Badger Emergency Care

INTRODUCTION

British wildlife species will commonly be presented to veterinary surgeons for emergency care. Under RCVS guidelines (RCVS 2023a) all vets are obligated to provide such emergency care, which may include fluid therapy and analgesia, or euthanasia if necessary. The memorandum of understanding between the British Veterinary Association (BVA) and the Royal Society for the Prevention of Cruelty to Animals (RSPCA) additionally may cover the provision of Initial Emergency Treatment (IET) for native wildlife species and the RSPCA may contribute to costs when out-of-hours or involving the larger (>1kg) species.

Badgers (*Meles meles*) are not an infrequent species to be presented for emergency veterinary care, although the southwest of Britain has the highest numbers of the species. Many veterinary surgeons express concern when first asked to deal with these animals, due to a lack of confidence in handling a reasonably large wild mammal, unfamiliarity with common medical conditions and drug usage, and concerns about bovine tuberculosis. Consequently, badgers may be kept alive for protracted periods of time in unsuitable conditions, or be transported large distances prior to necessary euthanasia; others may be euthanased unnecessarily. This advice sheet aims to provide vets in general practice with basic information and tools to provide emergency care to badger casualties successfully.

LEGAL CONSIDERATIONS

Badgers are protected under the Wildlife and Countryside Act 1981 and the Protection of Badgers Act 1992. Both these acts protect badgers from being illegally taken from the wild or killed but make provision for the treatment of 'disabled' animals with the intention of releasing them back to the wild. Appropriate euthanasia is also permitted under the legislation. Veterinary treatment of badgers is controlled by Veterinary Surgeons Act, 1966 (including Schedule 3) and Veterinary Medicines Regulations, 2013. These acts limit the treatment of wildlife species, including badgers, to veterinary staff. Under RCVS 'Under care' guidance (RCVS 2023b) to prescribe POM-V drugs (including fluids, analgesic drugs, and pentobarbital), a veterinary surgeon must carry out a *clinical assessment* of the animal.

Image: Badger Cubs are usually born in late January

BADGER BIOLOGY & ECOLOGY

Badgers are mustelids - the subcaudal gland under the base of their tail produces a musty smell. They are omnivorous – so will eat a variety of things in captivity. They are social and territorial – so they must be kept isolated from other badgers in captivity and returned to the exact location in which they were found. Fighting between badgers is common and frequently leads to wounding, which under most circumstances heals naturally in the wild. Badgers are induced ovulators and delayed implanters, so mating can occur all year; however, there are two peaks in breeding activity in the spring and autumn and wounding and road traffic accidents are more common at these times of year. Badger cubs are usually born in late January. Adult badgers weigh anything up to 16kg, but most are in the 7-10kg range. From a clinical point of view, their anatomy and physiology are otherwise not greatly different to that of domestic dogs, making veterinary examination and treatment relatively easy.

Image: Badgers come in several colour variants including erythristic (left) and melanistic (right) © SWWR

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Image: Oral examination in a deeply sedated badger. © SWWR

HANDLING OF BADGERS

Veterinary employers should have a H&S policy, including SOPs for staff dealing with wildlife casualties. Badgers are large, strong mammals with a dangerous bite and sharp claws; they should be handled with care. Chemical restraint is required in almost all cases before examination, but this is easily achieved (see below). Gloves should be worn when handling and examining badgers, cleaning wounds, or cleaning up urine or faeces. If there is a risk of human contamination from badger body fluids (e.g. cleaning pens, draining body cavities, cleaning up urine or faeces), an FFP3 facemask should be worn to protect the operator. As mustelids have been shown to be susceptible to human respiratory coronaviruses, a fabric or surgical facemask should be worn instead when generally handling badgers (e.g. feeding badger cubs).

It is best to assume that all badgers will bite, however unconscious or sedated they might appear. Baskerville-type muzzles should be placed carefully before examination of any animal and removed only for a careful examination of the mouth.

CAGES

Many members of Badger Trust groups will have large-size crush cages in which drugs can easily be given through the bars of a cage. If the badger is in an alternative container, gently tip it into a suitable cage. Alternatively, using a heavy blanket to cover and restrain the badger's head, intramuscular sedative drugs can be safely administered into the rump area. Crush cages should be pre-weighed. Blankets or other bedding should not be placed inside the cage, as this limits the 'crushing' mechanism.

