

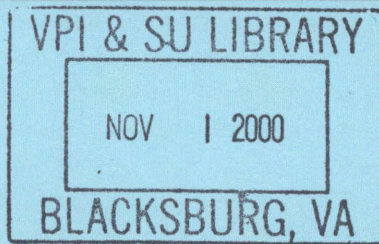
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VIRGINIA-MARYLAND VETERINARY NOTES

Veterinary Teaching Hospital, Virginia-Maryland Regional College of Veterinary Medicine

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THOUGHT FOR THE MONTH

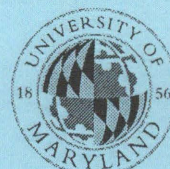
Remember – its not what you have, its what you do with what you have that makes all the difference.

Anonymous

Kent C. Roberts, DVM
Extension Veterinarian



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VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY prepared for and distributed to veterinarians in the Mid Atlantic Region

The Foundation of Practice Value

It continues to impress me the number of times I hear veterinary practice value being based solely upon some percentage of gross income. This concept is often suggested by some finance companies as well as veterinarians, but rarely by those who are familiar with business appraisal methodology.

The underlying foundation of value begins with a determination of the total amount of income from operations that is available for the owner to pay himself/herself a reasonable salary, service debt and retain some profit - in other words, to spend at the owner's discretion. This is the net income from gross revenues before taxes, principal and interest. At Simmons & Associates, we refer to this figure as the "Adjusted Net Cash Flow".

This "cash flow" is the total of the taxable income on the US Tax Return plus certain adjustments made back to cash flow for expenses that fall typically in one of the following categories:

1. Owner benefit- Compensation, Health or Life Insurance; Retirement programs; Auto in a small animal practice; Certain travel; Certain PR and dues; Certain meals and entertainment; Family member salaries for more or less than fair market for the area; etc.
2. One time remodeling or major repair expenses that could have been depreciated but were expensed.
3. Equipment purchases that were expensed or perhaps taken as a Section 179 expense.
4. Interest and equipment lease expenses (Practice is appraised free and clear of all debt).
5. Unnecessary or extravagant expenses made at the option of management/ownership, such as extra associates for a more relaxed schedule, or unmanaged drug and supply expenses.
6. Facility rent for more or less than a fair market rent would be for the area.

After these adjustments are made to cash flow, the remaining expenses are those which would be considered necessary and relevant to daily practice operation. To repeat, although nomenclature varies, what remains from gross after necessary operating expenses is the pre-tax "Adjusted Net Cash Flow" and is the amount available to the owner to spend at the owner's discretion. In the well managed small animal practice, this figure is typically 33-37% of gross - usually less to varying degrees in very high and low grossing practices. The debt service and owner/chief of staff's personal compensation are made from this figure, plus hopefully some left over for savings (i.e. Gross Earnings).

This Adjusted Net Cash Flow figure is the Simmons & Associates jumping off point for all the income approaches toward practice evaluation. From here, various types of "Earnings" are calculated and appropriately capitalized; various ratios are calculated for prudent finance scenarios; returns on investment and after-debt incomes are calculated; and a myriad of other considerations made to ensure that the final value figure is prudent and workable once today's real-life terms of finance are applied.

Soon to follow will be a discussion of the various considerations mentioned in this last paragraph. So save this article as a preview for the next one. – **Doyle Watson, DVM; President and Owner, Simmons & Associates, Inc; Veterinary Practice Brokers since 1977**

Nebraska Research Reveals E. Coli Surprises

A new genetic "fingerprinting" method developed by University of Nebraska food scientists is revealing surprising insights about potentially deadly E. coli 0157:H7 bacteria.

The new technique shows that there are two genetically distinct E. coli 0157:H7 populations found in cattle - one that causes sometimes fatal food poisoning in people and a second that is not commonly isolated from food poisoning cases.

Genetic results suggest that the population most commonly found in cattle either is non-virulent, meaning it is incapable of causing disease, or it is not easily transmitted to people, said Andy Benson, a food microbiologist whose laboratory developed the technique that led to the findings.

