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CANINE VACCINATION: WHAT INTERVALS AND WHICH DISEASES?

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Background

Recommendations concerning annual revaccination of adult dogs date back to the late 1950s and early 1960s. In one of the earliest studies, approximately 1/3 of puppies vaccinated with a modified-live distemper vaccine did not have protective antibody titres when they were checked one year after vaccination. On this basis, it was recommended that dogs should be revaccinated annually as a safety measure. In 1961 another researcher was concerned that widespread vaccination of dogs against distemper might substantially reduce natural exposure to the virus and therefore diminish natural boosting of immunity. He suggested that practitioners might choose to revaccinate adult animals whose immune status was in doubt. He did not make a blanket recommendation for annual revaccination, but felt that practitioners would be best placed to exercise discretion in deciding on revaccination frequency.

Nevertheless, annual revaccination of adult dogs became the accepted norm during the 1960s and 1970s. In 1978 the American Veterinary Medical Association (AVMA) issued a set of guidelines on revaccination frequency based primarily on contemporary practices. An updated report in 1989 made no substantial alterations to the earlier recommendations. Annual revaccination was recommended for all vaccine components, with one exception. Because of the public health significance of rabies, it was required that duration of immunity (DoI) be demonstrated for rabies vaccines. DoI studies showed conclusively that available rabies vaccines could provide solid immunity that lasted at least 3 years, so rabies vaccines were administered triennially in many states.

Perhaps it is a testament to the overall safety and efficacy of canine vaccines that these recommendations remained unaltered for so long. Undoubtedly the incidence of distemper and infectious canine hepatitis have declined dramatically since the 1950s and, more recently, vaccination has played an important role in protecting dogs against parvoviral enteritis.

In July 1997 an international Veterinary Vaccines and Diagnostics Conference was held in Madison, Wisconsin. About 500 veterinarians and other scientists attended. Afterwards, several American veterinary schools promptly switched to a triennial schedule of revaccination of adult dogs against so-called 'core' diseases (canine distemper, infectious canine hepatitis and canine parvoviral enteritis). Most of the veterinary schools and many

practices in USA now recommend triennial revaccination against 'core' viruses and do so irrespective of manufacturers' label recommendations.

In May 2001 the Veterinary Products Committee Working Group in Britain issued a comprehensive report on feline and canine vaccination, concluding that, despite evidence for a longer duration of immunity than one year following vaccination against some diseases, there was insufficient information to propose revaccination intervals other than those proposed by the manufacturer and approved by the regulatory process.

In November 2002, the AVMA published a report from its Council on Biologic and Therapeutic Agents concerning cat and dog vaccines. In this report it was stated: "*There is increasing evidence that some vaccines provide immunity beyond 1 year. Unnecessary stimulation of the immune system does not result in enhanced disease resistance and may expose animals to unnecessary risks*". The report also mentioned under individual disease monographs that revaccination intervals for adult dogs can be extended beyond one year for vaccines against canine distemper, canine parvovirus and canine infectious hepatitis.

Finally, in March/April 2003 the American Animal Hospital Association (AAHA) published a report of its Canine Vaccine Task Force. This report confronted the matter of revaccination intervals directly and stated that revaccination every 3 years against canine distemper, hepatitis and parvovirus with modified-live vaccines is considered protective, irrespective of some manufacturers' recommendations for more frequent revaccination.

'Core' and 'non-core' vaccines

'Core' vaccines are those that should be correctly administered to every puppy and should be used in adults in a manner that maintains robust protection against disease throughout life. Generally, core vaccines protect against life-threatening diseases that are thought to pose a significant risk to the population being vaccinated. Core canine vaccines relevant in UK protect against canine distemper, canine infectious hepatitis and canine parvovirus. In many parts of UK, *Leptospira* vaccines should also be considered 'core'.

'Non-core' vaccines are those that need not be administered to every dog because either: 1). the disease(s) against which they protect are relatively mild; 2). the animal has very little chance of exposure to the infectious agent; 3). the vaccine causes significant adverse effects making the risk-benefit ratio unattractive; or 4). there is insufficient scientific information to allow an informed decision about the need, efficacy and or safety of the vaccine. Examples of non-core vaccines include those against *Bordetella*, canine parainfluenza virus and canine coronavirus.

