

LESTER

Laboratory Evaluation Simulation Tool for Emergency Response

National EAD Laboratory System Exercise Program

Exercise Hippolytus

***LESTER@AAHL1
Evaluation Report***

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Executive Summary

Aim & scope

The aim of LESTER@AAHL1 was to evaluate the capacity of AAHL to support a response to a multi-focal HPAI outbreak in poultry.

The scope of the exercise included a simulated multi-focal outbreak of HPAI based on the Exercise Eleusis '05 scenario, simulated sample submissions and processing, the activation of AAHL personnel, simulated personnel and simulated processing locations. The exercise did not include receipt, handling or testing of actual samples, communication with organisations outside of AAHL, except resource suppliers, and the activation of organisations outside of AAHL.

Conclusions & recommendations

LESTER@AAHL1 was the first laboratory simulation exercise undertaken using this exercise tool. It provided a realistic simulated test of AAHL's system and initiated excellent discussion on AAHL's capacity to cope with an emergency disease outbreak. The exercise identified some limitations at AAHL in regards to maximising the testing capacity during a simulated EAD outbreak. These limitations were not seen as insurmountable barriers to AAHL's successful performance in an emergency disease outbreak, and there was strong confidence amongst staff and external participants that in the event of HPAI outbreak in poultry, AAHL could meet its national responsibilities effectively. However, it was widely accepted that the recommendations arising from this exercise should be implemented as soon as possible to ensure AAHL can demonstrate full competency prior to a real situation eventuating.

AAHL's capacity to sustain such a response over a prolonged period was not fully tested however, equipment shortages within the PCR area, specifically the Magnapure for PCR extraction, created a bottleneck slowing processing of samples to below expected levels by day 5.5 of the outbreak. The Daily Operations Group (DOG) role and membership were clearly defined but communication of decisions to staff was not optimal, demonstrating some work is required in this area. A lack of trained personnel, rather than a lack of man-power, was consistently identified as an issue as was the need for more frequent in-lab training. Decisions regarding staffing were complicated by the fact that there were no documented procedures covering rosters, training and availability, etc. highlighting the need for plans to be in place beforehand.

It became clear throughout the exercise and during the debrief that specific aspects of AAHL's Emergency Animal Disease Response Plan (EADRP) require updating. This update should include the development of written SOPs on staffing, finance, resources and external communications to allow for rapid decision making during a crisis situation. Finally, the outcomes of this exercise have been valuable in strengthening AAHL's preparedness for an emergency disease outbreak. It is therefore important that the impetus gained is continued with further exercises, discussion and updating documentation.

Recommendations

Exercising

- 1. Another AAHL exercise should be conducted in 12-18 months, following review of the Emergency Animal Disease Response Plan and adequate staff training and awareness activities.

Information management & internal communication

- 2. The review of the AAHL EADRP should ensure better communication between the DOG, the Duty Vet and staff in the labs
- 3. The role of prioritising samples for testing should be clearly defined to avoid lab staff interpreting decisions based on submission details.
- 4. Responsibilities in choosing test types to be used should be established to ensure decisions are made at the appropriate level.

- 5. An agreed and simplified backup system for LIMS should be established in the case of a malfunction of the LIMS.
- 6. Review sample submission form for usefulness during emergency animal disease outbreaks and ensure that it meets the requirements of laboratory staff who prioritise samples. The Form should be nationally agreed and included in AUSVETPLAN.

Resource management

- 7 Official agreements on external resources (eg. duty vets, extra equipment, reagent supply, request for other laboratories not to compete for reagents, etc.) should be established with the concerned parties (incl. NATA).
- 8 A staff resource plan should be developed outlining skills, remuneration and management of shiftwork, allowances and the development of a 24/7 shift duty roster, which can be immediately activated as required.
- 9 Staff should receive training so they can immediately work in PCR and Avian labs, including ongoing refresher training to ensure skill maintenance.
- 10. The roles and functions of front-line diagnosticians should be reviewed at all levels. Adjustments should be made to maximise existing staff resource so that an assured front-line diagnostic team can provide a routine surveillance and diagnostic service and 24/7 surge testing service at all times, without the need for last-minute training or negotiations.
- 11. A resource plan should be developed outlining critical resources and the process for ensuring that they can be immediately installed and implemented.
- 12. Investigate Research Support Services (RSS) agreements within CSIRO to ensure the supply of adequate resources and services such as IT, finance, public communications and stores.
- 13. Impacts on Quality Assurance arising from these recommendations (e.g. changes to staff roles and responsibilities, skills updates, calibration of equipment etc) should be identified and addressed.

Testing strategies & technology

- 14. Internal agreements should be made on non-routine practice of sample processing and testing strategies (esp. pooling strategy, alternative testing protocols, reagents and equipment...etc) and these should be endorsed by NATA before being used in an EAD incident.
- 15. A review of the technology base within the PCR area should be undertaken to ensure the backlog issue is addressed.

