

# DOG OWNER GUIDE TO VACCINATION



A comprehensive overview of the important role of vaccination in caring for your pet

# CONTENTS

## UNDERSTANDING VACCINES

- ▶ Why vaccinate?
- ▶ How do vaccines work?
- ▶ The Immune System
- ▶ Vaccination

## INFECTIOUS DISEASES

- ▶ What diseases do we vaccinate against?
- ▶ Canine Parvovirus
- ▶ Canine Cough
- ▶ Leptospirosis
- ▶ Infectious Hepatitis
- ▶ Canine Distemper

## VACCINATIONS

- ▶ Core and non-core vaccines
- ▶ Puppy vaccinations
- ▶ Booster vaccinations

## Understanding Vaccines

Infectious diseases, such as distemper and parvovirus, once killed thousands of pets each year. But then we started vaccinating. **Vaccination became one of the greatest success stories of veterinary medicine, saving countless lives.** The COVID-19 pandemic has served as a reminder about the vital role that vaccination plays in disease control. This guide provides a comprehensive overview of the important role of vaccination in caring for your pet and the serious diseases they protect against.

### Why Vaccinate?

The simple answer is that vaccination saves lives. Many of the diseases that we vaccinate against, such as parvovirus and leptospirosis, are killers. Other diseases, such as canine cough, may not result in such serious outcomes, but are very distressing and highly contagious. We love our pets and want to do our best to take care of them, and vaccination plays a key role in protecting their health.

### How do vaccines work?

Before getting into the details, it's useful to understand a little about how our pets' bodies (and ours) fight disease. Our pets are exposed to lots of germs (bacteria, viruses, parasites and fungi) every day. Most of these are harmless but others, known as pathogens, have the potential to cause harm. When a pathogen does infect our pets, their body's defences, known as the immune system, kick in to attack and overcome the pathogen.





## THE IMMUNE SYSTEM

The immune system is incredibly complex, and there are various layers of protection, from non-specific physical defences such as skin to highly effective and targeted responses such as antibodies. The more effective and specific responses take time to develop, so it's often a race against time for our pet's bodies to produce antibodies that can fight off the invading pathogen. While the immune system is learning how to fight the pathogen, our pets can become ill. If the immune system wins the battle (thankfully it usually does), the good news is that it can "remember" the specific pathogen, so that if our pet is exposed again, the response will be faster and more effective. And that's where vaccines come in – they can "train" the immune system to recognise and fight a disease-causing pathogen.



## VACCINATION

Vaccination confers immunity by exposing the body to a relatively harmless or weakened form of a pathogen. This means that when natural infection does occur, the immune system is able to produce a much faster and stronger response. It is this quick and strong response of a vaccinated animal's immune system that prevents the disease from becoming debilitating and spreading to others. There are various ways of altering a pathogen to render it harmless and suitable for use as a vaccine, resulting in different types of vaccine. Regardless of the vaccine type, the weakened version will not cause the disease in the pet receiving the vaccine, but it will prompt their immune system to respond in the same way as it would to the actual pathogen.



## WHAT DISEASES DO WE VACCINATE AGAINST?

Infectious diseases are always out there. Although we seem to have certain diseases under control, we should not forget that it is vaccination that keeps them that way. Please see the graphic below for a quick overview. Detailed information is also provided in the following pages.

### CANINE COUGH

Canine cough is the most common infectious disease affecting dogs in Ireland\*. It is a highly contagious disease and any social dog that comes into contact with other dogs is at risk. The key sign is a harsh, dry cough which can persist for weeks. Some dogs develop persistent infections and subsequent complications, such as pneumonia or bronchitis.

### CANINE PARVOVIRUS

Very contagious, debilitating, and widespread, the disease is spread through infected faeces, and the highly resistant virus can remain in the environment for many years. Signs include lethargy, lack of appetite, vomiting and severe, bloody diarrhoea. Vaccination is the best means of preventing this potentially fatal disease.