Duration of immunity

Modified-live vaccines against the core viral diseases mentioned above have been shown to provide long-lasting protection, for well over 3 years and possibly for life, in the vast majority of recipients. This is assuming the vaccine has been properly transported, stored and administered. The duration of immunity provided by modified-live canine parainfluenza virus vaccines has been less thoroughly studied, but is thought to exceed three years in a large majority of recipients.

It is generally held that currently-available canine vaccines against *Leptospira* and *Bordetella* provide relatively short-lived immunity, in some cases for less than a full year. However, one recent challenge study showed robust protection against leptospirosis 56 weeks after vaccination. If protection against *Bordetella* is considered necessary for a particular dog, then revaccination every 6-12 months, or shortly before periods of high risk, seems prudent.

Unintended consequences of extended revaccination intervals

In some countries, many dogs receive only long-lasting core vaccines. Extension of recommended revaccination intervals may mean that some dogs are examined by veterinarians less often. Some owners may not be 'triggered' to attend the clinic by a health check reminder; whereas the perceived need for revaccination may be a more powerful inducement. Annual visits to the veterinarian for revaccination have become a routine activity for many clients; recommendations for biennial, triennial or even less frequent revaccinations may be unsettling to some clients unless carefully explained and understood. Understandably, some veterinarians find the impending changes worrying and are concerned that there may be a consequent decline in the quality of health care enjoyed by pets and working dogs.

To combat these potential adverse effects, practice principals should vigorously market the professional skills of their staff and—if they are persuaded it provides tangible health benefits—promote to their clients the advantages of annual health checks for dogs. Underplaying the importance of vaccination and emphasising the potential benefits of a professional consultation and thorough, expert clinical examination would seem reasonable even if changes to revaccination protocols are not planned for the immediate future.

Recommendations offered to veterinary practices

1. Develop a practice policy dealing with companion animal vaccinations. For example, decide what are your 'core' and 'non-core' vaccines. If the policy is sufficiently complicated, write it down and keep it with other

written operating procedures. Make sure everyone in the practice knows and 'buys into' the policy. Clients should then receive consistent advice from whichever staff member they consult.

2. Make sure that front line staff understand and are ready to explain why the practice has adopted its particular policy. They should be ready to answer questions from clients about alternative approaches, which other practices may have adopted. Know some of the advantages and disadvantages of alternative approaches.
3. If using vaccines off-label (*e.g.*, more or less often than the manufacturer recommends) make sure you obtain informed consent from clients before doing so.
4. Follow closely the available guidelines on storage and use of vaccines. Check batches of vaccine as they arrive with the courier. Return to sender vaccines that do not arrive at the requisite temperature (usually 2-8°C). Ensure you keep vaccines in a serviceable refrigerator that remains within the required temperature range. Reconstitute vaccines immediately prior to use.

Recommendations veterinarians can offer kennel proprietors

1. In collaboration with your chosen veterinary advisor(s), develop a well-reasoned, science-based policy concerning your revaccination requirements. Take your time and do it properly. For example, make time to discuss your draft policy with local veterinary practitioners. Once it has been formulated, make sure that all staff understand and apply the policy consistently.
2. Avoid creating your own hard-and-fast rules about when each animal must have received its last vaccination(s). Your rules may contradict vaccine manufacturers' instructions or local veterinary practices' science-based policies. Such rules may also lead to your clients' animals receiving needless 'extra' vaccinations, which are not entirely risk-free.
3. When examining a vaccination certificate, check that the animal has been vaccinated against the necessary diseases. Then check to see how far into the future the veterinarian certifies the animal should be protected against these diseases. In a world of changing revaccination recommendations, this is the most important information on the vaccination certificate. Nowadays, vaccine manufacturers do not all make the same duration of immunity claims. This situation is likely to become more complicated in future. Take note of what the veterinarian states on the certificate about expected protection into the future.