Planning

- 16. Specific plans should be developed for AI and the top 10 EADs perhaps as sub-plans to a generic AAHL EADRP.
- 17. The roles of State Labs should be clearly defined and documented.
- 18. Investigate funding under the Emergency Animal Disease Response Agreement on issues such as remuneration, auditing requirements, 'normal commitment' required by AAHL and the need to develop an incident-specific EADRP to CCEAD
- 19. AAHL should take the recommendations arising from this exercise into account in the design of the Diagnostic Emergency Response Laboratory (DERL)

A report issued in the US nine days prior to LESTER@AAHL1 echoed some of the major recommendations from the exercise:

“Officials from all five states we visited cautioned that diagnostic laboratory capacity could be quickly overwhelmed during an outbreak. In particular, the large number of samples that would need to be tested and the limited number of laboratory personnel available remain problematic. ... Laboratory officials in California that dealt with these challenges throughout the yearlong exotic Newcastle disease outbreak advocate developing an advance emergency response plan specifically for diagnostic laboratory operations that covers, for example, rotating work schedules for laboratory workers, protocols for receiving samples, and an Incident Command System specific to a laboratory setting to facilitate emergency response.¹

¹ United States Government Accountability Office (June 2007) Report to Congressional Committees: Avian Influenza - USDA Has Taken Important Steps to Prepare for Outbreaks, but Better Planning Could Improve Response p.33

1. Introduction

1.1 Aim, objectives & scope

The aim of LESTER@AAHL1 was to evaluate the capacity of AAHL to support a response to a multi-focal HPAI outbreak in poultry.

The objectives of LESTER@AAHL1 were to evaluate:

- AAHL's ability to maximize testing capacity during a simulated EAD outbreak;
- AAHL's management of relationships with clients; and,
- the role and membership of the Daily Operations Group.

The scope of the exercise included:

- a simulated multi-focal outbreak of HPAI based on the Exercise Eleusis '05 scenario;
- simulated sample submissions;
- AAHL personnel, simulated personnel and simulated locations including – Store, Accessions, Avian laboratory refrigeration, Isolation rooms, PCR office, PCR prep, PCR NA extraction, Real time PCR, and simulated activation of the Daily Operations Group (DOG).

The exercise did not include:

- receipt, handling or testing of samples;
- communication with organisations outside of AAHL, except resource suppliers;
- any interruption to the normal business of AAHL except for occupying the time of selected AAHL employees;
- activation of organisations outside of AAHL.

1.2 Participating organisations

Approximately 25 AAHL personnel participated in the exercise. Selected AAHL resource suppliers were telephoned by AAHL during the exercise.

The control team and observers came from:

- Australian Animal Health Laboratory;
- Australian Government Department of Agriculture, Fisheries and Forestry;
- Emergency Management Australia;
- NSW Department of Primary Industries;
- QLD Department of Primary Industries and Fisheries;
- NSW Department of Health; and,
- Victorian Department of Human Services.

1.3 Related documents

- The Exercise LESTER@AAHL1 describes the conduct and evaluation of the exercise.
- The Exercise Hippolytus Project Plan describes the development of the exercise program.
- The AAHL Emergency Animal Disease Action Plan describes AAHL's emergency arrangements.

2. Exercise conduct

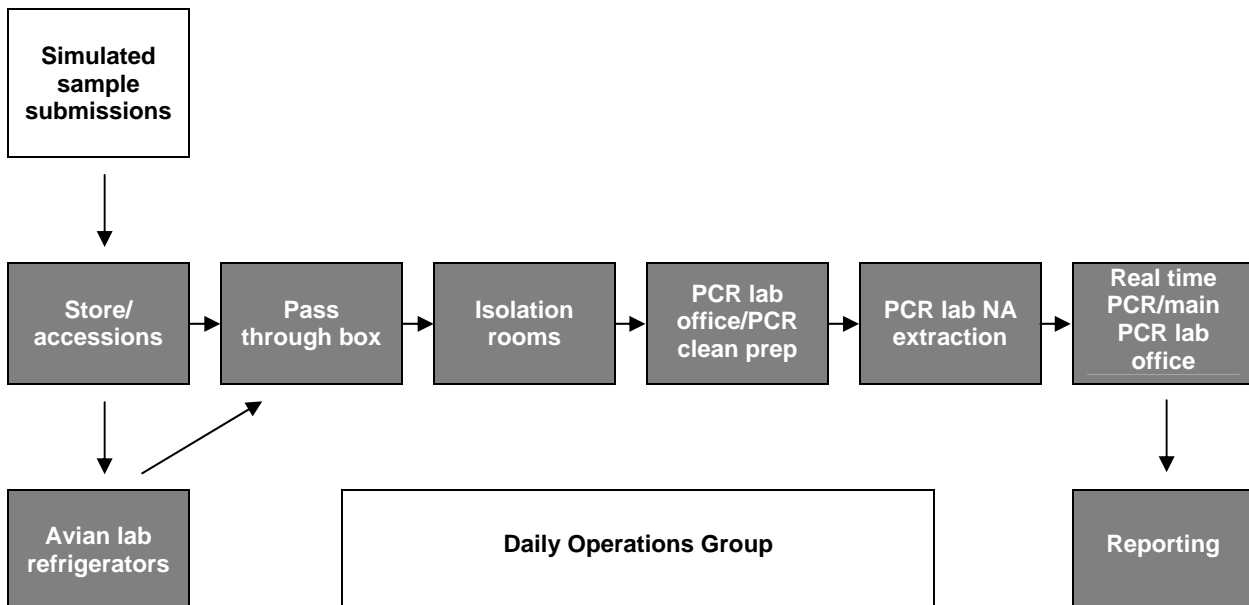
2.1 Overview

LESTER@AAHL1 simulated the functions of some personnel from AAHL. It required exercise players to perform a range of tasks related to their emergency roles. These tasks included the simulated receipt, processing and reporting on sample submissions, and decision making on laboratory capacity and resource management.

