

SEAC Annual Report April 2000 – March 2001



ANNUAL REPORT April 2000 – March 2001

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Foreword

I am pleased to present this, the fourth Annual Report of the Spongiform Encephalopathy Advisory Committee (SEAC) covering the period from 1 April 2000 to 31 March 2001.

The BSE epidemic in cattle has continued to decline in line with expectation. The number of cases of vCJD in the human population has shown a rising trend but we are still not able to predict how the epidemic will develop with any confidence. A large proportion of the Committee's time has been occupied with the consequences of infections in humans, especially the possibility of onward transmission through medical procedures, and on surveillance for the possibility of BSE infection in sheep.

The work of the Committee invokes much public interest and after each Committee meeting, SEAC has continued to hold press briefings. SEAC will continue to explore methods of opening up the work of the Committee to a wider audience.

I have been acting Chair of the Committee for the past year. I am grateful to fellow Members of the Committee and to the Secretaries and the support staff in all three departments of the SEAC Secretariat for their support and insight in dealing with some of the complex issues that we have had to address. I would particularly like to acknowledge the important contributions made over a number of years by Dr Mike Painter and Mr David Pepper who left the Committee during the year. Dr Painter's important insight into public health issues and Mr Pepper's deep knowledge of veterinary issues have been of great value to the deliberations of SEAC.

The Committee continues to be reliant upon access to early research findings and technical briefings on particular issues and I would like to thank those who throughout the year have helped the Committee on these aspects.

I hope that you find this report of interest. If you have any comments or suggestions, I would be grateful if you could forward them to the SEAC Secretariat, whose details can be found at the end of this report.

[signature]

Professor Peter Smith
Acting Chairman

About the Committee

1. SEAC is an independent expert advisory Committee. Its terms of reference are to provide scientifically-based advice to the ¹Department for Environment, Food and Rural Affairs (Defra), the Department of Health (DH), Devolved Administrations, and the Food Standards Agency (FSA) on matters relating to spongiform encephalopathies, taking account of the remits of other bodies with related responsibilities.
2. SEAC evolved as a reconstitution of the Tyrrell Committee, which in turn had emerged from the Southwood Working Party. The Tyrrell Committee and its predecessor the Southwood Working Party were the bodies that originally advised the government on BSE related issues.
3. SEAC had its inaugural meeting on 1 May 1990 and since then has advised the government on matters relating to transmissible spongiform encephalopathies (TSEs).
4. SEAC is a Public Body whose members are appointed to the Committee in accordance with the code for public appointments issued by the Commissioner for Public Appointments. It is based on the Nolan Principles, which aim to ensure fairness and transparency in appointments.
5. It is usual for the Committee to meet five or six times a year to formulate advice to Ministers on scientific aspects of TSEs. It is standard practice for Ministers to consider SEAC's advice when formulating public and animal health policies and to publish the advice from SEAC.
6. Items on the agenda of a meeting of the Committee result from a number of sources, including:
 - specific requests from Ministers and officials for advice
 - results of new research
 - requests from a Member of the Committee
 - specific requests for advice to individual SEAC members or to the Secretariat.
 - the SEAC forward Business Plan.

¹ Soon after the period covered by this report the Ministry of Agriculture, Fisheries and Food (MAFF) became part of the newly created Department for Environment, Food and Rural Affairs (Defra).

The Committee's Commitment to Openness

7. SEAC continues to increase the openness and transparency of its deliberations. This is the Committee's fourth Annual Report, and in accordance with the recommendations of the SEAC Review published in July 1997, the Committee has been publishing a public summary after each of its meetings since October 1997. Since November 1998, SEAC has also held a press briefing after each meeting. For the period of this report, SEAC has attached to their public summaries a list of published papers distributed to Committee Members by the SEAC Secretariat since the previous meeting. The public summaries appear on the Defra and DH websites.

Membership

8. Members of SEAC are usually appointed for a period of three years. The Commissioner for Public Appointments Code considers that renewal for a further 3 years, but not longer, is permissible.

Meet the Members

9. For the period of this report, SEAC consisted of an acting Chairman and twelve Members from wide-ranging backgrounds including epidemiology, neuropathology, veterinary pathology, veterinary medicine, and public health practice. In addition, one lay Member served on the Committee during this reporting period, in accordance with the recommendations arising from the SEAC Review report published in 1997.

Professor Peter G. Smith - (Acting Chairman)

Head of Department of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine.

Professor Adriano Aguzzi - Head of the Institute of Neuropathology, University of Zurich, Director of the Swiss Reference Centre for Prion Diseases and Associate Dean for Research Zurich Medical School.

Professor Roy Anderson - Head of the Department of Infectious Disease Epidemiology, Imperial College School of Medicine, University of London.

Professor Christopher Bostock - Director of the Biotechnology & Biological Sciences Research Council's Institute for Animal Health.

Mr Ray Bradley CBE - Veterinary Pathologist and BSE co-ordinator for MAFF until his retirement in 1995. Now a Private BSE Consultant.

Professor John Collinge - Director and the Head of Department, MRC Prion Unit and Department of Neurodegenerative Disease, Institute of Neurology.

Professor James Ironside - Neuropathologist at the National CJD Surveillance Unit, Edinburgh.

Mr Peter Jinman - Private Veterinary Surgeon.

Professor Harriet Kimbell MBE - Associate Professor at the Guildford College of Law and a member of the Council of the Consumers' Association.

Professor Colin Masters - Professor and Head of the Department of Pathology, University of Melbourne, Australia.

Professor Ian McConnell - Professor of Veterinary Science at the University of Cambridge and Director of Research at the University of Cambridge Veterinary School.

Dr Jiri Safar - Adjunct Associate Professor in the Department of Neurology at the University of California, San Francisco.

Two members left the Committee during the year:

Dr Michael Painter - Consultant in Communicable Disease Control, City of Manchester.

Mr David Pepper - Private Veterinary Surgeon (retired) with extensive experience in cattle veterinary practice.

