

## **Rabies vaccination for bat handlers**

### **Frequently asked questions**

#### **Do bats carry rabies?**

Some bats in Europe carry rabies-like viruses called European Bat Lyssaviruses (EBLs). There are two strains, EBL1 and EBL2. Classical rabies virus (strain usually found in terrestrial mammals including dogs) has never been found in bats in Europe.

#### **Do bats in the UK carry rabies?**

To date only two infections with the rabies like virus EBL2 have been confirmed in UK bats despite testing around 200 bats per year at the Veterinary Laboratories Agency (VLA) over a period of 15 years. The level of EBL infection of bats in the UK is unknown, but is likely to be low.

#### **What risk of rabies infection is there if I handle bats?**

The risk of EBL infection to humans is thought to be low. Only three previous human cases of EBL infection had been recorded before the latest case in a bat handler who became infected with EBL2 in Scotland in 2002. Two cases of infection with EBL1 occurred in the former USSR, one in Ukraine in 1977 and one in Russia in 1985, and one case of EBL2 infection occurred in a bat handler in Finland in 1985. None of these individuals received rabies vaccination either before or after being bitten by bats.

EBL infection in humans seems to be similar to classical rabies in that the outcome in all recorded cases has been fatal, so it is still very important to protect yourself from infection.

#### **Does rabies vaccine give protection against European Bat Lyssaviruses?**

Although the vaccines were developed against the classical rabies virus, they are believed to give protection against European Bat Lyssaviruses (EBLs), and there is no evidence that they do not. Following immunisation or post-exposure treatment, no-one has contracted rabies or shown signs of EBL infection (i.e. nobody who has been vaccinated has died of EBL and nobody exposed to EBL who has been given post-exposure vaccine treatment has died). This evidence comes from European countries where EBLs are regularly detected in bat populations and people who are bitten or scratched by bats are given post-exposure treatment.

#### **Is the vaccine safe?**

There are two rabies vaccines licensed for use in the UK; Aventis Pasteur, a human diploid cell vaccine in use for about 20 years, and Rabipur ([http://www.rabies.net/treat/c\\_4300.cfm](http://www.rabies.net/treat/c_4300.cfm)), a chick embryo cell vaccine which has been licensed for use in the UK more recently, though it has been in use in other parts of the world for some years. Because the Rabipur vaccine is produced in cells from chick embryos, it should not be used for people who may be sensitive or allergic to chicken protein. There are few other contraindications, but you should seek advice from your GP.

The Patient Information Leaflet for the Aventis Pasteur vaccine is attached at the bottom of this information sheet. The following comments are based on returns sent to the Health Protection Agency (formerly known as the Public Health Laboratory

Service and apply to the Aventis Pasteur vaccine, as this is the vaccine that the Health Protection Agency currently supplies. However, your GP may administer Rabipur instead. The two vaccines are interchangeable. .

Over the years there have been no UK reports of adverse systemic (whole body) reactions to the vaccine. The only adverse reaction that has been seen is a localised skin rash around the injection site in a small number of people who have had many booster vaccinations. Although this is not usually serious enough to prevent these people receiving further boosters, it has caused the Health Protection Agency to suggest that booster vaccinations should be given at 3-5 year intervals rather than every two or three years. The interval between boosters is currently under review by the Department of Health.

### **Am I obliged to be immunised?**

Currently, you are strongly advised to ensure that you are vaccinated if you handle bats regularly. If you are a licensed bat handler, the relevant authority for your country may, in future, make vaccination a mandatory requirement of the licence. The Advisory Committee on Dangerous Pathogens (ACDP) has been asked to convene a working group to consider the risk assessment for rabies in the UK, following the recent human case of rabies due to EBL2 infection. This working group will also consider which groups may require immunisation against rabies.

### **Does the organisation that I work for/volunteer for have responsibilities under the Health and Safety at Work etc. Act 1974?**

Employers have legal responsibilities to assess the risk of employees and others, including volunteers, being exposed to this agent as they perform work activities, and to put in place appropriate controls. This includes considering if immunisation is appropriate, and if it is, making arrangements for immunisation, free of charge, to employees who are considered vulnerable to the agent they are exposed to or likely to be exposed to.

