In the northeastern United States, the incidence of bladder cancer is higher than in other parts of the country. Many hypotheses are being explored, including possible contaminants in drinking water. One suspect is arsenic, a naturally occurring element present in water supply sources and the environment in the region. How much arsenic have people been exposed to over their lifetimes? Environmental epidemiologists are seeking to answer that question using geographic information systems (GIS) that help them make sense out of multiple data sets, and combine complex scenarios into a user-friendly, multi-layered map.

Dr. Jay Nuckols, a Professor in the Department of Environmental and Radiological Health Sciences (ERHS) and Director of the Environmental Health Advanced Systems Laboratory (EHASL), is part of a National Cancer Institute (NCI) team looking to understand and define exposure levels of arsenic in New England. This project is being conducted by scientists in the Occupational and Environmental Epidemiology Branch (OEEB) of NCI in collaboration with scientists at Dartmouth University, the United States Geological Survey, New England Healthcare Engineers Society, and the state health departments of Maine, New Hampshire and Vermont. It is one of several environmental epidemiological studies in which Dr. Nuckols and his staff at EHASL participate. GIS is helping environmental scientists better understand and assess risk exposure, which is a critical component of epidemiological risk analysis.

“Historically, epidemiologists primarily used proximity to pollutant source as a surrogate for exposure to calculate risk. For example, how close is the house to the factory?” said Dr. Nuckols. “This one-dimensional approach often resulted in a misclassification of exposure which can greatly reduce the ability to detect excess risk in a population. With GIS, we are better able to develop a database that maintains the spatial relationship between contaminant source, fate and transport, and the location of residence or occupation of an individual over the course of the period that is important in terms of exposure for a particular disease. For bladder cancer, this period can be a lifetime.”

Dr. Nuckols, who has been working with GIS technology since 1987 and established the EHASL in the ERHS Department in 1992, said the technology helps tease out the population that is more...
Welcome

With Spring in the air and the end of the semester rapidly approaching, it’s a good time to reflect on a few of the outstanding happenings and accolades that have been accorded to our Department and its family of students, staff and faculty since the last issue of Emitter Magazine. You have previously read in the Emitter about some of the outstanding health and safety consulting work that Del Sandfort and his team have done throughout Colorado and the United States as well. I am very proud and happy to report that Del has been recognized for his many outstanding achievements by being selected for the highly prestigious Oliver P. Pennock award from CSU. On behalf of the Department, I wish to add our congratulations to the many that Del has received as a Pennock awardee.

In addition, our Freshman Scholars program has continued to be a resounding success. A few weeks ago, our seven scholars participated in the CSU “Celebrate Undergraduate Research and Creativity” poster presentations of their research projects at the Lory Student Center. Their posters were all outstanding and one of the scholars, Kelly Sullivan, won a “Highest Award” prize for her poster. She was one of three outstanding undergraduates mentored by Dr. Ron Tjalkens, Assistant Professor in the ERHS Toxicology Section. I want to express my thanks and congratulations to Ron for all his efforts and his great success in providing outstanding mentoring to these students.

In today’s academic and financial environment, collaboration is often the key to getting new ideas off the ground – even if those new ideas were introduced more than 60 years ago. This is the case with the Colorado School of Public Health, a collaborative effort of Colorado State University, the University of Colorado Health Sciences Center in Denver, and the University of Northern Colorado in Greeley. Through cooperation and commitment, these three institutions have come together to launch a school of public health that will be the only one of its kind in the Rocky Mountain region.

Our department is very much involved with this endeavor and many of our faculty and staff members are playing critical roles in the launch of this new institution. I especially want to thank Dr. John Reif, who has been there since the beginning, and Dr. Stephen Reynolds, whose expertise has helped to make the Colorado School of Public Health a reality. The new school, which will be headquartered at CU, will offer a Master’s Degree in Public Health at each of its member institutions, though specialties will be offered according to each institution’s areas of concentration. We are very excited to begin accepting students into the Master’s of Public Health program, and look forward to the new opportunities in research and teaching the Colorado School of Public Health will create. (Read more on page 3.)

In other news, congratulations to the High Plains Intermountain Center for Agricultural Health and Safety and the Safety Management Applied Research Team. Both of these programs received grants from the National Institute for Occupational Health and Safety for safety programs (read more on pages 5 and 6). The hard work of the individuals in each of these centers has resulted in additional support of their programs, evidence of the effectiveness of their research and outreach efforts.