"Our method gives a very high-resolution snapshot of the genome and lets us see things we couldn't see before," Benson said. The technique, called octamer-based genome scanning, allows researchers to pinpoint where genetic differences exist on E. coli's DNA and offers a means for rapidly cloning and identifying the genes at those DNA sites.

Benson tested the technique on E. coli samples, called isolates, drawn from humans and cattle. All the isolates originated in a three-county region of Wisconsin. Researchers expected that the isolates, when illustrated on an evolutionary tree-type structure called a dendrogram, would be dispersed throughout the structure.

"We really weren't prepared for what we saw," Benson said. Most of the human isolates were clustered together in one part of the dendrogram, and most of the cattle isolates were clustered together, indicating that there were significant genetic differences between the two groups.

"That could mean two things," Benson said. Either their data were biased because all were collected from the same region, or surprisingly the E. coli population infecting cattle in Wisconsin was distinct from the population making people sick.

To test for bias, Benson's team used the method again on a large group of isolates gathered from 16 states. Again, two distinct populations, human and bovine, appeared on the dendrograms.

Benson's hypothesis: the cattle population either is very inefficient at causing human illness or it is a weak population that does not survive the necessary hurdles to infect people and cause E. coli related illness.

This could be good news for the public health and for cattle producers, especially following data recently released by U.S. Department of Agriculture researchers at the Meat Animal Research Center (MARC) a Clay Center, Neb., that found E. coli 0157:H7 to be present in more than half of cattle tested.

"Our numbers now suggest that two-thirds of the isolates from cattle are genetically related to the apparently non-virulent population; the population that doesn't cause illness. But we need to do a much larger sample size to get a better idea of exactly what that number is. We're doing that now." Benson's team analyzed 78 E. coli 0157:H7 samples to reach the current results.

Benson cautions that researchers must be careful not to over-interpret the data at this point. The newly discovered population must be tested to determine if it is, in fact, non-virulent. – **By Monica Norby, for IANR News**

Grant Dewell, DVM, MS Beef Cattle Clinical Veterinarian University of Nebraska Great Plains Veterinary Educational Center State Spur 18 D, PO Box 187 Clay Center, NE 68933-0187

Neospora Caninum Not Linked to Human Abortions

Neospora caninum is an intracellular protozoan parasite closely related to *Toxoplasma gondii*. The life cycle of *N.caninum* is only partially known, but the dog has been established as its definitive host. The pathogen's only known natural route of transmission is transplacental which can occur during sequential pregnancies in cattle. *N.caninum* is now recognized as the most common cause of repeated abortions and stillbirths in cattle. When experimentally transferred to pregnant nonhuman primates, *N. caninum* has caused fetal infection and fetal lesions closely resembling those in congenital toxoplasmosis. *N.caninum* organisms are morphologically very similar to *T.gondii* but the two species have distinct antigenic characteristics and can be distinguished by serologic and immunohistochemical methods.

Even though no case of *N.caninum* infection has been described in humans, biologic similarities between *N.caninum* and the human pathogen *T.gondii* have led to speculation that *N.caninum* could be transmissible to humans. Since repeated abortions and stillbirths are common manifestations of neosporosis in cattle, women with a history of repeated abortions seemed an obvious category to investigate for human *N.caninum* infection.

A serological investigation for the presence of *N.caninum* infection was conducted with 76 Danish women who had repeated abortions or intrauterine death of a fetus from an unknown cause. Blood samples were obtained at the time of abortion or within 3 months of fetal death and serum specimens were tested for antibodies to *N.caninum* and *T.gondii* by an ELISA test. Twelve samples with an absorbance of 0.5 or higher were selected for further investigation. None of the 12 specimens showed specific fluorescence in the indirect fluorescence antibody test (IFAT) at dilution 1:640 with *N.caninum* tachyzoites. Three serum specimens reacted with the *T.gondii* antigen; all were *T. gondii*-positive in the Sabin-Feldman dye test. However, no evidence of *N.caninum* infection was detected. – **Petersen, F., et al. Emerg Infect Dis 5:1999 in ISU Vet Med, Jan 2000.**

Would You Believe?

