

AUSTRALIAN VETERINARY EMERGENCY PLAN

AUSVETPLAN

Management manual

Laboratory preparedness

Version 4.0, 2013

AUSVETPLAN is a series of technical response plans that describe the proposed Australian approach to an emergency animal disease incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.

Standing Council on Primary Industries

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Contact information

This document will be reviewed regularly. Suggestions and recommendations for amendments should be forwarded to:

AUSVETPLAN — Animal Health Australia
Executive Manager, Emergency Preparedness and Response
Suite 15, 26–28 Napier Close
Deakin ACT 2600
Tel: 02 6232 5522; Fax: 02 6232 5511
email: aha@animalhealthaustralia.com.au

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DISEASE WATCH HOTLINE: 1800 675 888

The Disease Watch Hotline is a toll-free telephone number that connects callers to the relevant state or territory officer to report concerns about any potential emergency disease situation. Anyone suspecting an emergency disease outbreak should use this number to get immediate advice and assistance.

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1 Introduction

This management manual for Laboratory Preparedness is an integral part of the **Australian Veterinary Emergency Plan**, or **AUSVETPLAN (Edition 4)**. AUSVETPLAN structures and functions are described in the **AUSVETPLAN Summary Document**.

This manual has been produced in accordance with the procedures described in the **AUSVETPLAN Summary Document** and in consultation with Australian, state and territory governments and industries.

Laboratories that receive diagnostic specimens from animals may be involved in the diagnosis of an emergency animal disease (EAD). Some of these laboratories may also undertake the testing that will be necessary to control or eradicate an EAD, or to prove freedom from it.

EADs are identified in the Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses (the EAD Response Agreement — EADRA), and in legislation that applies nationally and in each state and territory.

Laboratories that routinely receive veterinary diagnostic specimens for testing for EADs must be properly prepared to deal with such an emergency, and should document their preparations as an EAD Contingency Plan.

The purpose of this manual is to assist laboratories to prepare an EAD Contingency Plan for an animal disease emergency. The manual reviews the issues that each laboratory must address in preparing that plan.

‘Laboratories’ include the following establishments that examine diagnostic specimens from animals:

- state/territory, Commonwealth and university veterinary laboratories
- private veterinary laboratories, and laboratory facilities in private veterinary practices
- other facilities, including medical laboratories that receive veterinary diagnostic specimens.

In this manual, where text has been placed in square brackets [xxx], this indicates that that aspect of the manual remains contentious or is under development; such text is not part of the official manual. The issues will be worked on by experts and relevant text included at a future date (see the reverse title page for a record of updates to the manual).

1.1 Implementation of AUSVETPLAN

Guidelines for the field implementation of AUSVETPLAN are contained in the disease strategies, response policy briefs, operational manuals and management manuals. Industry-specific information is given in the relevant enterprise manuals. The full list of AUSVETPLAN manuals that may need to be accessed in an emergency is shown below. The complete series of manuals is available on the Animal Health Australia website.¹

¹ www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ausvetplan/

Table 1.1 AUSVETPLAN documents

Document type	Manuals
Summary document	Background information about AUSVETPLAN rationale, development and maintenance
Disease strategies	Individual disease and policy information for most of the diseases listed in the EADRA
	Bee diseases and pests
Response policy briefs	Summary disease and policy information for each EADRA disease not covered by individual disease strategies (see above)
Operational manuals	Decontamination
	Destruction of animals
	Disposal
	Livestock welfare and management
	Valuation and compensation
	Wild animal response
Enterprise manuals	Artificial breeding centres
	Feedlots
	Meat processing
	Saleyards and transport
	Pig industry
	Poultry industry
	Zoos
Management manuals	Control centres management (Parts 1 and 2)
	Laboratory preparedness
Outbreak manuals	Collations of individual disease, operational and enterprise information for use in an emergency disease outbreak

EADRA = Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses (see www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ead-response-agreement)

1.2 Nationally agreed standard operating procedures

Nationally agreed standard operating procedures (NASOPs)² have been developed for use by jurisdictions during responses to emergency animal disease incidents and emergencies. These procedures underpin elements of AUSVETPLAN and describe in detail specific actions undertaken during a response to an incident.

1.3 Cost-sharing arrangements

1.3.1 The Emergency Animal Disease Response Agreement

The EADRA³ sets out the basis on which government and industry stakeholders undertake to share the costs (including laboratory costs) of controlling or eradicating EADs. For further information, see the **Summary Document**.

The agreement defines three phases of an EAD response:

- incident definition phase
- emergency response phase
- proof of freedom phase.

The state or territory in which the incident has occurred will meet the cost of the incident definition phase, except that:

- once an EAD Response Plan has been agreed, cost-sharing principles will apply in respect of compensation costs from:
 - the date of first notification of the incident to the relevant state or territory, or
 - such earlier date as may be agreed by the National Management Group (NMG) on the advice of the Consultative Committee on Emergency Animal Diseases
- where the NMG determines that the cost of compensation to owners or diagnostic costs will be shared, they will be shared in accordance with the EADRA should an EAD Response Plan proceed.

Laboratory expenses during the other phases of a response are recoverable from the funding parties of the EAD response.

1.3.2 Emergency Animal Disease Response Plan

Cost sharing in an EAD incident is contingent on the parties to the EADRA agreeing to an EAD Response Plan (EADRP). Drafting an EADRP will usually require the involvement of relevant laboratories. Laboratory staff should be prepared to contribute to the development and execution of EADRPs.

² www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/nasops

³ Further information about the EADRA is available at www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ead-response-agreement.

For reimbursement of the costs incurred under an EADRP, laboratories must keep separate, auditable records of these costs.

1.4 Coordination of laboratory activities with other activities

This manual should be read in conjunction with other documents that outline the responsibilities of the Australian, state and territory governments in the event of an animal disease emergency. The **Summary Document** presents an overview of national planning for an animal disease emergency, and the context in which laboratories may be involved. Communication among laboratories and with other stakeholders is detailed in Section 5.

2 Responsibilities of laboratories

All states and territories have policies and regulations that restrict testing for emergency animal diseases (EADs) to certain laboratories, place conditions on testing at these laboratories and/or prescribe procedures for releasing results. Heads of laboratory should obtain details from their jurisdiction's chief veterinary officer (CVO).

2.1 Initial notification

People who know of, or suspect, the presence of an EAD must, by law, notify the CVO of their own state or territory, or the CVO's delegate. Substantial penalties may apply for failure to do so. CVOs who are notified of an EAD in another state or territory will relay the notification to the CVO of the affected jurisdiction and the Australian CVO.

Notification may be made by phone to the Disease Watch Hotline (1800 675 888), but this does not replace the requirement to notify the CVO.

When laboratories receive specimens submitted for EAD testing, or if suspicion of an EAD incidentally arises during routine testing, they should immediately notify the relevant CVO. If they notify suspicion of an EAD, they should also notify if subsequent testing does not support that suspicion. Further communications are detailed in Section 4 and Section 5.

The National Notifiable Animal Diseases List is on the website of the Australian Government Department of Agriculture.⁴

2.2 Maintenance and use of expertise and resources

All laboratory veterinarians should maintain a high level of proficiency in recognising the clinical and pathological signs of the major EADs, and relevant biosecurity procedures. This expertise is crucial in helping clients to recognise an EAD in a live animal or at postmortem, and to select suitable specimens for submission to an appropriate laboratory without risking spread of the disease.

Laboratories approved to conduct EAD diagnosis by the Consultative Committee on Emergency Animal Diseases or the affected jurisdiction(s) should have relevant standard operating procedures and quality assurance programs. They should follow the diagnostic procedures approved by the Sub-Committee on Animal Health Laboratory Standards (SCAHLs), if available. Ideally, laboratories should be accredited by the National Association of Testing Authorities (NATA) and comply with the requirements of the most recent version of Australian standard AS ISO/IEC 17025 (*General Requirements for the Competence of Testing and Calibration Laboratories*) to ensure that investigation of a suspected EAD is prompt, rapid and reliable; does not jeopardise the health or safety of laboratory or other personnel; and does not risk spreading the disease.

⁴ www.daff.gov.au/animal-plant-health/pests-diseases-weeds/animal/notifiable

If these laboratories offer anatomic pathology, they should maintain a high level of expertise in the recognition of the gross and microscopic lesions of EADs. They should also be aware of, and able to access, the methods by which the disease agents can be detected.

Laboratories that offer serology, molecular diagnostics, microbiology (eg virology, bacteriology, mycology) or parasitology should also maintain sufficient resources and appropriate levels of knowledge and skills, and consider whether they would be able to contribute them in an EAD response, if required. In an EAD response, these laboratories could be asked to introduce new technologies or to greatly increase testing capacity.

These laboratories should include in their EAD Contingency Plan sources for extra staff, equipment and associated issues (eg competence training, supervision, chain-of-command components, communication staff, equipment calibration), in the event that their existing resources are insufficient.

Laboratories' capability and resources to conduct EAD testing should be regularly reviewed (as recommended by SCAHLS), and the reviews should be documented. Maintenance of expertise is further addressed in Section 7. Resources for ensuring biosecurity and biosafety are addressed in Section 3 and Section 8.

2.2.1 Support during incident definition phase

With the head of laboratory's approval, laboratory veterinarians may be required to join a field diagnostic team⁵ in the investigation of a suspected EAD at the laboratory or, if necessary, in the field. The **Control Centres Management Manual, Part 1**, describes the functions of a field diagnostic team.

2.2.2 Support during emergency response phase

Laboratory staff may be involved in an EAD response by testing for the EAD, or by the redistribution of other work (unrelated to the EAD) from other laboratories.

With the head of laboratory's approval, staff of government laboratories may be redeployed to assist in field investigations, or to work at a disease control centre. For example, staff who are familiar with the laboratory information management system, sample submission procedures and reporting methods may be deployed as [laboratory liaison officers] at a local control centre. The **Control Centres Management Manual, Part 2**, describes this officer's functions.

2.2.3 Support during proof-of-freedom phase

During the proof of freedom phase, laboratory staff may be involved in providing expertise on laboratory tests and in designing surveys for proof of freedom.

⁵ In the current version of the Control Centres Management Manual (which is under review), this role is referred to as a 'diagnostic team'.

2.2.4 Networked laboratory approach for emergency animal disease management

The Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) network provides a network for laboratories to collaborate using harmonised or standardised testing methods and software platforms for targeted EAD management. It also participates in the response to individual EAD incidents, as required. Section 5 describes the role of the network, including communication and reporting guidelines, and the functions of [laboratory coordinator] (to be incorporated into the **Control Centres Management Manual, Part 2**).

Appropriately prepared nongovernment laboratories may be used during an EAD response if additional capacity is required.

2.3 Laboratory Emergency Animal Disease Contingency Plan

In an EAD incident, laboratories are often required to test specimens collected from animals in infected premises or dangerous contact premises. These premises are subject to stringent, legally enforceable restrictions, including movement restrictions. A laboratory that receives specimens from animals in such premises may be exempted from these restrictions if it has implemented an EAD Contingency Plan that includes adequate biosecurity measures.

Each laboratory's EAD Contingency Plan should be sufficiently detailed to manage all biosecurity risks relevant to the laboratory's operations, while being sufficiently flexible to deal with individual risks appropriately.

The EAD Contingency Plan should also consider the laboratory's ability to maintain business continuity with regard to other diagnostic services that may be separate from the EAD response.

Appendix 1 provides a suggested format for an EAD Contingency Plan.

2.3.1 Testing the contingency plan

The laboratory should test its contingency plan annually, or more frequently if changed circumstances make this desirable.

