Technology and the Ambulatory Equine Practitioner: Implementing and Affording the 21st Century

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- Information technology • Cloud computing
- Paperless office • DICOM • Capital investments
- Negotiating • Financing

The mobile equine practitioner faces many challenges day by day. Providing horses with high levels of care while serving the needs of the horse owner, trainer, and caregiver and, at the same time, managing the intricate needs of a business and a balanced home life can be overwhelming. Horse owners expect immediate and high-quality care from their equine veterinarian, all of it provided while he or she is driving from stable to stable away from the central office.

Technological advances in the past several decades have provided many useful tools to help ambulatory equine veterinarians overcome these challenges. For example, cellular telephones have provided a communication system that allows an instant connection between the veterinarian and horse owner or caregiver. Of equal importance, networked computers allows for digitized medical records to be shared freely among veterinarians, horse owners, and any of the key personnel involved in the care of the horse.

Information technology offers the mobile equine veterinarian opportunities to provide uncompromising levels of care, maintain an open line of communication with his or her clients and colleagues, produce sophisticated images of any part of the horse's body, and create detailed medical records, while, at the same time, generating an invoice that captures all fees incurred at the time of service. All of this can be achieved at the stable allowing for practice to be conducted with a high

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level of professionalism, while simultaneously freeing time for the veterinarian to pursue other aspects of life.

THE PAPERLESS PRACTICE

Virtually every piece of paper in the mobile equine practice can be replaced by its digital form. Not only can this information be stored on a computer, it can be stored online with the help of cloud computing further enhancing its security and accessibility. Cloud computing is a method of processing and storing information that relies on software and data storage centers that are accessed by the Internet.

A paperless work environment offers advantages beyond saving large amounts of paper. Among those advantages are:

- Information is stored in computers or servers that are both onsite and online, eliminating the risk of losing documents.
- Medical records, documents, and contact information are readily available to the practice through a computer network or an online connection.
- During an examination, a horse's past medical history can be reviewed while the new medical record is being generated.
- All documents, including radiographic and ultrasound images, can be easily shared with clients and colleagues.
- As information is made available in a digital form, the need for a central office becomes less and less important. This reduces the fixed costs of managing a practice such as floor space for filing cabinets as well as staffing.
- Every aspect of operating an equine practice can be managed from any location with a laptop computer and an internet connection.

Hardware for the Paperless Practice

Developing an efficient office system for the ambulatory equine practice requires several pieces of hardware along with a few software programs. Hardware needs in a fully digitized practice include the following:

- *Laptop computer.*
  This is the core of the paperless office. It will allow the equine practitioner to transition from working in the office to working in the field. To further enhance its usefulness, the laptop can be networked to an office-based server or, preferably, an online server.
- *Scanner.*
  This device is a critical piece of hardware for the paperless office. There are many choices of scanners but an ideal scanner accepts multipage document ts, scans in color and scans on both sides of a sheet. The scanner should also be able to convert all documents into a Portable Document Format (PDF) that can be renamed and filed into the appropriate folder on the practice's computer or server (NeatDesk Scanner; neat.com). (The Neat Company, Philadelphia, PA, USA)
- *Wireless router and cable modem.*
  These devices connect all computers in the workplace and home to the Internet without a wired connection.
- *Docking station for your laptop computer.*
  This allows for a quick and easy connection to the power supply, desktop monitor, as well as peripheral devices such as the printer and scanner while working in the office.

- *Printer.*
  Although the goal is a paperless office, many documents still need to be printed because they require pen and ink completion. Also, many clients still count on printed documents and statements.
- *Desktop monitor.*
  In a paperless office, most documents and medical images are viewed on a monitor instead of paper or film; thus, a large, high-quality monitor is essential. The monitor of the laptop can function as a secondary monitor to extend the desktop over a larger area.
- *USB hub.*
  A 6- to 8-port USB hub allows for numerous peripheral devices (phone, printer, scanner, camera, MP3 players) to connect to the laptop or docking station with 1 plug.

In the paperless practice, the veterinarian's vehicle becomes the doctor's secondary office. Many aspects of managing the practice can be conducted from the vehicle. This includes entering records from the last stable call, answering e-mail messages, and sending a text message to the next stable to let them know the practitioner is on the way. If an assistant is employed by the practitioner, such tasks can even be performed while on the road!