The exercise did not incorporate field operations or actual laboratory operations. Operations centres were not established and national management groups were not required to meet and make decisions. The main focus of the exercise was on the ability of AAHL to support a response to a multi-focal suspected HPAI outbreak in poultry. A key to the success of the exercise was coordination and communication between different parts of AAHL.

The exercise consisted of a number of elements (see Figure 1 below) including: simulated samples being submitted; 'stations' representing operational areas of AAHL (see shaded boxes in Figure 1); exercise control staff (exercise control, facilitators and evaluators); exercise observers; and, exercise players. Exercise players worked at each station shaded below and the Daily Operations Group met.

Figure 1—Overview of the exercise process



The scenario described the 'story' behind the exercise and was consistent with the scenario used during Exercise Eleusis '05. The scenario was the basis for the sample submissions and submission rates, which were described in a MS Excel spreadsheet called 'Submitter'. Simulated sample submissions were provided to the stores area by the relevant facilitators throughout the exercise. These simulated sample submissions were accompanied by a specimen advice notice. On the back of the specimen advice notice was a submission log that was completed as the submission was processed to note: simulated date; location; simulated clock time – start and finish times; action taken; comments; officer's sign off.

Stations were simulated locations in AAHL including: store, accessions and avian lab refrigerators; pass through box; isolation rooms; PCR lab office; PCR lab clean prep; PCR lab NA extraction; real time PCR; and, reporting.

A resource snapshot was taken on 22 May to determine staff and material resources actually available on that day. The exercise was played as if it was 22 May. Each station was drawn on a whiteboard. Samples submissions were represented by icons, and were processed at stations and moved from station to station in accordance with time rules that reflect how long it takes to process and move submissions. Exercise players wrote times that submissions arrived and when they were due to move on. Time was artificially sped up to allow 4 days to be simulated – exercise time was projected onto the walls in each room. As material

resources were applied to the processing of samples, they were expended. Exercise players were invited to contact resource suppliers to determine availability and lead time for the delivery of resources, and factored this into their operations and planning.

2.2 Exercise control

Exercise control staff included: exercise control; exercise facilitators; and, exercise evaluators. A number of independent observers scrutinized all aspects of the exercise and provided recommendations on the potential improvement of the exercise tool. See Table 1 for a description of the roles and appointments of exercise control staff and exercise observers.

Table 1—Exercise control staff

Title	Role	Appointments
Exercise control	<ul style="list-style-type: none"> brief all participants communicate with facilitators, evaluators & observers monitor how exercise is being conducted assist facilitators to bring the exercise back on track inform other facilitators of corrective action 	<ul style="list-style-type: none"> Chief controller – Debbie Martin Controller – Greg Flaherty Facilities – Paul Bladen
Exercise facilitators	<ul style="list-style-type: none"> brief participants at stations ensure exercise players follow exercise rules monitor the progress of the exercise solve problems in exercise conduct with Chief Controller provide hot wash debriefings for exercise players 	<ul style="list-style-type: none"> Store/accessions/avian lab refrigerators – Sam Hamilton/Therese Brackenbury Isolation rooms – Kev Cooper PCR lab office, PCR lab clean prep, PCR lab NA extraction, Real time PCR – Bernadette O’Keefe/Bruce Corney/Linda Wright/Geoff Hammond Reporting – Jan Lanser Daily Operations Group – Peter Koob & Greg Flaherty
Exercise evaluators	<ul style="list-style-type: none"> observe exercise players provide recommendations on the potential improvements to AAHL preparedness 	<ul style="list-style-type: none"> William Wong DAFF Russell Graydon Attwood
Exercise observers	<ul style="list-style-type: none"> observe exercise players & facilitators provide recommendations on the potential improvement of the exercise tool & its use in the human health laboratories 	<ul style="list-style-type: none"> Dudley McArdle Vic DHS Julian Meagher Vic DHS Michelle St Claire EMA

Control documentation included:

- the exercise plan;
- a MS Excel spreadsheet called ‘Transformer’ which allows predictions of sample throughput based on resource management decisions;
- a MS Excel spreadsheet called ‘Submitter’ which describes sample submissions based on the Exercise Eleusis ’05; and,
- specimen submission notices which were generated by Submitter.

2.3 Exercise program

Set-up for the exercise was on Tuesday 19 June 2007, the exercise was conducted on Wednesday 20 June, and a debrief followed on Thursday 21 June. The exercise was conducted using Days 2 – 6 of the Exercise Eleusis ’05 scenario, simulating Tuesday 22 May to Saturday 26 May.

A briefing on LESTER and the scenario was provided to all participants from 8:30-9:00am on Wednesday 20 June in the theatre. A briefing on how the stations operate was provided to all participants (except DOG members) from 9:00-9:30am by the facilitators for each station at the LESTER locations. A briefing on how the DOG would operate was provided to DOG members from 9:00-9:30am by the DOG facilitators in the

Director's office. DOG was asked to provide a briefing to all participants on simulated events from Days 2 -4 and DOG decisions.

