



## Supplement to Good Practice Guidelines for Bat Rehabilitators: Managing Disease Risk

This document is aimed at bat carers and is a supplement to the Bat Conservation Trust 'Good Practice Guidelines on Bats and Rabies' available from the BCT website on the [Rabies page](#) and the [Resources for Bat Groups page](#).

The aim of this document is to provide some additional advice for bat carers to manage disease risks associated with bats. Within the UK the only known zoonotic disease associated with bats is rabies caused by infection with a type of European Bat Lyssavirus. This advice sheet is therefore focused on rabies but the advice provided is applicable to managing disease risks more generally.

There are two strains of European Bat Lyssavirus, EBLV-1 and EBLV-2, both of which have been confirmed as being present in the UK. EBLV should not be confused with classical rabies which is usually associated with feral dogs, foxes and other terrestrial animals. The classical rabies virus has never been recorded in a native European bat species.

This document provides specific advice for situations in which a bat is exhibiting abnormal behaviour. This behaviour could be a result of a variety of reasons however one of these is rabies and as such these cases need to be investigated by APHA. This document sets out precautionary measures to be followed whilst these cases are being investigated, and the possibility of rabies is being considered.

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## 1. Introduction

The main route of transmission of the rabies virus is via the saliva of an infected animal by a bite or scratch, or from its saliva coming into contact with a person's mucous membranes (eyes, mouth or nose). Other contact, such as contact with the blood, urine or faeces of a rabid animal, does not constitute an exposure ([CDC, 2016](#)).

The rabies virus is reliant on its host and cannot survive for very long outside of the host's body. This means that the virus becomes non-infectious when it dries out and when it is exposed to sunlight. Different environmental conditions affect the rate at which the virus becomes inactive, but in general, if the material containing the virus is dry, the virus can be considered non-infectious. ([CDC, 2016](#))

There is only a risk if humans come into direct contact with bats. Since bats are not normally aggressive and will avoid humans where possible, contact is only likely if a person chooses to handle a grounded bat. Because bat rehabilitators must handle bats as part of their work, they are at higher risk than the general public and must take additional precautions. As per the Good Practice Guidelines on Bats and Rabies all bat rehabilitators:

- I. Should be vaccinated against rabies. Vaccinations are available free of charge to volunteers (inc. bat rehabilitators) who regularly handle bats (provide that is only in a voluntary capacity). For further information on who is entitled to free vaccinations and how to obtain them please see the [BCT website](#).
- II. Wear protective gloves when handling bats, even if you have received rabies vaccinations. It may be possible for experienced bat workers to use a towel or cloth, as explained on the BCT factsheet 'Wearing Gloves when you handle bats' available from the [BCT website](#). (See Appendix A for details of safe removal of gloves.)
- III. Keep **all** bats in rehabilitation separated from other individuals in your care (unless they are known to be from the same roost), although they can be kept in the same room. This is because of the risk of between-bat transmission of EBLV (the soprano pipistrelle positive for a lyssavirus was likely the result of a spill-over from another co-roosting species).
- IV. Keep Daubenton's bats and serotines in separate cages, with separate gloves and equipment used for that individual only.
- V. As a standard precaution any food waste or droppings from Daubenton's bats and serotines in care can be sprayed with a disinfectant before being discarded (see 3.IV below).

- VI. Follow good hygiene practices and wash hands (see Appendix B for details of good hand washing techniques) after undertaking any bat care related activities.

## 2. Suspect Bats

Rabies is a notifiable disease under the Animal Health Act. If a bat in your care develops symptoms or behaviour that leads you to suspect rabies then you have a legal duty to inform the relevant Government Agency without delay. Contact details are as follows:

- In **England** call Defra Rural Services Helpline on 03000 200 301 and follow the phone menu through to APHA.
- In **Scotland** call the relevant local APHA Field Office, you can find contact details: <https://www.gov.uk/government/organisations/animal-and-plant-health-agency/about/access-and-opening#scotland-field-service-offices>
- In **Wales** contact APHA Wales on 0300 303 8268.
- In **Northern Ireland** Contact Damian McFerran or Michael McCourt at the Ulster Museum 028 9039 5264; or Declan Looney Department of Environment (Northern Ireland) 028 905 69602 / [Declan.Looney@doeni.gov.uk](mailto:Declan.Looney@doeni.gov.uk) (please contact Damian or Michael first of all).

