



**HPA guidelines on managing
rabies post-exposure prophylaxis
January 2013**

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A. Introduction

Rabies is an acute viral encephalomyelitis caused by several members of the Rhabdoviridae family. It transmits through infected saliva via bites or scratches from rabid animals (in particular dogs). It is almost invariably fatal once symptoms develop.

Rabies still poses a significant public health problem in many countries in Asia and Africa where 95% of human deaths occur. Post-exposure prophylaxis (PEP) using rabies vaccine with or without rabies immunoglobulin (HRIG) is highly effective in preventing disease if given correctly & promptly after exposure.

The UK has been free of rabies in terrestrial animals since 1922. However, European Bat Lyssavirus 2 (EBLV2), a rabies-like virus, has been found in Daubenton's bats across the UK.

Further information, guidance and form are available on the rabies pages of the HPA website: <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Rabies/>

Purpose and Scope

This guidance provides a practical guide to undertaking risk assessment of potential rabies exposures and the correct use of PEP. It is aimed at duty doctors at HPS and MS Colindale, Health Protection Unit staff and other health professionals who may be involved in the assessment and management of potential rabies exposures. It also describes the logistics of issuing vaccines and immunoglobulins as appropriate, and the clinical governance aspects of the HPA Rabies Service.

Requests for pre exposure vaccine or advice on possible human rabies are outside the scope of this document and should be managed as follows:

- a possible case of clinical rabies - All calls should be referred to one of the VRD Consultants, MS Colindale. Additional information can be found on the HPA website
- vaccines prior to travel - refer caller to NaTHNAC (website: <https://www.nathnac.org>, or for complex queries, advice line 0845 602 6712)
- vaccines for those with occupational risk (see Green Book) – requests should be made in writing by e-mail or fax to VRD, MS Colindale (VRDrabies@HPA.org.uk or 0208 200 1569).

Individual risk assessment of potential rabies prone exposures should be undertaken as soon as possible, so that PEP can be initiated if required.

All risk assessments should be completed using the Rabies post-exposure form and either directly uploaded into HPZone, or e-mailed to the Rabies office by secure e-mail. (The form can be encrypted using the button on the form, and the password sent in a separate e-mail.

Devolved administrations

HPA/Department of Health does not supply rabies vaccines for Scotland or N Ireland (or Channel Islands). Requests from Scotland should be referred to the local infectious diseases consultant (see Green Book for details), and from Northern Ireland to the Regional Virology Service or Public Health Agency duty room (see Green Book for details: <http://immunisation.dh.gov.uk/green-book-chapters/chapter-27/>).


Requests for post-exposure prophylaxis for patients in Wales should be referred to the Duty Virologist, University Hospital of Wales, Cardiff.

B. Post Exposure Risk Assessment: does the person need PEP?

The following information is required to complete the risk assessment:

- Patient name, date of birth and address
- Date of exposure
- Species and current health status of animal involved
- Country of exposure
- Type of exposure
- Any previous rabies vaccinations

This should be recorded in the rabies post exposure form which can be found in HPZone and on the HPA website (<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Rabies/>).

HPA Rabies Service			
Request form for Rabies Post Exposure Prophylaxis			
HPZone no	Office Use ONLY		VRD No:
Date (DD/MM/YYYY):	dd/mm/yyyy	Time of call (hh:mm):	hh:mm
Caller details			
Source of call:		Phone number:	Phone number
Caller name:	Title Name	Alt number:	Phone number
Caller organisation:	Enter organisation	Post code:	Post code
Patient details			
Patient name:	Firstname Surname	Phone number:	Phone number
DOB:	dd/mm/yyyy NHS no:	Alt number:	Phone number
Patient address:	Enter patient's address Use Alt-Enter to get a new line		
	Post code		
Relevant medical history (eg immunosuppression, allergies)	Click here to enter text.		
Previous vaccination history:	Click here to enter text. Use Alt-Enter to get a new line		
Exposure details and Risk Assessment			
Date of exposure:	dd/mm/yyyy	Vaccination status:	Choose an item.
Country:	Choose from list	Country risk:	#N/A
Species of animal	Other	Species risk:	Other
Site of exposure (body part):	Enter site	Exposure risk :	Choose an item.
Additional information:			
Treatment recommendations (for HPA guidelines click here)			
Treatment based on risk assessment:	Choose an item.		
Treatment already given?	HRIG	No of vaccine doses	Type of vaccine? Choose from list
Dates and details of previous treatment:			
Further treatment			
Vaccine Required?		Vaccine should be given into alternate arms by intramuscular inoculation on days 0, 3, 7, 14 and 30	
No of doses			
If not d0 start UK schedule at:			
Immunoglobulin Required?	N/A	HRIG lot no:	Choose from list #N/A IU/mL
Weight of patient (kg):	kg	(HRIG potency: #N/A)	Vol = #N/A ml
Dose of Immunoglobulin	0 IU	Immunoglobulin to be given in a single dose of 20 IU per kg of body weight - if possible it should be given at the site of bite. Must not be given at the same site as vaccine	
Volume of Immunoglobulin	#N/A mL		
No of vials required:	#N/A		
How soon should treatment be started:	Choose from list		
	NB standard issue of vaccine and RIG is Monday-Thursday (before 3pm) for next day delivery		
Additional advice/information given:			
Duty Doctor performing risk assessment:	Enter name		
Audit			
VRD Consultant name		Signature:	Date:
GMC number	#N/A	Comment	

All enquiries should be recorded, even if vaccine and/or immunoglobulin are not issued.

