

College of Veterinary Medicine Compact

Final
August 31, 2000

Introduction:

Veterinary medicine is the health profession having responsibility for the direct health care of all animal species except humans. The profession is directly involved in human health and well being through efforts of veterinarians in biomedical research, food safety, public health, sustainable environment, and the human-animal bond. The College of Veterinary Medicine at NC State University is the only DVM degree program in North Carolina and one of 27 colleges of veterinary medicine in the United States. This College of Veterinary Medicine has the following vision, mission, and values:

Vision

Accomplishments of our students, graduates, faculty, and staff bring world class recognition for the College of Veterinary Medicine and NC State University.

Mission

The College of Veterinary Medicine enhances animal and human health and well being, and contributes to the economy of North Carolina and beyond through the education of veterinarians in basic biomedical and clinical sciences; research leadership and excellence in veterinary medicine and related biomedical fields; and service to the state of North Carolina through comprehensive veterinary medical services and outreach programs.

Values

1. Concern for people and animals
2. High performance
3. Quality service
4. Teamwork

Strategic Plan

A Strategic Plan for 1998-99 through 2001 was developed during FY98. The CVM cabinet held a two-day retreat that resulted in a plan with two beacons. The beacons were refined, goals and objectives developed, and the plan presented to faculty and staff during two lunchtime meetings. The cabinet reviewed this CVM community feedback. Results of the community ranking and feedback were presented to faculty and staff in a follow up meeting.

The cabinet held a retreat June 17-18, 1999, for presentation and discussion of unit initiatives. College initiatives were selected and are incorporated in the appropriate sections of this compact. The Beacons that guide the CVM strategic plan are:

Beacon 1.0 The CVM enhances career and life success of students, staff, faculty, and veterinary professionals through initiatives in curriculum and lifelong learning, development of leadership and entrepreneurial skills, and partnerships with the community.

Beacon 2.0 The CVM Animal Health and Wellness Program improves animal health, well being, and performance through medical discovery, quality service, and professional education.

US News & World Report ranks us as 5th among US colleges of veterinary medicine. Comparative rankings based on data collected by the Association of American Veterinary Medical Colleges is provided in Attachment 1. Unique benchmarks are in Attachment 2.

Organization:

The four departments in the CVM are:

- Anatomy, Physiological Sciences & Radiology (APR)
- Department of Clinical Sciences (DOCS)
- Farm Animal Health & Resource Management (FAHRM)
- Microbiology, Pathology, & Parasitology (MPP)

DOCS and FAHRM are new departments created following a 1999 collegewide reorganization. The equine faculty members and the companion animal and special species faculty joined to form the new Department of Clinical Sciences. The food animal faculty and the epidemiologists from MPP joined to form the new FAHRM department. Academic programs, including internship and residency programs, are overseen by the associate dean for academic affairs. Graduate programs and research efforts are overseen by the associate dean for research and graduate Programs. The veterinary teaching hospital (VTH) is directed by the associate dean for services who also directs the continuing education programs. The CVM has a laboratory animal resources unit with a director who also serves as the NC State University laboratory animal director reporting in that role to the vice chancellor for research, outreach & extension. We have a teaching animal unit (TAU) administered by the FAHRM department. The Center for Cutaneous Pharmacology & Residue Toxicology (CCPRT) is in the APR department and also contains the Food Animal Residue Avoidance Databank (FARAD). The CVM operates a veterinary equine research center (VERC) located in Southern Pines, NC. A director of development leads the CVM development efforts.

The cabinet of the CVM consists of the dean, the three associate deans, the four department heads, the assistant to the dean for business, the administrative assistant to the dean, and the senior faculty senator. The director of development and director of laboratory animal resources participate as needed.

History:

The School of Veterinary Medicine was established through a series of actions taken by the General Assembly of NC. House Bill 1139, passed in 1971, appropriated funds to “continue the study of the feasibility of establishing a school of veterinary medicine.” In 1974, the General Assembly established a joint commission for the Study of Veterinary Medical Education in NC. House Bill 102 (and the parallel Senate Bill 79), passed in 1975, was “An Act to Appropriate Funds for the Establishment of a School of Veterinary Medicine at North Carolina State University at Raleigh”. Legislative actions in 1977 (Senate Bill 248) provided funds for facilities. Senate Bill 248 provides the following expectations for the CVM:

- “Research and services available through a school of veterinary medicine are vital to the continued development and expansion of the livestock industry in NC.”
- “The quality of veterinary services available to the citizens will be improved through a school of veterinary medicine’s continuing education program and referral services.”
- “A school of veterinary medicine would be a great asset to the State in its effort to attract high quality industry to locate facilities in NC.”

NC State University hired Dr. Terrence M. Curtin as professor and head of the Department of Veterinary Science in January 1974 for the purpose of directing the efforts to establish a school of veterinary medicine. The Board of Trustees of NC State established in 1974 a committee chaired by trustee Grover Gore of Southport to plan the School of Veterinary Medicine. On July 1, 1975 the Board of Governors formally established the School of Veterinary Medicine. Dr. Curtin was appointed as the first dean of the School of Veterinary Medicine February 1, 1979 and served through February 29, 1992. The NC State dairy farm was selected as the site. The groundbreaking ceremony for the present facility was held on February 7, 1979, and the building was occupied in 1983. The first DVM class was admitted in 1981 and graduated in 1985. The CVM was planned and built under the administration of Chancellors Caldwell, Thomas, and Poulton. In 1987 the name was changed from School to College of Veterinary Medicine.

The Board of Governors established a purpose code (106) under which the resources appropriated by the General Assembly were directed to the programs in veterinary medicine. Also established was a practice plan modeled after the practice plan in the UNC-CH medical school. Professional fees generated in the veterinary teaching hospital are returned to units in proportion to generated revenues.

The General Assembly of North Carolina in its 1998 session extended the Centennial Campus Authority of NC State to include the College of Veterinary Medicine. This action creates opportunities for faculty to structure partnerships with both internal and external groups and for the College to obtain facilities required to support those partnerships.

Aspirations:

The CVM statements of vision and values summarize our aspirations to be recognized internationally by the accomplishments of those who deliver and those who are educated in our programs in research and animal health and wellness. The plan that guides our progress was developed through a college administrative team building process guided by an outside consultant.

We are one of the youngest programs in veterinary medicine in North America. A strong base of support provided by the state of NC allowed the CVM to recruit an excellent faculty having diverse backgrounds and experiences in other veterinary colleges. We were able to establish nationally recognized programs in research and clinical veterinary medicine. New facilities, a new faculty excited about being involved in our programs of veterinary medical education, research, and service and highly qualified students combined to result in the present national ranking. Comparative data for FY98 compiled by the Association of American Veterinary Medical Colleges (AAVMC) for the 27 colleges of veterinary medicine in the US places us 8th in total expenditures, 6th in research expenditures, 5th in state appropriations, 4th in number of veterinarians seeking the PhD degree, 27th in tuition and fees for residents of the state, 7th in mean salary for professors, 6th in mean salary for associate professors, and 3rd in mean salary for assistant professors. In the southeast, we rank 1st in nearly every category (except for tuition and fees) with the University of Florida's veterinary college being 5th in research expenditures. We want to maintain our leadership position in this region and to continue to receive national and international recognition. We will continue to be one of the most highly sought veterinary education programs in the country as measured by the number and quality of nonresident applicants.

In 1998 we ranked 10th among the 27 US veterinary colleges in NIH funding support. We want to be in the top 5. We expect that our research programs will have results that have positive economic impacts. We expect that private biomedical, chemical and pharmaceutical companies, and government agencies will want to be located in proximity to a world class college of veterinary medicine and that our desire to have a Biopark located on the CVM part of the NC State campus will become a reality within the next 5 to 8 years.

We have outgrown our facilities as documented by current master plan studies showing deficits to meet current needs that are in excess of 100,000 net square feet. This compact provides strategies to provide additional facilities for our program needs through a combination of centennial campus financing authority bonds, private gifts, and state funds.