## 3. Care of Suspect Bats

The following additional precautions should be followed if you have been caring for a bat (of any species) which subsequently develops behaviour that is abnormal for the circumstances and becomes a “suspect bat”. Whilst this situation could be rabies related there are also other reasons why a bat might be exhibiting abnormal symptoms (see section 5. below for more information about bats behaving abnormally). As such the situation needs to be investigated straight away with APHA (or the relevant Agency – see contact list under section 2. above). Whilst this is taking place the following precautions must be taken:

**I. The bat should be kept in a separate room from all other bats in your care**

As stated above, it is good practice when caring for bats that all animals suitable for eventual release should be kept isolated from other individuals (unless they are from the same known roost). Suspect bats should be completely isolated from any other bats in your care, not only in separate enclosures but in a separate room.

The bat will need to remain in that room whilst the possibility of rabies is being investigated. The room should not be accessible to household pets.

**II. All equipment should be kept in the room with the bat**

Any equipment that has been used on suspect bats should be kept separate in the room with the bat; this includes gloves, food and water containers, tweezers and any other equipment that has come into contact with the bat.

**III. Gloves should always be worn when handling any bat**

All handling of suspect bats must be kept to an absolute minimum until the bat has been examined by APHA and a decision made that rabies is not suspected. Where handling of the bat is required during this period, one pair of gloves should be kept

in the room with the suspect bat for re-use. Disposable gloves can be worn over the top of normal bat handling gloves and then disposed of after use (see Appendix A for details of safe removal of gloves). Any gloves that have been used on handling a suspect bat must be thoroughly washed and disinfected before use with other bats—see below.

#### **IV. Washing and Disinfecting Equipment, Surfaces, etc.**

Food pots and feeding equipment (tweezers, brushes, etc.) can be washed in hot water after use. A plastic washing up bowl can be brought into the room with the suspect bat and disinfected after use (see below for suggestions about disinfectant).

Disinfectant can be used to spray or wipe any surfaces in contact with the bat or equipment used for the bat as required - e.g. door handles, washing machines doors, etc. For easy application, we suggest decanting 'ready to use' disinfectant into a trigger spray container, such as those available from hardware stores (check usage instructions on the product you have purchased). For example

[www.arco.co.uk/products/5634489](http://www.arco.co.uk/products/5634489) – cost £2.29 (excl. VAT; March 2019 price).

Gloves, cloths, clothing, etc. can be surface soaked with disinfectant and then washed with detergent at 40°C and dried. For flight cages and cloths that are unable to be machine washed, these can be soaked in disinfectant and then washed in warm soapy water.

Bleach diluted 1-part bleach to 30 parts water can be used to prevent disease transmission. Iodine based disinfectants or general-purpose quaternary ammonium compound disinfectants can also be used for surfaces. Keep on surface for 10 minutes, then rinse and use a cloth or air dry. Veterinarians are known to use Virkon (DuPont) disinfectant for notifiable disease control, which is available from various suppliers including online from [www.animalmedicationdirect.co.uk/virkon-s-1kg-5kg-10kg-50x-50g-sachets-pr-6022.html](http://www.animalmedicationdirect.co.uk/virkon-s-1kg-5kg-10kg-50x-50g-sachets-pr-6022.html). It is made up with water and can be kept in a bottle for several days, but it must be thrown out when the pink colour fades, as it will no longer work.

Alternatively, Miltons sterilising fluid (used for baby bottles) or any disinfectant listed under “general orders” on the following link, is suitable

[http://disinfectants.defra.gov.uk/DisinfectantsExternal/Default.aspx?Module=ApprovalsList\\_Sl](http://disinfectants.defra.gov.uk/DisinfectantsExternal/Default.aspx?Module=ApprovalsList_Sl). Household bleach (any strength) is also sufficient.

Please note that any equipment that has been disinfected should be rinsed and dried thoroughly. Direct contact with disinfectant products can be harmful to bats.

#### **V. Cleaning Exposed Skin**

Clean exposed skin (arms, face, neck, hands, etc.) with a hand sanitizer before leaving the room you have the suspect bat in. You can, alternatively, wash your skin thoroughly with soap and water. See Appendix B for details of good hand washing techniques.

#### **VI. Waste Food and Droppings**

Usually soaking the material in an approved disinfectant, then wrapping it in an absorbent material such as tissue before double bagging for disposal would suffice. Further advice should be sought from the APHA vet attending the suspect case.

