this bulletin at 01/23/2020 02:15 PM EST

http://madcowusda.blogspot.com/2020/01/usda-consolidates-regulations-for-nahln.html

WEDNESDAY, APRIL 24, 2019

USDA Announces Atypical Bovine Spongiform Encephalopathy Detection Aug 29, 2018 A Review of Science 2019

https://bse-atypical.blogspot.com/2019/04/usda-announces-atypical-bovine.html

Saturday, July 23, 2016

BOVINE SPONGIFORM ENCEPHALOPATHY BSE TSE PRION SURVEILLANCE, TESTING, AND SRM REMOVAL UNITED STATE OF AMERICA UPDATE JULY 2016

http://bovineprp.blogspot.com/2016/07/bovine-spongiform-encephalopathy-bse.html

Tuesday, July 26, 2016

Atypical Bovine Spongiform Encephalopathy BSE TSE Prion UPDATE JULY 2016

http://bse-atypical.blogspot.com/2016/07/atypical-bovine-spongiform.html

Monday, June 20, 2016

Specified Risk Materials SRMs BSE TSE Prion Program

http://specifiedriskmaterial.blogspot.com/2016/06/specified-risk-materials-srms-bse-tse.html

*** PLEASE SEE THIS URGENT UPDATE ON CWD AND FEED ANIMAL PROTEIN ***

Sunday, March 20, 2016

Docket No. FDA-2003-D-0432 (formerly 03D-0186) Use of Material from Deer and Elk in Animal Feed ***UPDATED MARCH 2016*** Singeltary Submission

http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM052506.pdf?source=govdelivery&utm_medium=email&utm_source=govdelivery

SEE MAD COW FEED VIOLATIONS AFER MAD COW FEED VIOLATIONS ;

http://chronic-wasting-disease.blogspot.com/2016/03/docket-no-fda-2003-d-0432-formerly-03d.html

Tuesday, April 19, 2016

Docket No. FDA-2013-N-0764 for Animal Feed Regulatory Program Standards Singeltary Comment Submission

https://www.regulations.gov/#!documentDetail;D=FDA-2003-D-0432-0011

17 years post mad cow feed ban August 1997

Monday, October 26, 2015

FDA PART 589 -- SUBSTANCES PROHIBITED FROM USE IN ANIMAL FOOD OR FEED VIOLATIONS OFFICIAL ACTION INDICATED OIA UPDATE October 2015

http://madcowusda.blogspot.com/2015/10/fda-part-589-substances-prohibited-from.html

Tuesday, December 23, 2014

FDA PART 589 -- SUBSTANCES PROHIBITED FROM USE IN ANIMAL FOOD OR FEEDVIOLATIONS OFFICIAL ACTION INDICATED OAI UPDATE DECEMBER 2014 BSE TSE PRION

http://madcowusda.blogspot.com/2014/12/fda-part-589-substances-prohibited-from.html

16 years post mad cow feed ban August 1997 2013

Sunday, December 15, 2013

FDA PART 589 -- SUBSTANCES PROHIBITED FROM USE IN ANIMAL FOOD OR FEED VIOLATIONS OFFICIAL ACTION INDICATED OIA UPDATE DECEMBER 2013 UPDATE

http://madcowusda.blogspot.com/2013/12/fda-part-589-substances-prohibited-from.html

Saturday, August 29, 2009

FOIA REQUEST FEED RECALL 2009 Product may have contained prohibited materials Bulk Whole Barley, Recall # V-256-2009

http://madcowfeed.blogspot.com/2009/08/foia-request-feed-recall-2009-product.html

Friday, September 4, 2009

FOIA REQUEST ON FEED RECALL PRODUCT 429,128 lbs. feed for ruminant animals may have been contaminated with prohibited material Recall # V-258-2009

http://madcowfeed.blogspot.com/2009/09/foia-request-on-feed-recall-product.html

Thursday, March 19, 2009

MILLIONS AND MILLIONS OF POUNDS OF MAD COW FEED IN COMMERCE USA WITH ONGOING 12 YEARS OF DENIAL NOW, WHY IN THE WORLD DO WE TO TALK ABOUT THIS ANYMORE $$$

http://madcowfeed.blogspot.com/2009/03/millions-and-millions-of-pounds-of-mad.html

http://madcowusda.blogspot.com/2009/10/cvm-annual-report-fiscal-year-2008.html

MONDAY, FEBRUARY 25, 2019

***> MAD DOGS AND ENGLISHMEN BSE, SCRAPIE, CWD, CJD, TSE PRION A REVIEW 2019

https://bseinquiry.blogspot.com/2019/02/mad-dogs-and-englishmen-bse-scrapie-cwd.html

