TECH-2-TECH

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This section offers readers the opportunity to submit informal contributions about any aspects of Animal Technology. Comments, observations, descriptions of new or refined techniques, new products or equipment, old products or equipment adapted to new use, any subject that may be useful to technicians in other institutions. Submissions can be presented as technical notes and do not need to be structured and can be as short or as long as is necessary. Accompanying illustrations and/or photos should be high resolution.

NB. Descriptions of new products or equipment submitted by manufacturers are welcome but should be a factual account of the product. However, the Editorial Board gives no warranty as to the accuracy or fitness for purpose of the product.

ASRU-RSB workshop: impact of COVID-19 on present and future training for animal research – issues and opportunities for training and CPD in light of COVID-19

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Summary

This article is based on a workshop presented at the Royal Society of Biology (RSB) Animal Science Group and the Home Office Animals in Science Regulation Unit annual Animal Science Meeting on the 11th December 2020. At the workshop we aimed to:

- **share and summarise the results of the pre-workshop survey**
- **concentrate on common themes**
- **produce 3 ideas to improve training, for ASRU and RSB to take forward**

Background

The RSB Animal Science Group and the Home Office Animals in Science Regulation Unit (ASRU) annual Animal Science Meeting is for researchers, support staff and administrators in animal research. In 2020, the meeting was held online over two afternoons, with talks on the first day and a series of workshops on the second. Pre-registration was required for the meeting with the number of participants limited and within those accepted to attend, fourteen allocated for each of the workshops. Attendees chose the workshop they wished to attend. The audience for this workshop ranged from

a lay person to a Director of Scholarship from the Open University. The small and varied cohort means that the responses collected are possibly not representative across establishments.

We asked participants to complete a pre-workshop questionnaire and collated the results which are set out below and then during the session we addressed the issues raised and shared tips to assist with problems. The low numbers of responses are likely to be a reflection of the fact that the participant roles means that they probably did not have the knowledge needed to answer the questions.

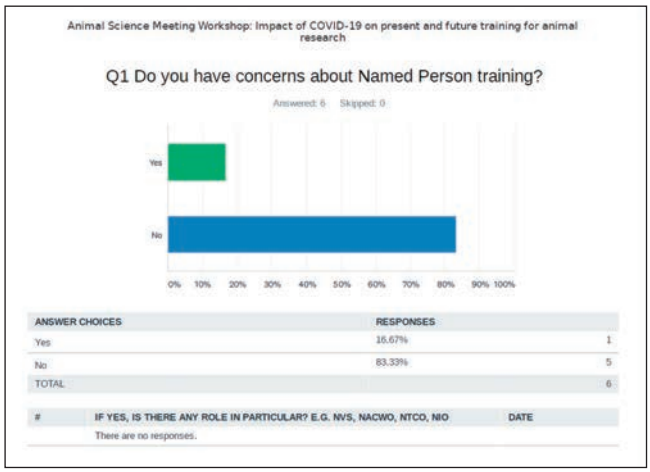


Figure 1. Concerns about Named Person training.

Of the respondents, the majority commented that they did not have concerns about training for Named People. We asked this question to see if there was a lack of a particular training course or if people were concerned about the quality of online courses. The responses we received would suggest not. However, there were only 6 respondents.

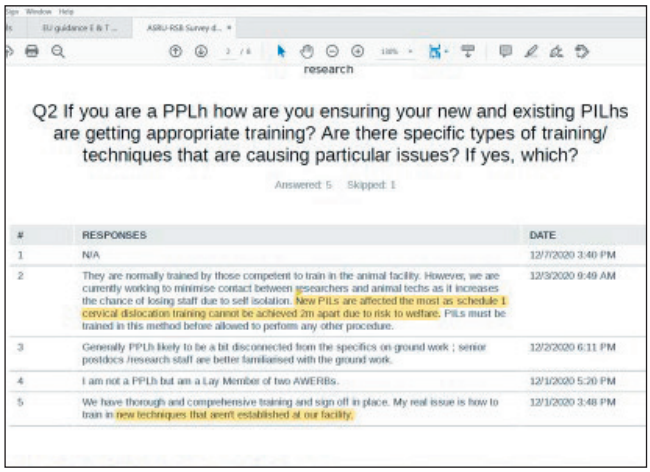


Figure 2. Appropriate training for Personal Licensees and techniques?