The following is a list of hardware items recommended for maximizing the efficiency of the mobile office.

- A *laptop mount* is essential for mobile computing (Jotto Desk Laptop Mounts; www.jottodesk.net; 2724 Otter Creek Ct. #101; Las Vegas, NV 89117). For safety purposes, the laptop mount should not interfere with the function of the airbag system while the vehicle is in motion.
- *Power inverter.* Inverts of 1000 W are necessary to operate a laptop and other peripheral devices. The inverter should be hardwired to the vehicle's electrical system, preferably to a second battery to avoid draining the vehicle's primary battery.
- *Broadband card.* This is a USB device connected to the laptop or, preferably, to a mobile wireless router installed in the vehicle and provides a connection to the Internet through a cellular carrier.
- *Mobile wireless router.* A mobile wireless router is a network device that combines a router, switch, and Wi-Fi access point (Wi-Fi base station) in 1 box (CradlePoint Mobile Router; www.cradlepoint.com; 805 W. Franklin Street; Boise, ID 83702). Wireless routers provide a convenient way to connect a small number of wired and any number of wireless computers to the internet simultaneously. For example, by using a mobile wireless router, while radiographs are taken nearby, the images can be immediately and automatically uploaded to the archiving system. The mobile wireless router also adds to the convenience of connecting to the internet, freeing the practitioner from plugging the broadband card into the laptop each time it us carried in and out of the vehicle (picture archiving and communication system, or PACS).

SOFTWARE PROGRAMS FOR THE MOBILE EQUINE PRACTICE

Practice Management Software

The principal software for operating a paperless equine practice is the practice management program. These programs allow the practitioner full access to patient and client information in the field. They also allow the practitioner to generate new invoices and medical records while they are out of the office. As each of these

programs collaborate with archiving systems and diagnostic labs, the electronic patient file will include access to all lab results and all images generated for each patient.

For some practices, existing accounting programs such as Sage Peachtree (Sage North America, Irvine, CA, USA) and QuickBooks (Intuit Inc., Mountain View, CA, USA) may be able to perform the basic functions of a practice management program adequately but they are more difficult to operate in the field and are more difficult to manage as the practice hires additional veterinarians and staff members.

Medical records are more accurate and thorough if they are entered while the service is provided. Furthermore, invoices created at the time of the examination will capture more fees. In order to fully capitalize on the advantages of immediate input, certain features from a management program are desirable. These features allow a practitioner to perform the following tasks away from the central office:

- Create medical records from an existing template or in a SOAP (Subjective, Objective, Assessment, Plan) format.
- Generate invoices simultaneously with the medical record.
- Print or e-mail invoices and medical records as soon as they are finalized.
- Have immediate access to existing records as well as client and patient information.
- Add new clients and patients.
- Access and modify the schedule.

In addition to the version that operates in the field, most practice management programs offer a more complete version that operates in the veterinarian's central office. This centralized version will generate the client's bills at regular intervals, track inventory, and provide the necessary reports to manage the practice.

The programs currently available for managing equine practices include:

- IDEXX Cornerstone (Idexx Laboratories, Inc., Westbrook, ME, USA)
- DVM Manager (ImproMed, Oshkosh, WI, USA)
- DVMAX (Sneakers Software Inc./DVMAX, New York, NY, USA)
- HVMS (Business Infusions, Inc., Calgary, AB, Canada)
- ImproMed Infinity (ImproMed, Oshkosh, WI, USA)
- ImproMed Advantage+ Equine (previously known as Vetech) (ImproMed, Oshkosh, WI, USA)
- ImproMed Triple Crown (ImproMed, Oshkosh, WI, USA)
- Rx Works (Rx Works, Las Vegas, NV, USA)
- VIA Elinc (VIA Information Systems, Frisco, TX, USA).

Smartphone applications for practice management programs are available on a limited basis and although they have limited functionality, they allow access to the doctor's schedule as well as client and patient information.

Archiving Program

If the most important program for running an ambulatory practice is the management program, the second most important program is PACS. PACS breaks down the physical and time barriers associated with traditional film-based systems. PACS also ensures that the image is permanently stored with recovery in the event of an onsite disaster.

