

Exercise Waterhole report



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Cataloguing data

This publication (and any material sourced from it) should be attributed as: Subcommittee on Animal Health Laboratory Standards 2025, *Exercise Waterhole report*, Department of Agriculture, Fisheries and Forestry, Canberra. CC BY 4.0.

This publication is available at agriculture.gov.au/biosecurity-trade/policy/emergency/exercises/exercise-waterhole.

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Acknowledgements

The *Exercise Waterhole report* was jointly developed by the state and territory governments, CSIRO and the Australian Government Department of Agriculture, Fisheries and Forestry. The department oversaw production of the report.

The report was submitted to the Animal Health Committee in June 2025 and endorsed by the Committee in July 2025.

Acknowledgement of Country

We acknowledge the continuous connection of First Nations Traditional Owners and Custodians to the lands, seas and waters of Australia. We recognise their care for and cultivation of Country. We pay respect to Elders past and present, and recognise their knowledge and contribution to the productivity, innovation and sustainability of Australia's agriculture, fisheries and forestry industries.

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Foreword

An effective biosecurity system protects Australia and our way of life from biosecurity threats. It underpins our productive agricultural sectors.

The [National Biosecurity Strategy \(2022–2032\)](#) highlights the importance of undertaking regular national preparedness exercises. Undertaking simulation exercises for a variety of scenarios is also a key activity of the [Animal plan 2022 to 2027: Australia's National Action Plan for Production Animal Health](#).

Australia has undertaken many national simulation exercises targeting various aspects of preparedness for and response to emergency animal disease (EAD) outbreaks. Animal health laboratories are an integral part of Australia's national animal health system and crucial to EAD preparedness and response. They operate individually and as a coordinated network across the states and territories, undertaking diagnostic and research activities for endemic and exotic animal diseases.

Exercise Waterhole, conducted in 2023, was a series of scenario-based discussion and functional simulation exercises specific to government animal health laboratories. A significant amount of scoping and planning was carried out in 2022, followed by a thorough evaluation in 2024. It provided an opportunity to test and evaluate how well-prepared Australia's animal health laboratory network is to respond to a large-scale EAD outbreak.

The exercise brought together state and territory government animal health laboratories, CSIRO's Australian Centre for Disease Preparedness and the department to test our national laboratory surge capacity. Observers from non-government laboratories, industry and public health sectors were involved in relevant activities.

This report provides an overview of Exercise Waterhole and key findings specific to laboratory operations, including relevant regulations, surge capacity demands, communication and information management and resource and logistical needs. While the report notes we have a robust animal health laboratory system, the findings and respective recommendations will guide subsequent actions by governments and industries to further strengthen Australia's laboratory preparedness to manage EADs and other animal biosecurity threats.



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Summary

Exercise Waterhole evaluated Australia's animal health laboratory preparedness for a large-scale emergency animal disease (EAD) outbreak. The exercise tested the national laboratory network's capacity to respond to multiple concurrent high-impact EADs, specifically lumpy skin disease and highly pathogenic avian influenza.

The exercise was conducted in 2023 and included 3 lead-up activities, concluding with a 3-day functional exercise. This involved a series of scenario-based discussion and functional laboratory activities, bringing together state and territory government animal health laboratories, the Australian Centre for Disease Preparedness, and the Department of Agriculture, Fisheries and Forestry.

Objectives and associated findings from Exercise Waterhole include:

1) Practise the application of animal health laboratory regulations and legislation in the event of a major animal disease incursion across Australia.

The exercise enhanced participants' understanding of relevant legislation and regulations, identified areas for improvement, highlighting the importance of arrangements to manage Security Sensitive Biological Agents during an EAD response.

2) Confirm that Australia has sufficient laboratory capacity and capability to manage the demands of multiple concurrent high-impact EAD outbreaks across Australia.

While the exercise confirmed sufficient capability, it highlighted limitations in surge capacity, particularly in smaller laboratories. Key bottlenecks included specimen reception and sample labelling.

3) Assess the effectiveness of communication and information management arrangements within and between Australian animal health laboratories.

The Laboratories for Emergency Animal Disease Diagnosis and Response Emergency Committee played a vital role in enhancing national coordination. However, information management systems require further integration.

4) Identify resource and logistical constraints that may impact on Australia's animal health laboratories when responding to multiple concurrent high-impact EAD outbreaks across Australia.