Testing should complement training; it may form part of a national, state or territory EAD preparedness exercise, or be done independently. It could involve:

- drills, in which operational staff undertake specific procedures
- tabletop exercises, in which key staff workshop an EAD response
- operational exercises, in which personnel and resources are mobilised in a coordinated, real-time response to a scenario that has been purposefully designed to test much or all of the contingency plan. The planning and direction of these exercises may be outsourced to optimise effectiveness.

After each drill or exercise, the plan and the operating procedures that support it should be reviewed in a timely manner, with a view to identifying and addressing their strengths and weaknesses.

2.3.2 Activating the contingency plan

The laboratory's contingency plan should be activated when:

- a laboratory is notified of the expected submission of specimen(s) from a suspected EAD outbreak
- laboratory examinations indicate that specimen(s) from an EAD outbreak have probably entered the laboratory
- the laboratory has been notified of the presence of an EAD in the area from which its specimen(s) would normally be drawn.

3 Handling of specimens

3.1 Selection of specimens

Specimens for investigation of each emergency animal disease (EAD) are identified in:

- **AUSVETPLAN Disease Strategies**⁶
- Australian and New Zealand Standard Diagnostic Procedures (ANZSDPs, some of which are known as Australian Standard Diagnostic Tests)⁷
- the World Organisation for Animal Health (OIE) *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*⁸
- *Foreign Animal Diseases*, 7th edition (United States Animal Health Association 2008)
- *Exotic Diseases of Animals: a Field Guide for Australian Veterinarians* (Geering et al 1995).

Because of the variable frequency with which EADs are investigated, the ongoing evolution of testing for some EADs and the need for rapid diagnosis, **submitters should always consult the testing laboratory before selecting specimens.**

In an EAD response, the EAD Response Plan or new standard operating procedures may specify specimens to be collected for surveillance testing and, as appropriate, vaccine efficacy testing.

3.2 Collection and documentation of specimens

Laboratories (principally government laboratories) may contribute pathologists to diagnostic teams in the incident definition phase of an EAD response (see the **Control Centres Management Manual, Part 1**). Once a local control centre (LCC) is established, instructions for sample collection will be provided by the LCC. Field veterinarians should supply the laboratory with all pertinent details of the history, clinical signs and postmortem findings. This information will allow the laboratory veterinarian to interpret the laboratory results and suggest additional testing, as appropriate.

For details on the collection and documentation of specimens, consult the appropriate nationally agreed standard operating procedure (Collecting emergency animal disease samples for laboratory testing⁹).

3.3 Packaging and transport of specimens

All laboratories should have staff members who are accredited to transport infectious substances in compliance with the International Air Transport Association (IATA) Dangerous Goods

⁶ www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ausvetplan/disease-strategies

⁷ www.scahls.org.au/procedures/anzsdps

⁸ www.oie.int/eng/normes/mmanual/A_summry.htm

⁹ www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/Collecting-EAD-samples-for-lab-testing.pdf

Regulations, and can provide professional advice to clients on this matter. Laboratories should also have documented procedures that are consistent with regulatory requirements for the transport of specimens and cultures of pathogens.

Before specimens are transported from the field, from a disease control centre or from one laboratory to another, they must be identified and packed; the package must be marked, labelled and documented; and the consignee must be notified. These procedures must all comply with the IATA Regulations and, where relevant, the security sensitive biological agent (SSBA) regulations.

Before any samples are transported, the receiving laboratory should be advised of consignment details, including the expected arrival date and time, and a contact number.

The CSIRO Australian Animal Health Laboratory (CSIRO-AAHL) has a specific contracted arrangement for delivery of urgent submissions of Category 2 and 3 specimens (see Section 4.1) to CSIRO-AAHL. This system is available to all state and territory government laboratories, and the costs will be met by CSIRO-AAHL.

3.3.1 Regulatory requirements

Regulatory requirements that apply to the transport of specimens are subject to constant review and may change. Consignors must comply with the requirements that apply at the time of consignment, and with any carriers' and/or consignees' requirements that also apply.

The Civil Aviation Safety Authority (CASA)¹⁰ regulates the transport of dangerous goods by air in Australia. The regulations that apply to air transport of infectious substances are set out in the IATA Dangerous Goods Regulations. A new edition of the IATA Dangerous Goods Regulations becomes effective on 1 January each year. Interim changes are published on the IATA website.¹¹

Copies of the IATA Dangerous Goods Regulations may be purchased from the Australian Federation of International Forwarders.¹²

The states and territories regulate land transport, based on the Australian Dangerous Goods Code (Road and Rail), which is maintained by the Australian Government Department of Infrastructure and Transport. The code is based on the recommendations of the United Nations Committee of Experts on the Transport of Dangerous Goods. Under the code, patient specimens that may contain live pathogens are classified as Dangerous Goods, Class 6.2 (Infectious Substances). In general, compliance with requirements for air transport of specimens will ensure compliance with requirements for land transport.

3.3.2 Responsibility for specimen transport

The shipper is legally responsible for ensuring that consignments of dangerous goods, including specimens, comply with regulatory requirements.

¹⁰ www.casa.gov.au

¹¹ www.iata.org/dangerousgoods

¹² www.aff.asn.au

The IATA Dangerous Goods Regulations and CASA require that shippers be trained, tested and certified to consign dangerous goods. Trainers must be approved by CASA, which maintains a list of approved trainers. Approved training that is specifically for shippers of infectious substances and dry ice is available.¹³ Certification is valid for 2 years.

In general, airlines and courier companies are not common carriers, and may refuse consignments that do not meet regulatory or company requirements. To ensure the expeditious transport of specimens, laboratories should maintain a close working relationship with the local agent of at least one national air courier, and with that company's dangerous goods manager.

Laboratories that are accredited to Australian standard AS ISO/IEC 17025:2005 (*General Requirements for the Competence of Testing and Calibration Laboratories*) should have documented procedures that are consistent with regulatory requirements for the transport of specimens and cultures of pathogens.

Heads of laboratory should assign responsibility for specimen transport to specific, appropriately trained staff. Although these staff may provide advice and materials to the laboratory's clients, this does not relieve the clients of their responsibility to comply with regulations.

In the response and proof of freedom phases of an EAD response, specimen submission may be coordinated by the [laboratory liaison officer] at an LCC. Laboratory staff who are certified to ship diagnostic specimens and infectious substances may be seconded to that position.

3.3.3 Classification and packaging

The IATA Dangerous Goods Regulations include criteria for classifying specimens, and how they must be identified, packed, marked, labelled and documented for shipping.

3.3.4 Packaging materials

Suppliers of packaging can be found in the IATA Dangerous Goods Regulations, or by using a web search for key words such as 'infectious substance packaging'. Some overseas suppliers have distributors in Australia.

Purchasers of approved packaging must obtain specifications for its use from the supplier, and comply with those specifications. In particular, purchasers should ascertain specifications and limitations that apply to inner packaging components, including primary specimen containers.

3.3.5 Labelling and documentation

The IATA Dangerous Goods Regulations specify the labelling and documentation that must be used when consigning diagnostic specimens or infectious substances.

The regulations:

¹³ A list of approved courses can be obtained from CASA (www.casa.gov.au).

- specify the appearance, number, placement and orientation of labels
- give instructions for, and examples of, proper completion of Dangerous Goods Declarations, Air Waybills and Consignment Notes.

3.3.6 Regulatory compliance

Laboratory staff and others who consign specimens should check the completed package, Consignment Note and, if applicable, Dangerous Goods Declaration for compliance with the IATA Dangerous Goods Regulations. This check is best done using the Dangerous Goods Checklist for a Non-Radioactive Shipment that is in the current edition of the IATA Dangerous Goods Regulations. The checklist may be downloaded from the IATA website.¹⁴

3.3.7 Further information

Sources of further information on requirements for transport of specimens include:

- IATA
- CASA
- Australian Government Department of Infrastructure and Transport
- providers of dangerous goods training
- dangerous goods managers of courier companies.

¹⁴ www.iata.org/whatwedo/cargo/dgr/Pages/download.aspx

4 Specimen submission and reporting

4.1 Submission of specimens to the CSIRO Australian Animal Health Laboratory

Initial confirmatory testing for emergency animal diseases (EADs) should be done at or through the CSIRO Australian Animal Health Laboratory (CSIRO-AAHL). For suspected exotic EAD cases, CSIRO-AAHL is responsible for all testing, unless otherwise decided by the Consultative Committee on Emergency Animal Diseases (CCEAD) or arranged through the Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) network.

CSIRO-AAHL's role in an EAD response may include the detection, isolation and characterisation of the EAD agent; and characterisation of the host response (particularly serology) to the EAD agent. Relevant details on the testing capabilities of CSIRO-AAHL and state and territory government laboratories are in the test register of the Sub-Committee on Animal Health Laboratory Standards.¹⁵ For any particular case, submitters should determine appropriate specimens and tests by discussion with the CSIRO-AAHL duty veterinarian.

In an EAD response, subject to advice from the CCEAD, CSIRO-AAHL may devolve certain testing to other laboratories, according to the dynamics of the outbreak, the location of relevant expertise, the volume of testing (particularly serology), the availability of resources and logistic support, and other valid reasons. This may be done through the LEADDR network.

CSIRO-AAHL does not charge submitters for tests on suspected EAD cases and has arrangements in place to cover the cost of transporting Category 2 and 3 specimens to CSIRO-AAHL.

Whenever possible, submitters should use the Sample Tracking and Reporting System (STARS) network, which allows rapid and secure electronic exchange of animal health data between participating laboratories and CSIRO-AAHL's diagnostic team. The STARS login portal and the CSIRO-AAHL Specimen Advice Note are available online.¹⁶

CSIRO-AAHL's delivery address is:

Australian Animal Health Laboratory
5 Portarlington Rd
East Geelong VIC 3219.

4.1.1 Types of specimens for submission to CSIRO-AAHL

There are three categories of specimens for submission to CSIRO-AAHL:

¹⁵ www.scahls.org.au/new_tests/register

¹⁶ https://stars.csiro.au/dsr_login.aspx

- **Category 1** — routine submission; no suspicion or likelihood of exotic or emerging EADs (eg specimens for quarantine testing).
- **Category 2** — submissions for exotic or emerging EAD exclusion; low likelihood of presence of such diseases. These specimens should be submitted to CSIRO-AAHL. They might be from:
 - cases of endemic disease that have some clinical signs or lesions that resemble those of an EAD
 - cases in which endemic disease does not fully account for all signs and lesions
 - cases of apparently highly infectious disease for which no cause has been proved.

This category also includes specimens from healthy animals in the proof of freedom phase of an EAD response, and the brains of animals in quarantine (to test for rabies, bovine spongiform encephalopathy or scrapie).

- **Category 3** — submissions for exotic or emerging EAD diagnosis; high likelihood of presence of such diseases. These specimens must be submitted to CSIRO-AAHL. CSIRO-AAHL tests these specimens immediately on receipt at any hour, and with a priority that overrides any other work.

4.1.2 Dispatch of specimens

The following procedures should be followed:

- Category 1 specimens — the submitter will contact the CSIRO-AAHL duty veterinarian via STARS, or advise by phone the details of the dispatch and testing required.
- Category 2 specimens — the submitter will inform the head of the laboratory making the submission, who will advise the state or territory chief veterinary officer (CVO) and inform the CSIRO-AAHL duty veterinarian (as for Category 1).
- Category 3 specimens — the submitter or head of laboratory will:
 - obtain the approval of the state or territory CVO before dispatching the specimens
 - advise the CSIRO-AAHL duty veterinarian, the Victorian CVO, and the Victoria-based Commonwealth Biosecurity Veterinary Officer¹⁷ of full details of dispatch, to facilitate passage of the specimens through (usually) Melbourne Airport, collection by CSIRO-AAHL personnel and quick passage to CSIRO-AAHL
 - ensure that the state or territory CVO notifies the Director of CSIRO-AAHL or the director's delegate.