PACS consists of 4 basic components: an imaging modality such as radiography or ultrasound, a network for transferring the image to the archive, a workstation for

viewing the images, and a server that stores the images electronically. As with all forms of data storage, it is critical that all image storage has an online backup in the event of a natural disaster or equipment failure.

The most universally accepted format for image storage and retrieval is DICOM (Digital Imaging and Communications in Medicine). The DICOM format enables studies from various imaging devices to integrate into the PACS. Because of its broad acceptance in the human imaging world, DICOM storage and viewing is favored over other formats. However, image can also be stored and viewed in JPEG (Joint Photographic Experts Group).

Ideally, all images generated for each horse should be accessible from anywhere and can be readily transferable to colleagues and owners. Even though the most common modalities used in the field are radiography and ultrasound, the complete file for any equine athlete could also include magnetic resonance imaging, nuclear bone scans, computed tomography scans, and thermal images.

In the past, the only method for sharing images was to mail radiographic films to colleagues; however, copies were rarely made to protect the original films. A more recent practice is to copy images to a CD or DVD and send the disc in the mail or by overnight express. The current standard for sharing all forms of imaging is to send a link to the sender's PACS via e-mail so the images can be downloaded into the recipient's PACS for viewing on their own workstation (www.asteris.biz).

Portable Document Format (PDF)

- PDF is an open standard that is widely used for exchanging documents. The original document used to create a PDF could come from a variety of sources including Microsoft Word or Excel (Redmond, WA, USA) or anything that is scanned. The advantage of a PDF file is that once created, a document is easily transferred, filed, or printed. Furthermore, once created the document cannot be altered from its original form.
- To read PDF documents, a free download for Adobe Reader is available from www.adobe.com (Adobe Systems Incorporated, San Jose, CA, USA).
- Many of the documents used by equine practitioners, such as consent forms and client agreement forms, can be converted into PDF and readily transmitted to clients from the field.

Many programs are available to convert documents from their original source into a PDF document. Most scanners do this automatically but occasionally a document from various sources will need to be converted into PDF. A search of the internet for PDF conversion programs will yield many choices (Docudesk.com).

Voice to Text Programs

Widely used in the human medical field, real-time speech recognition allows the veterinarian to record their findings into a recording device or laptop computer for transcription into text. The most popular version of this software for healthcare practices is Dragon Medical (Nuance.com). Although other voice recognition systems are available, Dragon Medical is recommended for use by veterinarians to recognize the necessary medical terminology.

With a laptop and a headset in the practice vehicle, invoices and medical records can be recorded by voice, converted to text, and entered into the medical records program for rapid and accurate record keeping.

Communications Programs

In the past, the conventional method of connecting the horse owner with the veterinarian was by landline telephone. The ambulatory equine veterinarian is now able to communicate with clients, colleagues, the diagnostic laboratory, equine insurance companies, and stable managers with devices such as a smartphone, tablet, or laptop computer. With various programs or apps (applications or software programs widely available from the Internet), the landline phone and fax machine are quickly becoming obsolete, in favor of wireless and cellular networks.

Listed are a few of the advances that are readily available for handling all forms of communication:

1. *Virtual phone system.* A virtual phone system allows the veterinarian to use their existing practice phone number (or a new toll-free number can be provided) to unify all forms of voice and fax communications. These services offer a nearly infinite number of choices for handling incoming calls and faxes. Calls can be immediately routed to a designated phone number (landline or cellular) or the caller can be greeted with a message allowing them to select the appropriate extension.
   - This service is available through several companies including Grasshopper (grasshopper.com), Ring Central (Ringcentral.com), Google Voice (www.google.com/voice), and Onebox (www.new.onebox.com).
   - One phone number can function for voice and fax.
   - Voice messages can be sent to an e-mail address for notification and some services will transcribe the voice message into text.
2. Fax–to–e-mail and e-mail–to–fax services. This service can be bundled with a virtual phone service and eliminates the need for a fax machine. It allows:
   - Faxes to be received as PDF files and routed to 1 or more e-mail addresses.
   - Lab results to be reviewed, filed, and shared without printing a copy.
   - Insurance forms to be printed, completed, scanned, and then returned to the insurance company using available e-mail–to–fax services.
3. E-mail programs
   - Web-based e-mail (Webmail) is by far the most popular form of e-mail service. The most common providers for this service include AOL, Gmail, Yahoo! and Hotmail, but many more are available. Webmail is usually a free service and offers its users most of the features associated with e-mail systems such as:
     - Sending digital messages to recipients
     - Attaching documents and images
     - Managing and storing contact information
     - Maintaining a schedule with an advanced calendar system
   - Exchange-based e-mail programs allow all of the options of the Web-based e-mail but the e-mail address is based on the practice Web site. For example, if your practice Web site is excellentequine.com, your e-mail address will be yourname@excellentequine.com. Although the hosted e-mail program provides an address that is specific to your practice, it is a much more technical program to maintain without professional help and may not be desirable for small practices.
   - Whichever type of e-mail service is chosen, managing e-mail through a software program such as Microsoft Outlook or Entourage allows the user several advantages:
     - Several e-mail accounts can be used without separate logins.
     - The program is functional when an Internet connection is not available. E-mail messages can be created or answered and they will be delivered when an Internet connection is restored.

