



intercom

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April/May 2020



- 2020 Science Fair Winners — pg 7*
Coronaviruses In The Domestic Animal Kingdom — pg 8
Prescription FAQ by Dr. Grant Miller — pg 14
Ventilators Intended For Animals Redeployed For People — pg 17
SDHS Humane Law Enforcement: Here To Serve The Community — pg 19
Survey Finds That Some Dogs Self-Cannibalize After Surgery — pg 20
SDCVMA Intercom Cover Photo Contest — pg 23

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FEATURES

As on the Cover and...	
Community Service: Virtual Walk for Animals.....	25
Intercom Cover Photo Contest.....	23
Meetings, Seminars, Events & Webinars.....	25
Member AVMA Specialty Diplomates Directory.....	5
Notices and Announcements.....	22
Pets, Parks and Parasites Webinar.....	12
Science Fair Winners.....	7
SDCVMA Fall Conference Save the Date Message.....	23

ADVERTISERS

California Veterinary Specialists	27
Dr. Janette Mueller, Realtor.....	19
Dr. Kristi Freeman.....	19
Eye Care for Animals.	6
Mohnacky Animal Hospital.....	26
North County House Call Vet.....	26
Otay Veterinary Clinic, Mexico.....	19
Pacific Professionals Inc.	24
Peaceful Passing	26
Pet Emergency & Specialty Center	2
Shindledecker Designs.....	19
Softsurg.....	26
South Coast Anesthesia.....	26
US Veterinary Equipment	13
VCA Animal Specialty Group..	4
VCA EAH & Referral Center.....	28
Veterinary Insurance Services Company.....	13

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BRITTANI JONES, DVM, DACVS-SA

Dr. Jones graduated from The Ohio State University, School of Veterinary Medicine in May 2015. She then completed a general medicine and surgery rotating internship at the Animal Medical Center in New York in July 2016. Dr. Jones went on to complete a small animal surgery residency in July 2019 at Michigan State University in Lansing, Michigan. She joined VCA Animal Specialty group in September 2019. Dr. Jones became a diplomate of the American College of Veterinary Surgeons in February 2020.

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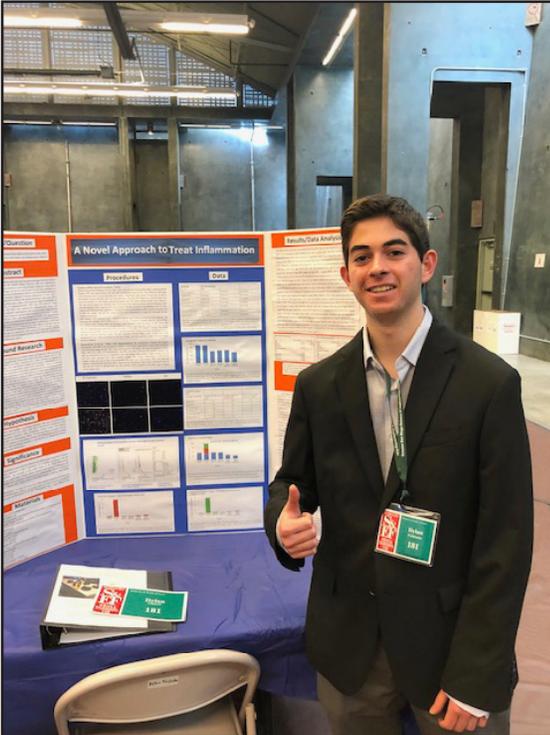
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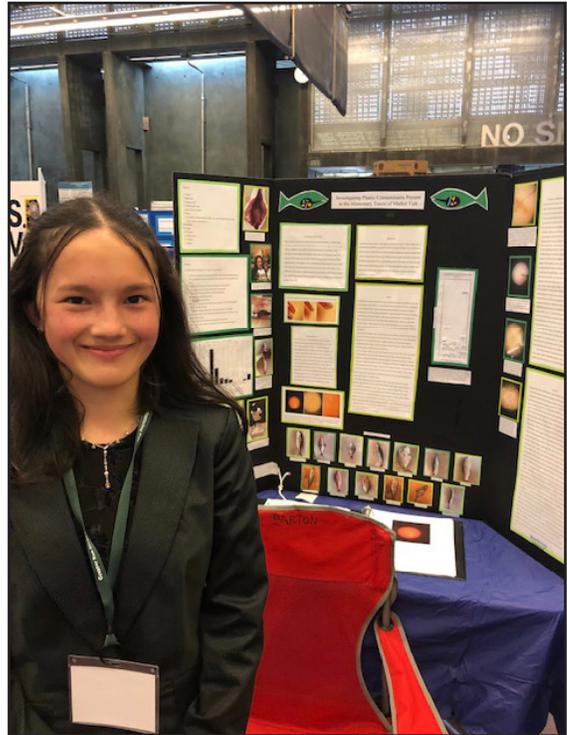


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Project:

Investigating Plastic Contaminants Present in the Alimentary Tracts of Fish



Thank you volunteer judges!
 (left to right) **Dr. Natasha Stanke, DACVS, Dr. Kathy Kaleka, Dr. Grafton Houston, Dr. Phoenix Watt**

VINNews: Coronaviruses In The Domestic Animal Kingdom

What the zoonotic origin of SARS-CoV-2 implies for pets and livestock

4.3.2020

By Natalie Slivinski

The coronaviruses that cause the potent respiratory diseases SARS, MERS and COVID-19 have an important feature in common: They are zoonotic, meaning they first came from animals. What does that mean for people and their pets?

Since February, four household pets have tested positive for SARS-CoV-2, the coronavirus sweeping the globe: [two dogs in Hong Kong](#), a Pomeranian and a German shepherd; [a cat in Belgium](#); and, most recently, [a cat in Hong Kong](#). All the animals' owners had COVID-19. Although they apparently picked up viral particles shed by their human companions, none of the Hong Kong pets showed signs of illness consistent with COVID-19. The Belgian cat, however, did become sick, showing signs about a week after its owner became ill.

The occurrences raise questions about whether pets could become part of the COVID-19 transmission chain. Veterinarians and other health experts say there is no cause for owners to abandon their animals for fear of catching the disease — if anything, it's the pets who should be kicking us out. There is no evidence that pets can transmit the virus back to people. "I think it's far more likely that they'll get it from the person that's shedding large amounts of virus, rather than the other way around," said Dr. Melissa Kennedy, a virologist at the University of Tennessee College of Veterinary Medicine.

Medical experts say the real threat lies in human-to-human transmission. While some pet species may be able to pick up infections, that doesn't mean they play a role in spreading the virus. Still, research is ongoing, and owners should include their pets when practicing COVID-19 precautions.

In his blog [Worms & Germs](#), Dr. J. Scott Weese, a pathobiologist and internal medicine specialist at the University of Guelph's Ontario Veterinary College, advises: "If you're sick, stay away from animals just like you would other people. If you have COVID-19 and have been around your pets, keep your pets inside and away from other people. While the risk of transmission to or from a pet is low, we don't want an exposed pet tracking this virus out of the household (just like we don't want an infected person doing that)."

Meet The Coronavirus Family

Coronaviruses are diverse. They have adapted to occupy a slew of animal species, including birds, cats, dogs, pigs, mice, horses, whales, monkeys, ferrets, camels and cows. There are hundreds of known coronaviruses, which fall into four genetically different genera, or subgroups: alpha and beta, which mainly infect mammals; and gamma and delta, which mainly infect birds. Often, they don't make their host sick, and most cannot transmit from one species to another. But occasionally, when a virus evolves a mutation that benefits its ability to thrive, it can jump species, or "spill over." If the mutated virus can replicate to high enough levels, it can cause an outbreak among humans or other animals.