In this edition of Emitter Magazine, you’ll also learn about the Environmental Health Advanced Technology Laboratory and the exciting work in which Dr. Jay Nuckols is engaged. Geographic information systems (GIS) offer new ways to assess risk exposure and Dr. Nuckols has established the laboratory’s reputation across the country as one of the leaders in implementing this technology. He also attracts graduate students interested in applying GIS to their work, offering training opportunities unavailable at most other environmental health programs.

On a final note, I’d like to say congratulations to each of our students who are graduating from our undergraduate or graduate programs this spring. We hope that each of you find success and joy no matter where your endeavors take you, and also hope that you keep in touch. Enjoy this edition of Emitter Magazine and I look forward to hearing from you soon.

John D. Zimbrick, Ph.D.
Professor and Head
Department of Environmental and Radiological Health Sciences

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ERHS Emitter is published three times annually by the Department of Environmental and Radiological Health Sciences. We welcome your questions, comments and story suggestions. You can e-mail your comments to Carol Borchert, ERHS Emitter Editor, at carol.borchert@colostate.edu. You also can visit us on the Web at www.cvmbs.colostate.edu/erhs/.
Thanks to Collaborative Spirit, Colorado School of Public Health Becoming a Reality

In 1946, the American Public Health Association recommended that a school of public health be established in Colorado. It has taken 60 years, and countless hours of collaborative work, but the Colorado School of Public Health is finally more than a recommendation. In 2008, the school will begin admitting the first 25 to 30 students to its Master’s of Public Health (MPH) degree program.

“In this region, there is a great need for a public health school,” said Dr. Stephen Reynolds, a Professor in the Department of Environmental and Radiological Health Sciences and member of the strategic planning committee to establish the school. “We see major public health concerns with respiratory diseases, especially childhood asthma, and with diabetes, obesity and rural health issues. While Colorado has a strong medical community to care for the individual, what we lack is a public health educational program that will help us develop the personnel resources for preventive medicine in populations.”

The Governor’s Blue Ribbon Task Force on Public Health and Environment reiterated the need for a school of public health in Colorado. It was threatened by the high cost of health care and the growing number of uninsured citizens.

The committee noted the need for a school of public health be established in Colorado. It is well-educated public health professionals who will be able to shape the programs and policies needed to improve population health during the coming century.”

Institute of Medicine Report – 2002

2. More than 50 percent of Colorado’s public health workforce lacks public health training and many of its trained personnel are nearing retirement.
3. Gaps in knowledge and access to preventive services limit health improvements for Colorado’s population.
4. Changing demographics of Colorado’s population could lead to further health disparities in disease and disability between rural and urban populations and among ethnic minorities.
5. Current medical training and practices often place undue emphasis on treatment that can overshadow cost-effective, public health prevention solutions.

Dr. Reynolds, who helped launch a school of public health at the University of Iowa, said the Colorado effort combines the strengths of the state’s flagship schools to create a school of public health that is greater than the sum of its parts. The consortium includes Colorado State University, the University of Colorado (the school will be headquartered at CU’s Health Sciences Center in Denver where new facilities are under construction), and the University of Northern Colorado. CSU brings a strong program in environmental and occupational health sciences, and epidemiology. In addition, the Department of Health and Exercise Science, Department of Social Work, School of Education, Cooperative Extension, Tri-Ethnic Center and College of Business are all University partners participating in the Colorado School of Public Health. UNC brings its nursing program and CU-Denver brings its medical school and an existing MPH program.

Dr. Reynolds said that the new school will initially focus on a Master’s of Public Health program. Each university will provide the core courses of the MPH, and then offer specialty areas depending on their strengths. For example, the environmental and occupational health section will be based at CSU, along with several other specialties. CSU also will offer a joint DVM/MPH degree program, similar in structure to the College’s current DVM/MBA degree program. Courses unavailable at one school will be offered through distance learning programs. In addition, faculty may travel between schools as Drs. Reynolds and Reif are presently doing to deliver coursework. Once the master’s program is launched, organizers will likely begin work on structuring a Doctor of Public Health program. The Colorado School of Public Health also will have access to research dollars specifically designated for such schools, enhancing research, service and teaching programs at all partner institutions.

