Organisation Mondiale de la Santé Animale
World Organisation for Animal Health
Organización Mundial de Sanidad Animal

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REPORT OF THE MEETING
OF THE OIE SCIENTIFIC COMMISSION FOR ANIMAL DISEASES
Paris, 1 – 5 December 2003

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A meeting of the OIE Scientific Commission for Animal Diseases (Scientific Commission) was held at the OIE Headquarters in Paris, France, from 1 to 5 December 2003. The Commission also held discussions with the Terrestrial Animal Health Code Commission on 5 December 2003. The Agenda and List of Participants are presented at Appendices I and II, respectively.

Dr Alejandro Schudel, Head of the OIE Scientific and Technical Department, welcomed the participants on behalf of the OIE Director General, Dr Bernard Vallat who was on official mission abroad.

Dr Bernard Vallat joined the Group on Wednesday 3 December. He welcomed all the participants particularly the new members of the Scientific Commission He drew attention to certain resolutions that have been adopted by the OIE International Committee during the last General Session which required the attention of the Commission. He urged the Commission to finalise the Chapters on Zoning and compartmentalisation, Animal disease surveillance and FMD guidelines for the recognition of freedom from FMD and submit the same to the Terrestrial Animal Health Standards Commission to be considered for inclusion in the *Terrestrial Animal Health Code*. He underlined the role of the various Ad hoc Groups and announced that the Groups for evaluation of country status for specific diseases will always comprise a representative of the Ad hoc Group on epidemiology. However, he stressed that the reports of Ad hoc Groups falling under the auspices of the Commission should always be reviewed by the Commission and only those recommendations accepted by the Commission will be submitted for consideration by other Commissions and the International Committee.

The President of the Commission, Prof. Vincenzo Caporale, who chaired the meeting, opened the discussions on the agenda.

He stressed upon the need for improved communication and coordination between the Scientific Commission and the OIE Terrestrial Animals Health Standards Commission (the Code Commission) for better understanding of animal diseases and the interpretation of OIE Standards for the promotion of international trade of livestock and livestock products

1. Report of the President of the Commission on the Plan of action for the next 3 years

The President reviewed the terms of reference of the Commission and outlined the plan of work that has been proposed by the Commission Bureau. The plan was approved by the Commission. It is presented in Appendix III.

OFFICE INTERNATIONAL DES EPIZOOTIES
12, rue de prony
75017 paris france
tél. 33 (0)1 44 15 18 88
fax 33 (0)1 42 67 09 87
www.oie.int oie@oie.int

The Commission underlined the importance of having a specific section in the OIE Web site for the activities of the Commission. The Web site should act as an efficient communication system to enable interaction with selected experts/collaborating Centres/Reference Laboratories. Members were invited to suggest items to be included on the Web site.

The Commission recommended that henceforth all Ad hoc Groups which operate under the auspices of the Commission would be chaired by a member of the Commission.

The Commission suggested that in view of the lengthy procedures involved in the recognition of country disease freedom and the long (60-day) comment period by Member Countries, the meeting dates of the Commission have to be reviewed. To facilitate the submission of country dossiers, the Commission noted that the Ad hoc Group on epidemiology has recommended that the Central Bureau prepare a new standard format for a questionnaire and a "model" dossier to be considered during 2004 by the Ad hoc Group and the Commission before circulation to Member Countries.

2. Ad hoc Groups formed and to be formed

a) Epidemiology

The Commission approved the Terms of Reference prepared for the Group by the Commission Bureau. It was noted that this Group has already held one meeting The Commission approved the report of that meeting. Henceforth, the meeting of the Group will be chaired by the President of the Commission.

b) Vaccine banks

The Commission agreed on the Terms of Reference for the Group but decided that as a first step, it should only apply to foot and mouth disease. It was proposed that the Group be chaired by Dr Gavin Thomson.

c) Carcass disposal

The Commission advised that the Terms of Reference should be broadened to include other animal species and that the Group should also include a representative from Africa. Dr Gideon Brückner would propose a new draft for the Terms of Reference and would be the Chairman of the Group.

d) BSE Ad hoc Group for Country status recognition

The Commission nominated Dr Kenichi Sakamoto as Chairman of the Group.

e) Rinderpest Ad hoc Group for Country status recognition

The Commission decided that this Group would be chaired by the President of the Commission.

f) CBPP Ad hoc Group for Country status recognition

The Commission decided that the President of the Commission would chair this Group.

g) FMD Ad hoc Group for Country status recognition

The Commission decided that this Group be chaired by Dr Brückner.

The Commission noted that other members of the Ad hoc Groups are nominated by the OIE Director General and that meeting dates are proposed by the Chairman in consultation with the Director General.

3. Zoning and regionalisation

The Commission approved the revised Chapter 1.3.5. as proposed by the Ad hoc Group on Epidemiology accommodating the concept of compartmentalisation. The revised Chapter has been submitted to the Code Commission and will be included in the report of the meeting of the Code Commission held in December 2003.

4. General Guidelines for Surveillance

The Commission noted that the Ad hoc Group on Epidemiology has proposed a new Appendix on general principles on animal health surveillance based on Chapter 1.3.6. and Appendix 3.8.1. The Commission approved the new Appendix with some amendments. This is presented in Appendix IV and Member Countries are requested to send comments to the Terrestrial Animal Health Standards Commission.

The Commission also suggested that the OIE give consideration to the organisation of a special conference on animal disease surveillance, particularly on "rare events" such as the occurrence of sero-positive animals in situations of low disease prevalence.

5. Report of the OIE Foot and Mouth Disease Reference Laboratory of Pirbright: FMD world situation in 2002/2003

Dr David Paton presented an overview of the FMD situation in the world (see Appendix V). As at the end of October 2003, the Laboratory at Pirbirght has received 311 samples for FMD characterisation, with submissions being particularly high from Asian countries. He, however, pointed out that the Reference Laboratories do not receive representative FMD viruses for characterisation from all parts of the world where FMD occurs. On the other hand, he indicated that viruses received by the laboratories are sometimes incompletely characterised due to lack of resources, unwillingness of vaccine companies to provide appropriate vaccines strains and post-vaccinal antisera and the poor reliability of the in-vitro antigenic matching methods which have not been properly standardised, validated or verified by cross-protection.

The Commission also took note of the report of the Pan American Foot and Mouth Disease (PANAFTOSA) OIE reference Laboratory on the epidemiological situation of vesicular diseases in South America. This report is presented in Appendix VI.

6. Report of the OIE Ad hoc Group for evaluation of country status for bovine spongiform encephalopathy in accordance with the *Terrestrial Animal Health Code*

The Commission reviewed the report of the Ad hoc Group for evaluation of country status for BSE. It decided that two countries be given the opportunity to provide up to date additional information on the results of their surveillance programmes and other TSE's for consideration by the Ad hoc Group at its next meeting. The Commission recommended that the Central Bureau ask the two countries which did not satisfy the requirements for the status of "free from BSE" but which could qualify for the status of "provisionally free", to state whether they wish to be considered for the status of "provisionally free" or not. The Group will meet again in March 2004.

7. Country status recognition

a) FMD

Botswana (recovery of status)

The Commission reviewed the dossier presented by Botswana and decided that Botswana satisfies the criteria laid down in Article 2.1.1.7. of the *Code* for reinstatement of zone free from FMD without vaccination. This decision will be communicated to Botswana which will be reinstated in the list of countries with zones free from FMD without vaccination.

Other applications for FMD will be considered by the Ad hoc Group in March 2004.

b) Rinderpest

The country dossiers will be examined by an Ad hoc Group which will meet in January 2004.

8. Proposed amendments to the OIE *Terrestrial Animal Health Code* regarding rinderpest

The Commission reviewed the document submitted by AU/IBAR regarding proposed amendments to the *Code* Chapter on rinderpest. It agreed that in the light of certain situations prevailing in some countries including the current prevalence of strains of rinderpest causing mild disease, the Chapter on rinderpest needs to be reviewed. The changes should take into account the definition of rinderpest infection, the use of peste des petits ruminants (PPR) vaccine as a marker vaccine, sampling strategies and, if possible, the inclusion of zonal freedom from infection. However, it recommended that of these changes, only the new definition for rinderpest infection should be proposed to the Code Commission for submission for adoption to the International Committee in May 2004. The other changes, which are more fundamental, will be taken up by experts forming part of the Ad hoc Group on rinderpest.

The new definition proposed by the Commission is the following:

'The following defines the occurrence of rinderpest virus infection:

Rinderpest virus has been isolated and identified as such from an animal or a product derived from that animal,

or

(a) Viral antigen or viral RNA specific to rinderpest has been identified in samples from one or more animals showing one or more clinical signs consistent with rinderpest, or epidemiologically linked to an *outbreak* of rinderpest, or giving cause for suspicion of association or contact with rinderpest, **and/or**

(b) antibodies to rinderpest virus antigens which are not the consequence of vaccination, have been identified in one or more animals with either epidemiological links to a confirmed or suspected *outbreak* of rinderpest, or showing clinical signs consistent with recent infection with rinderpest.'

The definitive text proposed for adoption is included in the report of the Code Commission.

9. FMD Guidelines for Surveillance, *Terrestrial Code* Chapter 3.8.6.

The Scientific Commission took into account comments from the European Union and New Zealand and proposals from an expert in modifying Appendix 3.8.6.

New issues addressed in the document:

1. The complexities of vaccination in FMD control.

2. An explanation of why a standardised approach to FMD surveillance has proven extremely difficult, bearing in mind the various epidemiological situations that prevail in different parts of the world.

3. The importance of detecting and following up suspicious cases of FMD to show that an effective surveillance system is operational.