Information technology now provides approaches for learning that include access to a growing World Wide Web, telemedicine, and distance learning. We want our veterinary students to be educated in an environment in which learning is enriched by the tools of information technology. We already educate veterinarians through many real life experiences with our veterinary teaching hospital providing our largest in-house laboratory experience. Here students learn while we provide animal health care to patients brought by concerned owners. Our field service activities and our teaching animal unit provide experiential learning on farm animals. These activities by our faculty and staff accomplish multiple goals at the same time. We provide clinical service while collecting data on spontaneous diseases, provide educational experiences for our students, and apply results of our research. Information technology will allow us to link with veterinary practices in ways that improve the flow of information about cases referred to us. This compact presents strategies to allow greater use of information technology in our DVM program. We must have and use the tools of information technology if we expect to remain in a leadership position in veterinary medicine. Faculty members are at different levels of understanding and desire to use the tools of information technology in veterinary education, service, and research. We need to encourage and support the pacesetters and also provide assistance to faculty interested in learning more about information technology. We want our peers to recognize us as leaders in the applications of information technology to veterinary education and animal health care delivery. We expect our DVM graduates to earn higher than median incomes in their career choices.

A national study of the veterinary profession was published recently (JAVMA 215: 161-183. 1999). The joint steering committee from the three organizations that commissioned the study identified six critical issues that must be successfully addressed to improve the economic health of the profession.

- Veterinarians' income
- Economic impact of large numbers of women in the profession
- Global demand for all categories of veterinary services
- Inefficiency of the delivery system
- Supply of veterinarians
- Skills, knowledge, aptitude, and attitude of veterinarians and veterinary students

Our compact contains strategies that allow us to prepare our graduates to effectively deal with these critical issues. We expect our efforts will result in our peers using our initiatives as models for their own solutions.

Our comparative position among the 27 US veterinary colleges in expenditures for research and for NIH extramural grants supports our claims of accomplishment and provide benchmarks against which we strive to improve. This compact identifies five research thrust areas, each linked by Genomic Science.

- New emerging and reemerging infectious diseases
- Environmental health
- Food safety
- Cancer
- Comparative biomedicine

These are the areas that we believe represent the greatest need by society and in which are the greatest opportunities for funding over the next several years. Our faculty will increase their expenditures from grants and contracts by at least 55% over the next five years. These efforts

will provide solutions to concerns of people for their own health and that of their animal companions. Our research efforts will enable food animal producers to be competitive in a global market and to produce healthy food for healthy people. This level of extramurally funded research will generate sufficient overhead recovery (estimated \$1.1M per year) to allow the construction of at least 100,000 gross square feet of additional research laboratory and office space.

Animal health, wellness, and sustainability programs are taught to veterinary students throughout the curriculum. These programs are delivered to the public and their animals primarily through the veterinary teaching hospital and associated clinical research. We emphasize the clinical specialties of the Hospital—imaging, cancer treatment, and veterinary clinical trials. Our faculty members have and will continue to hold national and international leadership positions in each of the veterinary specialties. We will deliver state of the art veterinary medical care to animals and will be recognized by clients of the teaching hospital for exceeding their expectations of care and service. Our peers will recognize us for developing and applying most appropriate and innovative methods for diagnosis, treatment, and prevention of animal diseases. We expect to generate at least \$1M per year in additional revenue through these clinical activities.

Our community partnerships will enable us to provide service to people and their animals in settings throughout the state. These efforts will provide learning experiences for our students through direct contacts with clients and application of technical skills. We will help to reduce the animal overpopulation problem and associated animal control issues faced by county and municipal governments. We will also benefit many people who do not currently use our hospital.

We aspire to improve our relative position among the 27 US colleges of veterinary medicine in all of the categories in which the AAVMC provides data. Beyond these data driven measures, we aspire to be recognized worldwide as a leader in the profession of veterinary medicine. It will be through the accomplishments of our students, alumni, faculty, and staff that this recognition will continue.

Summary:

The College of Veterinary Medicine at NC State University is nationally ranked. Comparative data place us in the top tier of veterinary colleges in the United States. The delivery of quality health care to animals is essential for our learning environment. We are a “window” of NC State to the people of the state and region.

Our initiatives will increase the number and enhance existing partnerships, lead to increased levels of extramural grant support, improve our ability to deliver animal health care, and strengthen our environment for veterinary medical education. CVM will be:

- Providing an environment for veterinary medical education that makes NC State a recognized leader by graduating veterinarians who add value to their business or institution as reflected in their ability to earn higher than average median salaries.
- Developing and applying the most appropriate cutting edge technology for the diagnosis and treatment of animal diseases.
- Diagnosing, controlling, and treating infectious diseases in animals and humans.
- Providing information through environmental research for improvement of risk assessment leading to better public environmental policies.
- Helping agribusiness provide safe and healthy food for healthy people.
- Maintaining and sustaining global competitiveness for food animal agriculture.
- Understanding the mechanisms of cancer development, control, and treatment
- Maintaining animal wellness.
- Providing an environment that helps ensure the career and life success of our faculty, staff, students, alumni, and other veterinary professionals.

- Providing solutions to the six issues identified as critical to the future of the veterinary profession (“The Current and Future Market for Veterinarians and Veterinary Medical services in the United States.” JAVMA 215: 161-183. 1999).
 1. Veterinarians’ income.
 2. Economic impact of large numbers of women in the profession.
 3. Global demand for all categories of veterinary services.
 4. Inefficiency of the delivery system.
 5. Supply of veterinarians.
 6. Skills, knowledge, aptitude, and attitude of veterinarians and veterinary students.

Initiatives:

A. Initiatives Supporting University Goals

Initiative A 1. Nationally Competitive Research Programs:

The CVM will emphasize research programs which are linked through functional genomics thus supporting NC State’s thrust in genomic sciences. These emphasis areas are all programs in which national agencies (NIH, USDA, EPA) have high priority for funding. These focus areas reflect concerns of society, represent opportunities to strengthen economic productivity and global competitiveness, and have high probability of yielding results that can be applied to solve problems in North Carolina.

- New emerging and reemerging infectious diseases
- Environmental health
- Food safety
- Cancer
- Comparative biomedicine

The CVM will increase its extramural expenditures (direct costs) from contracts and grants by at least 55% (from \$5.0M in FY99 to \$7.7M by 2003) and maintain or improve its average indirect cost recovery for the University at 35%. CVM will be ranked among the top five US colleges of veterinary medicine within the next five years in amount of NIH funding and in total research expenditures. A key strategy is to hire permanent department heads for APR and FAHRM. (See reorganization, Initiative B 1, page 22.) We will hire several new faculty—one in MPP (position described on pages 7-8 and listed in summary on page 10), and one in APR (position currently vacant pending resolution of associate dean for research). This combination of new departmental leadership and new faculty hires will increase our levels of extramural funding.

CVM will have the following partnerships as part of our overall strategy. These partners were chosen because of the shared interests with our faculty, physical/geographic proximity to the CVM, past history of excellent relationships (example—EPA training grant of \$3.6M), importance of results to North Carolina, and importance to a regional area of NC with opportunities for international recognition (example—Center for Marine Science & Technology).

We expect to have a biopark initiated successfully by 2005. This effort is an extension of the Centennial Campus of NC State University.

• **EPA and NIEHS**

Faculty working in the area of environmental health have an EPA training grant which is bringing \$3.6M in direct costs to fund the program. Graduate students are participating in programs in several University departments including toxicology. We will expand these efforts. Dr. Wayne Tompkins, director of the NC State Immunology Program, will work with Dr. Mary

Jane Selgrade, director of Immunotoxicology Branch of the EPA, to develop cooperative graduate training agreements initially for two MS and two PhD students. These proposals will be initiated spring semester 2000 with the expectation of funding for fall semester 2000. Generally, funding will be requested for two years for an MS student and three years for a PhD level student. Drs. Tompkins and Selgrade will also work with immunology faculty to identify graduate students who would be competitive for STAR fellowships. We expect to submit a STAR application in spring 2000 and one application per year each year thereafter. This initiative will greatly enhance our graduate training in environmental immunology/immunotoxicology and provide the resources to actively recruit outstanding graduate students in this area.

