



# The Latest in Medicine

BY CHRISTY WEST

**W**hat was the hottest news in equine veterinary medicine in 2009? During the popular Kester News Hour session, three top veterinarians (who focus on equine reproduction, internal medicine, and lameness/surgery) summarized the top news topics and the most significant research reports of the year for a record crowd of veterinarians.

The presenters were:

- Scott E. Palmer, VMD., Dipl. ABVP (Equine Practice), of the New Jersey Equine Clinic in Clarksburg, N.J., and past president of the AAEP and American Board of Veterinary Practitioners;
- Margo L. Macpherson, DVM, MS, Dipl. ACT, of the University of Florida, and past president of the American College of Theriogenologists; and
- Bonnie R. Rush, DVM, MS, Dipl. ACVIM, of Kansas State University, winner of the 1996 and 2003 Carl J. Norden Distinguished Teacher Award, the 2002 Pfizer Award for Research Excellence, and the 2004 Outstanding Woman Veterinarian of the Year.

Following are the medicine topics they covered. Find more Kester coverage in the Lameness Treatments (page 24), Respiratory (page 46), Reproduction (page 48), and Miscellaneous (page 56) sections. Find references for these medicine studies at [TheHorse.com/15795](http://TheHorse.com/15795).

## Compounded Medications

The very public death of 21 polo ponies in April 2009 due to an incorrectly formulated compounded vitamin/mineral supplement (excessive levels of selenium) “was one of the biggest stories of 2009, drawing international attention to the sport of polo and the profession of medication preparation,” said Palmer.

Macpherson noted that several factors contributed to the situation, not just a single mistake. “It’s important for us to recognize what we need to learn from this situation,” she commented, recommending the following:



(Left to right) Drs. Margo Macpherson, Scott Palmer, and Bonnie Rush anchor the Kester News Hour, in which they present the hottest news in equine veterinary medicine from the previous year.

- Take American Medicinal Drug Use Clarification Act guidelines very seriously. Rush described these as follows:
  - An established veterinary-client-patient-relationship must exist.
  - The health of the animal must be threatened.
  - The compounded medication must be made from FDA-approved, commercially available products.
  - The amount of product compounded must be consistent with the needs of the animal identified in the prescription.
- Veterinarians should be very careful of the types of products they use.
- Write clear, legible prescriptions.
- Pharmacies must employ stringent quality control practices.

Rush weighed into the compounding discussion as well, adding a summary of a study published in the *Journal of the American Veterinary Medical Association (JAVMA)* on the compounding and storage of pergolide mesylate (used to treat equine Cushing’s disease). Pergolide was withdrawn from the human medication market in 2007 due to concerns over its contribution to heart problems, but it’s still widely

used in horses as a compounded product. The study found that pergolide degrades to the point that it shouldn’t be used after only 14 days in typical barn storage conditions, and after only 30 days when refrigerated in a dark container.

“If a color change occurs (from opaque white to brown), the drug should be discarded,” said Rush. “Remember, Day 1 for you with the product might not be Day 1 of the product; it might have already been one week old when it was shipped, or may have been exposed to heat during delivery.”

She also made the following comments regarding compounding in general:

- Regulations are not permission to compound from bulk drug.
- Neither cost nor convenience is justification for using compounded preparations.
- The prescribing veterinarian assumes liability when using compounded preparations.

## Exercise-induced Pulmonary Hemorrhage

A study Rush described as “one of the most logistically complicated studies of



the decade” definitively answered the long-standing question of whether furosemide (Salix/Lasix) reduces the incidence of exercise-induced pulmonary hemorrhage (EIPH, airway bleeding). “More than 80% of the horses in this study bled without furosemide, and less than 60% bled on the medication. No horses bled at Grade 3 or 4 levels on furosemide, and two-thirds of horses that bled without furosemide had a reduction of at least one grade of severity.” See page 46 for more information.

Another EIPH study that Rush discussed focused on the mechanisms of EIPH within the lung, and it was published in the *Equine Veterinary Journal*. Researchers found EIPH resulted in thickened pulmonary (lung) vein walls and reduced inner diameter of the veins in the rearward portion of the lung.

“With thickened walls, the vein can’t expand when blood pressures increase from exercise,” Rush said. “This increases pressure at the level of alveolus and may contribute to stress failure of the capillaries.”