“The need for the school of public health is really two-fold,” said Dr. Reynolds. “We need a trained workforce not only to understand the public health problems that are out there, but to help solve these problems as well. There is presently no accredited school of public health in the Rocky Mountain region, so the need is great.”
As More People Move to the Country, EHASL Assesses Chemical Exposure Risk

The dream of a little (or big) place in the country is incredibly enticing to many Americans. Visions of inexpensive land, wide open spaces, fresh air, roads free of traffic and noise, and crickets chirping at night are tempting an ever-growing number of people to put down roots in rural areas. But the fantasy of utopia is often disrupted by the reality of moving next to productive agricultural operations, and sharing in the risks associated with farming.

From 1980 to 1997, rural residential land use increased by 31 percent according to the Economic Research Service of the United State Department of Agriculture. Of those residential lands, 40 million acres (60 percent of all rural residential lands) are in the largest lot-size category, more than 10 acres. While acres of farmland in production has slightly decreased during this time, residential uses (ranchettes, one-to-three acre properties and subdivision “islands”) are increasing. With residential communities in such close proximity to agricultural operations, environmental scientists are working to assess the chemical exposure of people who live by the farm, but may not work on the farm.

“We increasingly are seeing landscapes with highly integrated residential and agricultural property, and that leads to clashes between land uses,” said Dr. Jay Nuckols, a Professor in the Department of Environmental and Radiological Health Sciences, and Director of the Environmental Health Advanced Systems Laboratory (EHASL). “We are interested in looking at exposures, particularly exposures to agricultural chemicals, in the non-farming rural population using geographic information systems (GIS) to integrate environmental and public health data, with the theory that use of this technology can result in a more reliable risk assessment.”

In collaboration with his colleague Dr. Mary H. Ward, who is an epidemiologist at the National Cancer Institute, Dr. Nuckols began studying rural residential exposures in Nebraska in the mid-1990s. In a first-of-its-kind study published in 2000, they found that GIS could be used to accurately reconstruct the spatial relationship between location of crop fields, pesticide use and residences of participants in the health study. Using a number of resources, including satellite images dating back to the 1970s, the research team determined what surrounding crops were (mostly corn in Nebraska), chemicals sprayed on the crop (mostly from historical data on chemicals popular in a particular growing season), as well as frequency of field application. Such historical information is important for assessing risk using epidemiological methods, especially for cancer.

In a subsequent study in Iowa, the researchers also collected house dust samples from the homes of study participants. In that study, researchers further demonstrated the utility of the GIS-based approach for evaluating the association between crops, pesticide use and potential exposure by showing that the proximity of crops to the home made a difference in levels of herbicides in dust samples found in the home.

“We also have preliminary data that indicates the more crop acreage surrounding a home, the likelihood of detecting herbicides in non-farmer residences increases to nearly the same likelihood as that for a residence of a farmer, which is quite high,” said Dr. Nuckols. “This is a very important study in terms of understanding potential risk to non-farm rural residents from nearby agricultural pesticide use. Only by accurately assessing risk can we begin to mitigate any concerns.”

Dr. Nuckols and Dr. Ward, who is now an adjunct faculty member with ERHS, are currently working on a similar study underway in the Central Valley of California. In collaboration with scientists from the University of California-Berkley and the California Health Department, the study is looking at the association between pesticide use and other environmental contaminants, and childhood leukemia.

“This diagram shows how overlays – for example, individual maps showing contaminant source, aquifers and well locations – are turned into a composite map using GIS. The composite provides a better picture of what is happening in and on the ground.”

“The more acreage a lot has, the more the non-farmer looks like a farmer in terms of exposure.”

– Dr. Jay Nuckols
Safety Team Awarded Grant to Develop Training Programs for Construction Industry

The National Institute for Occupational Safety and Health and the Center to Protect Worker’s Rights have awarded Drs. Peter Chen and John Rosecrance of the Safety Management Applied Research Team at Colorado State University a five-year, $750,000 grant to develop safety training programs for the construction industry.

More than nine million construction workers build and maintain roads, houses, workplaces and physical infrastructure. This work includes many inherently hazardous tasks and conditions such as work at heights, excavations, noise, dust, power tools and equipment, confined spaces and electricity. Construction has about 6 percent of U.S. workers, but 20 percent of the fatalities – the largest number of fatalities reported for any of the industry sectors. The four top hazards in construction, as reported by NIOSH, are falls from elevations, struck by objects, caught in or between objects or in confined spaces, and electrical shock hazards.

Dr. Rosecrance is an Assistant Professor in the Department of Environmental and Radiological Health Sciences. Dr. Chen is an Associate Professor in the Department of Psychology, College of Natural Sciences. Their team, including graduate and undergraduate students, is developing prevention strategies for safer work practices.