- Contacts can be managed and synced with a mobile device.
- The calendar feature also allows for scheduling and syncing with mobile devices.
- Add-on programs to Outlook, such as Xobni, allow for easy access to all e-mail addresses that have been used in Outlook and allows for the easy retrieval of all prior e-mail messages and attachments.

4. Online file-sharing programs. These programs are an efficient way to store and share documents, photographs, and any form of digital information that would be difficult to send as an e-mail attachment. Although these online programs had a nefarious beginning when music and other digital content were inappropriately shared, many legitimate file-sharing programs are available for little or no cost. The author has used Dropbox (dropbox.com) for more than 1 a year and it has proved to be reliable and easily accessible by the selected recipient.

TECHNICAL ASSISTANCE

Integrating a fully computerized and paperless practice usually requires the assistance of a qualified computer technician to configure the necessary technology and equipment. While the services of a local technician are important, the vast majority of software installations and repair, including computer repairs, can be performed remotely with online support.

Proprietary practice management programs and image archiving programs offer extensive support that is usually provided by remote access to the practice network as well as the veterinarian's computer.

Once the practice is fully paperless, the reliability of software and hardware is essential. Although computers are more stable than in the past, the highest level of computer service contract offered provides the practitioner the most security. A high-level computer service contract would include online support, onsite service, and overnight delivery for more involved computer problems.

Although computer and software reliability is the greatest concern in digitizing every component of an ambulatory equine practice, there are several steps that mitigate this risk. In a fully digitized workplace, a catastrophic loss of all physical property related to an equine practice, including all records and computers, does not necessarily mean that any useful information will ever be lost.

First, a backup laptop computer is helpful. A second computer could also be the computer used by the veterinarian's assistant or office manager. Second, all data and software should be backed up to an external hard drive and online backup systems. This is an important component of the practice management software and a necessary component of the archiving system. All data not backed up in the archiving and practice management program can be automatically backed up online with programs such as Crash Plan, Carbonite or Mozy.

IMPLEMENTATION

Converting an ambulatory equine practice to a fully digitized workplace can begin with a few easy steps. The first step is to bring the laptop computer into the practice vehicle. This will require a laptop stand and a power source. Once the laptop is functioning in the vehicle, it will be necessary to incorporate the numerous programs that the practice already has in place.

With voice recognition software and a headset, case-by-case information can be quickly and easily entered into the laptop for eventual invoicing and medical record keeping.

If the practice is using an accounting program (such as QuickBooks) for invoicing and medical records, upgrading to the online version (QuickBooks Online) will allow access to the program wherever there is an Internet connection. Using a smartphone as a wireless hot spot, the laptop can be connected to the internet while traveling. If the ambulatory vehicle is outfitted with a digital or computed radiography system or an ultrasound machine, images from either device can be transferred to the laptop for viewing and archiving.

For the practitioner's office, a scanning device will convert paper documents into a PDF format, stored on the laptop and ultimately to an online program. This will include completed equine insurance forms, lab results, referral documents, and client agreement forms. Using a scanner to its fullest potential, the contents of conventional filing cabinets will shrink significantly.