B1. Patient details

Patient name:		Firstname	Surname	Phone number:	Phone number
DOB:	dd/mm/yyyy	NHS no:		Alt number:	Phone number
Patient address:		Enter patient's address Use Alt-Enter to get a new line			
		Post code			
Relevant medical history (eg immunosuppression, allergies)			Click here to enter text.		
Previous vaccination history:			Click here to enter text. Use Alt-Enter to get a new line		
Exposure details and Risk Assessment					
Date of exposure:	dd/mm/yyyy	Vaccination status:	Choose an item.		
Country:	Choose from list	Country risk:	#N/A		
Species of animal	Other	Species risk:	Other		
Site of exposure (body part):	Enter site	Exposure risk :	Choose an item.		
Additional information:					
Treatment recommendations (for HPA guidelines click here)					
Treatment based on risk assessment:		Choose an item			

Complete the patient details as indicated. The PEP form also acts as the prescription if vaccine or immunoglobulin is issued. For these cases the date of birth (4 digits for the year) and the patient's address must be completed.

B2. Relevant medical history

If rabies PEP is required there are no contra-indications (i.e. immunosuppression, pregnancy). However special precautions or follow up may be required and further advice should be sought from VRD.

B3. Date of exposure

Risk assessment should be undertaken as soon as possible following exposure, so that PEP, if required, can be started promptly. The incubation period for rabies is typically 1–3 months, but may vary from <1 week to >1 year. Due to the potentially long incubation period for rabies there is no time limit for giving PEP and all potential exposures should be risk assessed.

If the exposure is more than one year ago, HRIG is not indicated and specialist advice should be sought from VRD Colindale

B4. Has the person been previously vaccinated against rabies?

Immune status for rabies will be based on history of vaccination and whether the person is immunocompetent and will determine the PEP required. Immunity should be assessed as follows:

Non immune: Person who has never received pre- or post-exposure immunisation with rabies vaccine, or has had incomplete / inadequate primary vaccination course. If the person is immunosuppressed, treat as though non immune and consider testing antibody levels post vaccination.

Fully immunised: At least three documented doses IM (intramuscular) of rabies vaccine (either a complete primary pre-exposure course or as part of a five dose post exposure course) or documented rabies antibody (VNA) titres of at least 0.5 IU/ml. The last dose of vaccine or a booster should have been given within the last 10 years.

If the patient has recently completed a rabies post-exposure course of treatment (either 5 doses of vaccine, or 2 doses if previously fully immunised) within the last 6 months, no treatment is required for a more recent exposure.

B5. Which country? (No risk / low risk / high risk for terrestrial rabies)

Article 2.2.5.2. of the Terrestrial Animal Health Code (2007)

http://www.oie.int/eng/normes/Mcode/en_sommaire.htm describes a rabies free country.

A country may be considered free from rabies when:

1. the disease is notifiable;
2. an effective system of disease surveillance is in operation;
3. all regulatory measures for the prevention and control of rabies have been implemented including effective importation procedures;
4. no case of indigenously acquired rabies infection has been confirmed in man or any animal species during the past 2 years; however, this status would not be affected by the isolation of a bat lyssavirus such as European Bat Lyssavirus (EBL1 or EBL2);
5. no imported case in carnivores has been confirmed outside a quarantine station for the past 6 months.

The risk of rabies from terrestrial mammals according to geographical location (country, island and territory) is updated regularly, is incorporated into the Rabies PEP form and the most recent version can be found on the HPA website at:

http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1259152458758.

All countries should be considered as high risk countries for bat exposures, including the UK.

The UK is free of terrestrial rabies, and rabies PEP is not required for exposures apart from bats. Any domestic cat or dog that is imported into the country under the PETS scheme should not be considered to be a risk, provided that the paperwork is in order and the chip details match. If this is not the case, the animal needs to be risk-assessed by a vet. If the animal appears well it should be placed under observation for at least 15 days (see section B6), but there is no need to initiate treatment. However, if there is an indication that the animal is unwell or rabid expert advice should be obtained as soon as possible from VRD Colindale.

B6. Species of animal: was it a bat, primate, rodent or other terrestrial mammal?

All animals: All warm blooded animals and bats, including those that are apparently healthy, may pose a risk. **Even vaccinated animals need to be reviewed as transmission of rabies may still be possible.**

Domestic dogs and cats: The natural history of rabies in domestic dog and cats is that an animal shedding rabies virus through its saliva will be in the terminal phase of illness, and is unlikely to be behaving normally.

