Animals, just like humans, suffer from a range of infectious diseases. As veterinary medicine has advanced, prevention of disease has become a priority. One of the best means of prevention is by creating immunity in the animal. This is usually achieved by vaccination.

The principle of vaccination has been established for over 200 years. Since those early days, enormous strides have been made in the development of vaccines which have helped to prevent and in some cases eliminate disease in humans, farm animals and the family pet.

Vaccination also reduces the amount of pharmaceutical treatments (such as antibiotics) used to control established diseases and, in many instances, has prevented long term suffering and death. Examples of diseases which can be prevented by vaccination are shown in the table below.

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>DISEASES CONTROLLED BY VACCINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogs</td>
<td>Distemper, infectious canine hepatitis, leptospirosis, parvovirus, kennel cough (caused by <em>Bordetella bronchiseptica</em> and canine parainfluenza virus). Also rabies for dogs going abroad as part of the PETS scheme.</td>
</tr>
<tr>
<td>Cats</td>
<td>Feline infectious enteritis (or panleucopenia), feline leukaemia, chlamydia, cat ‘flu’ (caused by feline herpes virus and feline calicivirus). Also rabies for cats going abroad as part of the PETS scheme.</td>
</tr>
<tr>
<td>Horses</td>
<td>Equine herpes virus 1, influenza, tetanus, viral arteritis. Also rabies (not routinely used in the UK)</td>
</tr>
<tr>
<td>Rabbits</td>
<td>Myxomatosis, viral haemorrhagic disease</td>
</tr>
<tr>
<td>Pigeons</td>
<td>Paramyxovirus, pigeon pox</td>
</tr>
</tbody>
</table>

Many of these diseases, except rabies, are present in the UK. Many of them are killers, even with veterinary treatment. All of them cause suffering to animals not only when the animal contracts the disease initially, the resultant damage can often be permanent. Their manifestation is being suppressed by responsible pet owners who have their animals vaccinated regularly against disease. This has the effect of reducing the overall level of disease within the United Kingdom. Incidence of disease varies around the country and unvaccinated animals introduced to a new area are particularly vulnerable to infection.

It is possible for immunity to develop in an unvaccinated animal but, for this to happen, the animal must first encounter the disease and then survive the encounter. With potentially life-threatening diseases, this is not a serious option as it could result in the death of the animal.

Young animals receive some immunity from their mothers before and shortly after birth, both via the placenta and, principally, in the first milk (known as colostrum). It is important that newborns suck early because Maternally Derived Antibodies (MDA) are highest in the colostrum at the time of birth. This “natural” maternal immunity provides disease resistance for some weeks, but is unreliable as there are variations of MDA levels even within a litter. Because this immunity is not actively produced by the young animal, it declines over time. Research has been carried out by blood testing dogs and cats to help establish the timing of MDA decay for various diseases. This provides a guide to the typical age at which puppies and kittens are no longer protected by the mother’s immunity and indicates the best time to start vaccination.

### The first vaccination (The “Primary Course”)

Vaccines stimulate the body to produce its own defence against infection, taking over the mother’s role in providing protection. In general, puppies and kittens do not leave their mother until they are eight to nine weeks old, so this is usually when they receive their first vaccination.

The first vaccination course (for dogs and cats) always consists of two or more vaccinations. This is because timing for effective vaccination varies between individuals because of variable Maternally Derived
Antibody levels and because some vaccines, such as Leptospirosis, need to be administered twice to achieve a satisfactory level of immunity.

**The need for regular boosters**

Just as Maternally Derived Antibody levels decline over time, so too does the protection provided by vaccination. The animal’s active immunity may be “topped up” as follows:

- **By means of a booster vaccination**

  This provides a controlled challenge to remind the animal’s immune system how to respond should it meet a killer disease. It also provides an ideal opportunity for your vet to carry out an annual examination on the animal’s general condition to ensure early diagnosis of diseases which are not controlled by vaccination.

  The Council of the British Small Animal Veterinary Association considers that it is good practice and good preventative medicine to remind ‘bona fide’ clients when booster vaccinations are required.

**A long safety record**

Whether for disease prevention or treatment, the veterinarian, the animal owner and the public all have a right to expect that the preparation of animal medicines is reliably based on the triple standards of quality, safety and efficacy. The extremely stringent requirements for product registration reflect this. If these requirements are not met, a vaccine will not be allowed on the market. There are established procedures for reporting any suspected adverse reactions. Careful monitoring and review of products and disease patterns ensure that once on the market, vaccines remain safe and effective.

The benefits of vaccination have been supported by the working group set up by the independent Veterinary Products Committee to look at canine and feline vaccination. In their 2001 report \(^1\), they concluded that “vaccination plays a very valuable role in the prevention and control of the major infectious diseases in cats and dogs”. Although adverse reactions to vaccination, including lack of efficacy, occasionally occur, the working group concluded that “the overall risk/benefit analysis strongly supports their continued use”. Moreover, an independent and scientifically peer reviewed study carried out by the Animal Health Trust at Newmarket has produced the clearest evidence yet that routine vaccination of dogs in the UK does not increase frequency of illness. \(^2\)

Today’s vaccines are very effective and have a remarkably high safety record. Millions of doses are used annually in the UK alone. The use of vaccines has brought about levels of disease control against, for example, the killer disease Canine Parvovirus, that would have been almost undreamed of little more than a decade ago.

Because the incidence of these diseases has fallen as a direct result of the widespread use of effective vaccines, the chances of an adult pet encountering them have also reduced. This puts the unvaccinated or un-boosted pet in danger - if it has not met all the diseases on a regular basis, it may be unprotected.

**Sooner or later an encounter with a massive disease challenge could prove fatal.**

Revised November 2010

\(^1\) Veterinary Products Committee (VPC) Working Group on Canine and Feline Vaccination; final report to the VPC published by DEFRA, May 2001.


**What is NOAH?**

The National Office of Animal Health (NOAH) represents the UK animal medicine industry: its aim is to promote the benefits of safe, effective, quality medicines for the health and welfare of all animals. Its members supply over 90% of the UK licensed animal medicines market for pets, working and farm animals. NOAH members abide by the NOAH Code of Practice for the promotion of their products.


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NOAH Members: Revising their Code of Practice: April 2011

A. www.noah.co.uk