See Table 2 for a comparison of real time to exercise days and exercise time and Table 3 for the exercise program.

Table 2—Real time vs. exercise time

Real time (Wednesday 20 June)	Exercise day	Exercise date/time
9:30 – 10:30	Day 2 – Participants	Tuesday 22 May
9:30 – 10:30	Day 2–Day 4 – DOG -	Tuesday 22 – Thursday 24 May
11:00 – 1:00	Day 5 – Participants & DOG	Friday 25 May
1:00 – 3:00	Day 5 – Participants & DOG	Friday 25 May

Table 3—Exercise program

Tuesday 19 June 2007			
10:00 – 14:00	setup	LESTER locations	Facilitators
14:00 – 16:00	facilitator briefing & dry run	LESTER locations	Facilitators
Wednesday 20 June 2007			
8:00 – 8:30	final preparations	LESTER locations	Facilitators
8:30 – 9:00	briefing (all)	Theatre	Debbie Martin/Greg Flaherty
9:00 – 9:30	briefing (participants)	LESTER locations	Participants & facilitators
9:30 – 10:30	day 2 of outbreak	LESTER locations	Participants & facilitators
	days 2 – 4	Director's office	DOG & facilitators
10:45 – 11:00	briefing (all)	Theatre	DOG & participants
11:00 – 15:00	days 4-5 of outbreak	LESTER locations	Participants & facilitators
15:00 – 15:30	hot-wash debrief	LESTER locations	Participants & facilitators
15:30 – 16:30	wrap-up	Café	Participants & facilitators
Thursday 21 June 2007			
9:00 – 11:00	AAHL debrief	Theatre	Participants & facilitators

3. Exercise evaluation

3.1 Evaluation method

The exercise was evaluated through:

- individual participant evaluations – participants were invited to complete these at 3:00pm and provide them to their facilitator;
- evaluators and observers' reports;
- hot-wash debriefs;
- the final debrief; and,
- the control team debrief.

See Annex A for summaries of these exercise evaluation reports.

3.2 Conclusions

LESTER@AAHL1 was the first laboratory simulation exercise undertaken using this exercise tool. It provided a realistic simulated test of AAHL's system and initiated excellent discussion on AAHL's capacity to cope with an emergency disease outbreak. The exercise identified some limitations at AAHL in regards to maximising the testing capacity during a simulated EAD outbreak. These limitations were not seen as insurmountable barriers to AAHL's successful performance in an emergency disease outbreak, and there was strong confidence amongst staff and external participants that in the event of HPAI outbreak in poultry, AAHL could meet its national responsibilities effectively. However, it was widely accepted that the recommendations arising from this exercise should be implemented as soon as possible to ensure AAHL can demonstrate full competency prior to a real situation eventuating.

AAHL's capacity to sustain such a response over a prolonged period was not fully tested however, equipment shortages within the PCR area, specifically the Magnapure for PCR extraction, created a bottleneck slowing processing of samples to below expected levels by day 5.5 of the outbreak. The Daily Operations Group (DOG) role and membership were clearly defined but communication of decisions to staff was not optimal, demonstrating some work is required in this area. A lack of trained personnel, rather than a lack of man-power, was consistently identified as an issue as was the need for more frequent in-lab training. Decisions regarding staffing were complicated by the fact that there were no documented procedures covering rosters, training and availability, etc. highlighting the need for plans to be in place beforehand.

It became clear throughout the exercise and during the debrief that specific aspects of AAHL's Emergency Animal Disease Response Plan (EADRP) require updating. This update should include the development of written SOPs on staffing, finance, resources and external communications to allow for rapid decision making during a crisis situation. Finally, the outcomes of this exercise have been valuable in strengthening AAHL's preparedness for an emergency disease outbreak. It is therefore important that the impetus gained is continued with further exercises, discussion and updating documentation.

3.3 Recommendations

Exercising

- 1. Another AAHL exercise should be conducted in 12-18 months, following review of the Emergency Animal Disease Response Plan and adequate staff training and awareness activities.

Information management & internal communication

- 2. The review of the AAHL EADRP should ensure better communication between the DOG, the Duty Vet and staff in the labs
- 3. The role of prioritising samples for testing should be clearly defined to avoid lab staff interpreting decisions based on submission details.
- 4. Responsibilities in choosing test types to be used should be established to ensure decisions are made at the appropriate level.
- 5. An agreed and simplified backup system for LIMS should be established in the case of a malfunction of the LIMS.
- 6. Review sample submission form for usefulness during emergency animal disease outbreaks and ensure that it meets the requirements of laboratory staff who prioritise samples.