- **Center for Marine Science & Technology (CMAST)**

Aquatic veterinary expertise is a critical need in coastal North Carolina and the strengths of the NCSU CVM based aquatic health programs in environmental immunology, clinical ecology, and pharmacology/toxicology are needed to address many of the pressing problems affecting our coastal communities. Diagnostic and laboratory animal expertise is needed to help the marine research community in the area comply with increasing regulatory efforts in the use of aquatic animals in research. In addition, undergraduate, veterinary, and graduate students training in these disciplines need coastal based educational opportunities to work on real world issues in the field. Office and laboratory space to support faculty positions will be available in the CMAST building. Three positions and their technical support are part of a formal request submitted cooperatively by the deans of CVM, CALS and PAMS through NCSU to UNC-GA for change budget positions in the most recent cycle. Graduate student stipends would be pursued in the second and third years, both through the change budget request and through solicitation of extramural funds from external partners developed by the new faculty. A significant outcome of this initiative will be the generation of political and societal good will toward our university. Quantifiable outcome evaluation will include the number of NCSU students, non-NCSU students, and public receiving coastal based training in aquatic health related issues; the number of extramurally supported projects; the number of publications; and the number of external partnerships with US and NC institutions and agencies.

- **Rollins Diagnostic Laboratory in NC Department of Agriculture**

The College of Veterinary Medicine and the Rollins Animal Disease Diagnostic Laboratory are key members of the health care team that detects and controls infectious diseases in animals, as well as those diseases of animals that are transmissible to humans. There is an unmet need for veterinary microbiologists skilled in molecular biology and biotechnology. Our program will fill this need by training veterinarians who will isolate and characterize recurring and emerging infectious agents, clone relevant genes, format new diagnostic assays, and develop immunization strategies to prevent disease expression and spread. These approaches fit well with the current genomics initiative at NC State. One new trainee will be added annually, beginning July 1, 2000. The MPP department requests that a CVM graduate fellowship position be designated. The program will provide clinical microbiology experience leading to board certification in veterinary microbiology by the American College of Veterinary Microbiologists (ACVM) and research training in infectious diseases leading to completion of requirements for the PhD degree. We anticipate trainees will require approximately five years to complete this program.

- **Chemical & Pharmaceutical Companies**

During the past 10 years, the College of Veterinary Medicine has established collaborations with scientists at the Chemical Industry Institute of Toxicology (CIIT). One of our recent, former faculty members is now employed at Glaxo and is providing valuable links with that company. The CIIT partnership has allowed graduate students enrolled at NC State to pursue research in

laboratories there. This effective partnership will be expanded with the following expected outcomes.

- During the 1999-2000 fiscal year, funding for an additional residency position will be obtained from either a federal or private agency.
- CVM will continue to work with Glaxo to establish an endowed professorship in pathology. We will use the assistant professor position allocated to CVM last year as the base support.

- **USDA/APHIS**

The eastern headquarters of USDA/APHIS is located on the Centennial Campus. This federal agency will partner with the CVM graduate program in comparative biomedical sciences. The specific training emphasis will be directed toward MS students in the field of population medicine/public health. The local USDA/APHIS director, Dr. Robert Nervig, has indicated a willingness to fund (stipend, tuition, allowance for research) ~1 MS student/year. This program will select qualified graduate veterinarians from a pool of existing USDA/APHIS employees. The first graduate student will be enrolled in this program by June 30, 2000. We are developing plans that would result in USDA epidemiologists located on Centennial Campus being appointed as faculty members in our FAHRM department.

- **Center for Cutaneous Toxicology and Residue Pharmacology**

The UNC-Chartered Center for Cutaneous Toxicology and Residue Pharmacology at CVM/NCSU is a component of the College's environmental biomedicine initiative that is developing mechanistic based approaches to assess the risk to human and animal health from topical exposure to environmental contaminants. The Center presently has some \$1M of extramural support focused on probing the mechanism of environmental dermal exposure. This research is based on using biological and mathematical models to assess the dermal absorption and skin toxicity of numerous environmentally relevant chemicals. This strength in mathematical model development and pharmacokinetics is also applied to the problem of preventing chemical and drug residues in the edible tissues derived from food producing animals. This is best exemplified by the congressionally mandated Food Animal Residue Avoidance Databank (FARAD) program that serves as a national clearinghouse for residue avoidance in the United States. This program has a new international dimension with the Food and Agricultural Organization (FAO) of the United Nations decision to support expansion of the FARAD concept to other countries. These programs are a direct outgrowth of the environmental sciences program of the College, but are also central to the College's food safety programs. The pharmacokinetic program of the CCTRP also has a necessarily strong research focus on veterinary clinical pharmacology through FARAD. This work directly meshes with the developing focus on clinical trials in the College.

Strategies and resources:

- Support the efforts of the CCTRP to maintain FARAD and to develop global FARAD through completing facilities renovations in 1999.
- Hire additional faculty for the CCTRP using the vacated pharmacology position in APR. Hire two faculty at 50% FTE each with each expected to generate 50% through contract and grants (\$73,800 for salaries and benefits).
- Use FARAD as a learning resource for DVM students during the 1999-2000 year and provide a selective learning experience each year.

Outcomes and measures:

- At least four additional foreign countries will join FARAD in 1999.

- Accounting of phone calls and other inquiries will document levels of activity.
- CCTRP will generate at least \$1M in extramural contracts and grants.

- **Thurman-Zumwalt Center for Infectious and Toxic Agents**

The purpose of the proposed center is to undertake independent research into infectious and toxic agents of military and economic importance; to provide a resource for the biomedical education of military personnel; to provide expert evaluation and information relating to threats from, and protection against, such agents to veterans, active military, and other interested parties.

In this past century, American troops deployed overseas faced chemical toxic agents in World War I, the threat of biological agents and exposure to radioactivity in World War II, the possible long-term carcinogenic effects of Agent Orange in the Vietnam Conflict, and, most recently, the threat of both chemical and biological weapons in the Gulf War. Additionally, deployed troops have faced exposure to indigenous infectious agents ranging from influenza, which killed tens of thousands on troop ships in World War I, to malaria and other parasitic diseases, to dengue and typhus, to a host of diarrheal disease agents. While many of the diseases are acute or subacute some, such as malaria, become chronic and last a lifetime. Modern perspectives also raise concern that some diseases, acquired while deployed in foreign lands, may not demonstrate themselves until years after exposure.

The Thurman-Zumwalt Center for Infectious and Toxic Agents (CITA) is being formed to serve as a focal point for the study of these and other infectious and toxic agents of importance to American citizens who serve in foreign lands on combat or humanitarian missions as members of the military, the Red Cross, or the Peace Corps. In so doing, the Center will serve to honor the careers of two of America's exceptional military leaders who demonstrated great concern for the troops under their command: General Maxwell Thurman and Admiral Elmo R. Zumwalt, Jr. General Thurman was Commander-in-Chief of the Southern Command during the Panama invasion and negotiated the surrender of General Manuel Noriega to justice. Thurman also served as Commanding Officer of the Army's Training and Doctrine Command, championed the development of the Patriot missile system, and authored the successful recruiting jingle: "Be all you can be!". Admiral Zumwalt was the youngest officer ever appointed to the rank of rear admiral and also became the youngest appointed to be Chief of Naval Operations, serving in that position during a critical period during the Vietnam War. Following his retirement from the Navy, Zumwalt distinguished himself in public service, serving on numerous boards and committees dealing with issues of importance to veterans. In 1998, he received the Medal of Freedom, the nation's highest civilian honor, from President Clinton.

The mission of the Thurman-Zumwalt Center is to foster (and commission/undertake) research on chemical and biological disease agents, educate students for advanced degrees in scientific fields relevant to these agents, and serve as a source of credible information and expert evaluation for the government, veterans of humanitarian or combat missions, and the public.