SATURDAY, OCTOBER 8, 2022

Cattle with the EK211 PRNP polymorphism are susceptible to the H-type bovine spongiform encephalopathy agent from either E211K or wild type donors after oronasal inoculation

https://bovineprp.blogspot.com/2022/10/cattle-with-ek211-prnp-polymorphism-are.html

TUESDAY, NOVEMBER 01, 2022

SEAC Position statement Chronic wasting disease in UK deer January 2005 (updated July 2006) to 2021

https://chronic-wasting-disease.blogspot.com/2022/11/seac-position-statement-chronic-wasting.html

TUESDAY, NOVEMBER 1, 2022

SEAC Scientific Steering Committee on TSE Prion

https://bovineprp.blogspot.com/2022/11/seac-scientific-steering-committee-on.html

SATURDAY, NOVEMBER 5, 2022

EFSA Network on BSE-TSE Minutes of the 17th meeting Held on 13-14 October 2022

https://efsaopinionbseanimalprotein.blogspot.com/2022/11/efsa-network-on-bse-tse-minutes-of-17th.html

THURSDAY, OCTOBER 22, 2015

Former Ag Secretary Ann Veneman talks women in agriculture and we talk mad cow disease USDA and what really happened

http://madcowusda.blogspot.com/2015/10/former-ag-secretary-ann-veneman-talks.html

THURSDAY, FEBRUARY 23, 2012

EIGHT FORMER SECRETARIES OF AGRICULTURE SPEAKING AT USDA'S 2012 AGRICULTURE OUTLOOK FORUM INDUCTED INTO USA MAD COW HALL OF SHAME

http://madcowusda.blogspot.com/2012/02/eight-former-secretaries-of-agriculture.html

2020 DECEMBER

WEDNESDAY, DECEMBER 9, 2020

Biden's pick Tom Vilsack Failed Terribly on Mad Cow BSE TSE Prion, why put him back as top Agriculture pick?

https://bseusa.blogspot.com/2020/12/bidens-pick-tom-vilsack-failed-terribly.html

CAMEL PRION DISEASE CPD

Monday, November 14, 2022

Prion Diseases in Dromedary Camels (CPD) 2022 Review

https://camelusprp.blogspot.com/2022/11/prion-diseases-in-dromedary-camels-cpd.html

Tuesday, April 27, 2021

Working Document on Camel Prion Disease (CPrD) 14/09/2020

https://camelusprp.blogspot.com/2021/04/working-document-on-camel-prion-disease.html

FRIDAY, DECEMBER 02, 2022

Creutzfeldt Jacob Disease CJD TSE Prion December 2022 Annual Update

https://creutzfeldt-jakob-disease.blogspot.com/2022/12/creutzfeldt-jacob-disease-cjd-tse-prion.html

SPONGIFORM ENCEPHALOPATHY ADVISORY COMMITTEE

Minutes of the 99th meeting held on 14th December 2007

snip...

ITEM 8 – PUBLIC QUESTION AND ANSWER SESSION 40.

The Chair explained that the purpose of the question and answer session was to give members of the public an opportunity to ask questions related to the work of SEAC. Mr Terry Singeltary (Texas, USA) had submitted a question prior to the meeting, asking: “With the Nor-98 now documented in five different states so far in the USA in 2007, and with the two atypical BSE H-base cases in Texas and Alabama, with both scrapie and chronic 14 © SEAC 2007 wasting disease (CWD) running rampant in the USA, is there any concern from SEAC with the rise of sporadic CJD in the USA from "unknown phenotype", and what concerns if any, in relations to blood donations, surgery, optical, and dental treatment, do you have with these unknown atypical phenotypes in both humans and animals in the USA? Does it concern SEAC, or is it of no concern to SEAC? Should it concern USA animal and human health officials?” 41.

