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IN THIS ISSUE

Q1 WEBINAR HIGHLIGHTS // [03](#)

How to Move From the Floor To Supervisor // [03](#)

How Digital Cytology is Changing the Game for Hematology // [07](#)

Antifungal Therapy: Past, Present, and Future // [12](#)

Vaccination for Bordetella bronchiseptica in Dogs: The Argument for Prime-Boost Vaccination Strategies // [17](#)

9 Tips For Making Body Language Your Superpower // [21](#)

TECH TIPS // [24](#)

Some unique and amazing tips and tricks we've learned and need to share

UPCOMING WEBINARS // [27](#)

PROVIDER SPOTLIGHT // [28](#)

Check out what others are doing in our community

MEMBERSHIPS // [28](#)

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HOW TO MOVE FROM THE FLOOR TO SUPERVISOR

AMY NEWFIELD, MS CVT, VTS (ECC)

VETgirl Technician CE Coordinator

In this [VETgirl](#) webinar entitled “[How to move from the floor to supervisor](#),” [Amy Newfield](#), CVT, VTS (ECC), VETgirl’s Technician CE Coordinator, reviews how to move from the floor to veterinary technician supervisor. Oftentimes, technicians or assistants are given promotions to a supervisor or manager, without any training in the process. What does it mean to be a supervisor? As a VETgirl ELITE member, check her webinar out [HERE](#) to learn what separates a supervisor from a floor technician/assistant.

KEY HIGHLIGHTS

1 WHY GO INTO MANAGEMENT

It is important that the main reason why you went into a supervisor role was because you wanted to advocate for your team members and help provide a voice for them. Once you move into management, the success of your job is dependent on the happiness and success of those you are leading.

2 WHAT DOES YOUR JOB ENTAIL?

If you were not provided with the job description, then you must ask for one. Do you have the ability to hire and/or fire? Are you responsible for yearly reviews? Are you responsible for your team’s career development? What about conflict resolution or performance-based issues? Do you have the ability to write somebody up? Having a job description of your new role is important to allow you to understand what it entails in order for you to be successful.

Oftentimes, these roles are associated with more money. However, if you find yourself suddenly in a supervisor role, you may have just taken on more responsibility without a formal role being created. It is important that if you find yourself in such a scenario that you advocate for an increase in salary. Failure to do so oftentimes breeds discontent and burnout because of the added responsibility without the added compensation.

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3 THE TEAM NEEDS TO UNDERSTAND THE ROLE

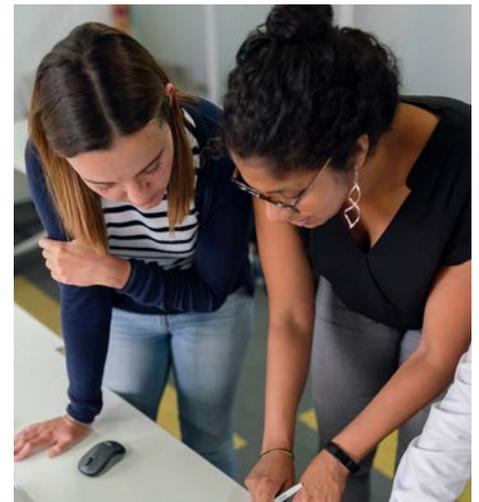
If you were given more and more responsibility without the actual job title and finally came to the realization that you were working as a supervisor or manager, then it is unlikely that the team understands your role. Once you have obtained a clear job description and title it is important that this is communicated out to the team in the hospital. Your role can never be successful if they don’t treat you as a supervisor or manager. The team must understand that they need to come to you to help them with their issues and concerns.

4 LEARN THE ART OF PC

Once you step into a manager or supervisor role you must hold yourself to a higher standard. You are no longer permitted to gossip or be overly negative. You are being watched by your team at all times. How you act is how you want your team to act. You must set the example.

5 GET TO KNOW YOUR TEAM

You may be good friends with some of your team. You may not like others. It is important to cultivate a healthy management relationship with everyone in your team. If you are new to the role of leadership, then take the time to have a team meeting and explain to them that you are growing



and learning and that you’re going to make mistakes.

The best supervisors take the time to check in with each employee individually for at least 15 to 20 minutes every other week. This is not always practical in a veterinary hospital. There may be multiple shifts where you don’t even get the opportunity to work with some of those that you are managing. If that’s the case, checking in via email and letting them know that you’re there for them if they have any concerns or questions is also important. If you’re working with someone on the floor, just talk to them about how things are going.

(continued)

HOW TO MOVE FROM THE FLOOR TO SUPERVISOR

AMY NEWFIELD, MS CVT, VTS (ECC)

VETgirl Technician CE Coordinator

(continued)

Plenty of career development conversations have taken place over patient workups. While it's not ideal, the employee feels valued because leadership is listening to them. Making sure you're in touch with every member of the team is important for the success of your position.

6 EDUCATE YOURSELF

Just because an individual can perform CPR or place a catheter in a very compromised patient does not mean they are the best managers. It is important that any new supervisor or manager educate themselves on how to lead people. There are plenty of in-classroom weekend seminars, online seminars, and even at most veterinary conferences you can find continuing education on skills needed to lead people. Leadership skills are something that can be learned and worked on throughout one's career. There is no such thing as a perfect leader. Educating yourself on the basics is very important to the success of your position.

7 SET YOUR TEAM UP FOR SUCCESS

A good team has the following key qualities: Understanding what is expected of them, feeling like the hospital's success lies in their hands, feeling like they are valued, the work environment is healthy, and pay/benefits are good.

Understanding Their Job: Hospital teams should have a manual for that department. It is important that items such as dress code, calling out policy, vacation time requests, are all outlined for the employee. It is hard to

document less than ideal workplace behavior if they don't know what's expected of them. Ensuring your team knows exactly what's expected is important. Ensure that important policies, perhaps even how the team is expected to place an IV catheter, are signed off on so it can't be said that the policy was never presented to the employee.

Hospital Success Is On Them: Every employee, regardless of the job, wants to be able to contribute to it in a way that makes them feel empowered. The best hospital teams work in a way where the manager is simply the leader but every member on the floor also feels like a leader. They take ownership and pride in their hospital. They recognize that the drawers will not stock themselves and that in order for them to be most successful it may mean staying 10 or 15 minutes late to stock them. The best managers teach employees what freedoms they have and then allow them to make decisions within that framework. Don't micromanage. Allow your team to be successful.

Feeling Valued: Regardless of all the freedoms allowed, if an employee does not feel valued, they likely will stop performing well. The best managers ensure that their team members feel valued. Every team member should be praised at least once a week for something. "Good job getting that catheter in." "Thanks for coming in early." "Way to go with that difficult patient." All of those things are simple but important for managers to acknowledge. It is important that little and big things are praised. It should

become a culture in the hospital that everyone is a cheerleader. The best managers foster that environment.

Healthy Team Environment: The minute you have a toxic team is the minute you start losing team members. It is important to focus on the health of the team. A healthy team is one that will come in for each other if someone called out, is there to support the wins in someone's life, is there to support each other through bad times as well, and who has the ability to laugh and joke with each other throughout the day. If your team isn't laughing and joking and you're having a hard time having people come in for work if someone calls out, then you likely have an unhealthy team. Working on teambuilding is really important.

Pay/Benefits: It is unlikely that you have the ability to control pay or benefits. If you do, the most important thing is that all employees are paid fairly. Using a pay scale and standing by it is the best way to justify salaries to employees. Pay scales are never based off of just years of experience. Medicine is constantly evolving and changing and employees should be expected to evolve and change with it. It should be based off knowledge and what the individual is contributing to the hospital.

8 CONFLICT RESOLUTION

Conflict resolution, or dealing with team members that are underperforming or those that have made mistakes, is perhaps the hardest thing from going from the floor to a supervisor position.

(continued)

HOW TO MOVE FROM THE FLOOR TO SUPERVISOR

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VETgirl Technician CE Coordinator

(continued)

This is part of the education of yourself when becoming a new manager or supervisor. There are wonderful online courses, articles, and even in-person conference seminars on conflict resolution.