Seven known coronaviruses infect people. Four of these are endemic — that is, regularly found in a particular region — and usually cause what we call a common cold.

Three of the seven coronaviruses that afflict humans have evolved within the past two decades and can make some people severely ill. These are SARS-CoV, MERS-CoV and, most recently, SARS-CoV-2.

All three are thought to have come from bats, whose specially adapted immune systems enable them to carry coronaviruses without becoming sick. The coronavirus that caused severe acute respiratory syndrome in 2002 may have passed directly from bats, but is thought to have been transmitted to humans largely through intermediate animals — likely masked palm civets and raccoon dogs, both common in Chinese live-animal markets. The coronavirus that causes Middle East respiratory syndrome exists comfortably in dromedary camels without causing them obvious signs of illness. To this day, camels occasionally pass the virus to the humans who handle them. Experts suspect that SARS-CoV-2, the cause of COVID-19, also may have made the journey from bats to humans through an unknown intermediate animal, perhaps the pangolin.

What makes the SARS and MERS viruses special? How can they transmit to humans when other members of their family cannot?

The answer lies in the name. The coronavirus is named for the crown, or corona, of spikes on its surface, which the virus uses to attach to the outside of host cells and insert its RNA. These spike proteins have binding sites that stick to a specific cell receptor protein on the host cell's surface. Many viruses recognize only receptors that are specific to one animal species.

Others are generalists. A recent study in the [Journal of Virology](#) found that the spikes of both SARS-CoV and

SARS-CoV-2 bind to a host cell receptor called angiotensin-converting enzyme 2, or ACE2. ACE2 is found in many different animals, and if the spike protein can form a strong enough bond with an animal's ACE2, the virus can successfully infect that animal's cells. According to the study authors, the SARS virus evolved mutations in its spike protein to better stick to human ACE2 during the 2002 epidemic.

The researchers found that SARS-CoV-2 spikes also appear to bind well to ACE2 — and not just in humans but also in other primates, bats, pigs, ferrets and cats. Other studies have suggested that it also recognizes ACE2 in pangolins, civets, raccoon dogs, camels and, possibly, domestic dogs.

The veterinary and research communities remain vigilant. But although domestic animals such as cats and dogs may be infected, viral transmission in household pets is considered unlikely. Based on current evidence, Kennedy believes that dogs are not «epidemiologically important» for COVID-19. That's because there's more to a successful infection than sticking to host cells. And while humans provide a very comfortable environment for SARS-CoV-2, Kennedy said, dogs apparently do not.

'Infected' Versus 'Infectious'

The dogs that tested positive in Hong Kong were found to have viral RNA in the mouth and nose. When the Hong Kong Agriculture, Fisheries and Conservation Department performed serological tests to measure antibodies against COVID-19 in the blood of the Pomeranian, the final result came back positive, indicating a bona fide infection. However, the dog never showed any clinical signs.

In fact, you can be infected with a virus without feeling sick. When you feel ill, it's the result of the virus replicating to high enough levels to do two things: first, to destroy large numbers of healthy cells; and second, to trigger inflammation that can cause unpleasant symptoms such as fever and coughing. But if the virus can't replicate efficiently, it can't muster enough copies of itself to pose much of a challenge to the body's immune system, which mounts a coordinated attack and clears out the invader before its host notices symptoms.

It seems likely, Kennedy said, that dogs are not a hospitable host for SARS-CoV-2. "The host specificity of a virus is determined, basically, by two factors," she explained: "One, that the cells the virus is infecting have a receptor that it can attach to. And then, once the virus is inside the cell, that cell has to be able to provide everything that the virus needs in order to replicate."

While dogs' cells might have a fitting ACE2 receptor, Kennedy suspects that SARS-CoV-2 isn't happy enough in the canine cellular environment to replicate to high levels. There must also be a large enough dose of virus to breach the frontline defenses of every new host. Without the ability to replicate efficiently, the virus has nowhere to go.

In humans, there's no doubt: Our bodies are like a five-star hotel for SARS-CoV-2. We can transmit the disease even without symptoms, perhaps because our cells are quite permissive to the virus. This effect is amplified in cities, where the high density of people means that a large population is being exposed to particularly high levels of virus.

As for dogs, Kennedy believes they are likely a dead end for SARS-CoV-2 — meaning they can catch the virus but they cannot give it back. While human cells are permissive for some reason, canine cells may not be. "From what we know thus far, the dog is not providing everything that virus needs in order to replicate to significant enough levels to make it important in the spread of the virus," she said. "There may not be enough permissive cells. But that's under investigation now."

The cells of cats and ferrets, however, appear to be more receptive to coronaviruses. Scientists at Harbin Veterinary Research Institute in China, in a [study](#) not yet peer reviewed, found that "SARS-CoV-2 replicates poorly in dogs, pigs, chickens and ducks, but efficiently in ferrets and cats. We found that the virus transmits in cats via respiratory droplets."

The finding on cats and ferrets is consistent with the SARS virus from 2002. For that reason, Weese, who is a zoonotic disease expert at Ontario Veterinary College, anticipated some weeks ago that cats and ferrets might become infected by the virus that causes COVID-19. «With the original SARS virus, cats ... were able to grow enough virus to pass it on to another cat,» he said.

Weese was therefore unsurprised by the news about the Belgian cat, which had both a positive test result and clinical signs. According to an article in [The Brussels Times](#), the cat had diarrhea, vomiting and difficulty breathing. Researchers found virus in the cat's feces, the newspaper reported. The cat in Hong Kong, which has not shown any signs of the disease, also had virus in its rectal samples, as well as in its mouth and nose, according to the government statement.

Ferrets, too, have been found to have ACE2 receptors and are permissive to a number of viruses that infect humans, including some types of bird flu and seasonal

— continued pg. 10

flu, according to Kennedy. Early studies have shown that SARS-CoV-2 replicates well in ferret cells. However, Weese believes their transmission risks are low, at least from an epidemiological standpoint.

“If you put a cat and a ferret in front of me and ask me which one I want to get in close contact with, I’d pick the cat, because ferrets are high risk at that one-on-one level,” he said. “But for me, cats are still a bigger concern because there are a lot more cats than ferrets.”

While the susceptibility of ferrets may be worrisome for ferret owners, it could be a boon for COVID-19 research. According to the [New York Times](#), scientists at the University of Pittsburgh recently found that a ferret in their lab developed a high fever after being exposed to SARS-CoV-2. The strong immune response suggests ferrets likely are vulnerable to illness, which makes them a promising animal model for developing a COVID-19 vaccine.

Assessing Risk

Despite the ferret finding, experts believe the likelihood of catching COVID-19 from a pet ferret or cat is low. Even if transmission to individual owners is theoretically possible, both Weese and Kennedy believe the risk does not translate to large-scale spread.

“An infected cat isn’t a big concern in the household, since the person who exposed the cat in the first place is the main risk,” Weese [wrote](#) last week in his blog. “The virus is being transmitted very effectively person to person, so animals likely play little role, if any, in the grand scheme of things.”

Other than the Belgian cat, there are no other reports of domestic animals, including livestock, getting sick with COVID-19. That could change, of course; more animals from households with COVID-19 cases need to be tested to form a clearer picture.

Furthermore, viruses are apt to mutate, and coronaviruses have unusually large genomes, predisposing them to a large number of mutations. Such genetic «mistakes» are what drive their evolution. “Those mistakes are purely random,” Kennedy explained, “but if they give that virus selective advantage over its comrades, then that mutation will be maintained in the virus population.”