“Our training program combines psychological, environmental and management approaches to overcoming obstacles that impede safe work practices,” said Dr. Rosecrance.

The Safety Management Applied Research Team (SMART) also has collaborated with Dr. Mustafa Khattab and his colleagues in the Department of Construction Management, College of Applied Human Sciences, and Dr. George Thornton, Department of Psychology, to develop a skill-based undergraduate/graduate curriculum on safety leadership skills that targets future leaders in the construction industry. Community partners in this research include the Associated General Contractors of Colorado; Mechanical Contractor Associations in Colorado, Oregon and eastern Pennsylvania; construction unions in several states; and Pinnacol Assurance, the largest workers’ compensation insurer in Colorado.

Mapping Systems Help Researchers Make Sense Out of Complex Data Sets

continued from page 1

likely to be exposed by using more than one parameter to model risk. For example, the layers of data fed into the system to assess pesticide risk could include aquifer maps, crop types, timing of chemical release, types of chemicals used, drift in the environment, geologic and geographic details, well locations, and much more. Using these layers of data, GIS can provide a multi-dimensional “mapped” set of data that can be used to more accurately classify exposure and improve risk estimates.

“The use of geographic information systems for refining exposure assessment has led to a major improvement in the quality of environmental epidemiology studies,” said Dr. John Reif, a Professor in ERHS. “Dr. Nuckols and his colleagues were among the first to incorporate this technology into epidemiologic studies of environmental hazards. GIS has become a standard tool for valuating spatial relationships and has been adapted widely in health departments, federal agencies and academia. Dr. Nuckols has earned an international reputation in the application of these methods in epidemiology and is recognized as a pioneer in the field.”

Dr. Nuckols is actively involved in several areas of risk assessment including exposures to agricultural chemicals (pesticides, fertilizers, etc.) in the environment with a specific focus on risk of birth defects and cancer, including childhood cancer; exposure to agricultural chemicals by non-farming rural residents (see accompanying article); and investigation of chlorination by-products in treated water. In addition to a number of cancer studies being conducted under the auspices of the NCI-OEEB, Dr. Nuckols’ research has been sponsored by the Centers for Disease Control and Prevention (working in particular with the National Birth Defects Prevention Study), National Institute of Environmental Health Sciences, Environmental Protection Agency, and American Water Works Association Research Foundation.

“We are facing so many potential health risks, from arsenic in well water to Superfund clean-up sites, that it is absolutely critical to develop a good, solid method for exposure assessments,” said Dr. Nuckols. “The work we are doing here allows us to take what we understand in the laboratory and apply it to human populations. In order to effectively regulate industries and provide a safe environment for our population, we have to be able to assess risk. The Environmental Health Advanced Systems Laboratory has truly led the way in applications of GIS and other computer-based technologies in epidemiological risk assessment and it’s very exciting to be a part of that.”

The EHASL research program is almost totally operated by extramural funding. It is one of the few programs across the nation with a mission of improving exposure assessment for epidemiological studies using GIS. Few universities have exposure assessment programs as part of the public health training, notes Dr. Nuckols, and he believes that EHRSL and CSU are well suited to fill this need with strong programs in toxicology, epidemiology, earth sciences and environmental engineering.

“I expect the demand for environmental health professionals schooled in GIS and exposure assessments to increase rapidly as the tool is more widely accepted within the field,” said Dr. Nuckols. “The key is having the technology, faculty, research programs and curriculum in place when students come knocking at our door. Right now, EHASL is doing its part as an internationally recognized research program in this highly innovative field.”
Colorado State University’s High Plains Intermountain Center for Agricultural Health and Safety (HICAHS) has received a two-year, $504,000 grant from the National Institute for Occupational Safety and Health. HICAHS will direct a group of 10 university-based agricultural safety and health research centers in an effort leading to a national public health campaign to prevent deaths and serious injuries from tractor-related accidents.

Tractors overturning onto the operator, people being run over or becoming entangled in power takeoffs, and collisions with non-farm vehicles on public roads are the leading causes of death and serious injury in the nation’s agricultural industry. More than 250 farmers, family members and farm employees die annually in such incidents, half of them when a tractor overturns and crushes the operator. University of Kentucky researchers estimate that 4.46 non-fatal injuries occur for every fatality caused by an overturned tractor. These injuries are often severe and disabling. They also can be financially devastating, causing immediate and long term medical expenses and the loss of family farms when an owner-operator is incapacitated.