### INFECTIOUS HEPATITIS

Infectious canine hepatitis is a disease which affects the liver, kidneys, eyes and lungs of a dog. The disease can develop very quickly and some individuals may die within hours of becoming unwell. particular risk.

### RABIES

This fatal disease is not found in the Republic of Ireland or in the UK. Vaccination is however mandatory if you plan to take your dog abroad.

### LEPTOSPIROSIS

Leptospirosis is caused by bacteria that are spread via the urine of infected animals. It is a serious zoonotic disease, which means it can also affect humans. The disease can severely affect a range of organs, particularly the liver and kidneys. Any dog that is exercised outdoors is potentially at risk, with pets that go swimming at particular risk.

### CANINE DISTEMPER

Most common in puppies, but can affect dogs of all ages. The signs include runny eyes and nose, and sometimes fits. Distemper usually results in death, but even the dogs that survive may be left with permanent brain damage. Thanks to vaccination, it is now uncommon, but some cases are still reported each year\*.



# CANINE PARVOVIRUS

**DISEASE SEVERITY:**  **VERY HIGH**

**RISK OF INFECTION:**  **HIGH**



*Photo courtesy of Dr. Hal Thomson, Canine Infectious Diseases Research Unit, University of Glasgow Veterinary School.*

Canine parvovirus is a highly infectious viral disease of dogs which can cause serious, potentially fatal disease. The disease first emerged as an epidemic in the 1970s, killing thousands of dogs before an effective vaccine became available. Although no longer present in epidemic proportions, parvovirus is still relatively common in non-vaccinated dogs, and veterinary practitioners throughout the country regularly report outbreaks of the disease. Facilities where large numbers of dogs are kept and especially where there is a continuously changing population e.g. pounds and shelters, are constantly challenged to keep this disease under control.

### Cause

The cause of canine parvovirus disease is a highly contagious DNA-containing virus. There are currently three types prevalent in Ireland, namely CPV-2a, CPV-2b and CPV-2c. CPV-2d has recently emerged in some countries. Happily CPV-2 vaccines still cross protect against these new variants. Some strains of the virus may be more pathogenic than others.

### How dogs become infected

Canine parvovirus is a small, but extremely hardy virus that can survive in the environment for long periods of time – months or even years – and is resistant to many household disinfectants. The main source of infection is the faeces of infected dogs; the virus can also spread on shoes and clothing and on the coat and pads of dogs. **This means that all dogs, even those who don't meet other dogs, are potentially at risk.** The virus is transmitted through the mouth or nose from faeces.





### Which dogs are at risk?

Dogs less than one year of age are most commonly affected. However, those animals that have not been vaccinated or have weakened immune systems are also susceptible. There has been some suggestion that “black and tan” breed puppies are more susceptible to parvovirus, though evidence is relatively sparse. Studies from America suggest that these breeds are over-represented in veterinary hospital admissions compared to other breeds. Canine parvovirus affects all breeds of domesticated dog, as well as wild dogs (including bush-dogs, coyotes, maned wolves) and the virus may also be transmitted to cats, ferrets and mink.

### Signs of disease

Signs usually consist of depression, severe vomiting, refusal of food and water, abdominal pain and profuse smelly, bloody diarrhoea. This can result in rapid and severe dehydration, and ultimately death. Individuals normally have severe enteritis, however occasionally, animals may only have mild symptoms.



### CANINE PARVOVIRUS: **TREATMENT AND PREVENTION**

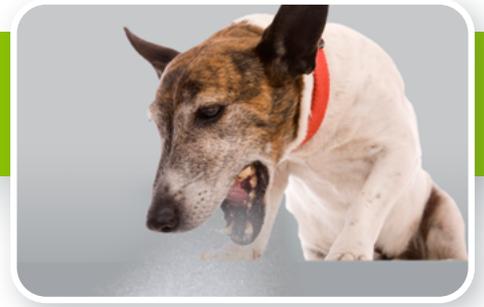
There is no specific treatment for parvovirus infection, although supportive therapy in the form of intravenous fluids are often given to correct the fluid loss due to vomiting and diarrhoea. The best form of protection against this virus is through vaccination. Following the initial course of vaccinations, immunity can last for several years, with re-vaccination every 3 years sufficient to maintain protection.