Life expectancy in Africa will drop from 59 years, now, to 45 years by 2010 as the result of AIDS. Cases on the African continent constitute 69% of the cases worldwide, 84% of the deaths from AIDS through 1999 and 68% of all new cases reported in 1999. – **Time, January 24, 2000.**

The turnover of stocks listed on the NASDAQ exchange in 1999 was 221%, three times higher than any major stock market in the world. The 50 top NASDAQ stocks rolled over an incredible six times, and the 50 most heavily traded NASDAQ stocks were held by investors for an average of only three weeks. These statistics tend to prove that today's market is dominated by momentum driven speculators. Psychology, not business fundamentals, is driving the current boom in technology stock prices. – **KCR, March 2000.**

Do Flies Sleep?

Recent research on fruit flies leads scientists at the Neurosciences Institute in San Diego to conclude that flies do doze off in sleep patterns "strikingly similar" to those of humans. Sleep occurs mainly at night, and older flies sleep less and more erratically than younger ones.

Interestingly, many of the fly genes that turn off during periods of sleep and on when the flies are active proved to be identical to those genes that regulate human slumber. Caffeine tends to keep the insects awake and antihistamines tend to make them drowsy. This means that, probably, researchers can test sleep-aiding drugs in flies before trying them in human subjects. – **Time, March 20, 2000.**

OXYTOCIN TREATMENT FOR ESOPHAGEAL OBSTRUCTION

Esophageal intraluminal obstruction ("choke") is a common problem in the horse and is generally caused by impaction of food material. These impactions most commonly occur just aboral to the larynx and at the thoracic inlet. Life-threatening complications that may follow obstruction include circumferential mucosal ulcers resulting in stricture formation, esophageal rupture and aspiration pneumonia. Some currently accepted treatments for esophageal impaction include lavage via nasogastric tube, i.v. fluid therapy, administration of analgesics, muscle relaxants, or surgery. These procedures can prove to be expensive, time-consuming and traumatic. Anecdotal reports, the authors' clinical experience, and retrospective study of 10 cases indicated the administration of oxytocin to horses with esophageal obstruction may assist in resolution of uncomplicated cases of choke.

A study was performed to determine the effect of administration of i.v. oxytocin on the contractility of the musculature associated with the equine esophagus. The authors focused on the two areas of the equine esophagus where obstruction most commonly occurs, the points just aboral to the larynx and at the thoracic inlet. The musculature contained in these two areas is composed almost entirely of striated muscle. Nine clinically normal horses were fitted with a nasogastric tube modified with inflatable latex cuffs. These cuffs were connected to piezoelectric pressure recording devices. Oxytocin in 3 different doses or saline controls were administered i.v. in a randomized block pattern. Systolic blood pressure, ECG, heart rate, and nasogastric tube cuff pressures were then measured for 60 minutes.

Administration of oxytocin i.v. at 0.11 and 0.22 IU/kg bwt, resulted in a short-term statistically significant relaxation of the musculature of the equine oesophagus. When oxytocin was administered at 0.11, 0.22 and 0.44 IU/kg bwt, no clinically significant cardiovascular changes were seen. In approximately 5% of the oxytocin administrations, signs of mild short-term abdominal discomfort were observed. In clinical cases of noncomplicated esophageal obstruction, it is suggested that reduction in tone of esophageal musculature may result in passage of esophageal obstructions with reduced risk of esophageal injury when compared to other traditional treatments.

Data collected in this study indicate that oxytocin also has an effect on the striated muscle of the equine esophagus. The observed effect was a short-term reduction of muscle tone resulting in a reduction in intraluminal esophageal pressures. The greatest magnitude of effect in both reduction in contractility and duration of effect occurred with the 0.11 and 0.22 IU/kg bwt doses. The most substantial reduction in contractility occurred during the first 3 to 5 minutes after administration of oxytocin. The short duration of action may be related to the short therapeutic half-life of oxytocin.