## 4. Disposal of Suspect Bats

Any bat suspected of rabies that dies in your care should be tested by APHA's rabies surveillance programme. Please liaise with APHA immediately to arrange for the bat to be collected and sent to APHA's laboratories (this is different to the standard passive surveillance programme testing which any dead bats are sent to, please do not submit suspect bats through the passive surveillance programme, although we do encourage you to submit all other dead bats to the scheme see: <https://www.bats.org.uk/about-bats/bats-and-disease/bats-and-disease-in-the-uk/animal-plant-health-agency-passive-surveillance-programme/>).

## 5. Considerations for Bats Behaving Abnormally

There have only been a small number of EBLV-positive cases in bats in the UK. We therefore have very limited examples of the behaviour that EBLV-positive bats have been observed to exhibit (and these have all been Daubenton's bats with rabies caused by EBLV2 infection, although we have confirmed cases of EBLV-1 from serotines and a soprano pipistrelle tested positive for a lyssavirus but the specific type could not be confirmed). On their own many of these symptoms may also be observed in bats with other injuries or ailments. It is therefore important to consider the full picture, observe the bat carefully and take precautions (as described above) whilst assessing the bat in your care.

Described below are some of the behaviours observed in EBLV positive bats and information about other ailments or injuries that should also be considered should the bat in your care exhibit these symptoms.

### I. Aggression and incoordination

As the disease becomes more advanced many of the bats have shown aggressive agitation or incoordination.

- *Bear in mind that some species, like whiskered and Brandt's bats are often more aggressive when they come into care, and that that males in breeding condition can also be more vocal and aggressive.*
- *Incoordination can also be a sign of poor nutrition, particularly in pups that are semi starved and not being fed often enough or are weaned too early.*
- *Always ask advice of more experienced carers if you are not sure of species, if it's a species you have not come across before or if you have not cared for undernourished or young bats before.*

### II. Flying during the day

In one case a bat with the virus had been seen flying during the day.

- *Bats may fly in the day because they are hungry or thirsty. Bats have been seen in early spring feeding during the day when insects are available, but nights are still cold.*
- *Bats have also been seen leaving a roost when daytime temperatures are very high.*

- *In captivity bats will fly in the daytime either for food or drink, and also to change roosts, usually in hot weather. However, bats that are active in the day obviously have a need which may be hunger or thirst but illness may also be the cause.*

### **III. Not eating or grooming**

At later stages bats have been observed roosting in the open and not eating or grooming.

- *Roosting in the open is a sign that a bat is unwell. In captive groups of bats individuals leaving the roost and roosting alone in the open are often close to death. Dying away from the colony could be a natural strategy to prevent infection in the roost.*
- *Bats that come into care that are reluctant to eat sometimes have serious internal injuries that may not be apparent. Others will refuse food for a couple of days (because they are wary) until they become very hungry, then will eat readily. Seriously dehydrated bats will not be able to eat until fluid is replaced. The bat should also be checked for damage to the mouth.*
- *Bats usually groom when they are confident that they are safe to avoid being vulnerable to predation. They may not groom while being watched. Some physical injuries will prevent a bat grooming properly, but a sick bat will not necessarily have the energy resources to groom.*

It is however important to remember that any bat could potentially have the virus and that a bat may still be behaving normally while infected. It is therefore recommended that best practice as per these guidelines is followed.

There is currently no definitive list of symptoms - **Correct identification, careful observation of all behaviour, and elimination of the obvious possible causes of different behaviour are essential. Always consult an experienced carer if you are in doubt.**

## Appendix A – How to Remove Gloves to Avoid Contamination

Source: <https://www.cdc.gov/vhf/ebola/pdf/poster-how-to-remove-gloves.pdf>

# How to Remove Gloves

To protect yourself, use the following steps to take off gloves



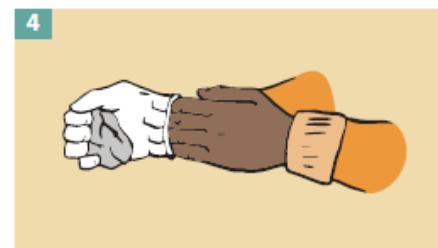
With both hands gloved, grasp the outside of one glove at the top of your wrist, being careful not to touch your bare skin.



Peel off this first glove, peeling away from your body and from wrist to fingertips, turning the glove inside out.



Hold the glove you just removed in your gloved hand.



With your ungloved hand, peel off the second glove by inserting your fingers inside the glove at the top of your wrist.



