chest, as well as around her heart. The renal tumor measured ten centimeters and had gone through the renal artery into the vena cava. In February, Jill underwent surgery to remove her right kidney and right adrenal gland, surrounding tissue, fat and lymph nodes. It was a success. The first part of her battle was over, but there was still more cancer to fight.

**PROLEUKIN PROVIDES HOPE**

A week after surgery, Jill met with her first oncologist – a young doctor who had done his fellowship at MD Anderson and was very knowledgeable about all of Jill’s treatment options. The 5 year survival rate for Jill’s type of cancer is 0-10%. The doctor kept circling back to one particular treatment option that he felt had the best chance of giving Jill a longer life. It was a success. The first part of her battle was over, but there was still more cancer to fight.

The doctor warned Jill the side effects of Proleukin can be very intense and the chance of reaching that long-term response of a complete remission was only about seven percent. “I couldn’t imagine a side effect they could put me through that would be worse than death,” says Jill, the mother of two teenage boys. “I was ready to go for broke.”

Jill was then referred to the only doctor in the state of Wisconsin who performs the Proleukin treatment. Because a patient must meet certain criteria in order to receive Proleukin, a rigorous qualification process involving many tests was conducted on Jill to ensure she was healthy enough to receive treatments.

On March 16, six weeks following surgery and six days after her 40th birthday, Jill started the first course of treatment at St. Luke’s Aurora Hospital in Milwaukee. The course treatment alternates week long stays in the hospital. The aggressive treatment plan consists of a dosage every eight hours over a five-day period in the intensive care unit under the supervision of a very well-trained staff.

This is a story about Jill Jones, a lifelong friend of Mike Evans (art director at Edstrom), and her journey with cancer. Jill was diagnosed with advanced-staged renal cell carcinoma in 2010. The course of treatment she received was a treatment called Proleukin (Aldesleukin), developed by Chiron Corporation and distributed through the Prometheus Therapeutics & Diagnostics laboratory.

It began as bothersome backaches, which to Jill, seemed harmless enough considering her work as a dental hygienist. Then more symptoms started to appear: night sweats, things not smelling or tasting right, insomnia, weight loss, fatigue, anxiousness and even vomiting. Jill could no longer hide her misery from her family, so in January of 2010, she paid a visit to her general physician. After feeling her abdomen, he immediately ordered an ultrasound as well as a CT scan. A couple days later, Jill received the results. The news was devastating. She had stage IV renal cell carcinoma – a rare cancer affecting the kidneys. More testing by a urologist revealed that in addition to the tumor located on her right kidney, Jill also had masses in her lungs, liver, and lymph nodes in the groin and
THE IMMUNOTHERAPY APPROACH

Approved for use by the FDA in 1996, Proleukin is only used to treat two types of cancers: metastatic renal cell carcinoma and metastatic melanoma. The therapy is a potent stimulator of T-cell proliferation and activator of the immune system. Proleukin initiates an immune response by inducing a T-cell "flurry" to ramp up the immune system so it can beat the cancer. The side effects are difficult, what Jill describes as, "beyond the worst flu you can imagine." She was happy that the side effects of treatment were limited to the duration of her hospital stay. Once back at home, Jill could resume working at the dentist office, which helped her maintain a normal life.

"What’s great about the immunotherapy treatment is you are only on the medicine while in the hospital," says Jill. "When you go home, you’re not taking any other drugs. It’s an attractive alternative to chemotherapy. I didn’t want to have to live being sick all the time."

Jill’s parents were immensely supportive and even moved into her home during this time to take over caring for the children and keeping the household on its regular schedule. "We spent a total of 42 days in the hospital while Jill was receiving the Proleukin treatments," says her husband, Matt, who stayed by his wife’s side throughout those strenuous weeks. During these months, they also had to have the difficult conversations that a couple never wants to discuss. Like Jill’s wishes about what to do with the house, the kids, the pets, etc. in the event she wouldn’t be there anymore. Jill felt she wouldn’t be able to focus on conquering the cancer without knowing that everything in her life would be taken care of.