4. Strategies for active FMD surveillance were expanded, including the possible use of targeted surveillance. Furthermore, the effect of sensitivity and specificity of testing systems on surveillance strategy development was emphasized, particularly when the design prevalence is low.

5. The issue of cluster analysis in the distribution of serological positives.

6. More details relating to serological surveillance, including the use of NSP tests, were included.

The amended Appendix is included in the report of the meeting of the Code Commission held in December 2003.

10. Review of the matters referred by the Terrestrial Animal Health Standards Commission

a) FMD

- **Commodities**

  The Commission reviewed the response obtained from the OIE FMD Reference Laboratories regarding the list of commodities that can be traded .It noted the complexity of the issue in that some "facts" seem to be arbitrary. The Commission therefore recommended that the OIE appoint an expert in consultation with the OIE Reference Laboratories to pursue an intensive literature search on the behaviour of the agent present in various processed and unprocessed commodities. The report of the expert will be considered by the Commission at a later date.

- **Proposals to reduce waiting periods for recovery of FMD status**

  The Commission discussed the proposals made by a Member Country to reduce the waiting time for countries to recover their FMD status with or without vaccination after a disease outbreak The Commission decided that under the present circumstances and taking into consideration that evaluation of veterinary services and time periods can be arbitrary, it would be unwise to accept the proposals.

- **Vaccines and vaccination**

  The Commission reviewed the proposed definitions for vaccine and vaccination and made the following suggestions:

  - Regular revaccination is necessary to maintain high levels of herd immunity but the vaccination schedule will be determined by the animal species concerned, epidemiological circumstances and the product characteristics of the vaccine being used.

  - It should furthermore be shown by testing a statistically significant sample of the vaccinated population that an adequate proportion of animals is seropositive for the serotype and strain of virus against which protection is sought, through the use of an OIE approved serological test that has been appropriately validated and controlled.

b) Bluetongue

The Commission took cognizance of the conclusions and recommendations of the international symposium on bluetongue held in Taormina, Italy and recommended that these serve as a basis to review the *Code* Chapter. An Ad hoc Group should also be convened as soon as possible to prepare guidelines for surveillance for that disease.

c) Chronic Wasting Disease

The Commission recommended that this be considered by an Ad hoc Group in the event that the disease is included in the new OIE disease list.

d) Paratuberculosis

The Commission made no specific comments but advised that new developments relating to this disease be monitored in view of any possible zoonotic potential.

e) Maedi Visna

The Commission supported the comments of two countries and proposed that the scientific basis for trade implications be reviewed. The Code Commission should later consult the Scientific Commission on that matter.

f) Scrapie

The Commission suggested that surveillance guidelines be developed by an Ad hoc Group under the auspices of the Scientific Commission.

g) Pulmonary adenomatosis

The Commission recommended that this be considered in the event that the disease is included in the new OIE disease list.

h) Classical swine fever

- **Risk assessment**

  The Commission suggested a review of Article 2.1.13.2 of the *Terrestrial Code*.

- **Commodities**

  Regarding the list of commodities that can be safely traded, the Commission reviewed the response obtained from OIE Reference Laboratories for classical swine fever and noted the complexity of the issue in that some facts seem to be arbitrary. The Commission therefore recommended that the OIE appoint an expert in consultation with the OIE Reference Laboratories to pursue an intensive literature search on the behaviour of the agent present in various processed and unprocessed commodities.

  The Commission also proposed that the Code Commission consider reviewing the Chapter concerning African swine fever to harmonise relevant parts with the chapter on CSF.

i) Porcine reproductive and Respiratory Syndrome

The Commission supported the initiative of the Director General to seek expert assistance to develop a draft chapter on that disease.

j) Aujesky's disease

The Commission will ask the Epidemiology Ad hoc Group to deal with the surveillance relating to this disease in consultation with another Ad hoc Group if necessary.

k) Avian influenza

The Commission noted that the matters that had been referred to the Scientific Commission had already been appropriately dealt with by an Ad hoc Group and recommended that the Group be allowed to continue its work.

l) Newcastle disease

The Commission suggested that no action could be taken to harmonise the Chapter with that on avian influenza until the latter is adopted.

11. Joint meeting with the Terrestrial Animal Health Standards Commission

The report of the joint meeting is presented in the report of the Code Commission.

12. Report of the OIE Ad hoc Group on Animal Disease Notification

The Commission was joined for this item by Drs Karim Benjebara and Julio Pinto Head and Deputy-Head of the Animal Health Information Department. The Commission discussed the report of the Ad hoc Group on disease notification providing for only one list of diseases reportable to the OIE and the new criteria for disease notification. It recognised the report as a first step towards adoption of the proposals by the Code Commission and the International Committee as well as improving the disease notification. The Commission encouraged the Group to continue with its good work.

13. OIE Bluetongue Symposium (Taormina, Italy), 26-29 October 2003

The Commission took cognizance of the conclusions and recommendations of the international symposium on bluetongue held in Taormina, Italy and recommended that these serve as a basis to review the *Code* Chapter. An Ad hoc Group should also be convened to prepare guidelines for surveillance.

14. Summary report of activities of the SEAFMD Project (OIE/SEAFMD)

The Commission noted the report on the activities of the South East Asia Foot and Mouth Disease Project and commended the work being undertaken particularly with respect to the submission of FMD samples to Pirbright for characterisation.

15. Other matters

a) Rinderpest status of Mauritania

The Commission reviewed the dossier submitted by Mauritania with a view of regaining its status of freedom from rinderpest disease. It recommended that Mauritania complete the on-going surveillance programme and submit the results to the OIE. The Central Bureau will forward the results by electronic mail to all Commission members to seek their advice. If the results are found to be satisfactory, the status of Mauritania as free from rinderpest disease would be restored.

b) West Nile disease:

The Commission noted that the President of the Commission would be attending the meeting on West Nile disease in Teramo, Italy and suggested that he submit a brief to the Commission on the outcome of that meeting

c) Eradication of Disease

The Commission considered the contents of the letter from Sir William Lithgow on the distinction between the terms “elimination” and “eradication” as applied to aquatic diseases and decided to refer the matter for consideration by the Aquatic Animals Heath Standards Commission.

d) International conference on the control of animal infectious diseases by vaccination

Dr A. Schudel briefly explained the purpose of the conference and the agenda which covers a variety of topics related to the control of infectious diseases by vaccination. It is expected that a set of recommendations will be made and these will be subsequently considered by the Commission.

e) Chronic wasting disease

The Commission discussed the proposal of the President of the Canadian Cervid Council on trade implications of CWD and recommended that these be considered by an Ad hoc Group in case the disease is included in the new OIE list.

f) Research Proposal

The Commission supported a comment by a Member Country to the effect that the Commission and the Central Bureau should be more involved in the coordination of scientific projects involving OIE Reference laboratories and Member Countries.

g) Fourth Strategic Plan of the OIE.

The Commission requested members to forward to the Central Bureau for consideration by the OIE Administrative Commission any suggestion in relation to the fourth strategic plan of the OIE, ensuring that the suggestions made are in support of the new Terms of Reference of the Scientific Commission.

h) Expert group on "Atypical" BSE

The Commission reviewed the draft report produced by the expert Group on "Atypical" BSE and endorsed their recommendations. The report is presented in Appendix VIII.

16. Next meeting

The next meeting of the Commission will be held on 10-11 March 2004 at the OIE Headquarters, Paris.

…/Appendices

Appendix I

MEETING OF THE

OIE SCIENTIFIC COMMISSION FOR ANIMAL DISEASES

Paris, 1-5 December 2003

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Agenda

1. Report of the President of the Commission on the Plan of action for the next 3 years
2. Ad hoc Groups formed and to be formed
3. Zoning and regionalisation
4. General Guidelines for Surveillance
5. Report of the OIE Foot and Mouth Disease Reference Laboratory of Pirbright: FMD world situation in 2002/2003
6. Report of the OIE Ad hoc Group for evaluation of country status for bovine spongiform encephalopathy in accordance with the *Terrestrial Animal Health Code*
7. Country status recognition
8. Proposed amendments to the OIE *Terrestrial Animal Health Code* regarding rinderpest
9. FMD Guidelines for Surveillance, *Terrestrial Code* Chapter 3.8.6
10. Review of the matters referred by the Terrestrial Animal Health Standards Commission
11. Joint meeting with the Terrestrial Animal Health Standards Commission
12. Report of the OIE Ad hoc Group on Animal Disease Notification
13. OIE Bluetongue Symposium (Taormina, Italy), 26-29 October 2003
14. Summary report of activities of the SEAFMD Project (OIE/SEAFMD)
15. Other matters
16. Next meeting

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MEETING OF THE

OIE SCIENTIFIC COMMISSION FOR ANIMAL DISEASES

Paris, 1-5 December 2003

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List of participants

MEMBERS

Prof. Vincenzo Caporale *(President)*
Director
Istituto Zooprofilattico Sperimentale
dell'Abruzzo e del Molise 'G. Caporale'
Via Campo Boario
64100 Teramo
ITALY
Tel: (39.0861) 33 22 33
Fax: (39.0861) 33 22 51
E-mail: caporale@izs.it

Dr Kenichi Sakamoto *(Vice-President)*
Chief of Diagnostic Laboratory
Department of Exotic Diseases
Research
National Institute of Animal Health
6-20-1 Josui-honcho, Kodaira
Tokyo, 187-0022
JAPAN
Tel: (81-423) 21 14 41
Fax : (81-423) 25 51 22
E-mail: skenichi@affrc.go.jp