Resources needed for Initiative 1:

CVM has a deficit of over 100,000 net square feet for its current research. We propose to build, using Centennial Campus financing authority, a new research facility of at least 100,000 gross square feet for research laboratories and office space for faculty and graduate students. The master plan for the CVM part of NC State's campus is being updated now as part of a \$2M appropriation from the 1998 General Assembly. The master plan will provide the site location. We will develop a business plan for repayment of costs associated with this new facility. We will shift our lease payments from current space in Pylon Industrial Park (estimated at \$390,000 by 2002) and increase our extramural expenditures from contracts and grants so that overhead return meets or exceeds the estimated \$1.1M per year required as the CVM portion of debt

service. If needed, we will reallocate up to \$350,000 of our 106 purpose code funds from support for intramural research projects to provide debt repayment from non-state funds.

We are second on the University's capital priority list for appropriations from the General Assembly (estimated at \$20M) for additions and renovations to the main building. We propose to design a new veterinary teaching hospital and renovate space now used by the Hospital. Renovations would improve facilities for learning and for research. We will conduct a feasibility study beginning February 2000 with clients of our hospital as preparation for a capital campaign to raise private support to supplement state resources.

The CMAST initiative is requesting state support for three new tenure track faculty, three technical positions, and six graduate student positions. CVM does not have resources to meet this request. Also needed are funds for operation of the new facility under construction on the campus of Carteret Community College. CVM estimates that at least \$7,500 will be needed as a share of these operating costs when this building is occupied in 2000.

Estimated resource requirements for Initiative A 1 are in the following table.

Summary of Resources – Initiative A 1

Initiative	Start	Personnel	Sal/Ben	StartUp	5999	Subtotals	Totals	Source
EPA/NIEHS	2000	4 GradStu	\$ 96,000			\$ 96,000	\$ 96,000	Grants
CMAST	2001	Fac Staff	92,250 34,440	\$ 85,000	\$ 20,000	231,690		Provost
CMAST	2002	Fac GradStu Staff	92,250 24,000 34,440	85,000	4,500	240,190		Provost
CMAST	2003	Fac GradStu Staff	92,250 24,000 34,440	85,000	4,500	240,190	712,070	Provost
Rollins Dx Lab	2000	GradStu	24,000			24,000	24,000	Reallocation
Chem/Pharm	2000	Faculty Resident EndowChair	92,250 24,000 40,000	100,000	4,500	288,500	288,500	Provost Grant Gift (1M\$)
USDA/APHIS	2000	Faculty	96,000			96,000	96,000	USDA
CCPRT & FARAD	1999	Faculty	73,800			73,800	73,800	Reallocation
Thurman- Zumwalt	2000	Faculty	124,000			124,000	124,000	CVM/Provost
Facilities Research	2003					25M	25M	CCFA State/gifts

Initiative A 2. Animal Health, Wellness, and Sustainability:

The CVM will deliver state of the art veterinary medical services and apply research results to benefit animal patients and their owners. We will not only meet, but also set new standards of care for veterinary specialty practices. Our activities will improve the education of veterinarians by providing opportunities for learning that are enriched by use of information technology, telemedicine, community partnerships, experiences in our teaching animal unit (TAU), and an emphasis on life as well as career success.

Our veterinary teaching hospital has the following emphasis areas:

- Clinical specialties
- Imaging
- Cancer treatment
- Veterinary clinical trials

- **Clinical Specialties**

The clinical specialties of the teaching hospital include internal medicine, soft tissue and orthopedic surgery, dermatology, neurology, ophthalmology, cardiology, and critical care and emergency medicine. Specific details will come from materials prepared for feasibility study.

We propose to increase Hospital revenue by at least \$1M by 2002 and use the resources to support the additional staff needed, replace and maintain equipment, and provide sufficient reserves to sustain our hospital operations without having to cover Hospital operating deficits by using practice plan revenues.

We will augment the learning environment for the DVM program by providing experiences with routine medical and surgical cases through the following partnership programs with community agencies.

Partnerships with statewide community agencies to improve the value of our graduating veterinarians and to build a diverse and inclusive campus community.

The CVM has initiated a community-campus partnership program that incorporates service-learning in underserved areas throughout the state. This program will take our college to a higher level of accomplishment and public awareness for a number of reasons:

- Based on student exit interviews and surveys of employers of our graduating veterinarians, our graduates need greater competency in caring for animals with common diseases, in performing routine surgical procedures, and in practice management. Having these competencies will allow our graduates to bring added value to their employers, thereby commanding a higher entry-level salary.
- The animal-owning public is much more diverse than the clientele of our teaching hospital, which is primarily a referral center. Our students need experience working with animal owners of different races and socioeconomic backgrounds so that they can better serve their clients after graduation.
- Forming partnerships with local agencies that will provide resources; therefore, enabling us to stretch our own resources further.
- Public support of veterinary medicine is essential for continued funding of our programs. Providing assistance to communities outside of Wake County increases our visibility and widens the pool of potential donors. A steering team, which includes representatives of local and state veterinary associations, animal advocates, and animal control officials, is providing guidance and insight for all of the initiatives.

Strategies:

- **Wake County House-Call Practice**

In partnership with local social service agencies and the Wake County Veterinary Medical Association, a small animal mobile veterinary practice was initiated in the fall of 1999 to serve elderly people and those with chronic illnesses who are no longer able to afford health care for their pets. First, second, and third year veterinary students practice preventative medicine, learn about zoonotic diseases, and gain an appreciation for the human-animal bond.

- **Animal Shelter Planned Pethood Program**

In collaboration with county shelter and animal rescue organizations, various counties, and with the North Carolina Veterinary Medical Association, spay and neuter programs have been developed in six counties for 1999 with plans for six additional counties by 2001. Students will work with local veterinarians and CVM faculty to conduct the programs. In addition, students will present talks to community groups on responsible pet ownership

- **Caring for the Pets of Emotionally Disturbed Children in Central North Carolina.**

A partnership has been formed with the Nash County Mental Health, which emphasizes the importance of the human-animal bond in treating emotionally disturbed children. Unfortunately, some families are unable to afford routine veterinary care and have had to give up keeping cats or dogs in the past. Loss of these pets has been very detrimental to the mental health of many of these children. Faculty and students will provide veterinary care for these animals. A similar collaboration is being considered with leaders of Pitt County.

- **Feral Cat Spay and Neuter Project**

Increasing numbers of feral cats are a growing problem in communities on the Outer Banks of North Carolina. These unvaccinated cats are potential carriers for rabies and other zoonotic diseases. In addition, they pose a threat to the wildlife in the area. Fall and spring spay and neuter and rabies vaccination clinics are planned in cooperation with local animal control and rescue organizations, veterinarians, and businesses.

- **Community Classroom Experiential Learning**

A two-week fourth year elective has been established in a local small animal practice to reinforce skills in problem solving, general medicine and surgery, client communication, and principles of practice management. Similar practice experiences have been developed for equine or equine/mixed practice and farm animal practice.

- **State Animal Rescue Team (SART)**

The State Animal Rescue Team (SART) is a multi-agency task force. It was developed in January 2000, to better manage large-scale animal disasters following the flooding associated with Hurricane Floyd. SART is a recognized resource of North Carolina Emergency Management and includes representatives from the United States and North Carolina Departments of Agriculture, North Carolina Cooperative Extension, North Carolina Veterinary Medical Association, Environmental Health, animal control agencies, humane agencies, private practitioners, and the College of Veterinary Medicine. College SART team members include students, faculty, and staff from all departments within the College. The Veterinary Medical Foundation, Inc. manages the public donations that fund SART activities. In the event of a large-scale disaster, the Blue Ridge Annex facilities have been designated as temporary SART headquarters for operations and the Mobile Surgery Hospital will be made available to serve as a field hospital. In the event of a more localized disaster, The College is a member of the Wake County Animal Response Team. As in the case of the Hurricane Floyd Field Hospital operation, additional resources, if available, would be deployed on an as-need basis. Initial funding for SART is made possible by \$100,000 that remained of donations to assist animals during the Hurricane Floyd Operation.

Resources

Our goal is to fund this program through donations to the NC Veterinary Medical Foundation (NCVMF) from grants received from outside agencies and foundations and from tuition revenue. Positions will be filled as funding is received. The high-profile nature of the program makes it ideal for soliciting donations.