For Category 3 specimens, the CVO of the state or territory of origin will notify the CVO of Victoria and the Australian Government Department of Agriculture of the submission to CSIRO-AAHL. CSIRO-AAHL will initiate an investigation if the consignment does not arrive on time. The CVO of Victoria may assist such investigation.

The Victoria-based Commonwealth Biosecurity Veterinary Officer only needs to be notified when the specimens are being flown through Melbourne Airport, and can only facilitate transfer of specimens through the airport to CSIRO-AAHL personnel when full information about the specimens and transport details is provided in advance. The quickest reliable transport to

¹⁷ seanimal@daff.gov.au, out of hours: 1800 070 425; mobile: 0438 943 600; fax +61 3 8308 5071

CSIRO-AAHL may be by road if this will involve a drive of less than 8 hours. From a field investigation, transport may be via a government laboratory or disease control centre, for pick up by a courier.

All diagnostic testing for the primary or index case in an EAD incident will be done at CSIRO-AAHL, with specimens consigned there as soon as is practical. If the state or territory CVO also wants to test for the presence of a suspected EAD, parallel specimens will be consigned to CSIRO-AAHL on the same day. Except where exotic disease screening technology has been specifically transferred elsewhere and is maintained under LEADDR, screening tests for exotic disease exclusion should be done at CSIRO-AAHL.

Category 2 or 3 diagnostic submissions should only be sent to CSIRO-AAHL from state or territory government, or government-approved, laboratories, unless the government laboratory, in consultation with the state or territory CVO, has given prior approval for a direct submission from elsewhere. For example, in an outbreak situation, samples may be sent directly from a local control centre.

If an unknown animal syndrome or disease of national significance (eg high socioeconomic impact, rapid spread, high mortality, public health) is identified, appropriate diagnostic material, based on available clinical information and treated as Category 3 specimens, will be forwarded to CSIRO-AAHL as early as possible.

4.2 Submission of diagnostic specimens to overseas laboratories

This section describes the protocol for submission of specimens for investigation of a suspected EAD to overseas laboratories. Submission of specimens to such laboratories for other purposes is subject to different arrangements.¹⁸

Ordinarily, all diagnostic specimens arising from EAD situations where overseas testing is requested will be forwarded to CSIRO-AAHL for dispatch to the overseas country. The primary reason for this policy is to ensure appropriate reporting of results of a sensitive nature. Additional reasons include the following:

- It is likely that CSIRO-AAHL can perform the tests, rather than sending the specimens overseas.
- CSIRO-AAHL is able to determine the most appropriate testing laboratory.
- Such arrangements help to keep CSIRO-AAHL staff in active contact with overseas laboratories and aware of testing being performed.

Before dispatch, the CSIRO-AAHL duty veterinarian will ensure that the proposal to send the specimens overseas has the approval of:

- the CVO of the state or territory of origin, if not a significant disease;¹⁹ or

¹⁸ See the Policy for the Transfer of Biological Specimens to Overseas Laboratories for Infectious and Parasitic Disease Testing at www.scahls.org.au/___data/assets/pdf_file/0017/2032055/Policy_for_the_transfer_of_biological_specimens_to_overseas_laboratories.pdf

¹⁹ Significant disease includes any disease described in the Emergency Animal Disease Response Agreement, or which otherwise has trade implications for Australian industry or represents a public health risk.

- the state or territory CVO and the Australian CVO (ACVO), if a significant disease²⁰ is suspected. The ACVO is responsible for ensuring that any necessary consultation of the CCEAD takes place before dispatch of specimens where a significant disease is suspected. The CCEAD would decide on actions to be taken if specimens yield positive, negative or equivocal results.

4.3 Reporting laboratory results from CSIRO-AAHL

Reports on results of testing will be handled, according to the above three categories of specimens, as follows:

- Category 1 laboratory reports will be forwarded by the CSIRO-AAHL duty veterinarian to the submitter (head of submitting laboratory or agency).
- Category 2 and 3 laboratory reports that are negative for any EAD will be forwarded by the CSIRO-AAHL duty veterinarian to:
 - the head of the submitting laboratory or agency
 - the state or territory CVO, who is responsible for further notification of the results, as appropriate.
- Category 2 and 3 laboratory reports where an EAD is diagnosed or suspected will be immediately notified by the Director of CSIRO-AAHL to:
 - the state or territory CVO, in the first instance, followed by the ACVO
 - the head of the submitting laboratory, only after the state or territory CVO has given clearance for this to happen.

4.4 Submission of specimens to CSIRO Entomology

Suspected EAD pathogens that are arthropods (larval, nymphal or adult) should be immersed in 70%ethanol overnight. When fixed, they should be transferred to otherwise empty, labelled, screw-topped plastic containers and sent to CSIRO's Black Mountain Laboratories in Canberra for identification. Such consignments are not considered to be Dangerous Goods.

If the specimens are consigned in fixative for air transport, not more than 1 litre must be packed to International Air Transport Association Packing Instruction Y305, because 70%ethanol is classed as a Dangerous Goods (UN 1170).

The delivery address for CSIRO Entomology is:

CSIRO Entomology
 Black Mountain Laboratories
 Clunies Ross Street
 Black Mountain ACT 2601.

²⁰ Significant disease includes any disease described in the Emergency Animal Disease Response Agreement, or which otherwise has trade implications for Australian industry or represents a public health risk.

5 Communications

5.1 Laboratory networks

5.1.1 Laboratories for Emergency Animal Disease Diagnosis and Response

The Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) network consists of the jurisdictional animal health laboratories from all states and the Northern Territory, the CSIRO Australian Animal Health Laboratory (CSIRO-AAHL), and the Australian Government Department of Agriculture. It does not currently include private, university or industry animal health laboratories. The network reports to the Sub-Committee on Animal Health Laboratory Standards under the Animal Health Committee. The role of the LEADDR network is to allow laboratories to collaborate using harmonised or standardised testing methods and software platforms for targeted management of an emergency animal disease (EAD).

In the event of an EAD outbreak, LEADDR laboratories may be required to carry out testing appropriate to the level of biosecurity and test capability of the individual laboratory.

5.1.2 Laboratories not in the LEADDR network

Currently, private, university and industry laboratories that receive diagnostic specimens from animals do not have a direct role in an EAD outbreak. However, they could be involved in testing for specific EADs and required to assist the LEADDR network on a case-by-case basis. In the future, some of these laboratories may be included in the LEADDR network as formal members.

5.2 Reporting guidelines

The following communication guidelines and procedures apply to an EAD diagnosis and response, regardless of whether the laboratory is a LEADDR member. Laboratories involved in the diagnosis of EADs need to balance openness and transparency with an appropriate level of confidentiality. All laboratory staff must observe confidentiality, as directed by their chief veterinary officer (CVO) or head of laboratory.

Communications, including reporting laboratory findings, can be separated into:

- communications that routinely occur as part of the general operations of LEADDR, the daily work in the laboratory and continuous surveillance activities throughout Australia
- communications that occur during the initial diagnosis of, and subsequent laboratory response to, an EAD incident.

Each laboratory must keep up-to-date contact details — names, phone numbers (including mobile and after-hours numbers) and email addresses — for other LEADDR members, to facilitate communication within the network.

5.3 Communication procedures during routine operations

Figure 5.1 shows the lines of communication between the main bodies involved with information and policy matters relevant to laboratories during routine operations. Communication is through both formal and informal channels.

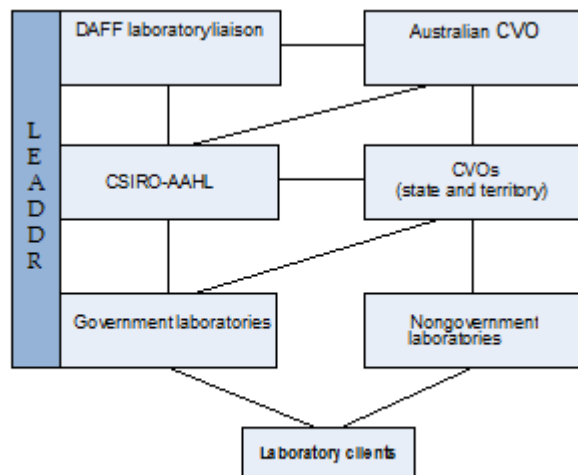


Figure 5.1 Lines of communication for laboratories involved in emergency animal disease diagnosis and response (routine operations)

Figure notes:

— Formal lines of communication

CSIRO-AAHL = CSIRO Australian Animal Health Laboratory; CVO = chief veterinary officer;

LEADDR = Laboratories for Emergency Animal Disease Diagnosis and Response

Clients include government and private veterinarians, animal health officers and researchers.

Informal communications between different groups may take place, as required.

5.4 Communication procedures immediately following emergency animal disease laboratory findings

5.4.1 Laboratory coordination

The LEADDR Coordinating Committee comprises the senior representative of each LEADDR member organisation, is chaired by the Director of CSIRO-AAHL (or their delegate), and meets as required to consider urgent issues. Once the Consultative Committee on Emergency Animal Diseases (CCEAD) is formed, the committee operates as the Laboratory Subcommittee-CCEAD (LSC-CCEAD),²¹ and may coopt technical specialists appropriate for the disease in question. The

²¹ The LSC-CCEAD may also be formed if an EAD has been confirmed in more than one jurisdiction, or at the request of the CCEAD.

role of the LSC-CCEAD is to provide technical advice to the CCEAD and technical coordination among laboratories involved in the EAD response.

5.4.2 Positive laboratory test results for an emergency animal disease

If results of laboratory tests are positive for the presence of an EAD, the following communication procedures will be followed:

- An **initial** positive laboratory finding for an EAD must be reported immediately to the relevant CVO, who will follow the established lines of reporting to the Australian CVO (ACVO), the CCEAD and other key stakeholders.
- Until confirmatory testing has been undertaken, usually at or through CSIRO-AAHL, the outcome of the investigation should be considered as ‘unconfirmed’. However, appropriate actions in response to the initial laboratory finding (as deemed by the CVO of the affected jurisdiction) may be taken in the field. CSIRO-AAHL will also follow the established lines of reporting, and is responsible for informing the LEADDR Coordinator of a laboratory test result that prompts the establishment of the CCEAD.
- When the LSC-CCEAD is formed, laboratory findings, including test results, from a testing laboratory can be shared with the LSC-CCEAD only after these findings have been cleared by the CVO of the jurisdiction in which the samples originated.

5.4.3 Laboratory test results that are not clearly negative for an emergency animal disease

Any contentious, unusual or potentially sensitive laboratory results relating to EADs listed in the EAD Response Agreement, or detections of potentially novel infectious agents, must be reported as follows:

- The results of concern should initially be shared immediately with the CVO of the investigating jurisdiction, who will follow the established lines of reporting to the ACVO. CSIRO-AAHL, together with the LEADDR Coordinator, will determine whether a meeting of the LEADDR Coordinating Committee needs to be urgently convened. The results from a testing laboratory can only be shared with the committee after these results have been cleared by the CVO of the jurisdiction in which the samples originated.
- The CVO of the affected jurisdiction concerned must be advised that a LEADDR Coordinating Committee meeting is being convened. This CVO will determine whether further notification of the result or any other action is to be taken before, or while, the committee meets.
- Meetings of the LEADDR Coordinating Committee should be convened as soon as possible, and within 24 hours of the result becoming available.
- The LEADDR Coordinating Committee will provide the investigating jurisdiction with its interpretation of the results and recommend any follow-up action to be taken.

