

Rabies: guidance on pre-exposure and post-exposure measures for humans in Scotland

SHPN easy-read guide

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Overview

This Scottish Health Protection Network (SHPN) easy-read guide is a supporting resource to the SHPN Rabies: guidance on pre-exposure and post-exposure measures for humans in Scotland.

This guide highlights key information that may be useful to health protection professionals when approached for advice on rabies. The full SHPN guidance should be used in the management of all cases.

The guidance was developed in line with the agreed SHPN good practice guidance method by a Guidance Development Group (GDG).

Intended audience

The guidance is for health protection professionals only.

Other people who require advice should contact their local health protection team.

What the guidance covers

The guidance covers:

- background information on rabies virus
- pre-exposure measures
- post-exposure measures
- imported pets
- roles and responsibilities
- key contact details

Background information

Rabies is caused by one of 14 lyssaviruses which includes rabies virus.

Almost all cases occur in Africa or Asia with Europe contributing less than 1% of all recorded infections. The only recorded death in the last 100 years of UK-acquired rabies occurred in a bat worker in Scotland in 2002.

The disease is almost certainly fatal in those infected who have not received pre-exposure prophylaxis (PrEP) or post-exposure treatment (PET).

Transmission

Transmission of the virus usually occurs following a bite or scratch from an infected animal. Less often, it can be transmitted through an open wound or mucous membrane – for example, mouth, nasal cavity or eyes.

The virus will not pass through intact skin.

Rabies has also been contracted by inhalation – in laboratories where highly concentrated Lyssavirus is being studied or in caves where high densities of rabies-infected bats exist.

Such circumstances do not typically exist in the UK.

Incubation period

The incubation period is highly variable ranging from a few days to as long as a few years.

Treatment arrangements: pre and post-exposure

The Chief Medical Officer (CMO) letter, SGHD/CMO(2023)10 outlines arrangements in Scotland for rabies:

- assessment
- antibody testing
- vaccination
- treatment

This includes vaccination payment information.

Rabies vaccine used as part of post-exposure treatment (PET) is provided free of charge to the patient.

NHS boards should:

- ensure there are arrangements for assessment and provision of pre-exposure prophylaxis (PrEP) to persons at risk who have no employer – this includes travellers (who can be charged) and volunteer bat workers who should receive PrEP free of charge
- have a clear pathway in place in order to access post-exposure assessment and vaccination, as well as any post-exposure care and testing that may be required.

Pre-exposure measures

The recommendation for pre-exposure prophylaxis (PrEP) should be arrived at after a risk assessment considering the individual's occupation or activities.

The purpose of pre-exposure rabies vaccination is to **reduce** the:

- risk of developing rabies
- need for the number of doses of vaccine and/or administration of human rabies immune globulin (HRIG) post-exposure where required

Any individual at risk for rabies – whether they have received vaccination or not – must be advised that they carry out immediate first aid and promptly seek assessment or advice on PET if they:

- are scratched, bitten or licked by any animal abroad
- suspect a bat exposure in the UK or abroad

Who is PrEP indicated for?

PrEP is indicated for those with occupations (voluntary or paid) that involve frequent exposure to the rabies virus or potentially infected animals.

This includes:

- laboratory workers who routinely handle rabies virus
- workers at Department for Environment, Food and Rural Affairs (DEFRA)
- authorised quarantine premises and carriers
- those who regularly handle bats, including on a voluntary basis, in the UK
- veterinary and technical staff who, by reason of their employment, encounter enhanced risk
- certain inspectors appointed under the Animal Health Act.1981 (but not dog wardens for whom the risk of exposure is low and for whom the rapid PrEP schedule would be more appropriate where required) – see section 3.1.4 of the SHPN guidance
- occupations which may result in **continual** or **frequent** exposure – for example:
 - animal control and wildlife workers
 - veterinary staff or zoologists who regularly work in rabies enzootic areas

PrEP should also be considered for some people travelling to some areas outside of the UK.

Up-to-date advice is available for health professionals from TRAVAX and the general public from fitfortravel.

PrEP is not indicated for those not described above.