Image: Badger cage with crusher side. Picture from Hamsterbaskets.co.uk. Other cage providers are available.

BOVINE TUBERCULOSIS

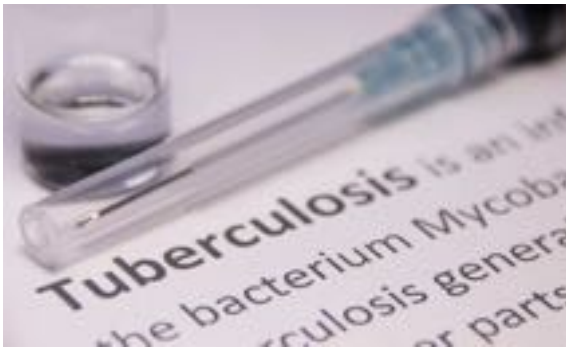

Image: DPP® VetTB test (Chembio Diagnostic Systems) © SWWR

Badgers, in common with many British mammals, are susceptible to infection with *Mycobacterium bovis* (Bovine tuberculosis, bTB). In an active bTB case, bacilli may be shed in badger saliva, urine and faeces, and badger bite wounds may be contaminated. Inevitably, a small number of clinical bTB cases will be seen in veterinary practices; these are usually emaciated animals with other obvious clinical signs such as lymphadenopathy, lung lesions, and focal lesions in other body sites such as the growth plates of the spine or long-bones.

Suitable H&S precautions should be taken when handling all badgers, in common with all wildlife. Post-mortem examination of badgers should never take place in veterinary practices; laboratories with suitable facilities should always be used. A commercial test for *M. bovis* infection in individual badgers (Dual Path Platform (DPP) VetTB test (Chembio Diagnostic Systems)) is available from the APHA Veterinary Investigation Centre at Starcross, Exeter, but has limited sensitivity (around 55%).

Rescue centres work to a strict protocol for the release of badgers to avoid any possible spread of bTB to other animals and man. Adult badgers must always be kept isolated in captivity and released at EXACTLY the location in which they were found. Badger cubs must be reared in specialist centres where stringent multiple testing regimes for bTB are followed. Further information on testing badgers for bTB is available on request and in the *References & Further Reading* at the end.

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Image: Intramuscular injection © SWWR

SEDATION & ANAESTHESIA

Commonly used intravenous and gaseous anaesthetic drugs have been used in badgers using standard canine doses. By far the easiest method of chemical restraint in most circumstances, however, is a combination of medetomidine and ketamine together in the same syringe, given by intramuscular injection.
A dose of 5.0-7.5mg/kg of ketamine plus 40µg/kg medetomidine is used. This equates to 0.5ml ketamine (100mg/ml) plus 0.4ml medetomidine (1mg/ml) for an average 10kg adult badger. Animals should ideally be weighed to calculate accurate doses. Medetomidine should be reversed as soon as procedures are completed using an equal volume of atipamezole (200µg/kg of 5mg/ml solution) given intramuscularly, no adverse ketamine-related reactions are usually observed by doing this. Those in farm or equine practice without access to medetomidine might use another alpha-2 agonists such as xylazine or detomidine as an alternative.

FIRST AID & STABILISATION

The principles of first aid and stabilisation are exactly the same as for domestic dogs and these have been applied successfully by vets dealing with badgers in rescue centres. Fluid therapy is easily administered via the cephalic vein (mild sedation with diazepam at 0.25mg/kg and the use of a Baskerville-type muzzle may be necessary to keep i/v lines in place in some cases). Saphenous and jugular veins are also easily accessible. Crystalloid fluids (e.g. Hartmann's solution) are commonly used at 'shock' rates (10-20ml/kg given over 20-30min and repeated as necessary) followed by standard dog rates. Analgesia should be provided, and both opioid (e.g. methadone, morphine) and non-steroidal drugs (e.g. meloxicam, carprophen) have been used without complication at standard dog doses.

Image: Sedated badger on intravenous fluids © SWWR

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Image: Sedated for examination © SWWR

EXAMINATION

Once sedated, all badgers should be fully and systematically examined in the same way as a dog or cat. Clinical examination has been shown to be the best form of assessment, although other diagnostic tools especially radiography, are useful. Body condition assessment is useful to identify chronically disabled animals. Badger nail length is hugely variable between individuals and is not a specific or useful indicator of medical problems.

