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## Abstract

Human and veterinary oncology share many similarities, which could lead to misconceptions when veterinary clients learn their pet has been diagnosed with cancer and begins undergoing treatment. This article will expose common myths surrounding cancer care for canine and feline patients by introducing the truth to those who may be unfamiliar with veterinary oncology. Knowing the facts will help veterinary nurses best prepare clients with reasonable expectations, allowing them to make a well-informed decision for their pet's care.

ONCOLOGY

# Exposing Medical Oncology Myths for the Veterinary Professional

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**M**any people know someone who has gone through cancer treatment or have personally experienced it. Therefore, it's understandable that veterinary clients may make an assumption that a pet will share the same experiences as a human cancer patient. However, this is the first of various misunderstandings of veterinary oncology.

In a recent VCA Pet CancerCare Alliance survey, more than half (59%) of participants did not believe their pet would develop cancer, although 90% recognized that cancer occurs in cats and dogs.<sup>1</sup> Respondents were then asked to imagine their pet was diagnosed with cancer. Most

participants (74%) responded that they would do everything they could so their pet would be comfortable, but only 35% indicated they would adhere to their veterinarian's plan.<sup>1</sup> These numbers do not seem to favor veterinary oncology. Why is that? This survey exposed a few common myths<sup>1</sup>:

- 66% believed cancer therapy is cost-prohibitive.
- 45% felt treatment would cause pain.
- 43% believed treatment would cause adverse effects.

This article will expose and address these and other prevailing myths surrounding cancer care for canine and feline patients.

## Take-Home Points

- Veterinary oncology specializes in the diagnosis, treatment, and management of cancers, tumors, masses, and secondary signs of cancer or cancer treatment.
- Once a patient receives a cancer diagnosis, it is the veterinary nurse's job to make sure clients know there are always treatment options.
- IV chemotherapy is not the only treatment option.
- Side effects in pets are not the same as those in humans receiving chemotherapy.
- Veterinary oncology patients are not radioactive and can be around the family.
- The No. 1 goal of veterinary oncology treatment is quality of life.



## MYTH #1: “VETERINARY ONCOLOGY”—I DIDN’T KNOW THAT WAS A THING.

Veterinary oncology is a branch of medicine that specializes in the diagnosis, treatment, and management of cancers, tumors, masses, and secondary signs of cancer or cancer treatment in animals. The veterinary oncology team typically consists of an internal medicine diplomate specializing in oncology and an oncology veterinary technician specialist. See **ADDITIONAL RESOURCES** for more information.

### What Does It Take to Become a Diplomate in Medical Oncology?

- Be a graduate of a college or school of veterinary medicine that is accredited by the AVMA or be legally qualified to practice veterinary medicine
- Satisfactorily complete a 1-year rotating internship in veterinary medicine and surgery or have undertaken an equivalent broad-based clinical experience
- Complete an American College of Veterinary Internal Medicine (ACVIM)–approved (3- to 5-year) residency training program in the oncology specialty
- Pass the ACVIM general examination
- Pass the ACVIM oncology specialty examination

### What Does It Take to Become a Veterinary Technician Specialist in Oncology?

- A minimum of 3 years and 6000 hours as a credentialed veterinary technician in the field of internal medicine with a minimum of 4500 contact hours in oncology (must be completed within 5 years before applying for VTS certification in oncology)
- At least 40 hours of oncology continuing education

#### Additional Resources

- Academy of Internal Medicine for Veterinary Technicians. Oncology members. [aimvt.com/oncology-members.html](http://aimvt.com/oncology-members.html)
- American College of Veterinary Radiology. Find a specialist. [acvr.org/find-a-specialist](http://acvr.org/find-a-specialist)
- VetSpecialists.com. Find a specialist. [vetspecialists.com/find-a-specialist](http://vetspecialists.com/find-a-specialist)