Summary of Rabies PrEP recommendations

Table 1: Summary of Rabies PrEP recommendations

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| Category | Information and instruction |
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| Type | <p>Currently, there is only one rabies vaccine licensed for use in the UK.</p> <p>It is for intramuscular injection administration only.</p> <p>Rabipur: inactivated virus grown on purified chick embryo cells</p> |
| Immunogenicity | There have been no deaths from rabies in pre-immunised individuals who received appropriate post-exposure care |
| Age | From birth |
| Dosage | 1ml containing not less than 2.5IU after reconstitution |
| Route | Intramuscular injection (into deltoid or anterolateral thigh if infant) |
| Schedule | <p>3 doses:</p> <ul style="list-style-type: none"> • Day 0 • plus 7 days • plus 28 days <p>If there are time constraints give third dose at plus 21 days.</p> <p>An accelerated schedule can also be used on days 0, 3 and 7 where there are time constraints – with a fourth dose at 1 year</p> |
| Boosters | <p>For those at continual exposure</p> <p>Antibody titre checked after primary course and, where considered protective, thereafter every six months and boost when titre falls below acceptable level according to laboratory policy.</p> <p>For further recommendations for laboratory workers see the UKHSA guidelines on timing of rabies boosters based on antibody levels.</p> <p>For those with frequent exposure</p> <p>A single booster after 12 months, then consider booster every 3 to 5 years or antibody titre checked every three years and boost if it falls below 0.5 IU/ml.</p> <p>For those at infrequent exposure</p> <p>Routine boosting and antibody checking is not recommended, however boosting with a single dose of vaccine can be considered following a risk assessment in those who have completed a primary course over one year ago, are travelling again and are considered to be at high risk.</p> <p>A primary course is considered to be 3 doses over 21 to 28 days or an accelerated 3 dose schedule over 7 days with a fourth dose at 1 year.</p> <p>Note that advice on post-exposure treatment (PET) (including two top up boosters of vaccine as soon as possible after exposure) should be given to all travellers.</p> |
| Special instructions | <p>For use in pregnancy or breast feeding refer to individual summary of product characteristics (SmPC).</p> <p>Refer to the Green Book for information regarding vaccination in immunosuppression.</p> |

| Category | Information and instruction |
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| Adverse reactions | <p>Very common and common adverse reactions are:</p> <ul style="list-style-type: none"> • injection site reactions • lymphadenopathy • decreased appetite • headache, dizziness • gastrointestinal upset • rash • urticaria • myalgia • arthralgia • malaise • fatigue • fever • asthenia <p>For rare and very rare reactions including anaphylactic reactions and comments on paediatric population see SmPC.</p> |
| Contraindications | <p>Hypersensitivity to preceding dose.</p> <p>Caution in egg allergy with Rabipur only, see SmPC.</p> <p>There are no contraindications for rabies vaccine or HRIG when giving PET.</p> <p>See section 5.5 of the SHPN guidance for consideration of egg allergy when administering PET.</p> |
| For non-immunised staff carrying out animal control where there is a UK outbreak | <p>The accelerated schedule is recommended for those providing disease control measures during a UK outbreak, for example, local authority staff involved in controlling or seizing domestic and/or stray animals.</p> <p>If non-immunised then staff can begin control measures after day 0 dose. Where staff receive a three-dose rapid schedule then a booster at 1 year completes the primary course</p> |

Post-exposure measures

Potential rabies prone exposures (PRPE) occur when there is contact between a person and potential rabies-infected mammal that could result in transmission, for example a bite or scratch from a bat.

Immediate actions

For all PRPEs:

- advise immediate wound care
- undertake risk assessment

Wound care for post-exposure management involves:

- cleaning the wound with soap or detergent
- flushing with running water
- applying a virucidal agent – for example, povidone-iodine solution or 40–70% alcohol
- covering with a dressing

Wound washing is the most effective first-aid treatment against rabies.

Refer to section 5.4 of the SHPN guidance for full details.

Risk assessment

Further public health actions are determined through risk assessment based on the:

- category of exposure, for example, a bite (see Table 2 of the SHPN guidance)
- country where the exposure occurred, for example, the UK/Ireland or overseas
- animal involved, such as a bat or a dog
- patient's vaccination status (see Table 4 of the SHPN guidance)

For up-to-date information on country and animal risk, view the UKHSA rabies risks in terrestrial animals by country.

