

CURRENT UPDATES WITH RESPECT TO VACCINATIONS IN DOGS; AN INDIAN PERSPECTIVE

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Leptospirosis, Infectious Canine Hepatitis, Parainfluenza.

Vaccination is a cornerstone of canine preventive healthcare and one of the most cost-effective ways of maintaining a dog's health, longevity, and quality of life. Canine vaccination also serves a public health function by forming a barrier against several zoonotic diseases affecting dogs and humans like Rabies, Leptospirosis. Canine vaccines are broadly categorized as containing core and noncore immunizing antigens, with administration recommendations based on assessment of individual patient risk factors (Ellis *et al.*, 2022).

CORE VACCINES: Core vaccines are recommended for all dogs irrespective of lifestyle, unless there is a specific medical reason not to vaccinate (Day *et al.*, 2007) and is summarized in table 1.

INTRODUCTION

Vaccinating puppy is one of the most important things to do in your first few weeks as a dog owner. Regular vaccinations help puppies grow into dogs that remain free of infectious diseases, and also prevent them from passing nasty diseases on to other animals. Puppies are typically vaccinated at eight and ten weeks (although they can be vaccinated as early as four-six weeks) with the second dose usually being given two to four weeks later.

Your puppy will then require a booster vaccination at 6 or 12 months. As your puppy grows into an adult dog it's important to ensure you visit the vet and keep your dog's vaccinations up to date.

Vaccinations protect your pup from the following common diseases: Canine distemper, Canine parvovirus, Kennel cough,

Table 1. Vaccination schedule for core vaccines

Antigen	Initial vaccination		Revaccination	Dosage and administration
	Dogs ≤16 Weeks of Age	Dogs >16 Weeks of Age		
Distemper Adenovirus Parvovirus +/- Parainfluenza	At least 3 doses of a combination vaccine between 6 and 16 weeks, 2-4 weeks apart.	2 doses of a combination vaccine, 2-4 weeks apart.	<ul style="list-style-type: none"> A single dose of a combination vaccine within 1 year following the last dose in the initial vaccination series. Administer subsequent boosters at intervals of 3 years. 	1ml by subcutaneous or intramuscular injection. Shake well before use.
Rabies	<ul style="list-style-type: none"> First dose when the pup attains 12 weeks of age followed by booster after one month First dose if given before 12 weeks of age, then a repeat vaccination at the age of 3 or 6 months 	-	<ul style="list-style-type: none"> Annually 	

Table 2. Vaccination schedule for noncore vaccines

Antigen	Initial vaccination		Revaccination	Dosage and administration
	Dogs ≤16 Weeks of Age	Dogs >16 Weeks of Age		
Leptospira (killed) 4-serovar	Two doses, 2-4 weeks apart, starting at 12 weeks of age.	Two doses, 2-4 weeks apart, regardless of dog's age.	<ul style="list-style-type: none"> A single dose within 1 year following the last dose in the initial vaccination series. Administer subsequent boosters annually. 	1ml by subcutaneous or intramuscular injection. Shake well before use.
Borrelia burgdorferi (canine Lyme disease)	Two doses, 2-4 weeks apart.	Two doses, 2-4 weeks apart, regardless of dog's age.	<ul style="list-style-type: none"> A single dose within 1 year following the last dose in the initial vaccination series. 	<ul style="list-style-type: none"> Fill if you get information
Bordetella bronchiseptica & canine parainfluenza virus combined	A single intra nasal (IN) dose is indicated for dogs at risk of exposure.		Administer subsequent boosters annually.	Fill if you get information
Bordetella bronchiseptica	Parenteral: Two doses, 2-4 weeks apart. IN: Administer a single dose intranasally. Oral: Administer a single dose into the buccal pouch.		Administer subsequent boosters annually.	Fill if you get information

Common vaccines and their schedule often used in India

NAME	MANUFACTURER	ANTIGEN	SCHEDULE
Raksharab	Indian Immunologicals Ltd.	Rabies	<ul style="list-style-type: none"> • First dose at 3 months of age • Booster after 1 month • Repeat annually
Megavac 7	Indian Immunologicals Ltd.	Live Canine Distemper, Adenovirus (CAV-2), Parvovirus, Parainfluenza and Inactivated Adenovirus (CAV-1), Leptospirosis (L.canicola, L. icterohemorrhagiae) Vaccine	2 months of age 1 st booster after 1 month 2 nd booster after 1 month Repeat annually
Megavac 6	Indian Immunologicals Ltd.	Canine Distemper, Hepatitis, Parvovirus and Leptospirosis	2 months of age 1 st booster after 1 month 2 nd booster after 1 month Repeat annually
Megavac CC	Indian Immunologicals Ltd.	Canine Corona Virus	2 months of age 1 st booster after 1 month Repeat annually
Megavac-P	Indian Immunologicals Ltd.	Canine Parvo Virus	6-7 weeks of age

<https://www.indimmune.com/business-unit/animal-health/vaccines/companion-vaccines>

NONCORE VACCINES: Recommended for some dogs based on lifestyle, geographic location, and risk of exposure and has been summarized in table 2.

