

COLLEGE OF VETERINARY MEDICINE

2008-2009 Annual Report

The College of Veterinary Medicine continues to be one of the leading veterinary medical institutions in the United States, an important contributor to the North Carolina economy, and a force for innovation in One Medicine - One Health to the benefit of animals, humans, and the environment as a whole.

CHANGES IN SERVICE ENVIRONMENT

Economic recession and budget reductions: The on-going recession has the potential to seriously damage College programs. Budget strategies are currently focused on reductions that minimize impact on core missions and will allow rapid recovery when the economy improves. However, the success of the current strategy is predicated on continued financial strength of the hospital. In the short term, there will be added strain on our teaching hospital as we work to increase net income to support positions that lose state funding. There will also be more students per clinical rotation (increased student: faculty ratios). The current economy is also directly affecting DVM students. In the 2008-2009 year we awarded \$295,057 in direct scholarships. The economy led to losses in the investments supporting these awards. This resulted in only \$114,333 in scholarships available for the 2009-2010 year.

Construction and renovations: The Randall B. Terry, Jr. Companion Animal Veterinary Medical Center construction project was converted to a single prime bid which allowed the project to proceed under budget with \$5.1M in equipment, \$800K in owner reserve and \$1.5M in construction contingency. October 2009 and November 2010 are the projected completion dates of the Centennial Biomedical Campus parking deck and Terry Center, respectively. The William Rand Kenan Library will have a significant renovation during the summer of 2009 that must be completed before students return at the beginning of August. Additionally, renovations were done to the finger barns and extensive facility repair and renovations were completed in the Large Animal Hospital.

Veterinary applicants, numbers, and their selected future careers: Applications to the veterinary degree program increased 14.5 % in 2008-09 (23% increase for residents and 9.5% increase for non-residents). To address the predicted critical shortage of veterinarians, particularly in governmental service, public health and food animal practices, the CVM is taking the following actions: 1) Admissions committee members are made aware of shortage areas. 2) Tracked admissions programs have been established to address critical shortage areas in food animal practice and laboratory animal medicine. 3) Students interested in shortage areas are mentored to prepare them for those careers, with a goal of nurturing their interest and providing them with the experiences necessary to be successful in those careers.

COMPACT PLAN: MAJOR INITIATIVES

Enrollment Increase: A request to increase enrollment has been submitted as part of the University's response to the UNC Tomorrow report. An enrollment increase will require substantial investment in a new academic building and renovation of current facilities.

One Medicine - One Health: As a result of our 3-year efforts to site the National Bio and Agro Defense Facility in Granville County, NCSU and the state received national recognition as one of the final five alternate sites for this \$1.65B federal diagnostic and

animal/public health research facility. We were not chosen as final site in January 2009; however, our efforts helped raise the visibility of the CVM and helped to forge new relationships that led to the development of initiatives such as the One Health Intellectual Exchange Group, a monthly seminar and discussion series at the NC Biotechnology Center, with participants from the CVM and other Triangle medical schools as well as other scientists in the human, animal and environmental health sectors.

Clinician Scientist Training Program: The Clinician Scientist Focus Area (CSFA) has been a CVM initiative which continues to develop and grow. "Introduction to Research at the CVM" (VMB 991D) is now offered in the fall semester as a one-week selective and will be required for all students interested in the CSFA. Dr. Gregg Dean received a \$1.4M NIH National Research Service Award Institutional Research Training (T32) Grant to support the Comparative Medicine and Translational Research Training Program.

Animal Welfare, Ethics, and Public Policy: The CVM offers continued leadership in this area and is playing a key role in the establishment of the American College of Animal Welfare and the creation of Shelter Medicine residency standards.

Research Resources: The CVM's Laboratory Animal Resources (LAR) successfully completed a reaccreditation site visit by the Association for the Assessment and Accreditation of Laboratory Animal Care-International and was awarded a \$161,470 NIH grant to improve animal resources. However, due to the results of a recent operational efficiency and effectiveness review by the College, LAR is in the process of being administratively restructured.