“The funding will allow the NIOSH-supported Centers for Agricultural Disease and Injury Research, Education and Prevention and the National Children’s Center for Rural and Agricultural Health and Safety to fill current gaps in their knowledge base and to explore new techniques to promote safer tractor use,” said Dr. Stephen Reynolds, Director of HICAHS and a Professor in the Department of Environmental and Radiological Health Sciences.

Advancements in technology, such as rollover protective structures, or ROPS, can prevent death and injury from overturns. When used with seat belts, ROPS have proven effective at virtually eliminating fatalities and serious injuries. However, more than half of the approximately 4.7 million agricultural tractors in the United States lack ROPS.

“We are pleased to support this initiative, which enables the centers to join in an unprecedented team effort on this compelling public health issue,” said NIOSH Director John Howard. “Finding effective ways to promote tractor safety is a tremendous national challenge to which we and our partners are bringing new resources.”

Under the initiative, the Centers for Agricultural Health and Safety will:
1. Study the costs of injuries from farm tractor overturns and highway collisions and identify who bears those costs.
2. Assess the impact of changes in ROPS standards, regulations and technology and their effect on future ROPS availability.
3. Examine the acceptability and procedures for financial incentives to retrofit tractors with ROPS.
4. Create a database of potential partners to help guide the planned national campaign and launch an intranet to facilitate communication about tractor safety among the centers.

The most ambitious of the projects, involving eight of the 10 centers, will test community-based social marketing in 36 venues across the United States. Social marketing seeks to influence behavior to benefit the intended audience.

Advancements in technology, such as rollover protective structures, or ROPS, can prevent death and injury from overturns.

We are eager to see if we can use some of the techniques developed in the last few decades to sell tractor operators on safer practices,” said Dr. Reynolds. “Unless we can begin changing attitudes and behavior, we are not going to solve this problem.”

The Centers for Agricultural Health and Safety represent a major NIOSH effort to protect the health and safety of agricultural workers and their families. They were established as part of a NIOSH initiative in 1990 to address the nation’s pressing agricultural health and safety problems. The centers are located across the country to respond to the issues unique to each region. NIOSH also supports the National Children’s Center for Rural and Agricultural Health and Safety in Wisconsin.

Students Take Environmental Health to the Community

Environmental health undergraduate students are encouraging local elementary students to “Act Locally, Think Globally,” through a service-learning project that teaches key environmental health concepts with engaging exercises, games and incentives.

Service learning is an important part of the undergraduate educational experience in the Department of Environmental and Radiological Health Sciences, and students recently took the Environmental Home Program (EHP) into the Big Thompson Elementary community to encourage individual behaviors that have positive global impacts. The EHP was developed by Judy Heiderscheidt, recently retired ERHS Undergraduate Coordinator and alumna, to teach key environmental health concepts including sustainability, waste minimization, pollution prevention, resource conservation and chemical safety in the home.

EHP received a $500 grant from the Service Learning and Civic Engagement (SLCE) office at CSU to develop a syllabus and execute the project. Dr. David P. Gilkey, an Assistant Professor in ERHS, met with the Big Thompson Elementary school principal and three third and fourth grade teachers, and arranged to have EHP presented to three classes with 25 students each.

Five environmental health students enrolled in EH 220 and three upper-division EH students participated in the project. Students attended out-of-class weekly sessions for six weeks – for a total of 12 sessions – prior to the first classroom session to learn content, methods and practice delivery.

“ERHS students and the EHP were received very well by the Big Thompson Elementary students and their teachers, resulting in an invitation to return and continue the program in spring 2007,” said Dr. Gilkey. “Student performance was assessed through a questionnaire revealing 92 percent said our students did a good job, and reflecting the lessons learned through the program. Just as important, a high percentage had talked with a family member about the environmental health program. The seeds were planted!”

Dr. Gilkey noted that the environmental health students were required to write reflective papers about their experience and present back to the EH 220 class. “The net outcomes were monumentally successful for the Big Thompson Elementary and CSU students,” said Dr. Gilkey. “I encourage everyone to look for opportunities to develop service learning projects with partners in the community because everyone benefits.”

For more information on the Environmental Home Program or environmental health service learning, contact Dr. Gilkey at dgilkey@colostate.edu.

