

Reducing the risk of human infection from pet rodents

The most common rodents kept as pets in the UK are rats, mice, gerbils, hamsters, agouti, guinea pigs and chinchilla.

All rodents, pet and wild, can carry bacteria and viruses that cause infections in people. Rodent infections that can transmit to humans include leptospirosis, hantavirus, rat bite fever and a type of meningitis caused by a virus called lymphocytic choriomeningitis virus (LCMV). Although uncommon, these infections may have serious consequences, and can be fatal. (*Further details on these infections on page 3*).

All rodents, including those kept as pets, should be presumed to be carrying these organisms even if they appear to be healthy and have no signs of infection.

If you are ill enough to consult your doctor, inform them that you own/keep/have handled a rodent(s)

- It is important that those who keep pet rodents as companion animals are aware of the early symptoms of these infections (often, but not always, an influenza-like illness) because early diagnosis and treatment are important to prevent development of severe disease.
- If you are ever bitten by a rodent, the bite-wound should be promptly cleaned and disinfected before being covered by a waterproof dressing.
- The very young, the elderly, those with chronic conditions (e.g. diabetes) or a weak immune system (e.g. those who have had their spleen removed) and pregnant women should be particularly careful.
- There is no vaccine for any of these infections therefore the only way to prevent infection is through careful attention to hygiene practices.
- Leptospirosis and rat bite fever can be treated with antibiotics, but there are no specific drugs to treat the other infections.

How are these infections passed to people?

- Infections may be acquired following
 - animal bites,
 - contact with rodent urine, droppings or bedding materials,
 - breathing in rodent dander, dried droppings and urine, or dust from bedding materials contaminated by them.
- Hantavirus infections in particular can result from breathing in the virus. This can happen when rodent urine and droppings that contain hantavirus are stirred up into the air. People can also become infected when they touch mouse or rat urine, droppings or bedding materials that contain the virus and then touch their eyes, nose, or mouth. Infection can also occur if food and drink are contaminated.

Should pregnant women be concerned about their pet rodent?

Although the risk of infection from pet rodents is generally low, pregnant women should be aware of the risks associated with acquiring these infections during pregnancy. The following precautions can be taken to reduce even further the risk:

- Keep your pet rodent in a separate part of the home and ask another family member or friend to clean the cage and care for the pet. Avoid prolonged stays in the room where the rodent is kept.
- Pregnant women should avoid contact with wild rodents.

How can I reduce the risks of infection?

- Do not eat, drink or smoke while tending to your pet rodent.
- Keep rodent cages clean and remove soiled bedding often.
- Always wash your hands thoroughly with soap and water (see [good technique](#) and [video](#)) immediately after handling your rodent or cleaning their cage or any other materials such as bedding, toys etc. Be especially careful to immediately clean your skin thoroughly if you get rodent urine directly on your skin.
- Do not kiss pet rodents or hold them close to your face.
- Cover cuts, scratches or sores with a waterproof plaster before handling animals and thoroughly clean and cover any cuts or abrasions received during handling the animal.

- Keep your pet rodent out of rooms where food is prepared and eaten, and limit the parts of the house where it is allowed to roam freely.
- Do not use kitchen sinks for washing cages or equipment. If you use a bathroom sink, shower or bathtub, it must be cleaned thoroughly with disinfectant afterwards.
- Wash any contaminated bedding or clothing with laundry detergent on a very hot wash if you see any rodent urine or droppings on them.
- These infections can be acquired by your pet through contact with wild rodents. Hence, vermin control measures may be needed to minimise contact of your pets with wild species.
- Clean the cage in a well-ventilated area or outside.
- Use of a suitable face mask (FFP3 would be best) and gloves when cleaning animal housing is recommended. [See website for details - <http://www.hse.gov.uk/news/2009/facemasks.htm>]
- Do not keep pet rodents in the bedroom and where possible, house them in a well ventilated and sunlit room, (but not with the cage in direct sunlight or in a room subject to very high or low temperatures for welfare reasons).

Supervise children:

- Always supervise children to ensure they do not put the pet rodent or objects that it has been in contact with near their mouths.
- Ensure children wash their hands thoroughly with soap and water immediately after handling the pet.
- Closely supervise young children when cleaning cages, and make sure they wash their hands immediately after handling rodent cages or bedding.

How to clean up rodent urine and droppings:

- Do not sweep or vacuum up mouse or rat urine, droppings, or nests. This may cause infectious material to go into the air, where it can be breathed in.
- Wear disposable rubber or plastic gloves, and if re-using gloves disinfect after each use.
- Ideally use a suitable face mask.
- Urine or droppings that need to be cleared up outside the cage should be removed with a wet wipe whilst wearing gloves. Place this in a plastic bag before throwing in the rubbish bin. Afterwards spray the area with disinfectant.

How to clean cages:

- Spray bedding with a generous amount of water before disturbing to stop infectious particles becoming air-borne. Make sure you then wet the bedding with disinfectant and allow to soak for 5 minutes. Then place this in a plastic bag.