9 GROWING & TRAINING FOR YOUR TEAM

If you do not offer some type of training program for your team, then you are failing as a manager. Your

hospital and the patients that you see in it, rely heavily on the team being trained with new procedures and medicine. Your main job is to coach and mentor your team. This may be actual physical training of skills or it may be that you are mentoring them to be coming a team that works better together. Remember that the success of your position is how successful your team is. Teambuilding is so important for every hospital team. Be sure that

you focus some of your time on building the team relationships. Having each person understand what the other members bring to the team is important so that they can value each other.

Are you an “Oops, I Became a Manager?” If so, check out Amy’s book on how to be successful in your leadership role by creating a healthy veterinary team [HERE](#).

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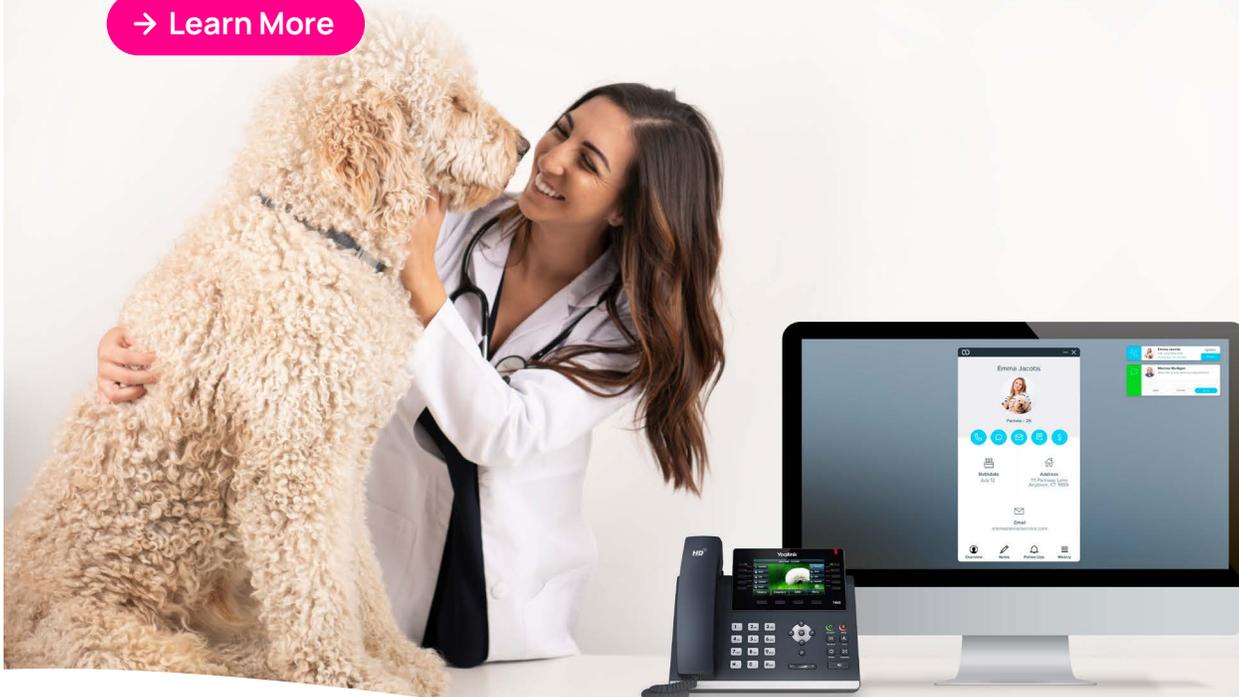


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HOW DIGITAL CYTOLOGY IS CHANGING THE GAME FOR HEMATOLOGY

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KEY HIGHLIGHTS

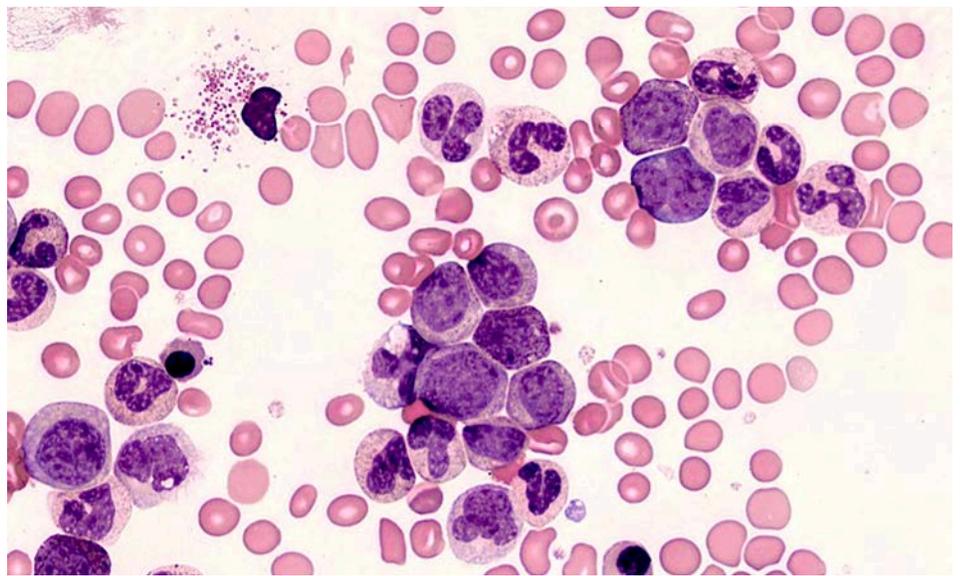
The landscape of veterinary medicine is ever changing – and that’s a good thing. In a blink, yesterday’s best practices are outdated, propelling once cutting edge technologies and techniques into the equivalent of a flip phone. No offense to the flip phone – it was a marvel to behold when it was first introduced. Little did we know, the iPhone was right around the corner.

Veterinarians and pathologists are a resourceful and gritty bunch. In the absence of the ideal methods, they’ve been able to “get by” with the rudimentary if not limited tools at their disposal. And innovations that fill gaps in an elegant and easy way – become the new standard of care.

A good measure of the importance of an innovation is when it becomes a tool you can’t live without. Take for example the CBC analyzer. This game changing innovation is now widely recognized as the gold standard for blood analysis. Today, it would be highly unusual to find a veterinary practice performing a blood analysis using a [hemocytometer](#), but we forget it was the gold standard only a few decades ago.

1 WHERE THERE’S A GAP, THERE’S POTENTIAL TO INNOVATE

The CBC analyzer allows blood studies to be performed rapidly, bringing critical insights to the point of care in both urgent and non-urgent cases. It



is a fast, low cost tool that helps the savvy veterinarian get to the heart of the matter quickly, so they can solve the patient’s problem in the most efficient way. While the CBC analyzer is powerful for all these reasons and more, it does have its limitations, necessitating the review of the morphology of the peripheral blood smear from time to time.

In vet school, students are told to review a blood smear every time a CBC is run, but this is not always realistic (sorry, teach). Because blood smear review requires some expertise, when there isn’t a clinical pathologist down the hall, you have to choose either to; 1) read it yourself and try

to decipher an answer immediately; 2) send it out to the reference lab so a pathologist can take a look, thus rendering the CBC already performed useless while forcing a multi-day delay (you were so close!); or 3) do without the blood smear review, opting instead to treat empirically or based on intuition. Sadly, option 2 is often not relevant if the answer can’t wait. Therefore, unless you have a specific interest and skill in blood morphology – meaning option 1 is ok for you, option 3 is the most frequently relied upon approach. None of the options are ideal. Indeed – a situation ripe for innovation!

(continued)

HOW DIGITAL CYTOLOGY IS CHANGING THE GAME FOR HEMATOLOGY

SCOPIOVET

(continued)

2 HOW DIGITAL CYTOLOGY IS CHANGING THE GAME FOR HEMATOLOGY

When it comes to a clinical pathologist's review of a blood smear, digital cytology creates a 4th, "best of all worlds" option. When the clinical situation or CBC results indicate that a blood smear review is necessary, a clinical pathologist can read the blood smear right away. With digital cytology, you are now able to get the full picture that hematology can provide, all at the point of care, while the patient is still in the hospital.