Further details on each of the current SEAC Members may be found on the SEAC website: <http://www.seac.gov.uk/membership.htm>

Code of Practice for Members

10. The Committee agreed a revised Code of Practice in July 1999. This contained further guidance on the disclosure of Committee business after SEAC meetings and information on an indemnity offered by Ministers to Members of SEAC and related Committees in connection with the performance of Committee duties. A copy of the indemnity offered to SEAC Members can be found at Annex II. The SEAC Code of Practice incorporates the seven principles of public life identified by the Nolan Committee in their report on Standards in Public Life. In addition to the above, it gives specific guidance on publication of work by SEAC Members, conflicts of interest and confidentiality. Copies may be obtained from the SEAC Secretariat or can be found on the SEAC website: http://www.seac.gov.uk/CoP_index.htm

Register of Members Interests

11. Details of commercial and non-commercial interests of SEAC Members that may conflict with their responsibilities as Members of the Committee are put into the public domain. The register can be found at Annex III and is also maintained on the SEAC website <http://www.seac.gov.uk/interest.pdf>.

Conflicts of Interest

12. In addition to the register of Members' interests, Members are asked, at the beginning of each meeting, to declare any conflicts of interest with respect to individual agenda items.

Secretariat

13. The Secretariat co-ordinates the work of the Committee and arranges the financing of its activities. The contact address for the Secretariat (including website addresses, for further information on the work of sponsoring Departments) can be found at the end of this report at Annex VIII.

Subgroups

14. With the approval of Ministers, the Chairman of SEAC can authorise the setting up of *ad hoc* subgroups to discharge specific tasks. Subgroups have specific terms of reference and are required to report to the main Committee. Members of SEAC also serve on these subgroups. There is considerable flexibility about how subgroups are set up, depending on the issues under consideration.
15. Expanded use of subgroups, as recommended in the 1997 SEAC Review, has allowed the Committee to delegate the initial consideration of some of the highly specialised issues which require a substantial input from experts in addition to those on the main Committee.
16. The SEAC Epidemiology subgroup was set up in September 1997, chaired by Professor Peter Smith. The subgroup reports jointly to the four UK Chief Medical Officers and to SEAC, and meets twice a year. The terms of reference for this Group are:-
 - “To assess the information about the epidemiology of vCJD and develop as far as possible advice on trends in the disease”.
17. Details of membership of the Epidemiology subgroup are set out at ANNEX V.

18. Other subgroups, such as the Sheep subgroup convene on an ad hoc basis as required.

Working groups

19. In addition to subgroups, SEAC maintains a Joint working group with the Advisory Committee on Dangerous Pathogens (ACDP), chaired by Professor Don Jeffries (ACDP Member). The terms of reference for this Group are:
- “To consider the risks from exposure to the agents of transmissible spongiform encephalopathies that may arise as a result of work activities”
 - “To develop guidance to minimise such risks”
 - “To provide advice as requested by the parent Committees (ACDP and SEAC)”
20. Full membership of the working group is given at Annex VI.

Main Topics Considered by SEAC

Summary

21. The Committee met six times between 1 April 2000 and 31 March 2001. During this period SEAC examined current research within the field of transmissible spongiform encephalopathies and monitored epidemiological data on vCJD and BSE. The number of cases of cattle BSE continued to decline. As at 31 March 2001 the total number of definite and probable cases of vCJD had increased to 97. New results from work were presented regularly in the form of published papers and confidential pre-publication drafts. In addition, key results from current research were presented during Committee meetings.

A. CJD and Public Health

CJD Surveillance

22. Preliminary results were announced from a survey indicating that none of the first 3000 samples of human tonsil/appendix tissues examined showed the presence of the abnormal prion protein associated with vCJD. This survey will eventually examine around 18,000 samples of human tonsil/appendix tissue. The Committee agreed that whilst this was encouraging, it would be necessary to await further results before drawing firmer conclusions. Further information on CJD surveillance is available in the National CJD Surveillance Unit Annual Report which is available on their website www.cjd.ed.ac.uk.

CJD Epidemiology

23. A report from the SEAC Epidemiology subgroup, which assessed information about vCJD and advised on trends in the disease, was endorsed by SEAC in July 2000 and was passed to the four UK Chief Medical Officers.
24. The report indicated a statistically significant rising trend of around 20-30 per cent per annum, but concluded that it was too early to assess the extent of this trend over coming years, or forecast accurately the ultimate size of the vCJD epidemic.
25. The Committee also noted that four “definite” and one “probable” case of vCJD had occurred in a small area of Leicestershire. It concluded that the higher number of cases in that area was unlikely to have occurred by chance but this explanation could not be completely ruled out. The Committee welcomed the implementation of a locally based investigation to investigate the circumstances of this apparent cluster, as this could inform on the mode

of transmission of vCJD, and therefore assist in the understanding of the national epidemic.

26. Further information on the SEAC Epidemiology subgroup is available in Annex V of this report.

Diagnosis – Criteria for vCJD

27. The Committee agreed criteria for diagnosing probable vCJD disease in patients who are still alive. Details of the new criteria, including the application of a MRI scan and tonsillar biopsy, were set out in a DH press release issued on 17 March 2000. Histopathological examination of brain tissue (usually at post-mortem) remained the only means of confirming the diagnosis. The monthly DH press release on the number of cases also includes details of the diagnostic criteria. The full texts of these press releases are available on the DH website at: www.doh.gov.uk/cjd.

Human Blood

28. The Committee welcomed efforts being made to reduce the need for blood transfusion, and research underway to develop synthetic alternatives. The Committee considered a risk assessment of the potential impact on person to person transmission of vCJD of ceasing to use UK donor plasma in the production of fresh frozen plasma (FFP). The Committee accepted that if FFP were sourced from outside the UK, the theoretical vCJD risk from FFP could be reduced further, but there might also be an increased risk from other infectious agents in blood sourced from outside the UK. The Committee did not dissent from the risk assessment's conclusions, but considered that it was important for the report to be set in context and reflect uncertainty. The Committee noted that the Microbiological Safety of Blood and Tissues for Transplantation Committee would re-examine the risk assessment in the light of SEAC's views.