The exercise identified the need for additional staff, improved laboratory layouts, and enhanced stockpile management of reagents and consumables.

This report demonstrates that the aim and objectives of Exercise Waterhole were substantially achieved. Participants identified strengths and opportunities for improving Australia's animal health laboratory systems. The recommendations in this report will guide activities to enhance the animal health laboratory network's preparedness for future EAD outbreaks in Australia.

Recommendations

To enhance preparedness for future emergency animal disease responses, this report recommends that responsible Australian animal health laboratories:

- 1) Review laboratory contingency plans and procedures to ensure they align with current legislation and regulations.
- 2) Enhance knowledge and application of legislation and regulations through relevant laboratory training programs for leaders and staff.
- 3) Review emergency animal disease management plans to ensure inclusion of reference to Security Sensitive Biological Agents Regulatory Scheme requirements, in conjunction with the Department of Health and Aged Care, Interim Australian Centre for Disease Control.
- 4) Optimise laboratory workflows for high-volume events by streamlining receipt, processing and recording of samples.
- 5) Establish national specimen labelling standards for improved operational efficiency in laboratories.
- 6) Develop training for all laboratory staff that can be delivered in anticipation of and during high-volume events.
- 7) Proactively manage staff fatigue issues and adhere to work health and safety requirements during high-volume events.
- 8) Develop decision tools, triggers and arrangements to adapt business as usual activities in an emergency animal disease response.
- 9) Regularly practice, review, and update laboratory contingency plans and procedures to ensure they effectively guide actions during an emergency animal disease response.
- 10) Ensure up-to-date internal and external communication arrangements are documented in laboratory contingency plans.
- 11) Use and provide administrative support to the Laboratories for Emergency Animal Disease Diagnosis and Response Emergency Committee for laboratory coordination during an emergency animal disease response.
- 12) Work towards full integration of the Sample Tracking and Reporting System across all laboratories to ensure access to all functionality of the system.
- 13) Provide dedicated onsite support for information technology systems during an emergency animal disease response.
- 14) Review arrangements for accessing additional staff, particularly for specimen reception, from within the laboratory and from external organisations.
- 15) Understand the financial implications of an emergency response on laboratory resources and reporting for cost-sharing arrangements under the Emergency Animal Disease Response Agreement.

- 16) Review laboratory layout and implement changes to minimise sample movement distances for improved biosecurity and efficiency during an emergency animal disease response.
- 17) Review and adjust arrangements for base levels or central stockpiles of laboratory supplies to ensure timely access during an emergency animal disease response.
- 18) Review current courier service arrangements to ensure they have the capacity to manage high-volume emergency animal disease responses.

Introduction

Background

A key objective of the *National Animal Health Diagnostics Business Plan 2021 to 2026* (DAWE 2022) is to improve laboratory preparedness and surge response capacity for emergency animal disease (EAD) outbreaks. To achieve this objective, the Animal Health Committee's (AHC) Subcommittee on Animal Health Laboratory Standards (SCAHLs) agreed to undertake a national laboratory-specific simulation exercise.

In support of SCAHLs, the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) conducted a scoping project in 2022 to guide the development of a national laboratory exercise for implementation in 2023, with support from Dr Jeffrey Hammond as an independent consultant.

In 2023, SCAHLs formed a steering committee to oversee the planning, conduct and evaluation of the exercise. The steering committee chose the exercise name 'Waterhole' as a reference to an environment where livestock species congregate, and disease transmission may occur. State and territory government animal health laboratories, the Australian Centre for Disease Preparedness (ACDP) and DAFF participated in Exercise Waterhole.

Aim and objectives

The aim of Exercise Waterhole was to test and evaluate national laboratory preparedness for a major EAD incursion across the spectrum of animal health laboratory services in Australia.

The exercise had 4 objectives:

- 1) Practise the application of animal health laboratory regulations and legislation in the event of a major animal disease incursion across Australia.
- 2) Confirm that Australia has sufficient laboratory capacity and capability to manage the demands of multiple concurrent high-impact EAD outbreaks across Australia.
- 3) Assess the effectiveness of communication and information management arrangements within and between Australian animal health laboratories.
- 4) Identify resource and logistical constraints that may impact on Australia's animal health laboratories when responding to multiple concurrent high-impact EAD outbreaks across Australia.

Scope

Based on the scoping study conducted by DAFF in 2022, the scope included EAD response activities of national, state and territory animal health laboratories in Australia, framed around the 4 exercise objectives. The scope did not involve field-focused activities or the physical deployment of staff outside laboratories.