5.4.4 Roles of the Laboratory Subcommittee-CCEAD

In a declared EAD outbreak, the LSC-CCEAD will assume the primary role in managing the coordination of laboratory services to the outbreak response by:

- reviewing initial and ongoing laboratory findings, including test results, and providing advice to the CCEAD and its other working groups on follow-up laboratory needs and strategies, including facilitating relevant test harmonisation or standardisation and research activities
- assessing and coordinating the capacity of the national laboratory service to respond to the disease outbreak, based on epidemiological and other relevant information available from the CCEAD
- implementing appropriate quality assurance procedures and mechanisms for submission of data for outbreak management
- reviewing the laboratory findings and other technical aspects of activities undertaken by the LSC-CCEAD and other laboratories involved in the outbreak, on a regular basis or as required
- facilitating agreement on costs for laboratory testing and other relevant services, even though these may differ between participating laboratories.

5.5 Communication during an emergency animal disease outbreak

During an EAD outbreak, regardless of whether a CCEAD is formed, the CVO of the jurisdiction in which the samples for EAD testing originate controls the flow of the testing results from all involved laboratories (both LEADDR and non-LEADDR). However, CSIRO-AAHL, as the national animal health laboratory, will also advise the ACVO of any potential and confirmed EAD cases in a timely manner (within 24 hours, wherever possible and appropriate). Results should only be released to the CVO/ACVO or their delegate, such as the control centre laboratory liaison officer (Figure 5.2).

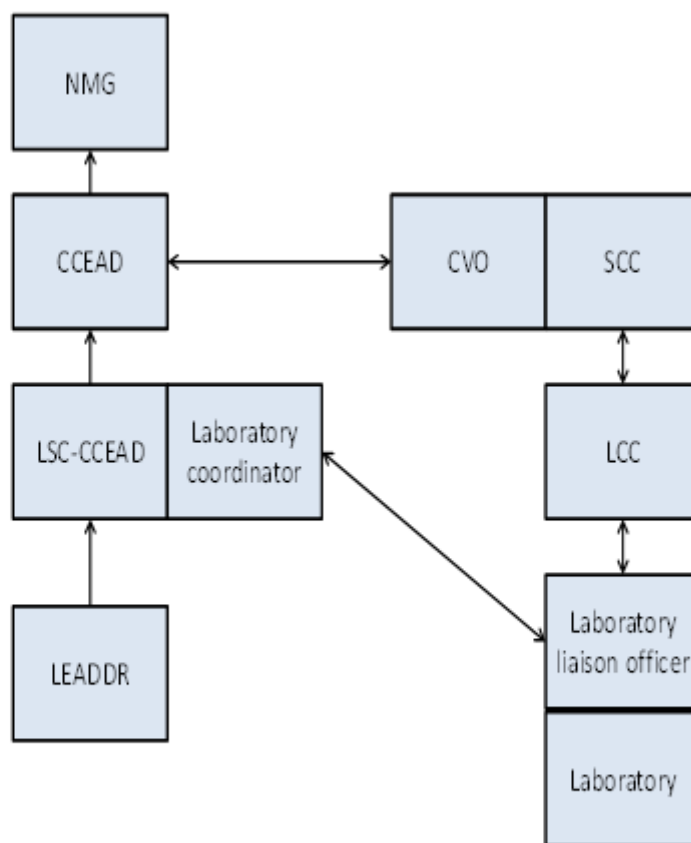


Figure 5.2 Model laboratory response arrangements in an emergency animal disease incident

Figure notes:

— Formal lines of communication

CCEAD = Consultative Committee on Emergency Animal Disease; CVO = chief veterinary officer; LCC = local control centre; LEADDR = Laboratories for Emergency Animal Disease Diagnosis and Response; LSC-CCEAD = Laboratory Sub-Committee-CCEAD; NMG = national management group; SCC = state or territory control centre

Informal communications between different groups may take place, as required.

5.5.1 Role of the laboratory coordinator

The role of laboratory coordinator will generally be filled by the LEADDR Coordinator or another suitable person nominated by the LEADDR Coordinating Committee. Under direction from the

LSC-CCEAD, the laboratory coordinator will maintain the coordination of available laboratory resources with regard to sample testing and, if necessary, laboratory supplies. In particular, the effective use of laboratory resources with respect to surge capacity and biosecurity of participating laboratories will be maintained by directing samples from local control centres to appropriate laboratories.

6 Quality assurance

Quality assurance (QA) is an integral component of the operation of any accredited diagnostic laboratory. Laboratories that receive diagnostic samples from animals and participate in an emergency animal disease (EAD) response should routinely engage in an appropriate QA program. They should also seek and maintain suitable national and/or international accreditation for relevant EAD tests through the National Association of Testing Authorities (NATA) or an equivalent provider, in compliance with the requirements of the most recent version of Australian standard AS ISO/IEC 17025 (*General Requirements for the Competence of Testing and Calibration Laboratories*).

6.1 Quality assurance program objectives

A suitable QA program should:

- confirm the status of the laboratory's QA system and test proficiency
- provide assurance that test results are repeatable and reproducible
- provide reference data to help identify and solve systematic and random errors
- develop data for the ongoing validation of diagnostic assays
- allow QA data to be used for
 - monitoring assay performance
 - initiating appropriate intervention strategies
 - evaluating assay performance during and after a response or activity.

6.2 General quality assurance requirements for LEADDR laboratories

Members of the Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) network regularly participate in a QA program, as outlined in the LEADDR Standard Operating Procedures (not part of this manual).

All participating laboratories must be NATA accredited and comply with the requirements of the most recent version of AS ISO/IEC 17025. The scope of accreditation must match the class and subclass relevant to the testing performed. If NATA accreditation is suspended or withdrawn for the relevant class of test, the laboratory in question must immediately suspend all testing under the LEADDR program.

Where possible, each EAD test must be validated, or undergoing validation, by the Sub-Committee on Animal Health Laboratory Standards (SCAHLs). Each laboratory's deployment of the test must meet the agreed standards for equipment, methods and reagents.

There is ongoing collection of quality control data across the LEADDR network and regular participation in proficiency testing by all participants. This helps ensure that there is harmonisation of testing across the network.

6.3 Unvalidated tests

Not all tests used in an EAD outbreak can or would be fully validated or approved by SCAHLS. The Consultative Committee on Emergency Animal Diseases is able to approve unvalidated tests for an outbreak situation based on available scientific evidence. Test data generated during the outbreak can be used for subsequent validation purposes. NATA has proposed changes that would allow for changes in the scope of a laboratory's accreditation, to expand the scope of testing using unvalidated tests during an EAD outbreak.

7 Training

This section addresses training opportunities for maintaining and increasing the relevant competence of personnel involved in responding to emergency animal disease (EAD) incidents.

An informal network of communication exists between veterinary laboratories in Australia. This network supports professional and industry bodies (eg the Australian Society for Veterinary Pathology,²² the Australian Society for Microbiology²³ and the Australian Association of Veterinary Laboratory Diagnosticians), universities and governments in facilitating structured and unstructured training programs (eg university-based short courses, conferences, seminars, internet discussion groups).

Heads of laboratory should ensure that their senior professional and scientific staff are sufficiently trained for awareness and recognition of major EADs, especially exotic diseases, and:

- have resources, including texts and reference materials, to facilitate recognition of EADs
- have knowledge of, and immediate access to, relevant expert opinion
- attend seminars, conferences and other training programs that address the laboratory aspect of EADs
- participate in quality assurance (QA) programs for testing that are applicable or transferable to testing for EADs
- experience major exotic EAD incidents overseas, as opportunities arise
- participate in relevant exercises for testing the laboratory EAD Contingency Plan (see Appendix 1).

7.1 Training of laboratory personnel

In laboratories, adequate competence in recognising the clinical and pathological signs of both endemic and exotic EADs is important for veterinary pathologists and other veterinary laboratory staff. This is particularly important for the initial handling of some exotic diseases (eg classical swine fever, highly pathogenic avian influenza) that may clinically mimic some endemic diseases.

In-house and external training programs are needed to ensure that laboratories remain abreast of technological advances.

Many of the technologies used to detect and characterise pathogens and host responses are transferable between EADs. These technologies are constantly evolving. Laboratories that may undertake testing in support of an EAD response should ensure that sufficient key staff are trained to proficiency in these technologies, so that EAD testing can be promptly implemented, when required.

The World Organisation for Animal Health (OIE) *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*²⁴ describes internationally validated EAD testing technologies.

²² www.asvp.asn.au

²³ www.theasm.org.au

²⁴ www.oie.int/eng/normes/mmanual/A_summry.htm

The Australian and New Zealand Standard Diagnostic Procedures (ANZSDPs) are based on the OIE recommended diagnostic methods, with inclusion of additional testing requirements specific to Australia's unique testing and epidemiological conditions. The primary objective of ANZSDPs is to standardise test procedures to ensure consistency between laboratories using methods selected for their optimal accuracy, sensitivity, specificity and robustness. ANZSDPs provide another reference source for current technologies.

7.1.1 CSIRO-AAHL training for laboratory staff

The CSIRO Australian Animal Health Laboratory (CSIRO-AAHL) can train individual diagnosticians in specific laboratory tests and techniques (eg foot-and-mouth disease serology, virus and antigen detection for highly pathogenic avian influenza). Prospective trainees should contact the CSIRO-AAHL Director through their employer.

7.1.2 LEADDR training

The Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) network contributes to training of laboratory personnel through its QA program and various interactive discussion forums.

During an EAD response, the Laboratory Subcommittee-Consultative Committee on Emergency Animal Diseases (LSC-CCEAD) may have a role in transferring technology, and facilitating training for laboratories that need it.

7.1.3 Overseas training

From time to time, governments and universities overseas conduct training courses that are relevant to the EAD preparedness of Australian laboratories. The Office of the Australian Chief Veterinary Officer may nominate attendees to these courses.

Overseas outbreaks of EADs that are exotic to Australia provide opportunities for Australian veterinarians and other relevant animal health workers to experience these diseases in real situations and their laboratory investigation at first hand, and to learn from other countries' EAD response arrangements and procedures.

7.1.4 Training of heads of laboratory

Participation by heads of laboratory in EAD preparedness exercises and training can increase their skills in EAD planning and response for laboratories. Elements of the training that is offered by the Emergency Management Australia division²⁵ of the Australian Government Attorney-General's Department, and by state and territory emergency management agencies, are also relevant.

²⁵ www.em.gov.au/AboutAGD/Ourorganisation/Pages/default.aspx

7.1.5 Other training

Laboratories that are accredited to the most recent version of Australian standard AS ISO/IEC 17025 (*General Requirements for the Competence of Testing and Calibration Laboratories*), including accreditation by the National Association of Testing Laboratories, are obliged to ensure that all testing and reporting are done by staff who are trained to appropriate competence.

All relevant laboratory staff should also receive appropriate training in biocontainment and decontamination.

Staff who package and consign specimens from animals, or cultures of pathogens (ie Dangerous Goods, Class 6.2), or who advise clients in these matters, must be trained, tested and accredited to the International Air Transport Association specifications (see Appendix 1).

7.2 Role of laboratories in emergency animal disease preparedness training

7.2.1 Client education and training

As a natural extension of their role in endemic disease diagnosis, veterinary laboratories are repositories of information and expertise on the diagnosis of EADs. This provides a sound platform for their promoting EAD awareness among their clients and in the broader community.

Laboratory staff with special experience and skills may contribute, as trainers, to EAD preparedness programs, such as those for rapid response teams, or the International Animal Health Emergency Reserve.

7.2.2 CSIRO-AAHL training for animal health workers

CSIRO-AAHL provides regular support to state and territory animal health workers — primarily private and government veterinarians — through short lecture-based training sessions and workshops for exotic and significant endemic EADs.

Laboratory-based veterinarians are encouraged to attend such training sessions to refresh their knowledge and to develop contacts with field-based veterinarians.