"I was fortunate to have such a great support system," says Jill, who is also a proponent of faith-based healing. "I knew no matter what the outcome, this is what was planned. It’s not in my control."

Four weeks after the first course of treatments, scans are performed to see if the treatment is working. If it is, patients continue on with more courses. If it’s not, they know within a short amount of time, and they can pursue another treatment route. Proleukin is a ‘first-line’ treatment with no long-term side effects, generally leaving patients open for all other treatment options. Jill got the good news she was hoping for – the immunotherapy was working. The lesions in her lungs were gone; everything else was shrinking. After the third course, the miraculous occurred when Jill went in for her check-up and was informed she had achieved that complete response – her cancer was in remission. Just eight months after first being diagnosed, there was no longer any evidence of disease. Jill was one of the fortunate 7 percent.

A NATIONWIDE ADVOCATE

Jill is now a patient-speaker for Prometheus, traveling the country to speak to medical professionals and cancer patients about her experience with Proleukin and cancer in general. "It was an opportunity that basically fell into my lap," says Jill, "and one that I couldn’t say no to, even though I have no prior public speaking experience."

It came about when attending a survivorship event for renal cancer survivors. Jill filled out a form stating she would be interested in helping in any way she could to spread the word about Proleukin.

Jill’s first presentation took place in October 2011, and she’s been speaking non-stop ever since, doing about one to two talks per month to audiences that range in size from a handful to hundreds. A firm believer in the immunotherapy approach, Jill says, "It’s not good enough that my cancer is in remission. I want to turn this experience into something positive so that others in similar situations can know about this treatment and ultimately benefit from it."

Even though it’s an intense treatment, she feels confident that it’s worth putting a patient through it, despite the small chance for a full remission. Even a partial response can add more years to a person’s life. "I want people in the medical industry to see me and know that it’s okay to do this treatment, and research plays in improving and saving lives. Although Edstrom did not have a direct association with the research and development of the therapy that Jill received, we know it was a long road for Proleukin, as it is for most drugs and treatments, to gain that much-desired FDA approval – a process that began in a vivarium. The pre-clinical and clinical studies for the drug Proleukin date back to the 1980s and 90s, where pre-clinical studies were performed on CD and Fischer rat models.

The products that Edstrom and other companies serving the vivarium market produce are helping take variables out of research, ensuring the validity of the studies being performed. In the end, we’re all working toward the same goals, and it’s gratifying to have an indirect part in life-saving work.

Edstrom thanks Jill for sharing her story with the Edstrom Update newsletter. For more information on her treatment with Proleukin, please go to www.proleukin.com or to our website www.edstrom.com/update2013Issue1/
For decades, the animal care staff at a major Wisconsin research facility recorded temperature and humidity by hand – twice a day – 7 days a week. Relying on thermometers located in each room, animal care staff manually recorded their findings in log books. But what if temperatures soared above or plummeted below what was acceptable when nobody was around?

“We were taking a big chance,” says the Laboratory Animal Resources manager. “We had nothing in place if the room became too hot or too cold.” This archaic method of tracking critical environmental conditions was not a dependable solution, and worst of all, it put animals at risk.

Relying on manual record-keeping or a building management system/HVAC to monitor and control animal rooms is common throughout the industry. The shortcomings of trusting in these methods are that it jeopardizes not only the research being conducted, but also the very lives of the animals and the reputation of the institution. An automated monitoring system that focuses solely on the unique needs of the animal room is practically a requirement, which is something this particular research facility had to learn the hard way.

CONVINCING THE DECISION-MAKERS

Proving the need for a monitoring system to the administration was an arduous task for this facility. The lab manager was the “barking dog” who lobbied for many years to bring in this type of technology. At first, he was met with resistance until the lab manager convinced the research facility had to learn the hard way.

