**Maximizing Disease Prevention, Minimizing FISS Risks**

**Dr. Sparkes:** The profession has been searching for a magic bullet to prevent feline injection-site sarcomas (FISS). At least one journal has looked at the recommendations for prevention and management—do the guidelines give us direction to better prevent them?

**Dr. Vawter:** I think general practitioners will still see the recommendations as controversial. If every cat were sedate and nice, we could follow the standard protocols easily. A lot of veterinarians have to be retrained on how to handle a cat to induce less stress. The newer low-stress practice strategies recommend more sedation and more anti-anxiety methods. We may need to start considering these as crucial to the practice of medicine.

**Dr. Welborn:** Cats have been the forgotten species, and thankfully that’s changing. Understanding how a cat feels when it comes in and trying to make the environment better are really important.

**Dr. Vawter:** The low-stress practice is becoming more and more popular. General practitioners have to put aside their bias that it’s something they can’t do. The general practitioner also has a lot going on. There needs to be a shift to retrain technicians and assistants to get more history. Does this cat go outside? Is it running around with other cats? Depending on the answers, we need to be customizing treatment plans. If they don’t need a certain vaccine, then we don’t give it. We also have to retrain ourselves and re-evaluate the way we treat cats. Should we or shouldn’t we vaccinate below the hock or the stifle? Or in the tail? But the distal limb—there’s no controversy to that. It’s just a matter of establishing a mindset that each cat is an individual.

**Dr. Sparkes:** We need to examine our approach to handling cats as a starting point. Otherwise trying to inject in the tail or very distally in the limb is going to be a disaster for both cat and owner.

**Dr. Fenimore:** In the Shaw et al study discussing temporal changes in characteristics of injection-site sarcomas in cats, many cats still developed sarcomas in the interscapular space despite the revised recommendations of vaccinating as distally on the limb as possible. Are veterinarians compliant in vaccinating the distal limbs, or did those cats get other injectable medications there?

**Dr. Vawter:** There are some data to support that veterinarians as a whole are trying to move toward limbs since those recommendations were released.

**Dr. Sparkes:** Do you think that applies to other injectables as well?

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**KEY POINTS**

- Remember to record in the medical record where vaccinations were injected—this information could be critical in the future.
- Client education may translate into earlier diagnosis; talk with clients at various points throughout a patient’s life about what to look for when concerned about sarcoma development.
- Consider the 3-2-1 recommendation: Intervene if there is swelling at the injection site for over 3 months or if it’s greater than 2 centimeters in diameter or increasing in size 1 month or more after vaccination.
Dr. Boston: For longer-acting injectables, probably yes. It would be nice to have a movement to at least try to record where we inject. If you get used to vaccinating lower on the limb, that’s where you’ll be giving your subcutaneous injections: it’s just part of your practice. You get the cat in a towel, pull out its limb, and give your injection. Your technicians are used to holding cats that way. There are going to be cats that are almost feral and ready to rip everyone apart—unless you sedate them. But most cats you can work with.

Dr. Fenimore: Vaccine companies have been responsive to the sarcoma issue, reducing the volume of vaccines. If this is a tough area to vaccinate, it’s helpful that there isn’t a lot of volume to inject. Some injectable medications seem to cause significant irritation, so perhaps we should administering these more distally.

Dr. Sparkes: Some clinicians suggest that it’s negligent to give vaccines interscapularly.

Dr. Boston: I think it’s negligent to vaccinate anywhere except distal limb or tail. The hip is no better than interscapular. With amputation, if the cat doesn’t get metastatic disease, most will survive if you catch it early and resect along with 5 centimeters of normal tissue.

Dr. Sparkes: Does injecting more distally in the limb also help with monitoring cats afterward for injection-site reactions?

Dr. Vawter: There is a lot of loose skin up toward the top. A small sarcoma is going to be noticed on the distal limb a lot faster. If you’re depending on the owner to notice something, it may help them see things faster.

Dr. Boston: Another component is telling clients, “this is what you need to look for and this is when to call me.” Tell every single client.

Dr. Welborn: Many owners do not retain all of the examination room conversation, so we write it down in self-explanatory handouts with appropriate photographs or diagrams. I describe how owners should monitor the vaccination area. Many will note the small swelling immediately after vaccination. I tell them to compare any later swelling to that starting point. My goal is to have every owner monitor every vaccine site on a daily basis. If we can do that, we might catch disease much earlier.

Client Education & Compliance

Dr. Sparkes: Owners aren’t expecting you to inject a cat in its limb. Is that in itself helpful in reinforcing the importance of monitoring?

Dr. Welborn: I think so. Again, that goes into the conversation we have with the owner. We aren’t doing a good job informing owners about how to monitor.

Dr. Sparkes: Owners now come in with information from the Internet. Do they have a realistic appreciation of the risks?

Dr. Welborn: Probably 50% of what they read is not accurate, but it’s an opening for a dialogue. I tell owners it is not black and white—this is what we know right now. We always do a risk assessment. Not all cats need all vaccines. We have to follow state law about rabies vaccination, but if we can decrease the number of vaccines, that’s certainly beneficial.

Dr. Fenimore: Owners are very receptive to education about the consequences of certain infectious diseases: like rabies—we know it’s fatal, preventable, and that the benefits of vaccinating outweigh the risks. When you present it to them as such, they are receptive to vaccinating.

Dr. Boston: Do you continue to vaccinate a cat that has had an FISS? I wouldn’t if it was my own cat. I would transition it to be an indoor cat and hope that it has developed enough immunity over the years.

Dr. Sparkes: Rabies adds a complication with the legal requirements, but what about using other injectable products?