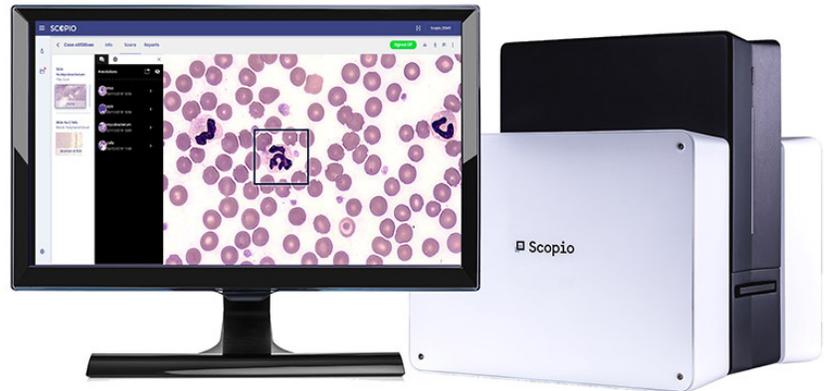


Photo courtesy of ScpioVet

Digital cytology is an emerging technology that allows you to scan and submit microscopy cases to a global community of veterinary clinical pathologists, who are standing by 24/7/365 to provide an interpretation in minutes. Those who have heard of digital cytology often think about it exclusively for the review of Fine Needles Aspirates and other cytologic cases. In doing so, they ignore the impact digital is having on the world of hematology.

3 SO WHEN IS A PATH REVIEW OF PERIPHERAL BLOOD NECESSARY?

We know what you're thinking: not every case needs a blood smear review, so how do you know when is a good time to make a smear and scan it for a pathologist's review? While we wouldn't dare dispute the scientific expertise and time honored traditions of the veterinary community, we humbly offer basic and actionable criteria that help determine when a path review for blood can add the most value to the veterinary workflow.

If you're doing a lot of point of care hematology, look for the following subset of cases, based on the CBC result or patient signalment:

Sick Patient
Normal CBC Values

Sick Patient
Abnormal CBC Value

Geriatric
Patient

Healthy Patient
Abnormal CBC Values

4 A TAIL OF TWO CBCS

Recently, we interviewed two dynamic practitioners from both sides of the digital cytology relationship (submitter and interpreter). On the one hand, because rapid interpretation hasn't traditionally been available in urgent care, the ER veterinarian has historically had to do without the input

of a clinical pathologist. On the other hand, the clinical pathologist doesn't frequently find herself interpreting an urgent case. Our interview revealed a surprisingly kindred interest and mutual admiration between these medical counterparts, as they share stories of the emerging interactions between them.

Dr. Kavit Manro, Co-Founder of [Voo Veterinary Group](#) in London, appreciates how clinical pathologists help solve hematologic mysteries: "Sometimes the clues from the CBC don't add up to the clinical situation, and the clinical pathologist can either set my mind at ease and give me confidence the CBC is right, or they can prove the CBC wrong. I just need more information in order to make the correct judgment – often in life or death situations." He continued: "Being able to say to a client within a few hours there is a diagnosis and it's a very serious one – that immediately puts you on the path to take the right steps.

(continued)

HOW DIGITAL CYTOLOGY IS CHANGING THE GAME FOR HEMATOLOGY

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(continued)

Other times it allows you to *prevent* something *becoming* an emergency. Having a pathologist look at the actual cells makes a difference.”

As a seasoned veterinary clinical pathologist, Dr. Kate Baker, founder of the Veterinary Cytology Schoolhouse, admires how much urgent care practitioners are able to do on the fly. “In the ER, emotions run high, costs are high, there’s significant morbidity, limited time, and it all requires quick decisions,” she said. “The practicality of having someone else to help you is big. The importance of looking at a blood smear is significant; you have to check your automated differential because although they’re great ... they’re not perfect. But also – it’s not just *confirming* what the CBC is telling you, but also *expanding* upon it. CBCs and blood smears are inherently linked for maximal information. If you’re not using both you’re leaving a huge amount of information on the table.”

Kate welcomes the rise in in-house diagnostics, and lauds the role of digital cytology in point of care hematology for its unique value add: “The reason why blood smears became less popular in the first place is because the time delay often rendered the test moot, but now by making the turnaround almost immediate, you’re bringing the value back to blood smears and getting on the right path sooner. That’s why it’s so important to have the technology to get the answer quickly.”

5 TAILS FROM THE VETERINARY ER

Kavit recalls a recent case example involving a cat where his suspicions were validated by a pathologist’s invaluable input. “We ran a test, and it said, ‘this is a regenerative anemia’ and looking at this cat with chronic liver and kidney disease thinking, ‘you’re doing well to regenerate’, and then what would be the blood loss, what would be the destruction of red blood cells if that were true. The pathologist’s review told a different story, a marked nonregenerative anemia which was much more believable to the case, and so sometimes the path review just rights the wrong, when you see something the machine is telling you and you don’t see why it fits.”

Another case helped Kavit believe the machine when the values seemed like a stretch. “We had another case where the lymphocyte count was through the roof, and we thought, ‘it cannot be that high – how can you make so many lymphocytes?!’ The cat went from very healthy to very unhealthy in a matter of a few days. We thought we were dealing with something a lot more acute. As it turned out, from the pathologist’s interpretation, it was a lymphoblastic leukemia, so a genuine lymphocyte disorder.

Kate was not surprised. “We’re all familiar with the difference between leukemia types; there’s the kind that has a grim prognosis, and the kind that can be more chronic with longer survival times. On a CBC



those will often look the same – and so you absolutely have to look at the blood smear, because there are morphological differences that can give clues as to which you’re dealing with. So, while many people do “get by” with the CBC, I must wonder how many scenarios – especially in particularly busy clinics or those with limited funds – are missing out on that vital information by not utilizing the blood smear.

6 CELLMATES

The integration of clinical pathology at the point-of-care creates the next evolution for veterinary hematology.

(continued)

HOW DIGITAL CYTOLOGY IS CHANGING THE GAME FOR HEMATOLOGY

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(continued)

We've known for some time that CBC results combined with a path review of the peripheral blood smear, bring comprehensive diagnostic value to various clinical situations. By doing so at the point of care, we can position ourselves to put the course of treatment on the correct path much earlier. Soon, we suspect, we'll be wondering how we ever "got by" without digital cytology applied to hematology.

ABOUT SCOPIOVET

[ScopioVet](#) is the veterinary division of Scopio Labs, a company dedicated to redefining diagnostics by unlocking the potential of microscopy imaging and AI. ScopioVet has developed a Digital Cytology System, available throughout the United States and Europe, that allows veterinary hospitals to scan and submit cytology and hematology cases to a global network of veterinary clinical pathologists, who provide high quality reports within one hour.



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VETERINARY DIAGNOSTICS

ANTIFUNGAL THERAPY: PAST, PRESENT, AND FUTURE

ANDREW HANZLICEK, DVM, MS, DACVIM

MiraVista Diagnostics, Indianapolis, Indiana

In this [VETgirl](#) webinar entitled “[Antifungal Therapy – Past, Present & Future](#),” Dr. Andrew Hanzlicek, DACVIM, provides a clinical review of antifungal treatment recommendations for common invasive fungal infections like blastomycosis, histoplasmosis, coccidioidomycosis and more! Thanks to generous sponsorship from [MiraVista Veterinary Diagnostics](#), you can view it [HERE until April 21st FREE!](#)

KEY HIGHLIGHTS

1 INTRODUCTION

Invasive fungal infections (IFIs) are growing in importance in veterinary and human medicine. This is due to expanding endemic geographic ranges, emerging antifungal resistance, and increasing immunosuppressed populations. Invasive fungal infections are caused by enzootic dimorphic fungi (*Blastomyces*, *Histoplasma*, *Coccidioides*), yeast (*Cryptococcus* and *Candida*) or molds. *Aspergillus* is a common pathogenic mold and opportunistic molds commonly fall into one of a few categories – hyalohyphomycosis, phaeohyphomycosis, zygomycosis, and eumycotic mycetoma.