If SARS-CoV-2 were to mutate such that the virus became more able to infect and spread, domestic animals could become reservoirs. That would have major implications for a world full of pet and livestock owners. It’s

also theoretically possible the virus could find a way to spill over from cats or ferrets back into humans. But there’s no evidence to date that this is happening.

A Call For Common Sense

Weese is working on testing more animals from COVID-19-positive households. “We’re trying to do active surveillance of animals that are in contact with infected people,” he said.

If many more positive tests emerge in pets, public-health experts will review the transmission risks. But routinely testing large populations of domestic animals would be impractical and probably not very informative, Weese said: “Testing is useful to use from a research standpoint, but testing your average animal isn’t something we want to get done.”

His focus is on practical protective measures. For pig farmers, for example, simply exercising caution may effectively prevent transmission. “If you’ve got COVID and you’ve got pigs but you don’t go near the barn, then we don’t have to worry about it,” Weese said. “And with farmers, it’s actually probably easier [than with pet owners], because a pig farmer realizes that if someone reports a pig being positive, pork prices are going to plummet.”

For pet owners, it’s about managing animals the same way we manage people, Weese said. This means staying separated from pets if you’re sick, as painful as it may be to deny yourself snuggle therapy. It also means including pets in social distancing. If you are under local stay-at-home orders and keeping a distance from others, keep your pet distant from others, too. Even if pets can’t get COVID-19, viral particles can get on their mouth, nose, fur or skin and be picked up by the next person who touches them. Think of pets as another surface that can be contaminated, like a countertop or door handle. The overall message, Weese said, is simple: “Just use common sense.”

The best defense against transmission by household pets is to keep exposed animals in the home but sometimes this is impossible; for instance, if someone who lives alone needs to be hospitalized. In a [blog post](#) Thursday, Weese discusses options for such situations. The best scenario, he writes, is for someone who has recovered from COVID-19 to come into the household to continue caring for the pet. If no one is available, not even a benevolent low-risk neighbor, owners may be able to temporarily house their pet with a shelter or clinic that has the facilities and capacity. Weese’s own hospital is positioned to house animals from COVID-19 households. Space is limited, and the

option is intended as a last resort. “We’re set up to handle those animals,” he said, “but our focus is to keep animals in the household or find alternative approaches rather than see them in clinics.”

Table 1

Alphacoronaviruses	Host
Canine enteric coronavirus (CCoV)	Dog
Feline coronavirus (FCoV)	Cat
Porcine transmissible gastroenteritis virus (TGEV)	Pig
Porcine epidemic diarrhea virus (PEDV)	Pig
Ferret enteric coronavirus (FRECv)	Ferret
Ferret systemic coronavirus (FRSCV)	Ferret
Mink coronavirus (MCoV)	Mink
Betacoronaviruses	
Bovine coronavirus (BCoV)	Cow
Canine respiratory coronavirus (CRCoV)	Dog
Equine coronavirus (ECoV)	Horse
Porcine hemagglutinating encephalomyelitis virus (PHEV)	Pig
Deltacoronaviruses	
Porcine deltacoronavirus (PDCoV)	Pig

Vaccinating Against Coronavirus

Table 1 shows selected pathogenic coronaviruses in domestic animals. Vaccines exist for a few, including canine enteric coronavirus, feline coronavirus, porcine transmissible gastroenteritis virus, and bovine coronavirus. More are in production. However, none protects against SARS-CoV-2.

Existing vaccines for coronaviruses are thought to boost the animal’s immunity, at least partly, to the viral spike proteins. Spikes are genetically and structurally different among coronavirus genera. Therefore, antibodies produced in response to a vaccine for one genus of coronavirus won’t recognize spikes from a different genus of coronavirus.

It’s not only the spikes that differ. Bovine coronavirus is a beta coronavirus, for which there is a vaccine. BCoV and the SARS viruses are in the same genus. But SARS-CoV, the virus that causes SARS, and SARS-CoV-2, the virus that causes COVID-19, belong to yet another genetically different subgenus — a subgroup within a subgroup. BCoV is a group 2a beta coronavirus, while SARS viruses are group 2b beta coronaviruses. The subgenera are genetically different enough that they stimulate the production of completely different antibodies that don’t cross-react.

Even existing coronavirus vaccines are not especially effective, and in some cases have caused adverse reactions. Some have been reported to cause their target coronaviruses – which are unusually genetically adaptable – to mutate into a new pathogenic strain. This is why experts recommend practical measures as a first-line defense against coronavirus transmission. That means adequate surveillance, rapid diagnostic testing and swift quarantines, if necessary.

Corrections: This story has been changed from the original to remove a repetitive passage. The article also has been changed to remove an incorrect statement about coronavirus genetic replication and proofreading enzymes. The latest research suggests some coronaviruses do possess a proofreading enzyme.

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Prescription FAQ

Grant Miller, DVM, CVMA Director of Regulatory Affairs

1. What must be included on a written prescription in order for it to be valid?

According to the [California Code of Regulations, Title 16, Section 2032.2](#) a valid veterinary prescription must contain the following:

- 1) The name, signature, address and telephone number of the prescribing veterinarian.
- 2) The veterinarian's license number and his or her federal registry number if a controlled substance is prescribed.
- 3) The name and address of the client.
- 4) The species and name, number or other identifying information for the animal.
- 5) The name, strength, and quantity of the drug(s).
- 6) Directions for use, including, if applicable, withdrawal time.
- 7) Date of issue.
- 8) The number of refills.

2. What does a sample veterinary prescription look like?

Prescription Number: _____ Date of Issue: _____

Client Name: _____ Patient Name: _____ Patient Species: _____

Client Address: _____ City: _____ State: _____ Zip: _____

Drug (Trade Name): _____ (Generic Name): _____

Quantity: _____ Refills: _____ Withdrawal Time: _____ DO NOT SUBSTITUTE: _____ (Dr. initials)
(if applicable)

Directions for Use:

Cautionary Statement(s): Federal law restricts this drug to use by or on the order of a licensed veterinarian.

Dr. Signature:

Doctor Name: _____ CA License #: _____

Doctor Address: _____ City: _____ State: _____ Zip: _____

Doctor Phone Number: _____

3. What does the "Do Not Substitute" box indicate on a prescription?

If a prescriber writes a prescription for a brand name (Legend) drug, the pharmacist must fill the prescription with that exact drug if the "Do Not Substitute" box is checked by the prescriber. If the box is not checked, the pharmacist may use a generic formulation to fill the prescription in place of the brand name drug. Other effective means of ensuring that the brand name formulation is used is to write "Substitutions Not Permitted" or "Do Not Substitute" on the prescription.

4. What is the difference between administering, dispensing and prescribing?

Administering means that the veterinarian, RVT or veterinary assistant is giving a medication or treatment to a patient during an appointment or when the patient is admitted. *Dispensing* means that the veterinarian is sending the client home with medications or supplies from the hospital stock whereas *prescribing* means that the veterinarian is writing out a prescription for the client to have filled at a pharmacy or calling a pharmacy directly to orally transmit a prescription for a patient.

5. Can veterinary practices fill prescriptions from other veterinarians?

While veterinary practices are not pharmacies, there are certain circumstances which permit them to fill prescriptions for animals. The [California Code of Regulations, Title 16, Section 2032.25](#) does permit, under certain circumstances, veterinarians to fill prescriptions in the absence of a Veterinarian-Client-Patient Relationship. The overall intent of Section 2032.25 is to allow veterinarians to provide emergency medication for a travelling animal after he or she has attempted to contact the original prescribing veterinarian and/or obtained documentation such as the patient's medical record or a valid prescription. This regulation is also intended to apply to veterinarians working in the same practice in situations where the veterinarian who originally prescribed the medication is not available, but the medical record is available for a colleague to review.

