



PREVENTIVE HEALTHCARE PROTOCOLS

WINTER 2015

ENDORSED BY:



CANADIAN VETERINARY
MEDICAL ASSOCIATION
L'ASSOCIATION CANADIENNE
DES MÉDECINS VÉTÉRINAIRES



TABLE OF CONTENTS:

01	The healthcare needs of cats	04
02	Travel to the veterinary clinic: Not so cat friendly!	05
03	Questions to ask: The medical history	06
04	Nutritional assessment	07
05	Comprehensive physical examination	10
06	Vaccinations	11
07	Parasite control	14
08	Retrovirus testing	17
09	Surgical sterilization: Earlier is better	19
10	Dentistry	21
11	Role of pet insurance in provision of health care	22
12	Nail and coat care	23
13	Preventive care and disease screening	24
14	Pain assessment and management	25
15	Home care, compliance, and follow-up	27
16	Identification and licensing	29

Introduction

Many feline family members are not receiving adequate preventive healthcare.

According to the **Canadian Federation of Humane Societies** statistics for 2012, 37% of households in Canada have one or more cats, and there are 10.2 million owned cats in this country. The owned cat population is growing at a rate of 3.6% annually, which is faster than that of households across the country.

There is a serious disconnect, however, in that many feline family members are not receiving adequate preventive healthcare. In part this is due to owners not being aware of their cats' needs. Additionally, for many owners, the stresses of travelling to the veterinary hospital and those associated with the veterinary visit itself act as deterrents from seeking preventive healthcare. As a consequence, there is a need for the veterinary profession in Canada to focus on providing these services for more cats as well as educating cat owners about the benefits of preventive healthcare in increasing longevity and quality of life. An unspoken part of the problem is that many veterinary care providers feel that compared with dogs, cats are unpredictable, and they feel uncomfortable handling them. As well, feline medical problems are perceived as more difficult to diagnose and treat than those in dogs.

All members of the veterinary team, and all of the other community animal advocates (e.g., animal welfare groups, municipal animal services, public health officials, and the pet industry including retail services), must deliver a consistent message regarding the benefits of preventive healthcare.

The **Cat Healthy Preventive Healthcare Protocols** are based on published evidence wherever possible, as well as the consensus of four Canadian board-certified feline practitioners. We have tried to create a concise, practical, user-friendly, realistic, and accessible resource that will be used on a daily basis in practice.

It is our hope that these protocols will enable and support veterinary teams in providing their feline patients with much-needed preventive healthcare in a way that will encourage cat owners to better understand the need for, and provide the same level of care for, their feline family members that their canine counterparts receive.

How to implement these protocols

1. **Designate a project leader.** Select someone who understands cats, has an interest in feline medicine, and is willing to coach other members of the veterinary team. The leader should suggest changes to procedures and staff behaviours as well as to facilities and equipment that will help incorporate the protocols into your practice.
2. **Use action planning.** Include veterinary healthcare team meetings to assess progress and make adjustments to the original plan.
3. **Encourage success with training sessions.** Learning about and understanding the protocols can take the form of role-playing or question and answer sessions and should be as interactive as possible. Team members should understand the importance of these recommendations for the quality of life and longevity of the practice's feline patients.
4. **Pick two or three changes to focus on first.** Incremental progress will be more successful than trying to implement all of the recommendations at once.
5. **Hold periodic meetings.** Discuss the best approaches for implementing these protocols, review the progress that has been made, and find solutions to problems.

This document contains general protocols on a wide variety of topics. As always, it is up to the practitioner to tailor preventive care plans to the individual patient.

Resources

Better care for cats represents one of the most significant missed opportunities for the profession. The purpose of the Bayer Veterinary Care Usage Study is to improve veterinary care of pets by determining why visits are declining, and to help veterinarians reverse the trend.

Bayer Veterinary Care Usage Study: Feline Findings:
Cathealthy.ca/BayerStudy

THE HEALTHCARE NEEDS OF CATS

More than most other species, cats need consistent preventive healthcare because they are masters of disguise and their signs of sickness are subtle. There is a general misconception that cats are independent and self-sufficient. In addition, because many are kept as indoor pets, it is falsely believed that they are free from risk of disease. The solitary nature of cats leads them to be naturally self-defensive, making them a challenging species for veterinary healthcare teams and owners.

It is essential that the veterinary team deliver a unified message that cats need preventive healthcare, as well as regular monitoring of existing disease conditions. It is also important to provide support for owners who we are depending upon to implement our recommendations.

All members of the veterinary healthcare team should recognize and communicate to owners that the following signs are reasons to seek veterinary care*:

1. Inappropriate elimination behaviour
2. Changes in social interactions
3. Changes in activity
4. Changes in sleeping habits
5. Changes in food and water consumption
6. Unexplained weight loss or gain
7. Changes in grooming
8. Changes in behaviour
9. Changes in vocalization
10. Bad breath

*Adapted from the Healthy Cats for Life and the Subtle Signs of Sickness (as listed under Resources).

RESOURCES

One of These Cats is Sick:

[Cathealthy.ca/MerialBrochure](https://cathealthy.ca/MerialBrochure)

- Tips on transporting cats to the clinic
- Misconceptions on cat health

Healthy Cats for Life and the Subtle Signs of Sickness:

- Going to the clinic
- Subtle signs of sickness
- Wellness checklist

Have We Seen Your Cat Lately:

[Cathealthy.ca/haveweseen](https://cathealthy.ca/haveweseen)

- Visiting your veterinarian: tips for a stress-free trip
- The importance of wellness exams
- Promoting feline health: downloads, press releases, and more

CATalyst Council:

[Cathealthy.ca/catalystcouncil](https://cathealthy.ca/catalystcouncil)

- Cat friendly practice tools
- Cat owner resources, including how-to videos



TRAVEL TO THE VETERINARY CLINIC - NOT SO CAT FRIENDLY!

A critical factor that prevents cats from receiving healthcare is the inability of the cat owner to travel with the cat to the veterinary hospital. The first step in healthcare is to educate the owner about how to make the trip to the clinic more pleasant. The point of first contact is the owner's phone call to the veterinary clinic. At this time, the veterinary healthcare team member should ask the owner several key questions prior to the veterinary appointment including:

1. Do you have a cat carrier?

All cats should come to the clinic in a carrier. If you don't have a carrier, we can loan you one (see callout box below).

Each cat should come in its own carrier.

The best carriers are sturdy plastic carriers that open from the top and the front, and that can easily be taken apart. This allows the cat to remain in the bottom of the carrier during most of the examination, which may be a more familiar space than on the table.

Be sure to secure the carrier in the car with a seatbelt in the back seat. The front seat airbag can injure a cat even in a carrier.

When carrying the carrier, keep it stable and horizontal.

For more tips, see:

2011 AAEP/ISFM Feline Friendly Handling Guidelines:
Cathealthy.ca/catvetshandling

Loaner Cat Carriers

Loaner carriers are very useful to make available. These may be carriers left in the clinic or donated by owners. They can be disinfected and labeled with the clinic's name and contact information. A soft, clean towel can be put inside for comfort and traction. Include a Feliway™ wipe, and instruct the owner to wipe the inside of the carrier 10-15 minutes before the cat is put into it.

2. Do you have difficulty getting your cat into the carrier? Do you feel anxious about the visit?

The carrier can be a comforting place for your cat instead of a stressful place. Here are some ways to accomplish this:

- Leave the carrier in a living area where the cat frequently spends time.
- Feed the cat in or near the carrier.
- Place familiar bedding or some of your clothing inside the carrier as well as treats, catnip, and toys.
- Use synthetic facial pheromones (e.g., Feliway™) in the carrier 10-15 minutes prior to travelling.
- Travel with kittens on a routine basis for short non-veterinary related trips.
- Motion sickness can be reduced by withholding food (but not water) for a few hours before the trip. If this is not effective, therapy for motion sickness (e.g., Cerenia™) can be used.

For more tips:

Train your cat videos at: Cathealthy.ca/trainyourcat
• Cat carrier training, parts 1 and 2

Products to consider using:

Navigator™ cat carrier: Cathealthy.ca/navigatorcarrier
Thundershirt™: Cathealthy.ca/thundershirt
Feliway™: Cathealthy.ca/feliway

QUESTIONS TO ASK: THE MEDICAL HISTORY

1. What are your concerns today?

Always start by determining the client's concerns and goals for the visit. However, the initial reason for booking the appointment may not be the only important issue.