We have highlighted two areas in yellow – training for physical methods of euthanasia and for methods new to the establishment, as these became a recurring theme. The main concerns revolved around issues caused by the need for social distancing between trainer and new trainees related to the COVID-19 environment. The Schedule 1 issue resurfaced several times, so we wondered whether this indicated that training in physical methods of Schedule 1 killing is a more general issue. Therefore in response we added some Schedule 1 advice into the end of the workshop.

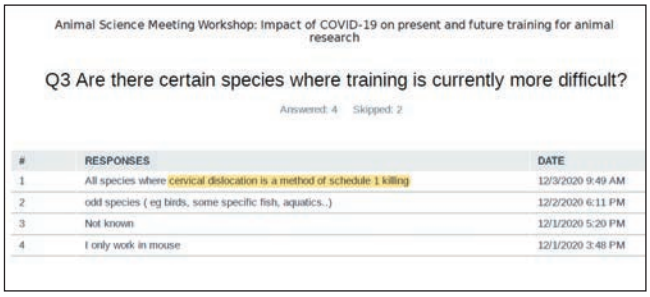


Figure 3. Species related problems.

We wondered if there were particular issues with large animals however it was obvious from responses that the audience was too small to gain this information. Although there is a comment that there are difficulties for less usual species. Schedule 1 was again highlighted as a problem.

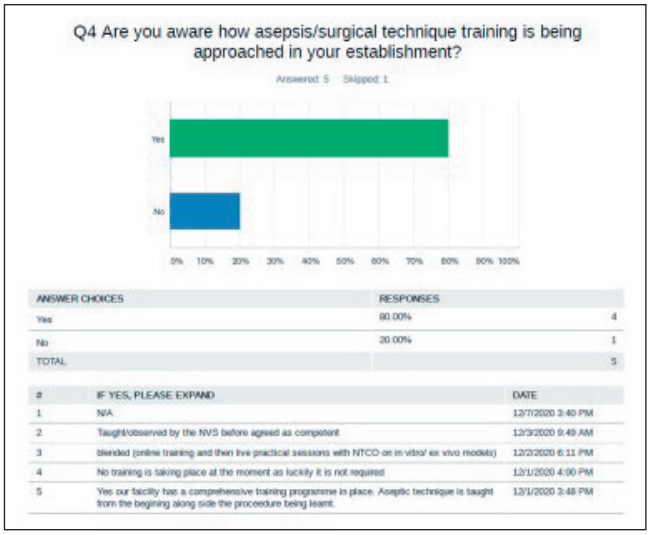


Figure 4. Asepsis / surgical training.

The point behind this question was that we had assumed that methods of training for surgery would have had to have changed in the current environment and we hoped to share that information with the group. It became clear during discussion that some establishments had taken the view that the risk of COVID-19 was too great and no recommencement of training had started.

Animal Science Meeting Workshop: Impact of COVID-19 on present and future training for animal research

Q5 Please comment on any other training areas giving you cause for concern

Answered: 5 Skipped: 1

#	RESPONSES	DATE
1	We provide a wildlife HO course that is suspended currently and thought difficult to deliver on line due to practical activities.	12/7/2020 3:40 PM
2	Challenge of introducing a change to a long standing SOP and ensuring that all techs are trained in the new approach and don't revert to old ways.	12/3/2020 9:49 AM
3	limited continuity training program, which can give the wrong impression that the PIL courses are a one off ticket for approval of training and long term competence!	12/2/2020 6:11 PM
4	Not known.	12/1/2020 5:20 PM
5	The lack of practical training available (or feasible) due to the pandemic. Particularly that provided in new or novel techniques.	12/1/2020 3:48 PM

Figure 5. Areas of concern.