6. How long is a prescription valid?

- **For non-controlled substances:**

[The California Code of Regulations, Title 16, Section 2032.1](#) states that a veterinarian may not issue a prescription for a duration longer than one year from the date that the animal was last seen.

- **For controlled substances:**

According to the Federal Drug Enforcement Administration (DEA), prescriptions for all controlled substances ([Schedules II–V](#)) are valid for six months from the date written. This time limit is also recognized in the [California Health and Safety Code Section 11166](#).

7. Do I have to provide a written prescription for my client if they request it?

Yes. The [California Business and Professions Code Section 4170\(a\)\(6\)](#) requires that prior to dispensing, prescribers offer to give a written prescription to a patient, free of charge, that the patient may elect to have filled by the prescriber or by any pharmacy.

8. Do I need to authorize prescription requests that originate from pharmacies?

The [California Business and Professions Code Section 4170\(a\)\(6\)](#) does not require you to authorize prescription forms sent from pharmacies, it only says that you must provide a written prescription to clients. The CVMA recommends that veterinarians provide written prescriptions to clients in accordance with the law, but not sign authorization forms from pharmacies. Read more about it [here](#).

If you elect to sign an authorization from a pharmacy, make sure that the medication being requested is within the parameters of your Veterinarian-Client-Patient Relationship (VCPR) as described in the [California Code of Regulations, Title 16, Section 2032.1](#). In addition, make sure that the form that you are signing conforms with California veterinary prescription requirements set forth in the California [California Code of Regulations, Title 16, Section 2032.2](#).

9. Can I charge for a prescription?

No. The [California Code of Regulations, Title 16, Section 2032.2\(c\)](#) indicates that written prescriptions must be offered free of charge.

10. Do I have to notify clients of their right to obtain a written prescription free of charge?

Yes. The [California Business and Professions Code Section 4170\(a\)\(7\)](#) mandates that the prescriber provides the patient with written disclosure that the patient has a choice between obtaining medication from the dispensing prescriber or obtaining a prescription that can be filled at a pharmacy of the patient's choice.

The [Veterinary Medical Board](#) has determined that a notice posted in a conspicuous location on the veterinary practice lobby can satisfy the disclosure notice requirement. The CVMA [sells a plaque](#) with approved language.

11. What happened to the old “triplicate prescription forms” used to provide a written prescription for controlled substances?

As of January 1, 2005, veterinarians and other prescribers are required to use new tamper-resistant prescription forms with built in security features to prescribe controlled substances. Unlike the old state-issued triplicate forms available only from the Department of Justice, the new prescription forms can be [ordered from an approved printing company](#). They can be used for any controlled substance listed in Schedules II through V and also can be used for non-scheduled prescription products.

12. Can I issue several prescriptions for a Schedule II controlled substance in advance and just give them to the client all at once?

Here is what the [DEA Practitioners Manual](#) says about issuing Schedule II prescriptions in advance:

— continued on pg 16

Issuance of Multiple Prescriptions for Schedule II Substances

DEA has revised its regulations regarding the issuance of multiple prescriptions for schedule II controlled substances. Under the new regulation, which became effective December 19, 2007, an individual practitioner may issue multiple prescriptions authorizing the patient to receive a total of up to a 90-day supply of a schedule II controlled substance provided the following conditions are met:

1. Each separate prescription is issued for a legitimate medical purpose by an individual practitioner acting in the usual course of professional practice.
2. The individual practitioner provides written instructions on each prescription (other than the first prescription, if the prescribing practitioner intends for that prescription to be filled immediately) indicating the earliest date on which a pharmacy may fill each prescription.
3. The individual practitioner concludes that providing the patient with multiple prescriptions in this manner does not create an undue risk of diversion or abuse.
4. The issuance of multiple prescriptions is permissible under applicable state laws.
5. The individual practitioner complies fully with all other applicable requirements under the Controlled Substances Act and Code of Federal Regulations, as well as any additional requirements under state law.

13. Do I need to keep a copy of a written prescription in the patient record? What do I do if I call a prescription into a pharmacy?

The [California Code of Regulations, Title 16, Section 2032.2\(a\)\(12\)](#) requires that veterinarians retain records of all medications and treatments prescribed and dispensed, including strength, dosage, route of administration, quantity, and frequency of use. Placing a copy of the written prescription in the patient file can satisfy this recording requirement. Alternatively, the required prescription information can be written in the patient record (this would apply for both written and orally transmitted prescriptions.)

14. Do “Prescription Diets” require a Veterinarian-Client-Patient Relationship (VCPR) to be in place before we can sell these products to our clients? What about Frontline and Advantage?

The term “Prescription” in *Prescription Diets* is part of the registered trade name and does not indicate that the diet is a true prescription or legend product. Prescription Diets are technically over-the-counter (OTC) products that do not require a VCPR to be sold to a client. However, the manufacturer distributes these diets exclusively through veterinarians and asks that the veterinarian treat them like they treat prescription products. Products in this category are sometimes referred to as “ethical” drugs or products.

Frontline, Advantage, Comfortis and other pet foods also fall into the category of “ethical” products and are technically OTC drugs.

§ 4022 B&P Code

15. How can I tell a true prescription drug or product from OTC products?

True prescription drugs or products have a “legend” on the container stating: “CAUTION: FEDERAL LAW RESTRICTS THIS DRUG TO USE BY OR ON ORDER OF A LICENSED VETERINARIAN” or “CAUTION: FEDERAL LAW PROHIBITS DISPENSING WITHOUT A PRESCRIPTION.”

Ethical drugs may have a similar looking statement saying that the product is available only from a veterinarian, but this does not make it a prescription product.

§ 4022 B&P Code



VIN News: Ventilators Intended For Animals Redeployed For People

Critical care veterinarians muster needed equipment for COVID-19 pandemic

3.23.2020

By Lisa Wogan

Dr. Tim Hackett rolled a life-support ventilator up to the automatic doors of UC Health Poudre Valley Hospital into the waiting hands of masked and gloved health care practitioners on Friday. The James L. Voss Veterinary Teaching Hospital at Colorado State University in Fort Collins had purchased the ventilator for the care of critically ill dogs, cats, rabbits and other animals. Now it, along with other veterinary ventilators belonging to CSU, will be used to help COVID-19 patients with respiratory failure.

A veterinarian, Hackett is the director of the teaching hospital and a professor of emergency medicine at CSU. "It will be such a boost to everyone around here to know that something that we had will be used to meet the needs of our neighboring health care system," he told the VIN News Service.

The novel coronavirus that causes COVID-19 attacks the lungs and can lead to pneumonia and acute respiratory distress syndrome. Ventilators deliver air to the lungs through a tube placed in the windpipe and do the work of breathing for patients who can't breathe on their own. For some COVID-19 patients, going without a ventilator means certain death.

There aren't enough ventilators to meet demand, and no easy way to manufacture more quickly, according to reports in [The New York Times](#) and elsewhere.

Aware that veterinary ventilators are the same as those used in human medicine, critical care specialists at veterinary schools and specialty emergency hospitals realized they could help narrow the gap.

On their own and in concert with one another during the past couple of weeks, they began taking stock of their resources and reaching out to medical hospitals to see how they might help.

Dr. Beth Davidow, president-elect of the American College of Veterinary Emergency and Critical Care (ACVECC), spearheaded an effort to create a nationwide inventory of ventilators available for human medical facilities. Davidow is a critical care veterinarian in the Seattle area, where the first case of COVID-19 in the U.S. was reported in January. More than 367,000 people have been infected worldwide and more than 16,000 have died due to the disease, [as of this morning](#).