MOVING FORWARD

One might reasonably ask, "How does a digitized practice benefit the equine veterinarian who is providing care to horses at the stable or the show grounds?" In fact, a digitized practice offers the veterinarian many advantages. A horse's history will be available during an examination. This allows the owner to play an immediate role in decision making, even if he or she is not present for the exam. For optimum accuracy, medical records and invoices are generated as the service is performed. Furthermore, all of this information is stored in remote data centers that will offer absolute security and immediate accessibility. The vast amount of information currently stored on paper in filing cabinets, and therefore inaccessible in the field, will become immediately available to the equine practitioner no matter where he or she is located.

How does this benefit the care of the horse? The accessibility and accuracy of digitized medical records and digital images can provide the caregiver with vital information about the horse's medical history much sooner than relying on paper records or conventional film. This allows the practitioner to review previous medical records, for example, in order to accurately continue previous treatments or to review previous diagnostic findings. In addition, today's horse is very mobile; a horse may be in one section of the country for a horse show one weekend and in an entirely different part of the country on the next weekend. Even when they are living in one location, several veterinarians or veterinary practices may be providing care at different times. Digitized medical records can be easily shared allowing for continuity of care, thereby reducing redundant and unnecessary treatments.

The equine practitioner who is taking full advantage of the technological opportunities available is also able to seek the advice of colleagues and specialists at the time of the examination and provide them with up-to-the-moment images and records, which further enhance the standard of care that horse owners expect.

Considering the advances in technology in the past decade, it is not difficult to see how technology will affect equine practice in the coming years. Computing devices will continue to get smaller while at the same time increasing their computing power. Internet access will be readily available in more locations including the stable. Digitized information will be not be stored exclusively on local servers and computers but in online data centers. Cloud computing will become the standard by which all information is stored and retrieved.

The equine practitioner can accomplish the lion's share of developing a fully digitized business with minimal expense. Although it is difficult to calculate the cost of converting the equine practice to a paperless workplace, it is easy to predict that

the cost of technology goes down year by year. In the author's practice, the cost of maintaining a paperless practice is approximately 2% of gross revenue. However, the gains in efficiency and communication offer tangible, albeit significant, benefits toward the operation of a practice with lower fixed costs. The most significant impediment to developing a digitized practice is not so much the cost as it is the discipline necessary to regard all forms of information in an entirely new way.

Technology plays an increasingly important role in the care of the horse. The development of a fully digitized practice has been, in the author's experience, extremely gratifying. With the help of qualified technicians working remotely in Canada, Texas, Colorado, and New York, his practice's technology needs have been fully met. Clients appreciate the ability to have quick access to all aspects of their horse's health. Technology also enhances the professional fulfillment of the equine practitioner. It is no longer a matter of whether technology will be implemented into ambulatory practice; it is a question of when and how quickly.

CAPITAL INVESTMENT CONSIDERATIONS FOR EQUINE AMBULATORY PRACTICE

While numerous persuasive arguments can be advanced as to the reasons for integrating new technology into the veterinary practice, equine ambulatory practitioners are also faced with the reality that such equipment must be paid for. The decision to acquire new technology must be made with a firm grasp of the financial consequences. It does a practitioner no good to upgrade to the latest available technology if, in so doing, the practitioner is subsequently financially hamstrung by repayment obligations.

Thus, when faced with the opportunity or need to acquire a new or used piece of equipment, the tendency of practitioners may be to regard the purchase in one dimension: "it's all about the money." In fact, the purchase of new or used equipment has both emotional and financial components that should be addressed as part of the analysis and decision-making process. The most important consideration in buying a new asset is to have all of the facts and details gathered so as to better understand what this type of transaction means to the practice owner. Investigating the true cost of equipment is a question of balancing the veterinarian's intellect, on the business side, with the passion to acquire "toys," on the personal side. It is easy to get caught in the trap of the latest-and-greatest-I-gotta-have-it-to-succeed-as-a-veterinarian equipment purchase dilemma. Veterinarians are tempted by what other practices are doing and by the equipment featured in journals and displayed at trade shows. Ultimately the decision to buy or not to buy comes down to a simple question of what the practice owner "needs" versus what he or she "wants."

Capital investments include many purchased items (assets) including the laptop in the ambulatory vehicle, the vehicle itself, and the diagnostic equipment necessary to provide care for horses. The analysis process is the same for a solo ambulatory practitioner as it is for a larger ambulatory practice with multiple veterinarians, but the decision to invest may be different.