- 3 potential oncology examination questions that showcase your advanced knowledge
- 2 letters of recommendation from a VTS member of the Academy of Internal Medicine for Veterinary Technicians or a diplomate of the ACVIM
- 75% mastery of the 36 advanced skills
- 50 to 75 detailed case logs demonstrating what you did to master the advanced skills
- 4 in-depth case reports explaining the “why” of each case
- Following the acceptance of the application, pass a 200-question, 4-hour examination

## MYTH #2: WHAT’S THE POINT? CANCER IS A DEATH SENTENCE.

A veterinary patient has no idea they have cancer, but the family does. Once the family can fully appreciate the cancer type, staging process, treatment options, prognosis, at-home care, and side effects, then they can make a well-rounded decision (**TABLE 1**).

There are always treatment options, and it is the veterinary nurse’s job to make sure clients know that. Once a patient receives a cancer diagnosis, clients should be given a referral and encouraged to meet with an expert. It is the duty of the specialist and their highly trained team to deliver all treatment options before implementing a reasonable treatment plan. It is true that some cancers carry a poorer prognosis than others, but some are also curable.

Medical advancements are happening every day. For instance, cancers such as splenic hemangiosarcoma have always carried a negative association and poor prognosis. In the author’s practice, postsplenectomy combined with a multimodal approach of doxorubicin, dacarbazine,<sup>3</sup> and polysaccharopeptide<sup>4</sup> has yielded significantly higher survival times of 3+ years versus 6 to 8 months with the standard protocol of surgery and single-agent doxorubicin (**TABLE 2**).

Every oncologist practices a little differently. Some may approach treatment more aggressively and are open to new protocols and experimenting with drug combinations, whereas others may start conservatively and try dose escalation using gold standard protocols. There is no right or wrong treatment approach, but it’s important that pet owners understand that there are always options to explore with their veterinary oncology team.