Alumnus Takes on Director’s Position at NIH

James Herrington, PhD (2002, Epidemiology), recently joined the National Institutes of Health as Director of the Division of International Relations (DIR) at the Fogarty International Center.

Under Dr. Herrington’s leadership, the DIR develops new partnerships between U.S. scientists and institutions, and counterparts abroad to advance research and training in the biomedical and behavioral sciences. DIR works on behalf of the NIH to identify opportunities for collaboration with foreign science funding agencies, the U.S. Department of State, other U.S. technical agencies, and international organizations.

Dr. Herrington and his Vietnamese counterparts at a recent Joint Committee on Science and Technology meeting in Hanoi.
Sun Rays Give Way to X-Rays for ERHS Diagnostic Imaging Specialist

The outdoors have always been a part of Dr. Susan Kraft’s life, so it’s little wonder that her first career in forestry took her to Oregon, where she worked for the Forest Service, and then to the University of Alaska in Fairbanks, where she studied wildlife management. What’s a little harder to explain is how she made the jump from the forest to the Department of Environmental and Radiological Health Sciences where she is an Associate Professor and Co-director of the Robert and Eva Knight Magnetic Resonance Imaging Suite at the James L. Voss Veterinary Teaching Hospital (VTH).

“When I went to Alaska, I was looking for adventure and loved working in the outdoors,” said Dr. Kraft. “While there, I worked for a number of veterinary clinics. My favorite job was working with veterinarians who developed vaccines for brucellosis in reindeer. I also spent a whole summer on the Arctic coast, in the Arctic National Wildlife Refuge, doing population studies on waterfowl. My interest in veterinary medicine grew and I decided to pursue a veterinary degree at Washington State University.”

Upon graduation, Dr. Kraft practiced in Anchorage for two years, before heading back to Washington State where she completed a residency in radiology and her graduate degrees as well. Today, she is board certified in diagnostic imaging and veterinary radiation oncology, and plays an active role in clinical care at the Flint Animal Cancer Center (ACC) at the VTH. In addition, Dr. Kraft is actively involved in research projects revolving around imaging tumors using Magnetic Resonance Imaging (MRI) as well as Magnetic Resonance Spectroscopy, and teaching in the Professional Veterinary Medical Program and graduate programs on diagnostic imaging.

Before coming to Colorado State in 2000, Dr. Kraft and her husband, Dr. Randy Basaraba, who is an Associate Professor in the Department of Microbiology, Immunology and Pathology (MIP), were on the faculty at Kansas State University. K-State has a great teaching program, said Dr. Kraft, but it was difficult to say no to a faculty position at Colorado State University that allowed her to pursue her interests in MRI and cancer diagnosis and treatment.

“I think what I find so fascinating about MRI is that it provides such a literal, exquisite picture of the body,” said Dr. Kraft. “The information it provides is anatomically detailed, but also biochemically based and it tells you about tissue function as well.”

Dr. Kraft’s research focuses on three particular areas. Working with Dr. Susan LaRue and other oncologists at the ACC, she is looking at tumor physiology including radiation effects, perfusion of tumors, drug delivery and tumor vascularity. She is using Nuclear Magnetic Resonance (NMR) to look at the metabolic profile of tumors in a non-invasive way. Her research team is comparing the results of metabolic profiles in vivo with NMR results of biopsy samples. Dr. Kraft’s third area of focus is the staging of cancer in patients using MRI. MRI also is heavily used in neurology for imaging brain tumors, spinal problems and disk disease.

“Animals get the same diseases that people do so they make excellent models we can learn from and help in human medicine,” said Dr. Kraft. “What’s so wonderful about what we do here is that we are helping our animal patients with state-of-the-art cancer diagnostics and therapy, while advancing human cancer treatment.”

Dr. Kraft’s research interests are expanding beyond cancer. She is working with researchers in MIP to image tuberculosis in animals. Their hope is to use imaging as one way to evaluate the efficacy of trial vaccines, as well as to increase their understanding of the pathology of tuberculosis.

“Imaging is such a huge discipline with a lot of physics behind it,” said Dr. Kraft. “It is very complex, but rewarding. I know it has kept me very interested in my career. We attend a lot of workshops to keep up on the new technology, but the work we are able to do because of that technology makes it all worthwhile.”

Dr. Susan Kraft reviews an MRI of a dog’s spine.
Helen Schledewitz didn’t have to look too far for her dream job. It was, after all, the same place where she studied for her bachelor’s degree and her master’s degree. The same place where all her mentors were, and even the same office space that was hers as a graduate student. Schledewitz didn’t have to look beyond the Department of Environmental and Radiological Health Sciences because it already felt like home.