8 Microbiological security

Biosecurity hazards at diagnostic laboratories are generally associated with:

- receipt, processing, testing, transfer, storage and disposal of specimens or waste that contain emergency animal disease (EAD) agents
- handling and disposal of reagents and animals used for testing
- contamination of laboratory equipment and facilities
- contamination, infection and movement of staff.

In this manual, the term *biosecurity* does not cover bioterrorism involving the unofficial or malicious use of EAD agents, unless otherwise specified.

The risks associated with these hazards vary with each EAD agent, and with the nature of the laboratory work during the different phases of an EAD incident. The microbiological risk of an EAD response should be considered in relation to three major factors:

- risk to the laboratory worker
- risk to the community
- availability of effective treatments and/or vaccinations.

The control measures and considerations referred to in this section will influence these risks.

The Australian/New Zealand standard AS/NZS 2243.3:2010 (*Safety in Laboratories*, part 3, *Microbiological Aspects and Containment*) classifies infective microorganisms — including many of those that cause EADs — by risk, according to World Health Organization guidelines. The standard, which focuses on human pathogens, sets standards of laboratory practice to contain these microorganisms. Laboratories that handle potentially infective materials should have this document, and implement procedures that meet its requirements.

Australian standards are available from Standards Australia.²⁶

Specific national regulatory requirements and guidelines also apply for the possession of EAD pathogens that are classified as security sensitive biological agents (SSBAs). Although certain circumstances, including disease emergencies and responses, may allow possession and handling of SSBAs to be partially exempt from the SSBA Regulatory Scheme, laboratories are required to closely observe any changes in the requirements and guidelines to ensure that they comply at all times.

SSBA regulatory requirements and guidelines are available from the Australian Government Department of Health.²⁷

²⁶ www.standards.org.au

²⁷ www.health.gov.au/SSBA

8.1 Physical containment

When deciding on appropriate primary and secondary containment, consideration should be given to the risk group of the material being handled (as defined in AS/NZS 2243.3:2010). Where no specific guidance is available in the standard for the disease agent (as is the case for some veterinary pathogens and novel disease agents), the decision on appropriate physical containment should be risk based. Use of biological safety cabinets and the physical characteristics of the facility (eg negative air pressure and high-efficiency particulate air [HEPA] filtration) should be appropriate for the risks posed by the disease agent. The laboratory plan should minimise the potential for spread of the agent and contamination of other areas of the facility.

Tertiary containment may also be considered. This involves preventing contact between infectious materials and susceptible animals outside the containment areas by appropriate measures, such as restrictions on access by staff to such animals.

8.2 Standard operating procedures

Each laboratory should have documented standard operating procedures (SOPs) that ensure microbiological security during normal operation. Standard procedures form a sound basis for any special procedures required during an animal disease emergency. Test methods should be written to Australian standard AS 2929:1990 (*Test Methods — Guide to the Format, Style and Content*) and should include appropriate cautions. Manuals containing these procedures should be readily accessible by staff.

8.2.1 Disease-specific standard operating procedures

For some EADs, disease-specific SOPs have been developed to supplement the existing SOPs. Specifically, the Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) network has developed recommended biosafety standards for Hendra virus, and is developing standards for foot-and-mouth disease. There are also nationally agreed SOPs (NASOPs)²⁸ and jurisdictional SOPs that cover personal disinfection and sample collection.

8.3 Decontamination

Laboratory facilities, equipment, personnel and waste that have been exposed to EAD agents or other pathogens must be decontaminated to minimise the risk that the disease will spread from the laboratory or that the pathogen will contaminate pathogen-free samples and reagents, and to protect people from laboratory-acquired infection.

The **Decontamination Manual** and applicable NASOPs outline the general principles of decontamination for EAD agents and other pathogens at field sites. Although these are relevant to laboratories, specific procedures also apply to laboratory situations. The decontamination

²⁸ www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/nasops

elements of each laboratory's EAD Contingency Plan must be tailored to that laboratory's physical containment level, layout and sample flow.

AS/NZS 2243.3:2010 describes preferred disinfection methods in microbiology laboratories.

8.3.1 Waste decontamination

All waste produced from an EAD response must be decontaminated or treated appropriately. In many cases, this will require sterilisation or incineration. Where adequate equipment, such as an autoclave or incinerator, is not available at the facility, plans and risk assessments should be in place for transporting waste material to a suitable facility. Any transport must comply with the requirements of relevant regulatory bodies and AS/NZS 2243.3:2010. The expected volume of waste generated will be an important consideration in these plans.

8.3.2 Personal decontamination and personal protective equipment

Personal decontamination aims to remove pathogens from a person's body surfaces and clothing (without imposing a health risk on the person), so that they can leave the contaminated environment without risking the spread of the agent. Chemical hand cleaners or detergents should be selected for both their safe use on skin and their efficacy in inactivating the microbiological agent being handled.

When laboratory staff are at risk of exposure to pathogens, they must use appropriate personal protective equipment (PPE), whether or not the pathogens are of EADs or transmissible to people. PPE includes overalls, boots, gloves, coats, eyewear and, when there is a risk of human infection by aerosol, HEPA-filtered breathing apparatus. PPE should be disposable, or able to be decontaminated.

8.3.3 Laboratory decontamination

Immediately after it is known or suspected that materials containing an EAD agent have been in the laboratory, all areas that might have been in direct or indirect contact with the material should be risk assessed and, if appropriate, decontaminated. For this reason, it is recommended that samples be opened and processed in a biosafety cabinet wherever possible and appropriate.

8.3.4 Fumigation

Fumigation can be used to decontaminate large enclosed areas quickly, including areas with equipment that is difficult to decontaminate in any other way. However, it can be hazardous to operators and other personnel in the area and requires highly trained skills.

Fumigation may not be effective for porous materials (eg cardboard and paper), which can also adversely affect the fumigation process by absorbing the humidity required for the process to be effective. Fumigation decontaminates surfaces and will not penetrate occluded spaces or sealed containers.

Formaldehyde gas is a recommended fumigant. The practicalities of its use are discussed in the **Decontamination Manual**. Formaldehyde gas should be used only:

- when it is impossible or impractical to use other procedures
- by experienced personnel with appropriate safety equipment.

8.3.5 Selection of disinfectants

Disinfectants that are effective against EAD pathogens are grouped on the basis of their chemical activity (see the **Decontamination Manual**).

8.3.6 Safety

Personnel should consult the relevant safety data sheets (SDSs) before using cleaning materials and disinfectants and, unless better advice indicates otherwise, use the products according to the manufacturers' instructions. This may involve the use of PPE, because many of these substances (or vapours from them) are irritant or harmful to people.

SDSs, which are supplied by the manufacturer, contain information on the identity, physical characteristics, health hazards and precautions for safe storage, use and disposal of the chemical. SDSs should always be available to laboratory staff.

8.4 Other considerations

8.4.1 Numbers of samples

Consideration should be given in advance to potential sample numbers. This will enable an assessment of the availability of trained and/or vaccinated staff and space to undertake the work. Samples will need to be stored before and after analysis under an appropriate level of containment.

8.4.2 Equipment

If equipment required for sample processing is likely to come into contact with infectious materials, it should be assessed for its potential to be properly decontaminated. Equipment, especially liquid-handling devices, should be assessed for its potential to create aerosols.

Appendix 1: Laboratory Emergency Animal Disease Contingency Plan

The following is a format and checklist for a laboratory EAD Contingency Plan.

Veterinary laboratory, [location]

Emergency Animal Disease Contingency Plan

INTRODUCTION

- **This contingency plan is an extension of the procedures that apply for normal laboratory operation.** During formulation and review of the plan, deficiencies in the standard operating procedures (SOPs) can be identified and rectified. It is less disruptive to tighten up sound, low-risk routines with which laboratory staff are familiar than to impose a completely new set of procedures during an emergency animal disease (EAD) incident. The plan should consider the possibility that amendments to normal testing may be necessary to procedures or testing methodology (eg in light of turnaround times; availability of reagents, consumables, equipment, controls, scopes) and the consequences of such changes (eg for method validation or verification, National Association of Testing Authorities accreditation).
- **The plan should be reviewed regularly (at least annually) and as required.** The plan, particularly its security components, should be tested regularly, with minimum disruption to normal laboratory operations.
- **The plan is an ‘active’ document.** It is stored on computer and updated following regular testing and review.
- **The plan should be readily accessible to laboratory staff.** All staff should be familiar with the current plan, as well as with other SOP manuals for the laboratory (eg occupational health and safety manual, SOPs for laboratory methods).
- **The plan contains specific activities and not simply a list of principles.** It has sufficient information and instructions for all laboratory staff to understand what is required of them specifically.
- **The plan is comprehensive and self-contained, where possible.** Copies of relevant information from other sources (eg departmental circulars, other publications) and completed examples of all forms that must be used (eg Shippers’ Declaration for Dangerous Goods) are included as Appendixes A–I to make the plan a ‘one-stop shop’ for all laboratory staff in the event of a disease emergency.
- The AUSVETPLAN Laboratory Preparedness Manual is included as Appendix I of this contingency plan.

1 PROCEDURES FOR QUARANTINE AND DECONTAMINATION OF THE LABORATORY AFTER SPECIMENS FROM A SUSPECTED OR CONFIRMED EAD HAVE BEEN HANDLED (IE AFTER A SINGLE EXPOSURE)

1.1 Notification

1.1.1 Laboratory staff immediately notify the head of laboratory when a specimen from a suspected EAD is identified.

1.1.2 Head of laboratory notifies state/territory chief veterinary officer (CVO).

1.2 Evaluation of level of security required for the suspected agent

1.2.1 References:

- *Foreign Animal Diseases*, 7th edition, United States Animal Health Association, 2008²⁹
- AUSVETPLAN **Disease Strategy** for the specific EAD suspected
- *Exotic Diseases of Animals: A Field Guide for Australian Veterinarians* (Geering WA, Forman AJ and Nunn MJ, Australian Government Publishing Service, 1995)
- Security Sensitive Biological Agents (SSBA) Regulatory Scheme, Australian Government Department of Health and Ageing.³⁰

1.2.2 Head of laboratory nominates staff involved in assessment (eg senior laboratory staff).

1.2.3 Issues to be considered include:

- risk of spread of the agent via aerosols, animals, animal products, fomites, instruments, equipment, staff, effluent, etc
- viability of the agent, and resistance to cleaning and disinfection
- zoonotic potential
- risk to animals at laboratory and on surrounding property.

1.3 Handling of specimens

1.3.1 Situations where EAD specimens may be handled include:

- EAD suspected or requiring exclusion during routine examination of laboratory specimens
- specimens for which an EAD is suspected or requires exclusion that are brought in by diagnostic team — these would normally have been packed in the field for dispatch to the CSIRO Australian Animal Health Laboratory (CSIRO-AAHL), and brought to the laboratory only for safe storage
- low-risk specimens brought in by veterinary practitioner, government field officer, farmer or courier.

1.3.2 Disposal of contaminated material:

- This should occur as close as possible to the laboratory, to minimise the area of potential contamination.
- Where possible, bag and incinerate animal bodies and tissues on site. Bag other laboratory waste in autoclave bags, and incinerate after autoclaving.
- Laboratories without direct access to an autoclave and incinerator should double bag and seal all contaminated waste at the site of handling, and thoroughly disinfect (preferably in a dunk tank) the external surface of the bags before transferring them securely for safe disposal (eg by incineration at another site).
- Double bag protective clothing (laboratory coats, overalls) in autoclave bags. Thoroughly disinfect the surface of the outer bag before transporting it from the contaminated area for autoclaving and subsequent laundering.

²⁹ www.aphis.usda.gov/emergency_response/downloads/nahems/fad.pdf

³⁰ www.health.gov.au/SSBA

- Soak grossly contaminated protective clothing overnight in disinfectant before laundering.
- Immerse boots in disinfectant.