### **How soon after being vaccinated can I work with bats?**

The currently recommended schedule is 3 doses of vaccine on days 0, 7 and 28. This schedule is intended to stimulate a rapid immune reaction. The immune response will begin after day 0 and will contribute to protecting against rabies, however protective levels of antibody will not be reached until the full course is completed. Batworkers may resume bat work as soon as they have received the first injection, provided they then go on to complete the course.

### **How long does the vaccination last?**

The vaccine is highly effective at producing an immune response and the Health Protection Agency advice is that it is usually not necessary to check antibody levels via a blood test. Their current advice is that a booster injection is needed at 3-5 year intervals. The Health Protection Agency suggest that after two boosters, people should tend towards the longer interval in order to minimise the risk of a localised reaction to the injection. This advice is currently under review by the Department of Health.\*

\*This will be updated as soon as any new advice is issued,

### **What should I do if I have been bitten by bats in the past?**

Current DH/Health Protection Agency advice is that if there has been a bat bite in the previous 2 years, and if the individual in question is fully immunised against rabies, they should be offered 2 doses of vaccine. If, however, the individual is previously unimmunised or incompletely immunised, they should be offered 5\* doses of vaccine. For those who are previously un-immunised, and who have been bitten by a bat that is known, or strongly suspected, to be rabid, then rabies immunoglobulin should be offered in addition to a full course of vaccine. This advice is currently under review by the Department of Health.

\* Although patient information leaflet states 6, standard current practice is to offer 5 doses.

### **What is the difference between immunoglobulin and vaccine?**

Immunoglobulin is a preparation of antibodies collected from human donors who have been vaccinated in the past. It is a way of giving instant protection as the antibodies protect straightaway. However, they do not last very long. In contrast, it takes more than one week for your body to make its own antibodies following vaccination but the protection lasts much longer. Immunoglobulin is a blood product, which since the BSE epidemic must be produced from non-UK donors.

### **My last dose of vaccine was more than five years ago and I have been bitten by a bat. How many doses of vaccine should I receive?**

As your protection cannot be guaranteed you should be treated as if you have not been vaccinated before and receive five doses of vaccine. You will not require immunoglobulin.

### **Is vaccination very painful? Where is it given?**

Vaccination is given into the upper arm. If you need vaccine and immunoglobulin then these are given separately. Vaccine is given into the arm. If you have an obvious wound from a bite then some of the immunoglobulin should if possible be given at that site. If there is no obvious wound then immunoglobulin is given into the buttock. The old fashioned way of giving a vaccine in many doses into the stomach is no longer used.

### **I am up to date with vaccination, with a full course of three vaccines and boosters in the past 3-5 years. I get bitten regularly by bats. Do I need to have two doses of vaccine every time I am bitten?**

You should avoid being bitten by wearing bite-proof gloves and protective clothing. Even if you are up to date with your immunisations you should still seek medical attention if you are bitten. Further doses of vaccine may be advised, depending on how many doses of vaccine you have had in your lifetime.

### **Will I have to pay for vaccination?**

All bat handlers, whether licensed or not, are entitled to be immunised against rabies, free of charge. The vaccine is provided by the Health Protection Agency and can be obtained through your GP. The Department of Health has asked all GPs to give the immunisation for free but your GP can ask for an administration fee. Volunteers and employees of conservation organisations may be able to claim the fee back from their organisation.

### **I have been bitten (or scratched) by a bat. What do I do?**

The risk from EBL seems to be confined to people who are bitten, scratched or have close contact between broken skin or mucosa (eg. the nose, mouth and eyes), and bat saliva or neural tissue. You should immediately clean the wound thoroughly with soap and water. Additional cleansing of the wound site with an alcohol base or other disinfectant (e.g. iodine solution) is also recommended. Seek immediate medical attention to discuss vaccination. Rabies vaccine, and immunoglobulin if necessary, are available from the Health Protection Agency on 020 8200 4400 or the Scottish Centre for Infection and Environmental Health in Scotland (SCIEH) on 0141 3001123. If an attack from a bat is unprovoked, the incident should be reported immediately and, if possible, the bat should be retained for analysis. If the bat is alive, please seek further advice from the Veterinary Laboratories Agency (VLA, Tel. 01932 341111) or the Bat Conservation Trust (0845 1300 228). If the bat is dead, please send it to the Veterinary Laboratories Agency (Specimen tubes and freepost envelopes are available from the Bat Conservation Trust (0845 1300 228).