Resource management

- 7. Official agreements on external resources (eg. duty vets, extra equipment, reagent supply, request for other laboratories not to compete for reagents, etc.) should be established with the concerned parties (incl. NATA).
- 8. A staff resource plan should be developed outlining skills, remuneration and management of shiftwork, allowances and the development of a 24/7 shift duty roster, which can be immediately activated as required.
- 9. Staff should receive training so they can immediately work in PCR and Avian labs, including ongoing refresher training to ensure skill maintenance.
- 10. The roles and functions of front-line diagnosticians should be reviewed at all levels. Adjustments should be made to maximise existing staff resource so that an assured front-line diagnostic team can provide a routine surveillance and diagnostic service and 24/7 surge testing service at all times, without the need for last-minute training or negotiations.
- 11. A resource plan should be developed outlining critical resources and the process for ensuring that they can be immediately installed and implemented.
- 12. Investigate Research Support Services (RSS) agreements within CSIRO to ensure the supply of adequate resources and services such as IT, finance, public communications and stores.
- 13. Impacts on Quality Assurance arising from these recommendations (e.g. changes to staff roles and responsibilities, skills updates, calibration of equipment etc) should be identified and addressed.

Testing strategies & technology

- 14. Internal agreements should be made on non-routine practice of sample processing and testing strategies (esp. pooling strategy, alternative testing protocols, reagents and equipment...etc) and these should be endorsed by NATA before being used in an EAD incident.
- 15. A review of the technology base within the PCR area should be undertaken to ensure the backlog issue is addressed.

Planning

- 16. Specific plans should be developed for AI and the top 10 EADs perhaps as sub-plans to a generic AAHL EADRP.
- 17. The roles of State Labs should be clearly defined and documented.

LESTER@AAHL1—Evaluation Report

- 18. Investigate funding under the Emergency Animal Disease Response Agreement on issues such as remuneration, auditing requirements, 'normal commitment' required by AAHL and the need to develop an incident-specific EADRP to CCEAD
- 19. AAHL should take the recommendations arising from this exercise into account when designing the Diagnostic Emergency Response Laboratory (DERL)

Annex A—Exercise evaluations

A.1 Observers' validation reports

A.1.1 Did the exercise tool assist in addressing the exercise objectives?

The overwhelming response from observers was that the tool seemed to be a very good way to address the exercise objectives. It initiated some excellent discussions between staff within groups and showed up where the bottlenecks lay within the system.

A.1.2 Did the exercise tool provide a realistic simulated test of AAHL's systems?

Again overwhelmingly observers stated that the tool did provide a realistic simulated test of AAHL's system. The resource audit was seen to be extremely helpful in making the exercise more realistic and observers also felt that it enabled decisions to be made during the exercise which would accurately demonstrate what would occur during an outbreak.

A.1.3 How would you improve the LESTER exercise tool?

The main theme arising from observers on to how to improve the LESTER exercise tool was in regards to communication, which could be enhanced by: DOG meetings occurring on the day prior to the exercise with a scripted scenario and decisions being injected at the appropriate time during play; IT solutions are required to facilitate communication between groups (LIMS, Internet access); and, when time periods are skipped control documents should be used to fill in the gaps. Also accelerated time needs to allow for real time discussions/decision making/paperwork.

A.1.4 Do you think a similar exercise tool would be of value in evaluating human health laboratories?

All of the observers believed that this tool would be of value for human health laboratories exercising and should be progressed.

A.1.5 Other comments

Observers strongly recommended the need for plans on staff resourcing so that training, competency, availability etc. are identified early and decisions are not made on the run. They were impressed by the commitment and enthusiasm of everyone in participating fully in playing the game as if it were a real situation but thought that exercise staff should have less input into the decision making process and leave this up to participants.

A.2 Participants' evaluation

A.2.1 Overall evaluation

The majority of participants indicated that the exercise was challenging and that the LESTER tool was useful. There was also a majority of staff indicating that they would feel more comfortable in operating during disease emergencies and now had a better understanding of AAHL's emergency preparedness arrangements.

A.2.2 How well prepared do you think AAHL was for this simulated event?

There were a range of responses to this question with almost half of participants indicating that they believed AAHL was very well prepared for this simulation, while the other half ranged from moderately well prepared to one participant indicating that they thought AAHL was ill prepared for the event.

A.2.3 What aspects of AAHL's emergency preparedness worked well?

Participants generally agreed with observers on what worked well. They indicated that the resource audit was very helpful throughout the exercise allowing for bottlenecks to be identified. They also agreed that a staff resource plan would be useful to have available in the event of a real outbreak. Additional observations on what worked well during the simulation was teamwork between staff within groups and the ability to rapidly change from high diversity / low input throughput to low diversity / high input.

A.2.4 How would you improve AAHL's emergency preparedness?

Improvements emerging from the participant's evaluation included better lines of communication between DOG, the Duty Vet and staff in the labs. In common with the observers, participants indicated a need for a

staff resource plan and pre-training of staff to immediately work in PCR and Avian labs. There was also recognition of the need to increase capacity of PCR throughput and for more training exercises.

A.2.5 How would you improve the LESTER exercise tool?

A range of comments were provided by participants with general agreement that:

- computer access to LIMS and the Internet are required
- there is a need to ensure the number of staff available match the number of LESTERs
- staff LESTERs should be colour coded to indicate different status of staff (e.g. in-training, trained etc).

A.2.6 Other comments

Each station requires more than one phone (one for incoming; one for outgoing) and paperwork and decision making was difficult to manage in 4 x speed.

A.3 Evaluators' reports

A.3.1 Overall evaluation

The evaluators observed that the exercise was challenging for participants, LESTER was useful in identifying potential improvements to AAHL preparedness and most participants were better able to understand AAHL's emergency preparedness arrangements.