Dr Federico Stoessel *(Secretary General)*
Section agricole
Ambassade d'Argentine
225 avenue Louise
B.P. 8
B-1050 Brussels
BELGIUM
Tel: (32.2) 640 33 33
Fax: (32.2) 640 00 08
E-mail: agricola@skynet.be

Dr Gavin R. Thomson
AU-IBAR
P.O. Box 30786
Nairobi
KENYA
Tel: (254-2) 31 80 85
Fax: (254-2) 22 65 65
E-mail: gavin.thomson@oau-ibar.org

Dr Gideon Brückner
Director Veterinary Services
Agriculture Western Cape
Private Bag X1
Elsenburg 7607
SOUTH AFRICA
Tel: (27 21) 808 5001
Fax: (27 21) 808 5000
E-mail: GideonB@elsenburg.com

OTHER PARTICIPANT

Dr David Paton
Pirbright Laboratory
Institute for Animal Health
Ash Road, Woking, Surrey GU24 0NF
UNITED KINGDOM
Tel: (44-1483) 231012
Fax: (44-1483) 232621
E-mail: david.paton@bbsrc.ac.uk

OIE CENTRAL BUREAU

Dr Bernard Vallat
Director General
12 rue de Prony
75017 Paris
FRANCE
Tel: 33 - (0)1 44 15 18 88
Fax: 33 - (0)1 42 67 09 87
E-mail: oie@oie.int

Dr Alejandro Schudel
Head, Scientific and Technical Department
E-mail: a.schudel@oie.int

Dr Dewan Sibartie
Deputy Head, Scientific and Technical Department
E-mail: d.sibartie@oie.int

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Plan of action of the Commission for the next 3 years

TERMS OF REFERENCES & TASKS		MEANS OF FULFILLMENT	COMMENTS
1	**To maintain and exchange information on all aspects of terrestrial animal diseases, and to assess recent developments in the practical problems of control and eradication of infectious diseases and the impact of these developments.**	Collaborating Centres and Reference Laboratories should become actively engaged in this endeavour becoming facilitators of permanent forums activated in the OIE internet site mainly under SC page and providing annual/or emergency if needed synopsis with the relevant issues that need to be addressed	Activity to be carried out in collaboration with the BSC. Letter to reference laboratories by the CB.
2	**To provide scientific guidance to the OIE on the development of policies relating to the assessment and control of diseases, notably those with the potential to affect trade in terrestrial animals and their products or affect human health.**	A tentative could be made to address this issue launching an annual survey conducted among the Delegates asking which are the Animal Diseases problems that represent their PRIORITY and the main difficulties encountered in their control. A yearly event [expert consultation, conference, workshop] should be organized by the OIE with its own experts (mainly from reference laboratories &collaborating centres) to address the issues which appear to be the main problems worldwide and try to propose the most suitable solutions.	SC will identify 3-4 relevant animal health issues of worldwide impact by consulting the latest OIE Regional Commissions recommendations and IC resolutions to be consulted and priorized by the Country Delegates (letter to be prepared by the CB).
3	**To assist the Director General (DG) in improving the collection, use and interpretation of statistical information on terrestrial animal diseases, including emerging diseases, for the benefit of OIE Member Countries.**	An *ad hoc group of* **«relevant users»** should be identified by the central bureau assisted by the SC & TAHSC presidents **to define need**. Every two years an evaluation meeting should be organized by the SC and convened by the DG.	A meeting with the OIE Information Department will be agended for each SC meeting
4	**To provide up-to-date scientific information to the DG and the other OIE Specialist Commissions, gathered through its own resources or in consultation with scientists, experts and Ad hoc Groups.**	This is a "on demand" activity that should, however, be organized and planned adequately as is probably the main responsibility of the Commission. In general, the DG and the other OIE Specialist Commissions, therefore, should declare their need at the beginning or each semester as to allow the organization of an adequate response.	An agenda of prioritized items will be prepared to be discussed and implemented during the next SC meeting
5	**To advise and assist the DG on problems relating to such diseases, including problems of disease control at the regional and global level.**	On demand activity	
6	**To propose procedures for formally recognizing the animal health status of OIE Member Countries.**	This activity, at present, is based on a «system» resulting from the «stratification» of many years of experience. The net result that is expected is a coherent system by convening a core group of epidemiologist to assist in country status recognition. The core group of epidemiologists will be invited to participate as often as possible in each one of the ad hoc groups of countries status recognition.	Ad-hoc groups on zoning, regionalization and compartmentalization disease surveillance and ad hoc groups of country status recognition (for FMD, BSE, Rinderpest and CBPP) will be established to support the work of the Commission on the various items demanded.

TERMS OF REFERENCES & TASKS		MEANS OF FULFILLMENT	COMMENTS
7	**To undertake, on behalf of the International Committee (IC), the assessment of OIE Member Country applications for compliance with OIE standards for freedom from specific terrestrial animal diseases (FMD, Rinderpest, BSE, CBPP).**	The first assessment will be carried out by the relevant ad hoc groups for each one of the diseases if necessary. All proposals to the International Committee should be endorsed before by Scientific Commission.	Same as above (6)
8	**To identify issues that require in-depth review and propose, to the DG, the composition and terms of reference of experts or Ad hoc Groups of experts convened specifically to study such issues, and if necessary, to participate in the work of these Groups.**	As in number 4 as far as issues «on demand». Other issues could arise from activities in number 1 and 2 and should be addressed according to their nature & relevance.	
9	**To advise the DG on the composition and the activities of the Working group on Wildlife diseases and to coordinate its work.**	On demand activity. Nothing has been asked by the DG as yet. In any case the date of the meeting of the group should be decided in consultation with the SC Bureau.	Consult on the agenda, report and meeting participation will be required.
10	**To reply to relevant queries relating to the methods for the control of terrestrial animal diseases.**	On demand activity	
11	**To represent the OIE at scientific and specialized conferences upon the request of the DG.**	On demand activity	To prepare and agenda for the next SC meeting with the relevant meetings were the OIE-SC should be present.

PROPOSED NEW APPENDIX ON

ANIMAL HEALTH SURVEILLANCE: GENERAL PRINCIPLES AND PRACTICES

1. Introduction

Animal health surveillance should be conducted for a defined purpose. In the context OIE-related activities it is generally aimed at either demonstrating the absence of disease or infection or establishing the occurrence and distribution of disease or infection, including the early detection of exotic or emerging diseases when they occur. The nature of the surveillance applied depends on the desired outputs needed; for example, to support applications for recognition of freedom from disease/infection or decision-making in relation to disease control or eradication strategies.

The guidelines contained in this chapter may be applied to all diseases, their agents and susceptible species as listed in the *Terrestrial Code*, and are designed to assist with the conduct of cost-effective surveillance. Except where specific surveillance for certain diseases or infections is already described in the *Terrestrial Code*, the guidelines in this chapter are recommended to define the general approach for all diseases/infections. The guidelines should be supplemented when necessary with those available in standard texts on surveillance.

Surveillance is an essential component of claims for freedom from disease or infection and provides data to support the risk analysis process and that required to substantiate the rationale for animal health control measures. Furthermore, surveillance data underpin the quality of disease status reports.

Essential prerequisites to enable a Member Country to provide information for the evaluation of its animal health status are:

- compliance with the provisions of Chapter 1.3.3 of the *Code* for the evaluation of the Veterinary Services;
- provision, where possible, of complementary data derived from other sources of information e.g. scientific publications, research data, documented field observations and other non-survey data;
- transparency in the planning and execution of surveillance activities, the conduct of analyses and accessibility of the data and information obtained.

2. Definitions

The following definitions apply for the purposes of this chapter.

- **Case**

A case definition is a set of criteria used to classify an animal or unit as a case or non-case.

- **Confidence**

In the context of demonstrating freedom from infection, confidence is the probability that the type of surveillance applied would detect the presence of infection if the population were infected. The confidence depends on *inter alia* the expected prevalence, or the assumed level of infection in an infected population. Confidence therefore refers to the confidence in the ability of the surveillance system applied to detect disease or infection.

- **Early detection system**

A system for the timely detection and identification of an incursion or emergence of disease/infection in a country, zone or compartment. An early detection system should be under the control of the *Veterinary Services* and should include the following aspects:

  - representative coverage of the animal populations in the country, zone or compartment concerned by the *Veterinary Services* ;
  - ability to undertake effective disease investigation and reporting;
  - access to laboratories capable of diagnosing and differentiating relevant diseases;
  - a training programme for veterinarians, animal health professionals and others involved in handling animals for detecting and reporting unusual animal health incidents.

- **Epidemiological unit**

  A group of animals with a defined epidemiological relationship that share approximately the same likelihood of exposure to a pathogen. This may be because they share a common environment (e.g. animals in a pen), or because of common management practices. Usually, this is a herd or flock; however, an epidemiological unit may also refer to groups of animals such as those belonging to residents of a village, or for example animals sharing a communal dipping tank system.

- **Outbreak**

An outbreak definition is a set of criteria used to classify the occurrence of one or more cases in a group of animals or units.

- **Probability sampling**

A sampling strategy in which every unit has a known non-zero probability of inclusion in the sample.

- **Sample**

Elements drawn from a sampling unit, on which *tests* are performed to provide surveillance information.

- **Sampling units**

The *unit* that is sampled, either in a random or in a non-random survey. This may be an individual animal or a group of animals (eg an *epidemiological unit*). Together, they comprise the sampling frame.

- **Sensitivity**

The proportion of truly positive units that are correctly identified as positive by a test.

- **Specificity**

The proportion of truly negative units that are correctly identified as negative by a test.

- **Study population**

The population from which surveillance data is derived. This may be the same as the target population or a subset of it.

- **Surveillance system**

A method of surveillance that may involve one or more component activities that generates information on the animal health status of populations.