Amphotericin B is used for life-threatening IFIs and azoles are used for mild-to-moderate disease or following (step-down) amphotericin B therapy. These include first-generation drugs – itraconazole and fluconazole and second-generation drugs – posaconazole, voriconazole, and isavuconazole. Fluconazole and itraconazole are used most often in veterinary medicine and voriconazole and posaconazole are reserved for invasive molds or as salvage therapy when itraconazole or fluconazole treatment has failed. No data is available for isavuconazole in veterinary species.



Photo courtesy of Dr. Andrew Hanzlicek, MS, DACVIM

When choosing an antifungal drug there are at least 5 important considerations:

1. **Antifungal spectrum**
organism sensitivity to drug
2. **Tissue penetration**
location of infection
3. **Safety profile**
drug adverse-effects
4. **Formulation**
route of administration
5. **Cost of drug:** *affordability*

2 AZOLE PHARMACOKINETICS AND ADVERSE-EFFECTS

Azoles work by inhibiting a fungal CYP-450 enzyme, inhibiting the production of ergosterol, which is vital

for fungal cell membrane integrity. Azoles cause lesser inhibition of mammalian metabolic CYP-450 enzymes, but enough to cause many potential drug-drug interactions (DDIs). Concurrent administration of an azole can significantly decrease metabolism, and thus increase blood concentrations of amitriptyline, amlodipine, benzodiazepines, cisapride, corticosteroids, cyclosporine, ivermectin, and macrolide antibiotics. Most azoles are metabolized by the liver and toxicity is more likely with decreased hepatic function. The primary adverse-effect of azoles is hepatotoxicity and liver enzymes should be monitored during treatment.

(continued)

ANTIFUNGAL THERAPY: PAST, PRESENT, AND FUTURE

ANDREW HANZLICEK, DVM, MS, DACVIM

MiraVista Diagnostics, Indianapolis, Indiana

(continued)

Skin lesions, due to vasculitis, have also been reported which are most common with itraconazole.¹ Adverse effects of itraconazole can be mostly avoided with therapeutic drug monitoring of itraconazole blood levels (see below).

The antifungal activity of azoles is determined by the area-under-the-curve, when blood concentrations are plotted against minimum inhibitory concentrations (AUC/MIC). This means that the daily dose (mg/kg/day), not the frequency, is most important. As such, fluconazole and itraconazole can be administered once or twice daily to dogs and cats.

3 FLUCONAZOLE

Fluconazole is a relatively small molecule with low protein binding, which leads to better penetration of immunoprotected sites such as the CNS and eye. It can be given with food or on an empty stomach and can be given concurrently with antacids. FDA generic tablets of several sizes (50, 100, 200 mg) and solution make fluconazole an affordable option. Fluconazole is highly bioavailable, although a recent population based pharmacokinetic study found high variability in blood concentrations.² This suggests that therapeutic drug monitoring might be useful clinically. Dimorphic fungi such as *Histoplasma*, *Blastomyces*, and *Coccidioides* are significantly more sensitive to itraconazole as compared with fluconazole. In addition to inherent resistance, acquired resistance to fluconazole has been reported.

Fluconazole is excreted mostly unchanged in the urine making it ideal for fungal infections of the urinary tract. Doses might need to be decreased with kidney disease. Fluconazole is the drug of choice for cryptococcosis and is the most commonly used drug for coccidioidomycosis (valley fever). It can also be used to treat histoplasmosis and blastomycosis when itraconazole is not tolerated. Fluconazole is not effective against molds such as *Aspergillus*.

4 ITRACONAZOLE

Itraconazole, as compared with fluconazole, is a larger molecule with higher protein binding leading to relatively lower concentrations in immunoprotected sites. Due to high lipid solubility, absorption of the capsule is increased with a fatty meal. In contrast, the solution can be given with food or on an empty stomach. Absorption is dependent on the acidic gastric environment and is decreased by the concurrent administration of antacids. To facilitate oral bioavailability, itraconazole solution contains a solubilizing agent (cyclodextrin) and capsules contain drug coated spheres. Compounded itraconazole lacks these important inactive ingredients, and due to very low GI absorption, compounded drug consistently provides sub-therapeutic blood concentrations. Even when FDA approved drug is used, there is considerable variability in the GI absorption between animals.³ This, along with dose-dependent adverse effects and known therapeutic blood concentrations, supports the use

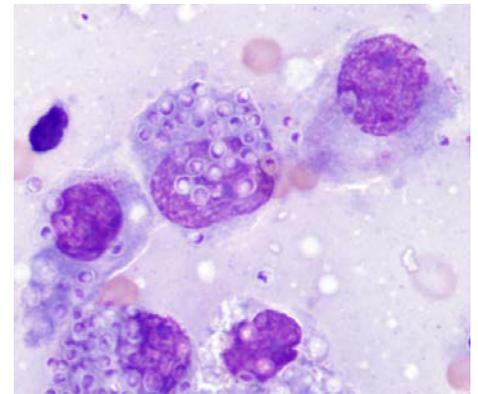


Photo courtesy of Dr. Andrew Hanzlicek, MS, DACVIM

of itraconazole therapeutic drug monitoring. Itraconazole blood levels can be measured by chromatography-mass spectrometry or by bioassay. The bioassay measures the antifungal activity of the blood by measuring the inhibition of the growth of a fungus in the lab. It has the advantages of measuring itraconazole and active metabolites (hydroxy-itraconazole) and is significantly less expensive. Chromatography-spectrometry has the advantage of not being affected by concurrent administration of other antifungal drugs but is considerably more expensive and does not measure all active metabolites.

For smaller animals, if the itraconazole solution is undesirable, FDA approved capsules can be opened and put over soft food or placed into smaller capsules. Moreover, every other day administration of 100 mg capsules has been shown to achieve therapeutic blood concentrations in cats.⁴

(continued)

ANTIFUNGAL THERAPY: PAST, PRESENT, AND FUTURE

ANDREW HANZLICEK, DVM, MS, DACVIM

MiraVista Diagnostics, Indianapolis, Indiana

(continued)

FDA approved generic itraconazole capsules are essentially equivalent to Sporanox® capsules and provide significant cost-savings.^{5,6} When administration of solution is feasible, Itrafungol® (Elanco, 10 mg/ml) is approved for the treatment of dermatophytosis in cats. It is equivalent to the innovator product (Sporanox®) and can be used off-label for the treatment of IFIs in dogs and cats. FDA approved generic itraconazole solution has an identical ingredient list to Sporanox® solution, but published pharmacokinetic data are not available for dogs or cats.

5 POSACONAZOLE AND VORICONAZOLE

Posaconazole and voriconazole are next generation itraconazole and fluconazole, respectfully. They have an expanded spectrum of activity against molds and are FDA approved for the prevention or treatment of invasive mold or candidiasis in humans. In dogs and cats, posaconazole and voriconazole have been used to treat

invasive mold infections including aspergillosis with mixed results. Posaconazole and voriconazole are both effective against *Histoplasma*, *Blastomyces*, *Coccidioides*, and *Cryptococcus* and can be used as salvage therapy if treatment with itraconazole or fluconazole fails. With FDA approved generic formulations now available, these drugs are now more affordable. Posaconazole is available as a solution (40 mg/ml), which works best for small dogs and cats and as an extended release tablet (100 mg) which can be dosed every other day in dogs (15 kg and larger). Voriconazole is available as a solution (40 mg/ml) that works best for cats and small dogs and tablets (50 mg and 200 mg) that work well for medium-large breed dogs.