International Programs: The CVM hosted administrators from several international institutions including University of Sao Paulo; National Agriculture University of Honduras; and Colima Veterinary School in Columbia. Discussions are underway regarding program collaborations and exchanges with University of Leon, Spain; University of Surrey, U.K.; Ecole Nationale Veterinaire de Toulouse, France; and several Indian veterinary institutes. More than 30 DVM students participated in veterinary extramural studies abroad including: 12 students in a two-week course in Animal Acupuncture at Zhejiang University, China; one student to the Netherlands for swine medicine; two students to Mongolia for rural/food and companion animal medicine; one student to Uganda to study the mountain gorilla and public health; and one student to Chile to study pork production. The College also hosted 21 students from foreign veterinary colleges and 34 clinicians participated in the CVM's international visitors program.

DIVERSITY: INITIATIVES AND PROGRESS

Students: The DVM Class of 2009 had more African American graduates (4) than any other in the history of the College and the recently admitted Class of 2013 includes more African American students than any previous class (9) in addition to three other minority students (15% minority students total). (Last year in the US, the largest number of African Americans entering any veterinary college, excluding Tuskegee, was 4). The College conducted five cultural awareness modules for students last year and Arlene Jimenez-Serrano ('09) received the University Student Diversity Award.

Faculty/Staff: Eight CVM faculty members serve as mentors as part of the NC State Initiative for Maximizing Student Diversity. Dr. Allen Cannedy received the University Administrators Diversity Award, Dr. Jill Barnes received the University Faculty Diversity Award and Valerie Ball received the University Staff Diversity Award.

INSTRUCTIONAL PROGRAM ADVANCES

Evaluation: The College is continuing an ongoing evaluation of the DVM professional degree curriculum. The Class of 2009 was the first class required to complete “Clinical Competency” booklets which list clinical competencies on which students must be evaluated during the four years of formal veterinary education. Effective May 2009, an Honors, Pass, Marginal, Fail grading system for senior clinical rotations was implemented.

Electronic resources: CRESS (the Clinical Rotation Evaluation and Scheduling program) was updated with new features. This program has resulted in a dramatic increase in returns of faculty evaluations by members of the senior class. Improvements were made to the dvm.ncsu.edu domain that is home to on-line DVM course materials for access by all CVM staff, faculty and students. Improvements were also made to the centralized, script-driven video library within the site.

Program development: Veterinary Credentialed Responder training was further incorporated into the curriculum. A Wellness Training Program is being developed to expose students to more primary care opportunities.

RESEARCH

Extramural research awards totaled \$12,726,206 which represented an approximate 7.2% decrease versus the same time last year. The federal government remains the primary source of extramural grants awarded with 61.5% (\$7,826,466 including miscellaneous, "flow through" awards) of sponsored awards coming through federal agencies including NIH (NCI, NIEHS, etc.), NSF, EPA, DOD, and the USDA. Industrial, foundation, and state- sponsored awards summed to 10.5% (\$1,335,880), 11.3% (\$1,443,364), and 3.1% (\$399,694) of the total, respectively.

Volume of activity											
Original Works in peer-reviewed journals	Case Reports in peer-reviewed journals	Review articles in peer-reviewed journals	Books	Book Chapters	Abstracts from scientific & professional veterinary conferences	Electronic Media	Invited Research presentations, professional audiences	Continuing Education presentations	Bulletins Booklets etc.	Copyrights	Patents
244	39	37	11	176	279	31	559	88	26	0	7

EXTENSION: INITIATIVES AND PUBLIC SERVICE ACTIVITIES

Clinical Services:

- The Veterinary Teaching Hospital (VTH) had a projected 22,707 case accessions with revenue of \$17.91M, Practice Plan revenue of \$3.79M, and revenue over immediate and non-capital operating expenses of \$1.10M. \$680,000 was spent on VTH capital improvement. A \$200,000 special appropriation from the state legislature was used to establish the Veterinary Medicine Clinical Teaching and Research Fund.
- The CVM established additional educational and clinical service opportunities through the VTH including an equine brachytherapy and bone-marrow transplant service. Triage and emergency services were restructured, Dr. Rita Hanel was appointed director of the Small Animal Emergency Service, and two new emergency clinicians were hired.