The responses provided here reinforced our initial premise that practical training was a problem.

Q6 Please comment on or provide evidence for ways you have addressed issues that have worked well and you will adopt going forwards

Answered: 5 Skipped: 1

Some establishments have a taken a more stringent H&S approach, which puts those establishments at a disadvantage

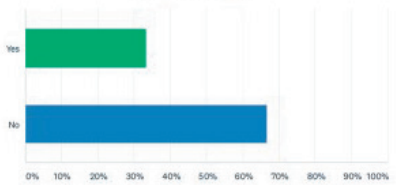
#	RESPONSES	
1	No change to competence assessments other than following PAs & wearing PPE. Same for training. Good reports from staff attending webinar based training e.g. NACWO course. Although course cost is the same more convenient	12/7/2020 3:40 PM
2	Issue: concern that new trainees were getting bounced around staff on the ground due to how busy the unit is, and therefore training was inconsistent and some aspects were getting overlooked. Solution: Each is paired with a colleague of a similar band that they shadow and eventually work alongside as they become more independent. By having one person overseeing day to day activities it ensures that the trainee undertakes different tasks and doesn't get forgotten about in the busyness of the facility. They also have a senior technician who is their mentor and oversees the more formal competency training. Ultimately, senior management have a checklist of what training needs to be provided and ensure all aspects are covered in a timely manner.	12/3/2020 9:49 AM
3	key to establish a continuity training program with the NTCO and NVS-BUT this is time consuming and generally could be better supported by the institutions. Training takes time-particularly one-to-one training programs	12/2/2020 6:11 PM
4	Not known.	12/1/2020 5:20 PM
5	Networking - to ensure we can find specific help in particular techniques. Ideally funding to allow practical help. Meetings - to pick up on protocols or technology that may help our own surgeries e.g wound closure via gluing and improved small animal heat mats.	12/1/2020 3:48 PM

Figure 6. New practises implemented.

An acceptable practical solution to inconsistencies in training was suggested in response 2. While the problem of setting up a new surgical model was again highlighted in discussions around response 5. The possible need to establish a training network was identified. There was a positive comment on the accessibility of online training courses.

Q7 Are there any strategies that you have tried that haven't worked?

Answered: 6 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	33.33%	2
No	66.67%	4
TOTAL		6

#	IF YES, WHAT LESSONS HAVE BEEN LEARNED FROM THESE?	DATE
1	staff doing online training or other courses with which our institution may not have much oversee	12/2/2020 6:11 PM
2	N/A	12/1/2020 5:20 PM
3	Complex reasons can underly why an animal doesn't recover well compared to another following surgery.	12/1/2020 3:48 PM

Figure 7. New practises that did not work.

By asking this question we hoped to learn from other mistakes. The response rate was very low but response 2 highlights a concern around a lack of control on the quality of on-line training.

Highlighted issues

Issues primarily due to/driven by COVID-19 –

- issues with practical training
- establishment of new models
- online training and external course QA

General issues but highlighted by COVID-19 related difficulties.

- physical methods of killing (Schedule 1)