- 1 full-time Coordinator-Assistant Professor (\$85,000 with benefits), 20% effort directed toward SART.
- ½ time veterinary technician (\$20,000 with benefits)
- \$36,000/year for equipment, supplies, and operating expenses

Revenue (Primarily gifts-in-kind and donations to NCVMF as of 8/1/00)

- A \$36,000 nine-passenger van stocked with medical equipment and supplies has been purchased to transport students to appointments. Funding has been provided by a charitable contribution to the NCVMF.
- \$70,000 for Mobile Animal Hospital (to be paid over seven years) to travel to participating shelters throughout the state was provided by a charitable contribution.
- \$36,000 dual wheel 4-wheel drive truck to tow Mobile Animal Hospital for Shelter program and for SART disaster relief. Funding provided by charitable contributions to NCVMF after Hurricane Fran.
- Outer Banks local businesses and animal rescue groups have pledged support for the Feral Cat Spay and Neuter Program to cover expenses (approximately \$10,000).
- Funding for expenses with the PEN-PALS program will be provided by the Nash County Mental Health Services.
- Salary for Coordinator – Tuition revenue, department and dean's veterinary faculty practice plan, and NCVMF.

Outcomes and measures:

- At least six news media hits about the community-campus partnership program in 2000; 12 news media hits in 2001.
- At least \$50,000/year donated to the NCVMF because of interest in and knowledge of the program.
- At least one grant application/year submitted to a major outside foundation that supports the human-animal bond and animal welfare.
- House Call Practice: active client base of 100 to 125 individuals over the next three years; 30 students participate/year.
- Forty percent of rising 4th year students and >60% graduates will have completed 20 spay/neuter procedures; students entering small animal practice will be able to complete a dog spay in < 45 minutes.
- Increased adoption rates of animals in participating shelters (>90%—current rates of adoption range from 6% to 51%).

- Conduct at least four clinics for PEN-PALS program each year; work with 50 families in 2001; 80 families by 2002.
- Neuter and vaccinate 500 feral cats on Outer Banks by 2002; business and condominium owners report decreased problem with feral cats; numbers of kittens born is decreased.
- At least 30 students/year will participate in community practice their fourth year.

- **Imaging**

Our initiatives in imaging are provided in detail in the section (page 20) on Information Technology. Some aspects of imaging are included in the NC Animal Cancer Treatment Program.

- **North Carolina Animal Cancer Treatment Program**

There has been an organized program in oncology in the College of Veterinary Medicine at North Carolina State University since 1984. The North Carolina Animal Cancer Treatment Program (NCACTP) is recognized nationally and internationally as a result of its well-funded investigational program, numerous scientific and lay publications and presentations, exceptional service to the pet-owning public, and training of postgraduate veterinarians. In addition to being multidisciplinary, the NCACTP is multi-institutional, involving collaborative activities with the College of Veterinary Medicine at Colorado State University, and schools of medicine at Duke University and the University of North Carolina at Chapel Hill.

Specific details of our past accomplishments include over 100 peer-reviewed publications in a 10-year period, and research funding with total direct and indirect costs exceeding \$7,000,000. Numerous clinical and research trainees have completed programs in oncology-related areas and have gone on to productive careers in academic veterinary medicine or private practice. Entry into our training programs is extremely competitive.

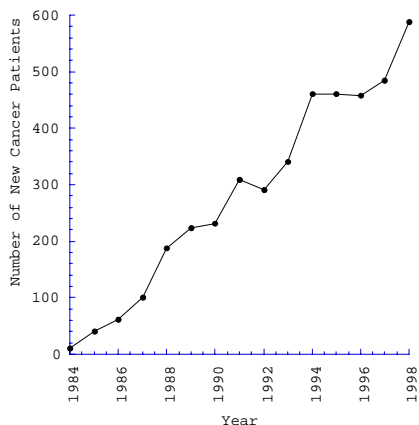
The NCACTP is one of the largest and most comprehensive centers for animal cancer treatment in the world. One of the major goals of the NCACTP is to provide comprehensive treatment for pets with cancer. These pets are typically elderly and have become integrated into the family. The program aims to provide the advice and expertise to help make and implement the best decision concerning the welfare of the pet. The emotional relationship between pets with cancer and their owner is often very strong. Recently, the American Cancer Society sponsored a "Paws Walk for Cancer", in which approximately 200 people whose pets were treated for cancer at NCSU participated.

A "team-oriented" approach is taken with regard to each individual cancer patient to assure that all options are thoroughly investigated before a treatment decision is made. Veterinary students are an important part of the cancer treatment team. By actively participating in NCACTP activities, graduating veterinarians take the latest oncology knowledge into practices to better serve the pet-owning public. Highly sophisticated diagnostic and treatment modalities are becoming available to veterinarians in private practice. Experiences gained through participating in NCACTP functions while in veterinary school allow practicing veterinarians to intelligently counsel owners with regard to the most appropriate course of action.

Cancer therapy is a rigorous undertaking, requiring multidisciplinary diagnostic and treatment capabilities. Many cancer treatment options are available through the NCACTP, including surgery, chemotherapy, radiation therapy and hyperthermia. Oncologic specialists, both veterinarians and technologists, are the backbone of the program.

Excellent personnel resources in other specialty areas of the College's Veterinary Teaching Hospital (VTH) support NCACTP activities. Referring veterinarians and animal owners expect the latest generation of diagnostic and therapeutic modalities to be available for their pet. Owners and referring veterinarians routinely express sincere gratitude for the availability of the oncology service, as evidenced by comments made by practicing veterinarians to CVM administrators on a good will tour of the state of North Carolina.

The NCACTP has a long and productive history of studying new methods of cancer treatment and tumor biology. Investigational activities are bolstered by collaboration with area medical schools. These collaborations are a resource that makes our program truly unique. Through this collaborative effort information is provided that will be useful to veterinarians treating animal cancer and to physicians treating cancer in people. In some instances, grants provide funds to partially offset the cost of cancer treatment in pets. Success of the program is obvious from the growth in demand for services.



This increased demand has been met by creatively supporting two faculty in addition to the two positions provided by the state of NC. Support for these additional faculty is tenuous and even more faculty are needed to keep up with demand.

We have carefully evaluated our past performance and our initiatives and have identified the following as our goals for the next three to five years.

Goals of the NCACTP:

- Be recognized as **the** national and international leader in veterinary oncology.
- Provide outstanding clinical service to our customers.
- Increase collaborative research investigations.
- Advance the medical knowledge base.
- Attract the highest caliber staff, faculty, residents, graduate students, and veterinary students to NCSU.
- Form productive partnerships with medical schools, government agencies and industry.

Reaching these goals will clearly benefit the College, University, and the people of the state of North Carolina. Challenges we face in meeting these goals include a physical layout within the College and the Hospital that is dysfunctional, the necessity of recruiting a new faculty member to fill a key leadership position in the oncology program, and the fact that research funding is increasingly difficult to acquire. The cost of operating an extensive animal cancer treatment program is very high. Some of our support is derived from Hospital fees and grants. However, these funds are not sufficient to provide the types of expansion necessary to keep pace with the changes taking place in cancer diagnosis and management. These challenges are exacerbated by extremely high expectations of

referring veterinarians and the pet-owning public regarding the availability of a high quality, comprehensive oncology service. The clinical oncology service operates from a temporary cubicle in a hallway; radiation therapy is located at the extreme end of the building necessitating transport of animals a considerable distance; faculty offices are inadequate; and there are no offices for technical support staff and trainees. Routinely there is a two to three week waiting period for clients wanting an appointment with the oncology service. Research laboratory space is shared with internal medicine investigators. One investigator uses a laboratory located at Duke University Medical Center in Durham. Support for some essential faculty is tenuous, being based on income or the necessity to obtain support from outside resources. These issues are being faced at a time when recruitment for a person to assume a leadership position within the oncology program is beginning. It is absolutely essential that the new faculty member be able to provide direction and leadership to the program—otherwise it would be impossible to maintain the present level of professional and postgraduate training, research initiatives, and the high visibility of the program. Attracting the best possible person to the program may be hampered by the challenges noted above.