Surgical Instruments

29. The ACDP/SEAC Joint Working group advised that there were particular problems with decontaminating some surgical instruments, such as endoscopic biopsy forceps, which may come into contact with infective tissues whilst performing a biopsy on non-CNS tissues. The jaws of these forceps were particularly difficult to clean. Some of these devices were supplied as single-use items.
30. The Committee endorsed a draft report which assessed the theoretical risk of person to person transmission of vCJD from surgical instruments. The report had previously been reviewed by a subgroup which had considered and endorsed the assumptions used within the risk assessment with respect to a

range of input values relating to estimates of preclinical infectivity theoretically possible within various body tissues.

31. SEAC reiterated its earlier view that rigorous implementation of washing, decontamination and general hygiene procedures were key steps in reducing any risk, and stressed the importance of ensuring that such steps were fully implemented within the health care setting. It further concluded that although the theoretical risk could depend on a number of factors, it was likely to be greatest from operations involving central nervous system and posterior ophthalmic tissue, followed by lymphoid and anterior ophthalmic tissue. The Committee considered that single use instruments should be considered wherever practicable, and provided that patient safety would not be compromised.
32. The Committee recommended that instrument labelling and tracking should also be improved and the monitoring of decontamination procedures should be frequent and robust. It would be desirable for the reforms outlined to encompass private and military hospitals as well as the NHS.

Dentistry and the use of dental instruments

33. The Committee considered there were no current grounds for recommending changes to procedures involving dentistry, but reiterated the need for thorough cleaning and sterilisation practices to be observed in respect of used instruments. In addition, the Committee recommended that further research be undertaken, in particular to analyse oral tissues from vCJD patients for any presence of abnormal prion protein. The Committee also proposed that oral tissues be subject to a theoretical risk assessment modelling analysis, similar to that already underway for other body tissues with respect to surgical instrument use.

CJD Incidents Panel

34. A CJD Incidents Panel was set up as a subgroup of the Advisory Committee on Dangerous Pathogens/SEAC Joint TSE Working group. This panel would assist health authorities and clinicians managing incidents where there might be a risk of potential transmission of CJD or vCJD between patients through clinical interventions. The Panel would advise on the management of the potential risks including the possibility of withdrawing instruments and of informing patients who may have been exposed to risk. SEAC noted that the mechanisms being put in place for handling such incidents would need to be able to demonstrate rapid and effective response to incidents as they emerge. This could be aided by the formation of generic approaches developed through experience of considering individual incidents.

CJD Research Priorities/Diagnostics

35. The Committee considered ongoing research on vCJD and accepted that most of the major areas of research into vCJD were being addressed. The Committee recognised that it would be some time before many of these projects produced results but that they had the potential to greatly increase understanding and knowledge of the disease. The Committee reiterated its view that the search for a diagnostic test targeting blood should be a key priority and recommended that DH explore with urgency all possible means of securing such a test. The Committee noted that a call for research into diagnostics tests in March 2001, co-ordinated by the TSE Joint Funders Group was aimed at addressing this recommendation.

B: Food Safety and the Protection of Animal Health

BSE Epidemiology

36. The BSE epidemic continued to decline. At the November 2000 meeting, it was noted that confirmed cases were around 45% lower compared with the previous year. Members were particularly encouraged by the decreasing proportion of four and five year old cattle developing disease. It was considered that this indicated increased feed control compliance prior to the implementation of further feed restrictions in August 1996.
37. The Committee published amended predictions for BSE case incidence, including those cases in animals born after mid 1996. These were based on analyses considered by a group at Imperial College and were revised from earlier figures published in June 1999, which had not taken account of the estimated effects of the offspring and selective culls.
38. Professor Roy Anderson of Imperial College updated SEAC on recent modelling work by his group. Allowing for a 60% reduction in maternal transmission cases due to the Offspring Cull, the group's estimate of the number of animals entering the food chain in GB within 12 months of developing clinical disease, assuming 10% maternal transmission, had now fallen to 0.8 animals in 2000 (i.e. "probably less than 1") and 0.5 animals in 2001 (with specified risk material removal rules safeguarding public health in those cases).
39. Members considered preliminary results from a recent survey of casualty animals over thirty months of age in Northern Ireland which indicated evidence of BSE infection in about 2% of the 2546 animals sampled. Although these samples were taken from a group of Over Thirty Month (OTM) cattle which would not have entered the food chain, Members were concerned that the results appeared to be at some variance with the low

incidence of reported clinical BSE in Northern Ireland. However, at a subsequent meeting, it was noted that the samples were taken from older cattle that were registered as casualty animals, and so were from a group of animals where BSE incidence was likely to be comparatively higher than in the population of healthy slaughter cattle. All animals were over thirty months of age so would not have entered the food chain.

BSE in a Cow Born After 01 August 1996

40. On 27 June 2000, BSE was confirmed in a Holstein/Friesian dairy cow born on 25 August 1996. This was the first recorded case of BSE in a cow born after 01 August 1996, the date when further measures to improve feed security were considered to be fully effective. Members welcomed MAFF's investigation into the possible routes by which the animal may have been exposed to the BSE agent, although they acknowledged it may be difficult to reach a definitive conclusion. Members noted that it had been predicted that a small number of BSE cases would be born after the implementation of the further measures on feed controls, assuming the possibility of maternal transmission, although direct exposure to residual contaminated feed could not be ruled out. Members agreed that the nature of existing control measures meant that there was no cause for concern with respect to the safety of beef as a result of this case.

BSE Surveillance

41. SEAC considered options for an abattoir survey of cattle brains from animals born after 1 August 1996 to check the effectiveness of the feed ban. Members recommended that a survey should begin in August 2001. Timing the survey to start then would ensure that the samples to be analysed would come from 5-year-old cattle, thus coinciding with the peak age incidence of clinical BSE. It would therefore be most likely to pick up any animals developing BSE.
42. Members considered current and future proposals for active BSE surveillance of UK cattle using diagnostic tests on cattle brains. Under EU regulations, annual testing of 9,000 UK fallen OTM cattle began in January 2001. Members noted that as a result of new EU decisions, further testing would be required to include: all OTM fallen cattle (75,000 animals annually); OTMS cattle born August 1996-July 1997 (100,000 animals annually) and from later this year, all casualty animals (100,000 animals annually).