**TABLE 1 Common Oncology Terminology**

<b>Cancer</b>	A large number of diseases with an uncontrolled abnormal cell growth and the capability for local and distant metastasis
<b>Tumor or neoplasia</b>	A formation of abnormal cell growth that is not responsive to normal homeostasis; may be benign or malignant
<b>Mass</b>	A tumor or any other localized collection of space-occupying material that's not supposed to be there (e.g., abscess, cyst, granuloma)
<b>Benign</b>	Tumors that are space occupying and cause tissue distortion but do not metastasize or have a high mortality (e.g., hemangioma, plasmacytoma, adenoma)
<b>Malignant</b>	Tumors that are more locally invasive and have the potential to metastasize and could lead to death if untreated (e.g., hemangiosarcoma, multiple myeloma, adenocarcinoma)
<b>Round cell/hematopoietic</b>	Malignant tumors that are round in shape with round to indented nuclei; samples are moderately cellular. Categorized as: <ul style="list-style-type: none"> <li>● Mast cell tumor</li> <li>● Histiocytoma</li> <li>● Lymphoma</li> <li>● Plasmacytoma</li> <li>● Transmissible venereal tumors</li> <li>● Melanoma—the cytologic “great pretender”; while classified as a mesenchymal tumor, on cytology can appear as a round cell tumor</li> </ul>
<b>Carcinoma</b>	Malignant tumors arising from epithelial tissue (“covering”; e.g., skin, organ lining)
<b>Sarcoma</b>	Malignant tumors arising from mesenchymal origin (“holds you together”; e.g., bone, muscle, fat)
<b>Grade</b>	Histopathologic assessment of a tumor's degree of malignancy; estimate of biologic behavior: <ul style="list-style-type: none"> <li>● Metastatic potential</li> <li>● Disease-free interval</li> <li>● Overall survival</li> </ul>
<b>Stage</b>	Clinical assessment of the extent of cancer in the body <ul style="list-style-type: none"> <li>● Tumor size and invasion</li> <li>● Nodal involvement</li> <li>● Distant metastasis (radiographic evaluation—abdominal ultrasound, chest radiograph, computed tomography, magnetic resonance imaging)</li> </ul>
<b>Tumor remission</b>	<ul style="list-style-type: none"> <li>● <b>RECIST:</b> Response Evaluation Criteria In Solid Tumors</li> <li>● <b>Complete response (CR):</b> Disappearance of all target lesions</li> <li>● <b>Partial response (PR):</b> At least 30% reduction of target lesions</li> <li>● <b>Stable disease (SD):</b> &lt;30% reduction of target lesions</li> <li>● <b>Progressive disease (PD):</b> The appearance of ≥1 new lesion(s) or ≥20% increase in new lesions<sup>2</sup></li> </ul>
<b>CHOP protocol</b>	C, cyclophosphamide; H, doxorubicin; O, vincristine; P, predniso(lo)ne
<b>Degranulation (Darier sign)</b>	<ul style="list-style-type: none"> <li>● Immediate inflammatory response of tissue mast cells releasing histamine, heparin, and other vasoactive mediators into the local connective tissue, which can occur spontaneously upon manipulation of the tumor, causing potential life-threatening vasodilation, coagulation abnormalities, and, in rare instances, death</li> <li>● Clinical signs may include erythema and welt formation around the tumor, vomiting, diarrhea, fever, peripheral edema, and collapse</li> </ul>
<b>Paraneoplastic syndrome (PNS)</b>	Cancer-causing alterations in the body and/or function that are not directly related to the physical effects of the primary or metastatic tumor
<b>Chemotherapy (cytotoxic, traditional/standard)</b>	Targeting rapidly dividing cells through interference of different sections of the cell cycle <ul style="list-style-type: none"> <li>● <b>High dose:</b> Agents such as doxorubicin, vincristine, cyclophosphamide, and toceranib</li> <li>● <b>Low dose:</b> “Metronomic”—low doses of anticancer drugs given on a continuous schedule (such as daily, every other day, weekly, every 2 weeks) over a long period (6+ months); the use of low, frequent doses yields a lower likelihood of adverse effects and can maintain prolonged active plasma levels of drugs; drugs used in this protocol may include chlorambucil, melphalan, and cyclophosphamide</li> </ul>
<b>Molecular/targeted therapy</b>	<ul style="list-style-type: none"> <li>● Type of anticancer treatment; works by detecting specific proteins or receptors that arise on the cancer cell surface</li> <li>● The protein or receptor is precisely targeted by the drug, sparing normal cells</li> <li>● Can be anticancer drugs or other substances</li> </ul>
<b>Angiogenesis</b>	Development of new blood vessels

**TABLE 2 Multimodal Approach to Splenic Hemangiosarcoma Postsplenectomy<sup>a</sup>**

TIMING	DRUG	DIAGNOSTICS
Day 1	Doxorubicin, dacarbazine, maropitant, and polysaccharopeptide (ongoing)	CBC, chemistry panel
Day 2	Dacarbazine and maropitant	
Day 3	Dacarbazine and maropitant	
Day 4	Dacarbazine and maropitant	
Day 8		CBC

*CBC = complete blood count*

<sup>a</sup>1 cycle (above), total protocol of 5 cycles.

### MYTH #3: PETS WITH CANCER HAVE A POOR QUALITY OF LIFE.

Common initial thoughts from clients when their pet receives a cancer diagnosis include:

- “My pet is too old for treatment.”
- “They will be hospitalized/sick all the time.”
- “They will be skin and bones and lose all their fur.”
- “I won’t put my pet through treatment after knowing what it did to my family member/self.”
- “The doctor I go to had a bad experience with an oncology case and won’t refer because of that.”

The No. 1 goal of veterinary oncology treatment is quality of life. Age is never used as a diagnostic tool, provided the patient does not have additional life-threatening comorbidities. If there are none, there is no medical reason why a senior or geriatric patient cannot undergo individualized treatment.

### Dosing

Many of the same human antineoplastic agents are used in veterinary oncology, with the main distinction being the vastly different dosing and frequency of the drugs.