# CANINE COUGH

**DISEASE SEVERITY:**   
MEDIUM

**RISK OF INFECTION:**   
VERY HIGH



Canine cough is the most common infectious disease affecting dogs in Ireland. It is a highly contagious disease and dogs of all ages can be affected.

## Cause

The disease can be caused by a number of bacterial and viral agents including Bordetella bronchiseptica and canine parainfluenza virus.

## How dogs become infected

It is passed from dog to dog via airborne droplets – a case of ‘coughs and sneezes spreading diseases’ - and by direct nose to nose contact. Any social dog that comes into contact with other dogs is potentially at risk.

## Which dogs are at risk?

Canine cough is sometimes referred to as kennel cough, but your pet is equally likely to encounter the disease whenever and wherever dogs gather together. This can include places like parks, grooming parlours, housing estates, walkways and beaches in addition to boarding kennels, shows or training classes.





## CANINE COUGH CONTINUED

### Signs of disease

As the name suggests, the key sign is a harsh, dry cough – very much like whooping cough in humans. The coughing can last for several weeks and during this time more serious complications, such as pneumonia, may arise. In puppies or older dogs, or where there are other health problems, such complications can occasionally prove fatal.



### CANINE COUGH: TREATMENT AND PREVENTION

Little can be done to cure the disease once it's started; you simply make the dog as comfortable as possible and try to control the cough. In more severe cases, other drugs (e.g. antibiotics) may be needed to control secondary complications. The disease normally subsides after a few weeks, but it will have been an extremely unpleasant experience for both dog and owner.

If your dog is likely to be in close contact with other dogs, vaccination against canine cough is recommended. Different types of vaccine are available, including intranasal, oral and injectable types, and your vet will recommend the best option for your pet. Intranasal vaccination (administered via a quick squirt up the nose) protects against the two main infectious agents involved in Canine Cough and provides continuous protection for a full twelve months. Annual vaccination is required to maintain protection.