If the animal is observed and a remains well and behaves normally 15 days and beyond after an exposure it will not have rabies infection.

The decision whether to start post exposure prophylaxis during the 15 day period should be based on a full individual risk assessment of the circumstances of the incident, (including health and immunisation status of the animal, how well the animal can be observed). Generally this is only appropriate if it is a family pet, and the owners will promptly report any change in animal behaviour. If in doubt, seek advice from VRD Colindale

Rodents and monkeys: Rabies infected rodents and primates have been sporadically described in countries where rabies is endemic. Although the risk of transmission of rabies from a rodent or primate bite is extremely low, rodent and primate bites occurring in low or high risk countries should receive PEP with **vaccine only**.

Bats: Many species of bat, including bat species found in the UK, may carry rabies or rabies-related viruses, and may not exhibit signs of disease. Exposure to bats or their secretions may constitute an exposure to virus in countries which are declared rabies free in terrestrial animals. Therefore assessment of all potential bat exposures is required.

In the UK, bats are the ONLY reservoir of rabies related lyssavirus, but they are a protected species and cannot be destroyed to determine rabies status if caught.

B7. Nature of exposure?

The assessment of exposure needs to take into account the risk of **direct physical contact** with **saliva, neural tissue or other body fluids**. The assessment will be different for terrestrial mammals and bats.

Terrestrial mammals

Category	Terrestrial Mammal: Categories of exposure (Adapted from WHO)
I	Touching or stroking animals
II	Licks of the skin or other contact with saliva (e.g. feeding animals) Minor scratches, bruising or abrasions without bleeding Minor bites without breaking of the skin (covered areas of arms, trunk, and legs) All bites, licks and scratches from rodents and primates
III	Single or multiple transdermal bites or scratches, licks on broken skin Major bites (multiple or on face, head, finger or neck) Contamination of mucous membrane with saliva (i.e. licks)

Bats

Category	Bats: Categories of exposure (Adapted from WHO)
I	No physical contact: i.e. no direct physical contact with the bat's saliva or neural tissue, or if the person was protected by a barrier capable of preventing such contact, such as a boot, shoe, or appropriate protective clothing
II	Uncertain physical contact: (may be common with bat exposures): i.e. where there has been no observed direct physical contact but this could have occurred, a child found in a room with a bat, or in the UK a grounded or aggressive bat found in a room of a sleeping (or intoxicated) person*.
III	Direct physical contact with bat's saliva or neural tissue Single or multiple transdermal bites or scratches & bruising Minor bites without breaking of the skin (covered areas of arms, trunk, and legs) Major bites (multiple or on face, head, finger or neck) Contamination of mucous membrane with saliva or bat droppings/urine

*Most bats found in houses and attics in the UK are pipistrelles, which are not known to be infected with rabies-related viruses. Healthy bats avoid contact with humans therefore bats behaving normally (i.e flying into a room but not grounded or acting aggressively) do not constitute a risk.

For countries outside the UK, any bat found in the room of a sleeping or intoxicated person should be considered a category II exposure. In the USA 50% of human rabies with bat variant virus have resulted from unrecognised bat bites.

Most bat bites are felt, not seen. Bat bites *rarely* cause an obvious break in the skin, and are often felt rather than seen, but should still be considered a direct physical exposure (category III).

B8. Additional useful information

If the animal was a terrestrial mammal (wild or domestic):

- Is rabies known or suspected to be present in the species in the locality?
- Is there an owner known and contactable?
- Was the animal behaving normally at the time of the incident?
- Had it been immunised against rabies?
- If the animal was a dog or a cat did it become ill while under observation?
- If the animal has died, does laboratory examination of the animal's brain confirm rabies
- Is the animal non-indigenous or imported? If imported it is important to determine the risk of rabies (no risk / low risk / high risk) in both the country of potential exposure and the country of origin of the animal.