- **Target population**

The population about which conclusions are to be drawn from a study.

- **Test**

A procedure used to classify a unit as either positive or negative with respect to an infection or disease.

- **Test system**

A combination of multiple tests and rules of interpretation which are used for the same purpose as a test.

- **Units**

Individually identifiable elements. This is a generic concept used to describe, for example, the members of a population, or the elements selected when sampling. In these contexts, examples of units include individual animals, pens, farms, holdings, villages, districts etc.

3. Types of surveillance

Surveillance can be classified in a number of ways. One approach, which is used here, is to based on sources of surveillance data. In this chapter, surveillance data is classified as follows:

3.1. Structured population-based surveys, such as:

- systematic sampling at slaughter;
- random surveys

3.2. Structured non-random data sources, such as:

- disease reporting or notifications;
- control programs / health schemes;
- disease specific testing / screening;
- ante- and post-mortem inspections;
- laboratory investigation records;
- sentinel units
- field observations;
- farm production records;

In addition, surveillance data needs to be supported by related information sources, such as:

- data on the epidemiology of the infection, including environmental, host population distribution, and climatic information;
- data on animal movements and trading patterns for animals and animal products;
- history of imports of potentially infected material; and
- bio-security measures in place.

The sources of information should be fully described. In the case of a structured survey, this should include a description of the sampling strategy used for the selection of units for testing. For structured non-random data sources, a full description of the system is required including the source(s) of the data, when the data were collected, and a consideration of any biases that may be inherent in the system.

4. Critical elements for conducting surveillance

The quality of a surveillance system depends on the following critical elements (over and above quality of veterinary services - Chapter 1.3.3).

4.1. Populations

Surveillance should be carried out in such a way as to take into account all animal species susceptible to the infection in a country, *zone/region* or *compartment*. The surveillance activity may involve all individuals in the population or part of it. In the latter case, the individuals must be chosen in such a way that the results achieved from surveillance in the subset can be correctly extrapolated to the entire susceptible populations. Care should be taken during the planning of the survey to identify potential biases that can inadvertently lead to an over-estimate or an under-estimate of the parameters of interest. However, in the case of targeted surveillance a particular subset of a population may be targeted because the probability of detecting the condition in question is greater than for the population as a whole. In that case the survey is intentionally biased. All that is needed is that the bias is recognised.

4.2. Epidemiological Unit

The relevant epidemiological unit for the surveillance system should be defined and documented to ensure that it is representative of the population in the case of random surveillance or of the subset of the population when using targeted surveillance. Therefore, epidemiological units need to be chosen taking into account factors such as carriers, reservoirs, vectors, immune status, genetic resistance and other host characteristics such as age and sex.

4.3. Clustering

Infection in countries, zones/regions or compartments usually occur in clusters rather than being uniformly or randomly distributed through a population. Clustering may occur at a number of different levels such as a cluster of infected animals within a herd, a cluster of pens in a building, or a cluster of farms in a compartment. However, animal populations themselves are frequently clustered in their distribution and therefore apparent clustering of disease judging from simple distribution maps may be misleading.. In such cases more formal cluster analysis may be necessary but that requires specialized knowledge to apply correctly.

4.4. Testing

Surveillance involves the detection of disease or infection by the use of one or more tests for evidence of infection. In this context, a test may range from detailed laboratory examinations to field observations and the analysis of production records. The performance of a test at the population level is dependent upon its sensitivity and specificity as these will have an impact on the interpretation of results and therefore on the conclusions reached. These factors should therefore be taken into account in the design of surveillance systems and analysis of surveillance data. The values of sensitivity and specificity for the tests used should therefore be specified, and the method used to determine or estimate these values should be documented. Where values for sensitivity and/or specificity for a particular test are specified in the *Manual*, these values may be used without justification. It also needs to be borne in mind that the prevalence of the condition under investigation will affect the predictive values of tests and therefore their interpretation. This becomes particularly important when surveillance is being conducted to show absence of disease/infection from a population. In such cases it is impossible to prove freedom in absolute terms (i.e. without sampling the whole population) and therefore the surveillance design needs to incorporate the expected prevalence so that absence can be shown not to be higher than the level set in the population sampled. Often this prevalence is set at 1% between herds (sampling units) and 5% within herds (sampling elements) and the level of statistical confidence set to 95%. However, if the test or series of tests employed to survey for the disease/infection concerned have net specificities below 100% (no test so far devised has 100% specificity) the positive predictive value of individual tests will be below 100% which in turn implies that a proportion of the test results will be false positives.

Addressing this issue is vital in eradication programmes and mechanisms that are needed to differentiate false- from true positives need to be put in place before the programme begins.

4.5. Data collection and management

The success of a surveillance system is dependent on a reliable process for data collection and management. The process may be based on paper records or computerised data. Even where data are collected for non-survey purposes e.g. during disease control interventions, inspections for movement control or during disease eradication schemes, the consistency of data collection and event reporting in a format that facilitates analysis, is important .

5. 5. General principles for structured population-based surveys

5.1. Survey design

The objective of the intended survey should be clearly defined i.e. what question need to be answered by conducting the survey. in the most cost-effective way i.e. should a targeted or a random surveillance be conducted.

The population of epidemiological units and the sampling units appropriate for each stage, depending on the design of the survey, should then be accordingly defined.

The design of the survey is critical for the success of the outcome of the survey and will depend on several factors such as the size and structure of the population being studied, the epidemiology of the infection and the resources available.

5.2. Sampling

The objective of sampling from a population is to select a subset of units from the population that is representative of the population with respect to the object of the study such as the presence or absence of infection. Sampling should be carried out in such a way as to provide the best likelihood that the sample will be representative of the population, within the practical constraints imposed by different environments and production systems. In order to detect the presence or absence of infection in a population of unknown disease status or where the expected prevalence of disease is very low, targeted sampling methods that optimise the detection of infection should be used. In such cases, the results should not be used to infer the prevalence of infection in the population as a whole. The sampling method used at all stages should be fully documented and justified.

5.3. Sample size

The method used to calculate sample size for surveys depends on the purpose of the survey, the expected prevalence, the level of confidence desired of the survey results and the performance of the tests used. The purpose of the survey and the desired outcome, should however, always be measured against the cost of a survey. In general targeted surveys are less costly while in the case of random sampling, the cost will increase relative to the expected prevalence of a disease and the degree of confidence set for the expected outcome of the survey. A sample strategy aiming at a 95% probability of detecting disease in 1% of the primary sampling units could for example be more costly than aiming at a 95% probability of detecting disease in 5% of the primary sampling units.

6. General principles for structured non-random surveillance

Surveillance systems routinely use structured non-random data, either alone or in combination with surveys. There are however, a number of critical factors which should be taken into account when using structured non-random surveillance data such as coverage of the population, duplication of data, and sensitivity and specificity of tests that may give rise to difficulties in the interpretation of data. Surveillance data from non-random data sources may increase the level of confidence or be able to detect a lower level of prevalence with the same level of confidence compared to structured surveys

Different statistical methodologies including both quantitative and qualitative approaches may also be used for the analysis of non-random surveillance data as long as they are based on valid scientifical principles and clearly documented.

6.1. Common non-random surveillance sources

A wide variety of non-random surveillance sources may be available. These vary in their primary purpose and the type of surveillance information they are able to provide. Some systems are primarily established as early detection systems, but may also provide valuable information to demonstrate freedom from infection. Other systems provide cross-sectional information suitable for prevalence estimation, either once or repeatedly, while yet others provide continuous information, suitable for the estimate of incidence data or the presence or absence of disease (e.g. disease reporting systems, sentinel sites, testing schemes).

6.1.1 Disease reporting or notification systems

Data derived from disease reporting systems can be used in combination with other data sources to substantiate claims of animal health status, to generate data for risk analysis, or for early detection. Effective laboratory support is an important component of any reporting system. Reporting systems relying on laboratory confirmation of clinical suspects often have low sensitivity, but good specificity

6.1.2 Control programs / health schemes

Animal disease control programs or health schemes, while focusing on the control or eradication of specific diseases, should be planned and structured in such a manner as to generate data that are scientifically verifiable and contribute to structured surveillance.

6.1.3 Specific disease testing / screening

This may involve testing targeted to selected sections of the population (sub populations), in which disease may have more significant consequences. Examples include testing at markets, slaughterhouses, or of animals at the top of breeding pyramid.

6.1.4 Ante- and post-mortem inspections

Inspections of animals at abattoirs may provide valuable surveillance data. The sensitivity and specificity of such inspections for the detection of disease will be influenced by:

- The level of training and experience of the staff doing the inspections, and the ratio of staff of different levels of training;
- The quality of construction of abattoir, speed of slaughter chain, lighting quality etc; and
- Staff morale and the role at the Competent Authority.

Abattoir inspections are likely to provide good coverage only for particular age groups and geographical areas. Biases are likely to be towards larger, better managed farms rather than smallholder or backyard production, healthy and cull stock rather than diseased animals.

Both for traceback in the event of detection of disease, and for analysis of spatial and herd-level coverage, there should be an effective identification system which relates each animal in the abattoir with its property of origin.

6.1.5 Laboratory investigation records

Analysis of laboratory investigation records may provide useful surveillance information. The coverage of the system will be increased if analysis is able to incorporate records from government, accredited, university and non-accredited private laboratories. Valid analysis of data from different laboratories depends on the existence of standardised diagnostic procedures and standardised methods for interpretation and data recording. As with abattoir inspections, there needs to be a mechanism to relate specimens to the farm of origin.