A.3.2 How well did existing AAHL plans and training cover this simulated event?

Generally AAHL was well covered by the existing plans and training. There were a couple of areas such as communication with the Duty Vet and sample processing strategy (especially sample pooling) that would have been conducted in a better way if SOPs were available.

A.3.3 How would you improve AAHL's emergency preparedness?

Many of the ad hoc decisions, e.g. recruiting State Vet personnel and other resources, changing data recording methods on submission form, pooling strategies and shift duties could be put into SOPs and into the EADRP.

A.3.4 How would you improve the LESTER exercise tool?

A more detailed briefing to participants on how LESTER works is required. There should be less involvement of facilitators in lab staff's decision-making process and stricter rules on how lab staff communicate. Ad hoc decisions on the availability of resources (at the resource board) needs to come with proof, not assumption. Once a decision is made and a resource sticker is committed it should not be allowed to be reversed.

A.4 Facilitators' hot-wash debrief

A.4.1 What worked best during the exercise?

Facilitators tended to agree with observations recorded above in that the exercise tool provided a realistic simulated test of AAHL's system. They felt that the use of LESTER instigated excellent discussions between staff within groups and showed up where the bottlenecks lay within the system. Additionally, they observed that it helped to demonstrate that man-power was not an issue but that plans were required outlining availability and training of these staff.

The resource audit was again identified as being very helpful in making the exercise more realistic and enabling decisions to be made during the exercise which would be reflective of those made during an outbreak.

A.4.2 What could be improved?

Communication between DOG and the Duty Vet which flows down to groups was identified as needing improvement and also communication between the groups.

A.4.3 How could these improvements be made?

Facilitators indicated that the use of a role player to provide inputs for the Veterinary Coordinator would assist in enhancing communication on decisions made by DOG and Duty Vet.

Computer systems should be made available in rooms for access to LIMS and the Internet.

Maintaining a flow of non-EAD accessions into a lab during the EAD needs to be considered. This would force a decision by DOG regarding maintaining or outsourcing normal diagnostic testing during the EAD. Which was not adequately covered in LESTER@AAHL1.

A.5 Final debrief summary

A.5.1 Evaluation of LESTER

It was agreed that LESTER was an excellent way to run an exercise as it gave people an opportunity to interact and was a good way to identify bottlenecks within the system. There was a high level of involvement with participants handling LESTERs, resources and samples as if it was a real job. The prior audit on resources made the exercise much more realistic as it took into account resource constraints, the time rules for each process and activity were relatively accurate, and the use of LESTERs and tabs to simulate people and resources worked well

The exercise clearly showed that the number of personnel available was not an issue as previously thought, but more information could be provided prior to the exercise on their training and availability. Having identified people individually was helpful in estimating skill sets and training required, and it was suggested that adhesive dots could be used to uniquely identify people who need training or who perform more than one function. More information could be provided on how to access personnel.

Accelerated time worked well in some areas by adding extra pressure but created some difficulties in decision making and completing paperwork. The exercise could have been enhanced by the provision of computers at stations with access to some type of mini-LIMS and access to more phones.

The exercise was deficient in regard to the Daily Operations Group (DOG) in a number of respects. Firstly, the DOG wasn't provided with the opportunity to interact with the outside world e.g. SDCHQs, State Labs, and CCEAD, and it has been suggested that role players could be used in future. Secondly, the DOG could have been given more preparation time and work to create awareness of their roles, the exercise scope, the emergency management plan, and financial and resource planning requirements. It has been suggested that the DOG should meet the day prior to the main exercise to allow pre-planning and decisions to be subsequently implemented,

A.5.2 Evaluation of AAHL preparedness

Internal communication & information management

- DOG had problems dealing with real time issues but otherwise worked well.
- Decision making – no-one making decisions on which samples to leave out / prioritise. Prioritising samples for testing is absolutely essential in the course of an EAD response. As it can be influenced by a multitude of factors at all levels (not just within the lab), for any unclear instruction, the lab staff performing the testing duty should avoid any attempt to make their own interpretation/decision based on submission details but seek the Duty Vet's or a higher authority's advice and follow the exact. In this regard, it was observed during the exercise that an attempt of interpreting the priorities of samples (after accession) was made when the attempt to contact duty vet failed. In reality, this might solve the problem at the lab level but could lead to serious consequences. Similarly, the choice of test types used especially when essential resources (and time) have run out could be problematic if it's made at an inappropriate level.
- Issues in regard to communication to groups on the extent of the outbreak were very limited (artefact of the exercise)
- Line management structure disappeared somewhat during the exercise and decisions were made by the group.
- During the exercise, the LIMS was assumed to be fully functional at all times, and the need to rely on it for the overall service performance seemed to be essential. Such importance would also mean that a potential threat associated with its failure and the lack of contingency plan exists. In this regard, it is evident from the exercise that the handling of high-volume paperwork (in real or accelerated time) could be a daunting task and have a crippling effect on the work performance in response to a surge demand. Therefore, an agreed and simplified backup system for LIMS (eg. new submission form for EAD, hand-writing, email, Excel, Word...etc for sample submission, test result recording and reporting...etc) should be put in place if it is not yet available.