"I think people on the human side forget we're a resource," Davidow said about veterinary medicine. "Realizing we're there might be worth thinking about."

As of Saturday, 160 veterinary facilities had added ventilators to ACVECC's spreadsheet. The list is not public because it contains personal cell phone numbers of veterinary critical care specialists so that physicians can reach them directly in an emergency. The information is available to practitioners through the [Society for Critical Care Medicine](#), the [American Medical Association](#) and the [American Veterinary Medical Association](#), according to Davidow.

Veterinary hospitals with life-support ventilators to donate can submit their information via [this form](#).

Donating a ventilator is not an easy decision for veterinarians. It may mean that, down the road, there is no ventilator for a very sick animal that needs it.

"These unprecedented times require unprecedented sacrifices," ACVECC president Dr. Ken Drobatz said on Friday. Drobatz is the director of Emergency Services at Ryan Hospital at the School of Veterinary Medicine of the University of Pennsylvania. He said his team sent two ventilators to Penn Medicine, the university's human health system.

Ventilators Vary

While using a ventilator last used by an Irish wolfhound may disconcert some non-veterinarians, Davidow says it doesn't make a difference.

"The ventilator delivers the air," she explained. "It is the driving force. What is important is the tubing,

— continued on pg 18

and the tubing is sterilized between patients.”

The vast majority of “veterinary” ventilators are made for humans and used for animals, or are refurbished human ventilators marketed to the veterinary profession.

The more important distinction in terms of the coronavirus pandemic is the type of ventilator. Broadly, there are two types: life-support ventilators and anesthetic ventilators. Anesthetic ventilators are intended to use for short periods while a patient is under anesthesia. In general, anesthetic ventilators provide 100% oxygen flow.

Giving 100% oxygen for too long can lead to oxygen toxicity and injure the lungs. Air is comprised of about 21% oxygen.

Life-support ventilators are designed for the longer haul. They can be adjusted to vary the amount of oxygen, pressure and volume delivered to the patient’s lungs.

The inventory at CSU’s veterinary hospital until Friday was three life-support ventilators and 30 anesthetic ventilators. All could be made available as needed. The one [delivered to Poudre Valley Hospital](#) and another bound for a hospital in Greeley, Colorado, where patients needing ventilators outnumber machines, are both life-support ventilators. Whether anesthetic ventilators can be useful to support patients with COVID-19 is up for debate.

Using anesthetic ventilators in these circumstances requires a certain level of expertise, Hackett said, and “could be effective with a trained person operating them.” A “limiting factor” could be having enough trained personnel to operate them, he said.

The price on ventilators varies greatly, from \$5,000 to \$7,000 for an older, refurbished basic model, to six figures for newer models, according to Davidow.

How To Help

Drives for donations of supplies — from personal protective equipment, known as PPE, to medical machinery such as ventilators — are becoming a common feature of life during the coronavirus pandemic.

The solicitations cause some to be leery. For example, Dr. Danielle Huff, a veterinarian in Redmond, Oregon, was suspicious when her hospital received an email seeking information about ventilators and monitors “that might be able to supplement support for patients impacted by the pandemic.” The email came from a personal email account, professed to be from an organization Huff knew hadn’t endorsed the request, and contained terminology that raised “red flags” for her.

Always wary about potential scam emails, Huff said she is especially on alert during this crisis.

“We’re such kind-hearted professionals, we want to help at all costs ... We should not lose our equipment while trying to help others.”

While caution is advisable, in this case, VIN News contacted the sender and determined that the email was part of a sincere, independent effort to help hospitals facing shortages during the crisis.

The AVMA is working with national organizations such as the American Association of Veterinary State Boards and the Association of American Veterinary Medical Colleges to provide guidance and opportunities for veterinarians wanting to help, according to an [update](#) sent to members on March 19.

ACVECC’s Drobatz recommended veterinarians speak directly with hospitals before committing to send valuable equipment.

Meanwhile at CSU, Hackett has ideas that go beyond ventilators. He has provided information to Colorado emergency planners about an empty research building at the veterinary school that could be converted into a hospital. He also imagines a time when veterinarians themselves could be called upon.

If that time comes, he said, “We all feel like we could be a competent set of hands to assist medical teams.”

URL: [//news.vin.com/doc/?id=9566931](https://news.vin.com/doc/?id=9566931)





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SDHS Humane Law Enforcement: Here To Serve The Community

By Gary Weitzman, DVM, MPH, CAWA, President and
CEO of San Diego Humane Society

A dog tied up in a backyard without access to food and water. Hundreds of domestic rats living in a van in Del Mar. A dog kicked countless times by his owner. A family cat experiencing prolonged suffering from a lack of veterinary care.

These are just a few examples of the more than 25,000 calls our humane officers responded to last year. San Diego Humane Society is the animal service provider for twelve cities throughout San Diego. Although our humane law enforcement division is now one of the largest in California, our officers can't be everywhere, so we rely on the community – and you, our veterinary partners – to report suspected animal cruelty and abuse when you see it. April is Prevention of Animal Cruelty Month, so it's an important time to remember the role we all have in keeping animals safe.

This is truly a One Health issue bridging the worlds of animal welfare and human social services. The link between violence to people and violence to animals is well-documented by research, both nationally and internationally. Studies show that 43% of school shooters have animal abuse in their background. For this reason, the District Attorney's office recently started an Animal Prosecution Unit, which speaks to the importance our city places on protecting animals, and people too.

We're proud to be entrusted with this important role, but we couldn't do this critical work without you. If you have any reason to suspect animal cruelty or neglect, please report it to San Diego Humane Society by calling 619-299-7012 (press 1). Our Humane Officers will do a welfare check to ensure the pet, and the people, are safe.

With your support, we're changing the landscape of our community for vulnerable animals and the people who care about them. Thank you for helping us create a more humane San Diego. 🐾

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VIN News: Survey Finds That Some Dogs Self-Cannibalize After Surgery

Phenomenon more frequent, survivable than expected

2.19.2020
By Lisa Wogan

Dr. Mark Rishniw will never forget a case from about thirty years ago, when he was practicing in Melbourne, Australia. He was greeted at the clinic door one morning by a worried veterinary technician, who hurried him to a kennel. There waited a young yellow Labrador retriever, her tail wagging and her intestines snaking out of her abdomen and into a plastic bag at her side.

The dog had been admitted the previous evening because sutures from a spay surgery had begun to come apart. The situation was not considered urgent, so the plan was to re-stitch the incision the following day. However, during the night, the patient licked and chewed at her underbelly, creating a frightful wound. The technician did what she could by saving the spillover in the bag. Rishniw rushed the dog into surgery, where he washed and sutured the intestines, replaced them and closed the incision.

Everything was going well until he removed the endotracheal tube used during surgery to keep the dog's airway open. He was shocked to discover blood on it. He checked the dog's mouth and spotted something at the back of her throat.

"I grab it with a pair of hemostats and pull," he said, recounting the experience for the VIN News Service by email. "And out comes 18 inches of her intestine."

The dog had eaten her own insides.

Rishniw had never heard of this before and thought that the case was unique. "Turns out, I was wrong," he said. When he told the story a few years ago over beers with colleagues, two veterinarians said they'd had similar experiences. That made Rishniw wonder: How commonly are dogs accidentally eviscerated after surgery? How frequently do they then self-

cannibalize, or autocannibalize? And what becomes of those dogs?