# LEPTOSPIROSIS



**DISEASE SEVERITY:**   
**HIGH**

**RISK OF INFECTION:**   
**MEDIUM**

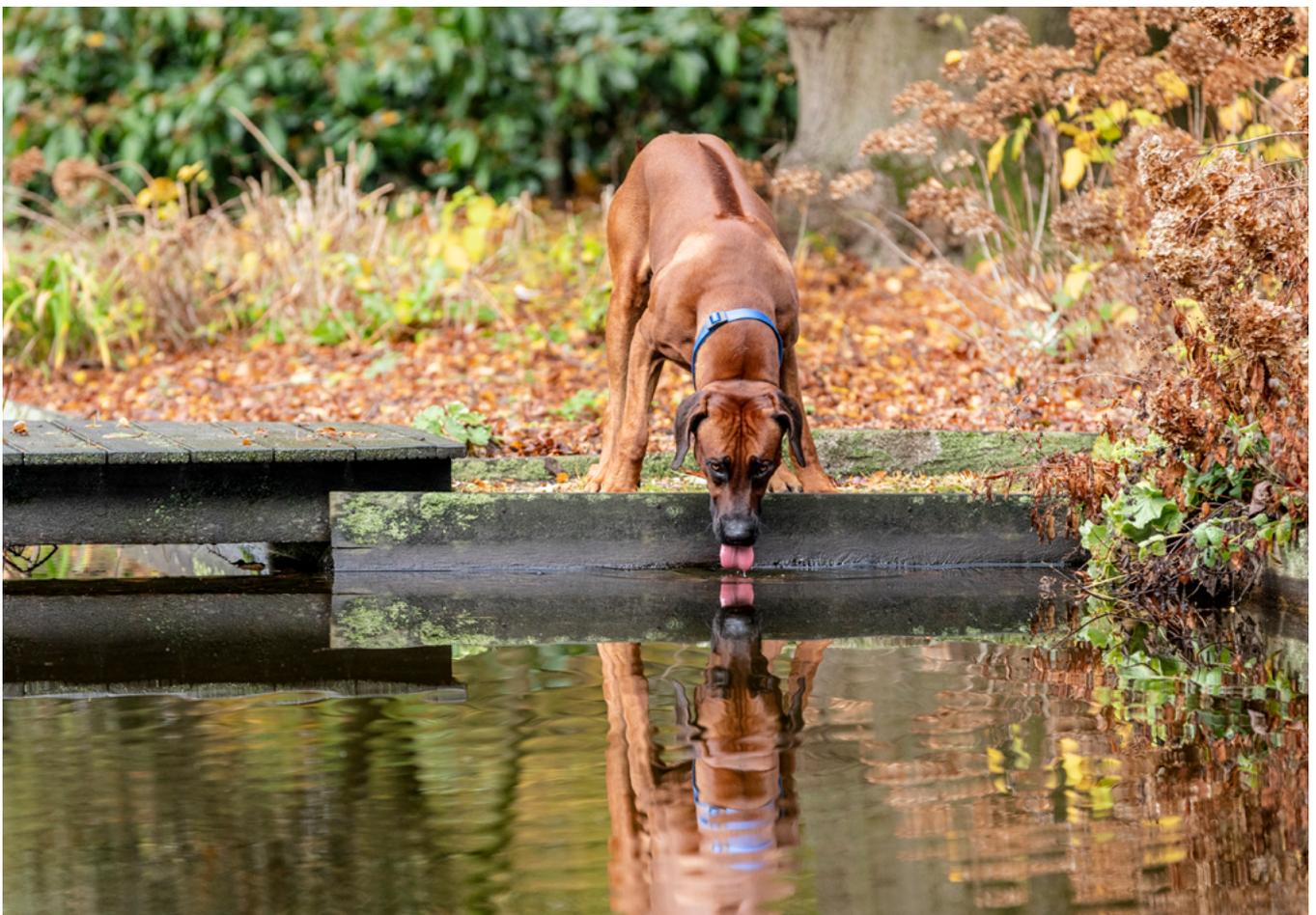
Leptospirosis is currently considered to be the most widespread zoonotic infection (i.e, can also affect people) in the world. Infected dogs can be a source of infection for people in which it may also cause a potentially life-threatening disease.

## Cause

Leptospirosis is caused by microscopic bacteria (*Leptospira* spp.) belonging to a group called spirochaetes. There are many different variants, and the best known, *Leptospira icterohaemorrhagiae*, is spread by rats.

## How dogs become infected

Infected animals, such as rats, shed bacteria in their urine and transmission can occur either directly through contact with the infected urine, or indirectly – for example through contact with contaminated water. After exposure to the bacteria, the leptospires enter the blood stream. This is followed by a rapid replication in several tissues such as the kidney, liver and spleen. The bacteria are then excreted via the animal's urine back into the environment.





## LEPTOSPIROSIS CONTINUED

### Which dogs are at risk?

Virtually all dogs are at risk. However, the highest risk activities include:

- Access to still or slow-moving water sources
- Exploring the outdoors
- Contact with known reservoir species (e.g. wild rodents) – e.g. farm dogs
- Hunting or herding dogs

### Signs of disease

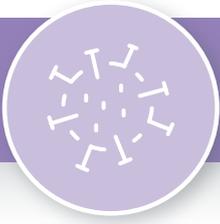
Early signs can be vague, and it can be difficult to diagnose without further testing. However, if not treated early, the disease may progress to potentially fatal liver and/or kidney problems, causing lethargy, loss of appetite, abdominal pain and jaundice.



### LEPTOSPIROSIS: TREATMENT AND PREVENTION

Affected dogs can be very sick, so hospitalisation for supportive treatment, such as fluid therapy, as well as antibiotics to treat the bacterial infection, is likely to be required. Long courses (several weeks) of antibiotics therapy might be needed to reduce bacterial shedding.