As an industrial hygiene consultant with the Health and Safety Consultation Program at Colorado State University, Schledewitz is helping to create safer work environments in Colorado. Originally funded by Congress in the 1970s, the program’s non-punitive, no-cost approach makes workplace safety a reality for small companies. Schledewitz has worked for the program since 2004. A Colorado native, she began her career at CSU as a non-traditional, undergraduate student in chemistry, but was recruited over to environmental health with Dr. Kenneth Blehm as her advisor.

“I was very fortunate to have Ken as an advisor, he just took me under his wing and he also really encouraged me to pursue my master’s degree,” Schledewitz said. “From the moment I arrived at the department, I felt like one of the family. As a graduate student, I was blessed to have great advisors and wonderful mentors. I wanted to do something where I could help people, but still be a scientist. I found exactly what I was looking for. I work with such wonderful people – the IH and safety consultants are amazing, and Del Sandfort is an incredible boss – and I just love coming to work every day.”

After graduating from CSU, Schledewitz worked at Los Alamos for three years before returning “home” two years ago. Initially, she worked part-time for both Del Sandfort and Dr. Stephen Reynolds, before eventually committing full time to the Health and Safety Consultation Program. She now spends much of her time in the field, visiting companies across Colorado and helping them create safer workplaces. She carefully researches each client and their industry looking for safety concerns, then conducts an initial interview and inspection, helps the client create a health and safety plan, provides advice on putting the plan into action, and follows up to ensure things are going well.

“My first priority is the worker,” Schledewitz said. “My favorite part of this job is working with the workers. But if I can’t help managers help workers, than I haven’t succeeded. I want them to get excited about health and safety, to make it fun, to give them the tools, education and encouragement they need, to empower them to make changes that will create a safer and more productive workplace with fewer illnesses and injuries.”

Schledewitz particularly enjoys working with heavy manufacturing and heavy construction. She took a welding course to better understand welding safety concerns and says she learns new things every day at every job site. When she gets a cool reception from some of the workers, she engages her secret weapon – tattoos. Schledewitz, who sports a substantial collection of body art, finds her tattoos can be the trick to breaking down communication barriers with recalcitrant construction workers and heavy machinery operators. The tattoos came in handy when she was working in New Orleans as part of FEMA’s emergency plan to protect workers participating in clean-up efforts.

“Working in industrial hygiene isn’t just about hanging monitors on people,” said Schledewitz. “You really have to enjoy working with people, relating to them and their situations, and understanding their concerns. The challenge is not uncovering health and safety concerns or looking at the best ways to solve those problems, it’s working with people and helping them to change not only their work place, but their work culture.”

When she can, Schledewitz also enjoys taking graduate students into the field with her on site visits.

“I want to show them that there is more to being an industrial hygienist than science, you have to have genuine people skills, and genuinely care about people,” said Schledewitz. “I try hard to be a good role model for the graduate students, and encourage them to be grateful and humble and learn something new every day.” A lesson she practices as well.
New Undergraduate Advisor/Internship Coordinator Steps In

When Erin Reichert has a question about processes at Colorado State University, she learns all over again what it feels like to be a student. As she is transferred from one person to the next, she reminds herself that this is what the students she advises go through every day. If she gets the answer to her question, it’s one more thing the students don’t have to figure out. They can just come to her, and that’s exactly what she wants.

Reichert took over the position of ERHS undergraduate advisor/internship coordinator on January 3 after Judy Heiderscheidt retired. She is learning the inner workings of University procedures and policies so that she can not only advise students on classes and arrange internships, she can help students navigate the administrative and paperwork maze that often is a necessary part of university life.

“When students have a question, I want them to be able to come to me for the answer,” said Reichert. “I’m trying to offer ‘one-stop shopping’ with very personalized service for all our undergraduate students, who sometimes can be overwhelmed by the complexity of the university system and by trying to find answers to what seem to be fairly straightforward questions. And if I don’t have the answer, we’ll find it out together. I’m learning along the way, too.”

Reichert received her undergraduate degree in psychology and her master’s in counseling and college student development. She worked at Indiana University for three years with open option students before coming to Colorado State University in 1999. For three years, she worked as an open option counselor before joining the College of Veterinary Medicine and Biomedical Sciences as a career counselor. When Heiderscheidt left her position, Reichert joined the Department of Environmental and Radiological Health Sciences.