BSE – Diagnostic Tests

43. Members considered the plans for, and the results of, BSE testing in other EU Member States. All cattle over thirty months of age entering the food chain must be tested for the presence of BSE prions using one of three

approved diagnostic tests. Members agreed that the current diagnostic tests were useful tools for epidemiological surveillance and would provide better data on the distribution of BSE in the EU. However, the tests had limited public health protection value when used to screen out infected cattle in abattoirs, as they had only been validated using brain material derived from animals with clinical BSE.

44. Members emphasised the pressing need to develop diagnostic tests that are able to detect animals in the early phases of infection, and stressed the importance of work to assess the sensitivity of BSE diagnostic tests throughout the incubation period. This was an EU-wide issue.

BSE Cases Abroad

45. Dr Christl Donnelly of Imperial College presented interim modelling work on BSE in the Republic of Ireland, using the techniques previously applied to French data. With respect to animals going into the food chain, the relative risks were roughly 99 times greater in Ireland than Great Britain, compared with roughly 24 times greater in France than Great Britain. The risk associated with consuming meat imported from Ireland would however be very small if controls were properly enforced. If enforcement fell short, then the relative risk would rise in proportion to the level of deficiency of enforcement. Overall, however, the relative risk from Irish beef, was much lower than that from consumption of British cattle before the OTM rule came into force in March 1996. Dr Donnelly's final assessment of BSE risk in Irish beef was published on the FSA website on 22 March 2001.
46. Members also considered current data on BSE cases in the UK and in other EC Members States. Members agreed that the rising number of infected animals in other Member States was a cause for concern, particularly the high proportion of animals born in 1996 or later in Germany, which may imply a continuing epidemic.

Safety of Imported Meat

47. In the 28 November 2000 meeting, the FSA updated SEAC on the statements it had recently made, and the actions it had undertaken in relation to imported beef. These included pressing the European Commission to introduce compulsory labelling of country of origin of all meat products, including processed products; asking enforcement authorities to step up spot checks on beef imported into the UK; and considering the need to tighten regulations governing imported beef and the enforcement of the OTM rule, especially in relation to meat products. SEAC Members suggested that a Risk Assessment should be undertaken in relation to younger animals in countries with rising BSE levels.

48. In the 28 February 2001 meeting, the FSA reported on the statements it had subsequently made, recommending retention in the UK of the existing controls, including the OTM rule, and advising that legally-sold imported French beef posed no significantly greater risk than UK beef. The latter statement had, however, made clear that processed meat products from countries where BSE had been recorded might pose a slightly higher risk than legally sold carcass meat, because they might contain beef from OTM animals. The FSA also informed the Committee that the EU SRM rules would permit trade in bovine head meat from all EU Member States except the UK and Portugal.
49. Members considered the conclusions of a SEAC subgroup that had met on 5 December 2000 to consider the risk from imported beef and beef products. The subgroup had welcomed the introduction of an EU requirement that from 1 January 2001 OTM cattle would not be allowed to enter the food chain unless they had tested negative for BSE using one of the EU-approved rapid tests. It had, however, expressed concern that, because of the limitations of these tests, a negative result would not necessarily mean that the animal was free of infection. The subgroup considered that the UK's OTM rule should continue to apply to imported meat until questions concerning the efficacy of the tests had been resolved. The subgroup had also expressed concern that the OTM rule did not apply to imports and sales of processed meat products.
50. The Committee endorsed the conclusion of the subgroup that the OTM rule should continue to apply to imported carcass meat and confirmed that it too was concerned about the safety of imported processed meat products, given that they were not covered by the OTM rule and which could contain material like bovine head meat that is SRM in the UK. The Committee noted the FSA's statement on the safety of imported beef, but suggested that the position on French beef would need to be kept under review and that the assessment of the risks from imports should be made more comprehensive and include live animals. On bovine head meat, the Committee expressed concern about the possibility of contamination by brain material and recommended that a case for extending the Specified Risk Material (SRM) rules to include the whole head be made to the European Commission.

Review of BSE Controls

51. In May 2000, the process for the forthcoming FSA Review into BSE Controls was outlined. The review would be the responsibility of the FSA but would be reliant on expert advice from SEAC.
52. Professor Sir John Krebs subsequently updated the Committee on the progress of the Review of BSE Controls. Sir John indicated that on the basis of the current assessment, he did not consider it was likely there would be a

recommendation for immediate relaxation of any of the controls in the three areas under consideration – the OTM Rule, SRM controls and the Feed Ban. The issue to be considered was more one of identifying at what point in the future it might be appropriate to relax the rules taking account of the EU dimension, progress with science and disease incidence. However, he stressed that these were preliminary views and they could change as the report of the review was finalised.

53. In September 2000, Members considered a draft report of the review. Sir John reported that a revised draft report taking account of comments made by SEAC and other interested parties would be prepared in time for discussion at a final stakeholders meeting. The report was published in December 2000

BSE Pathogenesis – Food Safety (Blood)

54. In September 2000, SEAC considered the report of a positive transmission of experimental BSE between sheep through blood transfusion. The Committee considered that the finding did not change their view on bovine products, in the absence of any indication of infectivity in bovine blood, but grounds for additional caution would arise if BSE were ever to be found in commercial sheep. Overall the Committee concluded that the finding did not present the need for recommending any changes to the current food safety controls.

BSE Pathogenesis – Milk

55. The Committee considered the protocol of further experiments to examine milk for BSE infectivity. Milk taken from cattle experimentally infected with BSE would be concentrated and examined using a validated diagnostic test. Members agreed that bioassaying samples in cattle or mice would be a more sensitive test for infectivity than current immunologically-based diagnostic techniques, and agreed that such evaluations should be included.

Specified Risk Material (SRM)

56. The Committee considered European proposals on SRM. These would require EU Member States to remove certain high-risk tissue from cattle and sheep of stipulated ages, depending upon their geographic risk assessment category. The Committee welcomed the proposals and agreed they would represent a significant step forward, even though they would require some adjustment to the present UK SRM controls.
57. Members were updated on progress in implementing EU legislation on specified risk material. They were informed that the extension of the EU controls to include the entire intestine of all bovines had been implemented in the UK from 1 January 2001 and that implementing legislation was in place

to ban the use of stun guns that injected air under pressure into the cranial cavity and pithing of cattle, sheep and goats whose meat was intended for human or animal consumption from 1 April 2001.