2. Does your cat go outside or have contact with any other animals?

An important part of risk assessment is determining the cat's lifestyle. Clients may consider their cat as an indoor pet with a low risk of disease, but with questioning, it may become apparent that the cat travels with the owner, goes to a boarding facility, meets other cats in the building, goes on a balcony, etc. The cat's origin (e.g., was it adopted after a natural disaster in another region?) and travel history are important parts of the medical history for developing a differential list for illnesses caused by infectious diseases.

3. Who lives with you and your cat? Are there any other pets in the home?

Knowing whether children or immunocompromised people live in or visit the home will help assess risk of zoonotic disease. Changes in household composition (e.g., a new baby, a student leaving for college, etc.) can cause stress and clinical signs of illness.

4. Have you noticed any changes in your cat's behaviour or temperament? Do you have any questions or concerns about your cat's behaviour?

Behaviour problems and problem behaviours are often overlooked in feline medicine and can become a reason for euthanasia or relinquishment to a shelter. Cat owners often do not realize that veterinarians can provide behaviour counselling or that many behaviour problems have a medical basis. For example, in senior cats, many changes are wrongly attributed to old age when the causes may be due to disease, pain, or social distress. For more information, see the AAFP 2004 Feline Behavior Guidelines (Cathealthy.ca/catvets-behavior).

5. Where are the cat's food, water, and litter box located? How many are there?

Determining the number and location of key resources (food bowls, water bowls, litter boxes, toys, perches, sleeping & resting places) is important for the cat's quality of life and well-being as well as for assessment of behaviour problems. The required number and location of these key resources are determined by the number of cats in the home, as well as the

presence of other pets and perceived threats. Asking the client to draw a floor plan showing the location of key resources can be very helpful. For more information, see the AAFP/ISFM 2013 Environmental Needs Guidelines (Cathealthy.ca/catvetsenvironmental).

6. What foods does your cat eat? How much do you feed and how often? What kind of treats do you give your cat?

See the section on Nutritional Assessment (on page 7).

7. Do you have pet insurance for your cat?

Several companies provide different levels of insurance plans for cats. These plans can be very helpful in an emergency or health crisis. Knowing that a proportion of the costs of care are covered by insurance can make diagnostics and treatment planning more feasible for the owner.

8. Does your cat carry identification?

All cats should have both permanent (e.g., microchip, tattoo) and visual (e.g., break-away collar and tag) forms of identification. Microchips and tattoos are only useful if the owner's contact information is registered and kept up to date. The veterinary team can remind owners of the need to keep contact information current in relevant databases at preventive care visits. An ideal time to place a microchip or tattoo is during anesthesia for surgical sterilization. The microchip should be scanned at each annual visit to verify placement and function. This is also a good time to ensure that the owner's contact information is up to date in the microchip database.

9. How would you describe your cat's feces?

Evaluate stool quality, consistency, quantity, colour, and frequency in every cat (even if they are not presented for gastrointestinal problems) by using tools such as a fecal score chart. Cats with abnormal fecal scores should be worked up. For example, chronically soft stools may indicate an underlying disease while chronically small hard stools may be due to dehydration.

RESOURCES

Fecal Scoring Chart (Purina) - page 13 in Quick Reference Guide: Diagnosis and Management of Gastrointestinal Disease (free registration required): Cathealthy.ca/purinafecalchart

THE NUTRITIONAL ASSESSMENT

A nutritional assessment should be performed at every visit. Key information includes the type of food, the brand, the amount fed, the frequency of feeding, and the amount actually eaten, as well as type and amounts of any supplements or treats provided. This information is helpful in determining how appropriate the nutritional plan is for this cat's life stage, health conditions, and body weight. Having reception staff prepare the client in advance and asking them to bring this information for the visit can save time and provide a more accurate assessment. Similarly, designating a staff member to make a follow-up phone call after the visit allows you to collect any missing details.

At every appointment, review the nutritional assessment and make a recommendation that includes a specific diet, the amount to be fed (by volume or weight), as well as frequency of feeding. Table 1 provides information on recommended daily caloric intake. Record this information in the medical record and communicate it to the client both verbally as well as in written form.



Table 1: Resting Energy Requirements (RER) for Ideal Body Weight

For body condition score 2.5/5 to 3.5/5 or 5/9		RER*
Body weight (lbs)	Body weight (kg)	Kcal/day
1	0.45	39
2	0.91	65
3	1.36	88
4	1.82	110
5	2.27	130
6	2.73	149
7	3.18	167
8	3.64	184
9	4.09	201
10	4.55	218
15	6.82	295
20	9.09	366
25	11.36	433

$$\text{RER} = \text{BW (kg)}^{0.75} \times 70$$

Maintenance DER (Kcal/day):

Normal, neutered adult = 1.2 x RER

Intact adult = 1.4 x RER

Obese prone adult = 1.0 x RER

For weight loss in adults = 0.8 x RER

Growing kittens = 2.5 x RER

RER = Resting Energy Requirement: the energy required for a normal individual at rest in a thermoneutral environment based on body weight.

DER = Daily Energy Requirement: the average daily energy expenditure of an animal dependent on life stage and activity (work, lactation, gestation, growth).

THE NUTRITIONAL ASSESSMENT

Healthy Body Weight And Obesity Prevention

- Preventive healthcare includes monitoring weight, body condition score, and muscle condition. Controlling energy intake is important for the prevention of obesity and maintenance of ideal body weight. Individual cats may have energy requirements 50% or more above or below the average requirement. The true DER for an individual cat is the amount of calories needed to maintain an ideal body condition (BCS 2.5/5 - 3.5/5 or 5/9) and stable weight.
- Body conditions can be determined by several methods. Three common methods include using the 5-point or 9-point body condition score charts and body fat index (see Resources). For cats determined to be above ideal weight, a body fat index chart or morphometric measurements can help to estimate the ideal body weight – and then to calculate a starting food dose for that individual. Once ideal body weight is determined, it should be recorded in the cat's medical record for future reference.
- It is also helpful to note not just whether weight is stable, has increased, or has decreased, but also the percentage weight change as this helps to detect insidious changes, thereby potentially preventing future obesity or facilitating early detection of disease.

$$\text{Percentage weight change} = \frac{\text{Current weight} - \text{previous weight} \times 100}{\text{previous weight}}$$

- Muscle condition should also be evaluated. A patient that is muscle wasted may be suffering from a catabolic disease (e.g., neoplasia, a protein-losing nephropathy or enteropathy), be unable to absorb dietary protein efficiently (e.g., intestinal disease), or may need a diet with more protein. Even an obese individual may be muscle wasted, making weight and BCS alone inadequate for assessing body condition.

Food Choices, Nutritional Information and Weight Gain

- Today's pet foods are more palatable than feline diets have been historically and the caloric content of cat foods varies widely. Feeding unlimited amounts of highly palatable, energy dense foods encourages caloric intake that exceeds requirements. A cat should like what it eats, but not necessarily love it.
- Feeding multiple small meals may allow for better control of caloric intake.
- Daily food allotments should be measured carefully; weighing dry diets on a kitchen scale may be more accurate than measuring by volume.
- Canned food has several benefits, including increased water intake and lower caloric density by volume.
- Excessive use of treats or substitution of food (and treats) for other types of interaction between the owner and cat encourages excess energy intake. Snacks should be limited to <10% of the total dietary intake on a volume, weight, or calorie basis.
- Surgical sterilization predisposes cats to weight gain for several reasons. As a result, neutered cats have resting metabolic rates 20 to 25% below those of intact cats of similar age. When a cat is discharged after surgical sterilization, new feeding recommendations should be calculated and explained to the owner:
 - Feed lower calorie foods (if not a growing kitten) or restrict regular foods to 75% of the previous amount.
 - Schedule an evaluation of body weight and BCS 4-5 months after surgery to ensure maintenance of ideal body weight and condition.
- Nutritional information should be available from the food manufacturer; producers of premium foods provide full nutritional information to veterinary staff. If the manufacturer's recommended feeding amounts are used, excess caloric intake may result because recommendations are based on ranges and average caloric requirements.