Equine practitioners have a propensity for buying new, shiny objects or toys that is driven by a passion to have the best tools available to help horses. The purchasing decision often does not include an analysis of core business principles when it is time to actually spend the money. Using the example of purchasing diagnostic equipment, this article will apply accepted business strategies to assist in the decision-making process for making sizable equipment investments. At the end of this article is information for worksheet resources accessible via an Internet link. This Web site provides access to templates and easy-to-understand examples to assist in the decision-making process. Getting a handle on how to approach this process is just as

Box 1
Practice scenario

The neighboring practitioner down the road just purchased an awesome, state-of-the-art DR system. The practice's x-ray system is an older plain film system. Both systems produce quality diagnostic images with one major difference—the DR system allows the user to immediately process the image onsite, whereas the plain film technology requires the practitioner to return to the office to process and view the images. A few clients have commented on this new DR system, stating that they wished the practice had one so they did not have to pay another call fee to treat the horse after the images were viewed. The clients were very impressed to see the pictures right away because it allowed the vet to diagnosis the problem and treat the hocks on the spot.

important as plugging the numbers into a spreadsheet and finding a numeric answer. Numbers are best interpreted if the user fully understands the methodology used to create the information that helps equine practitioners arrive at a sound business management decision.

CAPITAL INVESTMENT CONSIDERATIONS

The Value of Money

Today's dollar does not have the same purchasing value that it had 20 years ago, nor will it have the same purchasing ability 20 years from now. Many factors affect the value of currency and the purchasing power of the dollar. The term *net present value* is a calculation that forecasts financial decisions and provides a better understanding of the true cost of money. This calculation helps determine whether buying a new ultrasound or digital radiography (DR) system is a good deal. In most cases, the value of money decreases over time. For example, the purchasing power of $10.00 in 1991 has a relative value of $16.00 in 2011 (this value is obtained by multiplying the $10.00 by the percentage increase in the Consumer Price Index [CPI] from 1991 to 2010). During the investigation of a purchase decision, the changes in monetary value or purchasing power need to be taken into consideration in the overall analysis.

The Analysis

The analysis begins with an assessment of the goals of the practice. What are the short-term and long-term growth strategies? Does purchasing a new ultrasound unit or radiography system make sense considering where the practice is today, and also considering the practice owner's goals? Simply put, is the capital purchase "want" in alignment with the practice's "needs?" An investigation of 4 important influences, along with a real-life scenario, will help answer these questions (**Box 1**).

Marketing and competitive forces

The example in **Box 1** illustrates many of the marketing pressures and emotions that enter the picture with new technology and services. The horse owner expects, and even demands, immediate answers. Will the equine practitioner lose market share (clients) because he or she is not able to give an immediate answer? The DR system might be very desirable but is it truly necessary and is it a smart business decision? The numbers will tell the financial story, but the client should also be considered in the decision making process. The client's buying or purchasing behavior is complicated and differs by geographic location. Knowing what is important to the customer is just as important as the financial analysis when projecting future sales.

Projections

Detailed analysis of the projected costs (not just the purchase price) and revenue growth (current and new potential sales) is at the heart of all purchase decisions. This is described in more detail below and best understood using worksheet templates to analyze each individual purchase.

Costs are defined as the expenses associated with the activity of performing a service such as taking radiographs. This includes the cost of the equipment, the financing costs, labor, disposable items, and more. Some of these expenses are *variable costs*, that is, costs that change in proportion to the activity or behavior of the service. For example, the number of views taken with a new DR system along with the time, assistant help, veterinary compensation, and wear and tear are variable costs built into using this new equipment. *Fixed costs* are incurred whether or not the equipment is used to generate revenue. Examples of fixed costs include acquisition costs of the equipment, service contracts, insurance taxes, and support. The *contribution margin* is the marginal profit per unit of sale and plays a role in the overall cost to the practice. There are many hidden costs to consider in the final analysis.

Growth is a business goal to increase revenue and profitability using the new diagnostic equipment. Pricing and volume are the 2 major contributing factors to revenue growth. While assessing the pricing structure and projections of future growth for a specific service like DR, the financial impact will become clearer. What is left at the end of the day, the "net" profit, is really the key driver in the decision process. Another consideration is the marketing costs to make clients aware of the new diagnostic capabilities.