A member considered that this question appeared to be primarily related to possible links between animal and human TSEs in the USA.

There is no evidence that sCJD is increasing in the USA and no evidence of any direct link between TSEs and CJD in the USA. Current evidence does not suggest that CWD is a significant risk to human health. There are unpublished data from a case of human TSE in the USA that are suggestive of an apparently novel form of prion disease with distinct molecular characteristics. However, it is unclear whether the case had been further characterised, if it could be linked to animal TSEs or if other similar cases had been found in the USA or elsewhere. In relation to the possible public health implications of atypical scrapie, H-type BSE and CWD, research was being conducted to investigate possible links and surveillance was in place to detect any changes in human TSEs. Although possible links between these diseases and human TSEs are of concern and require research, there is no evidence to suggest immediate public health action is warranted. The possible human health risks from classical scrapie had been discussed earlier in the meeting. Members noted that there are effective channels of discussion and collaboration on research between USA and European groups. Members agreed it is important to keep a watching brief on new developments on TSEs.

snip...

http://www.seac.gov.uk/minutes/99.pdf

http://web.archive.org/web/20091010132933/http://www.seac.gov.uk/minutes/99.pdf

http://seac992007.blogspot.com/2008/07/seac-draft-minutes-of-100th-meeting.html

http://seac992007.blogspot.com/

>>>There is no evidence that sCJD is increasing in the USA and no evidence of any direct link between TSEs and CJD in the USA.<<<

https://seac992007.blogspot.com/2009/10/

TUESDAY, APRIL 05, 2022 2022

American Academy of Neurology Emerging Sciences

Abstract Website

Incidence of Creutzfeldt-Jakob Disease in the United States 1993-2014

https://creutzfeldt-jakob-disease.blogspot.com/2022/04/incidence-of-creutzfeldt-jakob-disease_5.html

TUESDAY, MAY 24, 2022

Texas Creutzfeldt Jakob Disease CJD TSE Prion Update Singeltary FOIA Request Received May 23, 2022
https://cjdtexas.blogspot.com/2022/05/texas-creutzfeldt-jakob-disease-cjd-tse.html

MONDAY, JUNE 14, 2021

Texas Health and Human Services The Department of State Health Services Creutzfeldt Jakob Disease TSE Prion Report 2021?

http://cjdtexas.blogspot.com/2021/06/texas-health-and-human-services.html

SUNDAY, MAY 08, 2022

USA National Prion Disease Pathology Surveillance Center Surveillance Update April 11th, 2022

https://creutzfeldt-jakob-disease.blogspot.com/2022/05/usa-national-prion-disease-pathology.html

THURSDAY, JUNE 23, 2022

UK Research and analysis Creutzfeldt-Jakob disease (CJD) update (data to end of December 2021) Updated 21 June 2022

https://creutzfeldt-jakob-disease.blogspot.com/2022/06/uk-research-and-analysis-creutzfeldt.html

TUESDAY, MAY 10, 2022

Concordance of CSF RT-QuIC across the European Creutzfeldt-Jakob Disease surveillance network

https://creutzfeldt-jakob-disease.blogspot.com/2022/05/concordance-of-csf-rt-quic-across.html

TUESDAY, OCTOBER 18, 2022

Assessing the Potential Transmissibility of Bovine and Cervid Prions with a Human Prion Protein-based Model ARS RESEARCH

https://transmissiblespongiformencephalopathy.blogspot.com/2022/10/assessing-potential-transmissibility-of.html

Diagnosis and Reporting of Creutzfeldt-Jakob Disease

Singeltary, Sr et al. JAMA.2001; 285: 733-734. Vol. 285 No. 6, February 14, 2001 JAMA

Diagnosis and Reporting of Creutzfeldt-Jakob Disease

To the Editor:

In their Research Letter, Dr Gibbons and colleagues1 reported that the annual US death rate due to Creutzfeldt-Jakob disease (CJD) has been stable since 1985. These estimates, however, are based only on reported cases, and do not include misdiagnosed or preclinical cases. It seems to me that misdiagnosis alone would drastically change these figures. An unknown number of persons with a diagnosis of Alzheimer disease in fact may have CJD, although only a small number of these patients receive the postmortem examination necessary to make this diagnosis. Furthermore, only a few states have made CJD reportable. Human and animal transmissible spongiform encephalopathies should be reportable nationwide and internationally..