THE NUTRITIONAL ASSESSMENT

Feeding Management

The domestic cat is anatomically and physiologically adapted to eating as many as 10-20 small meals (a reflection of their hunting behaviour) throughout the day and night. Feeding twice daily or having a bowl that is never empty are not “natural” ways for cats to eat. Having opportunities to express hunting behaviour is a basic need for cats. Allowing cats to ‘hunt’ for their food, or using a feeding device, are mentally stimulating activities. Examples of feeding devices are found under (Resources).

Under stressful situations, many cats will refuse a novel food. Under other circumstances, the same cat may be very adventuresome and choose a new diet over a familiar food. A new diet is more likely to be accepted if it is offered at home rather than in the clinic setting. Changing diets can be challenging; tips on transitioning to new diets can be found in the brochure from Hill’s Pet Nutrition, A Simple Guide to Feeding Your Cat (Cathealthy.ca/Hillsbrochure).

After a diet change, a follow-up recheck appointment is warranted (no different than when sending medication home) to evaluate how this particular individual is responding to the recommended diet. In essence, when a new diet is recommended, you are performing a nutritional study of n=1.

RESOURCES

Hill’s healthy weight protocol: Body fat index and morphometric measurements:

Cathealthy.ca/Hillsweightprotocol

Feeding devices:

- Multivet Slim Cat
- Cat Activity Fun Board
- Go! Cat! Go! Play-N-Treat Balls
- FUNkitty Egg-Cersizer
- Aikiou Stimulo
- Catit Design Senses Food Maze

5-point body condition scoring chart:

Cathealthy.ca/fivepointchart

WSAVA Savvy Cat Owner’s Guide: Nutrition on the Internet

Cathealthy.ca/WSAVA

WSAVA Global Nutrition Assessment Guidelines 2011:

Cathealthy.ca/WSAVAguidelines

AAHA Nutritional Assessment Guidelines for Dogs and Cats:

Cathealthy.ca/AAHAguidelines

Pet Nutrition Alliance: Educational resources on pet nutrition:

Cathealthy.ca/PetNutritionAlliance



THE COMPREHENSIVE PHYSICAL EXAMINATION

A thorough physical examination is critically important both for preventive care and for the diagnosis of illness. The examination findings along with the medical history should provide the basis for a list of problems and differential diagnoses, which may then be refined through diagnostic testing.

At a minimum, every cat should be examined at least once yearly. After 8 years of age, twice yearly examinations are recommended as age-associated disease is more common and changes may occur more quickly. Key points include:

- Observe the cat's behaviour and temperament before and during handling as well as the cat's interactions with the owner.
- If the cat will safely move around the exam room, be sure to note problems such as stiffness, reluctance to jump up or down on chairs or tables, hesitation in movement, etc.
- In addition to weighing the cat at every visit (even if the visit is for a non-medical reason such as nail trimming), always determine the BCS and evaluate muscle condition. Note whether the cat is at ideal body weight and if not, plan to address the problem with the owner.
- A complete physical examination should be completed and recorded in the medical record using a systematic checklist.
- Use the cat's name and refer to its sex correctly. Handle the cat in a respectful and appropriate manner to minimize stress and anxiety for both the cat and the owner.
- Always assess the cat's hydration status using skin elasticity (bearing in mind it may be inaccurate in the very young and the very old), mucous membrane moisture, and knowledge of stool consistency.
- Be sure to include thyroid palpation and an oral examination (including looking under the tongue) for every cat.
- If possible, any diagnostic or medical procedures should be completed before the cat is safely back in its carrier so that the stress of unnecessary repeat visits is minimized as much as possible.

RESOURCES

Rodan I, Sundahl E, Carney H, et al. AAFP and ISFM Feline-Friendly Handling Guidelines. *J Feline Med Surg* 2011;13:364-375.

Available free at: Cathealthy.ca/catvetshandling



Photo courtesy of Bayer

VACCINATIONS

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

1. World Small Animal Veterinary Association Vaccination Guidelines (2010): [Cathealthy.ca/WSAVAvaccination](https://www.cathealthy.ca/WSAVAvaccination)
2. European Advisory Board on Cat Diseases: Recommendations on the Prevention and Management of Feline Infectious Diseases: [Cathealthy.ca/ABCDvets](https://www.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 vaccina-

tion 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:

VACCINE	FIRST INOCULATIONS KITTENS	FIRST INOCULATIONS ADULT CATS	SUBSEQUENT INOCULATIONS	COMMENTS
Panleukopenia, herpes virus -1, calicivirus	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)	Administer the first dose followed by revaccination 3-4 weeks later	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	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*).
Rabies	Administer a single dose at not less than 12 weeks of age	Administer a single dose	Administer a booster 1 year after the initial vaccination and then according to the manufacturer's guidelines	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.
Feline leukemia virus	Administer the first dose as early as 8 weeks of age followed by revaccination 3-4 weeks later	Administer the first dose followed by revaccination 3-4 weeks later	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 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)	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

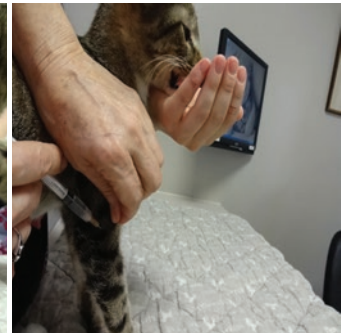
Administration of vaccines should be as close to (at or below) the joint: when given higher on the limb, surgical removal of a sarcoma becomes more complex and invasive. Another option is administration of vaccines in the distal tail. A recent study reported that this technique was accepted by cats and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

REFERENCES

1. Srivastav A, Kass PH, McGill LD, Farver TB and Kent MS. Comparative vaccine-specific and other injectable-specific risks of injection-site sarcomas in cats. *J Am Vet Med Assoc.* 2012; 241: 595-602.
2. Hendricks CG, Levy JK, Tucker SJ, et al. Tail vaccination in cats: a pilot study. *J Feline Med Surg.* 2013 (in press).



Rabies vaccination
Photo courtesy of Dr. Liz O'Brien



FVRCP vaccination
Photo courtesy of Dr. Liz O'Brien

PARASITE CONTROL

Effective control and prevention of both external and internal parasites is essential to promote the health of the cat, promote public safety and to preserve the bond between pets and people. While prevention and treatment of parasites in the family dog is important, the health of the family cat should not be overlooked in this regard.

Evaluating Risk

A parasite control program should be instituted for all cats, regardless of their indoor or outdoor status. Recognizing that geographic, seasonal, and lifestyle factors affect the risk of infection with parasites, a clinic prevention program should be adapted to suit the needs of individual patients within the geographic region. In some regions of Canada, the risk of parasite infection may be seasonally driven, but in dense environments such as apartment buildings and multi-pet households, year-round spread of parasites needs to be considered. There is often an incorrect assumption that an indoor cat is not at risk for parasitic infection. Indoor cats are at risk due to the transmission of parasites on clothing, furniture, footwear, and potted plants. Additionally, the transmission of parasites via outdoor pets to the indoor cat should be considered. Indoor and outdoor cats that hunt and consume rodents are at risk of tapeworm as well as roundworm infection.

A clinic's parasite prevention wellness protocol should be based on:

- The age of the cat
- The life cycle & pre-patent period for the parasite in question
- The environmental and geographical prevalence of the parasite(s)
- The individual cat's relative risk of exposure
- The household number and species or types of pets
- The mechanism of action of the chosen dewormer, with special focus on the duration of action and targeted parasite life stages

External Parasites

Fleas

Depending on the individual's lifestyle and geographic region, a cat may be at risk for flea infestation. High-risk scenarios include access to the outdoors, living with other pets that go outdoors, or living in pet-dense environments such as apartment buildings. In these cases the use of a year-round, monthly veterinary flea control product is strongly recommended.

Veterinarians play an important role in educating owners about the flea life cycle in cats and dogs and the appropriate use of recommended products. Risks associated with using retail topical products, including powders, sprays, spot ons and flea collars, must be discussed due to the high incidence of pyrethrin/permethrin toxicosis. <http://www.icatcare.org/permethrin/vet-info>. A minimum three-month treatment period is recommended for managing existing flea infestations due to the nature of the flea life cycle.