The exercise used 2 concurrent EAD outbreaks spanning multiple jurisdictions to stress-test the laboratory network. The chosen EADs were lumpy skin disease (LSD) and high pathogenicity avian influenza (HPAI) because they are of high-priority and met the exercise scenario needs.

Participating organisations

The following organisations from the animal health laboratory network participated in the exercise:

- Commonwealth Scientific and Industrial Research Organisation (CSIRO)–ACDP
- DAFF
- Agribio Veterinary Diagnostic Services, Agriculture Victoria, Victorian Department of Energy, Environment and Climate Action
- Animal Health Laboratory (AHL), Tasmanian Department of Natural Resources and Environment
- Berrimah Veterinary Laboratory, Northern Territory Department of Industry, Tourism and Trade
- Biosecurity Sciences Laboratory, Queensland Department of Agriculture and Fisheries
- Diagnostics and Laboratory Services, Western Australian Department of Primary Industries and Regional Development
- NSW Animal and Plant Health Laboratories, Elizabeth Macarthur Agricultural Institute, New South Wales Department of Primary Industries and Regional Development
- Gribbles VETLAB, contracted provider of veterinary diagnostic services to the Department of Primary Industries and Regions South Australia.

Additional representatives from the following organisations attended as observers:

- Animal Health Australia (AHA)
- National Association of Testing Authorities (NATA)
- New Zealand Ministry for Primary Industries
- Public Health Laboratory Network.

1 Exercise management

1.1 Governance

See exercise governance arrangements in Table 1.

Table 1 Exercise Waterhole governance arrangements

Role	Purpose	Membership
Exercise Steering Committee (ESC)	Provided oversight and communication to AHC	SCAHLs representatives
Exercise Director	Facilitated all exercise activities and chaired and mentored the EMT and SWG	Consultant
Exercise Management Team (EMT)	Planned the exercise and developed all documentation	SCAHLs representatives
Exercise Evaluator	Evaluated the exercise and coordinated staff to conduct on-site evaluations	Consultant
DAFF Project Team	Provided project management, administrative and logistical support	DAFF representatives
Scenario Writing Group (SWG)	Developed the exercise scenario and inputs	SCAHLs representatives and staff from participating agencies and laboratories

1.2 Exercise planning

The EMT was responsible for planning the exercise. The Exercise Director led the team and DAFF provided administrative support. Members undertook their duties in addition to their normal workloads. The team met fortnightly via online meetings during the initial planning period and more regularly in the lead up to activities.

The EMT and DAFF developed policy, plans and procedures to guide governance, management, conduct and evaluation of the exercise. These documents included:

- exercise governance structure
- exercise plan
- communication plan
- evaluation plan
- risk register
- activity plans.

1.3 Scenario

The SWG, with support from the Exercise Director and the DAFF Project Team, developed the exercise scenario, including simulated submissions and enquiries for the 2 functional exercises. DAFF used the Australian Animal Disease Spread Model (AADIS) to simulate the possible spread of LSD in the northern Australia for the purpose of developing the exercise scenario only.

The scenario involved the emergence of LSD as an initial primary disease outbreak in cattle on the border of the Northern Territory and Western Australia, followed by concurrent non-related outbreaks of HPAI in Tasmania, Victoria, New South Wales, South Australia and Western Australia.

- Activities 1 and 2 was based on the early stages of a response to LSD in the north and the subsequent confirmation of HPAI in Tasmania.
- Activity 3 began with the initial confirmation of HPAI and continued through a full one-day response in Tasmania.
- Activity 4 was a continuation of the scenarios used for Activities 1, 2 and 3 and was based on a point in time, approximately 3 weeks after the initial detection of LSD in northern Australia and 2 weeks following the confirmation of HPAI in Tasmania.

1.4 Exercise conduct

Exercise Waterhole included 3 lead-up activities and concluded with a 3-day functional exercise. See the schedule of activities in Table 2.