Dr. Vawter: You have to start thinking where and when. If you have a patient with a vaccine sarcoma, do you microchip that cat and risk it? Do you give it methylprednisolone? No, probably not.
We also have to retrain ourselves and re-evaluate the way we treat cats.

—Dr. Vawter

### 3-2-1 Protocol

**Dr. Sparkes:** Do veterinarians follow the 3-2-1 rule: intervening if there is swelling at the injection site for over 3 months or if it’s greater than 2 centimeters in diameter or increasing in size 1 month or more after vaccination?

**Dr. Vawter:** A limiting factor in the 3-2-1 rule is owner compliance. Will clients monitor a barn cat that they let out the door as soon as they get home?

**Dr. Boston:** Even some vets can’t remember what 3-2-1 means. Is the 3 for centimeters or months? There could just be a 1 rule: if your cat has 1 mass for more than 1 month, you need to come back.

**Dr. Fenimore:** The 3-2-1 rule was drawn up by the Vaccine-Associated Feline Sarcoma Task Force and it has been published. Although these guidelines are familiar to and understood by many practitioners, translating them for the client and emphasizing the importance of monitoring is another area of work.

**Dr. Boston:** The current recommendations are based on the Phelps paper—cut with 5-centimeter radial margins and 2 fascial planes deep. Should you resect in a general practice? I would argue not. The size of the defect that you need to create really dictates a referral center for surgery and the care needed postoperatively.

**Dr. Fenimore:** Would an oncologist say radiate them first and see if we can get these masses smaller prior to cutting?

**Dr. Boston:** The debate about that rages on. Surgeons like to cut first to avoid surgery in a radiation field and its increased risk for complications. But then you create a hypoxic scar, and radiation doesn’t work as well. Veterinarians need information about how to handle that. With aspiration, you aren’t going to be able to distinguish a granuloma with inflammation from a sarcoma. An incisional biopsy is needed to avoid disrupting the structure of the mass with a punch or a wedge biopsy until we get a histologic diagnosis. Doing it after a month might be too reactive, but I wouldn’t wait for 3 months. You will probably end up biopsying some granulomas, but that’s acceptable. Clients sometimes push veterinarians to do what they can to save money: they don’t want a referral. We need to reinforce that this isn’t necessarily appropriate.

**Dr. Fenimore:** If we biopsy masses early and only inflammation is noted on histopathology with no suspicious cancerous cells, what are current recommendations in moving forward?

**Dr. Boston:** I would leave it up to the owner to either monitor or do a very marginal excision of the inflammatory tissue. I would be inclined to remove it, but the incisional biopsy will guide you as far as how. If owners just want to watch it closely, we need to ask them to come back in 3 weeks so we can measure it again. Measure it with calipers and take pictures so it’s well documented and you know in 3 weeks whether it’s a problem.

**Dr. Sparkes:** How realistic is it to expect owners to participate in monitoring their cats?

**Dr. Vawter:** You’re doing well to get them in more than once a year to get a vaccine; getting them to return for rechecks is a challenge.

**Dr. Welborn:** It’s so owner dependent, too. Some owners have an outside cat that they only see when they feed it.
Dr. Boston: It’s good to give owners a choice. No one is going to spend $10,000 to treat a barn cat for a sarcoma; but there are also clients who weigh kibble to know exactly how much their cat eats. Not everyone needs to treat cancer in their pet either, but good information and early monitoring give people options.

Dr. Sparkes: How do we get clients engaged in monitoring?

Dr. Welborn: Communication. Engage the client from the beginning—we have a thorough questionnaire every client fills out every year. That is the start of the process of risk assessment. Most owners are appreciative when they realize we are truly tailoring vaccine protocol to their pet. When we speak about post-vaccine monitoring, that owner is truly engaged because he/she now understands this is something easy to do to help protect their cat. And you make it simple: This is what you need to feel, and this is what you need to look for. Almost all of our owners have been very proactive.

Dr. Sparkes: How do we have a meaningful conversation in a short period of time?

Dr. Boston: Most new puppy or kitten appointments are longer, so I think that’s a good time to introduce the topic. Usually you’re providing a lot of information that’s important to being a good pet owner. You dedicate more time to that appointment because you’re bonding with clients and getting them started on the right foot.

Dr. Vawter: We’ve adopted a fear-free protocol. We designed a cat room and taught the technicians to make the cat burrito, and don’t grab them by the scruff. Treat them in the carrier. Clients who never experienced this started asking why. Then they realize you’re trying to make their cat more comfortable, that you care. They become more open to listening to you. Building a fear-free practice opened the door for me to start having real conversations about risk development in cats.

Dr. Boston: It helps to put the risks in writing. Something catastrophic happens with spays/neuters in probably 1 in 10,000 cases. But clients still spay and neuter their pets. People will still vaccinate their cats when appropriate. Explaining why you’re doing it and the risk and engaging them in the process is important.

Dr. Fenimore: Providing written material is really helpful for owners. The AAFP has client brochures about vaccinating cats, the importance, and associated risks. Having worked in a shelter and appreciating infectious disease, I know the importance of vaccinating cats while being respectful of the frequency at which we vaccinate. Feline duration of immunity articles and vaccine guidelines from various organizations provide veterinarians with information to help prevent over-vaccination, but to omit vaccination is not an option.

Dr. Welborn: We shouldn’t stop vaccinating, but we have to concentrate on client education and be more vigilant with monitoring. Keeping better records potentially provides more information for oncologists to help us pinpoint other triggers that might be involved.

Dr. Vawter: Don’t jump off the deep end and stop vaccinating, but treat every cat as an individual. Try to assess each patient’s risk and take steps to mitigate that risk. Use a towel around a cat so you can get down low or try a tail vaccine. There’s no reason not to.

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