Diagnosis of fleas in cats can be challenging. The fastidious nature of cats often results in a lack of flea dirt and fleas due to grooming. Thus, in patients suspected of having fleas and/or flea allergy dermatitis, treatment should be initiated regardless of whether fleas or flea dirt are seen. An appropriate, licensed topical product should be used according to the manufacturer's recommendations.

Ticks

In Canada tick distribution varies with geographic area and tick species. Although cats are less susceptible to tick-borne diseases than dogs, veterinarians should discuss the risk to cats as well. Owners should be informed about the need for regular examination to detect ticks, and how to remove ticks. Additionally, because many retail and veterinary prescribed tick products used for dogs contain ingredients that are toxic and potentially life threatening for cats, it is critical to educate the owner of the risks involved with using these canine products on cats.

PARASITE CONTROL

Lice & Mites

Kittens and newly adopted cats should be evaluated for infection with ear mites (*Otodectes cyanotis*). Patients presenting with pruritus, scaling, excoriation and hair loss should also be evaluated for feline lice (*Felicola subrostratus*), mites (*Cheyletiella spp*, *Notoedres cati* and others) and demodicosis (*Demodex cati* or *D. gatoi*). Appropriate diagnostic tests include skin scrapings, flea combings, hair trichograms, acetate tape preparations, and fecal examinations. Appropriate therapy should be based on the availability of approved products, available published data, the specific diagnosis, and licensed products available for use. In-contact cats and dogs should be evaluated for contagion risk and treated appropriately.

Internal Parasites

Laboratory Testing for Internal Parasites

Fecal testing is recommended as a part of every preventive healthcare examination for the purpose of monitoring compliance with monthly preventive medication as well as for the diagnosis of some internal parasites not treated by broad-spectrum preventatives. In kittens, testing can be coordinated with vaccine administration so that two to four tests are run during the first year of life.

The ideal sample size is 2-5 grams of fresh feces. A minimum of one gram of formed feces (a cube measuring 1/2 inch on a side) is required.

Fecal centrifugation floatation techniques with either zinc sulfate or modified Sheather's sugar solution are considered the most reliable in-house screening tests for intestinal parasites. The sensitivity of these tests may be low, and external laboratories should be consulted for further guidance and techniques that may produce improved recovery rates.

Nematode infections

Roundworm infections (*Toxocara cati*, *Toxascaris leonina*) are common in cats and kittens. Infection can occur by ingestion of contaminated food and water or infected paratenic hosts. Transmammary infection does occur, but transplacental infection has not been reported. The reported prepatent period for *T. cati* is 8 weeks but may be as short as 3 weeks depending on the mode of infection (e.g. ingestion of an egg, paratenic host or transmammary infection). Similarly, the reported prepatent period for *T. leonina* varies but is generally accepted to be 7 to 10 weeks. Hookworm infections (*Ancylostoma spp.*) are uncommon in cats. Infection occurs via ingestion of contaminated food or water, consumption of a paratenic host or transdermal larval migration. Transmammary infection has not been reported in cats. The pre-patent period ranges from 19 to 28 days. *T. leonina* and *A. braziliense* (rare in Canada) can also infect dogs, which is an important consideration in multi pet households. Whipworm infections (*Trichuris felis*) rarely occurs in cats in North America. *Eucoleus (Capillaria) aerophila* should be considered when eggs with bipolar plugs are identified by fecal floatation.

Recommended Internal Feline Parasite Prevention Protocols by Lifestage

Kittens less than 6 months of age

- All kittens should receive an anthelmintic at 2, 4, 6 and 8 weeks of age, to ensure prompt removal of *Toxocara spp* acquired from the queen, followed by monthly treatments until 6 months of age.
- Alternatively, when kittens are first brought home, they should receive an anthelmintic with adulticidal activity for a minimum of three treatments spaced 2 weeks apart. Initial deworming frequency is reduced if a product with adulticidal and larvicidal activity is used.
- Following this initial deworming, kittens should be treated with a broad-spectrum parasiticide monthly until 6 months of age.
- Nursing queens should be treated concurrently with their kittens to prevent patent infections.
- All kittens should receive at least one deworming which includes a product effective against tapeworms during their initial deworming series.

Cats over 6 months of age

- At 6 months of age, commence a year-round or seasonal protocol administering a parasiticide based on the cat's risk for external and internal parasite infection that is effective against heartworm, intestinal parasites and fleas.
- Heartworm prevention should be recommended for cats in endemic areas, and for cats that travel to endemic areas.
- Due to the high false negative rate for detecting parasites via routine in-house fecal examinations, deworming 2-4 times per year is recommended by various expert groups (see resource section), if the cat is not receiving regular, monthly treatment.

PARASITE CONTROL

Prevalence data for different Canadian geographical areas can be found in the Canadian Guidelines for the Treatment of Parasites in Dogs and Cats (see resource section).

Cestode Infections

While tapeworm infection is often diagnosed by observing tapeworm segments in the perineal area or in feces, some cats do not show this evidence. Therefore, the possibility of tapeworm infection must be based on the patient's individual risk factors. At each preventive healthcare visit, the cat should be assessed for fleas and the owner questioned about their hunting habits. Not all products have broad-spectrum activity against all tapeworm species, so it is important to identify which species is implicated. For example, fenbendazole will not eliminate tapeworm infection secondary to flea ingestion (*Dipylidium caninum*).

Only affected individuals (not in-contact animals) need to be treated because cestodes require an intermediate host.

Note should be made if exposure to common intermediate hosts (fleas in household or access to rodents) exists as this increases the possibility of infection in other pets in the household. Repeat treatments for tapeworm infection should not be necessary in cases where the source of infection has been successfully eliminated. **When repeat exposure occurs, such as in cats consuming rodents, a regular deworming plan for *Taenia taeniaeformis* is recommended.** Similarly, if fleas are not successfully controlled, repeated therapy will be needed for *D. caninum*. All kittens should receive at least one deworming which includes a product effective against tapeworms during their initial deworming series.

Heartworm Disease in Cats

The cat is a partially adapted host for the heartworm parasite *Dirofilaria immitis* and as such, is considered to be more resistant to infection with adult heartworm than its canine counterpart. Current research data indicate that 3 to 10 adult worms will develop in approximately 75% of cats experimentally infected with 100 L3 larvae. This is in comparison to 60 adult worms in 100% of experimentally infected dogs. However, cats can develop significant pulmonary disease in response to immature heartworms; adult worms are not required for pathologic changes and clinical signs. In a natural setting, the risk of mosquito bite from heartworm host mosquito species is considered to be the same for dogs and cats. While some hosts do demonstrate a preference for dogs, the most common mosquito species in urban centres, *Culex spp*, feeds on both cats and dogs without preference.

As a partially adapted host, in which zero to minimal adult heartworms develop, diagnosis of heartworm in the cat is difficult. Infected cats may exhibit only transient clinical signs (e.g., vomiting or coughing) or die of infection without diagnosis. It is therefore recommended that cats living in (or travelling to) endemic areas should receive appropriate monthly preventives against heartworm beginning within one month of first mosquito exposure and continuing until one month after the last exposure to mosquitoes. Due to the low risk of adult worm development, testing before administration of prophylaxis is not required.

Testing cats for exposure (antibody) to heartworm or infection with adult (antigen) heartworm should be considered in endemic areas and where patients are exhibiting signs suggestive of feline heartworm infection, although interpretation of results is often difficult, and infection may be missed.

RESOURCES

Canadian Guidelines for the treatment of parasites in dogs and cats: [Cathealthy.ca/CPEPguidelines](https://cathealthy.ca/CPEPguidelines)

Worms & Germs Blog: Promoting safe pet ownership: [Cathealthy.ca/wormsandgerms](https://cathealthy.ca/wormsandgerms)

The Companion Animal Parasite Council: [Cathealthy.ca/CAPCvet](https://cathealthy.ca/CAPCvet)

Current Feline Guidelines for the Prevention, Diagnosis and Management of Heartworm Infection in Cats: heartwormsociety.org/pdf/2014-AHS-Feline-Guidelines.pdf

European Scientific Counsel on Companion Animal Parasites: [Cathealthy.ca/ESCCAP](https://cathealthy.ca/ESCCAP)

National Center for Infectious Diseases: healthy pets healthy people: [Cat healthy.ca/healthypets](https://cathealthy.ca/healthypets)

RETROVIRUS TESTING

Feline leukemia virus (FeLV) and feline immunodeficiency virus (FIV) are among the most common infectious diseases of cats, although prevalence in the general cat population varies by geographic location and risk factors. Comprehensive data on the seroprevalence of retrovirus infections and risk factors for cats in Canada were published in 2009. The national seroprevalence for FeLV is 3.4% and FIV is 4.3%, but there is geographic variation. While these viruses are present in all of Canada, the highest prevalence for FeLV is in Nova Scotia, Quebec, and Manitoba; the highest prevalence for FIV is in Newfoundland, Quebec, and Saskatchewan.