Extensive data have been studied to allow veterinary oncology to deliver the maximum tolerated dosage that will result in the fewest adverse effects. For example, what a human with non-Hodgkin lymphoma will be treated with in 1 treatment, a veterinary oncology lymphoma patient will receive over 1 month when using the same drugs.

### Side Effects

The treatment should never be worse than the disease. For this reason, veterinary oncology patients can achieve an excellent quality of life. They tolerate chemotherapy incredibly well and experience significantly fewer adverse effects, if any at all, than human oncology patients.

Cancer cells are unpredictable and are constantly changing and dividing. Chemotherapy targets and kills rapidly dividing cells. Most chemotherapy drugs are unable to differentiate between killing cancer cells and normal cells/bone marrow. This is the reason that acute general side effects may occur in some patients.

**TABLE 3 Possible Cumulative Adverse Effects Associated With Specific Drugs**

DRUG NAME	ADVERSE EFFECTS
Doxorubicin	<b>Dogs:</b> Cardiomyopathy; -180-260 mg/m <sup>2</sup> maximum cumulative dose <sup>6</sup> <b>Dogs/cats:</b> <ul style="list-style-type: none"> <li>● Allergic reaction/anaphylaxis during treatment</li> <li>● Hair coat changes (e.g., texture, color)<sup>a</sup></li> <li>● Whisker loss<sup>a</sup></li> <li>● Hyperpigmentation of the skin<sup>a</sup></li> </ul>
Cyclophosphamide	<b>Dogs:</b> Sterile hemorrhagic cystitis
Rabacfosadine injection	<b>West Highland white terriers:</b> Pulmonary fibrosis <sup>7</sup> <b>Dogs with a history of allergies:</b> Exacerbated dermatologic issues
L-asparaginase	<b>Dogs/cats:</b> Allergic reaction/anaphylaxis during treatment
Vincristine, toceranib phosphate	<b>25-kg pet:</b> Peripheral neuropathy

<sup>a</sup>Should return to normal -1-2 months after treatment is complete.

Approximately 15% to 30% of patients treated with a chemotherapy agent will experience a minor adverse effect during treatment (TABLE 3).<sup>5</sup> About 5% of patients may require hospitalization and supportive care for moderate side effects, and less than 1% may have severe or fatal side effects.<sup>5</sup> If an adverse effect is going to occur, it generally ranges from 2 to 5 days post-treatment and may last for 1 to 2 days.<sup>5</sup>

The most common adverse effects in veterinary patients include nausea, vomiting, diarrhea, decreased appetite, and a decreased energy level.<sup>5</sup> Most veterinary teams will send patients home after the first chemotherapy visit with some variation of an anti-nausea/anti-vomiting medication and an anti-diarrheal.

Hair loss is a widely recognized adverse effect in human oncology patients. Most veterinary oncology patients will not experience hair loss, but this is observed in “grooming patients.” This category of patients has a rapid hair growth rate, and cancer targets rapidly dividing cells. Hair growth is slowed or stopped and the hair becomes brittle, breaks off, or greatly thins out. Commonly affected locations include pressure point areas, such as the posterior aspect of the front limbs, anterior aspect of the rear limbs, pinnae, muzzle, and tail. In the author’s experience, hair growth will return within approximately 1 to 2 months after treatment has been completed.

**Pro Tips:**

- Clients should be instructed to give the anti-nausea medication if there is any variation in a patient’s appetite. Dogs will continue to eat, even when nauseated. Nausea is easier to control than anorexia.
- Avoid starting drugs that aren’t needed. Clients should be advised to only start the prescribed anti-diarrheal medication if there have been

2 episodes of loss of form to the stool or diarrhea within a 24-hour period. More times than not, 1 episode is an isolated incident and transient.