6.1.6 Biological specimen banks

Specimen banks consist of stored specimens, gathered either through representative sampling or opportunistic collection or both. Specimen banks may contribute to retrospective studies, including providing support for claims of historical freedom from infection, and may allow certain studies to be conducted more quickly and at lower cost than alternative approaches.

6.1.7 Sentinel sites

Sentinel sites involve the identification and regular testing of groups of animals of known health/immune status in a specified geographical location to detect the occurrence of disease (usually serologically). They are particularly useful for surveillance of diseases with a strong spatial component, such as vector-borne diseases. Sentinel sites provide the opportunity to target surveillance depending on the likelihood of infection (related to vector habitats and host population distribution), cost and other practical constraints. Sentinel sites may provide evidence of freedom from infection, or provide data on prevalence and incidence as well as the distribution of disease.

6.1.8 Field observations

Clinical observations of animals in the field are an important source of surveillance data. The sensitivity and specificity of field observations may be relatively low, but these can be more easily determined and controlled if a clear, unambiguous and easy to apply standardised case definition is applied. Education of potential field observers in application of the case definition and reporting is an important component. Ideally, both the number of positive observations and the total number of observations should be recorded.

6.1.9 Farm production records

Systematic analysis of farm production records may be used as an indicator of the presence or absence of disease at the herd or flock level. In general, the sensitivity of this approach may be quite high (depending on the disease), but the specificity is often quite low.

7. General principles for recognising a country or zone free from a given disease/infection

7.1. Introduction

This section provides general principles for declaring a country or zone/region or compartment free from *disease/infection* in relation to the time of last occurrence and in particular for the recognition of historical freedom.

The provisions of this section are based on the principles described in sections 1 to 3 of this chapter and the following premises:

1) in the absence of disease and vaccination, the animal population would become susceptible over a period of time;

2) the disease agents to which these provisions apply are likely to produce identifiable clinical signs in susceptible animals

3) competent and effective *Veterinary Services* will be able to investigate, diagnose and report disease, if present;

4) the absence of *disease/infection* over a long period of time in a susceptible population can be substantiated by effective disease investigation and reporting by the Veterinary Services of an OIE Member Country

7.2. Requirements to declare a country or compartment free from infection without pathogen specific surveillance

7.2.1. Historically free

Unless otherwise specified in the relevant disease chapter, a country or zone/region may be recognised free from infection without formally applying a pathogen-specific surveillance programme when:

a) there has never been occurrence of disease; or

b) eradication has been achieved or the disease/infection has ceased to occur for at least 25 years,

provided that for at least the past 10 years:

c) it has been a notifiable disease;

d) an *early detection* system has been in place;

e) measures to prevent disease/infection introduction have been in place;

f) no vaccination against the disease has been carried out unless otherwise provided in the *Code*.

g) Infection is not known to be established in wildlife within the country or zone/region intended to be declared free.

7.2.2. Last occurrence within the previous 25 years

Countries or zones/regions that have achieved eradication (or in which the disease/infection has ceased to occur) within the previous 25 years, should follow the pathogen-specific surveillance requirements in the *Code* if they exist. In the absence of specific requirements for surveillance in the *Code*, countries should follow the general guidelines for surveillance to demonstrate animal health status outlined in this chapter provided that for at least the past 10 years:

a) it has been a notifiable disease;

b) an early detection system has been in place;

c) measures to prevent disease/infection introduction have been in place;

d) no vaccination against the disease has been carried out unless otherwise provided in the *Code*.

e) infection is not known to be established in wildlife within the country or compartment intended to be declared free.

7.3. Guidelines for the discontinuation of pathogen-specific surveillance after recognition of freedom from infection

A country or zone/region that has been recognised free from infection following the provisions of the *Code* may discontinue pathogen-specific surveillance while maintaining the infection-free status provided that:

1) it is a notifiable disease;

2) an *early detection* system is in place;

3) measures to prevent disease/infection introduction are in place;

4) vaccination against the disease is not applied;

5) infection is known not to be established in wildlife. (Specific surveillance in wildlife has demonstrated the absence of infection).

7.4. International recognition of disease/infection free status

For diseases for which procedures exist whereby the OIE can officially recognise the existence of a disease free country or zone/region, a Member Country wishing to apply for recognition of this country or zone shall, via its Permanent Delegate, send the OIE all the relevant documentation relating to the country or zone/region. Such documentation should be presented according to guidelines prescribed by the OIE Scientific Commission for Animal Diseases.

7.5. Demonstration of freedom from infection

A surveillance system to demonstrate freedom from infection should meet the following requirements in addition to the general requirements for surveillance outlined in section 3.2 of this chapter.

Freedom from infection implies the absence of the pathogenic agent in the country or zone/region or compartment. Scientific methods cannot provide absolute certainty of the absence of infection. Demonstrating freedom from infection involves providing sufficient evidence to demonstrate (to a level of confidence acceptable to Member Countries) that infection with a specified pathogen is not present in a population. In practice, it is not possible to prove (i.e., be 100% confident) that a population is free from infection (unless every member of the population is examined simultaneously with a perfect test with both sensitivity and specificity equal to 100%). Instead, the aim is to provide adequate evidence (to an acceptable level of confidence), that infection, if present, is present in less than a specified proportion of the population

7.6. General principles for surveillance for distribution and occurrence of infection

Surveillance for distribution and occurrence of infection or of other relevant health related events is widely used to assess progress in the control or eradication of selected diseases and pathogens and an aid to decision making. It has, however, relevance for the international movement of animals and products when movement occurs between infected countries.

In contrast to surveillance to demonstrate freedom from infection, surveillance used to assess progress in control or eradication of selected diseases and pathogens is usually designed to collect data about a number of variables of animal health relevance for example:

- Prevalence or incidence of infection,
- Morbidity and mortality rates,
- Frequency of disease/infection risk factors and their quantification when the risk factors are expressed by continuous [real numbers] or discrete [integers] variables,

- Frequency distribution of herd sizes or the sizes of other epidemiological units,
- Frequency distribution of antibody titres
- Proportion of immunised animals after a vaccination campaign,
- Frequency distribution of the number of days elapsing between suspicion of infection and laboratory confirmation of the diagnosis and/or to the adoption of control measures,
- Farm production records, etc

Summary report from IAH-Pirbright to the OIE Scientific Commission on Animal Diseases to show FMD virus isolations during 2003 and to give insights into the global FMD situation

D.J. Paton, N. Ferris, N. Knowles, L. Turner, R. Statham, P. Barnett & D.K.J. Mackay
OIE Reference Laboratory for FMD, Pirbright Laboratory, Institute for Animal Health
Ash Road, Woking, Surrey GU24 0HF, UK

Submissions to WRL during 2003

The WRL has received 311 samples for FMD virus isolation up to the end of October 2003 (Table 1), with submissions being particularly high from across Asia (Afghanistan, Bhutan, Iran, Pakistan and Turkey). FMD virus types O, A, SAT2 and Asia 1 were isolated from samples received during the year. As usual, types O and A were the most prevalent serotypes isolated.

(a) Serotype O

Fig. 1 shows the relationships between recently isolated FMD type O viruses and various reference strains. In 2002 & 2003, the PanAsia strain continues to persist in some countries (e.g. Turkey, Iran and Lebanon) and has now been detected in Afghanistan. The newly identified Ind2001 strain (probably a derivative of PanAsia viruses of the late 1990's) previously identified in India, Iran, Bahrain, United Arab Emirates Oman, Saudi Arabia and the Palestinian Autonomous Territories, has now been found in Pakistan (2002 & 2003). Another lineage, more closely related to O1/Manisa and some Indian vaccine strains, has also been found in Pakistan in 2003; this virus was first detected in Pakistan in 1998 and appears to have changed little in the intervening years. Viruses belonging to a lineage distinct from both PanAsia and Ind2001 were found in Turkey in 2000 and 2002; these were related to viruses isolated in Iran in 1997.

In the Far East, viruses of the Cathay topotype continue to be isolated from the Philippines and Hong Kong, while in Vietnam both viruses belonging to the Cathay topotype and the ME-SA topotype (PanAsia strain) continue to co-circulate. In Nepal two lineages were found, one belonging to the PanAsia strain and the other related to an isolate from Bhutan in 2002 (these are more closely related to the Ind2001 strain than to the PanAsia strain). Two distinct lineages were present in Bhutan in 2002, one as just mentioned related to the Ind2001 strain and the other possibly part of the PanAsia strain.

Antigenic analyses to date of strains isolated in 2003 have not revealed the emergence of diversity likely to increase significantly the risk of failure of current type O vaccine strains to provide adequate coverage. There is some evidence that isolates of type O from Hong Kong show less antigenic similarity than previous isolates to O Manisa but this still remains an appropriate vaccine strain.

(b) Serotype A

Fig. 2 shows the relationships between recently isolated FMD type A viruses and various reference strains. It is evident that, since 1999, at least 4 to 5 main genetic lineages have been present in Iran. This appears to contrast with surrounding countries where only one or two lineages have been detected (i.e. Turkey, 2; Iraq, 1; Pakistan, 1). However, a lesser number of samples have been submitted from these countries. Nothing is known about the situation with type A in Afghanistan since no samples containing this serotype have been received since 1975. Multiple lineages circulate in India; however, these appear to be distinct from those in Pakistan, Iran, Iraq and Turkey (data not shown). It is interesting that the Iran99 strain has been detected in Turkey for the first time since 1999 (S. Aktas and U. Parlak, personal communication, 2003). The single isolate received from Bhutan is related to Indian type A viruses from the mid-1990's.

