Vaccinations are no longer considered the cornerstone for the yearly examination. Patient recalls should be based on the need for a comprehensive physical examination and consultation rather than vaccination. The message for recalls is important; here is a suggested format:

It’s time for Fluffy’s comprehensive physical examination and consultation regarding nutrition and behaviour. Cats are good at hiding health problems. This appointment is an opportunity to find things that might otherwise go undetected—and become more difficult and costly to treat later on. During the appointment, we’ll review Fluffy’s vaccination needs and we’ll give you recommendations for flea and internal parasite control based on her individual needs. In addition, blood and urine tests might be recommended for health monitoring and early disease detection.

Vaccination decisions should be based on risk assessment and tailored to the individual patient. As is always the case in using disease management guidelines, practitioners should adapt the recommendations to best suit the needs of their own patients. In assessing the risk, information about the cat, the environment, and infectious agents to which the cat will be realistically exposed and the potential for zoonosis must be considered:

a) Patient factors: Most infectious diseases are more prevalent in kittens, particularly those under 6 months of age. Kittens therefore, represent a principal target population for vaccination.

b) Maternally derived antibodies (MDA): MDA provide important early protection against disease for kittens. However, MDA may also interfere with the response to vaccination. The level of MDA varies among individuals, so that the age at which a kitten may be able to fully respond to vaccination will also vary. In some cases, this may be 16 weeks of age or older.

c) Aging cats: As cats age, immunosenescence occurs which blunts previously established immunity. As a result, even though a cat may have been well vaccinated at an earlier age, vaccination should not be allowed to lapse in this age group.

d) The environment: Critical issues affecting risk of exposure to infectious diseases include population density and the opportunity for exposure to infectious agents via other cats. Cats in multiple-cat households, cats admitted to boarding facilities, and cats with access to the outdoors are likely to have a higher risk of infection than are cats in households with 1 or 2 indoor cats. However, ‘indoor cats’ are not without risk of exposure to infectious disease during their lifetime and also require protection.

e) Location: Infectious diseases vary in geographic distribution, resulting in substantially different risks of exposure for cats living in different areas. Determining a cat’s risk for infectious disease also includes plans for future travel away from home.

f) The infectious agent: Variables associated with the infectious agent itself, such as virulence, strain variation, challenge dose, and environmental stability, will influence the outcome of infection; these may be difficult to assess. See the disease information fact sheets for helpful information.

g) Government regulations: Rabies is considered to be endemic in most of Canada and legislation mandating rabies immunizations for all cats (indoor and outdoor) is present in many municipalities. Veterinarians should be aware of, and abide by, local and provincial regulations and by-laws.

RESOURCES


2. European Advisory Board on Cat Diseases: Recommendations on the Prevention and Management of Feline Infectious Diseases: [Cathealthy.ca/ABCDvets](http://Cathealthy.ca/ABCDvets)
**Vaccinations**

With a unifying message to vaccinate more cats but to vaccinate individual cats less often than in the past, several organizations have recently reviewed and updated vaccination guidelines for cats (see References). Based on these published guidelines for the indoor/outdoor cat, this panel recommends the following series for the owned cat:

<table>
<thead>
<tr>
<th>Vaccine</th>
<th><strong>First inoculations kittens</strong></th>
<th><strong>First inoculations adult cats</strong></th>
<th><strong>Subsequent inoculations</strong></th>
<th><strong>Comments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Panleukopenia, herpes virus -1, calicivirus</td>
<td>Administer the first dose as early as 4-6 weeks followed by revaccination every 3-4 weeks until at least 16 weeks of age (when risk of MDA interference is minimal)</td>
<td>Administer the first dose followed by revaccination 3-4 weeks later</td>
<td>Administer a booster 1 year after the initial series followed by revaccination every 3 years unless a high disease risk requires more frequent vaccine intervals</td>
<td>Killed virus, modified live, and intranasal vaccine products are available in Canada. All vaccines must be administered according to the manufacturer’s directions (i.e. parenteral products must be given SC*).</td>
</tr>
<tr>
<td>Rabies</td>
<td>Administer a single dose at not less than 12 weeks of age</td>
<td>Administer a single dose</td>
<td>Administer a booster 1 year after the initial vaccination and then according to the manufacturer’s guidelines</td>
<td>Recommended for: 1) All cats with outdoor access (even casual outdoor access such as balconies or outside enclosures) and indoor cats in regions where there is a risk of exposure to rabies via bats. 2) All cats if required by local municipal or provincial by-laws. 3) Cats travelling to other countries. Choice of product (killed versus recombinant) may be dependent on requirements of country of import.</td>
</tr>
<tr>
<td>Feline leukemia virus</td>
<td>Administer the first dose as early as 8 weeks of age followed by revaccination 3-4 weeks later</td>
<td>Administer the first dose followed by revaccination 3-4 weeks later</td>
<td>Administer a booster 1 year after the initial series followed by revaccination every: • 1 year in high-risk cats • 2 years in low-risk cats</td>
<td>Revaccination not needed in cats who are at no risk (indoor-only single cat or indoor multiple-cat household with known negative FeLV status of all cats)</td>
</tr>
</tbody>
</table>

*Cats should be tested for FeLV and FIV prior to vaccination.
Kittens should be vaccinated (even if they are intended to be housed indoors) as this is the most susceptible age group for FeLV infection and, despite an owner’s best intentions, housing status and exposure to other cats can change.
Low-risk cats would include those that go into boarding facilities where cats are housed individually, cats with limited outdoor access (i.e. outside enclosures) where risk of contact with another cat is minimal or in cases where the aforementioned cat is housed indoors but housemates go outside.
High-risk cats would include those that are free roaming and/or are seen at the clinic for abscesses (as evidence of cat fights).

*SC = subcutaneous
VACCINATIONS

The following vaccines are not considered necessary for use in most cats:

Feline Infectious Peritonitis (FIP): At this time there is insufficient evidence that the vaccination induces clinically relevant protection and the use of the vaccine is not recommended.

Feline Immunodeficiency virus (FIV): The FIV vaccine may not provide complete protection against all field strains due to the highly mutable nature of the virus, leading to a false sense of security. In addition, the conventional testing methods for FIV are based on antibody detection. These tests are unable to distinguish between vaccinated and naturally infected individuals. Additional PCR testing in positive animals may be required to distinguish between these two populations, involving additional costs and time.

Feline Injection Site Sarcomas

Feline injection site sarcoma (FISS) is a rare but devastating neoplasm that has been associated with vaccinations as well as other injected products (e.g., lufenuron, microchip, long-acting medications). Current theories suggest that the cause is complex and multi-factorial, involving the nature of the inflammatory response in certain individuals that may be genetically predisposed to tumour development. FISS can occur months to years after vaccination, making determination of cause and effect very difficult. A recent study suggested that cats with sarcomas in the rear leg were significantly less likely to have received recombinant rabies vaccines than inactivated vaccines.\(^1\)

We therefore recommend avoiding inactivated vaccines when possible and when appropriate. However, it’s important to note that no vaccines are risk free.

Although we may never be able to fully prevent FISS, based on the available evidence, we recommend the following to reduce risk:

• Extended re-vaccination intervals for adult cats where appropriate

• Vaccine selection based on disease risk assessment

Practitioners must be mindful of choosing a site where surgical intervention might be more effective in the event FISS does occur. Vaccinations should not be administered in the intrascapular area. Using a consistent location for each vaccine type and recording this in the medical record is essential both for surgical planning and for identification of causality. The following sites are recommended for vaccine administration:

• FVRCP vaccines at or below the right elbow

• FeLV vaccines at or below the left stifle

• Rabies vaccines at or below the right stifle

Administration of vaccines should be as close to (at or below) the joint: when given higher on the limb, surgical removal of a sarcoma becomes more complex and invasive. Another option is administration of vaccines in the distal tail. A recent study reported that this technique was accepted by cats and acceptable antibody titres were induced; however, the long term effects are unknown.\(^2\)

REFERENCES