Image: Badger contained in cage © SWWR

Blood profiles can be interpreted using published badger reference ranges (Mullineaux 2016). Many in-house analysers can be used for biochemistry but not haematology.

Compared to canine values normal badger amylase levels are usually very low and urea levels are frequently high (associated with pre-renal factors such as eating earthworms and/or dehydration).

Image: Blood collection © SWWR

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REASONS FOR THE PRESENTATION OF BADGER CASUALTIES TO VETERINARY PRACTICES

Adult badger casualties commonly come to the attention of the general public in one of two ways; as RTC animals that have been hit or found at the roadside or as animals wounded in territorial disputes and subsequently found in gardens, domestic or farm buildings. It is rare for adult badgers to be found in the open in fields.

DEPENDENT CUBS

Badger cubs may be found above ground after they have been abandoned or orphaned; these animals are often hypothermic and dehydrated and require immediate first aid. Cubs may present very young and require specialist rearing and rehabilitation. Badger cubs don't begin to wean until 8 wks and will not eat solids properly until 10-12 wks old. Badger cubs need specialist care; as soon as a cub comes into your care, please contact your local badger group, Badger Trust or a reputable wildlife rescue with badger experience.

ROAD TRAFFIC COLLISION

RTC badgers are much like RTC dogs and cats in the type of injuries they sustain; these include orthopaedic injuries, especially pelvic and long-bone fractures; soft tissue injuries, especially friction injuries; diaphragm rupture and lung, liver and splenic contusions. Some RTC cases will be alert and conscious and require sedation before any treatment or examination can take place. Other cases will be unconscious, allowing immediate examination and first aid treatment to be given as indicated.

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Image: Rump wound © SWWR

BITE WOUNDS

Conspecific or 'territorial' wounds are a common feature of normal badger social behaviour. The wounds commonly occur around the head and neck (especially in females) and on the rump (especially males). The wounds may look dramatic (left), but almost all heal well with simple topical treatment. Some may have secondary myiasis. Badgers with wounds should be heavily sedated in order for a full clinical examination to take place and the wounds to be cleaned. Some badgers with wounds (around 43%) will have other concurrent injuries or medical conditions, and these may affect the overall prognosis. There is no need for extensive debridement, and no attempts should be made to suture the wounds (unless involving flaps of ear or lip). Topical hydrogel products appear to help speed healing, and it is sometimes possible to re-apply these safely in a conscious badger.

Wounds should be cleaned with saline or dilute chlorhexidine.
Avoid excessive clipping of hair, as this can delay release.

GUNSHOT INJURIES

It is illegal to shoot badgers (except under Defra license). It is unlikely that badgers with gunshot injuries will survive. There is the added complication that it may be considered unethical to release animals back into areas where shooting (especially licensed shooting) is taking place. Members of wildlife groups may ask veterinary surgeons to complete recording forms for gunshot injuries; such investigative procedures should always be secondary to clinical care. Reporting forms are available at www.secretworld.org. Incidents should be reported on Badger Trust's website Crime Report Form or via the Badger Watch App.

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Image: Terrier injuries © SWWR

BAITING

Badger baiting involves badgers being dug out of their setts and having dogs set upon them. Baiting is illegal under the Protection of Badgers Act, 1992 and other UK animal welfare legislation. The welfare of dogs involved is also often seriously compromised.

Badgers presented following dog attacks will have generalised bite wounds, typically including bites to the head and limbs. Other injuries, such as fractures, may also be present. These wounds are very different from those sustained from fights with other badgers and require much more intensive treatment, where possible. This could include fluid therapy, analgesics and antibiotics.

Badger baiting must be reported to the police.

SNARES

Badgers may be illegally snared or become caught up in legal snares set for other species. Animals must never be immediately released from the snare; they must be caught to be properly examined.

Snares should be removed under general anaesthesia, and the badger fully examined for other injuries. Snare wounds may be sutured but are prone to dehiscence as a result of ischaemic necrosis. Badgers should be kept in captivity for at least a week post-snaring to ensure wounds have healed fully.