To determine the value of an expensive asset, an analysis of projected usage and expense allocation, otherwise referred to as *activity-based cost analysis,* will assist the practice owner in understanding the value of purchasing an expensive piece of equipment such as a DR system. This type of analysis also provides valuable information on ways to improve efficiency and profitability.

Breakeven is a calculation to examine the unique, practice-specific breakeven point in the analysis of a particular service. The breakeven analysis considers all expenses and all potential revenue changes in the calculation of how long it will take to pay off the initial investment. Several methods are available to calculate this estimated time frame—examples are available in the resource area at the end of this article. A word of caution, however; sales representatives will create this analysis without truly understanding the unique attributes of a practice or the true cost of doing business. In most businesses, the breakeven timeline is less than 2 years on a capital investment in diagnostic equipment.

Several important questions will need to be answered before making the final decision. What is the goal for paying off the equipment and how long will that equipment last before it must be replaced? Is there a significant annual cost to maintain or service the purchase? These questions and more will help to make an informed decision on a new purchase.

Financing

Whether paying cash for the new DR system, financing it as a loan with a bank or leasing it from another vendor; the purchasing decision affects available cash (*cash flow*) and the cost of money in the purchase analysis. Tax planning should also play a role in how the asset is financed. The practice owner is advised to contact their tax advisor to strategically expense this new purchase in a manner that makes sense for tax purposes. Tax rules changes may have a significant impact on net profit at the end of the year.

Service attributes

It is exciting to buy a new DR, but how does it affect profitability for a service that is already offered? Some capital investments are made to offer completely new services to clients; other investments do not afford dramatically different services than those that are already provided. The DR versus plain film dilemma is a great example of the cost of doing business to maintain high-quality services and add new service attributes. It sounds great, but it comes at a cost. The practice's current system is probably paid off and the true profit from that service is high. The practice will increase expenses by buying a new machine (new costs), which will reduce profit on the bottom line. The profit per radiographic view may be reduced by several dollars per shot. By multiplying that difference by the volume of radiographs taken, the effect on profitability can be quantified. Will the volume of this service increase enough to offset the profit loss? Can the marketplace accept a fee increase per view taken to offset this net loss? The cost may be too much or it may be of great value depending on pricing and volume changes. It is crucial that the profitability of current services is compared to the same services with a new piece of equipment.

There are also intangible factors to consider when making an asset purchase such as a DR system. Though it should never drive the entire decision making process when acquiring a new piece of equipment, take in to consideration the brand image to the practice and what this acquisition will mean to the clients. When communicating the decision to purchase (or not purchase) new technology to the practice's clients, it is important that they understand the difficulty of providing the best diagnostic capabilities while also keeping the costs of services as low as possible. At best, it is difficult to accurately predict client behavior but it is wise to carefully consider the proper response to questions that might arise. Clients are quick to wonder what this purchase might do to their "bottom line" as well! Their perception is their reality.

Warranty, Service Contracts, and Insurance

The excitement generated by the consideration of a new purchase may quickly dissipate when discussing the warranty and service contracts with the salesperson. It is common for the warranty and service coverage portion of the contract to be in small print, full of legal jargon, and difficult to interpret. What must be remembered is that there is a cost of ownership. It is therefore important to think about the following when considering the service contract: down time, insurance, periodic maintenance, software updates, future enhancements, coverage details (labor, parts, shipping, preventive maintenance), service loaner policy, and warranty value. All of these factors play a role in the ability to generate revenue while using the machine and the expenses that are incurred when the machine is out of service. In addition, these aspects of asset investment affect the residual value of the asset and the fair market value when the used equipment is sold. In the end, it comes down to a cost versus benefit assessment and the willingness to accept a level of risk. Prior to signing on the dotted line, it is up to the buyer to be fully aware. Dig into the details and incorporate these costs in the analysis of purchase, including cost estimates once the service contracts expire or are renewed. The time to negotiate a better deal or an extended warranty is as a buyer not as an owner.