In general, the retrovirus status of all cats should be known. Guidelines for retrovirus testing of cats in Canada have been published (see figures 1-3 and Resources).

Who should be tested for FeLV and FIV?

Cats that should be tested for FeLV and FIV include:

- a) At-risk cats: All sick cats, cats with bite wounds or oral disease, cats with known exposure to a retrovirus-infected cat, cats in multi-cat environments where the status of every cat is not known. Sick cats should be tested regardless of a previous negative FeLV or FIV test result.
- b) Newly acquired cats and kittens.
- c) Cats about to be vaccinated against FeLV or FIV.
- d) Cats at ongoing risk of infection (e.g., cats with access to outdoors) should be tested annually for FeLV and for FIV, if not FIV-vaccinated, with patient-side or referral laboratory ELISA.
- e) Cats in shelters are often not tested before adoption but every shelter situation is different. If the cat has been tested, the results should be provided to the new owner. If cats are not tested prior to adoption, the new owner should be made aware that testing is required as soon as possible.

RESOURCES

Levy J, Crawford C, Hartmann K, et al. 2008 American Association of Feline Practitioners' feline retrovirus management guidelines. *J Feline Med Surg* 2008;10:300-316.

Available free at: Cathealthy.ca/catvetsretrovirus

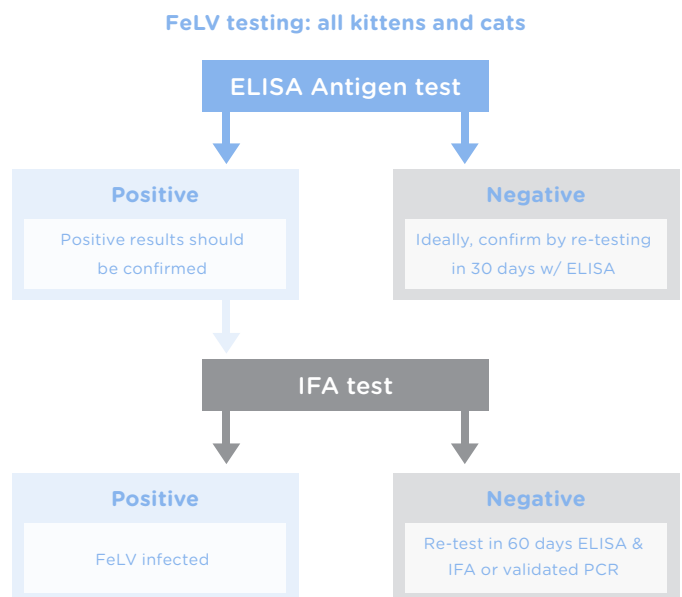
Little S, Sears W, Lachtara J, et al. Seroprevalence of feline leukemia virus and feline immunodeficiency virus infection among cats in Canada. *Can Vet J* 2009;50:644-648.

Available free at: Cathealthy.ca/seroprevalence

Little S, Bienzle D, Carioto L, et al. Feline leukemia virus and feline immunodeficiency virus in Canada: recommendations for testing and management. *Can Vet J* 2011;52:849-855.

Available free at: Cathealthy.ca/felineleukemia

Figure 1: Algorithm for FeLV testing of all kittens and cats (Vaccination against FeLV does not interfere with testing)



RETROVIRUS TESTING

Figure 2: Algorithm for FIV testing of kittens under 6 months old (that have not received FIV vaccinations)

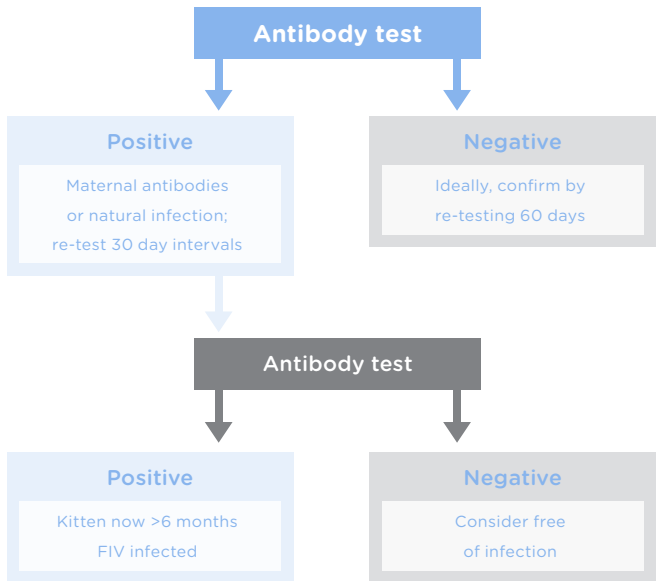


Figure 3: Algorithm for FIV testing of cats over 6 months old

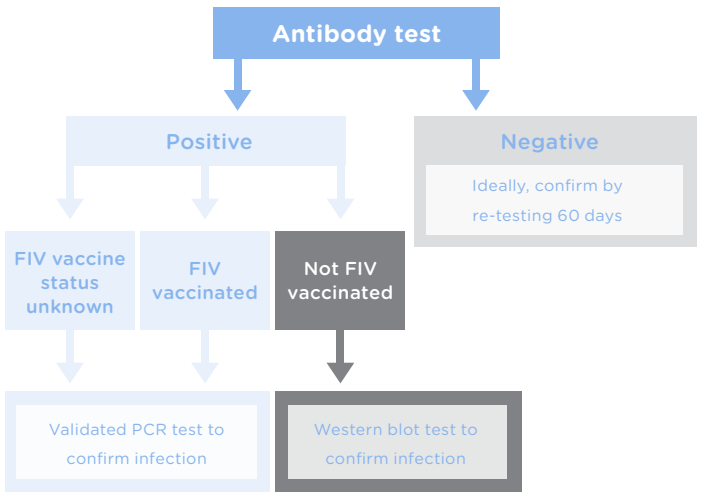


Photo courtesy of IDEXX



Photo courtesy of Bayer



Photo courtesy of Hills



Photo courtesy of Petsecure

SURGICAL STERILIZATION: EARLIER IS BETTER

Although a traditional age for surgical sterilization is 5-7 months, performing surgery at an earlier age has significant benefits, such as more effective population control. Many owners are unaware that puberty can occur in female cats between 4 and 21 months of age and in male cats between 8 and 10 months of age. Prepubertal surgical sterilization, typically performed between 6 and 16 weeks of age, has been in practice in North America for at least 30 years, and is endorsed by the Canadian Veterinary Medical Association. Several long-term studies have confirmed that prepubertal sterilization is not associated with increased risk of disease, narrowed urethral diameter, or behaviour problems, and have also documented some benefits, which include:

- Effective population control
- Pre-adoption or pre-sale surgery avoids owner noncompliance
- Easier surgeries (less bleeding, improved visualization of organs, shorter surgery times) and shorter recovery times
- Smaller incisions result in less inflammation and pain during healing
- Lower post-operative complication rates
- Avoidance of stress and costs of spaying females in estrus, while pregnant, or with pyometra
- The risk of mammary adenocarcinoma is reduced by 91% when females are spayed before 6 months of age

As anesthesia and surgery do not affect the response to vaccination, kittens can be vaccinated at the same time as surgery, if required, preferably once the patient is in recovery. Suggested ages for surgical sterilization in various situations include:

Kitten from private home: Often re-homed at about 8 weeks, should receive primary vaccination series before surgery, schedule surgery following last vaccination at about 16 weeks.