Table 2 Exercise Waterhole schedule of activities

Activity	Date	Location	Format
Activity 1	20 September 2023	AgriBio, Bundoora, Victoria	Discussion exercise
Activity 2	21 September 2023	AgriBio, Bundoora, Victoria	Discussion exercise
Activity 3	4 October 2023	AHL, Launceston, Tasmania	Small-scale functional and discussion exercise
Activity 4	1 to 3 November 2023	Jurisdictional animal health laboratories and the incident control room in Agriculture House, Canberra.	National functional exercise

Activities 1 and 2 Discussion exercises

Activities 1 and 2 were discussion exercises held in person. To facilitate and provide the context for discussions, invited speakers gave presentations on exercise scenarios and lessons learned from previous EAD and COVID-19 outbreak responses, including the Sample Tracking and Reporting System (STARS) and supply of essential laboratory consumables and equipment. Participants actively engaged in the facilitated scenario-based discussions and small group activities.

Activity 1 focused on reviewing jurisdictional laboratory policies, plans and procedures for managing EAD responses. Participants identified the following aspects of their laboratory EAD response contingency plans and standard operating procedures and discussed how they would apply them in the scenario:

- legislative and regulatory requirements
- key components for laboratory functions during a high-volume EAD response
- continuation of laboratory business as usual (BAU) activities and accessing additional resources
- communication and information-sharing arrangements.

Activity 2 focused on assessing laboratory resources and logistics when managing EAD responses. Participants identified and discussed the following areas:

- legislative and regulatory requirements for resourcing and transfer of samples within and between jurisdictions
- laboratory resource capacity (human, physical and financial) during a high-volume EAD response
- surge capacity and alternative options to address high sample volumes
- decision-making for continuation of laboratory BAU
- resources to support communication and information sharing.

Activity 3 Small-scale functional and discussion exercise

Activity 3 was conducted in real-time at the Tasmanian Government's AHL in Launceston. It aimed to identify and consider ways to address bottlenecks in the laboratory system. AHL staff managed the logistical arrangements and assisted with the preparation and introduction of inputs.

The AHL staff performed their normal laboratory role in response to the EAD scenario and related inputs. Staff also received simulated inputs from private veterinarians and members of the public. This provided a valuable opportunity to practise processing a high volume of samples for an EAD response in a single animal health laboratory.

The discussion aspect involved AHL and other jurisdictional laboratory staff who observed the functional exercise in person or via livestream. The jurisdictional observers discussed the issues faced by AHL and how the scenario would apply to their own laboratory. During the functional exercise, observers discussed:

- how laboratories process and prioritise samples collected from wild birds and who makes these decisions
- documentation of EAD response activities in laboratory plans and procedures
- managing the impact of the outbreak scenario on BAU activities
- how AHL should communicate information to relevant external stakeholders in the scenario.

The EMT, SWG and jurisdictional laboratory staff incorporated insights from Activity 3 into their preparations for Activity 4.

Activity 4 National functional exercise

Activity 4 was a 3-day nationwide functional exercise conducted in real-time, representing a culmination of planning and application of outcomes from the 3 lead-up activities.

All jurisdictional animal health laboratories and ACDP participated in the exercise locally. DAFF managed the exercise control centre role remotely from Agriculture House in Canberra. Some laboratories conducted a paper-based exercise combined with processing spiked or blank samples, while others chose to perform a paper-based exercise only.

During the exercise, participants entered submissions into their laboratory information management system (LIMS) with submissions and results communicated to ACDP via STARS. Participants received

additional simulated inputs, mostly through emails and phone calls that would affect their laboratory operations in an EAD response.

Examples included:

- enquiries from the public, producers and private veterinarians
- media enquiries
- offers of assistance from external organisations, including universities and private veterinary laboratories
- requests for information from the State Coordination Centre (SCC), chief veterinary officer (CVO) unit and the minister's office
- enquiries from laboratory consumables suppliers regarding stock levels and ordering
- updates from laboratory couriers.

Each laboratory had a local onsite exercise facilitator and an evaluator. The Exercise Director and the Exercise Evaluator provided oversight in Canberra, working closely with the local facilitators and evaluators.

The exercise control team in Canberra:

- provided daily briefing to all staff in all laboratories before the exercise started, and a short debrief at the conclusion of the exercise
- tracked delivery of inputs in accordance with the master schedule
- monitored the actions of each laboratory via the local onsite facilitator to ensure that the exercise stayed on track
- delivered supporting phone and email inputs
- reacted to enquires generated by laboratories in response to the scenario.

Local onsite facilitators:

- conducted daily local-level briefings and debriefings with participants
- delivered laboratory sample submission inputs to the exercise.

Local onsite evaluators collected and recorded observations in real-time and provided records to the Exercise Evaluator.