Negotiation

Retail price, wholesale price, discounts, rebates, service, warranty options, and support all play a role in the eventual cost for a piece of equipment or an automobile. Negotiation is an art and there are many tools to learn to get the best overall deal. To

gain a greater understanding of the art of negotiation, it may be advisable to enroll in a negotiation training seminar at a local business school. The investment in this training will pay for itself time and time again. The goal in negotiations is to understand both sides of the equation: what are the seller's needs and wants, what does the buyer need and want from this activity? It might even be necessary to walk away from the deal if a reasonable balance cannot be made between the needs of the seller and the buyer. Identifying the details and facts that surround each buying decision based on product information and services enables the practice owner to be more informed when it comes down to final pricing, delayed billing options, and trade-in value. Ethical negotiation training is one more tool to advance the business career of the equine veterinarian.

SUMMARY

Purchasing new or used capital assets involves both emotional and financial components in the decision making process. In addition, there are intangible factors such as client perceptions and expectations that fit into the equation. Identify the facts from a business perspective and then define whether this investment (expense) is good for the practice and fits with the short- and long-term growth strategies. Ask the tough questions, analyze the numbers, understand the clients' needs, and tie this together with the practice brand and strategic objectives. The informed and prepared buyer is usually successful in making the right decision.

QUESTIONS TO CONSIDER

Divide a blank paper into 2 columns and on one side write down the "pros" and the other side the "cons" before making a major capital investment. Scan this paper and look at both the big picture and details for your business. Another exercise to do is to ask questions like the group below before signing on the dotted line:

- Do you "want" it or do you "need it?"
- Is this purchase part of my strategic business plan?
- Will the cost be paid for in 2 years? Is a longer payoff okay?
- Will this investment increase my "net" profitability now, later, or not at all?
- Am I losing clients because of a lack of proper equipment?
- What will price of the service after the purchase? Can it be increased?
- What type of volume change do I expect in the next 12 to 24 months?
- Is the money I tie up in the new purchase better spent somewhere else in the company?
- How long will this asset serve the business?
- What types of costs are involved on an annual basis?
- Will this purchase significantly increase my insurance costs?
- What type of risks am I willing to take with regard to service and down time?
- How will I tell my customers about this new service?
- How will this purchase affect associate compensation?
- Can I negotiate a better overall structure to the purchase?
- What is my walk away number for this deal?

RESOURCES: ANALYSIS TEMPLATES AND EXAMPLES

Templates for equipment and ambulatory vehicle analysis are available on the resource page of the Web site www.equinebusinessmanagement.com to help gather all the facts and analyze the numbers for potential capital investments for an equine

ambulatory practice. These are designed to be modified to suit the individual needs of each practice. It's a great place to start the process of being more informed when making a sizable capital investment.

DEFINITIONS

Activity based cost analysis—method of allocating or assigning the costs to a specific service activity or product to ascertain the value or profitability for the activity.
Assets and equity—assets are any resource tangible (like equipment, vehicles, cash, etc. . .) or intangible (goodwill, blue sky, reputation) that is owned or controlled to produce value. Equity is the claim by an owner on those assets.
Capital investment—financial contribution in an asset with the expectation of a gain.
Cash flow—flow of money in and out of a practice during a specified period of time.
Contribution margin—portion of revenue (sales) that contributes to the offset of fixed costs.
Deductions—tax deductions are variable tax dollars that are subtracted from your gross income based on local and federal tax rules.
Depreciation—decrease in the perceived value of an asset based on initial cost that is recognized as an expense by businesses for financial reporting and tax purposes. This is a non-cash activity, rather an accounting entry for reporting.
Fixed costs—expenses that are not dependent on the goods and services produced by the practice or business.
Goodwill—intangible asset defined as the difference the purchase price and the fair market value of the net assets of a business. Common considerations include the value of the business reputation or brand equity that are part of the value over and above the identifiable business assets.
Net present value (NPV)—calculation of the sequence of cash flows taking into consideration purchase price, future cash flows, and rate of return (discount rate). The calculation is represented below:

$$\mathrm{NPV} = \frac{R_t}{(1+i)^t}$$

t = the time of the cash flow
i = the discount rate
Rt = the net cash flow at time

Variable costs—expenses that change in proportion with the level of activity for services and products produced by the practice or business.
Walk away number—point in negotiations where either the price or the benefits of the deal are not beneficial to the company. This is an objective assessment defined before negotiations on purchasing an asset begin to enable the buyer to reduce the emotional impulse to buy unfavorable terms.