These questions soon became part of a survey emailed to more than 38,000 members of the Veterinary Information Network, an online community for the profession, for which Rishniw is director of clinical research. VIN is the parent of VIN News. Rishniw also is an adjunct professor at the Cornell University College of Veterinary Medicine.

The results, "[Post-surgical evisceration with or without autocannibalism in 333 dogs — a survey of veterinarians](#)," co-authored by Lori Kogan, a professor of clinical sciences at Colorado State University College of Veterinary Medicine and Biomedical Sciences, were published in *Open Veterinary Journal* Sept. 12, 2019.

The survey drew 525 responses from veterinarians. Of these, 260 (50%) reported seeing one case; and 32 (6%) reported seeing two or three, for a total of 333 cases.

"What was interesting, or somewhat surprising, was the frequency with which this happens," Rishniw said. "It's not 'common,' but it's more than a unique case."

Of the reported cases, 221, or 66%, involved evisceration and self-cannibalism, while 112 concerned evisceration only.

Rishniw said he and Kogan were also surprised at the frequency of self-cannibalism. "Wound breakdown (and evisceration) is one thing – that might be reasonably expected," he said. "But then to actually have the dog eat its own gut contents, well, that's a different story!"

That begs the question, why would a dog do that? Rishniw and Kogan surveyed veterinarians, not dogs, so that's not a question their paper answers, but anyone who's ever known a dog with indiscriminate tastes can speculate.

What veterinarians can say is that intestines don't have the type of pain receptors that would transmit the pain of cutting and might otherwise stop a dog from biting its own organ.

The overall long-term survival rate for all the reported cases was 64%; in other words, 205 dogs lived. Survival was better for dogs who did not eat their viscera, in part because those who did were euthanized without an attempt at surgical repair.

“Being confronted with this scenario as a vet is horrifying — you have a literal mess in front of you, and you need to decide if it’s too far gone or not,” Rishniw said. “Our study suggests that it’s at least worth trying to repair things.”

That’s what he did with his case 30 years ago. Rishniw opened up the dog again and checked the intestine from stomach to rectum to be sure there wasn’t anything else that needed repair. There wasn’t. He closed her up once more, and kept her well sedated afterward. The dog was outfitted with an Elizabethan collar (E-collar, colloquially known as the “cone of shame”) for the remainder of the healing process and made a full recovery.

Rishniw and Kogan’s survey expands on [a study](#) by Dr. Sara B. Gower and others published in the *Journal of American Veterinary Medical Association* in 2009. That study covered 12 cases of evisceration following abdominal surgery between 1998 and 2008. All of the dogs received specialist care at a university hospital and survived. In contrast, respondents to the VIN survey comprised general practitioners and emergency clinic veterinarians.

The Gower study did not address self-cannibalism specifically. However, it reported that four dogs required resection of “compromised intestines.” In another study, Gower reported on thirteen dogs that required “extensive resection,” most of which had a good outcome. Those studies found no association between the amount of intestines resected and the outcome.

Rishniw and Kogan wrote: “Our data, along with outcomes of these previous studies, should encourage clinicians to attempt surgical repair, even if the dog has ingested some of its viscera.”

Their survey also asked about the initial surgery, including reason for the surgery; suture pattern;

number of days between initial surgery and evisceration; use of pre- and post-operative analgesia; and whether the dog wore an E-collar after the surgery.

In addition, the survey collected data on breeds, age and ownership (such as “established family pet” versus “recently obtained”).

The data in these areas were suggestive but not conclusive.

There were over-represented breeds, including Labrador retrievers. “But some of these [breeds] are just very popular, so we can’t really say that Labradors are ‘more prone to it,’ ” Rishniw said, adding, “although we know that to a Labrador, everything is edible until proven otherwise!”

The fact that younger dogs predominated in the survey could indicate evisceration and self-cannibalism is more common among younger dogs, he said, but it could be due to the fact that older dogs are less likely to undergo abdominal surgery.

Survey participants reported that only 9% of dogs were wearing E-collars at the time of the event. But the authors said that due to the relatively infrequent nature of evisceration after abdominal surgery, they could not recommend E-collars become standard of care.

The authors also said the information should be interpreted cautiously because the veterinarians participating in the survey provided reports based on memory and not a review of medical records.

“The good news is that something like this is infrequent and gruesome enough that it sticks in your memory!” Rishniw said. “Mine certainly did.”

URL: [//news.vin.com/doc/?id=9517276](https://news.vin.com/doc/?id=9517276)





FDA Approves First Generic Form of Marbofloxacin, an Antibiotic for Use in Dogs and Cats

Date of Approval: 3.23.2020

The U.S. Food and Drug Administration today approved Marboquin, the first generic approval for marbofloxacin tablets, originally approved as Zeniquin. Marboquin is in tablet form and is intended for the treatment of susceptible infections in dogs and cats.

Marbofloxacin, the active pharmaceutical ingredient in both Marboquin and Zeniquin, is in the fluoroquinolone class of antibiotics. Fluoroquinolones are considered medically important antimicrobials in human medicine. Marboquin, like Zeniquin, is available only by prescription because a veterinarian's expertise is necessary to determine whether treatment with marbofloxacin is appropriate.

The FDA granted the approval of Marboquin to Dechra Veterinary Products, LLC, of Overland Park, Kansas

<https://animaldrugsatfda.fda.gov>



Use of Telemedicine

As of 3.25.2020 (according to CVMA.org)

The Veterinary Medicine Practice Act permits the use of telemedicine if veterinarians have a valid Veterinarian-Client-Patient Relationship (VCPR) established for the condition being treated. Therefore, if a veterinarian has physically examined an animal patient within the last year for a given condition, telemedicine may be utilized for management of that condition. Read the law [here](#).

Although there are provisions in the law that allow veterinarians to provide services and medications to the public during declared states of emergency without a VCPR (see below on "Providing Medications to Clients or the Public"), this limited exemption does not permit the use of telemedicine to establish a VCPR.

Specifically, the limited exemption allows veterinarians to, "Render necessary and prompt care and treatment to an animal patient without establishing a veterinarian-client-patient rela-

tionship if conditions are such that one cannot be established in a timely manner."



Providing Medications to Clients or the Public

As of 3.25.2020 (according to CVMA.org)

Governor Gavin Newsom [declared the COVID -19 virus to be a state of emergency](#) in California on March 4, 2020. California law allows veterinarians to provide medications to animal owners during declared states of emergency. The law states the following:

California Business and Professions Code Section 4826.4

(a) A California-licensed veterinarian at premises registered in accordance with Section 4853 that is located within a 25-mile radius of any condition of emergency specified in Section 8558 of the Government Code may, in good faith, do both of the following in addition to any other acts authorized by law:

(1) Render necessary and prompt care and treatment to an animal patient without establishing a veterinarian-client-patient relationship if conditions are such that one cannot be established in a timely manner.

(2) Dispense or prescribe a dangerous drug or device, as defined in Section 4022, in reasonable quantities where failure to provide services or medications, including controlled substances, may result in loss of life or intense suffering of the animal patient. Prior to refilling a prescription pursuant to this paragraph, the veterinarian shall make a reasonable effort to contact the originally prescribing veterinarian.

(b) A veterinarian acting under this section shall make an appropriate record that includes the basis for proceeding under this section.

(c) A veterinarian who performs services pursuant to this section shall have immunity from liability pursuant to subdivision (b) of Section 8659 of the Government Code.