Specific needs are as follows:

- Centralized clinical space for consulting, examinations, hospitalization minor medical/surgical procedures, and teaching.
- Increased funding for faculty salaries that allows all faculty to be actively involved in investigational activities without getting “burned out” with clinical responsibilities.
- Increased technical support to relieve faculty of some clinical responsibilities so that more time for clinical teaching is available.
- Increased post-DVM training positions in medical and radiation oncology.
- Funding for an additional radiation oncologist.
- Relocation of radiation therapy facilities adjacent to the oncology clinic.
- Acquisition of new radiation therapy equipment.
- Centralization of oncology offices for faculty and support personnel.
- Procurement of nearby laboratory space for investigational procedures related to clinical techniques.

Methods to Reach Goals:

- Become recognized as an official segment of the ongoing capital improvement initiatives.
- Develop cooperative arrangements to maximally utilize new facilities and personnel; e.g. explore the possible cooperative effort between treatment of oncology patients and providing long-term health care to geriatric dogs and cats.
- Initiate major fund-raising efforts through the Development Office for capital improvements and personnel expansion, e.g. endowed chair(s).
- Explore “custom” relationships with local practices that allow streamlined referrals and closer interaction between parties which would increase revenue.
- Institute practice management evaluation with an experienced CPA to maximize efficiency and profitability of practice within the scope of teaching and clinical research.

• Veterinary Clinical Trials Program

This program is described on page 28.

Facilities needed to support initiative A 2:

The clinical specialties have grown in number, in case load, in staff, in revenue generated, and in both amount and sophistication of equipment used. The Hospital has not kept pace with this growth. Current master plan update studies show a projected deficit of 97,430 gsf for our hospital.

Current Hospital space is 116,095 gsf. The section on the NC Animal Cancer Treatment Program (page 14) provides a description of the facilities problems and needs. This information could be repeated for each of the clinical specialties. We need a new teaching hospital facility having at least 200,000 gsf. Our estimates of the cost are \$55M. A new hospital would free space that could be renovated for teaching and research. We plan to conduct a feasibility study, using clients of the teaching hospital, to determine levels of private support for a new hospital. Members of our foundation board are enthusiastic in their support for a campaign to generate significant private support. Private gifts combined with state funds for additions and renovations are an appropriate strategy to follow. We might also use Hospital revenue to repay bond debt if we need to use Centennial Campus financing authority to help obtain this needed facility.

Summary of Resources - Initiative A 2

Initiative	Start	Strategies	Sal/Ben	StartUp	5999	Subtotal	Total	Comment
Clinical Specialties	2000	VetTechs BalBudget Equipment	\$340,000		\$ 225,000 60,000	\$ 625,000	\$ 625,000	From inc In VTH revenue
Community Partnerships	2000	Instructor VetTech	85,000 20,000	\$ 106,000	36,000	141,000 continuing	247,000	Donations Nash Co
Cancer Treatment	2000 – 2005	Oncologist RadOnc Tech Residents EndowChair	129,150 123,000 43,000 48,000 40,000	85,000	4,500		472,650	Current Revenue Revenue Revenue Gifts(1M\$)
Facilities Hospital	2005					55M	55M	State gifts

Initiative A 3. Diversity:

The current composition of the CVM faculty, staff, and students is taken from the University Compact Measures, July 7, 1999. In the table below we present these data and the projected composition.

	1998-99	Projected 2003
Faculty percent female	29.6%	40%
Staff percent female	76.1%	65%
Student percent female	77.0%	60%
Faculty percent of color	7.0%	12%
Staff percent of color	12.6%	18%
Student percent of color	12.0%	18%

Strategies and schedule:

- Charge the Faculty Committee on Admissions to revise current admissions procedures to support these projections.
- Determine if a need exists to continue the interview process.
- Publish new admissions procedures on the World Wide Web as soon as they are adopted.
- Enact new admissions procedures in the 2001-2002 admissions cycle.
- Expand the recently developed Laboratory Animal Scholars Program to provide additional experiences at the CVM for participants from NC A&T. Provide funding for two to three NC A&T students per year to work within the laboratory animal resources unit (approximately \$8,000).
- Provide additional scholarship support for veterinary students. Establish scholarships for students entering as Laboratory Animal Scholars, Swine Scholars, and Poultry Scholars.

Scholarship support will increase from \$107,000 in 1999-00 to at least \$200,000 by 2003 as a result of our successful Campaign for NC State Students.

- Include consideration of county of origin and intended practice area in the admissions process to achieve diversity of geographic origin within the class.
- Provide support for a clinical faculty member to serve as the diversity coordinator for the CVM.
- Conduct at least two workshops each year cosponsored by the NC Association for Biomedical Research for public school teachers in order to improve awareness of careers in veterinary medicine and to enhance the learning of science in the public schools. Cost of each workshop is \$6,225.
- Each unit administrator will seek to fill positions with the best qualified person consistent with the College goals for diversity.
- The career and life skills program will help sustain a desirable and supportive environment (see B 3, page 24).
- Our college will host the Iverson Bell Symposium, sponsored by the Association of American Veterinary Medical Colleges, in 2001. This is a national meeting held every two years to provide a forum for discussion of diversity issues in veterinary medicine.

Outcomes and measures:

Reach projected composition of the faculty, staff, and student body.

Resources:

- Up to \$8,000 per year to support students from NC A&T Laboratory Scholars Program who work in the CVM Laboratory Animal Resources Unit. Provide these funds from revenue generated from an increase in tuition for the DVM program.
- Scholarship support through the NC Veterinary Medical Foundation will increase to \$200,000 per year by 2005.
- Provide support for the CVM diversity coordinator—\$71,340 in salary and benefits—to be funded from increase in DVM tuition.
- Continue to provide support for the student services section for visits and promotional materials. Currently, \$10,000 is provided from CVM 106 budget.
- Provide \$12,500 per year in support of NCABR teacher workshops.
- Maintain visits and informational program to minority institutions as provided in the UNC-GA plan.

Summary of Resources A 3

Initiative	Start	Strategies	Sal/Ben	StartUp	5999	Subtotal	Total	Comment
Diversity	2000	FacCord Support Scholarships	\$ 71,340		\$ 4,500 10,000 150,000 8,000 12,500		\$292,040	Tuition Revenue Existing Donations Inc tuition CVM Budget
	2001	NCABR Staff Natl Meeting		10,700		25,000		Existing Donations

Initiative A 4. Information Technology:

Advances in information technology to improve veterinary education

Justification:

Information has become a commodity. Those best able to access information will be more successful than their peers in their future careers. Technological competence will be as important

as medical competence to practice at the highest levels. Advances in computer technology have made access to veterinary and medical databases much simpler than in the past. In the future, it will be malpractice for practitioners not to access online information essential to the treatment of their patients. Wireless digital transfer of information will make access to necessary information independent of time and place.

Veterinary medicine and educational delivery are becoming an increasingly international market. Those who are prepared to deliver material in this manner will have a competitive advantage. Use of digital technologies will allow veterinary colleges to share information, including class material, more efficiently. This will enable each college to market specific educational information for DVM students at other veterinary colleges or continuing education modules to graduate veterinarians around the world. On-line certificate programs in specific veterinary topics will be developed.

Use of computer technologies can enrich the teaching environment. By digitizing library, classroom, and laboratory visual images, students can access these materials at any time or place, freeing them from library and classroom schedules. Medical colleges have found that students heavily use these image resources. Computer technologies provide both horizontal and vertical integration of the professional curriculum, allowing students to explore information to the depth at which they are comfortable, without regard to their “year of study” in a traditional “linear” curriculum. Allowing students to see future applications of current learning material provides additional incentive to master basic material.