6 AMPHOTERICIN B

Nephrotoxicity is the dose-limiting property of amphotericin B. Newer lipid or liposomal encapsulated formulations (Abelcet® or Ambisome®) are less nephrotoxic and thus provide

higher tolerable doses. Amphotericin is fungicidal and reaches therapeutic drug concentrations quickly. Maximum blood concentration (C_{max}) determines the antifungal activity. As such, it is given IV every other day or 3 days / week (M, W, F). The animal should be well hydrated before amphotericin B administration. Kidney values and blood electrolytes (Na, K, Cl) should be checked before each dose. Cumulative doses of up to 12 mg/kg in cats and 24 mg/kg in dogs are recommended, but lower doses can be beneficial. Once reconstituted, liposomal formulations are good for at least 1 week if refrigerated and drug is removed from the vial aseptically. There is contradictory data regarding the antagonism of amphotericin-b by concurrent administration of an azole. Due to this, and lack of evidence that concurrent administration is beneficial, it is recommended to follow amphotericin with azole (step-down) treatment but not administer the two drugs concurrently.

TABLE 1. Recommended antifungal treatment for select invasive fungal infections in dogs and cats

Disease	Mild-Moderate	Life-threatening	Salvage
Blastomycosis	Itra > Flu	Amp-b	Posa > Vori
Histoplasmosis	Itra > Flu	Amp-b	Posa > Vori
Coccidioidomycosis	Itra = Flu	Amp-b	Posa = Vori
Cryptococcosis	Flu > Itra	Amp-b	Posa = Vori
Aspergillosis (molds)	Posa +/- Terb	Amp-b	

Itra, itraconazole; Flu, fluconazole; Posa, posaconazole; Vori, voriconazole; Amp-b, lipid or liposomal encapsulated amphotericin b; Terb, terbinafine.

ANTIFUNGAL THERAPY: PAST, PRESENT, AND FUTURE

ANDREW HANZLICEK, DVM, MS, DACVIM

MiraVista Diagnostics, Indianapolis, Indiana

(continued)

TABLE 2. Recommended dosage of select antifungal drugs in dogs and cats

Drug	Species	Formulation	Dose	Route
Itraconazole*	Dog	Capsule or Solution	10 mg/kg/day for 3 days then 5 mg/kg/day	PO
	Cat	Capsule	10 mg/kg/day	
		Solution	5 mg/kg/day	
Fluconazole	Dog	Tablet or Solution	20 mg/kg/day	PO
	Cat	Tablet or Solution	20 mg/kg/day	
Posaconazole	Dog	Tablet ER	5 mg/kg EOD	PO
		Solution	5 mg/kg BID	
	Cat	Solution	15 mg/kg once then 7.5 mg/kg/day	
Voriconazole	Dog	Tablet or Solution	5 mg/kg BID	PO
	Cat	Solution	12.5 mg (total dose) q 72 h	
Amphotericin B (lipid or liposomal)	Dog	Solution	1-2 mg/kg EOD Cumulative dose 24 mg/kg	IV
	Cat	Solution	0.5-1 mg/kg EOD Cumulative dose 12 mg/kg	

*Starting dose only. Individualized dose should be determined based on itraconazole blood levels.

References

- Legendre AM, Rohrbach BW, Toal RL, et al. Treatment of blastomycosis with itraconazole in 112 dogs. *J Vet Intern Med* 1996; 10: 365-371. DOI: 10.1111/j.1939-1676.1996.tb02082.x.
- KuKanich K, KuKanich B, Lin Z, et al. Clinical pharmacokinetics and outcomes of oral fluconazole therapy in dogs and cats with naturally occurring fungal disease. *J Vet Pharmacol Ther* 2020. DOI: 10.1111/jvp.12888.
- Renschler J, Albers A, Sinclair-Mackling H, et al. Comparison of Compounded, Generic, and Innovator-Formulated Itraconazole in Dogs and Cats. *J Am Anim Hosp Assoc* 2018; 54: 195-200. DOI: 10.5326/JAAHA-MS-6591.
- Middleton SM, Kubier A, Dirikolu L, et al. Alternate-day dosing of itraconazole in healthy adult cats. *J Vet Pharmacol Ther* 2016; 39: 27-31. DOI: 10.1111/jvp.12231.
- Mawby DI, Whittemore JC, Fowler LE, et al. Comparison of absorption characteristics of oral reference and compounded itraconazole formulations in healthy cats. *J Am Vet Med Assoc* 2018; 252: 195-200. DOI: 10.2460/javma.252.2.195.
- Mawby DI, Whittemore JC, Genger S, et al. Bioequivalence of orally administered generic, compounded, and innovator-formulated itraconazole in healthy dogs. *J Vet Intern Med* 2014; 28: 72-77. DOI: 10.1111/jvim.12219.



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VACCINATION FOR BORDETELLA BRONCHISEPTICA IN DOGS: THE ARGUMENT FOR PRIME-BOOST VACCINATION STRATEGIES

DR. STEPHAN CAREY, DVM, PHD, DACVIM

Michigan State University

KEY HIGHLIGHTS

1 CIRDC OVERVIEW

Canine Infectious Respiratory Disease (CIRD) is a complex, highly contagious respiratory infection caused by numerous bacterial and viral pathogens that are spread primarily through aerosolized respiratory secretions. The communicable nature of CIRD makes it a frequent cause of morbidity in shelters, kennels, boarding facilities, pet day care centers, veterinary clinics, and other locations where commingling of dogs can occur. Most cases of CIRD result in mild upper airway symptoms including coughing, sneezing, and nasal discharge, that are self-limiting. However, some cases can cause more complicated disease resulting in more extensive lower airway injury, and even death in vulnerable populations.

2 RESPIRATORY DEFENSES AGAINST CIRDC

The respiratory defense system against CIRD can be divided into three components. Mechanical barriers, including the airway epithelium and the overlying mucus layer, serve to prevent inhaled pathogens from attaching to the epithelial surface, thereby inhibiting their ability to infect the host. If inhaled pathogens are able to bypass the mechanical barriers and engage the epithelial surface, the innate immune system, can become activated. The innate immune response is a non-specific, local immune response triggered by binding of pathogens to receptors on leukocytes and epithelial cells on the airway surface.

Binding of these receptors stimulates the release of immune mediators, including interferons, enzymes, and chemoattractant molecules, which function to inhibit infection and prime or amplify adaptive immunity. Thus, the innate immune response serves as an important bridge toward the development of the adaptive immune response. The adaptive immune system involves antigen presentation to T-helper lymphocytes in lymphoid tissues, which subsequently drive development of local IgA and systemic IgG-producing plasma cells and antigen-specific cytotoxic T-lymphocytes (CTL). It is the adaptive immune response that provides both immunologic specificity and immunologic memory. Vaccination against CIRD pathogens is a common and important strategy designed to stimulate and maintain adaptive immunity in patients at risk of disease.

3 THE ROLE OF BORDETELLA BRONCHISEPTICA IN CIRDC

Bordetella bronchiseptica, an aerobic, gram negative bacterium, is one of the most frequently identified bacterial causes of CIRDC^{1,2}. *Bordetella bronchiseptica* expresses virulence factors including a tracheal cytotoxin, transcellular secretion mechanisms, and adhesion molecules that facilitate bacterial attachment and mediate injury to ciliated cells in the upper respiratory tract^{3,4}. These unique functions contribute to the ability of *Bordetella bronchiseptica* to serve



as both a principal pathogen and an important contributor to co-infections with other CIRDC pathogens^{5,6}.

4 BORDETELLA BRONCHISEPTICA VACCINATION

Because of its important role as a co-factor in the CIRDC complex, considerable attention has been devoted to the development of vaccination options for *Bordetella bronchiseptica*. Multiple *Bordetella bronchiseptica* vaccination types are available, including subcutaneous, non-adjuvanted cellular antigen extract, modified live intranasal (monovalent and multivalent combinations) and modified live monovalent oral.

(continued)

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DR. STEPHAN CAREY, DVM, PHD, DACVIM

(continued)

The variety of vaccination options contributes to controversy and confusion over which vaccination strategy evokes an optimal immune response and provides the best protection⁷.

Available laboratory studies and field trials suggest that all currently available licensed *Bordetella bronchiseptica* vaccines are effective in reducing or preventing clinical signs of disease. In general, these vaccines all provide this protection by stimulating an adaptive immune response against *Bordetella bronchiseptica* antigens. The ways in which mucosal vaccines (oral and intranasal) and parenteral vaccines stimulate adaptive immunity differ. These different routes of vaccination also confer additional benefits that can help enhance immune responses and protection.