- To minimize the chance of food aversion in oncology patients, medications should be given separately from the patient’s normal diet and mealtime.
- A “sympathy diet” is when a patient has learned that if they do not eat their food and hold out, they will end up receiving “people food.” There is often a misconception that because the pet has cancer, they can have what they want. However, a food change is not necessary and maintaining the patient on a well-balanced diet is the best proven nutritional route.<sup>8</sup>

**MYTH #4: TREATMENT IS TOO EXPENSIVE/HARD.**

Client hesitations that veterinary oncology professionals often hear include:

- “I can’t afford that.”
- “Treatment will take too much time/effort/travel.”
- “I’m not putting my pet through IV treatment.”
- “I’m weighing the options (treatment versus no treatment).”
- “There isn’t a veterinary oncology hospital close to me.”

**Cost**

Treatment cost can vary from state to state and often depends on whether the hospital is private, corporate, or a university. No single practice is necessarily better than another, but different practices may offer different services. TABLE 4 shows an average cost range for clients for several commonly used drugs for an approximately 25-kg (55-lb) pet.

**TABLE 4** Costs Associated With Common Drugs Used in Veterinary Oncology<sup>a</sup>

DRUG NAME	COST
Doxorubicin	\$650-\$1200
Vincristine	\$450-\$660
Cyclophosphamide	\$400-\$550; metronomic drug, \$76-\$100
Melanoma vaccine	\$875-\$1000
Chlorambucil	Drug, \$75-\$150; recheck, \$281-\$415
Carboplatin	\$650-\$750 (national shortage cost is double)
Fidocure (fidocure.com)	Sequencing, \$1650-\$1800; lifetime drug enrollment, \$1500-\$1700

<sup>a</sup>Costs shown are average ranges based on field data collected by the author from the East Coast, West Coast, and Midwest regions of the United States.



It is important to remind clients that if they have pet insurance prior to the cancer diagnosis, chemotherapy and other treatments are likely covered.

### Frequency

The frequency of visits will vary depending on the treatment protocol. For example, the gold standard for treating B cell multicentric lymphoma is the CHOP (cyclophosphamide, doxorubicin, vincristine, predniso[lo]ne) protocol, where patients are seen weekly for 16 to 25 weeks.<sup>9,10</sup> Visits for single-agent protocols are typically every 3 to 4 weeks, with a complete blood count (CBC) recheck approximately 7 to 14 days post treatment. Metronomic protocols can start with rechecks every month, transitioning to every

other month.<sup>11</sup> Melanoma vaccines can vary from 1 to 2 weeks, then every 6 months.<sup>12</sup>

### Location

Veterinary oncology is a growing specialty. There are private veterinary oncology practices and universities throughout most of the United States. In some locations, seeking specialty care still may involve considerable travel. However, most oncologists are willing to speak with the referral partner to discuss the case, along with an initial telehealth appointment. Depending on the nature of the treatment, some therapies may be able to be offered at the general practice. While a variety of treatment options are commonly provided, travel and cost for the owner