C. Treatment Recommendations

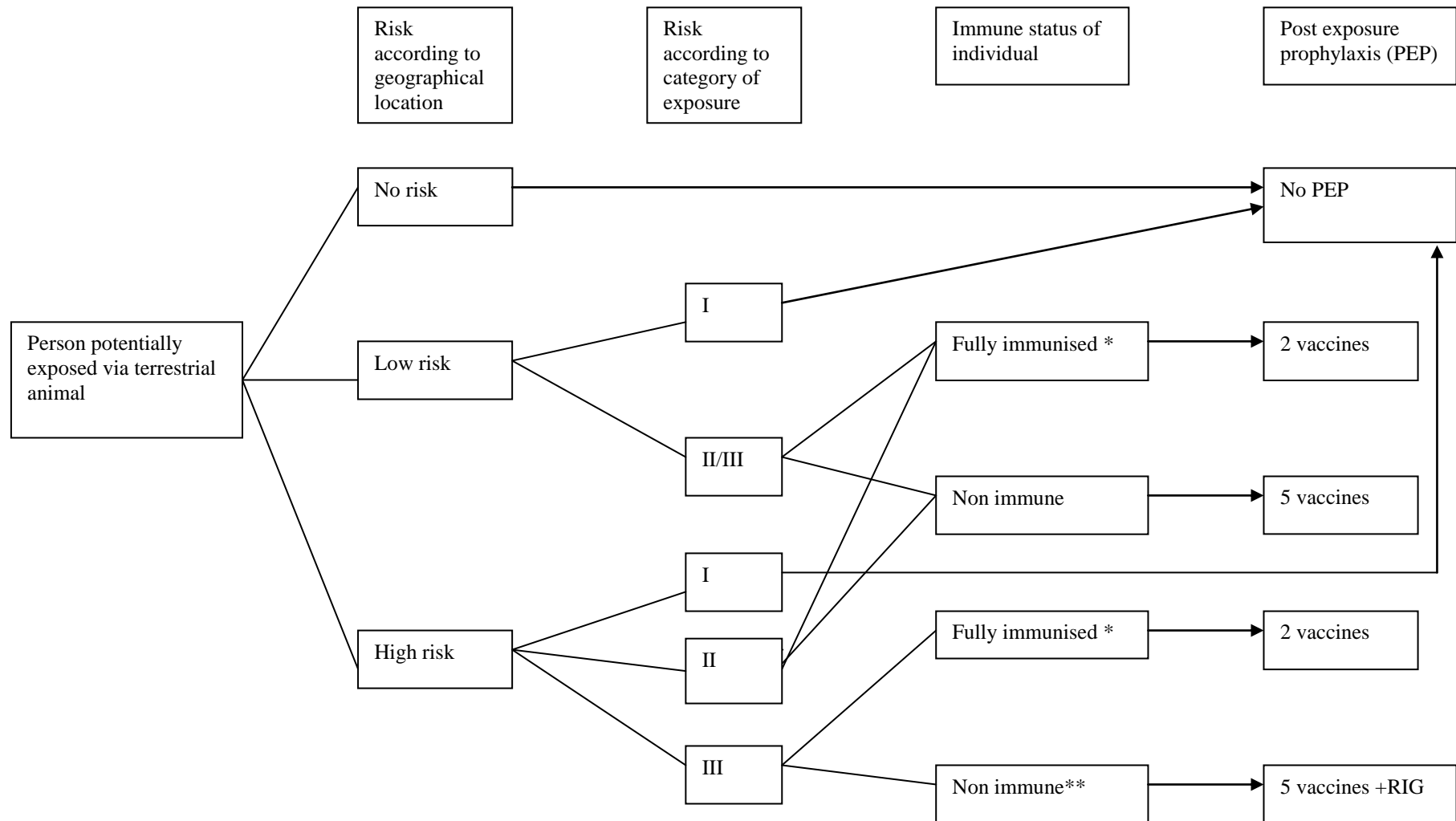
Treatment recommendations (for HPA guidelines click here)				C1 →
Treatment based on risk assessment:		Choose an item.		
C2 →	Treatment already given?	HRIG <input type="text"/>	No of vaccine doses <input type="text"/>	Type of vaccine? Choose from list
Dates and details of previous treatment:				
Further treatment				
C3 →	Vaccine Required?	<input type="text"/>	Vaccine should be given into alternate arms by intramuscular inoculation on days 0, 3, 7, 14 and 30	
	No of doses	<input type="text"/>		
	If not d0 start UK schedule at:	<input type="text"/>		
C4 →	Immunoglobulin Required?	<input type="text"/>	HRIG lot no: Choose from list	#N/A IU/mL
	Weight of patient (kg):	<input type="text"/> kg	(HRIG potency: #N/A)	Vol = #N/A ml
	Dose of Immunoglobulin	0 IU	Immunoglobulin to be given in a single dose of 20 IU per kg of body weight - if possible it should be given at the site of bite. Must not be given at the same site as vaccine	
	Volume of Immunoglobulin	#N/A mL		
	No of vials required:	#N/A		
	How soon should treatment be started:	Choose from list		C6 →
<i>NB standard issue of vaccine and RIG is Monday-Thursday (before 3pm) for next day delivery</i>				
Additional advice/information given:				

C1. Treatment based on risk assessment

A formal risk assessment based on the collected information should be performed; Recommended treatment will generally fall into four categories (see algorithms):

- No risk and therefore no treatment
- Vaccine and HRIG
- Vaccine only
- Observation of animal (domestic cats and dogs only) - see B6