WATER QUALITY – AN OPEN ENDED QUESTION

The makers of disposable systems state the water in their bags or bottles can be stored for extended periods without any fear of contamination. However, the acceptable shelf life of disposable watering methods remains an unknown. No matter how sterile water is to start, the quality of the water is likely to degrade every day that the bag or bottle sits in the cage. If any contaminants are introduced such as saliva or food particles from the backflow of animals drinking, bacteria can develop over time. There’s also the tendency to over-use a water bag on a sparsely populated cage due to limited consumption.

In contrast, automated watering provides consistent, high-quality water without any backflow contamination issues to worry about. In this case it’s the patented design of an Edstrom drinking valve not allowing backward flow. Treatment and purification processes remove contaminants from the drinking water, and systems that flush or recirculate water throughout the distribution and rack piping help ensure a clean supply of water for your animals. The entire system
with much resistance as the facility just wasn’t ready for it. It was a long road, taking nearly seven months to justify and build the case that a system like Edstrom Watchdog® was necessary.

The biggest hurdle was cost. “It was a significant investment for us, but we estimate the payback to be only five to six years,” he says. Although they examined several different systems, the lab manager recommended Edstrom without a doubt, saying he knew he could trust the company 100 percent. “Edstrom has been in the industry for so many years and has a lot of experience designing and installing these types of systems.”

INCIDENTS SPUR ACTION
Because of the lack of continuous monitoring at this facility, animals could potentially be subjected to uncomfortable – even fatal – fluctuations in temperature. This is exactly what occurred late one Saturday evening in the summer of 2010 when one of the facility’s dielectric valves exploded, flooding the interstitial with hot water. This caused the ceiling to rupture, and the hot water subsequently drained into the animal racks below. The facility lost all of the animal subjects that were part of a special breast tumor study. To walk in and find this kind of tragedy was devastating, especially to the researcher.

On another occasion in early 2011, a steam valve malfunctioned causing the temperature in one room to rise to 120°F, resulting in the deaths of rodents in 150 cages. In both cases, an environmental monitoring system would have alerted animal technicians to the rapidly rising room temperatures in time to prevent the losses. These unfortunate and costly events, which had the potential to attract negative publicity, prompted the administration to move forward with allocating funding for a monitoring system.

“It’s a victory for us to have this monitoring system,” says the lab manager. “There is no way we could ever revert back to pencil and paper.”

PEACE OF MIND FOUND
It’s been two years since the days of pencil and paper, and the facility couldn’t be happier with their decision to install the Edstrom Watchdog system. The 24-hour-a-day monitor and control functionalities of this system are designed specifically for the vivarium environment. They monitor approximately 500 rooms, which encompass large colonies of animals – including rodents, primates, dogs, cats and swine. Their main use for the Edstrom system is monitoring temperature and humidity, but in newer buildings, they are also using it to monitor their automated watering system, in particular the online rack flush feature.

Staff previously spent at least two hours per day recording data for a 20- to 30-room facility. “It was a cumbersome and time-consuming process,” recalls the lab manager. Gowning up and changing scrubs numerous times was not uncommon. With recording automated, the staff now has more time to concentrate on other animal care activities, and they love this positive side effect.

The accuracy and consistency of the system is another major benefit. Inaccuracies were the number one problem they faced when using pencil and paper to document temperature and humidity. Thermometer reading is susceptible to human error and when coupled with not checking thermometer batteries regularly, inconsistent reporting was a constant possibility. “There’s consistency among all of our facilities now because sensors cannot lie,” the lab manager points out.

Seen as an enticing amenity, the environmental removes variables from the water that can negatively impact animal health and affect the validity of your science.

HOW MUCH SPACE CAN YOU SPARE?
Machines to make and fill water bags or bottles, palletized cartons of plastic rolls, containers for storing bags/bottles, conveyors and carts for transporting the bags and bottles, and disposal units – that’s a lot of equipment, and it all eats up space. Not to mention the space you lose under the change hood. In the case of automated watering, space is required for piping on the wall, cage racks and a drinking valve for each cage. But whether you take the automated watering or disposable route, you will need to allocate space for water purification and treatment equipment.