**TABLE 5 Therapeutic Modalities in Veterinary Oncology**

MODALITY	CHARACTERISTICS
Surgical oncology	Surgical removal of tumors <ul style="list-style-type: none"> <li>● <b>Intracapsular (debulking):</b> Residual macroscopic disease</li> <li>● <b>Marginal:</b> Tumor removed on or adjacent to tumor capsule; microscopic disease remaining</li> <li>● <b>Wide:</b> Tumor removed with margins of normal tissue; lateral and deep margins</li> <li>● <b>Radical:</b> Tumor removed with entire structure; no residual disease</li> </ul>
Interventional oncology	Minimally invasive, advanced instruments using image guidance <ul style="list-style-type: none"> <li>● Stenting of malignant stricture</li> <li>● Intra-arterial chemotherapy</li> <li>● Embolization and chemoembolization</li> <li>● Ablation: thermal (hyperthermia and hypothermia), electrochemotherapy</li> </ul>
Radiation oncology	Intensity-modulated radiation therapy, stereotactic radiation therapy
Medical oncology	<p><b>Antiangiogenesis</b></p> <ul style="list-style-type: none"> <li>● Piroxicam, deracoxib, meloxicam</li> </ul> <p><b>“Drug repurposing”<sup>213</sup></b></p> <ul style="list-style-type: none"> <li>● Propranolol (hemangiosarcoma)</li> <li>● Losartan (osteosarcoma lung metastasis)</li> <li>● Amlodipine (carcinomas)</li> <li>● Desmopressin (30 minutes before and 24 hours after mammary adenocarcinoma surgery)</li> </ul> <p><b>Chemotherapy</b></p> <ul style="list-style-type: none"> <li>● High dose</li> <li>● Metronomic/low dose (low dose daily to several times a week)</li> <li>● Molecular/targeted therapy (not limited to)                             <ul style="list-style-type: none"> <li>● Toceranib phosphate (Palladia; Zoetis, <a href="http://zoetisus.com">zoetisus.com</a>)</li> <li>● Masitinib</li> <li>● Imatinib</li> </ul> </li> </ul> <p><b>Immunotherapy</b></p> <ul style="list-style-type: none"> <li>● Plasmid DNA: canine melanoma vaccine (Oncept; Boehringer Ingelheim, <a href="http://bi-animalhealth.com">bi-animalhealth.com</a>)</li> <li>● Autologous vaccine                             <ul style="list-style-type: none"> <li>● Whole tumor cell (Torigen, <a href="http://torigen.com">torigen.com</a>)</li> <li>● Adoptive transfer of T cells + IL-2 (osteosarcoma)</li> </ul> </li> <li>● Therapeutic anticancer vaccines                             <ul style="list-style-type: none"> <li>● Feline IL-2 immunomodulator (feline injection-site sarcoma)</li> </ul> </li> <li>● Monoclonal antibodies</li> </ul>
Integrative oncology (homeopathic)	<ul style="list-style-type: none"> <li>● Chinese herbs</li> <li>● Acupuncture</li> <li>● Acupressure</li> <li>● Therapeutic massage</li> <li>● Laser therapy</li> </ul>

IL-2 = interleukin 2



always need to be considered when aiding clients in the best options for them and their pet. Veterinary nurses are in the position to spend quality 1-on-1 time with clients, educating them about these options and offering advice throughout the process.

## Treatment Types and Clinical Signs

If clients are hesitant to pursue cancer treatment due to misconceptions surrounding IV chemotherapy in human oncology patients, veterinary nurses should assure them that there are a variety of veterinary cancer modalities available (**TABLE 5**).

Humans undergoing chemotherapy often have serious adverse effects because their goal of treatment is to cure the cancer, causing complete immune suppression (or even bone marrow ablation in blood cancers), whereas in veterinary oncology, the goal is to extend the pets' quality of life for as long as possible. Chemotherapy targets rapidly dividing cells (e.g., bone marrow, cancer cells, hair follicles, gastrointestinal tract); thus, possibly causing clinical signs including bone marrow suppression, coat changes, diarrhea, nausea, and vomiting. However, since dose ranges used in veterinary oncology are lower than those typically used in human oncology, bone marrow suppression lowers the immune system just enough to allow the body to fight the cancer without the severity of adverse effects that occurs in human cancer patients. Each patient's bone marrow sensitivity will vary. Closely monitoring a patient's CBC before each treatment is vital to ensuring their neutrophil count has not dropped lower than 1 K/ $\mu$ L, when the body has a greater likelihood of being compromised by an infection or even sepsis.<sup>14</sup>

Cancer itself can cause clinical signs, and certain types of cancer can cause far more serious clinical signs compared to chemotherapy:

- Many cancers may be associated with certain paraneoplastic syndromes (PNSs), including cancer anorexia and cachexia.<sup>15</sup>
- High-grade mast cell tumor, if left untreated, can ultimately result in degranulation, gastrointestinal ulceration (including the possibility of perforation),<sup>16</sup> and death.
- Lymphomas, anal sac adenocarcinoma, parathyroid tumors, multiple myeloma, mammary adenocarcinoma, and melanoma are all associated with hypercalcemia of malignancy.<sup>17</sup>
- Insulinoma, lung tumors, and mammary tumors, among others, can all cause peripheral neuropathy.<sup>18</sup>

- Due to their location (space occupying), some tumors will cause major quality-of-life challenges and severe effects, such as brain tumors potentially causing seizures or blindness, anal sac tumors causing urinary and/or fecal obstruction, and thoracic or heart base masses causing effusion accumulation.