Practical solutions

Small rooms

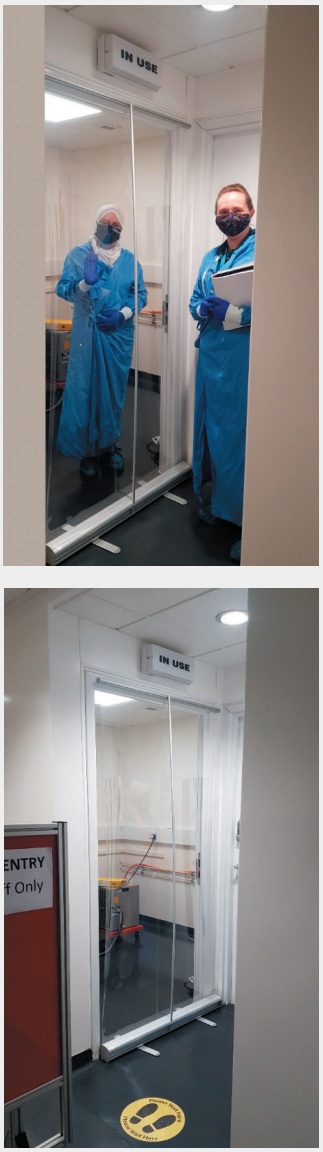


Figure 8a and 8b. Pop-up stand room dividers.

Purchasing a clear, not too expensive, pop-up poster stand allows the division of a space or small room so that where a 2 metre distance cannot be maintained, training on bespoke equipment can continue. This has also been used for other practical side by side training. It is very easy to transport from one area to another.

PIL C training

An empty room was transformed into makeshift training space for PIL C training. Each attendee had a trolley work-station which was set up in advance and the clear pop up screens were utilised. The visualiser (a webcam connected to a projector to allow demonstration of techniques to a whole class) was taken from a meeting room (which are no longer in use) and was used to demonstrate the suturing.

Procedures

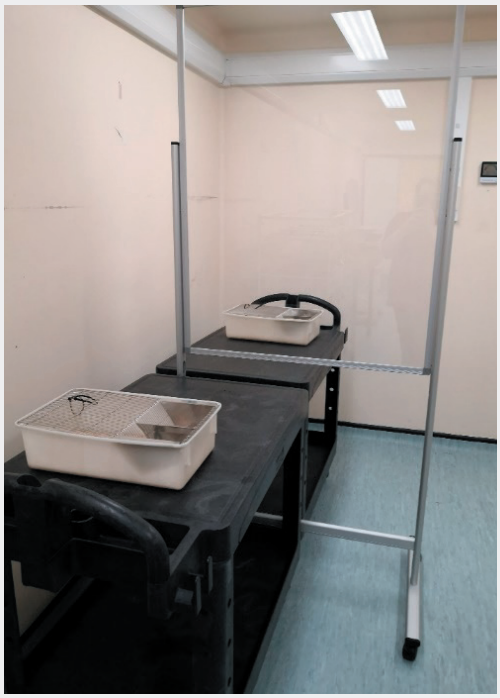
The double-sided cage changing station was utilised for injections where the animal must be restrained by a technician due to the parasites being injected into

Figure 9a – 9c. Pop-up stand room dividers in use.

Figure 10a and 10b. Shows use of double-sided cage changing station in use for procedures.

the hamster. This unit has a height adjustment which makes the task easier. It is still a little awkward but both people are protected by the barrier and airflow.

For basic handling training for mice using tube and cupping method, parallel 'side by side' training with a screen between can be very effective as the trainee can 'mirror' the handler.



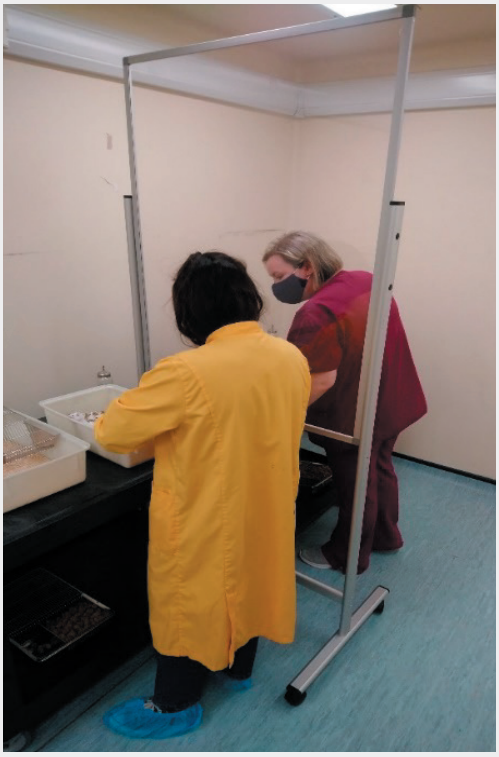


Figure 11 c and 11 d. Configuration of wheeled fixed screens stands for animal handling training.