“It’s been a great move for me,” said Reichert. “The students in ERHS are just phenomenal and there are so many great opportunities for them, it’s just exciting to be a part of their educational development and see the careers available to them.”

Reichert, who is the faculty advisor to the Environmental Health Student Association, also keeps busy working with employers who are looking for interns. Internships are an important part of the environmental health training program, with most students completing two or three before graduation.

“This summer, we have one student with an internship in South Africa doing an epidemiological study on leopard prey species,” said Reichert. “We have another student heading down to the Centers for Disease Control in Atlanta, and a number of students who will be interning with health departments around the state. I really encourage employers to contact me even if they are not interested in an internship. We are always looking for mentors, for people our students can job shadow, and for people willing to provide informational interviews. Our students benefit from the wisdom and experience of those out in the working world, even if it’s just sitting down for an hour to talk.”

In addition to her advisory and internship coordinator responsibilities, Reichert teaches the freshman and senior seminars covering skills for success while in school, and skills for success after graduation. As she spends more time in her job, Reichert also will expand her job responsibilities to include recruitment. The ERHS undergraduate degree program, currently with 75 students, would like to see its enrollment numbers increase.

“Our alumni continue to spread the word, but we have work to do to create awareness of the ERHS program,” Reichert said. “That includes bringing our message to schools, college fairs, career fairs, and working with our alumni to get them involved in outreach programs, whether through us or through their local environmental health associations.”

Reichert can be reached at (970) 491-7910 or at Erin.Reichert@colostate.edu.
ERHS Seeks Private Support for Varian Trilogy Linear Accelerator

The Department of Environmental and Radiological Health Sciences is a partner, along with the Flint Animal Cancer Center (ACC), in the acquisition and operation of the Varian Trilogy Linear Accelerator. Because no state or federal funds are available to offset costs – acquisition costs of the accelerator are estimated to be around $3 million – private support is essential to the success of the endeavor. Clinical fees also will be applied to the cost of operation.

“Installation of the Varian Trilogy will get us up to state-of-the-art technology and help us be more competitive in research grant applications, as well as help advance our veterinary oncology clinical program,” said Dr. Susan LaRue, Associate Professor in Cancer Biology and Oncology, Department of Environmental and Radiological Health Sciences. “We will be the only veterinary hospital in the world with this type of capability and we will be leading the way in improving radiation therapy, not only for our companion animals, but for people, too.”

The new linear accelerator offers advantages that will enhance delivery of radiation therapy as well as reduce adverse side effects in patients because of increased accuracy in focusing the beam on the tumor and sparing normal tissue. It also gives the opportunity for cancer treatment specialists at the ACC to do something they have never done before – radio-surgery – including treatment of osteosarcomas and brain tumors.

To make a gift in support of the Varian Trilogy Linear Accelerator, please fill out the gift form in this edition of Emitter Magazine, marking ERHS Department Research, or you can give on-line by going to https://advancing.colostate.edu/cvmbs/erhs/give, or contact Paul Maffey, Director of Development for the College, at (970) 491-3932 or e-mail at: Paul.Maffey@colostate.edu.

“We will be leading the way in improving radiation therapy not only for our companion animals, but for people, too.”

Dr. Susan LaRue
ERHS Calendar

June 25-28 – National Environmental Health Association 70th Annual Education Conference and Exhibitions, San Antonio, Texas. For more information, go to www.neha.org.

Aug. 21 – Fall semester begins at Colorado State University.

Sept. 18-23 – Colorado Environmental Health Association 51st Annual Educational Conference and Exhibition, Vail, Colo. For more information, go to www.cehaweb.com.

Oct. 6-8 – Colorado State University Homecoming and Family Weekend.


Environmental Health Alumni Group Forming

In response to growing interest from alumni of the Environmental Health Program at Colorado State University, an alumni group is in the works. The CSU Environmental Health Alumni Group will provide networking and professional development opportunities for CSU graduates and current students.

Organizers anticipate that the inauguration of the organization will be at CSU’s Homecoming and Family Weekend, scheduled for Oct. 6-8, 2006. On that Friday, alumni hope to meet informally with environmental health students over dinner. On Saturday, alumni and students alike are encouraged to cheer on the CSU Rams at Hughes Stadium. To volunteer with planning activities or for more information regarding upcoming events, contact Mark McMillan at Mark.McMillan@cehaweb.com or at (303) 692-3140.