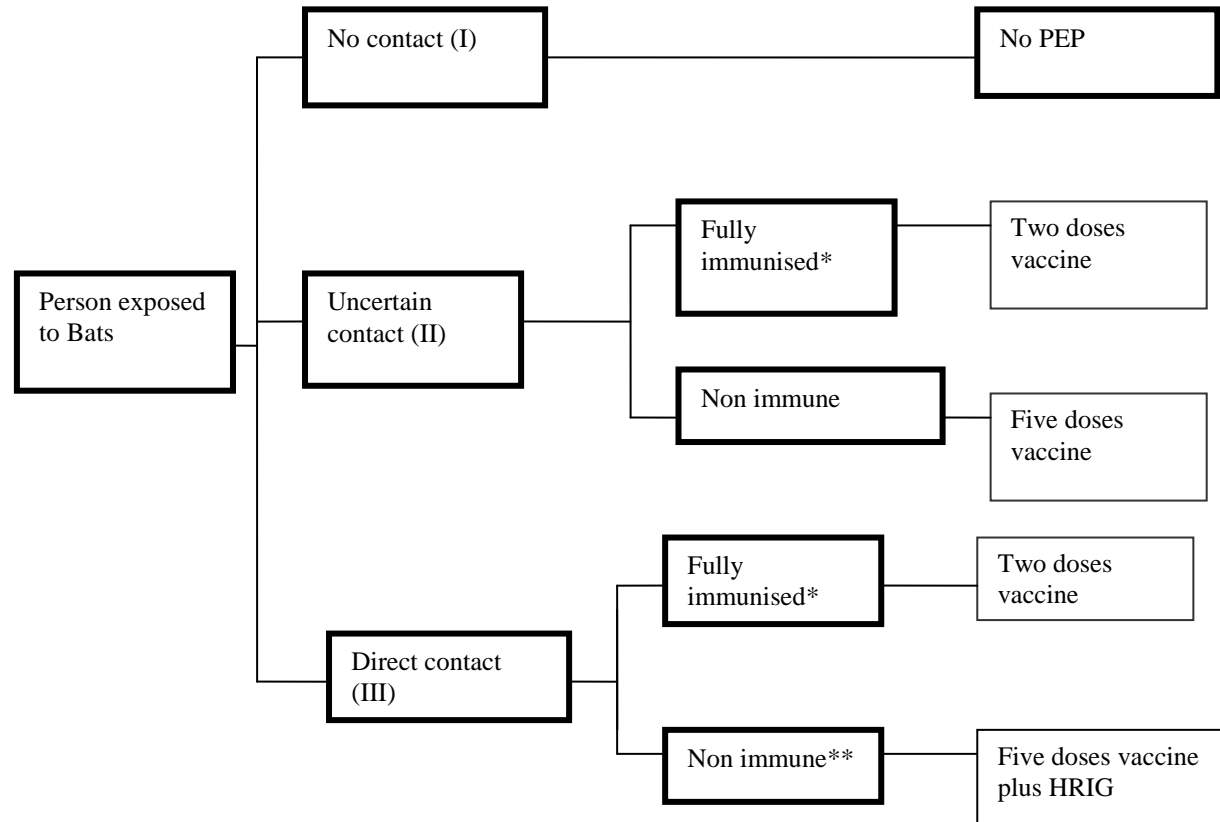
Summary of Risk Assessment Treatment following exposure to terrestrial animals



* in individuals whose last dose of vaccine was more than 10 years previously and there are particular risk factors (a known rabid animal or multiple severe bites to the head and neck) then specialist advice should be sought from VRD at Colindale.
 **HRIG should be omitted if the patient has received any rabies vaccine in the past 10 years, unless only within the last 7 days.

Summary of Risk Assessment for Treatment following Bat Exposure

NB All countries should be considered high risk for all bat species



* in individuals whose last dose of vaccine was more than 10 years previously and there are particular risk factors (a known rabid animal or multiple severe bites to the head and neck) then specialist advice should be sought from VRD at Colindale.

**HRIG should be omitted if the patient has received any rabies vaccine in the past 10 years, unless only within the last 7 days.

C2 What treatment has already been given?

If treatment has already been started try to find out details of what has been given, route of administration and timing. Consider whether:

- Treatment is appropriate to exposure.
- Which vaccine (type and name of vaccine) - is this compatible with vaccines given in the UK?
- What vaccine schedule and route has been used - is this compatible with the UK schedule?
- Has human rabies immunoglobulin (HRIG) been given - if not is this indicated and is there still time to give this?
- Finally - how soon does treatment need to be started? For most exposures treatment should be started within two working days, however for high risk exposures such as head and neck bites treatment should be started as soon as possible.

Global vaccines – compatibility with UK vaccines

Most vaccines used globally are now derived from primate or avian diploid cell culture and are compatible with the UK vaccines (see Table 1: Section F). However, a wide variety of different schedules are used, including multiple doses on the same day, and i.m. and i.d administration. Information including dates and route of administration should be collected when possible.

C3. Is Vaccine required?

The UK schedule is 5 vaccines at the following interval 0, 3, 7, 14, 28-30 days given by the im route.

Day 0 is the day of 1st vaccine NOT necessarily day of exposure.

Vaccine issuing centres, including Colindale, usually only hold one sort of vaccine (depending on availability), either HDCV, PCECV, or PVRV, which will be the only possible vaccine that can be issued. If an individual insists on a particular type of vaccine not held within the HPA supply, this will have to be sourced and paid for privately by that individual.