Image: Snared Badger © SWWR

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Image: Fractured jaw © SWWR

REASONS FOR IMMEDIATE EUTHANASIA

The nature of wildlife casualty work means that only around one-third of adult animals will be suitable for release. Where badgers have evidence of injuries or chronic disease, making their return to the wild unlikely, then euthanasia at the first available opportunity is the preferred course of action in order to avoid unnecessary protracted periods in captivity. The RCVS has made it clear that such decision-making is the responsibility of the attending veterinary surgeon (RCVS 2020), however, experienced wildlife rehabilitators and badger carers will be able to offer useful advice, as well as being able to provide or find ongoing care prior to release of the badger if this is possible.

EUTHANASIA

In order to be returned to the wild the animal must be able to function normally for that species.
In the case of adult badgers the following conditions would suggest that immediate euthanasia is required:

Fractures are not usually treated in adult badgers because of the protracted periods of time these cases must spend in captivity, together with the need to ideally remove implants prior to release. In badger cubs, fractures may be repaired, provided good quality care can be obtained, as cubs spend several months in captivity during the rearing process, and there is ample time for fracture healing. Euthanasia is easily carried out using intravenous pentobarbital.

- Emaciation as a result of chronic disease or advanced dental disease; often these animals also have multiple bite wounds.
- Spinal fracture, dislocation or other abnormality.
- Pelvic or long-bone fractures requiring internal fixation and/or protracted periods (> 12 weeks) in captivity.
- Pelvic fractures likely to result in dystocia in a female animal.
- Skull fractures.
- Clinical signs consistent with *M. bovis* infection.
- Blindness and/or bilateral ocular disease.
- Evidence of chronic neurological or behavioural problems.

Image: Badger cub fracture fixation © SWWR

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Image: Badgers in rehabilitation enclosure © SWWR

SUBSEQUENT CARE & REHABILITATION

Veterinary practices are not suitable places for any wildlife species to be kept for protracted periods of time. Once they have received veterinary attention, casualties should be moved as soon as is practical to a wildlife rescue centre with suitable rehabilitation facilities and experience in dealing with badgers. For assistance with this, please contact your local Badger Group. A full list of affiliated Badger Groups is available at: https://www.badgertrust.org.uk/you

FUNDING FOR TREATMENT

As most badger casualties are >1kg body weight, they are eligible for Initial Emergency Treatment (IET) contributions from the RSPCA, provided 'prior knowledge' and 'authorisation' have been obtained (BVA 2023).
The RCVS Codes of Conduct for veterinary surgeons mean that there is a professional responsibility to provide 24-hour emergency first aid and pain relief to these animals regardless of cost (RCVS 2023a).

Image: Anaesthetised badger with prepped snare wound prior to debridement and suturing © SWWR

BADGER TRUST

Badger Trust exists to promote and enhance the welfare, conservation and protection of badgers, their setts, and their habitats and is the leading voice for badgers in England and Wales, with a network of around 50 local voluntary badger groups.

www.badgertrust.org.uk
Please get in touch with Badger Trust for any further information.

REFERENCES & FURTHER READING

- **British Veterinary Association (BVA) 2023.** BVA Guide to RSPCA contributions towards initial emergency treatment (IET) https://www.bva.co.uk/resources-support/practice-management/rspca-payments-for-initial-emergency-treatment-iet-guide/ [Accessed August 2023, full access BVA members]
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- **Royal College of Veterinary Surgeons (RCVS) 2023.** A RCVS Code of Professional Conduct, Supporting Guidance, 24-hour emergency first aid and pain relief. https://www.rcvs.org.uk/setting-standards/advice-and-guidance/code-of-professional-conduct-for-veterinary-surgeons/supporting-guidance/24-hour-emergency-first-aid-and-pain-relief/ [Accessed Oct 2023]
- **Royal College of Veterinary Surgeons (RCVS) 2023.** 'Under care' - new guidance https://www.rcvs.org.uk/setting-standards/advice-and-guidance/under-care-new-guidance/ [Accessed Oct 2023]

Badger Trust, Citibase, 95 Ditchling Road, Brighton, BN1 4ST

Tel: 01237 033440 | **Email:** staff@badgertrust.org.uk | **www.badgertrust.org.uk**