Resource management

Personnel Management

- Require documented lists of people who are available; skills; remuneration and management especially shift work, allowances; how long can they work; OHS issues; conditions etc.
- Prior assumption that people would be a major limiting resource but this was not the case.
- A 24/7 shift duty roster needs to be in place at all times, which can be immediately activated as required. There shouldn't be any need to struggle with such decision or arrangement in the course of an EAD response. On any particular day, if a duty staff on the roster becomes unavailable, he/she should be replaced immediately as if there were an EAD incident. In a sense, it is necessary to assume an EAD could happen at any time. This may involve some consultation with the staff from the perspective of work conditions.
- The lack of "trained" personnel, especially in the Avian Lab, was consistently identified by many as an issue, and the need for more in-lab training (on a frequent basis) is unarguable.
- For general lab staff performing primarily at the routine technical level, it is probably worth establishing a routine "staff rotation system" covering all related skill-based areas such as PCR, virology serology, histology (including mammalian, avian and probably aquatic sections), based on a reasonable interval and level of change (eg. every 1-2 years, not more than 40% staff change per discipline area at a time). This would help address the training issue and enhance career development in the long term.
- For senior lab staff at the leader level (probably CSOF 6 or above), although there was no immediate shortage observed during the exercise, there was no clear backup system observed either. Most within-lab supervision seemed to fall upon one or two particular leaders at all times, which could be problematic during an EAD response requiring to be sustained for a long period of time (eg. sick leave, recreation leave...etc could happen).
- Taken together, AAHL may consider to review the roles and functions of its front-line diagnosticians (versus research diagnosticians) at all levels and make necessary adjustments to maximise existing staff resource so that an assured front-line diagnostic team that can provide routine surveillance/diagnostic service and 24/7 surge testing service is available at all times without the need for last-minute training, negotiations...etc. For instance, research diagnosticians are usually great for providing some aspects of basic training during non-EAD time. Given proper training, they (esp. the senior) can also become the backup (reserve) of the front-line team during an EAD response as required. This may require consultation and negotiations with staff through the CSIRO Enterprise Agreement and NATA agreement.

Financial management

- AAHL's ability to receive funding under the Emergency Animal Disease Response Agreement needs to be investigated prior to an EAD, including:
 - The 'normal commitment' required by AAHL;
 - A need to rapidly develop an incident-specific EADRP to CCEAD;
 - How AAHL would submit its costs for reimbursement and financial auditing requirements;
 - How remuneration would be received and from whom;
 - Prepared contingency plans with underpinning agreements in place need to be in place.

Constraints in the Process

- Not static as there are different issues depending on the outbreak. FMD have gone further into it and considered that we could deal with more properties in a day than the country had the capacity to handle in the field.
- Isolation rooms during exercise were coping with quantity of samples although there was potentially much more coming through the system and therefore may not have coped.
- There was a huge backlog of samples in PCR due to the lack of equipment – need to look at the technology base in this area. This will also have implications for the QA system which should be addressed prior to an outbreak.
- Transformer appeared to be a useful tool which could be utilised for future planning of AAHL's capacity.

Equipment/Reagents

- External resources during the exercise (eg. duty vets, extra equipment, request for not competing for reagents...etc), such arrangements must be clearly borne out by official agreements with the concerned parties (incl. NATA). During any EAD response involving multiple states, most resources, particularly human resource (lab staff, field vets...), would also be demanded by agencies other than AAHL.

- Contacts through PHLN; CCEAD; State labs are in place to request that they do not stockpile reagents etc and deplete available resources.
- National Management Groups – AAHL/CCEAD/SCAHLs already in place.

Planning & logistics

- Need to spend time planning and identifying resources and ensuring that these can be installed and implemented. Good role for a technical person to go around and check what would work.
- This could be improved by understanding of suppliers – experts in this area.
- Logistics on accommodation; induction (obtain, maintain and sustain)
- The Research Support Service (RSS) has impacted on this, CSIRO have an inherent agreement to supply resourcing like IT, finance/stores etc. Need to know if this would work in practice.
- Non-routine practice of sample processing / testing strategies (esp. pooling strategy, alternative testing protocols / reagents / equipment...etc) should be agreed internally and endorsed by NATA before being used in an EAD incident.
- Issue in regards to communication to groups on the extent of the outbreak. This had significant impact on planning, but was an artefact of the exercise.
- ICS - Can increase the capacity of the organisation by outsourcing operations; planning; resourcing; communications; control group (DOG);
- AAHL's EADRP identifies ICS requirements. The plan defines the positions and then there are Job Cards allocating people to positions but it is not written who will perform these roles.
- The more detail that can be provided on ICS details the smoother operations will be.