Sheep Research and Surveillance

58. The Committee considered a report from a SEAC subgroup that had considered surveillance strategies to define better the incidence of scrapie in the UK sheep flock. Members concurred with the subgroup's recommendations, which were to repeat an anonymous postal survey, perform a pilot study to identify the costs and practical constraints of performing a large-scale longitudinal study, and carry out an abattoir survey to monitor changes in the prevalence of scrapie in sheep going into slaughterhouses. Members considered that the last proposal should have the highest priority.
59. SEAC also considered cases of suspected TSE (that might be BSE) reportedly found in sheep imported into the US from continental Europe. Members noted that an EU mission had recently concluded that on the basis of current information, there was no reason to suspect that the sheep were infected with BSE.

Pathogenesis in Sheep

60. SEAC noted that in ongoing experiments to examine the pathogenesis of experimental BSE in sheep. Romney, Suffolk and Cheviot sheep of susceptible genotype had shown evidence of infectivity in their tissues early in the incubation period. However, no tissues from sheep homozygous for the prion gene variant ARR, at codon positions 136, 154 and 171 respectively, had yet been found positive.

Risk Assessment – BSE in Sheep

61. Members agreed to commission a risk assessment to attempt to quantify the risk to public health if BSE were found in sheep. It was also decided to convene a subgroup to guide the process.

Strain Typing in Sheep

62. SEAC was asked to advise on the criteria that could be used for definitive differential diagnosis in sheep i.e. to distinguish scrapie caused by the BSE agent from scrapie caused by strains of scrapie agent. The Committee concluded that from a scientific viewpoint, a single case of apparent BSE would not be a reliable indicator of whether BSE was in the sheep population at the time of sampling, although, on public health grounds, precautionary

action might be necessary in such a situation. However it would be desirable for the case to be diagnosed as positive by all available tests.

National Scrapie Plan (NSP)

63. The Committee considered MAFF's initial proposals for reducing scrapie within the national flock. Members agreed that improved understanding of the genetics involved in disease susceptibility could be exploited to devise intervention strategies to reduce the prevalence of scrapie. Overall, Members agreed that early consideration should be given to a targeted breeding programme in conjunction with suitable disease accreditation schemes.
64. SEAC subsequently received an update on progress towards launching the first phases of the Government's NSP. Concern was expressed by some Members that a breeding programme based on the selection of a limited number of genotypes might result in the reduction in the incidence of clinical disease but have little effect on the level of sub clinical infections. However, it was also argued that there was already a large body of published evidence to indicate that genotyping could be used in genetic selection to reduce the level of infection in sheep flocks, as measured by the presence of abnormal prion protein as well as the level of clinical disease. Members decided to establish a small subgroup urgently to review the evidence in an attempt to agree its approach both on the fundamental principles inherent in the NSP, and on certain detailed aspects of it.
65. The subgroup agreed that implementation of the NSP based on selective breeding to increase the prevalence of the ARR genotype in the national flock and decrease the level of PrP genotypes known to be susceptible to scrapie was a valid and important approach. The subgroup recommended that the breeding programme should proceed and, in parallel, further work should be undertaken to verify that sheep naturally exposed to scrapie and sheep experimentally challenged with BSE, but carrying alleles associated with resistance to TSEs, do not harbour infectivity or PrP^{Sc} in the absence of clinical signs of disease. The subgroup considered that if experimental results came to light that indicated genetically resistant sheep were able to replicate and harbour the scrapie agent, the NSP should be reviewed. SEAC accepted the conclusions of the subgroup and endorsed their recommendations.
66. SEAC considered proposals of Phase III of the NSP concerning scrapie-affected flocks. SEAC agreed that dealing with scrapie-affected flocks was an important element of the NSP to reduce levels of scrapie and that it was important, as with the breeding for resistance scheme, to have a voluntary scheme in the first instance. It was agreed that a SEAC subgroup should consider Phase III of the NSP in more detail and that their conclusions would be fed back to the main Committee.

Animal Feed – Regulations

67. Members considered a number of EU-wide animal feed regulations which had been adopted temporarily in the light of the emerging BSE epidemic elsewhere in Europe. The regulations currently applied only until June 2001 and prohibited the feeding of processed animal protein to all farmed livestock, as opposed to ruminants alone. This brought Member States broadly in line with current UK legislation adopted in 1996. SEAC strongly agreed that the widened EU feed ban was beneficial to the protection of animal health and, in major part, should be made permanent.

Animal feed – Blood

68. SEAC reviewed the use of dried mammalian blood in animal feed, which is currently permitted under EU legislation. SEAC concluded that, although within species recycling should be discouraged, however in the case of dried bovine blood, which would be sourced from animals under 30 months of age, the risks were extremely small. They agreed there was no compelling need to change previous advice. However, Members considered there was a theoretical possibility that if blood meal derived from a sheep infected with scrapie were included in a sheep ration, this could present a risk to animal health. If so, this may theoretically compromise current efforts to eradicate scrapie from the national flock. SEAC asked that this potential risk and its implications be considered within the context of the NSP.

Animal Feed – Fishmeal

69. Members agreed that meal derived from wild fish could be exempt from the feed ban. In order to prevent intra-species recycling, meal derived from farmed fish should be allowed only if it could be guaranteed that it would not be fed to farmed fish, either directly or indirectly via meal from other species. If this could not be guaranteed then it should not be used.

Animal Feed – Tallow and Gelatine

70. Members again considered the safety of tallow and gelatine. Members agreed that because source material for gelatine and tallow was tightly controlled and subject to processing that would reduce any infectivity present, they were also content for gelatine and tallow to remain exempt from the current feed ban.

Animal Feed – Pig MBM

71. Following discussion of work suggesting that apparently resistant species may still harbour the TSE agents, the Committee recommended that further research on pigs and poultry should be undertaken to extend earlier findings

indicating that these species did not harbour BSE infectivity when exposed orally.

Animal Feed – Dicalcium Phosphate (Poultry Feed)

72. Members agreed that imported bovine bones and bones from UK cattle under thirty months of age with SRM removed could be used to produce dicalcium phosphate for poultry feed. However, because of concerns about intra-species recycling, Members considered that this practice could only be allowed if it could be assured that the material would not be included in feed for any other livestock. If this could not be guaranteed then it should not be used.

