Introduction

The "1998 Report of the American Association of Feline Practitioners and Academy of Feline Medicine Advisory Panel on Feline Vaccines"[1] was developed to help veterinary practitioners formulate vaccination protocols for cats. The current panel report updates information, addresses questions, and speaks to concerns raised by the 1998 report. In addition, it reviews vaccine licensing, labeling, and liability issues and suggests ways to successfully incorporate vaccination protocol changes into a private practice setting. The material in the 1998 report is not fully reproduced here, and readers are referred to the 1998 report for more detailed information.

Vaccines play an important role in the control of infectious diseases. However, most vaccines do not induce complete protection from infection or disease, nor do they induce the same degree of protection in all animals. Factors that negatively affect an individual animal's ability to respond to vaccination include maternal antibody interference, congenital or acquired immunodeficiencies, concurrent disease, inadequate nutrition, immunosuppressive medication, and stress (eg, overcrowding and poor sanitation).[2] Every effort should be made to ensure that patients are healthy prior to vaccination. Because vaccination alone does not completely protect animals from infection and disease, environmental conditions should be addressed and exposure to infectious agents should be minimized.

The overall objectives of vaccination are to vaccinate the largest possible number of individuals in the population at risk, vaccinate each individual no more frequently than necessary, and vaccinate only against infectious agents to which individuals have a realistic risk of exposure and subsequent development of disease. Kittens younger than 16 weeks of age are generally more susceptible to infection than are adult cats and typically develop more severe disease. Thus, they represent the principal target population for vaccination.[3] Maternal antibody interference is the most common reason why some animals are not immunized following vaccination, and is the reason why a series of vaccinations is necessary for kittens younger than 12 weeks of age.[2] Vaccination needs of adult cats should be assessed at least once yearly, and if necessary, modified on the basis of an assessment of their risk.

Vaccine Selection And Administration (Table 1)
It is recommended that administration sites for parenteral vaccines be chosen in accordance with the guidelines established by the AAFP and adopted by the Vaccine-Associated Feline Sarcoma Task Force[4] (Appendix 1). Use of multiple-dose vials is discouraged, because inadequate mixing may result in unequal distribution of antigen and adjuvant, possibly resulting in decreased efficacy or an increased likelihood of adverse events; iatrogenic contamination is an additional risk. The panel discourages the use of polyvalent vaccines other than those containing combinations of feline panleukopenia virus, feline herpesvirus-1, and feline calicivirus, exclusively. This opinion is based on the belief that as the number of antigens in a vaccine increases, so too does the probability of associated adverse events. Additionally, use of polyvalent vaccines may force practitioners to administer vaccine antigens not needed by the patient.

Feline panleukopenia—Feline panleukopenia is caused by feline parvovirus (FPV). The virus remains infectious for months to years in the environment and is primarily spread via the fecal-oral route. Fomites (eg, cages, food bowls, litter boxes, and health care workers) play an important role in the transmission of the organism. Clinical signs of infection include lethargy, anorexia, vomiting, diarrhea, fever, and profound panleukopenia; mortality rates are highest in young, susceptible cats.[5] In utero infection with FPV is a common cause of cerebellar hypoplasia.[6]

*Vaccination against FPV is **highly recommended** for all cats.* Immunity to feline panleukopenia is primarily through antibody response to natural infection, vaccination, or passive transfer of maternal antibodies from queen to kittens. Maternal antibody may interfere with immunization when antibody titers are high during the neonatal period. Maternal antibody titers generally wane sufficiently to allow immunization by 12 weeks of age.[7] Immunity conferred by feline panleukopenia vaccines is considered to be excellent, and most vaccinated animals are completely protected from infection and clinical disease. Both serologic and challenge exposure data indicate that a parenteral FPV vaccine induces immunity that is sustained for at least 7 years.[8,9] *Therefore, following the initial series of vaccinations and revaccination 1 year later, cats should be vaccinated no more frequently than once every 3 years.*

Modified-live virus (MLV) vaccines and adjuvanted inactivated virus vaccines for parenteral administration and a MLV vaccine for topical (intranasal) administration are available and effective. Experimental studies have shown that intranasal administration of canine parvovirus-2 vaccines to puppies is less effective than parenteral administration in overcoming maternal antibody interference (Ron Schultz, personal communication). The most likely reason is that fewer virus particles reach lymphoid tissue when the product is given intranasally, as compared with parenteral administration, and viral replication in lymphoid tissue is required for immunization with MLV parvovirus vaccines. Although studies have not been performed in cats, the same phenomenon may occur in this species as well. Therefore, caution is appropriate when contemplating the use of intranasal FPV vaccines for primary immunization of kittens, especially those residing in environments where exposure to FPV is likely.

It has recently been found that some cats with panleukopenia-like disease were infected with canine parvovirus-2b (CPV-2b). Studies show that FPV vaccines provide excellent protection not only from FPV but also from CPV-2b; thus, canine parvovirus infection should not be a concern for cats immunized as a result of vaccination with FPV vaccines.[10]