5 MUCOSAL BORDETELLA BRONCHISEPTICA VACCINES

Oral and intranasal *Bordetella bronchiseptica* vaccines both generate adaptive immune responses via antigen presentation to mucosal-associated lymphoid tissues (MALTs) in the upper respiratory tract. Intranasal or oral application of vaccine antigen stimulates the production of Immunoglobulin A (IgA) -producing plasma cells in the subepithelial space. Most of this antigen-specific IgA is translocated through epithelial cells and deposited on the airway surface within the epithelial lining fluid. At this location, IgA is very effective at binding airborne pathogens that are deposited into the epithelial lining fluid, thus inhibiting their attachment to the

airway surface. High concentrations of mucosal IgA have the potential to “prevent” infection, and mediate protection via *immune exclusion*.

In addition to stimulating local production of IgA, mucosal vaccines offer other immunologic advantages to the host. Mucosal vaccines are effective after a single dose in naïve patients. Oral and intranasal *Bordetella bronchiseptica* vaccines are not inhibited by maternally derived antibodies, and are therefore capable of stimulating vaccine-induced immune responses in puppies as young as 3 to 4 weeks of age⁸. By priming immune responses in the upper respiratory tract, mucosal vaccines can affect mucosal homing, which localizes pathogen-specific memory immune cells to the sites where initial colonization and infection typically occur⁹. Modified live mucosal vaccines can also activate innate immune responses in the same mechanism employed by natural pathogens. The non-specific nature of innate immune responses can potentially be used strategically to activate local immune responses, making the environment unfavorable for infection prior to an anticipated challenge¹⁰.

6 PARENTERAL BORDETELLA BRONCHISEPTICA VACCINES

Following subcutaneous injection, parenteral *Bordetella bronchiseptica* vaccines are processed by tissue antigen presenting cells and delivered to lymphoid cells in regional lymph nodes. This type of vaccination stimulates the proliferation of IgG-producing plasma cells in lymph nodes,

the spleen, and in circulation, and produces high concentrations of IgG in plasma^{11,12}. While vaccine-induced IgG is largely sequestered in the plasma in health, its small size allows it to leak through the microvasculature and reach mucosal surfaces at sites of inflammation. Unlike IgA, IgG possesses functional properties that destroy or kill bacterial pathogens, including potent opsonization (recruitment and signaling of phagocytic cells) and activation of the complement cascade¹². By triggering bacterial killing mechanisms at sites of colonization or infection, IgG mediates protection via *immune elimination*. In this way, circulating IgG provides an important “backup” that limits tissue invasion and prevents severe infection and systemic dissemination when pathogens evade or overwhelm mucosal immune mechanisms¹³.

An important immunologic advantage provided by parenteral vaccination is the ability to serially “boost” a primed immune response. The nature of a mucosal immune response (immune exclusion) makes it difficult to boost an existing immune response with multiple doses of a mucosal vaccine¹⁴. Because parenteral vaccines bypass mucosal surfaces, they can be administered repeatedly in an effort to amplify an existing immune response within a short window of time. This serial parenteral vaccination strategy provides the immunologic basis for vaccine schedules recommended by the CDC for early life protection of children against *Bordetella pertussis*¹⁵.

(continued)

VACCINATION FOR *BORDETELLA BRONCHISEPTICA* IN DOGS: THE ARGUMENT FOR PRIME-BOOST VACCINATION STRATEGIES

DR. STEPHAN CAREY, DVM, PHD, DACVIM

(continued)

7 THE ARGUMENT FOR “PRIME-BOOST” VACCINATION

Since no single *Bordetella bronchiseptica* vaccine provides complete protection, and no single route of administration confers all of the immunologic advantages of the others, it seems logical that strategies combining existing vaccines may represent a first step toward vaccine protocols that provide enhanced protection and long-term immunologic memory. The theory behind “heterologous prime-boost” vaccination strategy is the concept of combining different types or routes of vaccination against the same antigen to leverage the advantages of each individual vaccine in a manner that initiates a stronger and broader immune response¹⁶. In the case of *Bordetella bronchiseptica*, the serial

combination of a priming mucosal (intranasal or oral) vaccination, followed by a boosting parenteral vaccination would generate a superior immune response and reduce clinical disease. In an ideal setting, heterologous prime-boost vaccination for *Bordetella bronchiseptica* would leverage the advantages of mucosal vaccination (initiation of early life protection, efficacy following a single dose, stimulation of mucosal immunity and mucosal homing) and the advantages of parenteral vaccination (stimulation of systemic immunity, short-term boosting) in a single protocol.

In the only study to date evaluating the efficacy of a heterologous prime-boost strategy for *Bordetella bronchiseptica*, seronegative puppies

were vaccinated against *Bordetella bronchiseptica* with a modified live intranasal vaccine, an injectable whole cell bacterin vaccine, or a combination of an intranasal priming vaccination with injectable booster vaccines. In that study, dogs receiving the prime-boost sequence demonstrated a reduction in clinical signs and increased serum IgA and IgG when compared to intranasal vaccination alone or placebo vaccines¹¹. While more studies are needed to determine the optimal combination and timing of vaccinations to evoke peak immune responses and clinical protection, the concept of prime-boost vaccination may be a promising option for *Bordetella bronchiseptica* vaccination in the future.

References

1. Mitchell JA, Brownlie J. The challenges in developing effective canine infectious respiratory disease vaccines. *J Pharm Pharmacol* 2015 Mar;67(3):372–81.
2. Day MJ, Carey S, Clercx C, et al. Aetiology of canine infectious respiratory disease complex and prevalence of its pathogens in Europe. *J Comparative Pathology* 2020 Apr;176:86–108.
3. Mattoo S, Cherry JD. Molecular pathogenesis, epidemiology, and clinical manifestations of respiratory infections due to *Bordetella pertussis* and other *Bordetella* subspecies. *Clin Microbiol Rev* 2005 Apr;18(2):326–82.
4. Ford R. *Bordetella bronchiseptica*: Beyond Kennel Cough. In: Kirk's Current Veterinary Therapy XIV. St. Louis, MO: WB Saunders-Elsevier; 2009. p. 646–9.
5. Schulz BS, Kurz S, Weber K, et al. Detection of respiratory viruses and *Bordetella bronchiseptica* in dogs with acute respiratory tract infections. *Vet J* 2014 Sep;201(3):365–9.
6. Viitanen SJ, Lappalainen A, Rajamäki MM. Co-infections with respiratory viruses in dogs with bacterial pneumonia. *J Vet Intern Med* 2015 Apr;29(2):544–51.
7. Ellis JA. How well do vaccines for *Bordetella bronchiseptica* work in dogs? A critical review of the literature 1977–2014. *Vet J* 2015 Apr;204(1):5–16.
8. Day M. Companion Animal Vaccination. In: Ettinger's Textbook of Veterinary Internal Medicine. 8th ed. St. Louis, MI: Elsevier; 2017. p. 895–901.
9. Nizard M, Diniz MO, Roussel H, et al. Mucosal vaccines: novel strategies and applications for the control of pathogens and tumors at mucosal sites. *Hum Vaccin Immunother* 2014;10(8):2175–87.
10. Bradley A, Kinyon J, Frana T, et al. Efficacy of intranasal administration of a modified live feline herpesvirus 1 and feline calicivirus vaccine against disease caused by *Bordetella bronchiseptica* after experimental challenge. *J Vet Intern Med* 2012 Oct;26(5):1121–5.
11. Ellis JA, Haines DM, West KH, Burr JH, Dayton A, Townsend HG, et al. Effect of vaccination on experimental infection with *Bordetella bronchiseptica* in dogs. *J Am Vet Med Assoc* 2001 Feb 1;218(3):367–75.
12. Day M, Schultz R. Antibodies and Antigens. In: Veterinary Immunology: Principles and Practice. 2nd ed. CRC Press; 2014. p. 15–26.
13. Fujimoto K, Uematsu S. Development of prime–boost-type next-generation mucosal vaccines. *International Immunology* 2020 Sep 8;32(9):597–603.
14. Tizard I. Immunity at Body Surfaces. In: Veterinary Immunology. 9th ed. Philadelphia, PA: WB Saunders; 2013. p. 240–57.
15. Liang JL. Prevention of pertussis, tetanus, and diphtheria with vaccines in the united states: recommendations of the advisory committee on immunization practices(Acip). *MMWR Recomm Rep* [Internet]. 2018 [cited 2021 Mar 1];67. Available from: <https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm>
16. Zhang L, Wang W, Wang S. Effect of vaccine administration modality on immunogenicity and efficacy. *Expert Rev Vaccines* 2015;14(11):1509–23.