Subclinical Infection in apparently resistant species

73. Members considered recent published work from Professor Collinge's group demonstrating that asymptomatic mice that were not thought to be susceptible to TSE infection were still able to replicate prion protein to high levels following experimental challenge, and that brain tissue from these mice could transmit disease to other mice. Members noted the implications of the work in regard to the possibility that prion disease may exist in a sub-clinical form. They noted that existing UK control measures, with respect to the safety of beef products, took account of the possibility that animals with no clinical signs may be incubating the disease. They agreed that the experiment did not raise immediate public or animal health concerns. However the Committee was concerned about the possible implications of sub-clinical infection in countries where BSE was present and where less stringent control measures were in place than in the UK.

C. Environmental Issues

Disposal of Meat and Bone Meal

74. The Committee was asked to consider a quantitative risk assessment on the disposal of MBM derived from SRM and OTMS carcasses by landfill. In the light of the results of the risk assessment, the Committee reiterated that it had a strong preference for incineration as the favoured route for the disposal of MBM and was concerned about the use of landfill for the disposal of this material. If there were cases where incineration was not practical, the Committee considered it would be preferable for any material going to landfill to be pressure-cooked first or to be stored for later incineration.

Safety of Small Incinerators to Burn Specified Risk Material (SRM)

75. Members were asked to consider the terms of reference for an independent study on the potential risks to human health from small incinerators burning SRM. Such incinerators were commonly found at hunt kennels and knackery yards and typically handle small numbers of casualty animals and fallen stock. Members agreed the terms of reference, but considered that the scope of the study should be widened to include the incineration of sheep SRM and to assess potential risks to animal as well as human health.
76. Members agreed to convene a small working group to discuss the risk assessment in detail and report back to the full Committee in due course.

Disposal of Foot and Mouth Disease (FMD) Carcasses

77. SEAC considered the implications of various disposal options for cattle carcasses arising from FMD in terms of spread of BSE through the environment. The concern was that cattle slaughtered under FMD control measures could be harbouring BSE infectivity. SEAC considered an independent generic risk assessment on BSE infectivity by DNV Consulting. Members discussed the main BSE-related assumptions made in the model including the assumed level of BSE infectivity in the cattle population and the infectious dose for cattle and humans. Although SEAC did not consider the assumed parameters to be unreasonable, the Committee considered that it would be preferable to base the calculation on a range of plausible values to reflect the uncertainties underlying many of the assumptions, rather than to use point estimates.
78. Based on relative BSE incidence in the year 2000, SEAC also accepted that the risk from burning or burying dairy cattle would be approximately 4½ times more than disposing of the same number of beef cattle.
79. SEAC also stressed that health and safety issues arising from dispersal of brain tissue during slaughter must be considered, and appropriate protective measures taken. SEAC also agreed that it was important that the potential for animal re-infection by TSEs through contaminated drinking water or pastureland was considered, particularly in the immediate vicinity of a burning or burial site. This applied both to BSE in cattle and to scrapie in sheep.

Rendering Condensate

80. The Committee considered a risk assessment which concluded that treatment of condensate produced from the highest risk raw material could reduce the risk to acceptable levels, even under the worst case conditions assumed. However, Members agreed that this finding should be verified

before they could support the spreading of treated rendering condensate to agricultural land. SEAC did not see any difference between the risk from surface spreading and soil injection - neither seemed acceptable for untreated condensate. The nature of the material being rendered did, however, significantly change the risk presented by the condensate. Finally, SEAC supported a proposed investigation of the wider pathways for disposing of waste from rendering plants and similar processes.

D. Committee Business

Formation of the FSA

81. The FSA, an independent food safety watchdog, was set up by an Act of Parliament in 2000 to protect the public's health and consumer interests in relation to food. Members welcomed the formation of the new Agency and agreed to an alteration of SEAC's terms of reference to incorporate the FSA. Members also agreed to reflect devolution within the revised terms of reference. The chair, Sir John Krebs, welcomed SEAC's involvement with the new agency and confirmed that the FSA would form part of the joint secretariat to the Committee.

Risk Assessment Procedures

82. In light of the intention to complete a review into the way risk assessment is used by Government scientific advisory committees, Members reviewed the process of risk assessment. Members agreed that their primary role was to advise on the levels of risk, and that it was the role of policy makers to decide how to use that advice in risk management and communication. Members noted that formal analyses of TSE risk are particularly difficult due to the many uncertainties surrounding the subject.

Dissemination of SEAC Advice

83. In view of SEAC's commitment to a policy on increasing openness, a number of changes were made to increase the transparency with which the Committee conducted its business during the year. SEAC signalled its intention to hold their first open meeting in September 2001.
84. In addition, the agenda for future SEAC meetings would be published 1 or 2 days before the Press Conference which follows each meeting. This would give advance notice of what had been discussed.

BSE Inquiry Report

85. SEAC considered the conclusions of the BSE Inquiry. Members concentrated on the report's findings on Advisory Committees. Key conclusions reached were: the need to clarify with Departments the role of SEAC in explaining issues to the public, in addition to giving advice to Ministers; to draw the public's attention to the lack of knowledge in some areas; to be more pro-active in identifying problems that might be discussed, rather than mainly relying on Government Departments to draw up the agenda; to be more up to date and open in identifying conflicts of interest; and agreement that SEAC's advice should relate to scientific aspects and that the Committee should not stray, or be asked to stray, into wider policy areas outside of the remit of the Committee. There was also recognition of the problem of overcrowded agendas, the consequences of which would be helped but not solved if papers were circulated earlier.

Abbreviations

ACDP	Advisory Committee on Dangerous Pathogens
BSE	Bovine Spongiform Encephalopathy
CNS	Central Nervous System
CJD	Creutzfeldt Jakob Disease
Defra	Department for Environment, Food and Rural Affairs
DH	Department of Health
EU	European Union
FSA	Food Standards Agency
GB	Great Britain
MAFF	Ministry of Agriculture Fisheries and Food
NHS	National Health Service
NSP	National Scrapie Plan
OTM	Over Thirty Month
OTMS	Over Thirty Month Scheme
SEAC	Spongiform Encephalopathy Advisory Committee
SRM	Specified Risk Material
TSE	Transmissible Spongiform Encephalopathy
US	United States
vCJD	Variant Creutzfeldt Jakob Disease

Indemnity by the Minister for Environment, Food and Rural Affairs and the Secretary of State for Health, to members of the Spongiform Encephalopathy Advisory Committee and Related Committees.

