It’s not often that a veterinarian operates on a bear. In fact, Dr. Mark Rochat, professor and chief of small animal surgery at Oklahoma State University’s Center for Veterinary Health Sciences, has performed surgery on a bear only three times during his career. Dr. Rochat has operated on a black bear during his residency at the University of Missouri-Columbia and twice on Frosty, a polar bear living at the Tulsa Zoo and Living Museum.

"Frosty had an umbilical hernia," explains Dr. Rochat. "Initially, I operated and repaired it in May 2004, which went very well. However, in the spring of 2006, it looked like the problem had recurred next to the original surgery site."

According to Tulsa Zoo’s staff veterinarian Dr. Kay Backues, it appeared that Frosty’s umbilical hernia was protruding again. However, this time, it looked a little different.

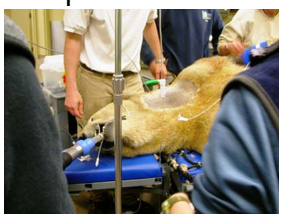
"When Frosty would lie down, the protruding tissue should go back inside the abdominal wall defect it popped out of," she explains. "It didn't. It remained hard and he acted like he was in pain.

Veterinarians have the challenge of not being able to ask their patients what the problem is—they have to know by examining the animal. The problem with polar bears is that you have to "examine" them from outside their cage.

"Polar bears are the top predators of their habitat and naturally aggressive. They don't understand that you are trying to help them," says Dr. Rochat. "They will kill you unless they are anesthetized."

When you're dealing with a 10 ft. tall, 800 to 900 lb. bear, anesthesia and examinations are not an easy task.

"What amazes me is the excellent job done by Dr. Backues and all the staff at the Tulsa Zoo," Dr. Rochat comments. "She has to figure out what's going on with him, coordinate a crew to anesthetize him and hoist him into a cargo net and then move him safely to the Zoo's Veterinary Hospital and surgical suite and back to his enclosure once the procedure is complete. All I do is perform the surgery."



Once Frosty was on the operating table and Dr. Rochat was able to open him up, the real problem became apparent. "Frosty had herniated his stomach through the umbilical hernia. The hole was small enough that his stomach could not retract back through the hole," explains Dr. Rochat. "We had to evaluate the tissue surrounding the opening and decide what the best course of action would be for Frosty, keeping in mind that after the surgery, we wouldn't be able to tell him to lie down and rest while his incision heals."

He decided to enlarge the hole so he could put his stomach back where it belonged, close the incision and then repair the original opening that allowed his stomach to protrude initially.

"The surgery went well," reports Dr. Rochat. "I was able to close the incision I made, repair the hole and fortify it with Prolene mesh, a procedure comparable to one you would use to repair a human hernia."

Then the waiting game began. Frosty wouldn't eat and rose only infrequently to drink for several days. His weight dropped down to between 600 to 700 lbs.

"Post-op care is not what you would like it to be because you can't safely get to the animals in a zoo atmosphere. It's a testament to how tough wild animals are. I don't know if a dog would have survived that surgery or not," continues Dr. Rochat.

"The supportive care we were able to provide, via pole syringe or medicated darts was less than we would have liked," says Dr. Backues. "We were able to get antibiotics, antacids and analgesics (pain relievers) into him but no significant amounts of fluids. His recovery was a slow process. After about 10 days, he finally started eating and we were able to then put his medications into his food, meat and fish."

Frosty continued to improve and five months after his surgery, has regained his lost weight and is back on public display.

Dr. Rochat sums it up, "When you operate on an animal like this, it takes quite a bit of planning. If we hadn't performed the surgery on Frosty, he would not have survived another 24 hours. You have to be willing to 'live on the edge.' You try your best and hope Mother Nature does the rest because you can only watch from the other side of the cage. You've done all you can do."

And thanks to the expertise of Drs. Kay Backues and Mark Rochat and their respective support staff of technicians, keepers and maintenance staff at the Tulsa Zoo and Living Museum and the OSU Center for Veterinary Health Sciences, zoo patrons will be able to visit Frosty the Polar Bear in his enclosure at the Arctic building.