1.5 Evaluation

Exercise evaluation included the collection of evaluation data through:

- review of documentation generated during planning and conduct of the exercise
- real-time observation of lead-up activities and the final functional exercise
- one-on-one and small group interviews

- debriefs conducted during and at the conclusion of each lead-up activity and the final functional exercise
- exercise participant and exercise management staff questionnaires.

The Exercise Director collated, themed and analysed observations recorded during the exercise to inform this report, which is framed around the exercise objectives.

2 Insights and findings

2.1 Animal health legislation and regulations

Objective 1

Practise the application of animal health laboratory regulations and legislation in the event of a major animal disease incursion across Australia.

Summary

- The exercise allowed participants to explore the application of animal health laboratory legislation and regulations in response to a major animal disease incursion across Australia
- The exercise enhanced participants' understanding of the relevant legislation and regulations, while identifying outstanding issues
- Management of Security Sensitive Biological Agents (SSBA) by laboratories during and following an EAD response remains a primary concern.

Observations and analysis

- A range of state, territory and Commonwealth legislation influences the work of a laboratory
- Senior managers, outside of the laboratory facilities administer relevant laboratory-related legislation and regulations
- Laboratory leaders and managers have varying levels of knowledge of legislation and regulations, particularly Commonwealth legislation, and would have appreciated more time to learn about the application of legislation in Activities 1 and 2
- Individual laboratories should review plans and procedures to ensure they reflect contemporary legislation and regulations
- Laboratories must comply with the SSBA Regulatory Scheme and should have suitable arrangements in place for seeking exemptions during an EAD response
- Laboratories that rarely work with SSBA materials demonstrated limited knowledge of handling, storing and destroying SSBA materials.

Recommendations

- 1) Review laboratory contingency plans and procedures to ensure they align with current legislation and regulations.
- 2) Enhance knowledge and application of legislation and regulations through relevant laboratory training programs for leaders and staff.
- 3) Review emergency animal disease management plans to ensure inclusion of reference to SSBA Regulatory Scheme requirements, in conjunction with the Department of Health and Aged Care, Interim Australian Centre for Disease Control.

2.2 Laboratory capacity and capability

Objective 2

Confirm that Australia has sufficient laboratory capacity and capability to manage the demands of multiple concurrent high impact EADs across Australia.

Summary

- The exercise confirmed that participating laboratories have sufficient capability, but face limitations in their individual and combined capacity to manage the demands of multiple concurrent high-impact EAD outbreaks
- Smaller laboratories have limited surge capacity to meet high-volume events
- High-volume events will impact BAU work, and laboratories may need to make decisions about reducing or suspending some BAU activities during an EAD outbreak
- All laboratories are likely to experience resource constraints during an EAD outbreak, primarily with human resources, and in some cases suitable laboratory layout and space for response-related activities
- Laboratory contingency plans and procedures, consistent with AUSVETPLAN guidance, are essential for the efficient and effective management of an EAD response.

Observations and analysis

Surge capacity

Larger laboratories have greater capacity to readily access additional resources to meet demands of high-volume events, but smaller laboratories are more likely to need external support. Laboratories coped with the volume of samples in this exercise but require additional staff support if the number of samples increased, or the response was prolonged.

Specimen reception

The exercise confirmed specimen reception (receiving, accessioning and processing) as a major bottleneck. Attributing factors included available staff, working and storage space, facility layout and computers. Limited space and equipment, including computers and label printers, exacerbated the impact. The exercise demonstrated that:

- when staff could anticipate the volume of incoming samples through prior communication, this allowed for the timely preparation of diagnostic kits and reagents to fast-track testing
- limited staff for sample preparation tasks meant laboratories did not always process samples within prescribed timeframes
- some laboratories needed to branch out into other areas of the facilities to meet the need for high-volume sample preparation
- some laboratories did not have sufficient biosafety cabinet (class II) space to process samples
- in some cases, normal facilities were not sufficient to deal with the increased volume or the type of samples while undertaking BAU activities of the laboratory.

Bringing in external staff to address this bottleneck may raise other issues, including:

- staff having insufficient competency to work in a secure environment
- providing training in required skills for additional staff within a short period
- managing human resource requirements between the laboratory and source organisation
- providing accommodation, transport and meals for additional staff.