Avoiding high risk activities, such as swimming in slow moving or stagnant water, can help to reduce the risk. Vaccination is probably the most widely used tool and various vaccines are available. They vary in the number of leptospira variants they protect against – some protect against 2 variants, others 3 and some provide cover against 4 variants. Ask your vet for details about which vaccine they recommend. The immunity generated by leptospirosis vaccines does not last very long, and **annual boosters are essential** to maintain protection



# INFECTIOUS HEPATITIS

**DISEASE SEVERITY:**   
**VERY HIGH**

**RISK OF INFECTION:**   
**LOW**

Infectious canine hepatitis (ICH) is a highly infectious viral disease of dogs which can cause mild signs in some individuals, but may be fatal in others. Whilst vaccination has resulted in a decrease in the incidence of this disease in recent years, pockets of infection still exist, especially where groups of dogs are maintained in close proximity and where there are many non-vaccinated dogs.

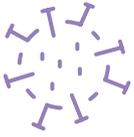
## Cause

Infectious canine hepatitis is caused by canine adenovirus type 1, a virus related to but distinct from canine adenovirus type 2 that can cause respiratory disease. Some strains of the virus may be more pathogenic (i.e., cause more severe disease) than others.

## How dogs become infected

The virus is shed in the faeces, urine, blood, saliva, and nasal discharge of infected dogs. Dogs become infected by close contact with infected dogs or bodily fluids, and the virus is usually taken in orally or inhaled. It then spreads to the liver and kidneys. The virus cannot survive easily in the environment and can be killed by most household disinfectants.





### Which dogs are at risk?

Dogs less than one year of age are most commonly affected. However, those animals that have not been vaccinated or have weakened immune systems are also susceptible.

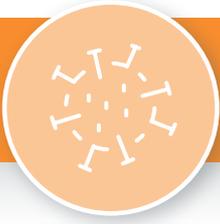
### Signs of disease

Clinical signs vary from mild disease to severe life-threatening illness including fever, lethargy, loss of appetite, coughing, and abdominal tenderness, occasionally accompanied by vomiting. Corneal oedema (Blue eye) and signs of liver disease, such as jaundice or hepatic encephalopathy (neurological signs), may also occur. Severe cases can develop haemorrhagic disease (haematomas in mouth or ears) and death can occur as a result of this or the hepatic disease. Chronic blue eye and kidney damage may persist after recovery from the clinical episode.



### INFECTIOUS HEPATITIS: **TREATMENT AND PREVENTION**

There is no specific treatment, although supportive therapy in the form of intravenous fluids are often given to correct the fluid loss due to vomiting and diarrhoea. The best form of protection against this virus is through vaccination. Following the initial course of vaccinations, immunity can last for several years, with re-vaccination every 3 years sufficient to maintain protection.



## CANINE DISTEMPER

**DISEASE SEVERITY:**  **VERY HIGH**

**RISK OF INFECTION:**  **LOW**



*Photo courtesy of Dr. Hal Thomson, Canine Infectious Diseases Research Unit, University of Glasgow Veterinary School showing encrustation of eyes and nose highly suggestive of canine distemper.*