FDA Requests Removal of All Ranitidine Products (Zantac) from the Market

4.1.2020

The U.S. Food and Drug Administration today announced it is requesting manufacturers withdraw all prescription and over-the-counter (OTC) ranitidine drugs from the market immediately. This is the latest step in an ongoing [investigation](#) of a contaminant known as N-Nitrosodimethylamine (NDMA) in ranitidine medications (commonly known by the brand name Zantac). The agency has determined that the impurity in some ranitidine products increases over time and when stored at higher than room temperatures and may result in consumer exposure to unacceptable levels of this impurity. As a result of this immediate market withdrawal request, ranitidine products will not be available for new or existing prescriptions or OTC use in the U.S.

[To read more click here](#) or go to www.fda.gov to News & Events to Press Announcements



FDA Recent Animal Drug Approvals

As of 4.1.2020

[Click here for approval information](#) or go to www.fda.gov to News & Events to Press Announcements



FDA: Animal Health & Safety and the Coronavirus Disease 2019 (COVID-19)

4.3.2020

FDA's Center for Veterinary Medicine is a microcosm of FDA for animals – we regulate drugs, food, and devices for pets, livestock, zoo animals and others. Although COVID-19 is understood to be a human disease, CVM and its stakeholders are experiencing the impact of the outbreak in other ways.

[Click here to learn more](#) or visit www.fda.gov/animal-veterinary



Newest COVID-19 Webinar Addresses Grief

4.10.2020

A growing library of free webinars on AVMA Axon supports all veterinary professionals in addressing the “new normal.” All webinars in the series are available on demand, free of charge to all veterinary professionals.

Click here for link: www.avma.org/blog



Your Furry or Feathered Companion Could Make the FRONT PAGE of the August 2020 Intercom!

Here's how:

Take a picture of your soon-to-be-star at the beach or a tropical pool setting. (No humans in the picture please!)

Email the picture as a pdf or jpg to Michelle by **Tuesday, June 30, 2020.** (sdcvmaMichelle@aol.com) Be sure to include your name, your pet's name and breed/type.

The Board will vote on a winner at our July board meeting.

You will be contacted if your pet is selected by July 15, 2020!

Criteria:

* Submissions are your pets (furry, feathers, or scales)

* No humans in the photo please

*Photo should be at a beach setting or tropical pool setting

*Don't forget to submit your name, your pet's name and breed/type



SAVE THE DATE!

Fall Veterinary Conference:

Special Senses: Dermatology with a Twist for the GP

September 12 & 13, 2020 | 12 CEU

A celebration of the often forgotten special senses, from both a dermatologic and surgical perspective; come sharpen your knowledge on the ears, eyes, nose, and more! Additional pearls on cutaneous adverse drug reactions, cosmetic closures, and brachycephalic airway disease.

Join our expert speakers this Fall:

Dr. Stephanie Shaver, DACVS-SA and Dr. Alexander Werner, DACVD

Fall RVT & Affiliate Staff Seminar:

Behavior & Fear Free Essentials for the RVT

September 13, 2020 | 6 CEU

Join Monique Feyrecilde, BA, LVT, VTS (Behavior) as she walks you through a Learning Theory you won't want to miss!

Basic essentials to advanced concepts and how to apply them to your daily routine.

Learn 5 easy tips to bring Fear Free to your patients, clients and colleagues! Compassionate animal handling and behavioral wellbeing of patients will be covered too!



Brokers and Appraisers
Practice and Real Estate Sales
Transition Specialists
Practice Appraisals

Ellie Wattles, DVM, President, Broker
Beka Herrera, Vice President, Broker
Connie Burke, CPA, CVA, CM&AA

GREATER SACRAMENTO- NEW LISTING: This historic town is located just 30 minutes north of Sacramento within Placer County, paradise for outdoor enthusiasts, wine connoisseurs, foodies and history buffs alike. The practice is located on a major thoroughfare with excellent visibility and ample parking. Efficient ~1,900 sq. ft. free-standing facility. Computerized practice includes digital X-Ray and IDEXX lab 2019 Gross ~\$798,000. Currently operated as a 1 DVM practice with a great staff. **PRACTICE PRICE: \$500,000. REAL ESTATE PRICE: \$420,000.**

LOS ANGELES, COASTAL- MAJOR PRICE REDUCTION: Rare opportunity to own a well- established practice located in an excellent area. The city includes a state university, along with a harbor port, airport. ~1,100 sq.ft free-standing facility. Equipment includes Abaxis VS2 lab, dental unit, Digital DR X-Ray. 2019 net sales ~\$556,000. **NEW PRACTICE PRICE: \$350,000. NEW REAL ESTATE PRICE: \$550,000. OWNER WILL CONSIDER CRE SELLER FINANCING AT ASKING PRICES. MOTIVATED SELLER, MUST SELL NOW.**

ORANGE COUNTY, COASTAL- Priced to sell quickly: This charming community offers ideal weather, a diversified economy & excellent educational system. The city is located near three airports: (SNA), (LGB), & (LAX). PX is located in a newly renovated urban shopping center. Efficient leased facility ~ 1,200 sq. ft. w// 2 exam rooms, 3 runs & several cages. 2019 Gross ~\$554K produced w/**extremely limited**, part time DVM hours. Significant growth potential with new energetic owner-operator. Currently, the PX values at greater than 1 year's gross. **PX PRICE ONLY: \$470,900.**

VENTURA COUNTY, COASTAL: Located in a beautiful coastal city, just 60 miles north of LA. Endless outdoor activities, including kayaking, surfing, whale watching, diving, and hiking. City offers wide variety of restaurants & shops. Diverse economic base & excellent schools. Attractive, spacious, well organized ~3000 sq. ft. facility with excellent visibility & ample parking. 3 exam rooms. 2019 Gross ~\$714K. **PX PRICE: \$400,000.**

SOLANO COUNTY, on the Sacramento River: This growing suburban community is located between the East Bay & Sacramento. ~3,900 sq. ft. leased facility offers 2 exam rooms, several cages & separate storage area. Well staffed PX with 3 RVTs. Equipment includes IDEXX lab station & CR- X-Ray. 2019 gross ~\$816,000 produced with no weekend hours. Excellent profitability. Areas for growth. **PRACTICE PRICE: \$740,000**

CAMARILLO: Great Community! Price reduction, PX offered at less than a start-up. Located in an upscale community w/ excellent amenities, desirable demographics & highly rated schools. Attractive & modern, ~1,800 sq. ft leased facility is strategically located in popular shopping center. Under utilized practice with limited DVM hours. 2018 Gross ~\$407,000. **Motivated Seller. NEW REDUCED PRACTICE PRICE: \$225,000.**

MENDOCINO COUNTY: Just 2 hours north of the San Francisco Bay Area & west of Sacramento. This area boasts spectacular scenery & distinctive wineries. Hundreds of miles of hiking trails, verdant hills & secluded lakes residents can easily find solitude & beauty. 1 PT DVM PX. ~1,500 sqft leasehold facility located in a small strip-center. 2019 Gross ~\$396,000 produced with very limited hours. **PX PRICE ONLY: \$120,000.**

ORANGE COUNTY, NORTH: The city is located within easy driving distance of beaches, theme parks & mountains and all of SoCal s attractions. Well-established PX located along a major thoroughfare and surrounded by housing communities. Roomy leasehold facility ~ 3,200 sq. ft. w/ 3 exam rooms, 35+ cages & 10+ runs. 2019 Projected Gross ~\$700K produced w/ limited DVM hours. Growth potential. **NEW LISTING! PX PRICE: \$550,000.**

GREATER SAN DIEGO: Wonderful community known for its high quality suburban lifestyle. Easy access to retail, commercial areas, beach cities & outdoor activities. Outstanding school district. Leased facility ~2,000 sq. ft. w/ 3 exam rooms, digital X-RAY, digital dental X-RAY & complete in-house lab. 2019 Gross ~\$607,000 produced with limited DVM hours. **MOTIVATED SELLER. PRACTICE PRICE ONLY: \$350,000.**

