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Veterinary Practice News

THE INFORMATION LEADER
FOR VETERINARY PRACTICE
AND BUSINESS

Telemedicine Transcends In-House Capabilities

By Lori Luechtefeld
For Veterinary Practice News

Veterinarians today have access to expertise well beyond the walls of their own clinics. With adoption of digital technologies growing nationwide, telemedicine techniques are finding increased and varied uses among veterinary clinics.

Brian Huber, DVM, Dipl. ABVP, president of Oncura Partners in Rockwall, Texas, says telemedicine continues to focus largely on interpretation of radiographs and scans from advanced imaging modalities, such as CT and MRI.

"The use of telemedicine for cytology is increasing, but the vast majority is still submitted to labs," he says. "In many cases, special stains are needed prior to reading, so this complicates the submission from general practitioners in some cases."

Dr. Huber notes that telemedicine is also being used for ultrasounds and, in some cases, real-time image capture can be interpreted while the scan is being performed.

"Mostly the static image pictures are being sent via telemedicine for ultrasounds, but this has its limitations. Ultrasound interpretation often requires a trained and knowledgeable driver—the sonographer—for proper evaluation and interpretation by the specialist," he says.

Telemedicine services extend into other areas of veterinary medicine, as well.

For example, Oncura Partners provides an online cancer management system that enables general practitioners and specialists to work together in managing oncology cases. In the near future, the company will help manage multiple chronic disease formats as well, Huber says.

Veterinary Information Network is also a form of telemedicine that has benefited many practitioners and their patients, Huber says.

"While they started out as an information source, VIN has morphed into what is basically case-management telemedicine—submitting radiographs and imaging pictures—and obtaining specific case-management-decision information," he says.

Huber notes that most of the major veterinary management software products now include telemedicine integration.

"I think we can all see the future will involve telemedicine protocols in many hospitals on a daily basis," Huber says.



Ravi Seshadri, DVM, seated, consults on an image from his clinic's Culver City location. Advanced Critical Care and Internal Medicine also has a location in Tustin, Calif.

Patty Khuly, VMD, an associate veterinarian at Sunset Animal Clinic in South Miami, says telemedicine plays a significant role in her practice and will play an even larger role as her practice acquires new equipment.

"We use a cardiology service for many of our electrocardiograms and an ultrasound service—via an ultrasound technician—for a minority of our ultrasounds," she says.

"Because we're lucky enough to have a specialty hospital less than a block away, lunchtime will often find me carrying our non-digital X-rays over there for quick help. I do this a lot, so I can't wait to get digital radiographs.

"We do have digital dental radiographs, so we have the capacity to send to a boarded dentist in the neighboring county," she says. "This is an invaluable resource for those of us less than five years into the dental swing of things."

Varied Needs, Uses

Indeed, the use of telemedicine techniques is as varied as practitioners' needs.

"Anything from differentiating metastatic disease from osteomas to osteochondritis dissecans lesions to the average barium series on a possible gastrointestinal foreign body gets my vote for cases worthy of radiology referral," Dr. Khuly says.

"Ultrasound referrals, now that the price of equipment has

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come down, make a lot of sense too—especially since we'll never be as good as the radiologists or internists when interpreting these.

"E-mailing digital photos of exotic parasite eggs to a parasitologist or skin pictures to a dermatologist are other obvious uses for us," Khuly notes.

Going Digital

Digital imaging is becoming more affordable to many clinics and often makes sound financial sense, says Melissa Tugwell, director of business development at PetRays Veterinary Radiology Consultants in Spring, Texas.

"As the number of clinics that convert to digital imaging increases, the utilization of teleradiology will likely increase proportionally," she says.

Paul Fisher, president of DarkHorse Telemedicine in Cary, N.C., agrees that the decreased costs associated with many tech-

nologies are changing the face of telemedicine.

"With computers getting less expensive, and high-speed Internet available in most areas at a reasonable price, telemedicine has come into its own," Fisher says. "It has expanded quickly, and you are now able to find help in almost any specialty via the Web. Most practices have or will adopt digital radiography in the coming years."

Fisher notes that telemedicine's usefulness is not limited to practices of specific sizes or locations.

"Every practice can benefit from telemedicine," he says. "It is often a great marketing tool for the general practitioner. For example, having all their films read by a boarded specialist sets them apart from and above the practice down the street."

Johnny Hoskins, DVM, Ph.D., Dipl. ACVIM, of DocuTech Services Inc. in Alexandria, Va., provides veterinary internal medicine consults to practices nationwide.

He advised on more than 7,000 cases in 2007, and an increasing

LEGAL CONCERNS

The popularity of telemedicine in the veterinary industry has raised legal concerns that vary depending on where telemedicine partners reside.

"The key issue relates to licensing of veterinarians," says Douglas C. Jack, former president and charter member of the American Veterinary Medical Law Assn.