Administration of oxytocin results in reduction in tone of the esophageal musculature. The observed response to oxytocin may result in reduced friction between the obstruction and the esophageal mucosa. This effect may result in passage of the obstruction with reduced risk of esophageal injury when compared to other traditional treatments. This study was performed on clinically normal individuals. The degree of response to oxytocin in horses afflicted with esophageal obstruction has not been documented. However, the authors' personal experience and reports from practitioners who have applied this treatment suggest the response to be clinically significant. These reports also indicate that transient abdominal discomfort, sweating and muscle tremors may occur with administration of oxytocin at the levels used in this study.

***Because of the abortifacient properties of oxytocin, use in the pregnant mare is contraindicated.** – Taken from: Meyer, A., et al. *Equine Vet J* 32:151-155, 2000. As reported in *Vet Med*, Vol. 6, Issue 3, May 2000, Iowa State University, Ames, IA.

Transdermal Treatment for Aggressive Cat

An 11-year-old male cat showed aggressive behavior toward other cats and also started urinary spraying. Buspirone 2.5 mg/ml flavored suspension was tried. It was difficult for the owner to give the oral suspension and after a few days the cat was vomiting the medication.

The owner applied 0.1 ml of transdermal buspirone 2.5 mg/0.1 ml Pluronic lecithin organogel (PLO) topically inside the tip of the ear twice a day. After the first dose, the owner noticed the medication made the cat too sleepy and the dose was decreased to 0.05 ml (1.25 mg of buspirone). The cat's aggressive behavior has been controlled on the lower dose with a few exceptions. The owner increased the dose to 2.5 mg of buspirone for a couple of doses. The owner is amazed how easy it is to apply the medication.

Editor's Note: "Buspirone is a nonbenzodiazepine anti-anxiety drug. It is used to treat various behavioral disorders in dogs and cats, e.g. chronic fears/anxiety, phobias, and aggression. It does not (typically) promote sedation or behavioral dependence (although) it may be prudent to exercise caution with working dogs. The drug is considered by some to be the drug of choice in the management of urine spraying and inappropriate urination in cats. Generally, 1 week of therapy will determine if the drug is going to be successful in the management of urine spraying. If successful, the drug is continued for 8 weeks, after which the dose is reduced gradually. Cats from multi-cat households favorably respond more often than cats from single-cat households. Only half of the cats treated with buspirone resumed spraying when the drug was discontinued after 2 months of treatment versus those treated with diazepam, more than 90% of which resumed spraying. – Donald Tummons. *The Mortar and Pestle, Special Veterinary Edition in NDSU Vet Notes, 4th qtr, 1999*. As reported in *Veterinary News*, Feb. 2000, Pennsylvania State University, University Park, PA.

World of 100

If we could shrink the earth's population to a village of precisely 100 people, with all the existing human ratios remaining the same, it would look something like the following:

There would be:

57 Asians	52 would be female	70 would be non-white
21 Europeans	48 would be male	30 would be White
14 from the Western Hemisphere, both north and south	70 would be non-Christian	89 would be heterosexual
8 Africans	30 would be Christian	11 would be homosexual

Six people would possess 59 percent of the entire world's wealth and all six would be from the United States.

- 80 would live in substandard housing
- 70 would be unable to read
- 50 would suffer from malnutrition
- 1 would be near death; 1 would be near birth
- 1 (yes, only 1) would have a college education
- 1 would own a computer

When one considers our world from such a compressed perspective, the need for acceptance, understanding, and education becomes glaringly apparent. – Phillip M. Harter, MC., FACEP Stanford University School of Medicine

MAILING LIST UPDATE

Dear Colleagues:

In our continuing efforts at maintaining a current and accurate mailing list for this newsletter, I request that you take a minute to update us on any changes in address, name, practice, etc.

If you no longer wish to receive the newsletter or know of a colleague who would like to be added to our mailing list, please fill out and return the form below at your earliest convenience. Because of budgetary restrictions, we cannot send separate newsletters to each and every veterinarian in our circulation area. Please share your copy with a colleague.

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