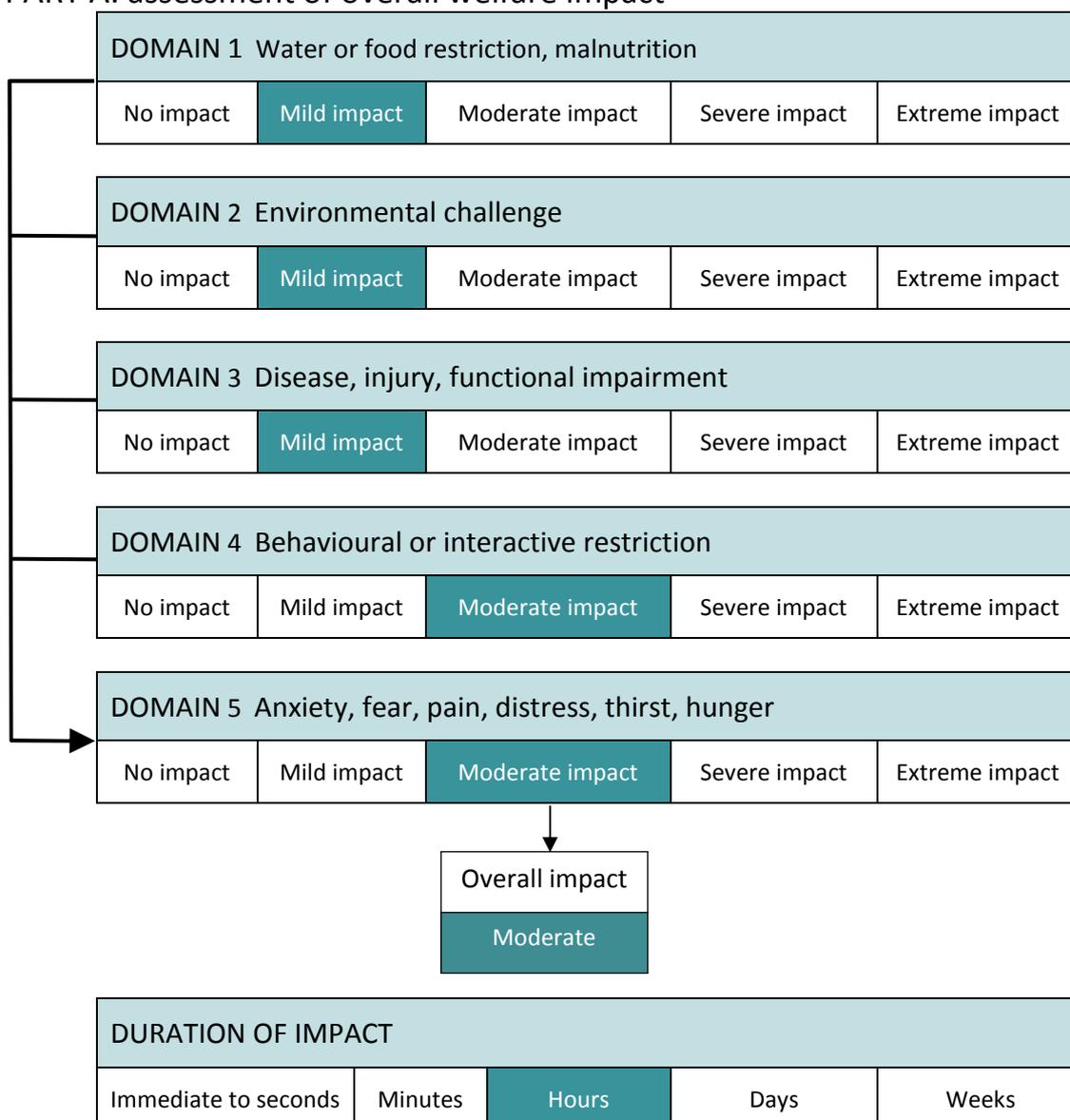


## Control method: Inoculation of rabbits with Rabbit Haemorrhagic Disease Virus (RHDV)

**Assumptions:**

- Best practice is followed in accordance with the standard operating procedure RAB001.
- Involves cage trapping of rabbits, handling and inoculation. Small cage traps, such as those used for cats (see CAT002) may be used. Refer to the standard operating procedures 'Live capture of pest animals used in research' (RES001) and 'Restraint and handling of pest animals used in research' (RES002) for information relevant to trapping and handling.
- In some situations the cage may be transported to another location prior to inoculation, which will significantly increase impact in Part A.
- Best practice assumes traps are set in the evening and checked in the morning.
- The effect on dependent young is not taken into consideration with this assessment only the impact on the target animal.