The cost of disposable systems is another point to consider. You have to continually replace the bags/bottles, drinking valves, and even the entire cage in some instances. On the other hand, automated watering is a one-time investment that typically pays for itself in under three years. Some quick calculations of what you’re spending to fund your current bottle operation compared to a disposable system as well as an automated watering system can help you see the cost differentials. A disposable bottle watering solution is often only applicable to a certain kind of caging system, therefore, adaptations may be necessary to make these methods compatible with your current caging setup.

HOW FAST IS FAST?
An automated watering system automatically provides animals with clean, fresh water 24 hours a day, 7 days a week, 365 days per year. Water never runs out. It never has to be replenished. It never has to be stored, transported or disposed of. An extremely reliable solution that is monitored and controlled from end to end, automated watering is a safe and efficient way to water laboratory animals of all species. The drinking valve is equipped with unique features that deliver water only on demand, ensuring animals and cages stay dry.

Whereas disposable solutions provide watering convenience in specified amounts, serving as an appealing replacement for regular water bottles in a variety of situations. Automated watering systems and disposable watering systems have unique benefits and a place in the vivarium. Each system can comfortably coexist and together offer a balanced approach utilizing automated watering for an entire facility and supplementing with individualized watering for medication.

INDUSTRY
AAALAC Offers Insight Into Accreditation Process

Every institution that uses animals for research has a responsibility to ensure the humane and ethical treatment of the animals in their care. Some research programs go above and beyond what is required by law by meeting special requirements of the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC International). This private, nonprofit organization promotes the humane treatment of animals in science through voluntary accreditation and assessment programs. An AAALAC-accredited institution demonstrates they are taking extra steps to achieve excellence in animal care and use.

Edstrom had the recent pleasure of hosting Dr. John Bradfield, a Senior Director with AAALAC. During his visit, Dr. Bradfield shared interesting facts about the AAALAC organization, the steps involved in becoming accredited and the value institutions derive by achieving accreditation.

Since 1965, the scientific community has actively participated in AAALAC’s accreditation program, and today, more than 850 organizations in 36 countries are AAALAC-certified. In addition to meeting all applicable local and national regulations, AAALAC-accredited institutions must prove they are achieving the standards outlined in the Guide for the Care and Use of Laboratory Animals (Guide, NRC 2011); the Guide for the Care and Use of Agricultural Animals in Research and Teaching (Ag
monitoring system has helped the institution recruit new staff and initiate more research. “Investigators are asking for this type of system,” says the lab manager. “In fact, if a facility has a monitoring system like Edstrom’s in place, it improves a researcher’s chances of approval when applying for a grant.”

Watchdog has been well-received by the lab animal veterinarians and other staff. It provides that added level of security, a very important factor in today’s research environment. Furthermore, automated recording and environmental data archiving offers much-valued support to research studies.

By automating data collection, the facility is now standardized with federal guidelines and organizations such as AAALAC. They know the facility has parameters in place to protect animal welfare. If temperature and humidity readings are outside set limits, Watchdog sends detailed alarm messages so the problem can be rectified immediately. “Whether academic or private industry, Watchdog is a must-have product for the animal care program at large institutions,” states the lab manager.

This facility is relieved to have 24/7/365 monitoring of temperature and humidity in their animal rooms. “We are now able to record temperature and humidity every thirty minutes instead of just twice a day,” notes the lab manager, “It’s given our animal care personnel peace of mind.”

**EXPECTATIONS EXCEEDED**

When it came time to implement Watchdog in their facilities, the learning curve was surprisingly short. Providing step-by-step training, Edstrom spent ample time with the facility’s supervisors, managers and animal care staff to ensure their complete understanding of the system. Once people saw what a user-friendly system Watchdog was, it helped them buy into the idea.