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9 TIPS FOR MAKING BODY LANGUAGE YOUR SUPERPOWER

KARLENE BELYEA, MBA

www.karlenebelyea.com

In this [VETgirl](#) webinar entitled “[Making body language your super power](#),” [Karlene Belyea](#), MBA, reviews how to influence with body language to improve your communication! As a VETgirl ELITE member, check it out [HERE](#) and improve your communication skills, which are even more important behind a mask now!

KEY HIGHLIGHTS

Interested in learning a few techniques to have more influence with clients, coworkers, and friends? Try using body language to improve your communications with others and help you understand what they are thinking! Studies have suggested that 93% of communication comes from body language when communicating face-to-face. That breaks down as 55% body movements and facial expression, 38% voice tone and modulation, and 7% words. Communication begins before you open your mouth, so try these tips to help make body language your superpower!

1 HAVE A GREAT HANDSHAKE (WELL, AFTER THE PANDEMIC)

When meeting people, we generally shake hands in our culture. A good hand shake in the U.S. is firm, with equal pressure and vertical alignment. Typically, there are 2-3 pumps. Making good eye contact, smiling genuinely, orienting your body and feet toward the person, and repeating the individual's name are important. Be sure your hands are dry and hold eye contact for at least 3 seconds – the first one to look away is typically more submissive. During these interactions, try to look in others' eyes 60-70% of the time.



2 USE EFFECTIVE HAND AND ARM GESTURES

Be sure to show your hands. They are trust indicators. The brain looks at the hands first to make sure we are safe. Keep your hands above the desk or table and avoid pockets and crossed arms. Gesturing openly with your palms up will help to build trust. This is sometimes called “the give” because you are giving information, facts, or options. “The show” is another powerful gesture where you match your gesture to the words you are saying (ex. Saying “My heart goes out to you” as you place your hand over your heart). “The chop” is also useful when delivering strong opinions and can be done with one or both hands. If

you want to express more confidence, try steepling with the fingertips of each hand pressed together. Avoid pointing, finger wagging, folded arms, and clenched fists.

3 HAVE GREAT POSTURE

Posture is important in communicating confidence. Be sure to stand tall with your spine straight and long. Be sure to maintain good posture when you sit down. Slouching lowers self-esteem and tells your brain you are feeling less powerful. Be careful of slouching or bending over your phone since your physical posture sculps your psychological posture.

(continued)

9 TIPS FOR MAKING BODY LANGUAGE YOUR SUPERPOWER

KARLENE BELYEA, MBA

www.karlenebelyea.com

(continued)

4 WATCH FACES CAREFULLY TO SPOT MICRO-EXPRESSIONS

There are 7 universal micro-expressions, and if you can catch clients or others making them, you can address possible concerns. A micro-expression is a very brief, involuntary facial expression displayed when someone experiences an emotion. They are 1/15-1/25 of a second long – very fast and people cannot fake them. The 7 universal micro-expressions are 1) Disgust – upper lip pulled up, nose crinkled, cheeks raised, 2) Anger – brows low and drawn together, pressed lips, vertical lines between eyes, 3) Fear – brows raised, flat and drawn together, tensed lips, open mouth, whites of eyes showing, 4) Sadness – pout, corners of mouth down, eyebrows down, 5) Happiness – real smile (look for eye wrinkles) versus a fake smile, 6) Surprise – briefest emotion, mouth open, eyebrows up, wide open eyes, and 7) Contempt – one side of mouth is raised. In all of these cases, saying “Maybe I’m wrong here but...” leads to deeper conversations.

5 RECOGNIZE NERVOUS AND SHAME CUES

When dealing with clients or coworkers, watch for nervous and shame cues to address them with further explanation. Nervous cues include self-soothing gestures (rubbing their arms, legs, hands, etc.), wringing hands, touching the suprasternal notch (playing with neck, tie, jewelry), cracking knuckles, rubbing fingers and biting our lips. If someone is experiencing shame, they will often

touch their fingers to their forehead or cover their mouth or eyes. Clients exhibiting shame cues are often concerned about money. When you see these, be sure to address them with further explanation.

6 USE NODDING STRATEGICALLY

Nodding can be a powerful tool when used to encourage people to continue speaking. If you stop talking and nod slowly 3 times, people will start talking again, and you will gain more information. Be sure to nod slowly – if you nod too fast, you look impatient. No one wants to talk to a bobble head!

7 EXPAND YOUR BODY TO INCREASE CONFIDENCE IN IMPORTANT MEETINGS AND INTERVIEWS

Numerous studies have shown that when we expand our bodies, we feel more powerful. Power posing is expanding your body to make you feel more confident prior to going into a stressful situation. Try power posing before speaking up for yourself, ending a relationship, quitting a job, giving critical feedback, or asking for help. For important meetings and interviews, try these tips: carry only 1 item so you don’t look disorganized, sit slightly angled at a table if possible (not directly across from the person), power pose for 2 minutes before to increase your confidence, claim your space but don’t be territorial, keep your body “open”, don’t touch your face/hair or fidget, use gestures to strengthen your message, remember that posture breeds success, and don’t purse your lips.

8 LEARN HOW TO SPOT A LIAR

If you are concerned that a client or someone else might be lying to you, look for clusters of 3 or more “red flag” behaviors. When questioning someone, watch the eyes. If the blink rate increases and the eyes dart around, dig deeper. Liars will also touch their face, nose, or cover their mouth, almost like their body doesn’t want to tell the lie. A tight-lipped smile or pursed lips can also be a red flag. When facial expressions and body positioning do not match the words, these can indicate possible lies. Some liars will even nod “yes” when saying “no” or vice versa, or use self-soothing gestures).

9 BE AWARE OF CULTURAL DIFFERENCES

Keep in mind that different cultures have different body language tendencies. Be aware of different greetings, and let the other person lead if you are unsure. Avoid using any single finger as a gesture – open handed gestures with all fingers together are usually safe. The key to cross-cultural success is to develop an understanding of, and a deep respect for, cultural differences.

For good overall body language, show humble confidence with loose arms, good posture, shoulders down, face up, upper body movement and visible hands. Be sure to watch your clients, coworkers, and friends to better understand how they are feeling and what you can do to improve communication.

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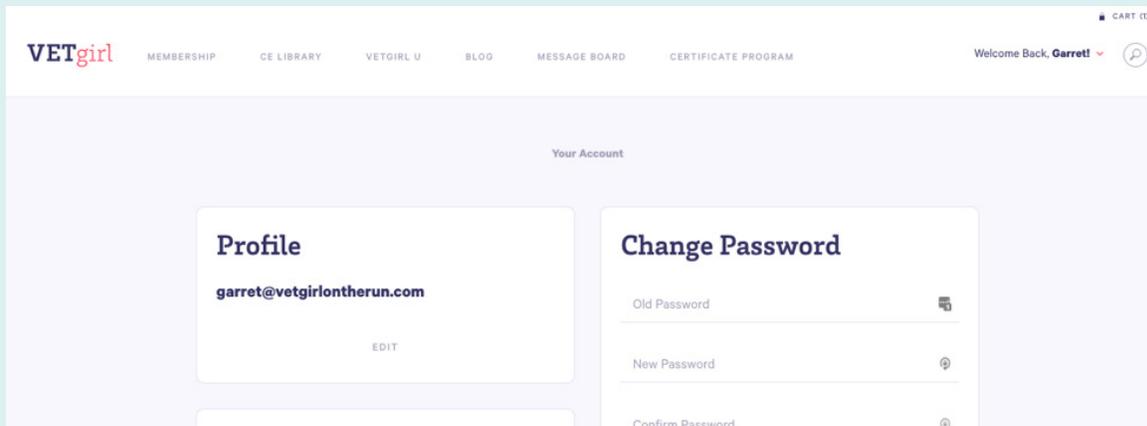
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References: **1.** Dant JC, LaFleur RL, Callister SM, Stahl M, Sutton D, Tarpey I. Ability of antibodies induced by canine Lyme disease vaccines to kill viable spirochetes. Poster presented at: Proceedings of the ISCAID Symposium; October 16–19, 2016; Bristol, UK. **2.** LaFleur RL, Dant JC, Wasmoen TL, et al. Bacterin that induces anti-OspA and anti-OspC borreliacidal antibodies provides a high level of protection against canine Lyme disease. *Clin Vaccine Immunol.* 2009;16:253–259.