In England and Wales routine measurement of rabies antibody titres post-exposure is not offered for reasons of expense and practicality. If there is no clinical indication for testing the cost will need to be borne by the patient or requesting health facility. If an individual is insistent on this in the absence of clinical indications the cost is approximately £50 and they should contact AHVLA (Rabies Help Line Monday to Friday 9am to 5pm 01932 357345, or main number 01932 341111)

If a dose is missed, or timing has been compromised, the next vaccine should be considered as the missed dose, and subsequent intervals readjusted.

If a person is travelling with difficulty in achieving the specified interval for PEP, it is most important to deliver the first 3 vaccines with plus/minus one day.

In a patient who is fully immune at the time of exposure the UK schedule is 2 vaccines at 0 and 3-7 days.

Patients started on an alternative regimen

If type of vaccine compatible with UK schedule, then convert timing of doses to closest UK vaccine dose.

If two doses of vaccine have been given on the same day, consider this to be a single dose of vaccine.

If a dose is missed, or timing has been compromised, the next vaccine should be considered as the missed dose, and subsequent intervals readjusted.

In the UK we no longer give a d90 dose. If 5 doses of vaccine have been given according to the UK schedule then there is no need to give a dose at d90.

If a vaccine course has been started /completed with a vaccine NOT compatible with UK schedule, or by intradermal (id) route rather than im route, complete on UK schedule and then test antibodies, two weeks after completion.

The sample (10 ml clotted blood or serum sample) should be sent to VRD Colindale who will arrange the antibody testing, and then interpret the results. (Samples sent directly to AHVLA Weybridge will be charged directly to the sender, and the results will not be available for interpretation). Details of how to package the sample can be found on the HPA website.

<http://www.hpa.org.uk/ProductsServices/MicrobiologyPathology/MicrobiologicalTestsAndServices/cfi40Packagingguidance/>

C4. Is rabies immunoglobulin (HRIG) required?

The mainstay of rabies post exposure prophylaxis (PEP) is rabies vaccine. Human rabies immune globulin (HRIG) may provide short term immunity in the first 7 days post initiation of treatment.

The total antibody level induced by active immunisation (vaccine) is many orders of magnitude greater than can be provided by passive immunisation (HRIG). For this reason HRIG is not given after 7 days post initiation of rabies PEP vaccination or to an individual who is already partially or previously immunised.

HRIG is manufactured from non-UK human blood products. The final formulation is a liquid and the potency of the material is assessed in international units (IU/ml). The recommended dose is 20 IU/kg, adults and children (all ages)

The preparations of HRIG available for dispensing do vary in potency and volume. It is therefore **CRITICAL** to know the following:

- The potency of the current batch in use. Different manufacturers describe the potency in different ways, and HRIG batches from the same manufacturer vary in potency. The description of potency **on a vial from BPL** indicates the volume needed to administer 500IU. Except where the potency is exactly 500IU/ml, this will **NOT be the same as IU/ml**. Vials usually contain between 1 and 4 mls of liquid and generally contain slightly more volume than required to administer 500IU. **Berirab-P** vials have the potency described in IU/mL. Information about potency of batches in current use is encoded into the Rabies PEP form and is also available from Rabies clerk (0208 327 6204), or Immunisation Department (0208 327 7472)
- Weight of the patient

- Volume in vials (vials contain between 1- 4mls, depending on batch and manufacturer)

If the weight (in kg – there is a calculator on the calendar page to convert stones and lbs to kg if needed) is entered into the form and the lot number of the HRIG to be issued, the dose, volume and number of vials to be issued will be calculated.

Alternatively the correct volume for each patient should be calculated as indicated below

Worked example #1

Child wt 19kg, BPL Potency is 500IU/1.1mls, vials contain 2.2mls

Required units total = $20 \times 19 \text{ IU} = 380\text{IU}$

Need to administer $(380 \times 1.1)/500 = 0.8\text{mls}$

Need to supply 1 vial, there will be some wastage

Worked example 2

Adult wt 85kg BPL Potency is 500IU/1.1mls, vials contain 2.2mls

Required units total = $85 \times 20 = 1700$

Need to administer $(1700 \times 1.1)/500 = 3.7\text{mls}$

Need to supply 2 vials

Worked example 3

Adult wt 70 kg Berirab-P potency is 150 IU/mL, vials contain 2 mls

Required units total = $70 \times 20 = 1400$

Need to administer $1400/150 = 9.3\text{mls}$

Need to supply 5 vials

C5. Administering Vaccine & Immunoglobulin

Vaccine is given in the deltoid muscle by intramuscular injection. Each sequential dose should be given in alternate deltoids. Suggest start in non dominant arm.

All immunoglobulin (HRIG) is given at the site of the wound, infiltrated around the site of the wound. If this is difficult or the wound has completely healed, then this can be given by intramuscular injection in the anterolateral thigh (this advice is based on the most recent WHO position paper on rabies vaccine (Aug 2010) and may contradict advice in rabies immunoglobulin product leaflet, which has not been updated).

If more than 5mL (2mL in children under 20 kg) of HRIG needs to be administered it should be in divided doses, at different sites

Vaccine and HRIG should NEVER be given at the same anatomical site.