"To practice veterinary medicine, one must be licensed in the state where the professional service is being provided. To the extent that telemedicine techniques—telephony, telemetry, etc.—cross state borders, then the telemedicine consultant may be unlawfully practicing without a license."

State Variations

As with many areas of veterinary medicine, the legal scheme for telemedicine consults varies by state.

"Some states specifically contemplate that the telemedicine consultant must be licensed in the state where the service is being performed," Jack says.

"Others specifically exclude a telemedicine consult from the definition of the practice of veterinary medicine.

"The prudent practitioner will ensure that he or she is familiar with the state regulatory regime for the use of telemedicine techniques and

adopt policies within the clinic to make sure the regulations are complied with," Jack adds.

"Among other things, the clinician should ensure that he or she has the informed consent of the client prior to undertaking any form of telemedical consultation."

Jack notes that the monitoring of veterinary telemedicine practices is left to state licensing boards and veterinary medical associations.

"Given that they have limited enforcement budgets, not many would view this as pressing issue," he says.

Brian Huber, DVM, Dipl. ABVP, president of Oncura Partners in Rockwall, Texas, says the primary legal concern regarding telemedicine falls in a gray area of interpretation that is not as complex as some may think.

"If you are a licensed specialist managing a case with the state-licensed veterinarian where the doctor-client-patient relationship resides, then this should not be of real legal concern," he says.

"The primary concern is that the quality of case management is there. The important aspect of telemedicine is the doctor-to-specialist consultation. The system should never go around the primary doctor on the case to the pet owner.

"Phone and fax consultations have been

around for a long time," Dr. Huber adds. "These have never taken into consideration the state of origin of the specialist consultant as a legal concern. So to now be concerned about Web-based consultant information seems unreasonable."

Keep it Private

Telemedicine may raise other legal concerns, Jack notes.

"Since there are no universally accepted modes of encryption, there are issues of client confidentiality that may arise when the practitioner sends information over the Internet," he says.

As the techniques for telemedicine are refined, their use may evolve as an issue that relates directly to the standards of veterinary practice that practitioners must observe, Jack says.

"With the ease of referrals over the Internet, it may be that general practitioners will find that the failure to refer using telemedical techniques may breach the standard of practice," he says.

"It's too early to determine whether it will happen; however, there seems to be an increasing awareness of telemedicine and telecare, particularly with more recent graduates." —L.L.

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number of those made use of digital images. But he estimates that about three-fourths of his clients still send traditional images.

"Digital images are much better than traditional images," Dr. Hoskins says. "The only downside is that most veterinarians don't know how to compress them properly, so they end up sending extremely large files."

Owning the equipment required for effective telemedicine is one thing. Implementing it into a clinic setting is quite another.

Huber says he has visited many veterinary hospitals that have made significant investments in hardware and software, but had yet to fully incorporate such technologies into their day-to-day protocols.

"The incorporation of digital radiography into practices will drive radiograph telemedicine services dramatically," Huber says.

"Any time we can decrease the number of steps to submit a telemedicine consultation, the practice will perform more of these services.

"Veterinarians should consider including within their basic radiography costs the interpretation cost for a board-certified radiologist. This is great medicine and will drive additional diagnostic revenue from the diagnostic steps and suggestions made by the radiologist, which should be shared and provided to the pet owner."

System Selection

Not only do digital systems decrease the number of steps required to submit a consultation, but they also limit the amount of detail lost in preparing an image for transmission.

"Teleradiology requires that there is no loss of information when sending images to a radiologist for review," says Matt Wright, DVM, Dipl. ACVR, a veterinary radiologist who works

at the Veterinary Imaging Center of San Diego and with DVMInsight.com, also of San Diego. He operates the website AnimalInsides.com.

"In the past, veterinarians have attempted to use methods such as photographing a radiograph with a digital camera," Wright adds. "Unfortunately, in most cases, this results in an unacceptable loss of information and may result in a missed diagnosis."

Due Diligence

Veterinarians purchasing digital systems should educate themselves before the purchase, Wright says. He says some vendors will bundle services that aren't necessary.

"The teleradiology and remote archive part of the purchase should be separate components," Wright advises.

"Veterinarians should be able to send their images anywhere they choose. DICOM-compliant systems are designed for this. Some hardware vendors may try to lock customers in to using their services, and those are often the most expensive options."

AnimalInsides.com hosts an annual event called the Veterinary Digital Radiography Showdown and DICOM validation, in which digital radiography vendors are invited to put their products to the test. The objective is to help veterinarians with their purchasing decisions.

The testing includes obtaining a series of test images, evaluating vendors' software offerings and validating their images for DICOM conformance. Participation in the showdown is voluntary and open to all vendors.

Veterinarians can check out AnimalInsides.com for the 2007 results.