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Spring into Heartworm Awareness Month with new heartworm knowledge

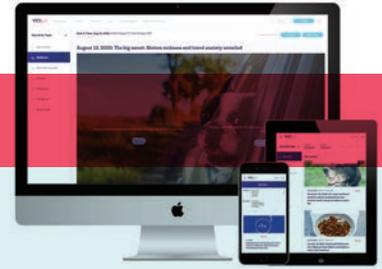
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PROVIDER SPOTLIGHT //

MARISSA BARNES, MBA

CHIEF MARKETING OFFICER, VETGIRL

Marissa joins VETgirl as the Chief Marketing Officer, with a passion for bringing the voice of the customer to life and an eye for innovation. Her background includes a BA from the University of Pennsylvania and an MBA from the Darden School at the University of Virginia. Her past roles include strategy, consulting, M&A, business development and of course, marketing. Marissa is motivated to make the VETgirl user experience even better and to bring big ideas to life. If you've got a suggestion or comment, drop her a line!



As a little background, Marissa grew up outside of Pittsburgh, PA, playing in the "crick" below her house with her sister Heather and Hatchet, a German shepherd-collie mix. Much like her human companions of the time, Hatchet was greatly loved, and not particularly well-trained. Looking back now as a mom of two, Marissa feels everyone could have used more bathes. Today, she takes her own children creeking and hoses them off afterwards. True to her upbringing, Marissa is inherently a dog person. Although she has recently come to appreciate cats for being relatively low-maintenance versus dogs.

Marissa is new to the veterinary world, having spent most of her career with food and ingredient companies. Marissa appreciates the creativity and technique required for great food. She loves to cook for her family. She dreams of the day that her two young children realize how much better her home-made mac & cheese is than the blue box. Based on recent events, she may be waiting awhile... If you are a foodie, ask her about taste testing dozens of rare heirloom oranges, kumquats, mandarins and pomelos while wandering one of the world's most extensive citrus groves.

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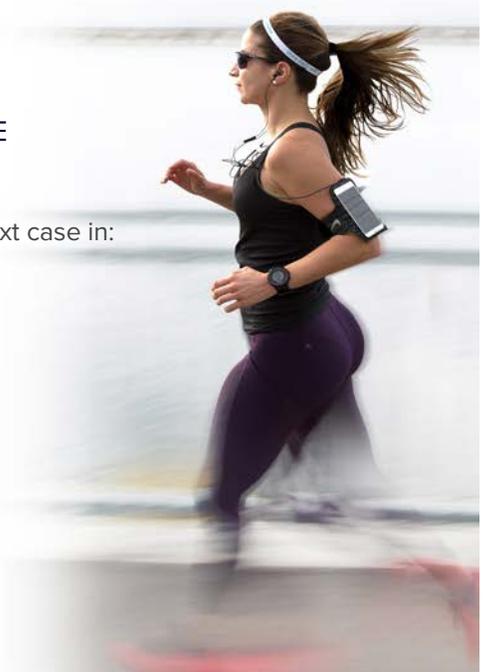
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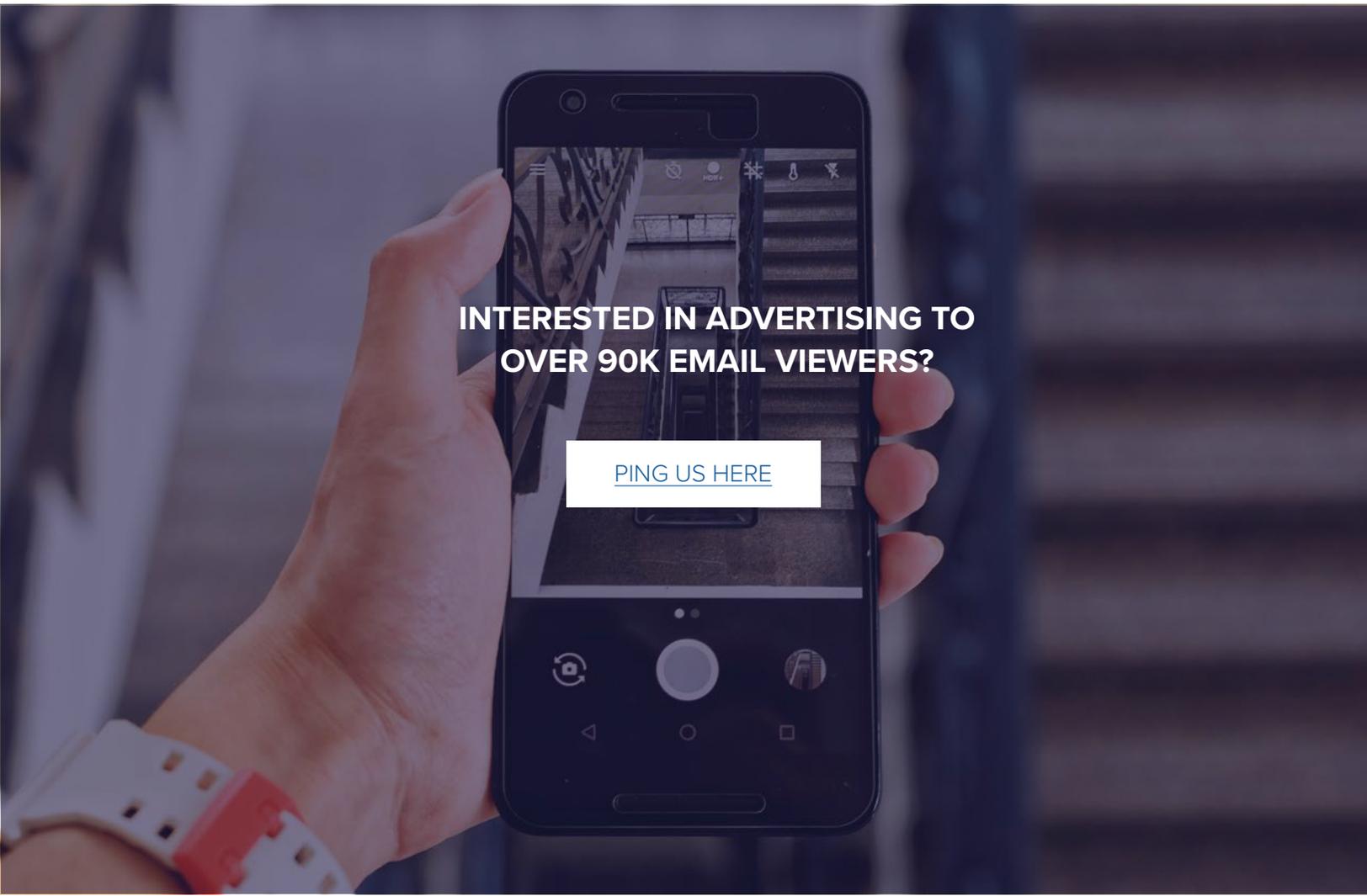
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NOTE: When in doubt, all drug dosages should be confirmed and cross-referenced with a reference guide such as Plumb's Veterinary Drug Handbook.