Turn the second glove inside out while tilting it away from your body, leaving the first glove inside the second.



Dispose of the gloves safely. Do not reuse the gloves.



Clean your hands immediately after removing gloves and before touching any objects or surfaces.



## Appendix B – Good Hand Washing Technique

Source: <http://www.hse.gov.uk/skin/posters/skinwashing.pdf>

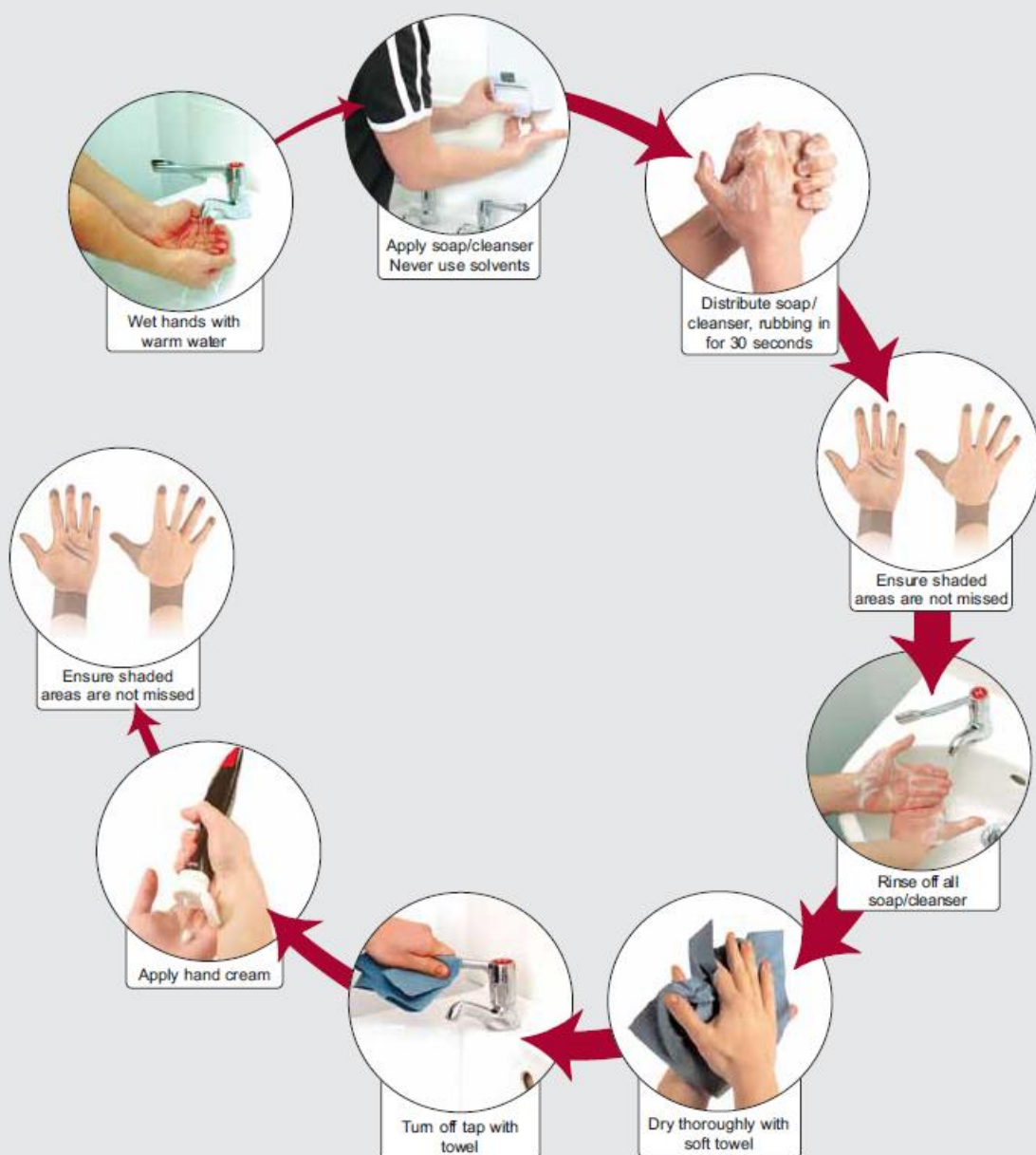


Health and Safety  
Executive

### Skin care

#### Hand washing and applying hand cream

Follow the steps shown



www.hse.gov.uk

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