Computers are a tool, just like a textbook, notebook, or calculator. In instituting a computer requirement for students we need to carefully plan potential uses. Uses within the veterinary curriculum include:

- A communication link between students or between students and faculty. For this to be effective it is very important that students and faculty share the same email platform. Different platforms result in information degradation, including loss or scrambling of attachments.
- Access to THIS (Teaching Hospital Information System)
- Access to veterinary and agricultural databases.
- Provision of on-line veterinary courses, as a substitute for all or part of select courses enhanced learning. This should allow a change in faculty student interaction from lectures to discussion sections. The University must address accounting of credit hour assignments to non-traditional courses.
- Provision of supplemental information for courses, allowing students to review text and images of instructional material. Provision of material in this manner has resulted in high student use in other professional programs
- Provision of class notes on-line or on CD's. This provides students an easily searchable database of their veterinary education.
- On-line course and instructor evaluations. These are more easily summarized than current evaluation models.
- On-line testing. Some colleges allow students to take exams at any time over a several day period (no more excuses about a traffic jam, sick child, etc.) while others still require students to show up at a room for a proctored on-line exam. Exams can be structured to enhance test security. Examinations can also be given in stages, asking students to make decisions as material is presented. This is an extremely effective method of testing application of medical knowledge, where cases are expected to progress with time. Non-linear testing allows answers to affect test patient progress, more closely simulating the true clinical environment.

Critical issues for success:

Project management will be critical to ensure success of a student notebook computer initiative. It will require a dedicated team of faculty and staff, whose efforts in this arena will deserve recognition. A coordinated project plan will be developed, including acquisition strategy, software load determination, configuration, deployment, and effective communication of requirements to current and future students. Standardization of computer platforms, both hardware and software, will be necessary to minimize support personnel needs.

Technology refresh strategy of three year student leases, with alternative (palm pilot type) technology support in the senior year is proposed. Programs are currently available for hand-held computer devices to assist with patient evaluation and treatment.

Infrastructure needs:

Our lecture theaters are on solid concrete and would be expensive to retrofit with network connections at each seat. New, broader bandwidth multichannel wireless communication capabilities will make hardwiring unnecessary. Server strategies for teaching needs will be developed. The CVM building is underpowered. Additional electrical input and access points will be needed. In addition, remote access needs (from homes, farms etc.) will need to be addressed.

Support services:

This will include instructional design support for faculty and software and hardware support for all users. Development of a consistent set of tools for class design to decrease support needs and will ease access to information by students This will also facilitate curricular integration and provide collaborative tools for groups of faculty.

Support needs of students will include initial training, which will be incorporated into the students initial "Fundamentals of Veterinary Life Skills" unit. This will address diversity of computer competency in the incoming class. An additional training session will be needed prior to the beginning of clinical training (fourth year) on the use of personal digital assistance devices in the hospital environment. Additional counseling on financial aid availability for required hardware and software will be available.

Advances in Information Technology to improve the Veterinary Teaching Hospital

Information technology in the VTH will consist of three components: Patient medical information, medical procedure costs, and all images associated with the patient. Medical diagnostic equipment will be interfaced directly into this web-based system. The College has invested seven years in the design, programming and testing of the electronic medical record and the medical cost components of the Teaching Hospital Information System (THIS). Currently, twenty five percent of the teaching hospital caseload is managed by THIS. A Picture Archival Computer System (PACS) has been purchased and is in the process of being installed and tested. All computerized radiographic imaging modalities are capable of having the images they produce input directly into PACS. As well, a computerized radiology cassette system has been installed to create digital images for conventional radiography. The next step will be to complete the installation of the PACS throughout the VTH (Cardiology, Ophthalmology, Pathology, etc.). The final step will be to install an additional PACS in the CVM biomedical communications unit for creation of a digital library for those images not associated with a patient (teaching and research). At this point, we are investing in technology infrastructure that is unique to veterinary medicine and provides a model for veterinary as well as human hospitals. This technology will decrease workload, increase efficiency, and revenue in the VTH.

The telemedicine aspect of the computer technology will be based in the Biomedical Imaging Facility (BIF). This proposal will form a strong partnership between the College of Veterinary Medicine (CVM), the Veterinary Teaching Hospital (VTH), and the BIF. The cost of equipping the BIF is high and must be generated by the unit, as it is no longer possible for the CVM or VTH to generate or contribute these funds. In addition to generating operating costs, the unit has the potential to generate additional revenue to drive programs and scholarly achievement. Over the last three and a half years the CVM has invested \$1,500,000 in radiology equipment, renovations, and personnel. The current inventory of equipment in the imaging facility is well over \$3,600,000. The BIF is nearly state of the art in imaging capabilities. Our current needs include a permanent MRI, a linear accelerator, and replacement of aging conventional equipment.

The recent addition of PACS creates the opportunity to dramatically restructure radiology functions and operating procedures of faculty, staff, house officers, and students creating many new and exciting opportunities. The structure around which images are acquired, stored, and interpreted must and will become more efficient. The teaching of radiographic interpretations and report generation will occur simultaneously and can be accomplished rapidly with final reports online 60-120 minutes following image generation. This information will be accessible to clinical faculty and referring veterinarians from anywhere by a computer with Internet access. The digital technology offers the opportunity to develop teleradiology and telemedicine for the practicing veterinary community locally and beyond. Adding teleradiology service will require the restructuring of the imaging facility and the addition of new radiology positions as well as the need and ability to train additional radiology residents. In order to acquire the remaining imaging and treatment modalities, and (more importantly) to keep current equipment state of the art, we must continue to upgrade the software and hardware on a regular basis.

A detailed plan including timetable and measurable outcomes is included in the compact developed by the associate dean for services for the veterinary teaching hospital. This plan includes:

- Restructuring of the Biomedical Imaging Facility.
- A business plan for teleradiology and telemedicine.
- A plan for web based continuing education.
- The NC State medical ventures program concept.

Biomedical Imaging Facility (THIS And PACS) Outcomes:

- Peer recognition as a leader in veterinary teleradiology and telemedicine and generating revenue of \$2,080,000 annually by 2003. (200 cases a day)
- Nationally recognized veterinary clinical trials program generating revenue of \$500,000 annually (by 2005).
- Nationally recognized BIF generating revenue of \$1,000,000 annually in contract work from industry and research by 2003.
- Improve the quality, quantity, and efficiency of all clinical imaging studies, interpretation, consultation, and reporting of results.
- Improved treatment of disease through telemedicine. Also, associated private practices would retain individual cases longer prior to referral and increase their revenue.
- Educational opportunities for residents and interns to interact with private practitioners will be greatly enhanced.
- Improved treatment of disease through practice of evidence-based medicine.
- Cost effectiveness studies can be accomplished because of the electronic cost information associated with medical procedures.
- College and faculty recognition by peers and peer institutions for their innovative use of information technology in veterinary medicine.
- Teleconferencing for medical rounds via the internet to share case material and medical specialists between universities.

- Publications in peer reviewed journals on applications of information technology.
- Increase our ability to attract and retain the best medical and clinical research faculty.
- Partnerships with private companies interested in development and application of information technology in veterinary medicine.
- Increased revenue to the BIF through worldwide telemedicine and continuing education using THIS and PACS data and images.
- Increase revenue to the CVM through sales of medical data to industry. Example: computer based data on infectious agents and the minimum inhibitory concentrations of infectious organisms or antibiotic resistance.
- Eliminate VTH revenue losses from dictation, transcription, phone consultation and mailing radiographs and reports to consulting veterinarians.
- Increase numbers of radiologist on staff by two by 2003 funded from BIF revenue.
- Increase the numbers of internal medicine faculty through revenues derived from telemedicine consultation.
- Reduce or eliminate costly and time consuming telephone consultations in internal medicine through telemedicine consulting.
- Decrease the national shortage of radiologists by increasing the numbers of radiology residents in training by two by 2003 funded from BIF revenue.
- Increase operational efficiency of the VTH faculty and staff through instant access to medical records and images.
- Radiographic images searchable and accessible from anywhere immediately with the final report on-line within 120 minutes.

