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## By Zeus! Miracle Dog Beats All Odds

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Ten percent. That was the chance of survival that **Dr. Reid Groman**, director of the Companion Animal Hemodialysis Center at the Matthew J. Ryan Veterinary Hospital, gave the dog. On the advice of a local veterinarian (a Penn alumnus), Gene and Mary Ellen Cole brought their 5-year-old Australian shepherd from Scranton to Ryan's Emergency Service on Sunday, January 11 with severe acute kidney disease.

Several days before, during an evening walk, Zeus had nosed around briefly in a neighbor's trash, which had already been gnawed open by rummaging animals. Shortly afterward, the dog mysteriously began to exhibit symptoms of illness, particularly fever and loss of appetite. "After he wouldn't eat his dinner, I bought Zeus vanilla ice cream, his very favorite food, and when he turned his head away, I knew something was wrong," recalls Mrs. Cole. He also was making very little urine and was getting progressively sicker and puffier. There was no doubt that Zeus was in trouble.

Zeus failed to respond to aggressive fluid therapy and medical management of his renal failure. He was uncomfortable, nauseated, and his urine production had all but ceased. At 77 pounds, Zeus was almost nine pounds overweight, all attributable to excess fluid that his failing kidneys could no longer eliminate. Zeus developed progressive swelling and edema in his limbs, abdomen, and face. More worrisome, however, was Zeus's labored breathing. Following a series of tests, it was determined that Zeus had uremic pneumonitis, a form of the acute respiratory distress syndrome infrequently encountered in veterinary medicine. The very sick dog was transferred on Monday to the Intensive Care Unit, where he was ultimately diagnosed with a bacterial infection known as leptospirosis. Caused by germs spread primarily through rodents' urine, the disease can severely damage the liver and kidneys of dogs, humans, and other animals. Sometimes there are no symptoms, although some dogs can pass the bacteria in their urine for up to one year. This time, however, the once-indefatigable Zeus was fighting for his life.

Immediately following the placement of a dialysis catheter, Zeus was transported to the Hemodialysis Center for his first treatment. Still anesthetized, Zeus was connected to a ventilator while simultaneously undergoing hemodialysis

(a process that removes toxins from the blood), the first of six 5-hour dialysis treatments over the course of the next week. "We set a time limit for Zeus," explains **Dr. Kim Slensky**, a third-year resident in Emergency and Critical Care who served as Zeus's attending clinician. "I talked to his owners the second day he was here. Since he had to be on both the ventilator and hemodialysis, we were going to give him 24 hours. If he got better, fantastic. If he got worse at any time, we decided we would put him to sleep."

To everyone's astonishment, Zeus started to get better—progress initially was slow, but it was sure. "There is no precedent—ever, anywhere—for a dog requiring simultaneous renal replacement therapy [hemodialysis] and ventilatory support to leave the hospital," says Dr.



Groman. "This was no easy save. Something was in the stars for this dog. I suppose we cannot rule out—don't laugh—some divine intervention in Zeus's case." Only fitting, of course, for a dog who shares a name with the king of Greek gods.

Compassionate, round-the-clock care undoubtedly played a part in the shepherd's seemingly miraculous recovery. For Dr. Slensky, 14-hour days—spent primarily on the many procedures Zeus required—were not uncommon during this time. "Dr. Slensky was absolutely superb," says Mrs. Cole. "She gave us the strength to put Zeus on dialysis and the respirator. She didn't make any promises, but she did give us hope."

As Zeus steadily improved, he went from producing almost no urine to making too much, typical of recovery from this kind of kidney disease. Doctors kept up with the excess

urine output by hydrating him intravenously until his kidneys could function normally. For testing purposes and to prevent contamination, that "output" had to be collected by scrambling nurses and doctors holding out whatever container happened to be closest. When Zeus was especially prolific, there were the mops.

Zeus's extraordinary will to live endeared him to the Ryan staff, but it was his intelligence and irrepressible personality that earned him the reputation of being quite a character. The dog absolutely, positively would not stay in a cage—in the I.C.U. or anywhere else. An off-white couch in the Hemodialysis Center suited him best—and if anyone foolishly attempted to move him, he would tear down the hall, hooked-up equipment rolling behind, and

promptly plunk himself back onto the sofa after a clumsy leap.

At one point, Zeus refused to eat for several days. Ryan staff tried tempting him first with turkey, then with chicken, but to no avail. Upon hearing the news, the owners asked matter-of-factly, "Have you tried marshmallows?" The doctors were skeptical; why

would a dog who refused the most delicious meaty tidbits accept a spongy blob of sugar? Sure enough, though, when the owners tossed a marshmallow in the dog's direction, he immediately caught and devoured it—all of this while in a harness, on a table, undergoing dialysis. After that, marshmallows, which had been a special treat at home, were added to the food *du jour* until more traditional doggy fare appealed once again.

Finally, on February 8, after nearly a month, Zeus was discharged from the Ryan Hospital, to resume his normal life on the Coles' horse farm. Arriving early that morning, the owners were ecstatic to be reunited with a healthy, spirited Zeus. "He was so thrilled to get in the car and come home. Not that he wasn't treated wonderfully at Penn! But he missed running in the yard. He missed his home. And now he's just like the old Zeus again!"