### **Are my family and pets at risk from bats in the house and should they be vaccinated?**

The risk from EBL seems to be confined to people who are bitten, scratched or have close contact between broken skin or mucosa and bat saliva or neural tissue. No one is at risk from being in the same house as a bat in the UK.

EBLs have hardly ever been passed to other types of mammal. There have been a couple of cases in sheep in Denmark and one in a stone marten in Germany but no recorded cases in domestic pets such as dogs or cats. Neither family members nor pets need to be vaccinated. However, family members should not handle bats and pets should be kept away from them.

### **What constitutes a bite or scratch?**

A bite or scratch is not a risk unless it penetrates the skin. Sometimes it is difficult to know whether you have been bitten and if you are concerned you should seek medical advice.

You should always wear bite proof gloves when handling bats. The Bat Conservation Trust is currently investigating types of gloves appropriate for handling different species for different reasons and should be able to offer you advice.

### **How long does the virus survive?**

EBLs do not survive outside the body of the host for long. However, the virus might survive inside a dead bat's body for a few days, so dead bats should be handled with care.

*This document has been produced by:*

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Department for Environment, Food and Rural Affairs  
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*Countryside Council for Wales*

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## **Patient Information Leaflet**

### **Rabies Vaccine BP**

#### **(Human Diploid Cell Rabies Vaccine BP)**

This leaflet is a summary of the information available about Rabies Vaccine BP. It should be read carefully by people receiving (or parents/guardians of children receiving) Rabies Vaccine BP. If anything is unclear or you want to know more, ask your doctor, nurse or pharmacist (chemist). Keep this leaflet; you may want to read it again.

Rabies Vaccine BP is one of a general group of medicines called vaccines, which are used to protect against infectious diseases. This vaccine helps to protect against rabies.

#### **What is in rabies vaccine BP?**

Rabies Vaccine BP comes in a pack containing a glass, disposable syringe which is filled with 1 millilitre of Water for Injections (with no added preservatives) and a glass vial which contains one dose of the vaccine as a freeze-dried powder.

The freeze-dried powder contains a special strain of rabies virus (Wistar rabies virus strain PM/WI-38 1503-3M). The virus is treated with a chemical (beta-propiolactone) to prevent it from causing the disease. However, it still stimulates your body to produce protection against rabies. There is enough of this modified virus in the powder to make up to at least 2.5 IU (an IU is an international unit for measuring vaccine activity). The powder contains small amounts of phenol red. When the Water for Injections is added to the freeze-dried vaccine, phenol red causes it to turn a pinkish colour.

#### **How does rabies vaccine BP work?**

Rabies Vaccine BP is a preparation containing very small amounts of modified form of the virus that causes rabies. When the vaccine is given to you, your body's natural defences will produce protection against rabies.

#### **Who makes rabies vaccine BP?**

Rabies Vaccine BP is made by Aventis Pasteur SA  
2, Avenue Pont Pasteur, 69007, Lyon, France.

The company licensed to sell Rabies Vaccine BP in the UK and Ireland is Aventis Pasteur MSD Limited. Their address is Mallards Reach, Bridge Avenue, Maidenhead, Berks.

#### **What is rabies vaccine BP for?**

Rabies Vaccine BP helps to protect adults, the elderly and children more than 1 year old against rabies. Rabies Vaccine BP can be used in two ways:

- Vaccinating you before you come into contact with rabies virus.
- Vaccinating you after you have come into contact with rabies virus.

### **Is rabies vaccine BP right for you?**

To make sure that Rabies Vaccine BP is safe for you it is important to tell your doctor or nurse if any of the points below apply to you. If you do not understand any of these questions, ask your doctor or nurse to explain.

Tell your doctor or nurse if you:

- Have ever had any uncommon severe allergic reaction (anaphylaxis) to a previous injection of Rabies Vaccine BP, a vaccine containing rabies vaccine, or any of the ingredients in Rabies Vaccine BP. Symptoms of this are an itchy generalised skin rash (urticaria), swelling of the face and throat (angioedema), difficulty in breathing (dyspnoea), blue discolouration of the tongue or lips (cyanosis), low blood pressure (hypotension) and collapse.
- Have a history of allergy (such as hayfever or asthma) as there may be an increased risk of side-effects. Your doctor will need to take this into account before deciding to give you Rabies Vaccine BP.
- Have any blood disorders such as haemophilia (a condition where you bruise or bleed easily) because you may get bleeding at the injection site.
- Have had any other reactions to a previous dose. Your doctor will decide whether to continue the course and may decide to do a blood test to see if you are protected.