Once the material is in the plastic bag:

- Scrub the cage surface and then rinse and dry with paper towels. Place the towels used to clean/dry the cage in the plastic bag before placing in the rubbish bin. Other cleaning equipment (such as scrubbing brush, gloves if not disposable) should be cleaned and disinfected after use.
- Wash hands with soap and water after putting disposable gloves in bin or disinfecting re-useable gloves. Then remove mask, bag and bin. Re-wash hands and dry.

Dealing with dead animals:

- Wear rubber or plastic gloves.
- Ideally use a suitable face mask.
- Spray the dead animal with water before handling to stop infectious particles becoming air-borne. If kept alone follow the instructions above for bedding, placing the body in one plastic bag and bedding in a second plastic bag. If kept with other pets in the same cage then remove the water-sprayed dead pet and put it in a plastic bag for disposal. Spray disinfectant into the bag before tightly sealing the bag.
- Place it into a second plastic bag. Seal that bag. If you want your pet cremated contact your veterinary surgeon. Alternatively you can bury it in the garden (at least 30cm deep).
- Then follow the washing guidance above - 'once the material is in the plastic bag'.

How to clean out sheds, animal housing or similar:

- Open all doors and windows and expose to as much sunlight as possible. Leave them open for at least 30 minutes before cleaning. Whilst doing this do not allow the cage to be in direct sunlight or to become subject to very high or low temperatures or draughts for welfare reasons.
- Ideally use a suitable face mask.
- Wear rubber or plastic gloves.
- Clean up all rodent urine, droppings etc as specified above.
- Mop floors or spray dirt floors with a disinfectant.

Disease information

What is leptospirosis?

Leptospirosis is a bacterial infection found in rodents (particularly rats) and many other wild and domesticated animals. Wild rodents are implicated in many human leptospirosis cases, but pet rats have also been a source of infection. Rodents infected with this bacterium (called a leptospire) will show no outward signs of infection.

Infection in humans may be acquired by direct or indirect contact with infected animal urine, tissues or secretions, or water contaminated with infected animal urine. Leptospire enter the body through cut or damaged skin, membranes, and eyes.

In people, infection ranges from no symptoms at all to a mild flu-like illness to a serious illness. The most severe presentation is called Weil's disease, with jaundice and kidney failure. Symptoms usually develop 7-21 days after initial infection, though rarely the incubation period can be as short as two to three days or as long as 30 days.

What is hantavirus?

Hantaviruses are a group of viruses that can be carried and transmitted by rodents. Infection with certain strains of Hantavirus can cause haemorrhagic fever with renal syndrome seen in Europe. Hantaviruses have been found in both pet and wild rodents in the UK.

Each hantavirus is specific to a different rodent host. Once infected, the rodent will be infectious for prolonged periods, probably for life. Transmission of virus to people usually occurs through the inhalation of particles contaminated with the virus, such as dust from faeces, contaminated bedding, or splashes of urine. The virus is also present in rodent saliva, so a bite is also a means of transmission to people.

In people, infection with these viruses can cause a disease characterised by fever, headache, gastrointestinal symptoms and kidney problems. The more severe forms of disease can result in haemorrhage (bleeding) from internal organs and the skin. The incubation period is generally 2-4 weeks (range 2 days to 8 weeks). As for many infections, it is likely that most infections with hantaviruses are mild, or cause no clinical disease in people at all.

What is rat bite fever?

Rat-bite fever is a rare infection caused by the bacterium *Streptobacillus moniliformis*. The bacteria have a worldwide distribution and are carried in the upper respiratory tract of apparently healthy rats and mice.

Human infection is usually acquired in domestic settings or pet shops. Transmission may occur either from a rat bite/scratch when handling infected rats, or from direct contact with their urine.

The bite itself usually heals without any signs of infection. Rat-bite fever usually develops within 7 days of the bite, and begins abruptly with fever and chills, followed by severe muscle and joint pain, headache and nausea. Many patients develop a rash, most often on the limbs.

What is LCMV?

Lymphocytic choriomeningitis virus (LCMV) is an infection carried by some rodents which causes a type of meningitis. The main host is the common house mouse but other types of rodents, such as hamsters, can become infected by contact with wild mice. This might occur at the breeder, pet store or in the home environment.

The virus is found in the saliva, urine, and droppings of infected rodents. They carry LCMV and shed it for the duration of their lives without showing any sign of illness. People become infected with LCMV after exposure to fresh rodent urine, droppings, saliva, or nesting materials. Transmission can occur when these materials are directly introduced into broken skin, the nose, the eyes, or the mouth, or via the bite of an infected rodent. Humans are more likely to contract LCMV from house mice, but infections from pet rodents have also been reported.

Infection without symptoms or as a mild flu-like illness is common, with an incubation period of 6 – 13 days. However, the infection may present as a meningitis (inflammation of the membrane that surrounds the brain and spinal cord), encephalitis (inflammation of the brain), or meningoencephalitis (inflammation of both the brain and meninges). In addition, infection in pregnancy has been associated with disease in the newborn.