Adverse reactions to rabies vaccine and immunoglobulin are briefly discussed in the Green Book p343.

C6. How soon should treatment be started?

Although treatment should be started promptly, initiating rabies PEP is not a medical emergency. In most cases rabies vaccine/HRIG can be mailed from Colindale for administration the next day. However for head and neck bites, treatment should ideally be started within 12 hours of reporting.

In addition to the main stockholder at Colindale rabies vaccine and HRIG are held in 10 issuing centres in England, and in Cardiff for Wales. Vaccine and HRIG can be issued from these centres for pick up by the patient or courier; they do not provide postal delivery.

Vaccines (but not HRIG) can sometimes be obtained from pharmacies on prescription.

D. Logistics

FOR ALL ISSUES					
Doses of vaccine required	0		Vials of HRIG required	#N/A	
Is this a split issue?	<input type="checkbox"/>		How many issues?	<input type="checkbox"/>	if more than 2 - linked form # <input type="checkbox"/>
Issue 1 from Colindale:	<input type="checkbox"/>	Issue 1 from other issuing centre:		Which centre? <input type="checkbox"/>	Mov. #: <input type="checkbox"/>
Name of recipient #1:	Title and name <input type="text"/>		Telephone number: <input type="text"/>		
Department (#1)	Enter department <input type="text"/>				
Delivery address (#1):	Delivery address <input type="text"/>				
	Post code: <input type="text"/>		Customer verified: <input type="checkbox"/>		
Immunoglobulin Issue (#1)	<input type="checkbox"/>	vials of immunoglobulin	Batch no:	Choose from list <input type="text"/>	Verified <input type="checkbox"/>
			Manufacturer:	#REF!	
			Expiry Date:	#REF!	
Vaccine Issue (#1)	<input type="checkbox"/>	vials of vaccine	Batch no:	Choose from list <input type="text"/>	
			Manufacturer:	#REF!	
			Expiry Date:	#REF!	
Method sent (#1):	Choose an item <input type="text"/>			All vaccine must be sent by cold chain	
For dispatch #1					
Date sent:	dd/mm/yyyy <input type="text"/>		Packed by:	Insert name <input type="text"/>	
Checked (#1):	Please tick		Signature: <input type="text"/>		
<input type="checkbox"/>	No. of vaccine	<input type="checkbox"/>	Address correct		
<input type="checkbox"/>	No. of immunoglobulin	<input type="checkbox"/>	Refrigeration label attached		
<input type="checkbox"/>	Copy of form enclosed	<input type="checkbox"/>	Return address label attached		
			Notes: <input type="text"/>		

D.1 Issuing Rabies Vaccine/HRIG from Colindale

General

Vaccines and HRIG are held in Colindale (Cold Room 1A35) and are issued after audit by the rabies clerk on receipt of the completed rabies post-exposure form (via HPZone).

Rabies vaccines are packaged with cold packs and distributed via guaranteed postal delivery or rabies vaccines can be collected at any time (24/7) from reception at Colindale.

Rabies clerk requires forms by 3.30pm to ensure sufficient packaging time to meet collection time of 4pm for guaranteed next day delivery

Colindale does not supply rabies vaccines **by post** on a Friday or before a Bank Holiday (unless guaranteed person to receive at destination (GP Surgery/AE Dept).

Movianto (the company used by NHS for vaccine delivery) is only used to issue pre-exposure vaccines and to stockholders; they do not deliver rabies post-exposure vaccines and HRIG for named patients.

Out of Hours

On call /duty BMS will issue rabies vaccine for collection (by patient or courier) out of hours. The completed rabies post-exposure form should be uploaded to HPZone before the morning of the next working day for receipt by the Rabies Clerk.

Arrangements for collection are either organised individually with the patient or via local health facility responsible for treating patient. Colindale does not generally provide couriers for vaccine. In exceptional circumstances, when treatment is required urgently and local arrangements for collection cannot be made, a courier may be arranged to deliver the treatment to the care provider who will administer it. If required this can be organised through the duty BMS.

It is the responsibility of the reporting clinician to arrange for administration of the vaccine out of hours. This may mean identifying an alternative care provider who will be available out of usual working hours and is willing to receive and administer the treatment required.

HPA does not issue vaccines or HRIG for administration to patients outside of England or Wales.

D.2 Issuing Rabies vaccine/HRIG from Stockholders

Vaccines and HRIG are also held in various centres across UK. It may be more convenient to issue from alternative supply centre, once decision has been made that vaccine/immunoglobulin are appropriate. However vaccine supply centres elsewhere may be used for collection only of vaccines and they do not provide postal delivery.

Current issuing centres in England and Wales are in:

- Birmingham
- Cambridge
- Cardiff
- Exeter
- Leeds
- Liverpool
- Oxford
- Newcastle
- Norwich
- Southampton

A complete listing with contact details is available in the Intranet Duty Doctor Pack and in HPZone:

Rabies vaccine and Ig Issuing Centres.doc

If vaccines and HRIG are issued during working hours, complete the rabies PEP form in the normal way and contact the pharmacy or virology department as indicated. For issues out of hours please contact the local duty virologist/duty doctor.