- The VTH was reaccredited by the American Animal Hospital Association (AAHA) following an on-site evaluation. AAHA gave the VTH high marks in all areas with perfect scores for emergency and critical care, examination facilities, and leadership.
- Planning efforts were completed for the future Companion Animal Outpatient Health Center (existing companion animal VTH) with approval by the University Space Committee.

Veterinary Extension: The ruminant health management team was tasked in December 2008 to redefine their instructional and clinical service activities to eliminate in clinic service roles and concentrate on teaching locally and through external relationships with private practices that still maintain substantial bovine and small ruminant activities. Outreach will be expanded by CVM faculty working in collaboration with extension agents and through distance education offerings. This FY, Dr. Mark Alley trained approximately 50 extension agents to develop parasite control programs and prepare them for animal welfare questions/concerns that have been raised in the media. Drs. Brenda Stevens and Kelli Ferris participated in several animal seizures and cruelty investigations in North Carolina. The CVM assumed full responsibility for the medical and surgical care of the animals at the Wake County Animal Care, Control & Adoption Center.

College Relations: The College had several high profile pieces in the local and national press including Dr. Denis Marcellin-Little's pioneering work with Dr. Ola Harrysson in the College of Engineering on osseointegrated implants; the establishment of the VTH canine bone marrow transplant unit; Dr. Ed Breitschwerdt's work linking Bartonella bacteria to chronic human ailments; Dr. Steve Suter's research regarding the use of soy in treating canine cancer; and the cancer research collaboration between the CVM and the UNC Lineberger Center. The College also produced two issues of CVM magazine.

Continuing Education: The College conducted 39 professional continuing education programs this FY with 2,426 total registrants. Partnering with NC Veterinary Medical Association (NCVMA), the CVM organized and administered the Annual NC Veterinary Conference in November with a total of 1,183 registrants. The College organized the Annual Equine Medicine Symposium in February and the Annual CVM Research Forum in March.

Student Services: The CVM hosted seven admission information sessions with a total of 414 attendees. The College organized and arranged a job fair held during the NC Veterinary Conference with more than 35 veterinary clinics represented. Dr. Betsy Taylor conducted 25 presentations through the Counseling Office including modules on stress management, time management, and nutrition.

Alumni: Dr. Meg Sutherland-Smith ('89) was selected as the 2008 CVM Distinguished Alumna and Dr. Tracy Hanner ('86) received the Association of American Veterinary Colleges (AAVMC) Iverson Bell Award for his contributions in promoting opportunities for racially and ethnically underrepresented individuals in veterinary medical education. The Class of 1989 held their 20th Reunion at the CVM in May and Alumni receptions were held at the AVMA meeting in New Orleans and the NC Veterinary Conference in RTP.

FACULTY: HONORS, AWARDS AND RECOGNITION

New hires: **Department of Clinical Sciences:** Dr. Christopher Scott Bailey, Assistant Professor of Theriogenology; Dr. Kimberly Chappell, Clinical Assistant Professor of Clinical Studies Core Program; Dr. Richard McMullen, Assistant Professor of

Ophthalmology; **Department of Molecular Biomedical Sciences:** Dr. Gabriela Seiler, Associate Professor of Radiology;

Department of Population Health and Pathobiology: Dr. Luke Borst, Assistant Professor of Anatomic Pathology; Dr. Teresa Leavens, Research Assistant Professor of Pharmacology and Risk Assessment; Dr. Adam Moeser, Assistant Professor of Swine Health Management.