Who performs the risk assessment?

Unless the health professional providing immediate care to the exposed person is confident about being able to perform a full, expert risk assessment, then the person should be referred to their local pathway for risk assessment.

Contact details to access risk assessment and management in Scotland are available in the key contact details section of this guide and in Appendix 3 of the SHPN guidance.

People who are outside of Scotland

If a person seeks help from Scotland from abroad, they should be advised to make their way to a local medical facility for assessment without delay.

Access to assessment and treatment is variable by country.

In some circumstances travel to another country or even returning home may be necessary for treatment.

Post-exposure treatment (PET)

Post-exposure rabies treatment is usually given in infectious disease (ID) units where healthcare practitioners:

- have experience in assessing risk
- know how and where to access human rabies immune globulin (HRIG) and rabies vaccine
- know how to administer treatment

Since PET should be instituted as soon as possible after a PRPE, if delay is likely then patients should be referred to the local ID physician for immediate management.

Key contact details

PET assessment and management in Scotland

To access pre-exposure treatment use the appropriate contact details.

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| Aberdeen Royal Infirmary, Aberdeen | 03454 566 000 Ask for the on-call infectious diseases consultant. |
| University Hospital Crosshouse, Ayr | 01563 521 133 Ask for the on-call infection specialist. |
| Dumfries and Galloway Royal Infirmary | 01387 246 246 Ask for the on-call infection specialist. |
| Forth Valley Royal Hospital, Larbert | 01324 566 000 Ask for the on-call infectious diseases consultant. |
| Queen Elizabeth University | 0141 201 1100 |

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| Hospital, Glasgow | Ask for the on-call infectious diseases consultant. |
| Raigmore Hospital, Inverness | 01463 704 000 Ask for the on-call infection specialist. |
| University Hospital Monklands, Lanarkshire | 01236 748 748 Ask for the on-call infection specialist. |
| Ninewells Hospital, Dundee | 01382 660 111 Ask for the on-call infectious diseases consultant. |
| Victoria Hospital, Kirkcaldy, Fife | 01592 643 355 Ask for the on-call public health team. |
| Western General Hospital, Edinburgh | 0131 537 1000 Ask for the on-call infectious diseases consultant. |

Health Protection Teams

Access up-to-date contact information for local HPTs.

Additional relevant contacts

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| Bat Conservation Trust (BCT) helpline | 0345 1300 228 |
| Scottish Government – public health on-call | 07824 087 787 |
| Nature Scot | 01463 725 000 |
| PHS switchboard | 0141 300 1100 |
| PHS Travel and International Health team | 0141 300 1137 |

View the guidance

The guidance should be used together with our easy-read guide.

Rabies: guidance on pre-exposure and post-exposure measures for humans in Scotland - version 2.1 

Last updated: 21 March 2024

Version history

04 September 2023 - Version 2.1

Contraindication advice for Rabipur aligned to Green Book chapter on rabies.

31 July 2023 - Version 2

Guidance updated in light of new evidence and expert consensus.

This includes:

- changes to the Pets Travel Scheme
- new table on pre-exposure prophylaxis for travellers
- a new post exposure category of partially immune (those who have received vaccine in the past but not a proper course, or they have had a poor response to vaccine) and changes to management algorithms as a result of this new category
- changes to arrangements for supply of Human Rabies Immune Globulin (HRIG)
- minor change to terminology in the table referring to supply of HRIG
- new link to the updated Green Book Chapter on Rabies

Incorporated comments from consultations in 2019 and 2022.

Updated all mentions of HPS to PHS.

Updated all mentions of PHE to UKHSA.

Moved to new SHPN template.

01 July 2013 - Version 1.1

Guidance updated in light of new evidence and expert consensus.

Updates included:

- changes to the Pets Travel Scheme
- new table on pre-exposure prophylaxis for travellers
- changes to arrangements for supply of Human Rabies Immune Globulin (HRIG)
- new link to the updated Green Book Chapter on Rabies

01 December 2010 - Version 1

Original guidance document published.

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