In addition to finding the right vendor for their needs, Wright says, veterinarians need to develop a personal relationship with

ACVR TELERADIOLOGY GUIDELINES

In August, the American College of Veterinary Radiology issued a position statement on teleradiology that recommends the adoption of the DICOM format for teleradiology applications. It also recommends best practices for image transfer and compression.

The guidelines may be found at www.acvr.org/activities/guidelines/teleradiology_guidelines. A guide to applying the new guidelines is posted at AnimalInsides.com.

"From a telemedicine standpoint, probably the biggest challenge was film radiographs," says William Hornof, DVM, Dipl. ACVR, chief medical officer at Ekin Medical Systems and president of ACVR.

"The radiographs either needed to be physically transported to the specialist or they needed to be copied as a digital file. This was done by camera or scanner, but both resulted in a loss of information because the copy could never be as good as the original.

"Probably the biggest change has been the advent of DICOM. The DICOM standard incorporates communication protocols that make it easy to transfer radiographs and imaging studies from other modalities between different sites using the Internet. Because of DICOM, the radiograph received is identical to the original without any loss of information."

However, Dr. Hornof says, the DICOM standard is quite broad, and not all veterinary vendors provide all of the services it encompasses.

"The beauty of DICOM is images from different vendors can use the same communication and viewing protocols," he says.

"ACVR has published a set of DICOM functionalities it recommends for teleradiology. These guidelines have helped vendors meet the expectation of radiologists for telemedicine applications. This also means imaging systems from most veterinary vendors can now plug right in to existing teleradiology applications." —L.L.

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the specialists to whom they send their radiographs.

"Having that relationship will make it easier to get good, complete reports," he says. "Specialists will be more candid if they are familiar with the person whose film they are reading. They won't be tempted to provide a wishy-washy diagnosis just because they are afraid of losing a client."

Telemedicine's Impact

Hoskins, of DocuTech Services, says that veterinary telemedicine is growing because pet owners are more often requesting outside opinions.

"In addition, they're sometimes told that it will take three to five weeks before their pets can be seen in a specialist's office," he says. "For many of these pets, that's too long."

Tugwell, of PetRays, notes that teleradiology has made it possible for virtually every veterinary clinic to have the same access to highly trained American College of Veterinary Radiology-certified radiologists that was traditionally available only at multi-specialty referral centers and academic institutions.

"The increased access to specialists allows small, rural veterinary clinics to provide the same level of diagnostic ability with its radiology services as the referral centers and academic institutions," she says.

"Furthermore, the results of imaging studies can be reported back in minutes to hours so critical animals can be treated in real time."

Increased Level of Care

Huber says additional input on difficult cases provides for a dramatic increase in the level of care offered by veterinarians.

"However, the information is only as good as the veterinarian using the information," he says. "If the level of medicine at a practice is not where it should be, then the benefit of telemedicine and case management systems is less impactful for this practice."

For example, Huber says, if a consulting specialist recommends that the veterinarian acquire more diagnostic information—such as bone marrow aspirate, three-view chest radiographs, ultrasound of the abdomen and fine-needle aspirate of a mass—but the veterinarian does not perform these services, patient care suffers.

"Of course, finances will always be an integral aspect of veterinary medicine decisions, but I have also seen that how the information is presented is even more important to developing acceptance and understanding of the diagnostic plan," he says.

"Clients expect more and expect higher levels of care and knowledge. I believe that telemedicine services fit into this area and provide practitioners access to better patient management decisions and long-term care options, while at the same time requiring the practice to elevate its level of care and knowledge to properly deliver these services."

Overcoming Challenges

Khuly says that, very soon, less technologically savvy and less monied practices will be left out in the cold when it comes to telemedicine.

"This is problematic for [early career] practice owners who will have a harder time adopting expensive technologies," she says.

"Big-money practices are better off given the still-high price of a great ultrasound machine and digital radiographs," she says. "But these prices are coming down fast."

Ravi Seshadri, DVM, Dipl. ACVECC, chief of staff and primary shareholder at Advanced Critical Care & Internal Medicine in Culver City and Tustin, Calif., says that telemedicine—like many tools in veterinary medicine—can be a boon or bane, depending on how it is used.

"Telemedicine can be misused even when all involved parties are trying to deliver the best possible medicine," he says. "But if the images or case history are incomplete, or the blood work has been misinterpreted, the case could come back with an incorrect conclusion."

Part of the danger, Dr. Seshadri says, is that there is still a lack of standardization of telemedicine protocols.

"Veterinary telemedicine is still at a stage in which checks and balances aren't in place," he says. "The longer it is available, the more refined it will become."

Seshadri says practitioners at his practice follow standards for telemedicine that have been developed internally. Although his practice uses telemedicine among its own clinics, it does not offer services to outside practices. ●

The results of imaging studies can be reported back in minutes to hours so critical animals can be treated in real time.

—Melissa Tugwell, PetRays Veterinary Radiology Consultants