Honors and awards: **Department of Clinical Sciences:** Dr. Thierry Olivry - President, European College of Veterinary Dermatology; Dr. Eleanor Hawkins - President-Elect, American College of Veterinary Internal Medicine (ACVIM); Dr. Barbara Sherman - President, American College of Veterinary Behaviorists; Dr. Keven Flammer - Association of Avian Veterinarians Lifetime Achievement Award; Dr. William Krug - American Veterinary Dental College Robert Wiggs Outstanding Candidate Award; Dr. Jody Gookin - American Physiological Society Teaching Section Research Recognition Award; Dr. Terry DeFrancesco - NCSU-VTH Clinician of the Year; Dr. Ed Breitschwerdt - NCSU Outstanding Extension Service Award; Dr. Steve Marks - Pfizer Distinguished Teaching Award; Dr. James Hummel - The Finley Fincher Coat of Excellence; Dr. Steve Suter - The Maverick Altman Coat of Excellence and The Cody McGrath Coat of Excellence; Dr. Kyle Mathews - Huffman Leadership Award; **Department of Molecular Biomedical Sciences:** Dr. Chris McGahan - Association for Research in Vision and Ophthalmology Fellow; Dr. Philip Sannes - NCSU Outstanding Teaching Award; Dr. Jorge Piedrahita - Pfizer Animal Health Award for Research Excellence; **Department of Population Health and Pathobiology:** Dr. Donald Mueten - President, American College of Veterinary Pathologists; Dr. Peter Farin - Vice President, International Embryo Transfer Society; Dr. Barrett Slenning - USDA Advisory Committee on Foreign Animal and Poultry Diseases; Dr. Isabel Gimeno - American Association of Avian Pathologists Bayer-Snoeyenbos New Investigator Award; Dr. Adam Moeser - NIH Mentored Clinical Scientist Development Award (K08) and American Gastroenterological Association Foundations Elsevier Pilot Research Award; Dr. Derek Foster - NIH Mentored Clinical Scientist Development Award (K08); Dr. Dennis Wages - NC Distinguished Veterinarian Award.

STUDENTS: HONORS, MEASURE OF QUALITY AND STUDENT ACTIVITIES

Class of '09: 75 Doctor of Veterinary Medicine degrees, seven Doctor of Philosophy* degrees and nine Masters* degrees were awarded to the graduating class. *(Includes Summer '08 graduates) 19 residents and 13 interns completed their programs.

Class of '13: The incoming class includes seven individuals with advanced degrees: 2 PhD's, 4 MS's and 1 Masters of Management. The class also includes two students in combined DVM/PhD programs and the first student in the combined DVM/MBA program.

Average GPA and GRE data on admitted students						
	GRE Verbal	GRE Quantitative	GRE Analytical	Cumulative GPA	Last 45 credits GPA	Required GPA
Resident	520	645	4.33	3.65	3.72	3.64
Non-resident	523	655	4.42	3.85	3.87	3.82

Scholarships: Marsha McDowell ('09) - American Association of Equine Practitioners/American Live Stock Insurance Scholarship; Rachel Acciacca ('11) - Army Health Professionals Scholarship; Katy Holmes ('11) - Boykin Spaniel Foundation Scholarship.

Individual honors: Jenessa Gjeltema ('11), Christina Howard ('12) and Chelsey Miller ('11) - Morris Animal Foundation Research Stipend Awards; Cynthia Willson ('11) - 2008 American College of Veterinary Pathologists Student Poster Award, Experimental Disease Category - 1st Place; Jenna Bunton ('13- Food Animal Scholar) - US Poultry and Egg Association Poultry Science Student of the Year; Kim Struble ('10) - Western Veterinary Conference Student Leadership Award; Sheba Robinson ('09) - American Society of Laboratory Animal Practitioners Award; Katherine Ratzlaff ('10) - Mid-Atlantic States Association of Avian Veterinarians 2009 Pamela M. Slack Award; Christine Long ('11) - American Association of Bovine Practitioners Outstanding Student Award; Dr. Kristen Hobbie (PhD student '09) - Phi Zeta Research Award

Club honors: CVM Student Chapters of the American Association of Feline Practitioners and the American Veterinary Society of Animal Behavior both received National Student Chapter Awards.