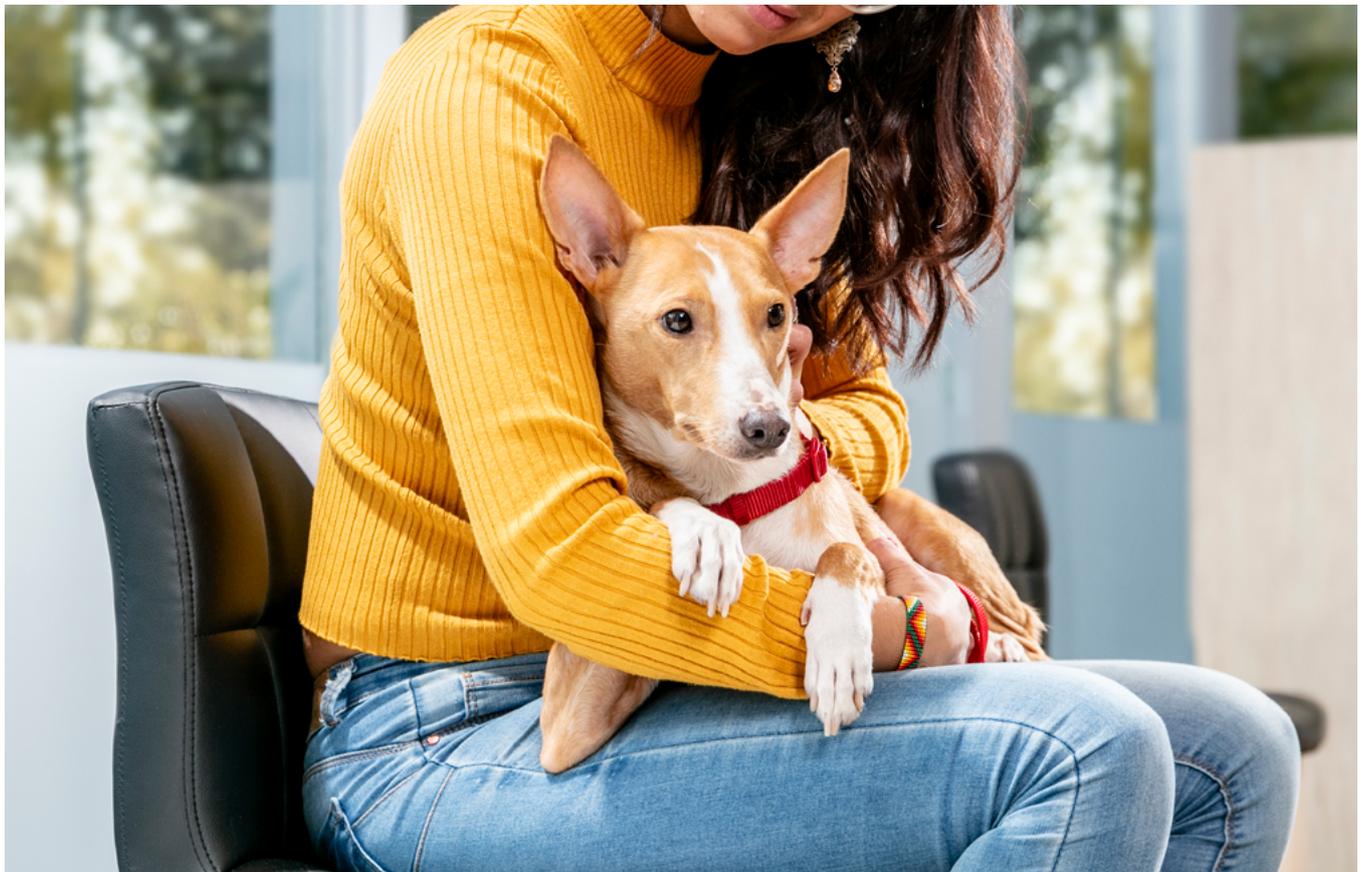
Canine distemper virus is a highly infectious viral disease of dogs which can cause mild signs in some individuals, but may be fatal in others. Thanks to vaccination, the disease is no longer commonly seen, but some cases are still reported each year\*.

### Cause

Canine distemper is caused by a large virus related to the virus causing measles in man. It is a morbillivirus virus (this group of viruses also includes measles and seal distemper). Some strains of the virus may be more pathogenic (i.e., cause more severe disease) than others.

### How dogs become infected

The virus is shed in the saliva and nasal discharge of infected dogs. Dogs become infected by close contact with infected dogs or bodily fluids, and the virus is usually taken in orally or inhaled. Infection can also occur by inhaling droplets produced by an infected dog's coughing. The virus spreads throughout the respiratory tract (nose and lungs) and then to the brain. In some cases, it can also spread to other parts of the body, including the skin and gut. The virus cannot survive easily in the environment and relies on close contact to spread from dog to dog.





## CANINE DISTEMPER CONTINUED

### Which dogs are at risk?

Dogs less than one year of age are most at risk. However, those animals that have not been vaccinated or have weakened immune systems are also susceptible.