Terry S. Singeltary, Sr Bacliff, Tex

1. Gibbons RV, Holman RC, Belay ED, Schonberger LB. Creutzfeldt-Jakob disease in the United States: 1979-1998. JAMA. 2000;284:2322-2323.

http://jama.jamanetwork.com/article.aspx?articleid=1031186

Elsevier Editorial System(tm) for The Lancet Infectious Diseases

Manuscript Draft

Manuscript Number:

Title: HUMAN and ANIMAL TSE Classifications i.e. mad cow disease and the UKBSEnvCJD only theory

Article Type: Personal View

Corresponding Author: Mr. Terry S. Singeltary,

Corresponding Author's Institution: na

First Author: Terry S Singeltary, none

Order of Authors: Terry S Singeltary, none; Terry S. Singeltary

Abstract: TSEs have been rampant in the USA for decades in many species, and they all have been rendered and fed back to animals for human/animal consumption. I propose that the current diagnostic criteria for human TSEs only enhances and helps the spreading of human TSE from the continued belief of the UKBSEnvCJD only theory in 2007.

HUMAN and ANIMAL TSE Classifications i.e. mad cow disease and the UKBSEnvCJD only theory August 2007

August 2007

HUMAN and ANIMAL TSE Classifications i.e. mad cow disease and the UKBSEnvCJD only theory

TSEs have been rampant in the USA for decades in many species, and they all have been rendered and fed back to animals for human/animal consumption. I propose that the current diagnostic criteria for human TSEs only enhances and helps the spreading of human TSE from the continued belief of the UKBSEnvCJD only theory in 2007. With all the science to date refuting it, to continue to validate this myth, will only spread this TSE agent through a multitude of potential routes and sources i.e. consumption, surgical, blood, medical, cosmetics etc. I propose as with Aguzzi, Asante, Collinge, Caughey, Deslys, Dormont, Gibbs, Ironside, Manuelidis, Marsh, et al and many more, that the world of TSE Transmissible Spongiform Encephalopathy is far from an exact science, but there is enough proven science to date that this myth should be put to rest once and for all, and that we move forward with a new classification for human and animal TSE that would properly identify the infected species, the source species, and then the route.

This would further have to be broken down to strain of species and then the route of transmission would further have to be broken down. Accumulation and Transmission are key to the threshold from sub-clinical to clinical disease, and key to all this, is to stop the amplification and transmission of this agent, the spreading of, no matter what strain. In my opinion, to continue with this myth that the U.K. strain of BSE (one strain TSE in cows), and the nv/v CJD (one strain TSE humans) and that all the rest of human TSE are just one single strain i.e. sporadic CJD (when to date there are 6 different phenotypes of sCJD, and growing per Gambetti et al), and that no other animal TSE transmits to humans, to continue with this masquerade will only continue to spread, expose, and kill, who knows how many more in the years and decades to come. ONE was enough for me, My Mom, hvCJD i.e. Heidenhain Variant CJD, DOD 12/14/97 confirmed, which is nothing more than another mans name added to CJD, like CJD itself, Jakob and Creutzfeldt, or Gerstmann-Straussler-Scheinker syndrome, just another CJD or human TSE, named after another human.

WE are only kidding ourselves with the current diagnostic criteria for human and animal TSE, especially differentiating between the nvCJD vs the sporadic CJD strains and then the GSS strains and also the FFI fatal familial insomnia strains or the ones that mimics one or the other of those TSE? Tissue infectivity and strain typing of the many variants

Manuscript

of the human and animal TSEs are paramount in all variants of all TSE. There must be a proper classification that will differentiate between all these human TSE in order to do this. With the CDI and other more sensitive testing coming about, I only hope that my proposal will some day be taken seriously. ...

Terry S. Singeltary Sr. P.O. Box Bacliff, Texas USA 77518 flounder9@verizon.net

http://web.archive.org/web/20110507181935/http://www.regulations.gov/fdmspublic/ContentViewer?objectId=090000648027c28e&disposition=attachment&contentType=pdf

Terry S. Singeltary Sr.