FUND-RAISING: PRIVATE FUND-RAISING SUCCESSES

As of 4/30/09, the CVM raised \$6,579,023 in FY 2009 with \$1,639,077 given by alumni; \$910 by parents; \$11,968 by faculty/staff; \$2,611,563 by other individuals; \$882,390 by corporations; \$395,021 by foundations; \$105,901 by other organizations; \$100,884 earned from University gift deposits; and \$831,309 given through non-government grants. The College also completed the NCSU Achieve! Campaign with \$95,625,288 raised in total, 191% of the CVM's original \$50 million goal.

Randall B. Terry Challenge Fund: \$814,048 in total gifts and pledges (not including pledge payments) were received for the Terry Challenge Fund this FY as of 5/31/09. Key gifts and pledges include: \$350,000 pledge from Cindy Nord; \$250,000 pledge from Marilyn and Dean Green; \$100,000 gift from Louise Burevitch; \$15,000 gift from Nancy Dunn; and \$10,000 gift from the McMichael Family Foundation. The R.B. Terry Charitable Foundation will match all contributions to this challenge fund dollar-for-dollar.

Equine Health Center: \$224,820 in total gifts and pledges (not including pledge payments) were received for a new facility at the Equine Health Center at Southern Pines this FY as of 5/31/09. Key gifts and pledges include: \$100,000 gift from Jim Cogdell; \$25,000 gift from Charles & Christina Robinson; \$30,000 pledge from John & Deborah Wilson; \$25,000 grant by the Josh & Marie Reynolds Foundation; \$10,000 gift from Jock Tate; and \$2,500 from the Z. Smith Reynolds Foundation.

Corporate and foundation gifts and pledges: Key gifts and pledges made by corporations and foundations this FY include: \$20,000 from the Merck Company Foundation for summer research experiences for veterinary students; \$70,000 from P & G Iams for nutrition internships; \$50,000 from Nestle Purina for a nutrition residency; \$60,000 from the Fox Family Foundation for large agricultural animal summer internships; and \$88,000 from Boehringer Ingelheim Vetmedica for the CVM's heart failure program.

ADMINISTRATION: ACHIEVEMENTS AND STAFF CHANGES

The CVM underwent a 5-year Periodic Review and Evaluation of College Leadership and Programs in Fall 2008/Spring 2009.

Overall, College leadership received high marks with room for improvement noted in internal visibility and internal research support.

Administrative changes/appointments: Dr. Warwick Arden was named Interim Provost and Executive Vice Chancellor and Dr. David Bristol was appointed CVM Acting Dean in Dr. Arden's absence. Dr. Lizette Hardie was appointed permanent Head of the

Department of Clinical Sciences. Dr. Prema Arasu was named Director of Global Health Initiatives. Beth Buck was hired as CVM Director of Human Resources.

Administration honors, awards and recognition: Dr. Warwick Arden - President-Elect of the AAVMC; Kris Alpi - Medical Informatics Section/Medical Library Association Career Development Award; Patricia English - Huffman Leadership Award

Staff changes/appointments: Five staff members lost their positions through reductions in force due to the current budget situation.

Staff honors, awards and recognition: Barbara Hegarty, Damian Launer and Kelly Vanderlaske - CVM Awards for Excellence. Barbara Hegarty - University Award for Excellence.

RECOMMENDATIONS AND CONCERNS FOR THE FUTURE

The most obvious and serious concern in the short term is the economic recession. This impacts the College as follows:

- The CVM has been planning a College-initiated tuition increase proposal to help fund the computer tablet initiative and other academic enhancements. It is unknown what effect the current economic crisis and the political fallout of that crisis will have on the success of the proposal.
- More students are graduating without confirmed employment which could adversely impact plans to grow future classes.
- The funding received for construction of the Terry Center will not cover long term operational costs. Funding for the increased SPA and EPA personnel needs associated with the expansion of the physical plant must be identified.
- Economic stress leads to emotional consequences. The Counseling Office will be initiating a Wellness Outreach Program that offers workshops and training monthly throughout the academic year with a particular focus on students. The program will also be a valuable resource available to CVM staff and faculty when traumatic events occur in the life of the College, such as the tragic and untimely death of Dr. Monte McCaw earlier this year.
- The budget situation will limit flexibility and the options available to the CVM for all departments, units and programs. However, the search for a permanent PHP Department Head should be resumed within two years, and the CVM should work to strengthen programs in Infectious Diseases and Biosecurity, Food Supply Veterinary Medicine, and Public Health and Food Safety.