Based on antigenic analyses carried out at WRL and/or PANAFTOSA, the type A viruses from Argentina and Brazil in 2000 and 2001 showed only limited cross-reaction with A24 Cruzeiro. Type A viruses of Middle Eastern origin isolated at WRL in recent years (Turkey, Iran, Iraq, Syria) have shown a great diversity both genetically and antigenically. A Iran 96 appeared to be an antigenically appropriate vaccine strain for many viruses of Turkish and Iraqi origin. Other viruses from Iran and Syria were more poorly matched to A Iran 96 and also often showed a poor match to the A22 Iraq vaccine strain. In some cases, better matches were obtained using the vaccine strains A Iran 87 and/or Saudi 23/86, and A Iran 87 also appeared appropriate for some Type A viruses from Syria and the Far East (Thailand).

(c) SAT 2

Fig 3 shows the genetic relationship between a recent isolate from Libya and other SAT 2 viruses, showing the closest match to viruses from Cameroon in 2002, Saudi Arabia in 2000 and Eritrea in 1998. Antigenically, the strain showed a good match to the SAT 2 Saudi Arabia 2000 vaccine, and poorer matches to South African SAT 2 vaccine strains.

(d) Asia 1

The Asia 1 isolates received from Pakistan in 2003 were closely related to, but distinct from, those isolated from the same country in 2002. Both groups belong to the same genetic lineage as the viruses responsible for the incursion of Asia 1 into Greece in 2000 which can be traced back to the Indian subcontinent and the Middle East as far back as at least 1994. Although only very little antigenic analysis has been carried out there is no suggestion of major antigenic diversion from current vaccine strains.

(e) Conclusions

The type A situation in the Middle East remains an ongoing concern because of the large number of variants circulating and the poor coverage afforded by current vaccine strains against some of them. The type O strains recently isolated in Hong Kong require further examination and monitoring and, obviously, it is of concern that the SAT 2 serotype has been isolated from North Africa.

In order to improve the process of vaccine selection and risk assessment, more should be done to make use of already available information by increasing the co-operation and collaboration between different regional reference laboratories, vaccine manufacturers and the Reference Laboratory at Pirbright. More resources are needed to carry out testing of available viruses and steps should be taken to improve the availability and consistency of post-vaccinal antisera. Cross-protection studies are required to validate *in vitro* testing methods and research is also needed to better define the epitopes critical for protection. In order to improve the coverage of samples submitted to the WRL, steps should be taken to promote exchanges between regional reference laboratories and to target sample collection efforts to regions where surveillance information is sparse (an analysis of the numbers of samples received from different regions is given in Table 2 for illustration). The Commission is urged to consider actions that it can take to promote the submission of viruses and the exchange of reagents. A good example of a successful initiative has been provided by the OIE's SE Asia FMD group.

Table 1: Summary of submissions received by the WRL
January to September 2003

Country	No. of samples	FMD virus serotypes							SVD virus	NVD
		O	A	C	SAT 1	SAT 2	SAT 3	Asia 1	(a)	(b)
Afghanistan	57	8	-	-	-	-	-	-	-	49
Bhutan	21	2	1	-	-	-	-	-	-	18
Botswana	20	-	-	-	-	-	-	-	-	20
Burundi	7	5	-	-	-	-	-	-	-	2
Hong Kong	7	3	-	-	-	-	-	-	-	4
Iran	45	21	11	-	-	-	-	-	-	13
Israel (pat)	1	1	-	-	-	-	-	-	-	-
Italy	45	-	-	-	-	-	-	-	45	-
Lebanon	4	4	-	-	-	-	-	-	-	-
Libya	10	-	-	-	-	2	-	-	-	8
Nepal	6	5	-	-	-	-	-	-	-	1
Pakistan	44**	18	10	-	-	-	-	7	-	10
Philippines	23	9	-	-	-	-	-	-	-	14
Turkey	10	4	3	-	-	-	-	-	-	3
United Arab Emirates	3	3	-	-	-	-	-	-	-	-
Vietnam	8	8	-	-	-	-	-	-	-	-
TOTAL	**311****	**91**	**25**	**0**	**0**	**2**	**0**	**7**	**45**	**142**

* Institute for Animal Health, Pirbright Laboratory, Woking, Surrey GU24 0NF
** One sample from Pakistan contained a mixture of foot-and-mouth disease virus types O and A
a) Swine vesicular disease virus
b) no foot-and-mouth disease, swine vesicular disease or vesicular stomatitis virus detected

60 out of 98 positive samples tested as original suspension (Jan-Jun) were typed by enzyme-linked immunosorbent assay (61%) and the remainder (39%) were typed following cell culture passage

Table 2: Viruses submitted to WRL 2001-2003 by region

	2001		2002		2003		2001-2003	
	Viruses	Countries	Viruses	Countries	Viruses	Countries	Viruses	Countries
South America	9	3	2	1	0	0	11	4
Europe	11*	4	0	0	0	0	11*	4
Middle East	117	11	58	8	47	5	222	16
Indian Subcontinent	6	2	45	2	51	4	102	4
South East Asia	27	5	36	4	17	2	80	6
China/Taiwan/HK/Korea/Japan	12	1	7	2	3	1	22	2
Africa North	0	0	0	0	2	1	2	1
Africa West	15	3	1	1	0	0	16	4
Africa Central	0	0	0	0	5	1	5	1
Africa East	2	1	12	2	0	0	14	2
Africa South	0	0	9	2	0	0	9	2

* excluding UK

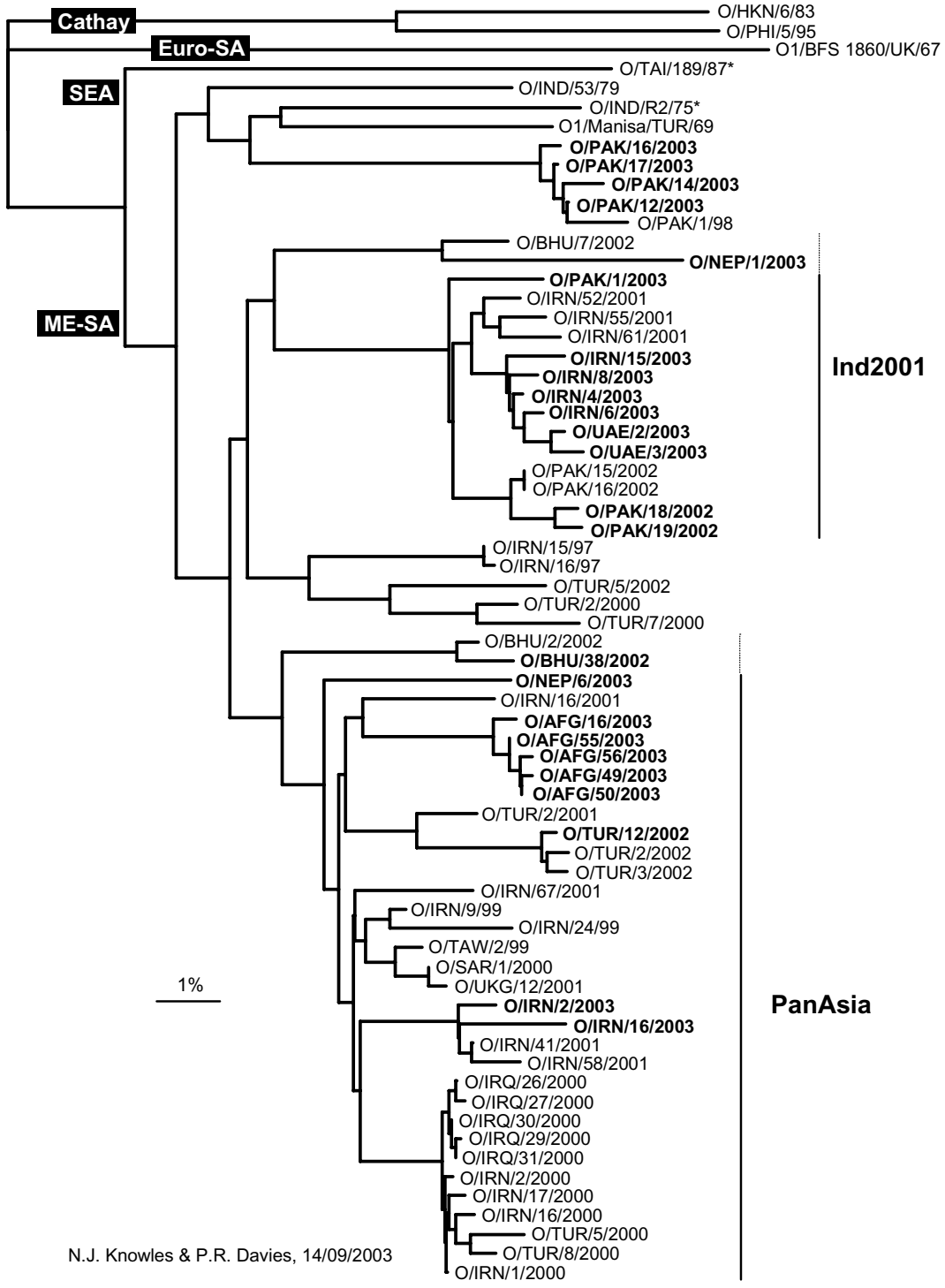


Fig. 1. Neighbor-joining tree based on a comparison of VP1 nt 1-639 showing the relationships between recently isolated FMD type O viruses and reference strains. Viruses received in 2003 are shown in bold. *, not WRLFMD reference numbers.