1.4 Identification of high-risk laboratory areas

1.4.1 Refer to site plan and building plan (see Appendix A).

1.4.2 Isolation and quarantine of high-risk areas:

- Identify all areas exposed to specimens (eg courier vehicle, driveway, outside reception area, holding pens, specimen reception area, postmortem room, laboratories, cold rooms).
- Prepare and display appropriate notices.
- Specify physical barriers (eg doors, gates, fences).
- Place footbaths at all entry points to building and contaminated area.
- Organise protective clothing.
- Hold and treat effluent. If this is not possible, advise CVO.
- Treat contaminated laboratory materials (see Section 1.3 — Handling of specimens).

1.4.3 Consider consequences of security measures:

- See Section 1.1 — Notification.
- Assess impact on adjacent facilities and their operations; notify laboratory sections, adjacent units and administrators affected.
- Assess implications for laboratory animal facilities; head of laboratory should consult with appropriate authorities (eg regional manager, CVO) and liaise with local officers to determine whether any animals in laboratory animal facilities should be destroyed.
- Assess whether to continue, discontinue, reduce or relocate routine diagnostic services during the EAD emergency.
- Advise clients of alternative arrangements for routine diagnostic specimens, if changes are made.

1.5 Identification of high-risk staff

1.5.1 Refer to staff list (see Appendix B).

1.5.2 Staff with direct or indirect contact with specimens may include:

- courier
- staff in specimen reception area
- duty veterinarians
- duty pathologists
- postmortem room staff
- cleaners and general assistants
- other laboratory staff.

1.5.3 Staff briefing — head of laboratory or nominee briefs all staff regarding:

- restriction of staff movement
- restriction of staff contact with other animals
- fate of animals and birds at home
- zoonotic potential

- decontamination requirements, including treatment of clothing and shoes
- situation reports.

1.6 Dispatch of specimens to CSIRO-AAHL

1.6.1 Reference:

- **AUSVETPLAN Laboratory Preparedness Manual.**

1.6.2 Approval:

- For Category 3 specimens, head of laboratory obtains CVO approval to send specimens to CSIRO-AAHL.
- Head of laboratory advises duty veterinarian at CSIRO-AAHL and other appropriate personnel by phone, confirming type of specimens to be submitted.

1.6.3 Packing and dispatch:

- International Air Transport Association (IATA)-accredited staff member (see Appendix B) packs and dispatches specimens to CSIRO-AAHL (see Appendix F).

1.6.4 Shipping details:

- Head of laboratory advises CSIRO-AAHL by phone or fax of all shipping details (including courier consignment number for specimens).
- Head of laboratory also advises Victorian CVO of all shipping details if Category 3 specimens are being sent to CSIRO-AAHL.

1.7 Cleaning and decontamination

1.7.1 References:

- **AUSVETPLAN Laboratory Preparedness Manual**
- **AUSVETPLAN Decontamination Manual.**

1.7.2 Methods include:

- cleaning
- disinfection.

1.7.3 Targets include:

- high-risk areas
- low-risk areas
- high-risk staff
- low-risk staff
- vehicles (eg courier vehicles)
- contaminated laboratory protective clothing
- contaminated street clothes and shoes
- waste.

2 PROTOCOL FOR QUARANTINE AND OPERATION OF THE LABORATORY INVOLVED IN AN EAD OUTBREAK (ONGOING OPERATIONS)

2.1 Notification

- Head of laboratory notifies appropriate individuals in charge of adjacent establishments affected by the EAD emergency.

2.2 Evaluation of level of security required for the suspected agent

- As for Section 1.2.

2.3 Handling of specimens

- As for Section 1.3.

2.4 Establishment of an EAD laboratory

- Comprehensive plans should be developed for the establishment and operation of a microbiologically secure facility designated as the EAD laboratory (EDL) within the laboratory complex, to provide ongoing laboratory services for an EAD emergency.
- Different levels of microbiological security may be required in the EDL at different stages of the EAD emergency:
 - during the active high-risk phase
 - during the later low-risk phase (eg serological testing).

2.4.1 Refer to site plan and building plan (see Appendix A):

- Consider the type of laboratory work required (eg postmortem, agent identification, serology).
- Define the appropriate EDL location for this work.

2.4.2 Specify all actions required to secure the EDL:

- Restrict access and movements of:
 - EDL staff (restricted to EDL)
 - other laboratory staff within the laboratory buildings
 - the public to laboratory site and buildings
 - vehicles
 - * couriers for suspected EAD specimens
 - * couriers for routine specimens
 - * staff
 - * the public, including trade vehicles.
- Specify physical barriers (eg doors, gates, fences).
- Place footbaths, showers — specify locations.
- Organise protective clothing — specify requirements.
- Relocate existing staff and equipment for the EDL.
- Establish SOPs for the EDL. The standard procedures that apply to normal operation of the laboratory are upgraded appropriately to meet the microbiological security requirements of the EDL. It is essential that the SOPs for normal operation of the laboratory are sound and able to be easily upgraded for the EDL.

- Set up the EDL with laboratory equipment and facilities appropriate for the disease concerned, including a postmortem area if required.
- Arrange, through the state or territory control centre (SCC), requisition of equipment not immediately available (eg egg incubators, dunk tanks).
- Set up a communications centre in the EDL.
- Arrange through SCC for supply of:
 - telephones
 - scanner
 - photocopier
 - computer link to EAD database, Sample Tracking and Reporting System (STARS) and Laboratory Information Management System (LIMS)
 - 2-way radio (noting that this is not a secure form of communication and can be monitored by external parties)
 - mobile telephones (noting that this is not a secure form of communication and can be monitored by external parties).

2.4.3 Consider consequences of security measures:

- Assess impact on adjacent facilities and their operations (see Section 2.1 — Notification).
- Assess whether to continue, discontinue, reduce or relocate routine diagnostic services and other laboratory activities (eg research) during the EAD emergency; review throughout the emergency.
- Advise clients of alternative arrangements for routine diagnostic specimens, if changes are made.

2.4.4 Independent evaluation of security components of the EAD Contingency Plan by a CSIRO-AAHL officer:

- This review should be undertaken as part of the testing of the contingency plan.

2.4.5 Diagnostic procedures for specific EAD disease:

- CSIRO-AAHL will provide the protocols, reagents and, where necessary, training for EDL staff.

2.5 Operation of EAD laboratory

2.5.1 Management structure:

- Appoint head of laboratory for EDL.
- Identify line responsibilities in high-risk areas (EDL) and low-risk areas of the laboratory complex.

2.5.2 Staff numbers:

- Identify professional, technical and administrative staff required.
- Prepare a list of staff skills.
- Prepare staff rosters.

2.5.3 Morale:

- Designate a personnel officer to monitor staff needs.
- Monitor workload, overtime and time off.
- Monitor morale of laboratory staff not directly involved in the EAD emergency.

2.5.4 Communication:

- Within EDL — conduct daily briefing of staff.
- Within non-EDL area — conduct daily briefing of staff section leaders; regular briefing of all staff.
- Between EDL and non-EDL areas of the laboratory — ensure daily contact.
- Between laboratory and local control centre (LCC), and between laboratory and SCC — ensure daily contact.

2.5.5 Integration of EDL operation with AUSVETPLAN **Operational Manuals, Management Manuals and Disease Strategies:**

- Establish diagnostic team (see **Control Centres Management Manual**).
- Establish means of communication with EDL (fax, phone, computer network, written, other).
- Establish communication protocols.
- Ensure compatibility with EAD database:
 - specimen accession
 - reporting system
 - senior laboratory veterinarian responsible.
- Identify and follow an established line of responsibility (CVO, SCC, LCC, EDL).
- Provide situation reports:
 - to EDL from LCC
 - from EDL to LCC.
- Conduct a daily debriefing at a standard time from LCC.
- Nominate a contact person in laboratory for all external contacts other than LCC, SCC or CVO.
- Nominate LCC laboratory liaison officer.

2.6 Stores, equipment, reagents

2.6.1 EAD diagnostic kit (see Appendix D):

- Ensure kit includes a supply of specimen transport containers.
- Hold kits at the laboratory for immediate dispatch to the field with an investigating veterinarian or a diagnostic team.
- Specify how frequently the kit is checked (eg 6-monthly, annually).

2.6.2 Cleaning and decontamination (see Appendix E):

- Maintain adequate stores of disinfectants at the laboratory for initial phase of an EAD emergency.

2.6.3 Diagnostic reagents:

- To be supplied by CSIRO-AAHL, as required.

2.6.4 Other stores:

- Normal laboratory stores of protective clothing (eg boots, overalls, laboratory coats) should be maintained in quantities sufficient to meet initial demands of an EAD emergency.

- It is impractical to maintain permanent surge capacity of these items exclusively for EAD outbreaks. Extra supplies of protective clothing (eg overalls, boots, coats and shoes) will need to be ordered. Laboratory consumables should be stored in sufficient quantities for an EAD outbreak, if possible. If this is not possible, the laboratory staff involved in the response should consider options if the usual sources and grades of consumables are unavailable at the time required, including use of alternative sources and grades (eg obtaining consumables from another laboratory).

2.6.5 Ordering of laboratory consumables during an EAD emergency:

- Nominate one person to coordinate ordering within the EDL.
- Nominate one person as administrative support contact outside the EDL.
- Nominate key people from each discipline to advise on sources of laboratory consumables.

2.7 Finances

- Establish accounting procedures that identify laboratory costs, which may be claimed under the cost-sharing arrangements.

3 STAFF TRAINING

3.1 References

- AUSVETPLAN Laboratory Preparedness Manual, Summary Document, Disease Strategies.

3.2 EAD awareness and strategies to re-establish freedom

3.3 Development of technical and scientific skills

3.4 Exercises to test laboratory EAD Contingency Plan

4 APPENDIXES

A Site and building plans

- Air-conditioning.
- Building drainage system.

B Staff

- Staff list — skills and EAD experience.
- IATA-accredited staff.

C State emergency contact numbers

D EAD diagnostic kit

- References:
 - AUSVETPLAN Control Centres Management Manual

– *Foreign Animal Diseases*, 7th edition, United States Animal Health Association, 2008.³¹

E Stores

- Cleaning and decontamination materials (see the AUSVETPLAN **Decontamination Manual**).
- Equipment and chemicals.
- Suppliers of overalls, laboratory coats, boots and shoes.
- Suppliers of consumables.

F Packaging and transport of specimens to CSIRO-AAHL

- Reference: AUSVETPLAN **Laboratory Preparedness Manual**.
- Checklist, including examples of completed forms (eg CSIRO-AAHL Specimen Advice Note, Shippers' Declaration for Dangerous Goods).

G State or territory government publications on EAD procedures

H Training resources

- Publications.
- DVDs, digital images.
- Appropriate web-based material.
- Histopathology slides.

I AUSVETPLAN Laboratory Preparedness Manual

³¹ www.aphis.usda.gov/emergency_response/downloads/nahems/fad.pdf

Appendix 2: Laboratories participating in the LEADDR network

National

CSIRO Australian Animal Health Laboratory
5 Portarlington Road, Geelong VIC 3220

New South Wales

NSW Department of Primary Industries (EMAI)
Woodbridge Rd, Menangle NSW 2568

Northern Territory

Berrimah Veterinary Laboratory
Makagon Rd, Berrimah NT 0828

Queensland

Biosecurity Queensland Veterinary Laboratories
Biosecurity Sciences Laboratory (Coopers Plains)
39 Kessels Road, Coopers Plains QLD 4108

South Australia

Vetlab 33 Flemington Road, Glenside SA 5065

Tasmania

Mt Pleasant Laboratory
Tasmanian Department of Primary Industries, Parks, Water and Environment
165 Westbury Rd, Prospect, Launceston TAS 7250

Victoria

Victorian Department of Environment and Primary Industries
AgriBio, 5 Ring Rd, La Trobe University, Bundoora VIC 3083

Western Australia

Western Australian Department of Agriculture and Food
3 Baron-Hay Court, South Perth WA 6330

Appendix 3: Checklist for a diagnostic team

The chief veterinary officer (CVO), or a veterinary case manager appointed by the CVO, will oversee the formation of the diagnostic team. The team should be briefed on:

- the name of the owner (and manager) of the suspect premises (SP)
- the location of the SP (and directions to it)
- the details of the disease suspected and preliminary findings
- specific actions required of them
- quarantine and disinfection requirements for entry to and departure from the SP (see the **Decontamination Manual**)
- arrangements for the dispatch of samples for laboratory examination
- communications arrangements.