Recruitment and retention of faculty is an ever-increasing challenge as more private specialty practices offer enhanced opportunities and salaries; continued support for the research and teaching endeavors of the faculty is critical. Additionally, the ability to grow extramural research funding continues to be challenging, though with new Administration and the stimulus package, the CVM has an opportunity to obtain significant Federal resources for the College.

NCSU FIVE FOCUS AREAS

The CVM has many excellent examples of programs and faculty research that illustrate the University's five focus areas, with several initiatives that exemplify multiple areas at once. For the purposes of this report, items are only identified under a single focus area.

Producing leaders for the state, nation and world: 1) Veterinary Credentialed Responder training, a cross-course, cross-semester program in DVM year 3, is the first instance of disaster response and preparedness certification being a part of a North American

veterinary college's core curriculum. It has garnered interest from California, Colorado, and Oklahoma to replicate our program, and an article on the program is has been accepted by the Journal of Veterinary Medical Education. 2) Dr. Peter Cowen served as an expert advisor for the CDC Field Epidemiology and Laboratory Training Program in Nigeria and participated in training and mentoring four veterinary trainees in Nigeria. 3) Dr. Jon Horowitz directs one of the four initial laboratories involved in the innovative Jimmy V-NC State Cancer Therapeutics Training Program, a collaborative initiative to encourage the next generation of cancer researchers.

Creating educational innovation: The CVM hosted representatives from 29 veterinary colleges, the AAVMC, the AVMA, and several other veterinary education organizations in early 2009 for the Organizing Symposium of the new Veterinary Educator Collaborative. The Symposium was designed to bring together a national working group of veterinary educators to develop an organization and system for sharing expertise, teaching resources and product, under the leadership of the AAVMC. Dr. Lizette Hardie was one of the organizers of the event.

Improving health and well-being: 1) Dr. Sid Thakur was awarded two substantial USDA grants directed at and having an impact on human food safety relative to Salmonella dynamics in conventional and antimicrobial free swine production systems. 2) A drug developed from Dr. Ken Adler's research and licensed through the university to a start-up biotechnology company (BioMarck, Raleigh, NC) is now in phase 2a human clinical trials and could become a new treatment for chronic bronchitis. 3) Research in Dr. Matthew Breen's lab is identifying regions of the canine genome that are associated with response to therapy in cancer patients. Simultaneously, Dr. Breen's lab is translating these canine changes to the human genome and further testing corresponding regions of the human genome for their association to prognosis.

Fueling economic development: 1) According to a recently released study by the NC Rural Economic Development Center, the equine industry accounts for nearly 20,000 jobs in the state and contributes nearly \$2 billion annually to the NC economy. The Veterinary Teaching Hospital and the Equine Health Center at Southern Pines are two of the top equine health care providers in the state and the CVM is a leader in equine medical research which will lead to further benefits for the state's growing equine industry. 2) Dr. Isabel Gimeno's laboratory has made available a novel method for diagnosis of Marek's disease in poultry and monitoring of Marek's vaccine efficacy. This method can be performed in fresh samples, frozen samples or samples collected in FTA® cards. To date, this is the only laboratory in the world offering this service. This is a very useful resource for the poultry industry in North Carolina as the differential diagnosis of viral tumor diseases is of great economical relevance.

Driving innovation in energy and the environment: 1) Dr. Mac Law is working on a project to evaluate the effects of temperature fluctuations on fish and macroinvertebrates in the Susquehanna River which will help state regulators determine safe levels of thermal discharge by power plants that are based on sound science (rather than arbitrary regulation) and help promote more economical but also environmentally safe power generation. 2) The CVM received a 2008-2012 USDA International Science and Education award (PI - Dr. Prema Arasu) which bridges sustainable livestock production practices with biofuels and environmental and public health. This joint effort between the CVM and the CALS will link NCSU with regional stakeholders and partners in India.