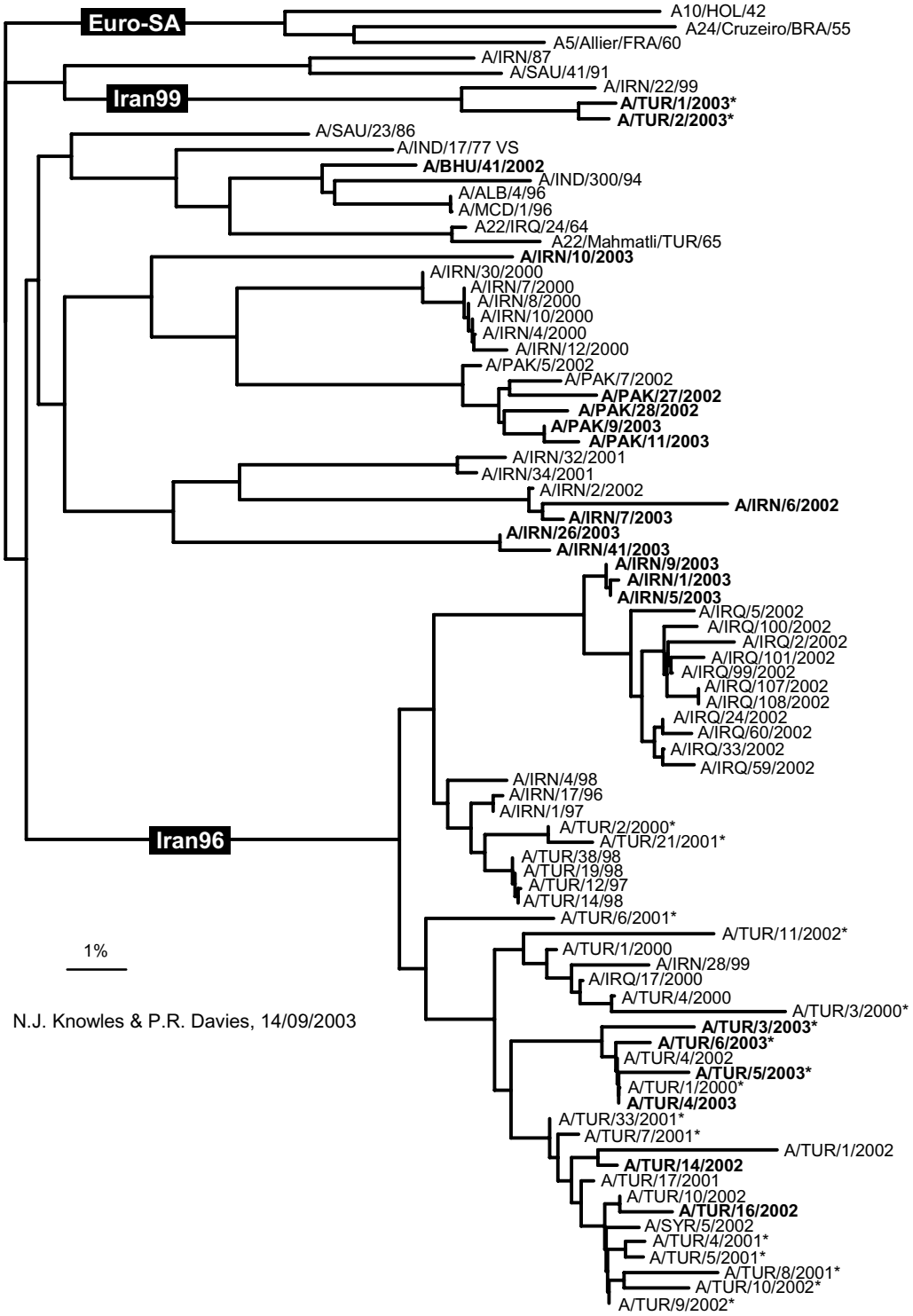
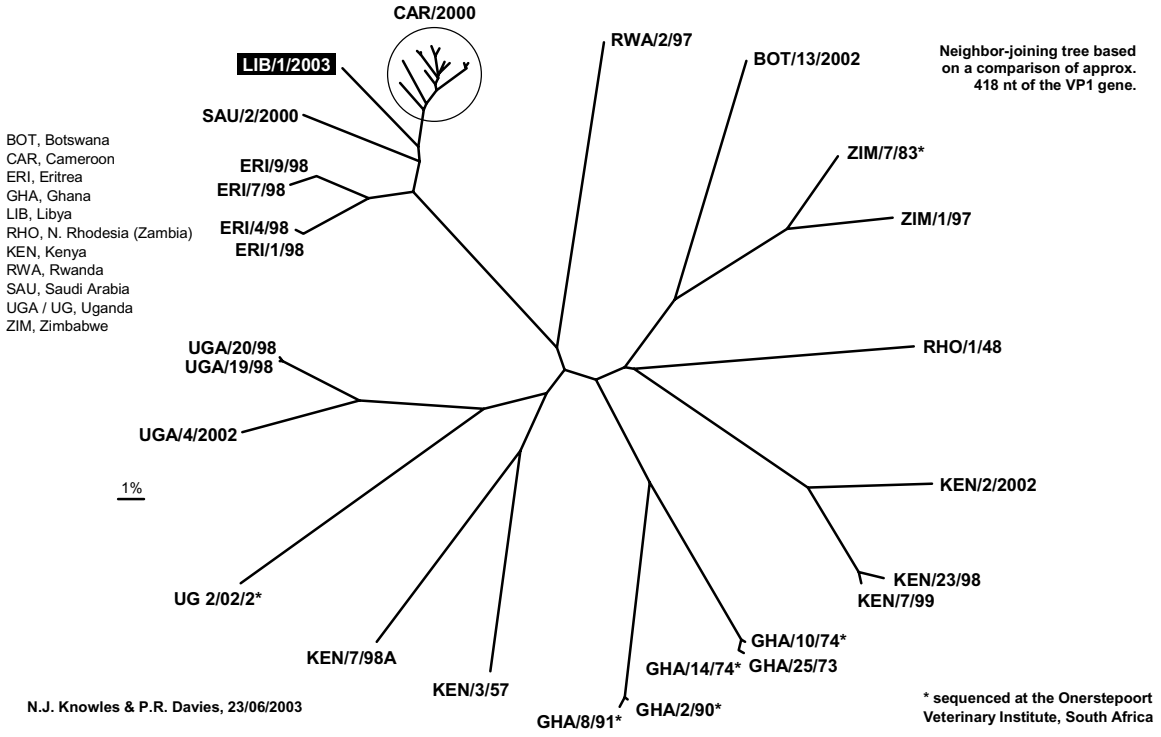


Fig. 2. Neighbor-joining tree based on a comparison of VP1 nt 469-639 showing the relationships between recently isolated FMD type A viruses and reference strains. Viruses received in 2003 are shown in bold. *, sequences provided by Sinan Aktas and Ünal Parlak, FMD Institute, Ankara, Turkey (note: these are not WRLFMD reference numbers).

Fig.3

Genetic relationship between FMDV SAT 2 LIB/1/2003 and other SAT 2 viruses



Informal review of the world epizootic situation
FMD situation in South America, January to September 2003

Dr E. Correa Melo
PANAFTOSA

Two different epidemiological situations were observed in South America in 2003: the emergency situation caused by FMDV type O, observed in the region of the Triple Border between Argentine, Bolivia and Paraguay, and in the Andean Region, the outbreaks by type O in Ecuador and by types O and A in Venezuela. The situation in the rest of countries in South America can be seen in table 1. Uruguay was recognized as FMD free with vaccination during the last 71st. Assembly in May.

The veterinary authority of Bolivia informed to the Continental Surveillance System a total of 9 outbreaks caused by FMDV type O, starting on July 7, in Tarija and Chuquisaca, reaching Potosí and La Paz. This spread was due to transit of animals, products and people. Though it reached the Altiplano region, the outbreak concentrated in the Chaco region bordering with Argentine and Paraguay where a subsistence type of production is prevalent. This outbreak affected all species but the main source of spread was swine. Presently, the situation in the region is under control due to special measures taken under the coordination of the Plata Basin Proyect and the Permanent Veterinary Committee – CVP and the support given by PANAFTOSA/PAHO. An outbreak due to the same type O was registered on July 8, 2003, in an indigenous settlement in Pozo Hondo, Boquerón, Paraguay. SENASA/Argentina reinforced the preventive measures at border level to avoid the introduction of the virus. Nevertheless, on August 29, a suspected pig farm was attended in Tartagal, Salta. Final diagnosis came out to be type O. The Argentinean authorities took the necessary steps to eradicate the outbreak by slaughtering affected animals and in contacts, conducting a ring vaccination and latter on serological studies to evaluate the effectiveness of the measures. SENASA placed a line of control around the zone including the provinces of Salta, Jujuy and Formosa. This outbreak caused the suspension of the FMD free status of the country, but maintaining the status of free without vaccination of the Patagonia.

FMD situation in Venezuela worsened during the period. A total of 105 suspected herds were reported, of which 3 were diagnosed as type O, 27 as A, 15 as VSV New Jersey and one by VSV Indiana. This situation poses a high risk to Colombia which has a large FMD free zone with vaccination, and maintains an intense trade of livestock and products with Venezuela. Likewise, Guyana, recognized as FMD free without vaccination in 2002, is threatened, due to occurrence of the disease in the eastern border. Guyana is preparing a preventive plan to keep disease outside its borders. Ecuador showed early in the period the continuation of last year's outbreak, which is decreasing right now. Peru has not recorded any outbreak of FMD for three years as a result of a strategic planning in vaccination and transit control. This situation allows the country to elaborate a proposal to the OIE of a zone FMD free without vaccination. Colombia has reached 14 months without any new case of FMD and Brazil has not recorded outbreaks in the last 25 months.