The diagnostic team should ensure that they have available a clean vehicle and the following equipment:

- adequate protective clothing, overalls, rubber boots, hats and appropriate decontamination kit (see the **Decontamination Manual**)
- a previously prepared emergency animal disease (EAD) diagnostic kit, including CSIRO-AAHL specimen advice form, and photographic equipment with marine camera housing or a waterproof disposable camera
- mobile communications equipment, if appropriate
- the relevant AUSVETPLAN **Disease Strategy**, if a particular disease is suspected, and the *Exotic Diseases Field Guide*
- appropriate containers and forms for International Air Transport Association (IATA) packaging of biological specimens
- appropriate maps.

For further information, see the **Decontamination Manual**.

On arrival at the SP, the team should:

- leave the vehicle outside the property if it is practical to do so
- change into clean overalls (disposable) and clean waterproof protective clothing, leaving street clothes in the car
- disinfect boots and waterproof protective clothing before entering the premises
- conduct examinations as required, and collect samples and additional information
- ensure that representative animals from each species are examined and sampled
- report the detection of clinical and pathological signs and significant epidemiological information immediately to the CVO or veterinary case manager
- collect detailed epidemiological information, and provide a tentative assessment of the source of the infection and the probability of spread of the disease, including possible wild animal and risk enterprise involvement
- consistent with IATA requirements, pack samples into sealed containers that can be effectively disinfected off the premises
- decontaminate themselves and equipment thoroughly off the premises

- place protective clothing in sealed bags for further decontamination (the outside of the bags is to be subjected to appropriate decontamination)
- dispatch samples to the appropriate diagnostic laboratory (usually CSIRO-AAHL) approved by the CVO, in accordance with submission protocols and with a completed specimen advice form
- report to the CVO the findings of their investigations, including an assessment of the probability of an EAD and possible differential diagnoses.

On leaving the property, the diagnostic team should:

- give the owner departmental contact telephone numbers
- wash down and clean protective clothing and boots with a recommended disinfectant
- wash hands and exposed skin, and clean fingernails, with a recommended disinfectant
- supervise the same procedures for other people
- remove protective clothing, place it in a large plastic bag or garbage bin, and thoroughly soak it in a recommended disinfectant (see the **Decontamination Manual**)
- avoid contact with any other susceptible species until cleared by the senior veterinary officer
- maintain a written diary of events.

Glossary

Manual-specific terms

Australian and New Zealand Standard Diagnostic Procedures	Standardised procedures used by Australian and New Zealand laboratories to facilitate the performance of test procedures and to ensure consistency between laboratories.
Emergency Animal Disease Response Plan (EADRP)	A response to an emergency animal disease that is developed by a state or territory CVO and endorsed by the CCEAD and the NMG, and is subject to government and industry cost sharing in accordance with the Emergency Animal Disease Response Agreement.
Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR)	A national network of laboratories established in 2009 to effectively prepare and respond to an Australian EAD incursion. The network reports to the Animal Health Committee via the Sub-Committee on Animal Health Laboratory Standards (SCAHLs).
Sub-Committee on Animal Health Laboratory Standards (SCAHLs)	A subcommittee comprising the laboratory representatives of Australia and New Zealand, including the Australian Government Department of Agriculture; the CSIRO Australian Animal Health Laboratory; state and territory government laboratories; private laboratories; veterinary schools; the Australian National Quality Assurance Program; the National Association of Testing Authorities; Animal Health Australia; and the Public Health Laboratory Network. The committee provides advice to the Animal Health Committee on animal health laboratory matters, focusing on technical issues and regulatory policy.
Sample Tracking and Reporting System (STARS)	A data interchange system that allows rapid and secure electronic exchange of animal health data between laboratory and other information systems.

Security Sensitive Biological Agent (SSBA) Regulatory Scheme	A scheme that aims to limit opportunities for acts of bioterrorism or biocrime using harmful biological agents. The Australian Government Department of Health and Ageing administers the scheme. The scheme is built around a tiered list of SSBAs and requires all entities and facilities handling SSBAs to comply with the Commonwealth <i>Health Security Act 2007</i> and Health Security Regulations 2008, and the SSBA Standards.
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Standard AUSVETPLAN terms

Animal byproducts	Products of animal origin that are not for consumption but are destined for industrial use (eg hides and skins, fur, wool, hair, feathers, hooves, bones, fertiliser).
Animal Health Committee	A committee whose members are the Australian and state and territory CVOs, the Director of the CSIRO Australian Animal Health Laboratory, and the Director of Environmental Biosecurity in the Australian Government Department of Sustainability, Environment, Water, Population and Communities. The committee provides advice to SCoPI on animal health matters, focusing on technical issues and regulatory policy (formerly called the Veterinary Committee). <i>See also</i> Standing Council on Primary Industries
Animal products	Meat, meat products and other products of animal origin (eg eggs, milk) for human consumption or for use in animal feedstuff.
Approved processing facility	An abattoir, knackery or milk processing plant (or other such facility) to which animals or animal products have been introduced from lower risk premises under a permit for processing to an approved standard. The facility uses increased biosecurity standards.

At-risk premises (ARP)	A premises in a restricted area that contains a susceptible animal(s) but is considered at the time of designation not to be an infected premises, dangerous contact premises, suspect premises or trace premises. The animal(s) on such a premises are subject to procedures such as heightened surveillance and movement restrictions that are applicable in the restricted area.
Australian Chief Veterinary Officer	The nominated senior veterinarian in the Australian Government Department of Agriculture who manages international animal health commitments and the Australian Government's response to an animal disease outbreak. <i>See also</i> Chief veterinary officer
AUSVETPLAN	<i>Australian Veterinary Emergency Plan.</i> A series of technical response plans that describe the proposed Australian approach to an emergency animal disease incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.
Chief veterinary officer (CVO)	The senior veterinarian of the animal health authority in each jurisdiction (national, state or territory) who has responsibility for animal disease control in that jurisdiction. <i>See also</i> Australian Chief Veterinary Officer
Compartmentalisation	The process of defining, implementing and maintaining one or more disease-free establishments under a common biosecurity management system in accordance with OIE guidelines, based on applied biosecurity measures and surveillance, in order to facilitate disease control and/or trade.
Compensation	The sum of money paid by government to an owner for livestock or property that are destroyed for the purpose of eradication or prevention of the spread of an emergency animal disease, and livestock that have died of the emergency animal disease. <i>See also</i> Cost-sharing arrangements, Emergency Animal Disease Response Agreement

Consultative Committee on Emergency Animal Diseases (CCEAD)	The key technical coordinating body for animal health emergencies. Members are state and territory CVOs, representatives of CSIRO-AAHL and the relevant industries, and the Australian CVO as chair.
Control area (CA)	A declared area in which the conditions applying are of lesser intensity than those in a restricted area (the limits of a control area and the conditions applying to it can be varied during an outbreak according to need).
Cost-sharing arrangements	Arrangements agreed between governments (national and states/territories) and livestock industries for sharing the costs of emergency animal disease responses. <i>See also</i> Compensation, Emergency Animal Disease Response Agreement
Dangerous contact animal	A susceptible animal that has been designated as being exposed to other infected animals or potentially infectious products following tracing and epidemiological investigation.
Dangerous contact premises (DCP)	A premises that may or may not contain a susceptible animal(s), including those not showing clinical signs, but that, following a risk assessment, is considered highly likely to contain an infected animal(s) or contaminated animal products, wastes or things, which present an unacceptable risk to the response if the risk is not addressed.
Dangerous contact processing facility (DCPF)	An abattoir, knackery, milk processing plant or other such facility to which it appears highly likely that infected animals, or contaminated animal products, wastes or things have been introduced.
Declared area	A defined tract of land that is subjected to disease control restrictions under emergency animal disease legislation. Types of declared areas include <i>restricted area</i> , <i>control area</i> , <i>infected premises</i> , <i>dangerous contact premises</i> and <i>suspect premises</i> .
Decontamination	Includes all stages of cleaning and disinfection.
Depopulation	The removal of a host population from a particular area to control or prevent the spread of disease.
Destroy (animals)	To kill animals humanely.

Disease agent	A general term for a transmissible organism or other factor that causes an infectious disease.
Disease Watch Hotline	24-hour freecall service for reporting suspected incidences of exotic diseases — 1800 675 888 .
Disinfectant	A chemical used to destroy disease agents outside a living animal.
Disinfection	The application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; applies to premises, vehicles and different objects that may have been directly or indirectly contaminated.
Disposal	Sanitary removal of animal carcasses, animal products, materials and wastes by burial, burning or some other process so as to prevent the spread of disease.
Emergency animal disease	A disease that is (a) exotic to Australia or (b) a variant of an endemic disease or (c) a serious infectious disease of unknown or uncertain cause or (d) a severe outbreak of a known endemic disease, and that is considered to be of national significance with serious social or trade implications. <i>See also</i> Endemic animal disease, Exotic animal disease
Emergency Animal Disease Response Agreement	Agreement between the Australian and state/territory governments and livestock industries on the management of emergency animal disease responses. Provisions include participatory decision making, risk management, cost sharing, the use of appropriately trained personnel and existing standards such as AUSVETPLAN. <i>See also</i> Compensation, Cost-sharing arrangements
Endemic animal disease	A disease affecting animals (which may include humans) that is known to occur in Australia. <i>See also</i> Emergency animal disease, Exotic animal disease
Enterprise	<i>See</i> Risk enterprise

Enzyme-linked immunosorbent assay (ELISA)	A serological test designed to detect and measure the presence of antibody or antigen in a sample. The test uses an enzyme reaction with a substrate to produce a colour change when antigen–antibody binding occurs.
Epidemiological investigation	An investigation to identify and qualify the risk factors associated with the disease. <i>See also</i> Veterinary investigation
Epidemiology	The study of disease in populations and of factors that determine its occurrence.
Exotic animal disease	A disease affecting animals (which may include humans) that does not normally occur in Australia. <i>See also</i> Emergency animal disease, Endemic animal disease
Exotic fauna/feral animals	<i>See</i> Wild animals
Fomites	Inanimate objects (eg boots, clothing, equipment, instruments, vehicles, crates, packaging) that can carry an infectious disease agent and may spread the disease through mechanical transmission.
General permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which permission may be granted without the need for direct interaction between the person moving the animal(s), commodity or thing and a government veterinarian or inspector. The permit may be completed via a webpage or in an approved place (such as a government office or commercial premises). A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. <i>See also</i> Special permit
In-contact animals	Animals that have had close contact with infected animals, such as noninfected animals in the same group as infected animals.
Incubation period	The period that elapses between the introduction of the pathogen into the animal and the first clinical signs of the disease.
Index case	The first case of the disease to be diagnosed in a disease outbreak. <i>See also</i> Index property

Index property	The property on which the index case is found. <i>See also</i> Index case
Infected premises (IP)	A defined area (which may be all or part of a property) in which an emergency disease meeting the case definition exists or is believed to exist, or in which the causative agent of that emergency disease exists or is believed to exist.
Local control centre (LCC)	An emergency operations centre responsible for the command and control of field operations in a defined area.
Monitoring	Routine collection of data for assessing the health status of a population. <i>See also</i> Surveillance
Movement control	Restrictions placed on the movement of animals, people and other things to prevent the spread of disease.
National management group (NMG)	A group established to approve (or not approve) the invoking of cost sharing under the Emergency Animal Disease Response Agreement. NMG members are the Secretary of the Australian Government Department of Agriculture as chair, the chief executive officers of the state and territory government parties, and the president (or analogous officer) of each of the relevant industry parties.
Native wildlife	<i>See</i> Wild animals
OIE Terrestrial Code	OIE <i>Terrestrial Animal Health Code</i> . Describes standards for safe international trade in animals and animal products. Revised annually and published on the internet at: www.oie.int/international-standard-setting/terrestrial-code/access-online
OIE Terrestrial Manual	OIE <i>Manual of Diagnostic Tests and Vaccines for Terrestrial Animals</i> . Describes standards for laboratory diagnostic tests and the production and control of biological products (principally vaccines). The current edition is published on the internet at: www.oie.int/international-standard-setting/terrestrial-manual/access-online
Operational procedures	Detailed instructions for carrying out specific disease control activities, such as disposal, destruction, decontamination and valuation.