Sample labelling

The exercise demonstrated that manually handling large volumes of samples, and the inconsistent approach to labelling were major bottlenecks. The adoption of more automated systems such as pre-barcoded sample collection tubes and prior submission of electronic sample forms may address these bottlenecks. These systems can:

- ensure consistent labelling of sample collection tubes to improve efficiency and scanning of samples
- improve the legibility of identification details on sample labels
- streamline labelling processes and paperwork to reduce confusion and enhance processing times.

Reporting activities

The exercise identified a bottleneck in obtaining and collating data for timebound information requests – for example, from the CVO or SCC. In some laboratories, there was a delay in release of test results from diagnostic laboratories to the case manager through the LIMS.

Training needs

There were skill and knowledge gaps in EAD preparedness between staff, with key knowledge and experience resting with a small portion of staff in each laboratory.

- Each laboratory has a limited number of staff trained in sample accession and LIMS data entry, which are bottlenecks in an extended response period
- Technical staff were proficient in their specific roles, but support staff felt they could have benefited from additional training before or during the exercise.

Other training needs for specific knowledge and skills include:

- relevant regulatory requirements such as International Air Transport Association and NATA obligations
- the use of IT systems for records management
- the use of LIMS for data entry and extraction of information
- the use of STARS for notification of samples to go to ACDP and direct entry of sample data into LIMS
- regular practice in donning and doffing personal protective equipment by laboratory staff
- enhanced knowledge of the laboratory requirements for handling and storing SSBA material

- handling external enquiries during an EAD response (e.g. using decision trees for decision-making)
- requirements for managing waste generated during an EAD response.

Work health and safety and fatigue management

In Activity 4, many laboratory staff worked close to capacity to manage the evolving scenario. Some laboratories reported implementing early and late shifts to meet periods of high demand during EAD responses. The exercise highlighted that large-scale EAD responses can cause fatigue and impact mental health and wellbeing of staff.

To prevent and manage staff fatigue, participants suggested that management should:

- anticipate a build-up in stress levels as an EAD response progresses and escalates
- ensure staff take proper breaks during and between shifts, especially those working overnight
- make provision for meals during intense periods of operation
- recognise that known bottleneck areas may require additional staff to prevent burnout and maintain BAU operations
- carefully manage allocation of repetitive manual tasks and invest in robotic equipment that could help address this.

Continuation of laboratory BAU

Participants agreed that the continuation of BAU activities may impact overall capacity for supporting an EAD response. Maintaining some BAU activities is necessary due to legal or regulatory requirements.

During the exercise, laboratories applied or suggested various approaches to addressing their BAU requirements, including:

- using regular communication or daily management team meetings to discuss BAU related issues
- using pre-established procedures to assess resources required for BAU and EAD response activities
- using decision-supporting tools, such as pre-established priorities and triggers, to determine what BAU functions to continue or suspend.

Laboratory preparedness plans and procedures

During the exercise, many laboratories updated their plans and procedures and identified additional protocols or instructions required for an EAD response. Participants found that:

- many existing laboratory contingency plans focused on specific laboratory procedures consistent with the *AUSVETPLAN Management manual: Laboratory preparedness* (AHA 2024) templates
- actions required during the exercise were not always consistent with procedures documented in contingency plans
- some plans required real-time modification to support an EAD response

- some plans and associated procedures were insufficient to guide all actions required for an EAD response
- many plans identified individuals associated with specific tasks and should instead include a generic set of role descriptions
- staff had varying levels of knowledge of their laboratory contingency plans, indicating the need for training in the use of these essential documents.

Recommendations

- 4) Optimise laboratory workflows for high-volume events by streamlining receipt, processing and recording of samples.
- 5) Establish national specimen labelling standards for improved operational efficiency in laboratories.
- 6) Develop training for all laboratory staff that can be delivered in anticipation of and during high-volume events.
- 7) Proactively manage staff fatigue issues and adhere to work health and safety requirements during high-volume events.
- 8) Develop decision tools, triggers and arrangements to adapt BAU activities in an EAD response.
- 9) Regularly practice, review, and update laboratory contingency plans and procedures to ensure they effectively guide actions during an EAD response.

2.3 Communication and information management

Objective 3

Assess the effectiveness of communication and information management arrangements within and between Australian animal health laboratories.

Summary

- It is essential to allocate dedicated resources to manage the increased volume of internal and external communications in an EAD response
- The Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR) Emergency Committee (LEC) enhanced communication between laboratories and improved national coordination of laboratory activities during the exercise
- Current information management systems are not fully integrated, with some data still manually transcribed, placing unnecessary burden on laboratory staff
- Onsite IT support is essential to operation and ongoing maintenance of communication and information management platforms during an EAD response.