Kitten from rescue organization: Often re-homed at about 8 weeks, schedule surgery following last vaccination at about 16 weeks; some organizations ensure that surgery is performed before re-homing.

Feral kittens: If caught before 7 weeks, may be re-homed and treated as for rescue kittens; if part of trap/neuter/return program, surgical sterilization and vaccination may occur as early as 6-7 weeks; identification such as ear-tipping is recommended for cats returned back to the colony.



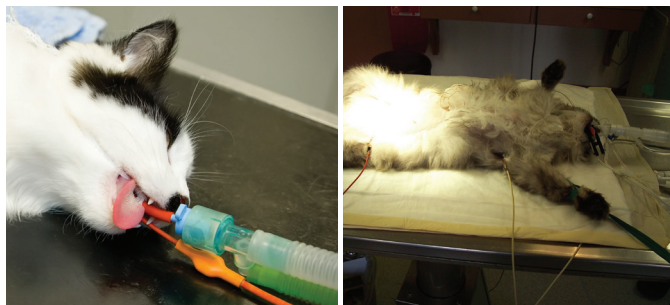
SURGICAL STERILIZATION: EARLIER IS BETTER

Anesthesia and Surgery Considerations

Pediatric patients have unique perioperative, anesthetic, and surgical requirements. Cats under 2 kg have a higher risk of anesthetic complications, probably due to factors such as hypothermia, inaccurate weights, and inaccurate drug doses. The highest risk period is during the first 3 hours of recovery.

Various drug protocols are available in the literature for anesthesia and analgesia for pediatric patients. Important points to address include:

- Reducing stress and anxiety both pre- and post- operatively
- Anesthetic monitoring, including:
 - Breathing rate
 - Cardiac output
- Hypothermia
- Hypoglycemia
- Hemostasis



RESOURCES

Feline Update

From the Feline Centre (Langford Veterinary Services, University of Bristol, UK) and Zoetis:

Cathealthy.ca/felinecentre

- Instructional video on early neutering from Cats Protection charity
- Link to an iTunes app to calculate drug doses for a popular anesthetic protocol
- Principles of early neutering

The Cat Group

Policy statement on timing of neutering:

Cathealthy.ca/thecatgroup

Canadian Veterinary Medical Association

Position Statement on Neutering of Dogs and Cats:

Cathealthy.ca/CVMA

“The CVMA suggests that in most cases, male and female cats be neutered prior to 5 months of age.”

Humane Alliance

Pediatric spay/neuter instructional video:

Cathealthy.ca/humanealliance

DENTISTRY

Compelling evidence in human medicine has linked dental disease to multiple systemic diseases, and periodontal disease is also known to cause systemic inflammatory changes in cats. As well, untreated dental disease is painful. Dental care is, therefore, an integral part of maintaining the health and comfort of cats.

Examination of the oral cavity and discussion of oral health is an important part of every physical exam. As a detailed oral examination is often not possible in the cat, owners need to be made aware that sedation or anesthesia may be required to determine the full extent of the pathology. All exam findings should be properly recorded in the medical record along with the treatment plan.

Oral healthcare should be discussed at every preventive healthcare visit starting from kittenhood. Although brushing twice a day is considered the gold standard of dental care, practitioners must understand that owners will follow the “cat standard” of dental care and establish a treatment plan that has a reasonable chance of success. Owners must be made aware that preventive dental care, just like brushing one’s own teeth, will help retard dental disease but cannot completely prevent it from occurring. Hand scaling of teeth in an awake or conscious cat cannot be recommended and is not a substitute for a comprehensive oral health assessment and treatment plan (COHAT). Products such as therapeutic diets and treats with Veterinary Oral Health Council (VOHC) verified claims for control of plaque and tartar are important parts of preventative oral care.

Owners may be reluctant to pursue dental care due to the need for anesthesia, especially in elderly cats. Veterinarians must acknowledge and address owner concerns regarding anesthesia but should not recommend less-than-optimal dental care because age by itself is not risk factor for adverse effects of anesthesia.

Once anesthetized, the patient should undergo detailed oral evaluation, professional cleaning, and dental treatment. Ideally, full-mouth radiographs should be taken on all cats to identify pathology that may otherwise be missed. All pathologic findings should undergo appropriate treatment or be referred for specialist care. Depending on the nature of the dental pathology, an appropriate home dental care plan should be recommended to the client and a recheck appointment should be scheduled.

Tiered Comprehensive Oral Health Assessment and Treatment Program

Tiered programs encourage treatment in the earlier stages of dental disease with the goal of preventing pain and irreversible oral and dental damage. Tier 1 procedures are less costly than Tier 3 as the severity of disease and the duration of the procedure increase with time. As well, clients with concerns regarding the risks of anesthesia may feel reassured knowing that earlier treatment results in a shorter duration of anesthesia. When required, the cost of dental radiographs and other treatments such as antibiotics and analgesics are added to the base tier cost.

- **Tier 1:** Mild-moderate gingivitis and dental calculus
- **Tier 2:** Moderate gingivitis and dental calculus, mild periodontal disease
- **Tier 3:** Severe gingivitis and calculus, moderate-severe periodontal disease

RESOURCES

Veterinary Oral Health Council
Cathealthy.ca/vohc

American Veterinary Dental College
Cathealthy.ca/avdc



ROLE OF PET INSURANCE IN PROVISION OF HEALTH CARE

Pet Insurance can be very helpful in an emergency or health crisis and can make diagnostics and treatment more feasible for the client. The majority of kittens are healthy, and pet health insurance may indeed be necessary only in the event of accidental injuries or unforeseen incidents such as poisonings or intestinal obstructions.

Accidents, however, only account for approximately 15-20% of all Canadian pet health insurance claims. As a cat matures he or she is more likely to develop chronic medical conditions. Cats often live to be well over 17 or 18 years of age. The prevalence of diabetes mellitus, hyperthyroidism, arthritis and chronic kidney disease increases in senior cats. While the initial diagnosis of these problems may be costly, ongoing therapy and follow-up to manage these treatable problems can continue to tax a family's budget.

Pet health insurance plans will help to pay for these expenses and allow pet owners the ability to make health decisions based on what is truly best for their beloved cat. Many cat owners are open to investigating the advances in feline medicine, but the financial impact on a family for appropriate diagnostics and therapy often limits the medical care that the cat receives. These challenges can be an ongoing source of frustration for the veterinary team and the owner and result in compromises being made in health care.

Ethical and dependable pet health insurance companies can provide peace of mind to cat owners by defraying the costs of veterinary care and allowing the veterinary team to provide the best quality of medicine and surgery that is appropriate for each patient. While choice is beneficial and market competition helps to keep costs down, the variety of insurance programs and plans available from different companies is often confusing and overwhelming for veterinary team members. As a consequence, they may omit recommending insurance altogether.

In order to encourage routine recommendation of pet insurance, we have created a list of what a client should look for in a pet insurance program. A plan should:

1. Require an ongoing veterinarian/client/patient relationship.
2. Communicate to the consumer if wellness coverage is available.
3. Allow pet owners the freedom to choose their own veterinarian, including specialists and emergency/critical care facilities.
4. Never attempt to influence or interfere with the established fee structure of the veterinary practice.
5. Be clear about their policy limits, pricing structure, and optional coverage that might be available to the policy holder as well as what time limits exist for adding to or changing the policy.
6. Be transparent about how the terms and conditions of their plans will impact coverage and reimbursement, including the financial obligations of the policy holder such as co-insurance, deductibles, and exclusions.
7. Communicate clearly about the fee reimbursement process, how reimbursement is determined, and how quickly reimbursements are provided to the policy holder.
8. Have licensed insurance agents available to advise the pet owner about coverage options, and provide help in deciding which type and level of coverage may be of most benefit in reducing the financial burden of their pet's medical/surgical care.
9. Be offered only where the policies are approved by provincial regulatory bodies and meet the ethical standards of the pet health insurance industry.
10. Have a licensed veterinarian to assist in underwriting and claims adjudication.

NAIL AND COAT CARE

Scratching behaviour in cats should not be regarded as simply “claw sharpening.” Scratching is an important communication tool conveying both visual and chemical messages. Seen in this context, it is easier to understand that cats will continue to have the need to express themselves regardless of lifestyle and whether or not this behaviour is desirable to their owners.