Oncologists are specifically trained to identify and successfully treat the tumor, which then leads to the disappearance of PNSs and cancer-related effects.

## MYTH #5: THE PATIENT CAN'T BE AROUND THE FAMILY.

Clients may think that having a pet on chemotherapy means the pet will be highly immunocompromised or radioactive. The fact is that veterinary oncology patients are not radioactive. They will excrete metabolites in their urine, feces, or saliva, depending on which drug(s) they are receiving. Unless a family member is immunocompromised, there is no reason they should be separated from their pet. It is also not necessary to separate pets in multipet households.

Advise clients of the following precautions:

- Follow proper hand washing protocols.
- Wear nitrile gloves while handling urine or feces during the first 72 hours (5 days for rabacfosadine) after treatment.
  - Do not use spray nozzle cleaning agents as they can aerosolize the metabolites in the excrement if residue was missed during the initial cleaning stage.
  - Double-bag all excrement, gloves, and potty pads used before placing them in the regular trash.
  - Change the litter box daily for 72 hours after chemotherapy administration.
  - Avoid inhaling dust from the litter box.
  - Consider using litter box liners to help decrease the potential of exposure to metabolites in the excrement since no scooping is required with liners.
- Encourage owners to relieve their pet in an area that receives sunlight; sunlight is believed to inactivate chemotherapy in the urine/feces.<sup>19</sup>

## MYTH #6: TREATMENT IS PAINFUL, STRESSFUL, AND SCARY.

Another goal among veterinary oncology is building a stress-free, welcoming, and comfortable environment.





Most patients visit on a weekly basis, and every attempt is made to have their experience remain fun and positive. Treats, toys, music, diffusers, holiday lights, and cat towers/houses can be employed.

Smaller-gauge IV catheters are used, and especially nervous patients may get a lidocaine gel block prior to placement or mild sedation with gabapentin and trazodone.

### Pro Tips:

- If referring an already anxious pet, the veterinarian may prescribe a gabapentin/trazodone protocol to be administered before the next visit.
- Remind owners to keep their pet's routine as normal and consistent as possible, which will aid the pet's quality of life as well as the owner's.

## SUMMARY

Veterinary oncology is a dynamic and vast specialty with a variety of treatment options. Veterinary nurses are in the important position of educating clients on the realities of veterinary oncology care and empowering owners with the proper knowledge and resources that will provide their pet with the best quality of life possible.

### Jamie Wesolowski

Jamie attended Indiana State University and graduated in 2008 with a bachelor of science in ecology and organismal biology and then graduated top 10 in her class at Bel-Rea Institute in 2010. In 2013, she moved to Noblesville, Indiana, where she worked in emergency medicine and critical care for 2 years. In 2021, she received her VTS in oncology credential. Jamie currently practices in relief work, where she shares her passion for client education, patient care, and veterinary nurse development. In 2023, she became the Veterinary Cancer Society (VCS) Technician Liaison and VCS Technician Development Committee co-chair. Jamie enjoys spending time with her husband, Scott; their 3 dogs, Sophia, Kyra, and Rowan; and their cat, Binx. She also enjoys working in her ever-expanding garden, cheering on the Indiana Pacers, hiking, reading, crafting, playing tennis, and doing wine tours.



### Pro Tip:

- The internet should *never* replace the veterinary care team. Remind pet owners to always reach out—we are experts for a reason! **TVN**

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