We should aim to vaccinate every animal with core vaccines. Non-core vaccines should be given no more frequently than is deemed necessary (Stone *et al.*, 2020).

Vaccination protocols followed according to WSAVA Guidelines:

Puppy vaccination schedule-

The recommendation of the vaccination guidelines group (VGG) is for initial core vaccination at 6–8 weeks of age, then every 2–4 weeks until 16 weeks of age or older. Therefore, the number of puppy primary core vaccinations will be determined

by the age at which vaccination is started and the selected interval between vaccinations.

When vaccination is started at 6 or 7 weeks of age, a course of four primary core vaccines would be administered with a 4-week interval, but only three would be required with an 8 or 9 week start with a similar 4-week interval.

Revaccination of Adult Dogs:

An adult dog that had received a complete course of core vaccinations as a puppy, including a 26- or 52-week booster, but that may not have been vaccinated regularly as an adult, requires only a single dose of MLV core vaccine to boost immunity. Similarly, an adopted adult dog (or puppy over 16 weeks of age) of unknown vaccination history requires only a single dose of MLV core vaccine to engender a protective immune response (Day *et al.*, 2007).

Do's and Don'ts for the Pet owners before Vaccination:

- Wait To Socialize Your Puppy Until Fully Vaccinated.
- Make Sure to Avoid Skipping A Vaccination
- Dog should be in good health at the time of vaccination.
- Don't feed much several hours before the appointment.
- Transport With Care while taking out for vaccination.

Do's and Don'ts for the Vets before Vaccination:

- Do not vaccinate animal which are already in stress.
- Must check proper history before vaccination.
- Give the puppy a complete physical examination and deworming.
- Dog vaccinations should only be administered depending upon factors including age, medical history, environment, travel habits, lifestyle.
- Animal must be in good health condition.

An Update on New Canine Vaccines:

1. Covid vaccine developed for dogs in India - Anocovax has been developed by Haryana's ICAR-National Research Centre on Equines and according to the research centre, it is an inactivated SARS-CoV-2 Delta vaccine which is meant for animals and neutralises both Delta as well as Omicron variants (<https://timesofindia.indiatimes.com/life-style/relationships/pets/covid-vaccine-developed-for-dogs-cats-in-india/articleshow/92357163.cms>).

2. Nasal vaccine for CPV-2 in dogs - Indian Immunologicals Limited (IIL) launches India's first "nasal vaccine against dreaded Parvo virus" for Dogs- Branded as MEGAVAC-P NASAL. As per the company, the vaccine will protect pups as young as 4-6 weeks old (<http://test.pharmabiz.com/topnews/indian-immunologicals-launches-india-s-first-intranasal-vaccine-for-parvo-virus-in-dogs-106394>).

3. CIV vaccine - A vaccine against canine influenza virus (CIV) infection is licensed only in the USA. The CIV vaccine contains inactivated virus and is administered to pups from 6 weeks of age with a second dose 2–4 weeks later and then annual revaccination. Immunity develops approximately 7 days after the second dose. The vaccine is considered non-core and is recommended only for at-risk dogs (Day *et al.*, 2007).

4. Vaccine for malignant melanoma - The first canine immunotherapeutic vaccine for malignant melanoma was licensed in 2010. The vaccine is used as an adjunctive treatment in dogs with oral melanomas and induces an immune response to this melanoma target antigen (Day *et al.*, 2007).

CONCLUSION:

Pet vaccine hesitancy is worrisome, since vaccines not only protect individual dogs but also eliminate widespread diseases. And some diseases, like rabies and leptospirosis, can infect people too. Side effects after pet vaccinations are usually very mild, and severe adverse effects are uncommon. There can be soreness at the injection site, a low-grade fever or lethargy, which indicate that the immune system is working. So, its better to prevent the pets rather getting treated after being infected.

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