“The trainer was excellent at explaining to each person’s level of understanding,” says the lab manager. “We were very happy with the service Edstrom provided – they have a very good training support unit.” In less than two months, all users felt quite comfortable operating the new system. The ongoing relationship between Edstrom and this facility ensures continued success for all involved parties. “Edstrom has been diligent in working with our IT personnel. They’ve bent over backwards to answer our questions.”

Did the facility face any challenges when implementing the Edstrom Watchdog system? “None whatsoever,” says the lab manager. “The system is working great; we’ve had no incidents, no negatives to speak of. We’re very happy with how the system and software work and extremely pleased with what Edstrom delivered to us.”

**WHAT DOES THE FUTURE HOLD?**

In addition to their current uses for Watchdog, this institution is adding additional rooms to the system in the near future. Watchdog records temperature and humidity with precision and bypasses the limited capabilities of manual recording. An efficient and accurate approach to collecting data, Watchdog’s built-in reporting and alarming features are keeping animals safe and saving staff several hours each day. Their ability to attract world-class talent is amplified and their research program further enhanced. “It’s a victory for us to have this monitoring system,” says the lab manager. “There is no way we could ever revert back to pencil and paper.”

Guide, FASS 2010); and the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, Council of Europe (ETS 123). (The scope of applicability of ETS 123 is limited to the member countries of the Council of Europe that have voluntarily ratified the Convention, and thus it is not a prevailing standard in the United States.)

Participation in the AAALAC accreditation program benefits institutions in a number of ways. First of all, accreditation is a symbol of quality. It signifies an institution is serious about setting, achieving and maintaining high standards for animal research programs. Secondly, AAALAC accreditation promotes scientific validity. Reliable results obtained through animal research directly correlate with healthy animals and superior animal care. Accreditation also shows a willingness to surpass the minimums required by law and assures the public the institution is committed to the responsible use and treatment of animals in science. In turn, all of these reasons advance an institution’s ability to acquire more research along with talented scientists and staff.

**THE STEPS TO BECOMING ACCREDITED**

A completely confidential process, institutions participating in the AAALAC accreditation program receive an independent, peer-reviewed, performance-based, unbiased assessment. When applying for accreditation, the institution must conduct an extensive internal review and create a comprehensive document called a “Program Description.” This document describes all aspects of the animal care and use program (policies, animal housing and management, veterinary care and facilities). An institution may choose to apply for accreditation for their entire campus or just a portion thereof. After reviewing the Program Description, AAALAC evaluators perform a site visit. The purpose of this three-day visit is to understand the animal care and use program and evaluate it for conformity with AAALAC – including primary standards as well as national regulation.

Meetings are conducted with the IACUC committee, husbandry staff and research staff and a tour of the facility is conducted. This time is used to observe animal health, learn more about animal procedures, check the condition of the facility and ensure emergency contacts and after-hours vet support are readily identified.

The IACUC review takes into account performance-based goals, such as how cages should be cleaned, rather than what the temperature is, as this is a variable and not a standard. The top problems many facilities face during the accreditation process as Dr. Bradfield noted involve:

1) Occupational health and safety deficiencies
2) Animal care and use issues
3) HVAC monitoring failures

Following the site visit, there is an AAALAC council meeting in which a decision is made regarding the institution’s eligibility for accreditation. New applicants may receive full accreditation right away, be accredited with conditions, be given a provisional status, or accreditation could be withheld completely based on findings. Any deficiencies the institution has are outlined in the letter, and they are given a period of time to make corrections before accreditation can be awarded.

**AUTOMATED WATERING AND ENVIRONMENTAL MONITORING GUIDELINES**

Edstrom wants to make AAALAC accreditation as smooth as possible. When it comes to automated watering and environmental monitoring, there are several key areas to consider before inspection. We’ve outlined these items below.