### Deafness in Paint Horses

“This paper confirms what many have thought for a long time—that there is a sub-population of Paint horses that is deaf,” said Rush. Affected horses were mostly splashed white overos or a blend of frame and splashed white overo patterns, had extensive white on the head and limbs, and at least one heterochromatic (mixed color) eye or two blue eyes.

“Hearing and pigmentation of the skin are similar in that a small population of melanocytes (pigment-producing cells) within the inner ear is essential for hearing,” Rush explained.

While more than 91% of known or suspected deaf horses have one copy of a mutated endothelin B receptor gene (two copies of this gene results in overo lethal white syndrome), not all horses with this mutation are deaf. About 21% of Paints carry this gene, and about 94% of frame overos (the most common overo type) carry it.

“These horses are difficult to train, more skittish, more likely to be injured by other horses, and don’t like small spaces,” Rush reported. “But once trainers figure out these horses are deaf and take that into account when working with them (i.e., eliminating verbal commands), they are able to achieve performance training.”

### Bacteremia in Foals

In another *JAVMA* study scientists evaluated the records of 423 Thoroughbred foals presented to the University of Florida with bacteremia, or bacteria present in the bloodstream, over a 25-year period. Researchers reported that *Escherichia coli* was the most frequently identified pathogen and, surprisingly, susceptibility of the bacteria to common antibiotics did not decrease over time (except for rarely used enrofloxacin).

Factors that improved survival rate were the year (better treatment success rates as time went on), diarrhea, lower body temperature, higher neutrophil count (a type of immune cell), and higher arterial blood pH (lower acidity in the blood). Younger age, septic arthritis, higher band neutrophil count, and higher serum creatinine levels generally worsened the outcome.

Rush reported that surviving foals were just as likely to start—and to have the same number of starts—as unaffected maternal siblings. However, they had fewer wins and less total earnings (\$3,967 vs. \$12,931).

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DR. BONNIE RUSH

### *Rhodococcus Equi* Transmission

*R. equi*, which can cause virulent foal pneumonia, has previously been thought to be spread by exposure to contaminated manure (possibly via inhaling contaminated manure dust). A study in the *Journal of Clinical Microbiology* found that “the concentration of virulent *R. equi* organisms in exhaled air from foals was five to 12 times higher than that in environmental air,” reported Rush. “Rhodococcal pneumonia has classically been categorized as an opportunistic infection; this study indicates *R. equi* may be a contagious pathogen.

“There were no significant differences in the median concentrations of virulent *R. equi* bacteria exhaled by clinically healthy

or diseased foals; foals on endemic farms may be challenged and have subclinical infections,” she went on. “The high concentrations of virulent *R. equi* bacteria in exhaled air suggested that aerosol transmission between foals is possible and may have a significant impact on the prevalence of *R. equi* pneumonia on farms. There may be less contact time required for a foal to get an infectious dose of *R. equi* from exhaled air compared to environmental contamination. Both sources may contribute to clinical disease.”

### Piroplasmosis

Rush reported that in 2008 there were just over 20 cases of equine piroplasmosis in Florida, and the outbreak appeared to be spread by blood doping/contaminated needles. Previously the United States had been free of piroplasmosis since 1988.

“In June of this year (2009), there were seven cases in Kansas and Missouri, and it looked like blood doping was the transmission method again,” she said. “But in October, a 7-year-old Quarter Horse got the disease, and now (as of early December 2009) there are 334 cases in 12 states (most are in Texas). All of them have previously lived on the index (initially affected) premises, and now we’re worried about other modes of transmission, such as natural spread of disease. The tick population may be contaminated; this will really be something to watch out for this (upcoming) year.”

### Preventing Ileus With Prophylactic Lidocaine

A lack of gastrointestinal motility is termed ileus, and it’s a potentially lethal complication following colic surgery. In a retrospective study lidocaine was given prophylactically to horses having colic surgery in order to stimulate gut motility. Prophylactic lidocaine treatment was associated with reduced incidence of post-operative ileus and enhanced short-term survival.

“These findings are particularly important since a report published last year that evaluated lidocaine infusion on the motility of normal horses found that lidocaine treatment actually increased transit time in feces (slowed gut contents down) rather than having a prokinetic effect (helped them move faster),” Palmer commented. 🐾

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