E. Governance, responsibilities and training

Duty Doctor performing risk assessment:	Enter name	
Audit		
VRD Consultant name	Signature:	Date:
GMC number	#N/A	Comment

All calls relating to the provision of rabies clinical advice are subject to audit and must be documented (in HPZone or equivalent) whether vaccine is issued or not,

All calls must be logged in HPZone and the form uploaded by the end of each working day at the latest.

If calls are taken out of hours, the call should still be recorded in HPZone, the form uploaded and the Rabies clerk informed by noon of the next working day.

Forms will be reviewed by Duty VRD consultant next working day.

All those participating in the rabies service should have completed the Rabies e-learning course. eHealth can be accessed by registering at <http://ehealthlearning.org.uk/arena/index.cfm>. To find the rabies module, enter the HPA Emergency Response Portal.

Initial training for SpRs and new consultants will be arranged on an individual/ad hoc basis, but is an essential requirement for participation in Colindale duty doctor/on call rabies service

Training must be recorded in training records and signed off by appropriate individuals

Participation in Colindale clinical audit and duty doctor training on a regular basis is required

F. Rabies vaccines compatible with UK schedule

Table 1 provides a generic classification of types of vaccine available globally and their compatibility with UK vaccines. Most vaccines available in Europe, N America, Australia, and New Zealand are either HDCV, PCECV or vaccines grown on mammalian cells (PVRV).

Vaccine issuing centres, including HPA, usually only hold one sort of vaccine (depending on availability), either HDCV, PCECV, or PVRV which will be the only possible vaccine that can be issued. If an individual insists on a particular type of vaccine not held within the HPA supply, this will have to be sourced and paid for privately by that individual.

Table 1.Types of Rabies treatment used globally for Rabies PEP

Rabies Vaccine/Ig	Comment	Manufacturer & likely distribution	Compatible with UK
Human diploid cell vaccine (HDCV)	Immunogenicity efficacy data do exist for this	IMOVAX Pasteur Mérieux Group, Sanofi Pasteur MSD Ltd UK)	√
Purified chick embryo cell vaccine (PCECV)	Immunogenicity efficacy data do exist for this	(UK licence) Chiron Vaccines	√
Purified vero cell vaccine (PVRV)	Vaccine is made on mammalian cells (VERO cells) as an alternative cell substrate to fibroblast cells. This is a licensed vaccine produced in many parts of the world (although unlicensed in the UK), for which formal efficacy data do not exist, but the potency and immunogenicity is evaluated similarly to HDCV and PCECV vaccines. These are generally reliable vaccines.	Variety of manufacturers make this. Possible trade names include VERORAB. ABHAYRAB (India) SII Rabivax (India) Speeda (CELBIO)	√
Suckling Mouse Brain vaccine (SMBV)	Vaccines of this sort generally reliable but may have marginally reduced efficiency with increased risk of side effects.	Used in S America	X
Nervous tissue vaccine (sheep, goat)	Nerve tissue vaccines induce more severe adverse reactions and are less immunogenic than cell culture and embryonated egg vaccines; therefore their production and use is not recommended by WHO.	Used in Asia but being phased out	X
Horse Serum	Trade name not clear. May be given as treatment alone or with vaccine. Most often found in certain S American and middle East countries. If this is the only treatment given, need to start PEP (Omit HRIG)	EquiRIG Unknown	X

G. Source Documents & useful references

Current WHO Guide for Rabies Pre and Post Exposure Treatment in Humans

Rabies vaccines: WHO Position Paper :Weekly Epidemiological Record (WER) 6 August 2010. Vol 85 pp 309-320. <http://www.who.int/wer/2010/wer8532.pdf>

Immunisation against infectious disease - "The Green Book"

<http://immunisation.dh.gov.uk/green-book-chapters/chapter-27/>

British National Formulary

<http://www.bnf.org>

Rabies e-Health learning module

. eHealth can be accessed by registering at <http://ehealthlearning.org.uk/arena/index.cfm>.

To find the rabies module, enter the HPA Emergency Response Portal.

Terrestrial animal health code

http://web.oie.int/eng/normes/mcode/en_chapitre_1.8.10.htm

PETS animal passport scheme

<http://www.defra.gov.uk/wildlife-pets/pets/travel/pets/>

Management of a rabies case

HPA Public Health Management of suspected case of human rabies, A standard operating procedure for communication and action 30/11/2004 (updated 2009)

http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947366946

Management of rabies in humans: Jackson et al (2003) CID 36 60-63

DH memorandum on rabies: Memorandum on Rabies Prevention and Control (Feb 2000)

http://www.dh.gov.uk/prod_consum_dh/idcplg?IdcService=GET_FILE&dID=949&Rendition=Web

Further documents relating to rabies, rabies pre-exposure prophylaxis and rabies post-exposure prophylaxis are also available on the Rabies page of the Duty Doctor pack on the Intranet, and on the HPA website