A.6 Control team debrief summary

- Apply clear rules on communication of facilitators / observers / evaluators and their role in decision making during the exercise.
- Need to be Deficient for DOG as did not interact with outside world – didn't provide DOG with any other outside communications e.g. SDCHQs; State Vet Labs; CCEAD;
- Transformer useful for future planning. If shifts; policy; staff changes are changed it changes AAHL's capacity – therefore demonstrating the importance of management decisions and help to identify constraints.
- A more detailed briefing could be held on how the game works to participants.
- A resource board should be made available for each area / room so that participants can easily see availability of their resources.
- Availability of resources needs to be more clearly defined with evidence that the resource in question is allowed into the system.
- Once a decision is made and a resource sticker is committed it should not be allowed to be reversed.
- Possibility of using one large area to undertake the exercise rather than separate locations.
- Too many exercise staff, the numbers could be reduced by up to half.
- Resource audit was worthwhile adding a sense of reality to the exercise for participants.
- Good level of involvement of the participants – participants quickly became familiar with the LESTERS, whiteboard etc.
- LESTERS (staff) could have colour coded dots to ascertain their level / role within the organisation.
- Time rules for processes worked well for each group.
- Accelerated time does not work well in regards to decision making or paperwork.
- the sample submission form for emergency disease responses should be designed specifically for that purpose and should include the information required by AAHL to do its job in this non routine situation. This should include a prioritisation category (beyond category 3) and space for justification of this priority. Category 3 is almost meaningless once an outbreak is underway.
- As far as possible have surge/contingency arrangements or options (underpinned by agreements or contracts or MOUs etc) in place prior to an event. There is not enough time during a response to formulate options.
- Before an agency attempts to run the exercise it should complete a checklist of activities, including: check of currency of plans; training of staff in plans; possibly a desktop test of plans; stocktake of resources on a particular day (to ensure realism during exercise); others?
- Given the accelerated time used in the exercise, there may be a need to build into the exercise timetable a set period every so often to allow participants in the individual areas being exercised (i.e. at the boards) to have a discussion in real time about options for improving operations.
- There may also be a need to slow time down to a 'walking pace' at some times to allow problem solving or backlogs to be resolved.

- Blank areas on the boards should be available to allow participants to draw up some new location to either place samples, resources or people should this be required. This should be based in reality – e.g. they can't create a new fridge that doesn't exist. This could accommodate time out spaces for LESTERS.
- Stores available after the initial day may have changed as a result of orders placed in that first period of activity. A mechanism is required to allow this to be reflected on the boards after any time jump.
- If an activity is labour intensive due to the nature of the work created by the exercise design, such as the accessions process, then further people should be provided to allow this to flow more naturally so as to avoid artificial exercise blockages. However, this needs to be balanced against the reality of certain blockages; if accessions is a problem then this should be confronted within the exercise.
- Time jumps need to be managed carefully with very deliberate shutting down of participants at the end of a session and an equally deliberate start up for the next session.
- Samples/submissions were split at various places in the laboratory chain. This hadn't been taken account of fully in the exercise planning. Options such as stickers (readable size) needs to be considered for any sample split into more than one component. This also creates a documentation issue – see next point.
- a basic LIMS is required that is networked to all locations/boards to allow people to track the various samples and identify where their subcomponents are located. This does not need to be a real LIMS but a networkable data base, with a simple user interface.
- Be explicit in the exercise instructions that time changes can be made during the exercise if the exercise facilitators feel this is required.
- The exercise instructions should:
 - state that participants can write on LESTERS to indicate what is happening to that sample or participant. For example multiple accessions in one plate.
 - be clear about management of resources by participants, including the managers. How resources can be realistically accessed, who you go through to get them, what limitations/rules exist for them?
 - be explicit that once a resource is used it stays used.
- In settling the design or use of the exercise we need to be very clear about whether it is a 'test', a 'training opportunity' or both. This will change the nature of the interventions permitted by exercise control personnel.
- We deliberately excluded scenario-based problems for the participants. This was to allow AAHL to operate at peak performance to see how capacity would be affected by workload. However, depending on exercise objectives, realistic problems could be introduced to challenge participants further (e.g. that plate was dropped, start again).
- We need to identify the ideal amount of space required for running LESTER, and what level of interaction we permit and do not permit between participants at the different boards.
- There is an opportunity to have an LDCC board at the front of the exercise location to simulate the dispatch of samples to the laboratory. The person at this board could answer AAHL questions about priorities and potential workloads.
- We need to be clear that one LESTER does not equal one participant in the exercise.
- The management group should probably have met either the day before and had time to go through the issues in real time. Management decisions can not be taken in accelerated time. A representative of management could then have participated next day to input decisions at the appropriate times (almost as a member of the exercise control team).
- There would be a lot of value re running the exercise in a year's time using the new facilities. Should this be AI or FMD based?
- As part of the case definition (AUSVETPLAN) for HPAI, the virus must be identified as highly pathogenic by molecular pathotyping (sequencing). This takes about 2-3 days after the initial detection by PCR. Ian Pritchard mentioned this at AAHL last week. We probably need to consider this before we run the next LESTER, as it would have some implications for decisions made by the LDCC and DOG early in an outbreak.
- Is it worth maintaining a flow of non-EAD accessions into a lab during the EAD? This would force a decision by DOG re maintaining or outsourcing normal diagnostic testing during the EAD. I don't think this was adequately covered in LESTER@AAHL1.
- In LESTER@AAHL1 DOG didn't liaise with the PCR people about the best way to alleviate bottlenecks and increase throughput. They seemed to assume that more staff would solve the problem. Although it did facilitate a transition to 24/7 testing, perhaps outsourcing (on top of getting EMAI to test NSW samples) should also have been considered. At any rate, things may have been done differently had the lab people been consulted.