Use of digital media to help with training and assessment of competence

As well as training being difficult due to social distancing measures, assessment of the competence of those performing procedures has offered challenges. Several methods have been developed to allow remote training and assessment (or re-assessment) of those performing procedures.

- The most effective idea tried so far was pairing of Apple devices such as iPhone, iPads or a Mac paired with a second Apple mobile device and connecting via Facetime. This provides encrypted video calls between devices, thus minimising any security risks. The person being assessed may need to find a method to 'prop' up their device (tripods can be purchased for around £20) to allow visualisation of what they are doing. The person assessing can be socially distanced in the room, next door or in another part of the unit/building. Something similar could be set up via other Apps such as WhatsApp.
- A webcam is mounted on a tripod (or worn on the head) and connected to a laptop or PC either wirelessly or by a long USB cable. This was used to give a 2m separation for demonstrating stereotaxic cranial surgery. The surgeon performed their normal surgery whilst the trainee was able to observe what was happening at the surgical site and ask questions or discuss the procedure with the surgeon, all with social distancing. It is possible to get USB cables in longer lengths and direct connection avoids potential security risks associated with Wi-Fi.
- Wi-Fi go-pro type camera streaming to a phone has also been tried for assessment of competencies but it was not straightforward in the unit it was tried in due to Wi-Fi problems,
- Remote NVS visits can be achieved using similar methods, the purchase of a Gimbal (a pivoted support that allows the rotation of an object about a single axis) to steady the camera can be a useful tool to utilise.

Highlighted issues

New models

We were already aware from our own establishments that setting up new models, such as the complex ones displayed in Figures 12 a-d is a complicated process especially when there is no expertise already on-site, but the COVID-19 environment has made it even more difficult. One solution considered by the group that would help in this regard would be to set-up a network of establishments and individuals within them, with skills in specified techniques/models that they are willing to help train other people to do. This might be something that IAT/LAVA or other laboratory science organisations might be able to work together to set up.

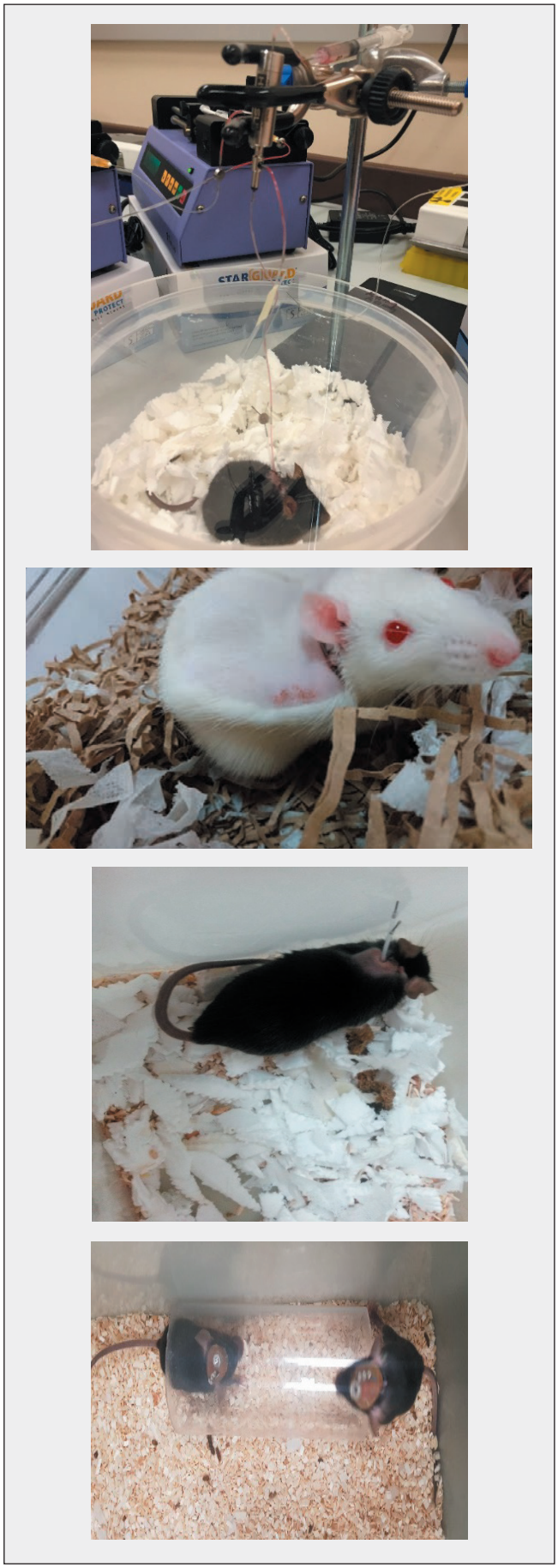


Figure 12a – 12d. Complex new models such as those seen above, can be difficult to set-up in the current environment.

Online training and external course QA

How do we assess the quality of the courses currently provided online? Many courses had to rapidly change delivery from face to face to online. Has this affected the quality? We feel this is highly likely for at least some courses, as formats and approaches need to be tailored to the online platform and the subject of the training. There are a number of limitations for the online platforms that give different challenges for training than those experienced face to face. At least one person at the workshop was aware of online training for Named Persons that had been very unsuccessful as the structure, previously successful for face to face did not encourage sufficient discussion in an online meeting. Whilst accreditation should create consistent quality, it was felt that there was still significant variation in course quality within and between different accrediting organisations and many of the courses moved online were accredited for face-to-face delivery rather than the current online content. Ultimately, it was felt that the only way for an NTCO to be confident in the quality of a course at this time would be to attend it – this obviously has significant cost and time implications. As more trainees attend new online courses and provide feedback to the organisers and NTCOs, a better idea of what is and is not working well will hopefully be achieved.

Physical methods of Schedule 1 e.g. Cervical dislocation Cervical dislocation is the manual, rapid separation of the cervical vertebrae with accompanying lethal trauma to the spinal cord. When performed correctly, cervical dislocation appears to be a humane method of euthanasia.

The discussion of this topic was more general and not limited to the issues seen due to social distancing requirements. For all practical methods, there comes a point where the trainee needs to 'have a go' themselves. The issue for practical euthanasia methods is the concern around the consequences to the animal if the technique is not immediately successful. Currently other than cadavers and videos, there are no training aids that are helpful in training for physical methods of euthanasia Cervical dislocation being a method highlighted as creating particular difficulties in moving the trainee from practicing on dead animals to performing the method on live ones.

Whilst not specific to this method, the use of the Direct Observation of Practical Skills (DOPS) system was discussed. Developed from similar systems used in clinical settings, this is becoming a widely used method for training of practical skills relating to laboratory animals and is useful in setting expectations for trainer and trainee as to what the trainee must achieve in order to be considered competent. An example DOPS assessment sheet was shown (Figure 13a).

University of Dundee

BIOLOGICAL SERVICES – ASSESSMENT OF PRACTICAL SKILLS

TECHNIQUE – CERVICAL DISLOCATION ADULT MOUSE

Prior to attempting this you need to complete the following e-learning module

Humane Methods of Killing Laboratory Animals

You will be sent an online invitation for this

You will be assessed in handling at least 5 animals

Assessment criteria/Components of the task:

a) Understand the legal and ethical requirements surrounding euthanasia
b) Personal Training and Schedule 1 Register
c) Choose Suitable PPE (mask or flow hood, gloves)
d) Confirm animal's id
e) Handle and restrain mouse correctly and sympathetically
f) Dislocate the head and neck at the cranial vertebral level on the first attempt using fingers or a suitable sized metal bar
g) Confirm death by a suitable method e.g severing of neck or femoral vessels
h) **Maximum** of 3 attempts to restrain and dislocate
i) Know the correct procedure for disposal of the carcass/tissues
j) Correctly amend cage label/room records
k) Demonstrate a professional attitude towards performing the procedure

Grading/Threshold statements

'Below expectations'

- Failure to check legal authorities, animal details
- Failure to choose suitable PPE
- Poor animal handling; animal showing signs of distress
- Euthanasia proposed when other animals are within sight/hearing distance
- Death not confirmed
- Candidate unwilling or nervous about procedure

Requirements for 'Meets Expectations'

- Correctly states legal authorities and animal's id
- Correctly removes mouse from cage, handle and restrain empathetically
- Confidently and rapidly applies dislocation technique at upper cervical level
- Death confirmed as set out in Schedule 1
- Cage label/record updated
- Correct carcass/sharps disposal

Requirements for 'Exceeds Expectations'

As 'meets' and

- Explain reasons for choice of technique, can suggest alternatives
- Excellent manual dexterity and sympathetic animal handling
- Understands possible psychological effects on staff of performing euthanasia

Figure 13a. DOPS Assessment Criteria and Grading/Threshold statements for Cervical Dislocation.

DOPS assessment should be provided to the trainee from the outset of training so they understand the expectations. A DOPS assessment should have grading/threshold statements, to clarify what would be considered below expectations, what needs to be achieved to meet expectations and may also have requirements for exceeding expectations. The assessment can be used to re-assess competence and this last category of requirements can help demonstrate improvement in confidence or in the technique.

The workshop did not come up with a solution to the issue of training in physical methods of killing but it was considered improved training aids would be extremely helpful.

Summary

The disparate people within the workshop allowed some good sharing of ideas but the limitation on numbers also meant that the discussions were limited to areas for which those people had knowledge.
Several possible solutions to specific problems were presented, with more general solutions suggested in relation to:

- Networking to improve knowledge transfer. This might be best done by Mentoring and/or having a list of those skilled in specific models and prepared to share their experience.
- A need for new training aids, particularly for specific techniques where current training is difficult such as physical methods of Schedule 1 killing.
- Continued sharing and updating of DOPS assessments.

DOPS marking sheet for: Euthanasia of mouse by Cervical Dislocation

	Level (eg ME)	Feedback/ comments
Unit Induction *Registered User*		
Legal and compliance: *Checks PIL and PPL and/or Humane Killing Register* *Correct PPE/flow hood operation* *Confirm animal's id* *Amend cage label/record* *Correct carcase/sharps disposal*		
Numbers of mice? Condition/age/sex (as appropriate/relevant to handling needs?)		
Animal Welfare: *Empathetic, safe animal handling and restraint* *Euthanasia out of sight/sound/ smell of conscious animals* *Knows backup euthanasia method in case of technique failure*		
Procedural: *State method of dislocation (fingers or bar)* *Have suitably sized implement to hand* *Cervical dislocation performed rapidly, at first attempt* *Palpate gap between head/spine* *Confirm death by second method severing of either the femoral vessels or the jugular/carotid vessels of the neck.* *Cadaver/Tissue disposal*		
Professionalism: Procedure carried out humanely, in timely manner *Respect for animals and colleagues* *Workspace left tidy* *Communicates/Knows own limits*		
3Rs: Demonstrates understanding of refinements; possible effects on staff morale		

Requirement to be assessed as COMPETENT: Meets Expectations or better.

Candidates scoring 'Below Expectations' on any point are recommended to 'continue supervision'

Candidate's name:..... Date:.....

Assessor's name: .....

Assessor's signature: .....

GLOBAL RATING: **COMPETENT** **CONTINUE SUPERVISION**
(Circle)