Outside area (OA)	The area of Australia outside the declared (control and restricted) areas.
Owner	Person responsible for a premises (includes an agent of the owner, such as a manager or other controlling officer).
Polymerase chain reaction (PCR)	A method of amplifying and analysing DNA sequences that can be used to detect the presence of viral DNA.
Premises	A tract of land including its buildings, or a separate farm or facility that is maintained by a single set of services and personnel.
Premises of relevance (POR)	A premises in a control area that contains a susceptible animal(s) but is not considered at the time of designation to be an infected premises, dangerous contact premises, suspect premises or trace premises. The animal(s) on such a premises are subject to procedures such as heightened surveillance and movement restrictions that are applicable in the control area.
Prevalence	The proportion (or percentage) of animals in a particular population affected by a particular disease (or infection or positive antibody titre) at a given point in time.
Quarantine	Legal restrictions imposed on a place or a tract of land by the serving of a notice limiting access or egress of specified animals, persons or things.
Resolved premises (RP)	An infected premises, dangerous contact premises or dangerous contact processing facility that has completed the required control measures and is subject to the procedures and restrictions appropriate to the area in which it is located.
Restricted area (RA)	A relatively small declared area (compared with a control area) around an infected premises that is subject to intense surveillance and movement controls.

Risk enterprise	A defined livestock or related enterprise that is potentially a major source of infection for many other premises. Includes intensive piggeries, feedlots, abattoirs, knackeries, saleyards, calf scales, milk factories, tanneries, skin sheds, game meat establishments, cold stores, artificial insemination centres, veterinary laboratories and hospitals, road and rail freight depots, showgrounds, field days, weighbridges, garbage depots.
Sensitivity	The proportion of truly positive units that are correctly identified as positive by a test. <i>See also</i> Specificity
Sentinel animal	Animal of known health status that is monitored to detect the presence of a specific disease agent.
Seroconversion	The appearance in the blood serum of antibodies (as determined by a serology test) following vaccination or natural exposure to a disease agent.
Serosurveillance	Surveillance of an animal population by testing serum samples for the presence of antibodies to disease agents.
Serotype	A subgroup of microorganisms identified by the antigens carried (as determined by a serology test).
Serum neutralisation test	A serological test to detect and measure the presence of antibody in a sample. Antibody in serum is serially diluted to detect the highest dilution that neutralises a standard amount of antigen. The neutralising antibody titre is given as the reciprocal of this dilution.
Slaughter	The humane killing of an animal for meat for human consumption.

Special permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which the person moving the animal(s), commodity or thing must obtain prior written permission from the relevant government veterinarian or inspector. A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. <i>See also</i> General permit
Specificity	The proportion of truly negative units that are correctly identified as negative by a test. <i>See also</i> Sensitivity
Stamping out	The strategy of eliminating infection from premises through the destruction of animals in accordance with the particular AUSVETPLAN manual, and in a manner that permits appropriate disposal of carcasses and decontamination of the site.
Standing Council on Primary Industries (SCoPI)	The council of Australian national, state and territory and New Zealand ministers of agriculture that sets Australian and New Zealand agricultural policy (formerly the Primary Industries Ministerial Council). <i>See also</i> Animal Health Committee
State or territory coordination centre (SCC)	The emergency operations centre that directs the disease control operations to be undertaken in that state or territory.
Surveillance	A systematic program of investigation designed to establish the presence, extent or absence of a disease, or of infection or contamination with the causative organism. It includes the examination of animals for clinical signs, antibodies or the causative organism.
Susceptible animals	Animals that can be infected with a particular disease.
Suspect animal	An animal that may have been exposed to an emergency disease such that its quarantine and intensive surveillance, but not pre-emptive slaughter, is warranted. <i>or</i> An animal not known to have been exposed to a disease agent but showing clinical signs requiring differential diagnosis.

Suspect premises (SP)	Temporary classification of a premises that contains a susceptible animal(s) not known to have been exposed to the disease agent but showing clinical signs that require investigation.
Swill	<p>Also known as 'prohibited pig feed', material of mammalian origin, or any substance that has come in contact with this material; it does not include:</p> <ul style="list-style-type: none"> • milk, milk products or milk byproducts, either of Australian provenance or legally imported for stockfeed use into Australia • material containing flesh, bones, blood, offal or mammal carcasses that is treated by an approved process • a carcass or part of a domestic pig, born and raised on the property on which the pig or pigs that are administered the part are held, that is administered for therapeutic purposes in accordance with the written instructions of a veterinary practitioner • material used under an individual and defined-period permit issued by a jurisdiction for the purposes of research or baiting.
Swill feeding	<p>Also known as 'feeding prohibited pig feed', includes:</p> <ul style="list-style-type: none"> • feeding, or allowing or directing another person to feed, prohibited pig feed to a pig • allowing a pig to have access to prohibited pig feed • the collection and storage or possession of prohibited pig feed on a premises where one or more pigs are kept • supplying to another person prohibited pig feed that the supplier knows is for feeding to any pig.
Trace premises (TP)	Temporary classification of a premises that contains susceptible animal(s) that tracing indicates may have been exposed to an infected animal(s), or contaminated animal products, wastes or things, and that requires investigation.

Tracing	The process of locating animals, persons or other items that may be implicated in the spread of disease, so that appropriate action can be taken.
Unknown status premises (UP)	A premises that has been identified as having an unknown animal status.
Vaccination	Inoculation of individuals with a vaccine to provide active immunity.
Vaccine	A substance used to stimulate immunity against one or several disease-causing agents to provide protection or to reduce the effects of the disease. A vaccine is prepared from the causative agent of a disease, its products, or a synthetic substitute, which is treated to act as an antigen without inducing the disease.
– adjuvanted	A vaccine in which one or several disease-causing agents are combined with an adjuvant (a substance that increases the immune response).
– attenuated	A vaccine prepared from infective or ‘live’ microbes that are less pathogenic but retain their ability to induce protective immunity.
– gene deleted	An attenuated or inactivated vaccine in which genes for nonessential surface glycoproteins have been removed by genetic engineering. This provides a useful immunological marker for the vaccine virus compared with the wild virus.
– inactivated	A vaccine prepared from a virus that has been inactivated (‘killed’) by chemical or physical treatment.
– recombinant	A vaccine produced from virus that has been genetically engineered to contain only selected genes, including those causing the immunogenic effect.
Vector	A living organism (frequently an arthropod) that transmits an infectious agent from one host to another. A <i>biological</i> vector is one in which the infectious agent must develop or multiply before becoming infective to a recipient host. A <i>mechanical</i> vector is one that transmits an infectious agent from one host to another but is not essential to the life cycle of the agent.

Veterinary investigation	An investigation of the diagnosis, pathology and epidemiology of the disease. <i>See also</i> Epidemiological investigation
Viraemia	The presence of viruses in the blood.
Wild animals	
– native wildlife	Animals that are indigenous to Australia and may be susceptible to emergency animal diseases (eg bats, dingoes, marsupials).
– feral animals	Animals of domestic species that are not confined or under control (eg cats, horses, pigs).
– exotic fauna	Nondomestic animal species that are not indigenous to Australia (eg foxes).
Zero susceptible stock premises (ZP)	A premises that contains no susceptible animals.
Zoning	The process of defining, implementing and maintaining a disease-free or infected area in accordance with OIE guidelines, based on geopolitical and/or physical boundaries and surveillance, in order to facilitate disease control and/or trade.
Zoonosis	A disease of animals that can be transmitted to humans.

Abbreviations

Manual-specific abbreviations

ACVO	Australian Chief Veterinary Officer
AS/NZS 2243.3:2010	Australian/New Zealand Standard 2243.3:2010, <i>Safety in laboratories, part 3, Microbiological aspects and containment</i>
CASA	Civil Aviation Safety Authority
EADRA	Emergency Animal Disease Response Agreement
EDL	EAD laboratory
HEPA filter	high-efficiency particulate air filter
IATA	International Air Transport Association
LCC	local control centre
LEADDR	Laboratories for Emergency Animal Disease Diagnosis and Response
LSC-CCEAD	Laboratory Subcommittee-CCEAD
NASOP	nationally agreed standard operating procedure
NATA	National Association of Testing Authorities
PPE	personal protective equipment
QA	quality assurance
SCAHLs	Sub-Committee on Animal Health Laboratory Standards
SCC	state or territory control centre
SOP	standard operating procedure
SSBA	security sensitive biological agent
STARS	Sample Tracking and Reporting System

Standard AUSVETPLAN abbreviations

AAHL	Australian Animal Health Laboratory
AN	assessed negative
APF	approved processing facility
ARP	at-risk premises

AUSVETPLAN	Australian Veterinary Emergency Plan
CA	control area
CCEAD	Consultative Committee on Emergency Animal Diseases
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVO	chief veterinary officer
DCP	dangerous contact premises
DCPF	dangerous contact processing facility
EAD	emergency animal disease
EAD Response Agreement	Emergency Animal Disease Response Agreement
EDTA	ethylenediaminetetraacetic acid (anticoagulant for whole blood)
ELISA	enzyme-linked immunosorbent assay
GP	general permit
IETS	International Embryo Transfer Society
IP	infected premises
NMG	national management group
OA	outside area
OIE	World Organisation for Animal Health
PCR	polymerase chain reaction
POR	premises of relevance
RA	restricted area
RP	resolved premises
SP	suspect premises
SpP	special permit
TP	trace premises
ZP	zero susceptible stock premises

References

Geering WA, Forman AJ and Nunn MJ (1995). *Exotic Diseases of Animals: A Field Guide for Australian Veterinarians*, Australian Government Publishing Service, Canberra.

United States Animal Health Association (2008). *Foreign Animal Diseases*, 7th edition, USAHA, St Joseph, Missouri, USA. www.aphis.usda.gov/emergency_response/downloads/nahems/fad.pdf

Further reading

Advisory Committee on Dangerous Pathogens (1994). *Precautions for Work with Human and Animal Transmissible Spongiform Encephalopathies*, Her Majesty's Stationary Office, London.

Australian/New Zealand Standard (2010). AS/NZS 2243.3:2010, *Safety in Laboratories, part 3, Microbiological Aspects and Containment*, Standards Australia/Standards New Zealand.

NHMRC (National Health and Medical Research Council) (1996). *Creutzfeldt-Jakob Disease and Other Human Transmissible Spongiform Encephalopathies: Guidelines on Patient Management and Infection Control*, Working Party of the National Health Advisory Committee of the NHMRC, Commonwealth Department of Health and Family Services, Canberra.