Continuing Education Outcomes:

- Create worldwide continuing education market via the Internet using THIS and PACS data; projected income by January 2001 is \$150,000/yr.
- Partner with CVM BMC and Computing resources to “reinvest” income to hire a Web-based programmer to produce additional continuing education modules by June 2001.
- Projected CE income by June 2002 of \$500,000/yr.
- Potential patent rights for veterinary medicine CE.
- Creation of NCSU Veterinary Medical Ventures Program.

Summary of Resources – A 4

Initiative	Start	Strategies	Sal/Ben	StartUp	5999	Subtotal	Total	Comment
Information Technology	2000	THIS Staff	\$275,000					Provost Inc VTH revenue
	2002	Staff for Fac support	360,000					Inc tuition revenue
	2001	2 Radiologists	221,400					Income
	2001	2 Residents	56,580					Income
	2001	Programmer	67,650					Income
	2002	Equipment			\$ 360,000		\$1,340,630	Inc VTH Revenue

B. Initiatives Arising from Unit Issues and Priorities

Initiative B 1. Reaccreditation:

The CVM will receive renewal of full accreditation by the Council on Education of the American Veterinary Medical Association for the maximum seven year period through successful completion of a self-study and a successful site visit by members of the Council.

Colleges of veterinary medicine are accredited by the Council on Education of the American Veterinary Medical Association. The US Department of Education recognizes the Council on Education as the official accrediting agency for veterinary medicine. Our CVM was reviewed in 1992 and awarded a seven-year full accreditation status in 1993. Our next site visit is scheduled for May 6-10, 2000.

Strategies and schedule:

The Council on Education provides an extensive manual detailing the eleven essentials that must be met in order for a college to receive full accreditation. A self-study by the College and by each of the constituent units is required and must be received by members of the site visit team at least six weeks prior to the visit.

Dr. Talmage Brown, professor of veterinary pathology, is the chair of the self-study. A steering committee with one member from each of the four departments has been appointed.

Outcomes and measures:

- Self-study organized and time-line in place for completion by September 1, 1999.
- Unit and College self-study documents are available for critical evaluation and refinement by December 15, 1999.
- Self-study is complete and sent to site visit team members by March 15, 2000.
- Preparations completed for site visit by April 30, 2000.
- Site visit May 6-10, 2000 with favorable oral report from site team.
- Full seven-year accreditation received by November 1, 2000.

Resources:

- AVMA will support the costs associated with the site visit team.
- CVM will provide resources of time and supplies to produce the self-study and provide for support for the site visit team as requested (computers, printer, paper) by the Council on Education. Estimated one time costs at \$25,000.

Initiative B 2. Reorganization of CVM Departments:

CVM will complete the reorganization, begun in FY99, of the Department of Clinical Sciences and the Department of Farm Animal Health and Resource Management. Vacant faculty and administrative positions will be filled after conducting successful national searches.

Outcomes and measures:

- Hire a department head for FAHRM by July 1, 2000. A position and salary are needed. Strategies include using an anticipated faculty resignation creating a vacant position, adding CVM salary savings to this position, hiring a department head, and replacing the position when an anticipated retirement occurs. An alternative is to "borrow" a position from the provost in anticipation of a retirement vacancy in 2002.
- Reallocate 1903 general college funds and provide additional support from dean's practice plan in order to maintain the current level of SPA staff for FAHRM. Also provide additional accounting support for DOCS and FAHRM. Began July 1, 1999.
- Provide support for a clinical assistant professor in FAHRM July 1, 1999.
- Practice plan revenue in DOCS will increase.
- FAHRM will develop curricular changes to more appropriately support the missions of the department. Changes will be effective with fall semester 2000.

- Devise a funding strategy for hiring a new department head in APR. Reopen the national search and hire new head by July 1, 2000.
- Conduct an internal search to fill the associate dean for research position and have a person appointed for a five-year term by July 1, 2000.
- Conduct a search and hire a hospital administrator by July 1, 2000. (Requires an estimated \$73,800 for salary & benefits)

Resources:

We will need at least \$116,000 in additional funds for salaries of department heads in APR and FAHRM and to replace the retiring assistant to the dean and hospital administrator. We lost 30% of the APR department head position by actions of the 1999 NC General Assembly and have no position for the FAHRM head. We propose to use salary savings from vacant faculty positions to cover some of this cost, but project a deficit of at least \$116,000. Reestablishment of the integrity of the 106 purpose code funds may help. We will propose to borrow from the provost against pending retirement positions if needed. Startup packages for new department heads will be developed using current resources for startups and requests for matching funds from the vice chancellor for research, extension, & outreach.

Initiative B 3. Career and Life Skills Program:

The current veterinary curriculum is focused primarily on developing expertise in medical skills. After graduation most veterinarians enter private practice as employees, partners, or sole proprietors of small businesses. In this environment, success depends on factors outside traditional medical education.

A recent survey of 10,000 people concluded that 15% of an individual's financial success is due to technical ability and about 85% to personality factors including attitude, human relations, and communication ability. According to *"The Current and Future Market for Veterinarians and Veterinary Medical Services"* the income of veterinarians seriously lags behind that of similar professions. This impacts the ability to repay student loans, to attract the best and brightest to the profession, to give back to their college as alumni, and to invest in personal and professional growth. Pricing of veterinary services may not be appropriate relative to the real cost of the service and the value being delivered. There is evidence that veterinarians lack some of the skills and aptitudes that foster economic success. Additionally, the study states that there is evidence that veterinarians' self-perception of their abilities and their perception of what they can contribute to society potentially limit professional and economic growth of the veterinary medical profession. To improve the success of our graduates, we have initiated the Career and Life Success (CLS) program to provide learning opportunities and skills to our faculty, staff, and students through initiatives in curriculum and lifelong learning, development of leadership skill and entrepreneurial skills, and through community outreach.

The long-term objectives of the CLS program for NCSU CVM students are to:

- Enlighten them to skills and attitudes necessary for their personal and practice financial success.
- Create an awareness and appreciation of diversity of people and ideas in a global society.
- Set goals, plan, prepare and market themselves to future employers, including their ability to provide excellent customer service, possess high levels of self worth, comfort with change, ambiguity and risk taking.
- Demonstrate positive attitude, teamwork, interpersonal, and entrepreneurial skills to generate revenues in excess of \$250,000 a year for their future employer.
- Balance career and personal life.
- Be the most sought after veterinarians by the top practices and command the best starting salaries.

Our immediate goals are to develop the infrastructure of the program, including a director and assistant director, a steering team, and set aside time in the curriculum for the program at beginning of first year and end of the second year. In addition, partner with faculty to develop selective courses and programs that will support development of career and life skills. The CLS director will seek opportunities to partner with student organizations to enhance their curricular and extra-curricular learning activities and reinforce development of CLS. The CLS personnel will offer a variety of services to the CVM community, including coaching services, facilitation services, and conflict resolution services for faculty, staff, and students.

We have currently hired the director and assistant director of the CLS program, charged a team of faculty and staff to develop and implement the initial two-week program and broaden the focus of the program in the CVM. The associate dean for services and the associate dean for academic affairs will partner the director and others to develop a successful program.

Strategies:

- Develop the curriculum and content for the program offered in August 1999.
- Successfully deliver the Fundamentals of Veterinary Life Skills program - August 2-13, 1999.
- Obtain instructional space in CVM curriculum and successfully deliver the second component of the program in 2001.
- Submit Fundamentals of Veterinary Life Skills to curriculum committee for approval as a credit course by October 1999.
- Have formal structure in place for the CVM student-mentoring program by fall 2000.
- Design and deliver practice management course for spring 2000.
- Write manuscript on the Career Life Skills program and submit for publication by January 2000.
- Submit one publication per year about the program.
- Present at one national conference per year.

Outcomes and Assessments:

- CVM faculty, staff and students are enrolled in the concept of shared responsibility for learning through the career and life skills.
- Hiring employers will provide positive feedback regarding students interpersonal skills starting 2004.
- Faculty will notice improved accountability in CLS students for their learning experience. First assessment due end of 2000.
- Student survey assessment of the program is positive.
- Student stress indicators lower than previous assessment.
- Receive two inquiries per year from other veterinary colleges about the program.
- Partner with other universities to help them develop their own program.
- