

# Animal Wellbeing Monitoring

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# \*Definitions.

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**Monitoring:** measures undertaken to assess, or to ensure the assessment of, the wellbeing of animals in accordance with the Code. Monitoring occurs at different levels (including those of investigators, animal carers and animal ethics committees).

**Wellbeing:** an animal is in a positive mental state and is able to achieve successful biological function, to have positive experiences, to express innate behaviours, and to respond to and cope with potentially adverse conditions.

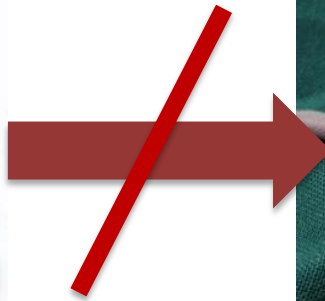
\* From the Australian code for the care and use of animals for scientific purposes- 8<sup>th</sup> Edition 2013.



# Monitoring Strategy.

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- Animal wellbeing monitoring strategies need to ensure that abnormalities are detected and acted upon **before** they result in significant pain, distress or the death of the animal.
- A **monitoring checklist** is the record of the overall animal welfare monitoring strategy developed by the research team.



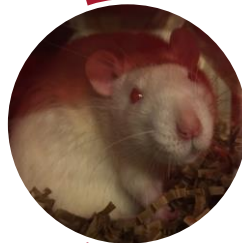
# Why Record Monitoring?

## Protect Animal

Minimise  
animal  
suffering  
by:



Raising awareness of the **abnormal** behavioural and clinical signs that may be shown by animals during an experimental procedure.



Consistently detecting these signs in the **early stages**.



Providing documented **intervention points** and clear **actions** to be taken to **prevent avoidable animal suffering**.

## Protect animal research personnel



Evidence of compliance with the Animal Ethics Committee approved monitoring strategy and hence the legislation.

# Evidence of compliance

## AUSTRALIAN CODE FOR THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES



Clause #	Details
<b>Definitions</b>	Monitoring: measures undertaken to assess, or to ensure the assessment of, the wellbeing of animals in accordance with the Code. Monitoring occurs at different levels (including those of investigators, animal carers and animal ethics committees).
2.1.5	Institutions must promote compliance with the code by: (v) ensuring that guidelines for animal care and use are developed in consultation with the AEC, approved by the AEC, and implemented and promoted within the institution. Guidelines must include: (c) monitoring and assessment of animals to ensure that any harm, including pain and distress, is promptly detected and managed
2.1.7	Institutions must identify clear lines of responsibility, communication and accountability by: (i) ensuring that a person is responsible for the wellbeing of animals at any given time and is clearly identified so that: (a) animal wellbeing is monitored by competent people at all stages and sites of animal care and use. The scope of day-to-day monitoring must be clearly outlined and communicated to all parties
2.4.8	During planning, investigators must consider the following factors and be satisfied that: (xiv) procedures are in place for monitoring and managing animal health during the project (xvii) the wellbeing of the animals is regularly monitored and assessed by competent people
2.4.18	Investigators must take steps at all times to safeguard the wellbeing of animals by avoiding or minimising known or potential causes of harm, including pain and distress, to the animals. Steps include: (vi) ensuring that animals are monitored and assessed at all stages of the project for signs of pain and distress, including deviations from normal behaviour (see Clauses 3.1.20–3.1.21). Such monitoring and assessment must be conducted at a frequency sufficient to detect such signs at an early stage, as determined by the procedure, and ensure that the planned endpoints are detected (vii) maintaining records of monitoring and assessment of animal wellbeing (viii) taking prompt action based on the monitoring and assessment of animal wellbeing, in accordance with intervention points and humane endpoints approved by the AEC (ix) taking prompt action, including alleviating pain and distress and promptly notifying the AEC, in response to unexpected adverse events and emergencies, in accordance with institutional and AEC policies and procedures (see Clauses 2.1.5 [v] [d] and 3.1.24–3.1.25). Alleviating unanticipated pain and distress must take precedence over an individual animal reaching the planned endpoint of the project, or the continuation or completion of the project. If necessary, animals must be humanely killed without delay
2.4.20	Investigators must: (ii) ensure that the scope of monitoring the wellbeing of the animals at all stages of their care and use in the project is clearly outlined and communicated to all parties. Depending on the type of project, this may include monitoring by animal carers.

# Evidence of Compliance.

2.4.31	Investigators must ensure that records of monitoring and assessment of animals are in accordance with Clauses 3.1.21–3.1.22.
2.2.26	Once an animal is allocated to a project, the investigator or teacher is responsible for the day-to-day monitoring of its wellbeing. Prior to this allocation, it is the responsibility of the animal facility manager. The AEC monitors these activities during the inspection of animal housing and laboratories and in the review of reports.
2.5.5	Animal carers must: (ii) monitor and assess the wellbeing of animals for which they are responsible (see Clause 2.5.1) with sufficient frequency to ensure that harm, including pain and distress, is promptly detected and managed (see Clauses 3.1.20–3.1.21). Where animal carers are involved in the monitoring and assessment of animals after they have been supplied to an approved project, the investigator must ensure that the scope and responsibilities for day-to-day monitoring are clearly outlined and communicated to all parties (iii) maintain records of monitoring and assessment of animal wellbeing (see Clause 3.1.22) (iv) take prompt actions based on the monitoring and assessment of animal wellbeing and in response to unexpected adverse events and emergencies, in accordance with institutional policies and procedures, and procedures approved by the AEC (see Clauses 2.1.5 [v] [d] and 3.1.23–3.1.25), including liaising with investigators and seeking veterinary advice.
2.5.11	Animal carers must maintain records of the care and monitoring of animals and, for breeding facilities, the health status and breeding performance of animals (see Clauses 3.1.22, 3.2.2 and 2.4.27 [v]). Animal carers must make these records available to the institution, the AEC, authorised external reviewers and, if relevant, investigators.
2.5.12	Records of animal monitoring must be sufficient to enable the AEC to verify that the wellbeing of animals has been monitored, and allow review and critical investigation of the cause(s) of and responses to unexpected adverse events as a basis for future prevention strategies.
2.5.15	The facility manager, with support as required from the institution and other staff members, and advice from veterinarians, must: (viii) ensure that the wellbeing of animals for which they are responsible is monitored on a day-to-day basis by a competent person, and that appropriate actions are taken in accordance with both institutional and AEC policies and procedures, and actions documented in animal care procedures approved by the AEC
2.7.4	The application form to commence a project must allow the applicant to provide the following information, as appropriate for the circumstances: (xv) details of how the wellbeing of animals will be monitored and assessed throughout the project, the frequency of monitoring and assessment, the actions to be taken if problems are identified, and the criteria for intervention points and humane endpoints
3.1.1	The planning and conduct of activities involving the care and use of animals must support and safeguard animal wellbeing. Steps include: (ii) taking steps to avoid or minimise adverse impacts, including setting intervention points and humane endpoints, and monitoring animals
3.1.18	If pain and distress are predicted or unavoidable consequences of a project, methods for minimising such pain and distress must be incorporated into the design of the project, including: (ii) monitoring animals to ensure that the planned endpoints are detected, and taking appropriate action
3.1.19	Where it is established that the aim(s) of the project involves animals experiencing pain and distress that will not be alleviated: (ii) the animals must be monitored and assessed so that the planned endpoints are detected, and actions must be taken in accordance with the AEC approval for the project.



# Evidence of Compliance.

3.1.20	<p>Animals must be monitored and assessed:</p> <ul style="list-style-type: none"><li>(i) by a competent person who is knowledgeable about the normal behaviour and signs of pain and distress for the species, or a person under the direct supervision of a competent person</li><li>(ii) with sufficient frequency to ensure that any harm, including pain and distress, is promptly detected and managed</li><li>(iii) in accordance with the AEC approval for the project or activity.</li></ul>
3.1.21	<p>Methods for monitoring and assessment of animal wellbeing should include:</p> <ul style="list-style-type: none"><li>(i) the criteria that will be used to assess wellbeing</li><li>(ii) the level and frequency of monitoring to ensure that any changes in an animal's condition are detected early</li><li>(iii) the criteria that will be used to determine when action is required</li><li>(iv) actions that will be taken so that adverse impacts on animal wellbeing, including predicted effects and unforeseen complications, are addressed rapidly and effectively</li><li>(v) the methods for recording observations, treatments and actions</li><li>(vi) flexibility to ensure a rapid and effective response to changes during the course of the project or activity.</li></ul>
3.1.22	<p>Records of the monitoring and assessment of animal wellbeing must be:</p> <ul style="list-style-type: none"><li>(i) sufficient to enable the AEC to verify that the wellbeing of animals has been monitored as agreed, and allow review and critical investigation of the cause(s) of and responses to unexpected adverse events as a basis for future prevention strategies</li><li>(ii) accessible to all people involved in the care of the animal</li><li>(iii) available for audit by the institution, the AEC and authorised external reviewers.</li></ul>
3.1.23	<p>Prompt action must be taken based on the monitoring and assessment of animals, in accordance with:</p> <ul style="list-style-type: none"><li>(i) institutional and AEC policies and procedures</li><li>(ii) the intervention points and humane endpoints approved by the AEC for a project, or actions documented in procedures for animal care approved by the AEC.</li></ul>
3.1.32	<p>When developing strategies for supporting and safeguarding animal wellbeing, investigators and animal carers should:</p> <ul style="list-style-type: none"><li>(ii) clearly identify the person responsible for monitoring the animals</li></ul>
3.2.1	<p>Procedures for ensuring that a health status of the animals is maintained that safeguards animal wellbeing and meets the requirements of their proposed use (see Clause 3.1.8) must include:</p> <ul style="list-style-type: none"><li>(i) monitoring and assessment of animals by a competent person with sufficient frequency to ensure that sick or injured animals are promptly detected and identified, and that appropriate action is taken</li><li>(ii) provision of veterinary clinical care and advice</li></ul>
3.2.8	<p>People responsible for monitoring animals during transport must be able to recognise and respond to animal needs during transport.</p>
3.3.12	<p>When general anaesthesia is used, procedures must conform with current veterinary or medical practice and ensure that:</p> <ul style="list-style-type: none"><li>(i) induction is smooth, with minimum distress to the animal</li><li>(ii) the animal and the effectiveness of the anaesthetic are monitored to maintain an adequate plane of anaesthesia, minimise physiological disturbances, and monitor and manage potential complications (e.g. hypothermia, and cardiovascular and respiratory depression)</li><li>(iii) when an animal is to recover from an anaesthetic, the animal is monitored and cared for to avoid and manage complications during the post-anaesthetic period (e.g. airway obstruction, hypothermia, cardiovascular and respiratory compromise, injury from uncoordinated movements or other animals)</li><li>(iv) records are maintained of the use of anaesthetics and other drugs, monitoring of the animal, and the management of complications.</li></ul>



# Evidence of Compliance.

3.3.14	Neuromuscular blocking agents must only be used in conjunction with adequate general anaesthesia or an appropriate surgical procedure that eliminates sensory awareness. The animal must be monitored to ensure that an adequate plane of anaesthesia is maintained or sensory awareness has been eliminated. Because the paralysis abolishes many criteria for assessing anaesthetic depth and pain perception (e.g. character of respiration, and corneal and flexor withdrawal reflexes), continuous or frequent monitoring of physiological variables (e.g. heart rate, blood pressure, pupil size, electroencephalogram), together with the effects on these of mild sensory stimuli, must be used.
3.3.16	The wellbeing of animals that have undergone surgical procedures must be supported and safeguarded by: (iv) ensuring that potential complications during and after the procedure are avoided or minimised, that animals are monitored for complications, and that any complications that do occur are effectively managed. Potential complications include hypothermia, dehydration, blood loss, tissue trauma, metabolic disturbances, poor tissue perfusion and cardiovascular and/or respiratory failure, infection, delayed wound healing and impaired function
3.3.17	After any procedure: (i) animals must be monitored and assessed with sufficient frequency to ensure that both predicted and unforeseen consequences are detected early (see Clauses 3.1.1 and 3.1.20–21). If an animal has undergone a surgical procedure, surgical wounds must be inspected regularly for evidence of infection and progress of healing (ii) prompt action must be taken so that predicted and unforeseen consequences, including pain and distress, are addressed rapidly and effectively
3.3.23	For animals in studies that involve the induction of tumours, methods used and endpoints chosen must ensure that valid results are obtained with minimal harm, including pain and distress, to the animal. Animal wellbeing must be supported and safeguarded by: (iii) monitoring the growth or impact of the tumour and efficacy of therapy, and using early experimental endpoints, to obtain valid results as early as possible. Death from the tumour must not be an endpoint (iv) establishing and implementing early intervention points and humane endpoints (vi) monitoring and assessing animals for signs of pain and distress, including changes in body condition and body weight; ulceration; adverse effects of procedures used for induction of the tumour; signs of growth, invasion and metastases of the tumour; and toxic effects of therapeutic agents.
3.3.24	When creating and breeding new animal lines where the impact on animal wellbeing is unknown or uncertain, the wellbeing of the animals must be supported and safeguarded by: (ii) using methods for the generation, monitoring and phenotypic description of a new animal line that accord with current best practice
3.3.29	Projects involving the withholding or restriction of food or water must be designed so that the animal experiences no continuing detrimental effect. Changes in fluid balance or body weight must be monitored, recorded and maintained within the limits approved by the AEC.
3.3.31	When agents or treatments are used to suppress the immune system (e.g. irradiation): (ii) animals must be appropriately monitored so that potential side effects are promptly identified and effectively managed.
3.3.35	If trapping is used to capture wildlife, the wellbeing of both target and non-target animals must be considered by: (ii) monitoring traps to minimise the time animals will spend in traps, and to avoid or minimise adverse impacts on trapped animals
3.3.36	Wet pitfall traps must not be used to capture vertebrate animals. If wet pitfall traps are used to capture invertebrates, they must be managed and monitored to minimise the inadvertent capture of vertebrates, including by locating the trap where vertebrate entry is unlikely and using the smallest possible trap diameter.



# Australian Code.

## Summary

- Monitoring must be conducted **frequently** enough to detect signs of pain or distress at an early stage.
- Monitoring must be carried out by **competent** personnel knowledgeable about the signs of pain and distress in the species used.
- **Prompt and effective action** must be taken to alleviate unanticipated pain and distress.
- Action to alleviate pain or distress must take **precedence** over an individual animal reaching the planned endpoint of the project, or the continuation or completion of the project.
- Action taken must be in accordance with intervention points and humane endpoints **approved** by the AEC.
- **Records of monitoring** must be maintained and available to the AEC.
- **Veterinary** clinical care and advice must be available.

# When does monitoring commence?

As soon as the animal is **received** its wellbeing must be monitored.

- Monitoring starts **before** research interventions.
- Once allocated to a project the investigator is responsible for monitoring, prior to allocation monitoring is the responsibility of the animal facility manager.
- Animals will be monitored differently before, during and after research procedures and different checklists should be used.



# Elements of a Monitoring Checklist

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## **TITLE**

- Identifies the AEC approved protocol.

## **ANIMAL IDENTIFIER**

- May be individual animal identifier or group identifier.

## **DATE**

- Date on which the animal is being monitored.

## **SIGNATURE / INITIALS OF THE PERSON MONITORING THE ANIMAL**

- Legible signature of the person doing the monitoring.

# Elements of a Monitoring Checklist

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## **SPECIES ASSOCIATED GENERAL SIGNS OF ILL HEALTH**

- Non-specific signs that the welfare of an animal has been compromised in some way.

## **PROTOCOL SPECIFIC SIGNS OF ANIMAL WELFARE PROBLEMS**

- Signs associated with animal welfare impacts caused by the experimental protocol.

## **NAD OPTION**

- ‘**No Abnormalities Detected**’ section can save a lot of time!



# Elements of a Monitoring Checklist

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## **INTERVENTION POINTS**

- Clearly defined points at which some action should be taken to prevent animal suffering.
- Intervention points must be designed to ensure that abnormalities are detected before they result in significant pain or distress to the animal, or the death of the animal.

## **ACTIONS TO BE TAKEN**

- Clearly defined actions to be taken to prevent animal suffering.
- Actions must be matched to the degree of animal welfare compromise.

## **GUIDELINES FOR USE**

- Provide clarity on how to use the checklist.



# Signs of Illness and Distress

## SPECIES SPECIFIC GENERAL SIGNS

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- Know what the normal animal looks like and how it behaves.
  - Changes from the normal can be subtle especially in ‘prey’ animals.
  - Importance of acclimatisation period.
- Be aware of species specific signs of ill-health.



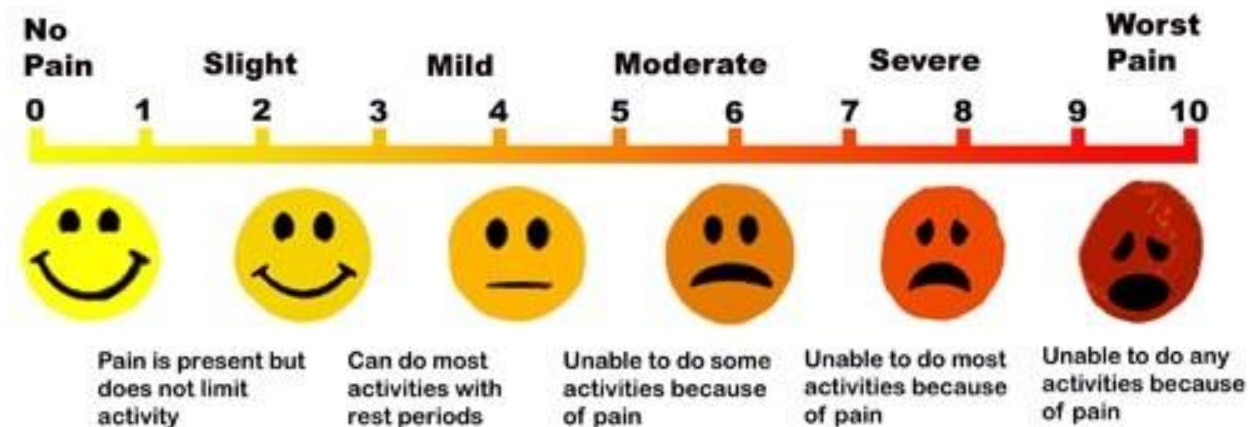
# Signs of Illness and Distress

## SPECIES SPECIFIC SIGNS OF PAIN

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### Grimace scales:

- Developed for a number of species.
- Objective measure of pain.
- Charts available.

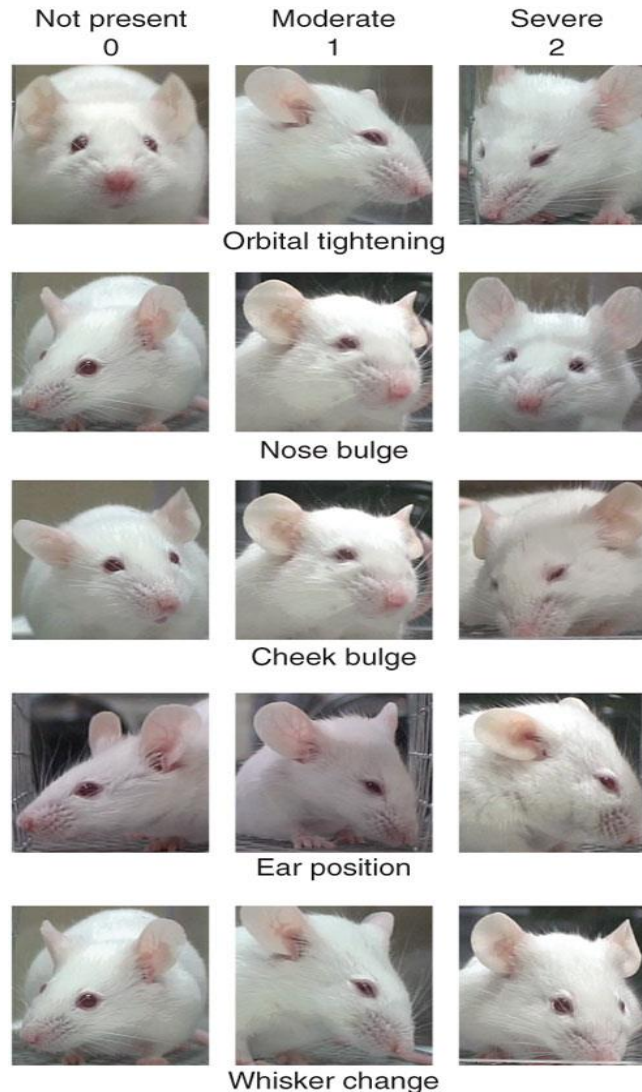




# Signs of Illness and Distress

## SPECIES SPECIFIC SIGNS OF PAIN- Grimace Scale- MOUSE

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Langford , D. et al. Coding facial expressions of pain in the laboratory mouse. *Nature Methods* 7, 447-449 (2010)

# Signs of Illness and Distress

## SPECIES SPECIFIC SIGNS OF PAIN- Grimace Scale- RAT

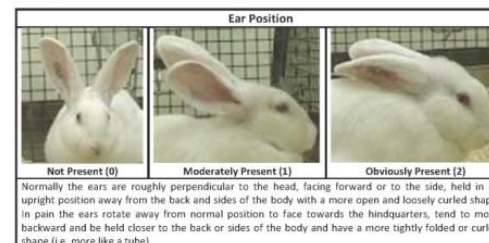
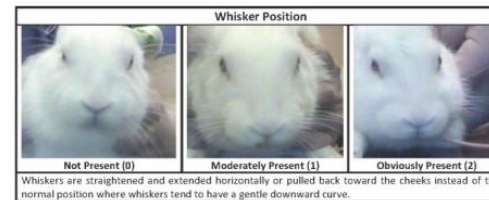
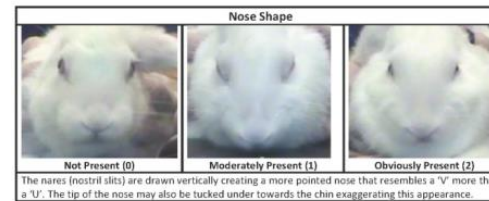
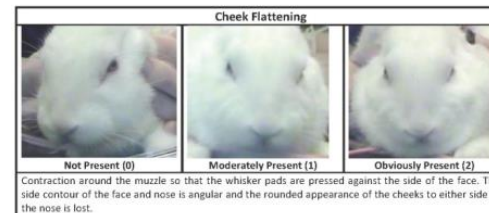
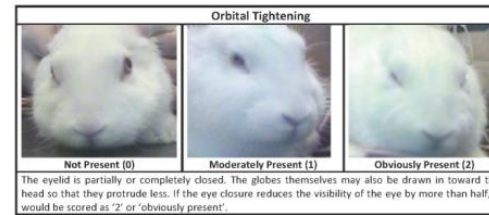


Sotocinal, S. et al. The Rat Grimace Scale: A partially automated method for quantifying pain in the laboratory rat via facial expressions. *Mol Pain*. (2011)

# Signs of Illness and Distress

## SPECIES SPECIFIC GENERAL SIGNS- Grimace Scale- RABBIT

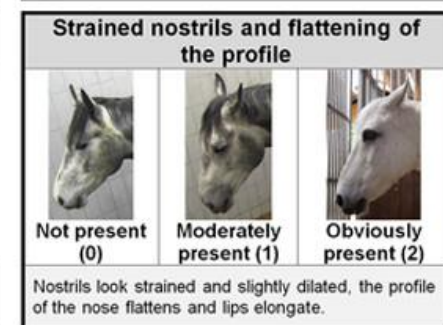
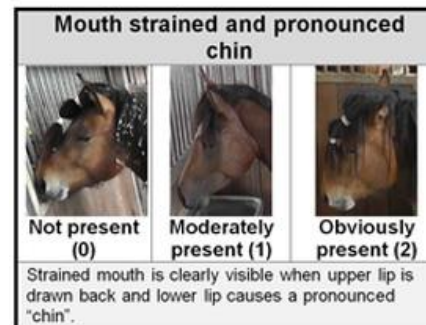
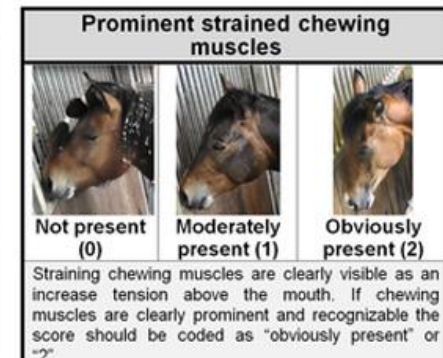
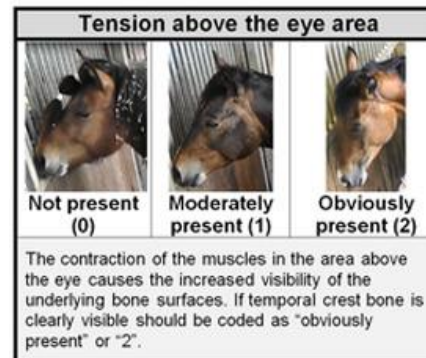
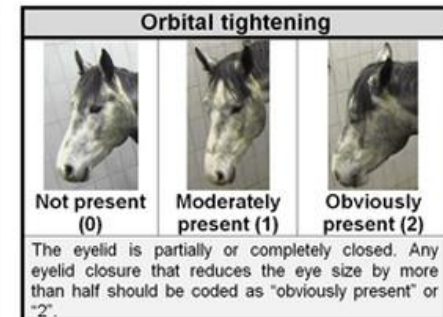
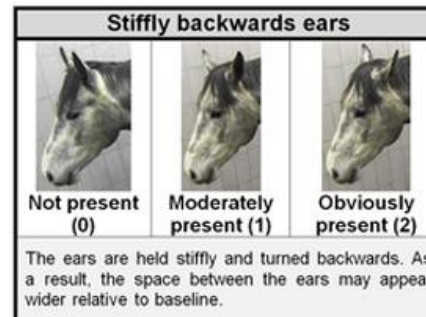
Keating SCJ, Thomas AA, Flecknell PA, Leach MC (2012) Evaluation of EMLA cream for preventing pain during tattooing of rabbits: Changes in physiological, behavioural and facial expression responses. *PLoS ONE* 7(9): e44437.



# Signs of Illness and Distress

## SPECIES SPECIFIC GENERAL SIGNS- Grimace Scale- HORSE

Dalla Costa E, Minero M, Lebelt D, Stucke D, Canali E, Leach MC (2014) Development of the Horse Grimace Scale (HGS) as a Pain Assessment Tool in Horses Undergoing Routine Castration. *PLoS ONE* 9(3): e92281. doi:10.1371/journal.pone.0092281



# Signs of Illness and Distress

## PROTOCOL SPECIFIC SIGNS- Impact Tables

**Rat model of lung inflammation:** Antigen is administered via inhalation while the rat is restrained with its nose placed in a nebuliser. The following day the rat receives an intraperitoneal injection. 7 days later it is anaesthetised and an osmotic pump surgically placed into the abdominal cavity.

Procedure	Potential Adverse Effect	Clinical Sign	Monitoring Plan	Actions
<b>Handling and Restraint</b>	May cause stress and struggling. A struggling animal may injure itself.	Struggling, rapid respiration, abnormal movement on return to cage.	Observe animal during handling and restraint for signs of distress. Observe animal for 5 minutes after return to cage for abnormal movement.	Return animal to cage immediately if struggling and vocalising. Contact facility veterinarian if animal appears to be injured.
<b>Inhalation of antigen</b>	Antigen will cause acute lung inflammation which will usually be mild but may be severe.	Rapid shallow respiration with some piloerection. Porphyrin staining around eyes and nares. If severe will progress gasping respiration and cyanosis.	Observe animal daily for 5 days after administration of antigen.	Mild respiratory distress, porphyrin staining, monitor again within 2 hours. Gasping and cyanosis- euthanase.
<b>Intraperitoneal injection</b>	<ol style="list-style-type: none"> <li>Inadvertent administration into abdominal organ.</li> <li>Accidental laceration of abdominal blood vessel.</li> </ol>	<ol style="list-style-type: none"> <li>Abdominal pain- hunching, reluctance to move, piloerection.</li> <li>Pale ears and feet, rapid respiration</li> </ol>	Observe animal daily for 2 days after injection.	If any clinical sign seen contact facility veterinarian.
<b>Anaesthesia</b>	<ol style="list-style-type: none"> <li>Inadequate depth of anaesthesia- animal conscious of procedure.</li> <li>Anaesthesia too deep- animal dies.</li> </ol>	<ol style="list-style-type: none"> <li>Reflexes return, increased respiration rate, increased heart rate.</li> <li>Decreased heart rate, decreased reflexes, decreased oxygen saturation</li> </ol>	Check reflexes every 15 minutes during anaesthesia. Use pulse oximeter to continuously monitor oxygen levels and heart rate.	If anaesthesia too light, increase isoflurane levels, if anaesthesia too deep reduce isoflurane percentage.
<b>Surgery</b>	<ol style="list-style-type: none"> <li>Pain.</li> <li>Haemorrhage.</li> <li>Infection.</li> <li>Wound breakdown.</li> </ol>	<ol style="list-style-type: none"> <li>Signs of pain for species (grimace scale)</li> <li>Bleeding from wound.</li> <li>Reddening, swelling, discharge from wound.</li> <li>Wound open</li> </ol>	Immediate post op- check animal every 15mins until moving around cage normally. Check animal twice daily for 3 days then daily for 4 days.	Signs of pain- administer analgesia, Wound changes- contact facility veterinarian.



# Examples of Monitoring Checklists



**ANIMAL FACILITIES PROCEDURES/ TREATMENT MONITORING RECORD**



ARA No.		PI Name	
Species		Strain	
Group/ Individual ID		Cross Reference	

Date	Checked		Details (Monitoring results, procedure or treatment)	Initials
	NAD*	Checklist #		

\* Please complete **NAD** only when No abnormalities detected, or "**Checklist**" when records transferred to an individual monitoring checklist. If abnormalities are seen provide information in the details column.  
 # Use this section to cross reference an animal removed from a group to an individual record sheet.

**Basic  
monitoring  
record.**

Used prior to procedures or when animal has returned to normal after procedures.



## Monitoring Checklist-TEMPLATE FOR MICE

*Specific signs related to the research procedures should be added to this template*

<b>Project Title</b>			
<b>ARA Number</b>		<b>Box Number/s</b>	
<b>No. Mice in Group</b>		<b>Individual ID</b>	

**NOTE:** place an 'x' against any clinical signs that are present. Use the intervention instructions at the base of the sheet to ensure that the correct action is taken. **NAD**= No abnormalities detected.

<b>Date</b>					
<b>Time</b>					
<b>Observer Initials</b>					
<b>NAD</b>					
Weight (weekly)					
% change from start weight					
<b>Category 1 signs</b>					
Ruffled fur					
Decreased activity					
Shallow or increased respiratory rate					
Isolated from cagemates					
Abnormal gait					
<i>Add minor clinical signs related to research protocol</i>					
<b>Category 2 signs</b>					
Thin or dehydrated					
Ungroomed					
Unusually docile or aggressive					
Hunched posture					
Change to faeces					
<i>Add moderate clinical signs related to research protocol</i>					
<b>Category 3 signs</b>					
Emaciated					
Pale or cyanotic ears/nose/feet					
Gasping respiration					
Unresponsive to stimulus					
<i>Add severe clinical signs related to research protocol</i>					
<b>COMMENTS</b>					

**NAD-** no action

**Category 1-** monitor again in 4 hours, if not improved seek advice from CI or veterinarian

**Category 2-** contact Chief investigator and veterinarian for advice

**Category 3-** euthanase immediately. Ensure post mortem performed. Submit adverse event report to AEC

More than 15% weight loss- euthanase immediately

**Any combination of signs- More than two signs in any one category-** treat as next highest category

**Signs from more than one category-** treat as for highest category



**MACQUARIE**  
University

# Mouse Template.

Includes species specific signs of general illness.

Groups signs under 'severity categories'.

Requires addition of research procedure specific signs.



## Monitoring Checklist-Surgery- Mouse

Project Title			
ARA Number		Box Number/s	
No. Mice in Group		Individual ID	

**NOTE:** place an 'x' against any clinical signs that are present. Use the intervention instructions at the base of the sheet to ensure that the correct action is taken. **NAD-** No abnormalities detected.

Date					
Time					
Observer Initials					
NAD					
Weight (weekly)					
% change from start weight					
<b>Category 1 signs</b>					
Ruffled fur					
Decreased activity					
Shallow or increased respiratory rate					
Isolated from cagemates					
Abnormal gait					
Reddening or weeping of surgical wound					
<b>Category 2 signs</b>					
Thin or dehydrated					
Ungroomed					
Unusually docile or aggressive					
Hunched posture					
Change to faeces					
Bleeding, swelling, or discharge surgical wound. Loss of skin sutures					
<b>Category 3 signs</b>					
Emaciated					
Pale or cyanotic ears/nose/feet					
Gasping respiration					
Unresponsive to stimulus					
Surgical wound open- skin and muscle layer.					
<b>COMMENTS</b>					

**NAD-** no action

**Category 1-** monitor again in 4 hours, if not improved seek advice from CI or veterinarian

**Category 2-** contact Chief investigator and veterinarian for advice

**Category 3-** euthanase immediately. Ensure post mortem performed. Submit adverse event report to AEC

More than 15% weight loss- euthanase immediately

**Any combination of signs- More than two signs in any one category-** treat as next highest category

**Signs from more than one category-** treat as for highest category



## Mouse Surgery Monitoring Record.

Surgery  
specific  
signs have  
been added



## Monitoring Checklist TEMPLATE- Amphibian

Specific signs related to the research procedures should be added to this template

Project Title			
ARA Number		Amphibian ID	

**NOTE:** place an 'x' against any clinical signs that are present. Use the intervention instructions at the base of the sheet to ensure that the correct action is taken. NAD- No abnormalities detected.

Date				
Time				
Observer Initials				
NAD				
Weight (weekly)				
% change from start weight				
<b>Category 1 signs</b>				
Dull skin				
Lethargic (poor response to stimuli)				
<i>Insert specific signs</i>				
<b>Category 2 signs</b>				
Abnormal resting posture				
Thin				
Dry skin				
Staring dry eyes				
Delayed righting reflex				
Injury				
<i>Insert specific signs</i>				
<b>Category 3 signs</b>				
Emaciated				
Gasping respiration				
Unresponsive to stimuli				
<i>Insert specific signs</i>				
<b>COMMENTS</b>				

### Intervention points and Actions

**NAD-** no action

**Category 1-** monitor again in 4 hours, if not improved seek advice from CI or veterinarian (except bruising- seek advice if not improving within a few days).

**Category 2-** Contact veterinarian for advice.

**Category 3-** euthanase immediately. Ensure post mortem performed. Submit adverse event report to AEC

### Any combination of signs-

**More than two signs in any one category-** treat as next highest category

**Signs from more than one category-** treat as for highest category



**MACQUARIE**  
University

# Amphibian Template.

Includes species specific signs of general illness.

Groups signs under 'severity categories'.

Requires addition of research procedure specific signs.



## ANAESTHETIC MONITORING RECORD

Project Title:			
ARA Number:			
Animal ID:		Pre-treatment Body Weight:	
Procedure:		Date:	

Premedication	Induction	Maintenance
Time:	Time:	Time:
Drug:	Drug:	Drug:
Dose:	Dose:	Dose:

Time											
Withdrawal reflex (Y/N)											
Palpebral reflex (Y/N)											
Mucous membrane colour P=Pink. B=Blue											
Administration of fluids <i>(tick when done)</i>											
Change animal's posture <i>(tick when done)</i>											
<b>Chart physiological measures</b> <i>(to insert ranges)</i>  x---x---x---x    Heart rate  ●---●---●        Breathing Frequency  ▲---▲---▲        Arterial Blood Pressure											
<b>Initials</b>											

**NOTES:**

- Time intervals for monitoring usually 15 minutes unless otherwise approved by AEC for specific protocol
- Some parameters may be unable to be measured in some procedures- follow specific AEC approval.

### Anaesthetic Monitoring Template.

Depth of anaesthesia

Physiological condition of animal

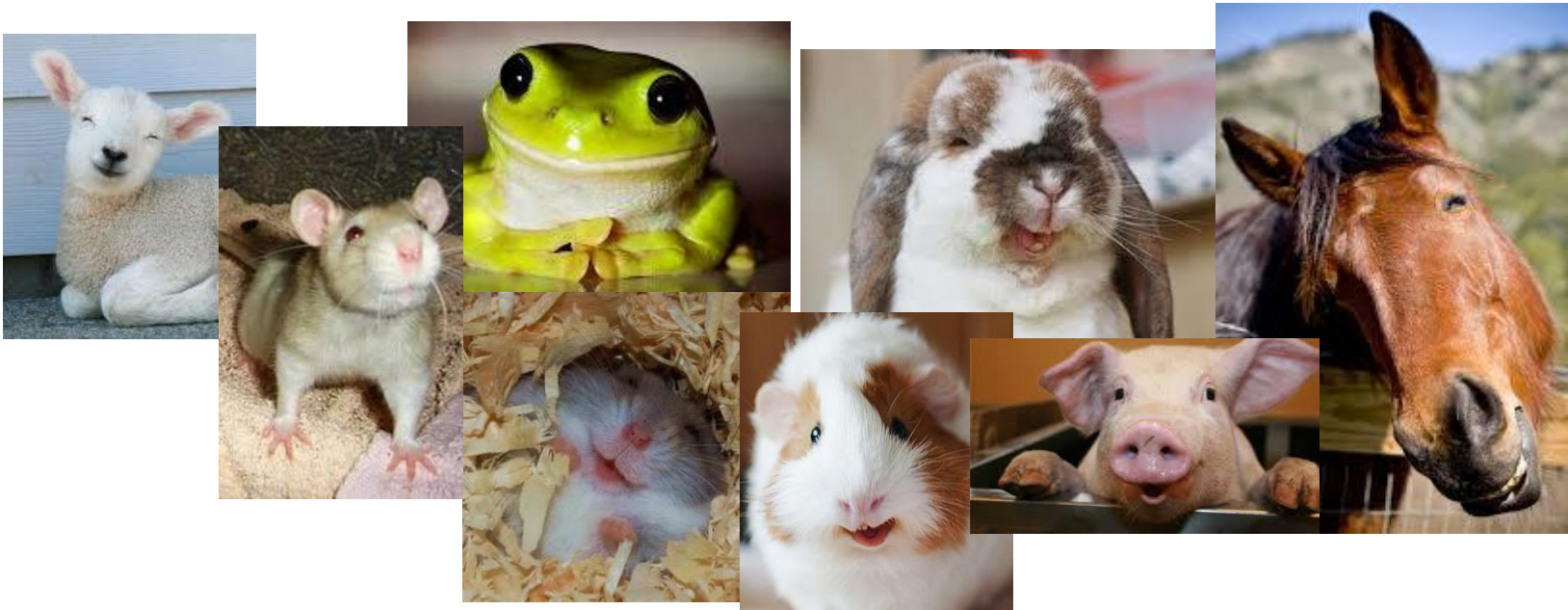


# Monitoring Strategy

## SUMMARY

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- **Effective** without being onerous.
- **Relevant** to the research protocol.
- Detects adverse animal welfare impacts **early** so that appropriate action can be taken to minimise animal suffering.
- **Clear and unambiguous** so all persons involved in the care of the research animals understand it and can apply it appropriately.



# Thank you

END