### PART A: assessment of overall welfare impact



<b>SCORE FOR PART A:</b>	<b>5</b>
Summary of evidence:	
Domain 1	Traps are set in the evening and checked in the morning. The maximum time rabbits spend in a trap is 12 hours (but can be up to 15 hours).
Domain 2	Assumes traps are not set in bad weather and are placed in shaded areas where possible.
Domain 3	There is the potential for minor injuries to be sustained. There is no evidence of injuries due to trapping but there is potential for injury during handling and inoculation.
Domain 4	There will be some restraint stress but rabbits are likely to quickly recover from this when released. The physiological response to capture has been found to be lower in animals caught in cage traps compared with leg-hold traps <sup>1</sup> . Cage traps have been found to cause an increase in cortisol compared with animals that were not trapped but this was lower than individuals caught in leg-hold traps <sup>2</sup> . There will be some exertion from struggling within the trap; however this will be lower compared with animals held by leg-hold traps <sup>1</sup> . Long entrapment periods could result in disruption of natural behaviour and motivational systems <sup>2</sup> .  The presence of predators in the area is likely to result in increased levels of stress and anxiety in trapped rabbits <sup>3</sup> .
Domain 5	A captured animal has to be removed from trap, handled, injected and released and these procedures will be stressful for rabbits <sup>4,5,6</sup> .  It is likely that the animal will experience an elevation in anxiety and distress whilst trapped, however evidence that high numbers of rabbits can be recaptured <sup>7</sup> may indicate that overall impact is not severe or long-term.

### PART B: assessment of mode of death

Time to insensibility (minus any lag time)				
Very rapid	Minutes	Hours	Days	Weeks
Level of suffering (after application of the method that causes death but before insensibility)				
No suffering	Mild suffering	Moderate suffering	Severe suffering	Extreme suffering

<b>SCORE FOR PART B:</b>	<b>F-G</b>
Summary of evidence:	

Duration –	<p>Post-infection, there is a rise in body temperature lasting 18-24 hours, followed, in around 70–90% of cases, by death up to 48 hours after the onset of fever<sup>8</sup>. However, the response of individual rabbits is variable with one record of death 114 hours after inoculation<sup>9</sup>.</p> <p>Ambient temperature also influences the time to death, with lower temperatures associated with shorter time to death. In an ambient temperature of 13°C the average time to death was 56 hours (range 19-88 hours), while at a temperature of 27°C the average time to death was 89 hours (range 51-147 hours)<sup>9*</sup>. Additionally, there is no difference in time to death for rabbits inoculated intradermally or intramuscularly.<sup>9</sup></p>
Suffering –	<p>It is not clear if infected rabbits suffer discomfort from fever. However, fever can last for up to 2 days and there is the potential for suffering due to loss of appetite, lethargy and fatigue<sup>10</sup>.</p> <p>The overall level of suffering is moderate but there could be severe suffering for a short period (minutes) just prior to death for some animals (although it is not clear whether they are conscious at this time). In the peracute form of the disease, rabbits die suddenly without previous clinical sign within a few hours of the incubation period. In the acute form, animals perish after a short period of disease (1-3 days), with convulsions and signs of suffocation. Shortly before death opisthotonus (a condition in which the body is held in an abnormal posture with the body rigid, the head thrown backward and the back is severely arched), sudden crying, and uncoordinated movements or paddling of the limbs may occur<sup>11</sup>.</p> <p>The disease appears typically as a necrotizing hepatitis with associated haemorrhaging, and death occurs as a result of generalised organ dysfunction<sup>12</sup>.</p> <p>During an outbreak, a limited number of rabbits (5–10%) may show a chronic or subclinical form of the disease. These animals often die 1 or 2 weeks later, probably due to a liver dysfunction<sup>8</sup>.</p>

## Summary

CONTROL METHOD:	<b>Inoculation of rabbits with Rabbit Haemorrhagic Disease Virus (RHDV)</b>
OVERALL HUMANENESS SCORE:	<b>5F-G</b>
<p>Comments</p> <p>Animals that recover from infection show transient hyperthermia, depression and anorexia<sup>8</sup>.</p> <p>The disease is confined to adult rabbits, over about two months of age<sup>12</sup>.</p>	

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\* This statement is based on a statistical re-analysis of the data presented in the article.

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