1. The Minister and the Secretary of State ("the Ministers") hereby jointly undertake with each of the members of the Spongiform Encephalopathy Advisory Committee and all of its sub-groups covered by the code of practice ("the members") that they will indemnify them, their estates and their heirs against all personal civil liabilities in respect of any action or claim which may be brought, or threatened to be brought, against them either individually or collectively by reason of or in connection with the performance at any time of their duties as members, whether before or after the date of this indemnity, including all costs, charges and expenses which the members or any member may properly and reasonably suffer or incur in disputing any such action or claim.
2. The members or any member shall as soon as reasonably practicable notify the Ministers if any action or claim is brought or threatened to be brought against them or any of them in respect of which indemnity may be sought pursuant to paragraph 1. If any action or claim is brought the Ministers shall be entitled to assume the defence. The Ministers shall notify the members or member as soon as practicable if the Ministers intend to assume the defence and the members or member shall then provide such information as the Ministers reasonably request, subject to the Ministers reimbursing all out of pocket expenses properly and reasonably incurred by members or any of them. The Ministers shall, where reasonable and practicable, consult with and keep the members or any of them informed of the progress of the action or claim. Where Ministers do not assume the defence, members or any of them shall keep the Ministers fully informed on its progress and any consequent legal proceedings and consult with the Ministers as and when reasonably required by them or any of them concerning the action or claim.
3. The indemnity contained in paragraph 1 shall not extend to any losses, claims, damages, costs, charges, expenses or any other liabilities:
 - a) in respect of which members are indemnified by or through any defence organisation or insurers; or
 - b) which may result from bad faith or wilful default or recklessness on the part of the members; or
 - c) which may result from any of the following circumstances (without the prior written consent of the Ministers having been obtained such consent not to be unreasonably withheld):
 - any settlement made or compromise effected of any action or claim brought, or threatened to be brought, against them; or

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- any admission by the members of any liability or responsibility in respect of any action or claim brought, or threatened to be brought, against them; or
- members taking action that they were aware, or ought reasonably to have been aware, might prejudice the successful defence of any action or claim, once the members had become aware that such an action or claim had been brought or was likely to be brought.

Signed on behalf of the Minister of Agriculture, Fisheries and Food and the Secretary of State for Health:

Signature:

Name:

Date:

Signed:

Members name:

Date:

Up to date information on Members indemnity can be found on the DEFRA Website:
<http://www.DEFRA.gov.uk/animalh/bse/bse-science/level-4-seac.html>

Register of Members' Interests at 31 March 2001

SEAC Member	Commercial interests		Non-commercial interests	
	Name of organisation	Nature of interests	Name of organisation	Nature of interest
Professor P G Smith	None	None	Department of Health	Grant holder
Professor A Aguzzi	Boehringer Ingelheim	Occasional consultancy	Swiss National Foundation No: 31-36059.92 3100-040827.94	Principal investigator
	Abbott Laboratories (Chicago)	Support of some laboratory costs e.g. care of mice, instrumentation	Cancer league of the Kanton Zurich	Principal investigator
	Immuno A G (Vienna)	Support of some laboratory costs e.g. care of mice, instrumentation	European Union No. BMHI-CT93-1142	Co-investigator
			National Institute of Health	Co-investigator
			Swiss National Research Program NFP38 & NFP38+	Principal investigator
Professor. R Anderson	Decode	Scientific Advisory Board	The Wellcome Trust	Governor
	SKB	Scientific consultancy	Tropical Health	Trustee

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			and Education Trust (THET)	
	Abbott Pharmaceuticals	Scientific consultancy	London School of Hygiene and Tropical Medicine	Court of Governors
		Non Exec. Chairman	Hamburg Institute of Tropical Medicine	Scientific Advisory Board
			Isaac Newton Institute, Cambridge	Scientific Advisory Board
			Maxwell Institute, Edinburgh	Scientific Advisory Board
Mr R Bradley	European Natural Sausage Casings Association	Advisor	World Health Organisation	Advisor
	Meat and Livestock Commission	Advisor	Office International des Epizooties	Advisor
	Kraft Foods R & D (formerly Kraft Jacobs-Suchard – Munich, Germany)	Advisor	European Commission	Advisor
	De Mulder	Advisor	National Governments and individuals; especially in Africa, Europe and Americas	Advisor
	GlaxoSmithKline	Advisor	Harder Brothers	Advisor

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	Biologicals (Rixensart, Belgium)		Ltd	
	Irish Edible Oils	Advisor	Crackwillow Ltd.	Advisor
	Chiron Behring	Advisor		
	Boyauderie Blesoise	Advisor		
	Glenfarm Holdings Ltd	Advisor	International Natural Sausage Casings Assoc (INSCA) North American Natural Casing Assoc (NANCA) Natural Sausage Casings Association (NSCA)	Advisor
	Taylor by-products USA	Advisor	Animal Proteins Corporation (APC) Europe SA	Advisor
	Peter Gelhard, Naturdarme, Ransach- Baumbach, Germany	Advisor		
	Envirotech Industries Ltd,	Advisor		

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	Dublin			
Professor C J Bostock (Appointed as an expert from the Institute for Animal Health (IAH), a Biotechnology and Biological Sciences Research Council sponsored institute)	Safeway	Share holding	The UK and some overseas Governments	Research contracts with IAH
			Non-governmental organisations and companies, spanning a wide range of interests including food, agriculture, chemicals and pharmaceuticals. Further details of customers of IAH can be found on the Institute's website (www.iah.bbsrc.ac.uk)	Research contracts with IAH