Table 1
Herds with symptoms compatible with vesicular diseases and diagnosis
South America, January-September, 2003

Countries	Suspected herds	Herds					
		With positive diagnosis to vesicular diseases				Vesicular (clinical)	With negative diagnosis to FMD and VS
		O	A	NJ	IND		
Argentina	1	1	0	0	0	0	0
Bolivia	9	9	0	0	0	0	0
Brasil[1]	60	0	0	0	33	0	27
Colombia[2]	546	0	0	349	41	10	102
Chile	0	0	0	0	0	0	0
Ecuador[2]	43	6	0	0	2	0	4
Paraguay	1	1	0	0	0	0	0
Perú	13	0	0	13	0	0	0
Uruguay	0	0	0	0	0	0	0
Venezuela[2]	105	3	27	15	1	0	16
Total	778	22	27	377	77	10	149

1- Indiana III.
2- Herds still pending diagnosis

The surveillance systems of the countries in Central America have recorded during the period, 948 suspected herds. The laboratory results can be seen on table 2. All samples came out as negative to FMD and the majority of positive diagnosis was VSV New Jersey (table 2.).

Table 2
Suspected herds and laboratory diagnosis in Central America
January-September, 2003[1]

Countries	**Suspected herds**	**FMD**	**Vesicular stomatitis**		**Negative**	**Inadecuate samples**
			New Jersey	**Indiana**		
Belice	0	0	0	0	0	0
Costa Rica	262	0	154	1	106	1
El Salvador	79	0	29	2	48	0
Guatemala	12	0	5	2	5	0
Honduras	25	0	9	0	16	0
Nicaragua	361	0	172	5	184	0
Panama	91	0	50	7	34	0
Mexico[2]	118	0	54	1	63	0
TOTAL	**948**	**0**	**473**	**18**	**456**	**1**

1- Source: LADIVES Laboratory
2- Weekly reports from México to the Continental Surveillance System

OIE Expert Group for "Atypical" BSE Cases

(Minutes of the meeting)

Paris, 4th of December 2003

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The meeting of the Expert Group for "Atypical" BSE cases evaluation was held at OIE headquarters on the 4th of December 2003.

The agenda and list of participants are presented as Appendices 1 and 2, respectively.

Dr Bernard Vallat, OIE Director General, welcomed the expert group and Prof. V. Caporale, President of the OIE Scientific Commission for Animal Diseases (Scientific Commission), formerly the Foot and Mouth Disease and Other Epizootics Commission, and thanked them for their participation.

Dr Vallat briefly explained the purpose of the meeting and indicated to experts the main topic to be discussed as BSE case definition, revision of the BSE diagnosis procedures used among OIE Reference Laboratories, the need for a close collaboration between OIE-BSE Reference Laboratories and national laboratories, the interpretation of the new data on the "Atypical" BSE cases and the relevance of the results to BSE disease control, surveillance and international trade.

Prof. Caporale, chaired the meeting and Dr. Matthews was designated as the rapporteur.

BSE Case definition

The expert group recommended that a draft document prepared by the UK Reference Laboratory on case definition of BSE should be progressed, in consultation with other Reference Laboratories represented at the meeting. That document would then be submitted for consideration and possible adoption by the OIE Scientific Commission for Animal Diseases and the Terrestrial Animal health Standards Commission.

Collaboration between OIE Reference Laboratories

The expert group recommended that existing links between OIE Reference Laboratories should be strengthened, with a view to ensuring the sharing of information and expertise, and for uniform application of knowledge around the world. Preliminary discussions on future collaborations, and possible joint meetings, have already been held.

The experts agreed on the need that National reference laboratories should consult OIE Reference Laboratories before significant findings that influence case definition of BSE, and which have potential implications with regard to the protection of animal and human health, and international trade, are published.

Interpretation of new data from Japan and Italy

The expert group reviewed the data on "atypical" cases notified by Japan and Italy. The group did not believe that the data from respective countries identified a link between the Japanese and Italian cases. While acknowledging that the observations reported had not previously been described in BSE, further investigations already planned or in progress should clarify their significance. Therefore, results of such investigations should be awaited and interpreted before the existence of alternative phenotypes can be confirmed. This will require not only confirmation of transmissibility, but also investigation into other factors that may influence pathological phenotype even though the infectious agent may be common. The group also stressed that even if the data did represent the existence of alternative phenotypes or strains of BSE, this did not necessarily mean that they were new. They may always have existed but remained unrecognised in the presence of an overwhelming epidemic presenting as a single phenotype, and especially in the absence of the application of current diagnostic procedures in the context of active surveillance.

Relevance of the results to disease control, surveillance and international trade

The Expert group did not believe that the available evidence justified any changes in current disease control methodologies, or in measures taken to protect human health. There was no basis for suggesting that the risk to animal or human health had changed. Further investigations into the characterisation of the isolates would further inform that debate. Similarly there was no case for changes to international trade rules.

With respect to surveillance, further research into the outcome of positive test results is necessary, but the group recognised that scientific investigation was frequently compromised by the lack of brain material that is available from each animal. It recognised the practical constraints, especially in the abattoir, that make this difficult. Nevertheless, reliance solely on the brain stem prevents the recognition of pathological lesion of the nature identified in Italy where vacuolation and immunostaining patterns differed from those previously recognised for BSE. Therefore, wherever possible, efforts should be made to ensure access to the entire brain of positive animals.

Appendices

Appendix 1

TECHNICAL MEETING ON 'ATYPICAL' BSE CASES

4 December 2003

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Agenda

1. Definition of a BSE case and basic standard procedure
2. Technologies and reagents
3. Expert opinion on the BSE 'atypical' cases reported in Japan and Italy

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Appendix 2

TECHNICAL MEETING ON 'ATYPICAL' BSE CASES

4 December 2003

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List of Participants

MEMBERS

Dr Cristina Casalone
Centro Encefalopatie Animali - CEA -
Istituto Zooprofilattico Sperimentale del
Piemonte, Liguria e Valle d'Aosta
Via Bologna 148
I-10154 Torino
ITALY
Tel: (39011) 2686 341
E-mail: cristina.casalone@izsto.it

Dr Pierluigi Acutis
Centro Encefalopatie Animali - CEA -
Istituto Zooprofilattico Sperimentale del
Piemonte, Liguria e Valle d'Aosta
Via Bologna 148
I-10154 Torino
ITALY

Prof. Vincenzo Caporale
(*President of the OIE Scientific Commission for Animal Diseases*)
Director
Istituto Zooprofilattico Sperimentale
dell'Abruzzo e del Molise 'G. Caporale'
Via Campo Boario
64100 Teramo
ITALY
Tel: (39.0861) 33 22 33
Fax: (39.0861) 33 22 51
E-mail: caporale@izs.it

Dr Takashi Yokoyama
Prion Diseases Research Unit
National Institute of Animal Health
National Agricultural Research Organization
3-1-5 Kannondai, Tsukuba
Ibaraki 305-0856
JAPAN
Tel: (81.298) 38.77.57
Fax: (81.298) 38.79.07
E-mail: tyoko@affrc.go.jp

Dr Yoshio Yamakawa
Dept. of Biochemistry and Cell Biology
National Institute of Infectious Diseases
1-23-1 Toyama, Shinnjuku-ku
Tokyo 162-8640
JAPAN
Tel: 81-3-5285-1111(ext.2127)
Fax: 81-3-5285-1157
E-mail: yamakawa@nih.go.jp

Dr Torsten Seuberlich
NeuroCenter, Reference Laboratory for
Spongiform Encephalopathies in Animals,
University of Bern
Department of clinical veterinary medicine
Bremgartenstrasse 109a, 3012 Bern
SWITZERLAND
Tel: (41.31) 631.22.06
Fax: (41.31) 631.25.38
E-mail:torsten.seuberlich@itn.unibe.ch

Dr S. MacDiarmid
(*Secretary-General of the OIE Terrestrial Animal Health Standards Commission*)
Principal Adviser, Zoonoses and Animal Health,
Programme Development Group,
New Zealand Food Safety Authority
P.O. Box 2835, Wellington
NEW ZEALAND
Tel: (64-4) 463 2648
Fax: (64-4) 463 2530
E-mail: stuart.macdiarmid@nzfsa.govt.nz

Dr Danny Matthews
Veterinary Laboratories Agency
TSE Programme Manager
Woodham Lane
New Haw, Addlestone
Surrey KT15 3NB
UNITED KINGDOM
Tel: (44.1932) 35 95 12
Fax: (44.1932) 35 49 29
E-mail: d.matthews@vla.defra.gsi.gov.uk

Dr Marion M. Simmons
Head of Neuropathology
Neuropathology Section
VLA Weybridge, Addlestone
Surrey KT15 3NB
UNITED KINGDOM
Tel: 44 (0) 1932 35 75 64
Fax: 44 (0) 1932 35 78 05
E-mail: m.m.simmons@vla.defra.gsi.gov.uk

Prof. Steven Edwards
(*President of the OIE OIE Biological Standards Commission*) *(Absent)*
VLA Weybridge
New Haw, Addlestone
Surrey KT15 3NB
UNITED KINGDOM
Tel.: (44-1932) 34.11.11
Fax: (44-1932) 34.70.46
Email: s.edwards@vla.defra.gsi.gov.uk

OIE CENTRAL BUREAU

Dr Bernard Vallat
Director General
12 rue de Prony
75017 Paris
FRANCE
Tel: 33 - (0)1 44 15 18 88
Fax: 33 - (0)1 42 67 09 87
E-mail: oie@oie.int

Dr Alejandro Schudel
Head, Scientific and Technical Department
E-mail: a.schudel@oie.int

Dr Dewan Sibartie
Deputy Head, Scientific and Technical Department
E-mail: d.sibartie@oie.int