Observations and analysis

Internal communication

Internal communication ran smoothly and focused on exchanging information on the developing outbreak situation and response activities. While this occurred using normal day-to-day channels, some laboratories implemented additional measures to enhance information sharing including:

- establishing a Microsoft Teams channel, specific to the exercise, for quick communication and response between staff
- daily management team and section meetings, and all staff briefings and debriefings
- displaying or sharing information on large screens and other visual displays.

External communication

Regular operational communication occurred between jurisdictional laboratories and ACDP in relation to sample submissions and test results.

Activity 4 provided an opportunity to exercise communication between laboratories using the LEC. The LEC meetings included representatives from all government animal health laboratories and DAFF and occurred daily via Teams.

- ACDP managed these meetings and noted that this required dedicated administrative resources, potentially impacting BAU activities
- There was some initial uncertainty regarding meeting times, topics, formats and attendance
- Participants addressed uncertainty through developing standing agendas and providing clarity on the scope of the LEC.

The high volume of unexpected communications from outside and within the laboratory network placed resourcing stress on laboratory staff. During the functional exercises, external communication involved simulated communication with other elements of the response, including:

- the SCC
- offices of the CVOs
- members of the public
- producers
- government and private veterinarians.

The scope of the exercise meant that not all normal channels of communication, such as their jurisdiction's CVO unit and SCC, were available to guide participants. This initially caused uncertainty, with improvement as the exercise progressed. This may not be an issue in a real event because clear communication channels, protocols and guidance would be available.

Information management

The exercise found that information management and reporting requirements in an EAD response place additional pressure on laboratory staff. If not addressed, this issue is likely to become a significant bottleneck and impact laboratories' response activities. Providing additional administrative staff and automating information management systems will alleviate this pressure.

Two key information management systems used are LIMS and STARS. Each laboratory's LIMS is a standalone system that does not necessarily communicate or interface with other LIMS. Some laboratories' LIMS:

- have limited user licences available
- require manual upload of emails in PDF format
- have limited sample information fields
- lack functionality to quickly extract summary data required by SCCs and CVOs for reporting purposes.

ACDP manages the STARS framework that provides rapid data interchange between animal health laboratories.

- Each jurisdictional laboratory's LIMS uses a unique identifier for data input to STARS
- ACDP's subsequent test result response does not interface with each jurisdiction's LIMS, except for laboratories with a 2-way STARS integration
- Due to incomplete STARS integration in most jurisdictional laboratories, staff must manually enter sample information in LIMS, which may lead to tracking issues and errors in transcribing information
- During the exercise, ACDP established an internal Power BI dashboard supported by STARS to track sample receipt and test results in real-time.

The exercise also identified that laboratories require dedicated IT support to assist with the establishment and maintenance of information management platforms. Laboratories with dedicated onsite support coped much better with IT issues during the exercise. Laboratories with limited access to timely IT support would struggle to resolve IT issues during an EAD response.

Recommendations

- 10) Ensure up-to-date internal and external communication arrangements are documented in laboratory contingency plans.
- 11) Use and provide administrative support to the LEC for laboratory coordination during an EAD response.
- 12) Work towards full integration of STARS across all laboratories to ensure access to all functionality of the system.
- 13) Provide dedicated onsite support for information technology systems during an EAD response.

2.4 Resource and logistical constraints

Objective 4

Identify resource and logistical constraints that may impact on Australia's animal health laboratories, when responding to multiple concurrent high-impact EAD responses across Australia.

Summary

- Laboratories require arrangements to access additional staff to manage high-volume events
- Participants expressed uncertainty about EAD response budget inclusions and noted potential delays that may arise due to procurement and approval processes
- Layout and available storage space in some laboratories do not adequately support EAD response activities
- Limited availability of essential reagents and consumables highlight the need for physical stockpiles and supplier agreements.

Observations and analysis

Human resource constraints

The exercise identified that the greatest resource constraint was availability and access to additional staff. During Activity 4, participants responded to the increased sample submission volume by:

- reallocating laboratory staff to assist with specimen reception and sample preparation
- allowing laboratory staff, usually in specimen reception, to assist in managing the increased volume of external phone and email enquiries, in addition to maintaining laboratory functions
- considering simulated offers of outside assistance from external organisations, including private veterinary laboratories, universities and other diagnostic laboratories.