Because rabies is a serious disease, if you have been in contact with it your doctor will usually decide to give you Rabies Vaccine BP even if you are pregnant or think you might be pregnant. However, there is no evidence that this vaccine affects the foetus or the outcome of pregnancy. If there is a high risk of you coming in contact with rabies in the near future your doctor may decide to give you a course of Rabies Vaccine BP to prevent infection even if you are pregnant. Your doctor will weigh up the risks.

### **What if you are already taking other medicines?**

This is not a problem.

### **How will rabies vaccine BP be given?**

The vaccine should be given in a suitable setting where staff are equipped to deal with any uncommon severe allergic reactions.

The doctor or nurse will make up the injection just before it is going to be given. He or she will inject 1 millilitre of the vaccine deep under the skin or into the muscle of your shoulder upper arm. The vaccine should not be given in your bottom.

### **How many injections will you need?**

This depends on whether you are having the injection as a precaution (pre-exposure) or after possible contact with rabies virus (post-exposure), when you might already be infected with the virus.

### **Precaution/Pre-exposure**

You will need three 1 millilitre injections of the made-up Rabies Vaccine BP. The second will be given seven days after the first and the third, three weeks after the second (days 0, 7 and 28). If you are going to carry on being at risk of catching rabies, you will need to have a further injection to boost your protection every two or three years.

### ***After Contact/ Post-exposure***

**If you come into contact with a rabid or possibly rabid animal and you have not had Rabies Vaccine BP before, or if there is a chance you are not protected (for example because it is more than three years since your last Rabies Vaccine BP injection) you will need to have six injections. The first injection should be given as soon as possible and the other five injections given 3, 7, 14, 30 and 90 days afterwards. If you have not had any Rabies Vaccine BP before, your doctor will also give you an injection of Human Rabies Immunoglobulin with the first vaccine injection. This is a substance that helps you to fight rabies infection immediately, while the injections of the vaccine are starting to work.**

If you have come into contact with a rabid or possibly rabid animal and you have already had the precautionary injections, you will only need to have two more injections. One should be given as soon as possible and the second should be given three to seven days later.

### **Does rabies vaccine BP have any side-effects?**

During the first two days it is possible that the area around the injection site may become painful, red, swollen, itchy or the skin may harden. A small number of people experience general reactions following the injection such as moderate fever, shivering, weakness headache, dizziness, tingling sensations ("pins and needles"), joint pain, muscle pain, nausea, stomach pain, or feeling generally unwell. These effects do not usually last for very long, but if you are worried, consult your doctor. In extremely rare cases, people have developed abnormalities of the nerves after receiving Rabies Vaccine BP.

A very small number of patients have an allergic reaction to Rabies Vaccine BP. This may cause an itchy generalised rash, skin redness or swelling. Rarely the allergic reaction is very bad causing swelling of the face and throat, difficulty in breathing, blue discoloration of the tongue or lips, low blood pressure (causing dizziness) and collapse. If any of these symptoms or signs develop consult your doctor IMMEDIATELY.

Rarely, serum sickness-type reactions have occurred after a booster dose of Rabies, Vaccine BP (serum sickness is a condition characterised by skin rashes, fever, joint pain and enlarged glands).

If you notice any other unpleasant effects after the vaccination, that are not mentioned here, tell your doctor, nurse or pharmacist (chemist).

### **LOOKING AFTER RABIES VACCINE BP**

The vaccine should be stored in a refrigerator between + 2°C and + 8°C (making sure that it does not freeze), so that it keeps its effectiveness. The vaccine should be shaken well before it is given to you and used as soon as it is mixed. Any vaccine not used one hour after mixing will be thrown away safely by your doctor.

### **FURTHER INFORMATION**

If you are receiving this vaccine as a precaution against catching rabies, ask your doctor, nurse or pharmacist (chemist) for advice on what to do if you are bitten by or come into contact with a rabid or possibly rabid animal.

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