A defined water quality standard is not required for AAALAC accreditation; therefore, the focus of your site inspection will be a review of your facility’s routine water quality reports relative to monitoring frequency and water testing results. This data pertains to the water quality delivered to the research animal population, regardless of the source such as a municipal or city supply or a post-delivery treatment system such as acidification, chlorination, ultraviolet irradiation, reverse osmosis, deionization or ozonation.
Ask Update

Q: I would like to extend the life of my drinking valves and minimize harm caused by autoclaving. I am concerned that pulling too strong a vacuum could damage the seals. What are the recommended settings for weekly autoclaving of an Edstrom A160 valve?

A: The number of vacuums pulled as well as the depth of the vacuums are critical points to consider when autoclaving drinking valves. We recommend that valves are not exposed to a vacuum less than -15 inches of mercury, as this can cause a gradual degradation of the silicone components. For example, if your autoclave cycle pulls four pulse cycles and one dry cycle all at the maximum vacuum – approximately -28 inches of mercury – the life expectancy of the silicone will be reduced. On the other hand, if valves are not subjected to harmful chemicals (ammonia or high concentrations of chlorine dioxide) and not exposed to a vacuum deeper than -15 inches of mercury, you can expect an average Edstrom drinking valve lifespan of about 10 to 15 years.

Do you have a question for the Edstrom Update Newsletter? Contact us at update@edstrom.com

Introducing The New IACUC Module Add-on

Edstrom’s latest SmartLab™ innovation for the research and vivarium community is the IACUC (Institutional Animal Care and Use Committee) module for protocol lifecycle management. Established by institutions that use laboratory animals for research or instructional purposes, the IACUC oversees and evaluates all aspects of the facility’s animal care and use program. From protocol creation through the approval process, IACUC administration has never been easier, thanks to SmartLab.

Through our SmartForm technology, existing protocol forms are replicated with embedded intelligence to dynamically present the required data entry fields, allowing researchers to rapidly complete a submission. Tracking review comments, protocol version comparison and uploading documents adds further efficiency.

Protocol submission status and workflow is displayed real-time through a dashboard. Coordinating IACUC meetings and agendas, post-approval monitoring, as well as tracking qualifications and training records are additional features that promote communication, information flow and decision making across all levels of an organization.

Deployed at world-renowned institutions in the United States and Europe, SmartLab™ is an intuitive web-based, real-time electronic research administrative information software system modeled on industry best practices and end-user needs. Designed as a comprehensive, configurable, integrated platform, SmartLab serves users throughout an organization’s research community, compliance group, resource facilities and veterinarian department.

Contact us today to learn more about SmartLab™ and the exciting new IACUC module.

(Continued from AAALAC interior article)

A facility’s animal holding environment is a critical aspect of the AAALAC site inspection. The ability to provide empirical data including actual date/time stamped events regarding environmental conditions in the animal rooms and ancillary areas of the facility is essential. Utilizing the Edstrom Watchdog® or Pulse™ systems enables a site to produce the necessary historical data for environmental parameter settings and actual readings of temperature, humidity, lighting and airflow. This information offers the AAALAC site team inspectors an accurate documentation of the animal facility environment.

Following these guidelines can make it easier for a facility to attain accreditation. Serving as a bridge between progress and animal well-being, AAALAC is where science and responsible animal care connect. Every new institution that becomes accredited helps to raise the global benchmark for animal well-being in science.

Edstrom thanks Dr. John Bradfield for taking the time to visit and providing a very informative presentation. For more information on the AAALAC International organization and the accreditation process, contact John Bradfield at: jbradfield@aaalac.org or visit the AAALAC website at: www.aaalac.org

See Us At The 12th FELASA

It’s hard to believe it has been three years, but the 12th FELASA congress is almost here. It will be held 10-13 June 2013 at Barcelona’s International Convention Center. The congress attracts over a thousand scientists and other lab animal science professionals from around the world, as well as a large variety of companies that serve the lab animal industry. Please be sure to stop by booth number 53 to see the latest technologies with Edstrom automated watering systems, software systems for critical monitoring and electronic research administration. Don’t miss it!