During the exercise, participants discussed potential strategies to mitigate human resource constraints during high-volume events, including:

- developing arrangements before an EAD outbreak to engage additional trained staff during a response, particularly for specimen reception and sample preparation roles
- allocating trained staff to manage incoming enquiries, freeing up specimen reception staff.

Participants also highlighted that organisations may deploy laboratory staff and pathologists in the field, but this was not tested during the exercise.

Financial constraints

During Activity 4, laboratories prepared and submitted a budget for inclusion in the jurisdiction's Emergency Animal Disease Response Plan, required for cost-sharing under the Emergency Animal Disease Response Agreement (EADRA).

Jurisdictions that had not recently participated in a cost-shared response were uncertain about the specific details that laboratories should include in EAD response budgets. Participants highlighted spending limits and approval processes for procurement may delay receipt of consumables.

Laboratory layout constraints

During Activity 4, some participants reported they did not have adequate laboratory size and layout to manage a response.

Some laboratories:

- operate in older, retrofitted buildings, resulting in inconvenient layouts and significant distances between work areas
- reported a lack of storage space in specimen reception to manage increased sample handling and storage of consumables.

During the exercise, affected laboratories modified existing spaces for sample storage, and designated separate areas for EAD response sample submissions and registration.

Laboratory supply and equipment constraints

Regarding laboratory supplies for an EAD response, participants identified that:

- levels of reagents and laboratory consumables were generally sufficient for BAU operations
- laboratories require a stockpile of reagents and consumables for access during an EAD outbreak
- laboratories were unaware of suppliers' stock limits and competing requirements from other organisations for these resources – participants discussed this matter at LEC meetings in Activity 4.

Laboratories aim to upgrade existing equipment and automate processes for sample preparation as appropriate. One laboratory recently obtained a robotic liquid handler which increased throughput, allowing staff to perform other tasks and take regular breaks during the exercise. Procurement and validation of automated laboratory equipment is a lengthy process and should be progressed before an EAD outbreak.

Courier constraints

Testing transport arrangements for samples to and between laboratories was not a focus for this exercise. Despite this, participants demonstrated concern that existing courier arrangements may have limited capacity in a high-volume EAD response.

Recommendations

- 14) Review arrangements for accessing additional staff, particularly for specimen reception, from within the laboratory and from external organisations.
- 15) Understand the financial implications of an emergency response on laboratory resources and reporting for cost-sharing arrangements under the EADRA.
- 16) Review laboratory layout and implement changes to minimise sample movement distances for improved biosecurity and efficiency during an EAD response.
- 17) Review and adjust arrangements for base levels or central stockpiles of laboratory supplies to ensure timely access during an EAD response.
- 18) Review current courier service arrangements to ensure they have the capacity to manage high-volume EAD responses.

Glossary

Term	Definition
ACDP	Australian Centre for Disease Preparedness
AHA	Animal Health Australia
AHC	Animal Health Committee
AHL	Animal Health Laboratory (Tasmania)
AUSVETPLAN	Australian Veterinary Emergency Plan
BAU	business as usual
CVO	Chief Veterinary Officer
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
EAD	Emergency Animal Disease
EADRA	Emergency Animal Disease Response Agreement
EMT	Exercise Management Team
HPAI	high pathogenicity avian influenza
LEADDR	Laboratories for Emergency Animal Disease Diagnosis and Response
LEC	LEADDR Emergency Committee
LIMS	Laboratory Information Management System
LSD	lumpy skin disease
NATA	National Association of Testing Authorities
SCAHLs	Subcommittee on Animal Health Laboratory Standards
SCC	State Coordination Centre
SSBA	Security Sensitive Biological Agents
STARS	Sample Tracking and Reporting System
SWG	Scenario Writing Group

References

AHA 2024, [Management manual: Laboratory preparedness \(version 5.0\)](#), Australian Veterinary Emergency Plan (AUSVETPLAN), Animal Health Australia, Canberra, accessed 11 October 2024.

DAFF 2022, [Animalplan 2022 to 2027: Australia's National Action Plan for Production Animal Health](#), Department of Agriculture, Fisheries and Forestry, Canberra, accessed 11 October 2024.

DAWE 2022, [National Animal Health Diagnostics Business Plan 2021 to 2026](#), Department of Agriculture, Water and the Environment, Canberra, accessed 11 October 2024.