### Signs of disease

In the early stages of infection, the signs are usually runny eyes and nose, and coughing. As the disease progresses, and depending on the severity of the infection, this might be followed by a variety of other signs including lethargy, loss of appetite, vomiting, diarrhoea and neurological signs (loss of balance, seizures). In the later stages of the disease, when the virus migrates to the skin, dogs may develop thickening of the foot pads, known as 'hard pad', and nose. Dogs which survive may also go on to show serious neurological signs including seizures (fits) several weeks later. If a dog survives the infection, the adult teeth may appear stained and have pitted enamel. This is called enamel hypoplasia. This occurs because the distemper virus attacks the cells of the mouth when the buds of the permanent teeth are still developing, causing permanent damage.



### CANINE DISTEMPER: **TREATMENT AND PREVENTION**

There is no specific treatment, although supportive therapy in the form of intravenous fluids are often given to correct the fluid loss due to vomiting and diarrhoea. The best form of protection against this virus is through vaccination. Following the initial course of vaccinations, immunity can last for several years, with re-vaccination every 3 years sufficient to maintain protection.

# WHICH VACCINES DOES MY PET NEED?

Your vet is the best source of advice about vaccination, and they will advise the most appropriate vaccination regime based on your pet's needs. We have outlined some general guidance below:

## CORE AND NON-CORE VACCINES

Vaccines are divided into two major categories – core and non-core. Core vaccines are those that protect your pet against common, fatal conditions, and every pet should receive these without fail. In Ireland, core vaccines for dogs include those that protect against parvovirus, distemper, infectious canine hepatitis and leptospirosis.

Although canine cough is not typically a fatal disease, and is considered a non-core vaccine, it is commonly seen, highly contagious and most dogs are at risk. Any social dog that comes into contact with other dogs should be protected.

Rabies is an example of a non-core vaccine but is mandatory for dogs travelling abroad. Ask your vet for advice and try to plan well in advance if you intend to take your dog outside of the country.



## PUPPY VACCINATIONS

Puppies are usually protected during the first few weeks of life by an immunity passed through the mother's milk (colostrum). However, this immunity fades rapidly, leaving the puppy susceptible to disease within a few weeks. At this point, vaccination can begin to take over in providing much needed protection.

The first time a puppy is vaccinated, a course of two injections is usually given, separated by a few weeks. This initial course of vaccines, referred to as the primary course, can be given to puppies as young as six weeks of age – but if you acquire a puppy that's already older, talk to your vet as soon as possible about starting a vaccination course.

Vaccination doesn't work immediately; it usually takes a couple of weeks for immunity to develop. Your vet will advise you on when it's safe to let your puppy interact with other animals – and how to let it outside for the first time, safely.



## BOOSTER VACCINATIONS

Immunity to disease may gradually fade, leaving your dog at risk. The duration of protection varies from disease to disease, and from dog to dog. Some vaccines are licensed to protect pets for up to three years against certain diseases. But it's vital to realise that protection is much shorter for some diseases. Especially for leptospirosis in dogs - no vaccine will protect your pet for more than a year. An annual visit to your vet will allow for a general health check and for any necessary boosters to be given.



### EXAMPLE VACCINATION PROTOCOL FOR SOCIAL DOG THAT EXERCISES OUTDOORS

	Initial course	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 (and so on)
Parvovirus, distemper, infectious hepatitis	2 or 3 injections from 6 weeks	<b>Yes</b>	<b>Every 1 to 3 years</b>						
Leptospirosis	2 injections from 6 weeks	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Canine cough	1 or 2 doses†	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

†Depending on the vaccine used

**If it's been more than 12 months since your pet was vaccinated, contact your vet today**

This guide is provided for information purposes and is not intended as a substitute for veterinary advice. Please speak to your vet if you have any questions about vaccination or concerns about your pet's health.

\*Survey of Irish veterinary professionals

Produced by:  
MSD Animal Health Ltd.  
Email: [vet-support.ie@msd.com](mailto:vet-support.ie@msd.com)  
Web: [www.msd-animal-health.ie](http://www.msd-animal-health.ie)