To curtail the destructive aspect of scratching, a veterinary team member should demonstrate appropriate nail care (trimming) at every opportunity. The owner should be shown basic nail anatomy (i.e., where the quick is), how to gently expose the nail for trimming, and use of nail clippers. The frequency of nail trimmings will depend on the age of the cat and how much of the nail is removed, but in general, a cat’s nails may need to be trimmed every 4-6 weeks. In addition to nail trimming, veterinarians should discuss scratching behaviour and offer guidance on how to modify the environment. The provision of suitable stable scratching posts allows for the natural expression of this behaviour. Vinyl nail caps (e.g., Soft Paws™) may be a desirable option for clients.

Owners may discuss onychectomy (declawing) or tendonectomy. Onychectomy should be performed only for medical reasons. Like any other surgical procedure, inherent risk of onychectomy include (but are not limited to) anesthetic complications, hemorrhage, infection, wound dehiscence, and side effects associated with improper analgesia. Owners must be made aware that the procedure involves the amputation at the last joint of each digit and the potential surgical complications.

Declawing is a painful procedure and must be performed using both proper technique and effective pre-, intra-, and post-operative analgesia. Multimodal pain control, by incorporating local blocks, non-steroidal anti-inflammatory drugs (NSAIDs) and narcotics, is well tolerated in the cat. Pain management must be provided for as long as the patient requires. Pain control guidelines (see Resources) are available to practitioners to assist in establishing appropriate analgesic protocols.

Tendonectomy is never recommended.

Poor coat condition warrants investigation as it may reflect health problems, such as dental disease, painful conditions (e.g., arthritis), endocrine disease, hydration status, inadequate nutrition, or obesity.

RESOURCES

AAFP/AAHA 2007 Pain Management Guidelines:
Cathealthy.ca/catvetspainmanagement

Gaynor JS. Chronic pain syndrome of feline onychectomy. Clinicians Brief 2005 (April) 11-13.
Cathealthy.ca/cliniciansbrief (free registration)

How-to videos on trimming nails:

- Partners in Animal Health:
Cathealthy.ca/partnersAH

- International Cat Care:
Cathealthy.ca/advicecentre

Soft Paws™:
Cathealthy.ca/softpaws



PREVENTIVE CARE AND DISEASE SCREENING

Preventive care and disease screening programs provide several benefits to the cat, the owner, and the veterinary clinic:

- Help the veterinary clinic establish a standard of care
- Provide financial incentives for the client to make optimal healthcare more manageable
- Improve client compliance
- Improve cat health
- Improve client relationships and grow the bond between the veterinary healthcare team and the client

Preventive care programs are well accepted by clients. Below are examples of bundled prepaid preventive care programs:

First year of life program:

By averaging the cost of surgical sterilization for males and females, the program cost can be the same for both sexes. The program could include:

- All comprehensive physical examinations and consultations
- All required inoculations (FeLV, FVRCP inoculations until at least 16 weeks of age, +/- rabies as warranted)
- FeLV/FIV test
- Surgical sterilization
- Permanent identification (microchip +/- tattoo)
- Broad spectrum deworming +/- fecal examinations

Mature and senior cat program:

This can realistically be recommended annually for all cats from the age of 8 years onward and twice annually for cats over 14 years of age (or once abnormalities have been detected, to assist in the management of these problems). This could include:

- Comprehensive physical examination and consultation
- Blood pressure measurement
- Serum chemistry panel, complete blood count, total T4
- Urinalysis (with urine culture when indicated)
- Survey chest and abdominal radiographs

This model could be used for other preventive care (e.g., dental care) and disease monitoring programs (management of obesity, hyperthyroidism, diabetes mellitus, chronic kidney disease, etc.).

RESOURCES

AAHA-AVMA Feline Preventive Healthcare Guidelines:
Cathealthy.ca/avmaguidelines

Table 1: Suggestions for age-matched preventive care and disease screening

AGE	EXAMINATION & CONSULTATION (INCL. BEHAVIOUR, NUTRITION)	FELV AND FIV TESTS	BLOOD TESTS	URINALYSIS	BLOOD PRESSURE
Birth to 6 mo	2 or more	At least	+/-	+/-	+/-
6+ mo to 2 yrs	1	+/-	+/-	+/-	+/-
2+ to 6 yrs	1	+/-	+/-	+/-	+/-
6+ to 10 yrs	1-2	+/-	1	1	1
10+ to 14 yrs	2	+/-	1-2	1-2	1-2
14+ yrs	2	+/-	2	2	2

+/-: usually not needed at this age unless cat is ill or has been in an accident

1: recommended once a year 1-2: recommended 1-2/year 2: recommended twice a year

PAIN ASSESSMENT AND MANAGEMENT

Due to their evolution as a solitary, self-dependent species, cats are notoriously secretive in revealing discomfort and disabilities. The signs of pain are generally more subtle in cats than in dogs. We can safely predict that many medical procedures and all surgeries performed on cats are painful and pre-emptive analgesia is required. The most effective analgesic protocols are multi-modal. Combining drugs and therapies that influence different parts of the pain pathway results in improved efficacy and reduced risk of adverse effects. Frequent assessment for pain is critical, not so much to determine if analgesia should be used, but rather whether additional modalities should be incorporated, if dose adjustments are needed, and to determine an appropriate duration of treatment.

Pain assessment should be part of every physical examination and consultation, regardless of the presenting reason, even for young cats. While some objective signs of pain can be determined by questioning owners and by repeatedly observing hospitalized cats, the most reliable assessment of the presence of pain is a return to normal behaviours in response to analgesic therapy.

Questions to ask owners about potential signs of pain include:

- Have you noticed changes in your cat's sitting or sleeping position? (e.g., lying flat out, difficulty settling down, hunched position)
- Has there been a change in your cat's sleeping or resting places? (or hiding in unusual places)
- Has there been a change in your cat's energy level? (i.e., more lethargic or more restless)
- Has there been a change in your cat's personality or attitude? (e.g., changes in interactions, irritability, wanting more attention or less attention)
- Have there been changes in your cat's hair coat? (e.g., matted hair, poor grooming)
- Have you noticed a change in your cat's facial expression? (e.g., staring, fixed gaze, dilated pupils, "squinting")

- Have there been any changes in your cat's appetite or water consumption?
- Does your cat lick or bite at a body part?
- Is your cat more or less vocal than in the past? Are there changes in the type of vocalization?
- Have there been changes in your cat's litter box use? (including inappropriate elimination)

For hospitalized cats, signs of fear and anxiety may be similar to signs of pain. Some observations that can assist in the recognition of pain include:

- Tachycardia that persists after initial examination may suggest pain rather than fear or anxiety.
- Tachypnea is frequently an indicator of pain; this is most easily evaluated by looking at the cranial abdomen, just caudal to the last rib.
- Body temperature and blood pressure may be increased or decreased and are difficult to use as indicators of pain.
- Sitting in the back of the hospital cage rather than being interactive and interested may be a sign of pain or of fear.
- Localized and repeatable discomfort on palpation may be more associated with pain than fear.
- Changes in the patient's behaviour; a normally compliant patient becomes defensive or vice versa.



PAIN ASSESSMENT AND MANAGEMENT

Identifying Signs of Pain

The clinical signs of chronic pain may be even more subtle as the patient has learned to “cope” with the pain, often adapting alternative strategies for pursuit of daily activities. Changes in temperament, decreased interaction, grooming, mobility, or “just slowing down” may be interpreted by the owner as being simply due to aging, but they may indicate pain and warrant investigation.



A common reason for chronic pain in cats is degenerative musculoskeletal disease (e.g., arthritis). Questions that assess mobility can be a useful tool, such as:

- Is your cat less willing to jump up or down than previously?
- Is your cat unable to jump as high as previously?
- Does your cat need to use a chair or other object to reach the same height as previously?
- Does your cat show hesitation when trying to jump up on or down from objects?
- Does your cat play with other animals or toys less than previously?
- Does your cat have difficulty getting into or out of the litter box?
- Have there been changes in your cat's litter box use? (e.g., elimination near the litter box)
- Does your cat show signs of being stiff when he/she walks or runs?
- Does your cat have stiffness after waking up that improves with movement?
- Does your cat have difficulty going up and/or down the stairs?
- Is your cat lame when walking or running?