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Professor J Collinge	None	None	Welcome Trust	Research grant holder
			Dept of Health	Research grant holder
			European Commission BIOMED programme	Research grant holder
			Medical Research Council	Unit Director and Research grant holder
			Motor Neurone Disease Assoc	Chairman, Research Advisory Panel
			Glaxo Welcome PLC	Research collaboration
			World Health Organisation	Ad hoc Advisor
Professor J Ironside	Merck, USA	Temporary Advisor	Baxter Healthcare USA	Research investigator on a Baxter funded project on the transmission of CJD (Principal investigator Dr Paul Brown USA)
			Department of Health	Research grant holder: Surveillance of CJD (neuropathology) DoH 1216469 - National retrospective review of CJD and respective disorders DoH 1216982 - Immunocytochemical testing for disease-associated prion protein in lymphoid tissues Advisor: Decontamination of surgical instruments

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				Assessment of risk of exposure to vCJD: infectivity in blood and blood products
			Medical Research Council	Grant holder: G9708080 - Edinburgh HIV brain and tissue resource G9627376 - Phenotypic variation in CJD, a clinical pathological and molecular study
			BBSRC	Grant holder: 15/BS204814 - Neuronal pathology in CJD: an immunocytochemical study with quantitative and microscopic analysis 201/BS410537 - The relationship between neurone damage and clinical disease: relating murine and ovine scrapie to BSE and CJD Advisor: BSEP
			European Union	Grant Holder: EC BI04-98-6046 - Diagnosis of TSE using PrP ^{SC} /PrP ^C EC CT98-6015 - European centralised facility for human transmissible spongiform encephalopathies (prion disease) EC PL97-6003 - Transgenic mice expressing human prion protein. Use for characterisation of human encephalopathies and sensitivity for detection of infectivity EU CT98-6048 - Quantitative analysis of MR scans in CJD (QAMRIC) Advisor
			Committee on	Advisor

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			safety of medicines	
			World Health Organisation	Advisor
			UK Xenotransplantation Interim Regulatory Body	Advisor
Peter Jinman			British Veterinary Association	Vice President
Professor H Kimbell	Bass Plc	Small share holding		
	Tesco's Plc	Small share holding		
Professor C Masters	Merck	Consultant	National Health and Medical Research Council of Australia Several research grants	Principal and Associate investigator
	PRANA Biotechnology Plc	Director	World Health Organisation	Occasional consultancies on CJD
			Australian Government	Occasional consultancy on CJD and Director of the National CJD Registry
Professor I McConnell	Marks & Spencer	Veterinary consultant on occasional basis	Welcome Trust	Fellowship holder Research grant holder Panel member for Veterinary Interest Group

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			BBSRC	Research grant holder
Dr J Safar		Dr Safar has no commercial interests but according to the intellectual property policies of the University of California (UC) is entitled to a portion of income when UC licences to a commercial entity any patents on which he is named as an inventor.	National Institute of Health, Grant # AGO-10770	Co-investigator
			World Health Organisation	Advisor
			Swiss National Research Programme	Advisor
			Medical Research Council	Advisor
			Non-governmental organisations and companies	Research contracts with UCSF

Finance

The cost of running the Committee in 2000/2001 was £110,187. The breakdown between the departments was as follows:

SEAC Fees and Expenses*	£ 65,479
Hire of audio equipment	£ 1,026
Catering (inclusive of VAT)	£ 1,220
Reimbursement of travel and expenses to Committee guests	£ 2,065
Advertising for new members	£ 37,641
Total SEAC Expenses	£107,431

SEAC Epidemiology Sub Group expenses	£ 2,756
Total SEAC and subgroup expenses	£110,187

Department of Health

Contribution to SEAC expenses**	£35,810
Epidemiology Sub-group expenses	£ 2,756
DH Total	£38,566

DEFRA and FSA

Balance of SEAC expenses	£71,621
DEFRA and FSA total	£71,621

TOTAL COST OF SEAC 2000/2001 **£110,187**

* Member fees and entitlements as at 31 March 2001 are as follows

	Chairman	Members
Basic fee per day	£148	£122
Exceptional circumstances allowance (payable currently to SEAC members)	£37	£31
Preparation time allowance		
For up to one day's preparatory work	£33	£33
For more than one day's preparatory work	£74	£66

**For the financial year 2000/01 SEAC expenses were paid by MAFF, with a contribution from DH at the end of the financial year.

**Membership of the SEAC Epidemiology Sub-Group on vCJD
at 31 March 2001**

Chairman:

Professor P.G. Smith

Department of Infectious and Tropical
Diseases
London School of Hygiene and
Tropical Medicine.

Professor R M Anderson

Department of Infectious Disease
Epidemiology
Imperial College School of Medicine

Dr N Gill

PHLS Communicable Disease
Surveillance Centre

Professor C J Bostock

Institute for Animal Health

Professor A Hall

London School of Hygiene and
Tropical Medicine

Professor J Collinge

Prion Disease Group
Imperial College School of Medicine
St. Mary's Hospital, London

Dr G Medley

Department of Biological Science
University of Warwick

Mr S N Cousens

London School of Hygiene & Tropical
Medicine

Dr H Ward

National CJD Surveillance Unit
Western General Hospital
Edinburgh

Professor R N Curnow

Department of Applied Statistics
University of Reading

Professor J W Wilesmith

Epidemiology Department
Central Veterinary Laboratory
Veterinary Laboratories Agency

Professor N Day

Institute of Public Health Service
University of Cambridge

Professor R G Will

National CJD Surveillance Unit
Western General Hospital
Edinburgh

Dr C P Farrington

Faculty of Mathematics and
Computing, The Open University

Membership of the SEAC/ACDP Working group at 31 March 2001

Chairman:

Professor D J Jeffries

ACDP Member

Members:

Dr M Painter

Consultant in Communicable
Disease Control

Professor P G Smith

London School of Hygiene &
Tropical Medicine

Professor J Ironside

National CJD Surveillance Unit

Mr R Bradley

Private BSE Consultant

Mr R Clare

Director
Bob Clare Associates

Dr J Hope

Institute for Animal Health

Dr P Jones

Institute for Animal Health

Mr J Richards

Unison

Dr T Wyatt

Consultant Clinical Scientist

Dr G Ridgway

University College hospital

Ms Dee May

Royal College of Nursing

Dr R Salmon

PHLS Wales

Dr D M Taylor

Retired-previously at the Institute for
Animal Health Neuropathogenesis Unit

Papers provided to SEAC 2000 – 2001

16 February and 11 May 2000

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