SOLD

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Meetings • Seminars • Events • Webinars

April	10 & 22	VCA EAH & Referral Center Radiology Seminar, Dr. Craychee, 1-2pm
	21, 22, 28, 29, 30	Elanco Animal Health Free Webinar: Pets, Parks and Parasites; 1 CEU (Interactive), registration link: https://attendee.gotowebinar.com/rt/8222989484546585089
May	8 & 20	VCA EAH & Referral Center Radiology Seminar, Dr. Craychee, 1-2pm
June	11-13	ACVIM Annual Forum, Baltimore, MD, www.acvim.org
	18-21	CVMA Pacific Veterinary Conference, San Francisco, CA, www.cvma.net
July	31-August 4	AVMA Annual Meeting, San Diego, CA , www.avma.org
September	12-13	SDCVMA Fall Veterinary Conference, Special Senses: Dermatology with a Twist for the GP 12 CEUs, Handlery Hotel San Diego
	13	SDCVMA Technician Seminar, Behavior and Fear Free Essentials for the RVT 6 CEUs, Handlery Hotel San Diego
	30- October 4	AAHA Annual Meeting, Denver, CO, www.aaha.org
October	9-11	CVMA Fall Conference, Renaissance, Palm Springs, www.cvma.net
November	21	SDCVMA Holiday Gala: Location TBA: Save The Date!

🐾 **LatinAmerica VMA:** Meets last Saturday of each month. For any questions, please contact Dr. Al Guajardo 619-582-2560 or Dr. Miguel Constantino 619-278-000

Join us Virtually!



Visit <http://support.sdhumane.org/> and **JOIN TEAM SDCVMA** as we raise money to support pets and wildlife in need.

May 2, 2020 🐾 Location: the Comfort of your Own Home

Tune in at **9 am** for the live social media event, then show your support by walking around your block, living room or even the treadmill!

Once registered, a link will be sent to you for connection on event day.



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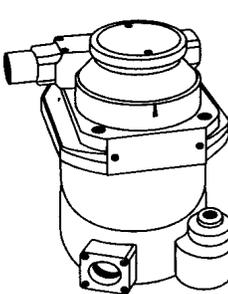
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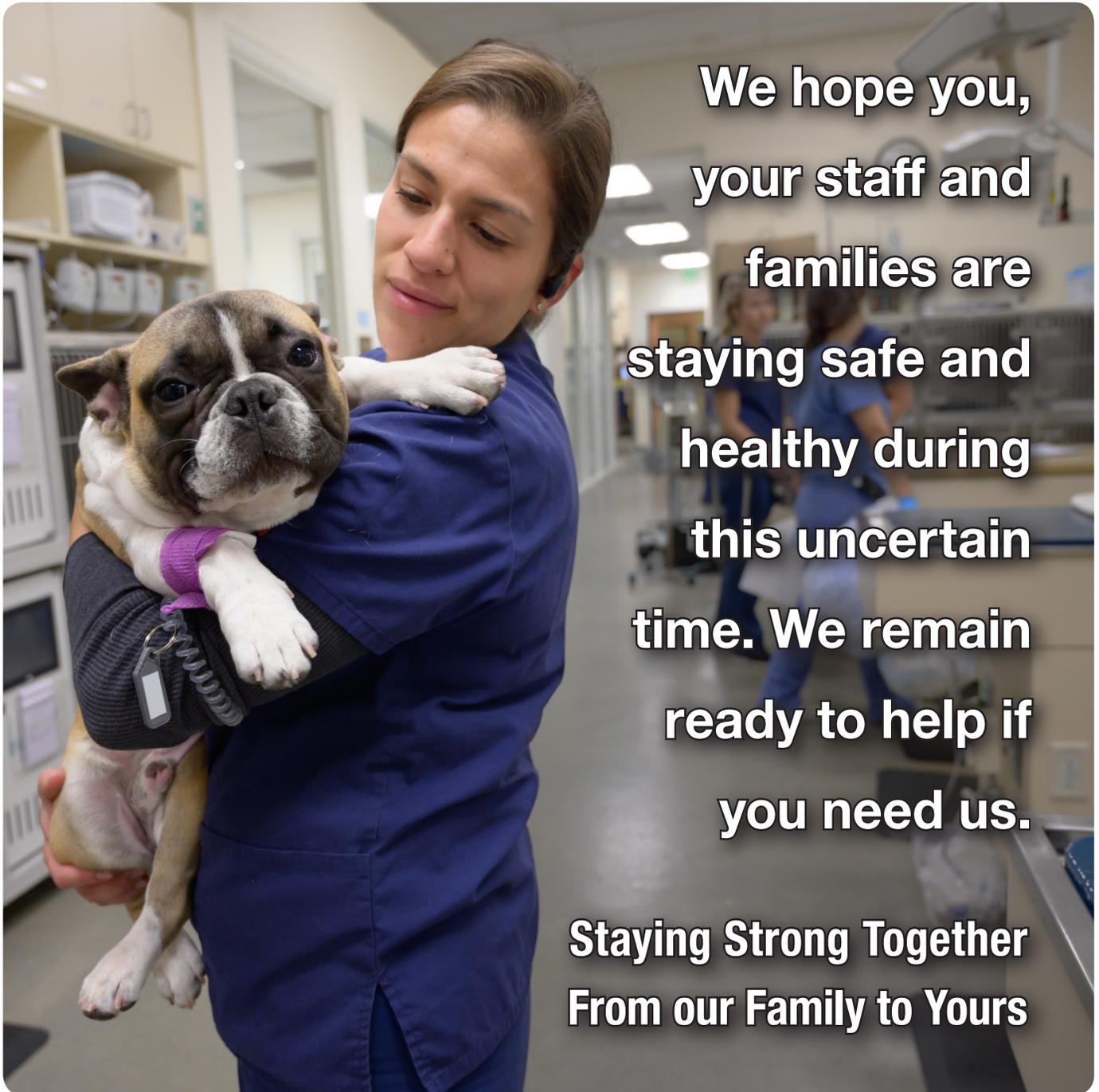
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ORTHOPEDICS & REGENERATIVE MEDICINE: *an exciting partnership*



VCA Emergency Animal Hospital & Referral Center

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Stem cell therapy and platelet rich plasma (PRP) therapy are beneficial adjuncts for treatment of many orthopedic and musculoskeletal problems. A main stream treatment modality for degenerative joint disease, these regenerative medicine therapies are anti-inflammatory, have analgesic effects and promote healthy joint cartilage regeneration in damaged or post-surgical joints. Stem cells and PRP also promote healing of fractures, muscle, tendon and ligament tears and open wounds have a synergistic action, although they are also effective when used as separate treatments in many situations.

The VCA Emergency Animal Hospital and Referral Center is a Vet Stem Center of Excellence. Dr. Holly Mullen is an expert in using stem cells and PRP for the treatment of multiple orthopedic conditions. Intra-articular therapy at the time of ACL stabilization, OCD, hip and elbow dysplasia and various joint surgeries means better comfort, faster healing and earlier return to function. Patients with chronic osteoarthritis, muscle injuries and tendinopathies can also be helped. Newer applications include healing of infected or delayed union fractures, treatment of certain ocular, renal, GI and liver/pancreas diseases, and repair of complex multiple fractures. Dr. Mullen has been using regenerative medicine for over 12 years in patients with multiple orthopedic issues and would be happy to consult with you on patient selection and treatment options for all of your orthopedic, wound care and regenerative medicine needs.



Holly Mullen
DMV, DACVS

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