While there is a lack of validated pain scoring tools for cats, two that have been developed are undergoing evaluation and can be recommended for the general practitioner. These very useful tools are:

Colorado State University Feline Acute Pain scale:
[Cathealthy.ca/csupainscale](https://cathealthy.ca/csupainscale)

Feline Musculoskeletal Pain Index (North Carolina State University): [Cathealthy.ca/ncsupainindex](https://cathealthy.ca/ncsupainindex)

Various analgesic drugs and protocols are available for cats. For management of acute and peri-operative pain, opioids form the cornerstone of treatment. Combining opioids with other treatments, such as non-steroidal anti-inflammatory drugs (NSAIDs) and regional anesthesia, improves analgesic efficacy.

In contrast, for chronic degenerative musculoskeletal disease, NSAIDs form the basis of management. Guidelines for the long-term use of NSAIDs in cats have been published and should be consulted.

Other modalities, while not validated, are often incorporated, including:

- Disease modifying agents (e.g., glucosamine/chondroitin, polysulfated glycosaminoglycans)
- Environmental modification
- Therapeutic diets
- Physiotherapy
- Cold laser therapy
- Acupuncture

RESOURCES

AAHA/AAFP Pain Management Guidelines for Dogs & Cats: [Cathealthy.ca/catvetpainmanagement](https://cathealthy.ca/catvetpainmanagement)

Spot the signs: A Report into Chronic Pain in Cats:
[Cathealthy.ca/spotcatpain](https://cathealthy.ca/spotcatpain)

HOME CARE, COMPLIANCE, AND FOLLOW-UP

When treatments are required at home, the instructions should be explained carefully and clearly, checking that the client demonstrates both understanding as well as the ability to perform the prescribed tasks. Both verbal as well as visual (written, emailed) homecare/discharge instructions should be given. When previously unfamiliar treatments are prescribed (e.g., subcutaneous injections), the most effective form of educating and ensuring success includes three steps (See-Do-Teach):

1. Describe (+/- have the client read a how-to brochure) and show the client how to do it,
2. Have the client do it, and
3. Have the client teach someone else how to do it.

Should several treatments be recommended (e.g., oral antibiotics, subcutaneous fluids, a therapeutic diet, nutraceutical supplements, etc.), better compliance will occur if treatments are prioritized.

There are many excellent websites and videos to reinforce the techniques, some of which are listed in the Resources. The AAFP/ISFM 2012 Feline-Friendly Nursing Care Guidelines includes a client brochure (Nursing Care for Cats, Practical Tips for Pet Owners) at: Cathealthy.ca/catvetsnursingcare.

Just as the visit to the clinic has an impact on the cat and its family beforehand, so too the effects of the visit last beyond the return home. This should be taken into consideration as we help the client plan reintroduction to the home environment, especially when there are other pets and people for the cat to deal with. Depending on the reason for the veterinary visit, there will be some degree of disruption to the patient's serenity. If the cat was hospitalized due to illness or was anesthetized, the ability to cope with inquisitive or hostile housemates could be difficult. Allow the cat to acclimate to the home environment in a separate room for a period of time. This will also allow odours acquired in the hospital to dissipate.

Compliance requires that we engage the client in perceiving the value of carrying out our recommendations. Success is best achieved by taking a team approach - involving the client, the veterinarian, and the rest of the healthcare team. We have to ensure that the client understands why we are telling them to administer and persist with treatments, and we have to show ongoing and caring involvement. It is a good investment of time to call the day following a visit or discharge and, in the case of illness or ongoing treatment (e.g., a new diabetic), to follow up with additional phone calls every 2-4 days as suits the patient's and client's needs. Contacting the owner for progress reports will improve compliance, patient outcome, and client satisfaction.

RESOURCES

Having a library of good websites and video links or making your own clinic "how-to" videos is extremely helpful. Videos made by lay people may have the advantage of being more convincing rather than those by healthcare professionals, but content should be reviewed before recommending them to owners. Find ones that your staff and you as well as a client think are best. Examples of useful illustrative clips to have on hand include how to:

- Measure blood glucose: Cathealthy.ca/bloodglucose
- Use an inhaler for asthma medications: Cathealthy.ca/asthmamedication
- Esophagostomy tube feeding: Cathealthy.ca/esophagostomy (Courtesy of Dr. Susan Little)
- Change a KittyKollar (video) and Living with an E-tube (handout): Cathealthy.ca/kittykollar

HOME CARE, COMPLIANCE, AND FOLLOW-UP

Videos on syringe feeding, brushing teeth, etc., are also available. Cat caregivers like to show off their skills and help others.

Cornell University College of Veterinary Medicine has a series of videos on a number of procedures and diseases at [Cathealthy.ca/partnersah](https://cathealthy.ca/partnersah). They include:

- Brushing your cat's teeth
- Giving your cat a pill or capsule
- Giving your cat liquid medication
- Taking your cat's temperature
- Trimming your cat's nails
- Caring for your diabetic cat (includes a video on how to give an insulin injection)
- Gastrointestinal diseases in cats
- Cat owner's guide to kidney disease (includes a video on subcutaneous fluid therapy)
- Managing destructive scratching behaviour in cats
- A pet owner's guide to cancer

Similarly, having a selection of web resources that you have reviewed and feel comfortable with will guide your clients to appropriate reading materials when they want to learn more about their companion's medical condition.

RESOURCES

International Cat Care
[Cathealthy.ca/advicecentre](https://cathealthy.ca/advicecentre)

Extensive library of handouts on medical conditions as well as general cat care, including several videos.

Feline Chronic Kidney Disease: [Cathealthy.ca/felineCHKF](https://cathealthy.ca/felineCHKF)

Feline Diabetes: [Cathealthy.ca/felinediabetes](https://cathealthy.ca/felinediabetes), and one with a more humorous approach: [Cathealthy.ca/sugarcats](https://cathealthy.ca/sugarcats)



IDENTIFICATION AND LICENSING



Photo courtesy of Merial

In 2010, the Canadian national average of lost cat return-to-owner rate was 3.8%. Visual and permanent identification greatly increase the likelihood that a lost cat will be reunited with its owner.

- The benefits of combining permanent identification (microchip and/or tattoo) with visible identification (break-away collar and tag) should be discussed at all preventive healthcare examinations for all cats, even those that live strictly indoors.
- The CVMA supports the permanent identification of animals and recommends a microchip using the International Standards Organization (ISO) microchip technology.
- Microchip implantation is minimally invasive and is well tolerated without the need for sedation. It can be done during any appointment or with routine surgical or dental procedures.
- The permanent identification number (microchip or tattoo) needs to be recorded in the medical record.
- Scan the cat at each visit to make sure the microchip has not migrated and is still functional. At the same time, confirm that the owner has kept the contact information current and complete.
- The use of collars and name tags is extremely valuable but underused. Contrary to popular belief most cats can reliably wear collars safely and comfortably.
- If vaccinated for rabies, provide a rabies tag for the cat's collar along with the vaccination certificate.
- Encourage owners to include up-to-date photographs and other identification information in the microchip database.

It is important that the veterinary team understand the need to support responsible cat ownership municipal by-laws and municipal cat licensing in their community. Municipalities such as Calgary have increased the cat return-to-owner rate to 50-56% by creating and enforcing responsible pet ownership by-laws and by licensing cats. The licensing municipality now holds a separate database of this permanent ID information. As owner information is generally updated annually (at time of license renewal) the licensing program maintains a relatively current database which shelters and veterinary clinics can use to help identify lost cats.

RESOURCES

Merial Get Me Home Program
Cathealthy.ca/getmehome

PANEL MEMBERS

Susan Little, DVM, DABVP (Feline Practice)
Bytown Cat Hospital, Ottawa, Ontario

Elizabeth O'Brien, DVM, DABVP (Feline Practice)
The Cat Clinic, Hamilton, Ontario

Elizabeth Ruelle, DVM, DABVP (Feline Practice)
Wild Rose Cat Clinic of Calgary, Calgary, Alberta

Margie Scherk, DVM, DABVP (Feline Practice)
catsINK, Vancouver, British Columbia

Kelly St. Denis, MSC, DVM, DABVP (Feline Practice)
The Charing Cross Cat Clinic, Brantford, Ontario

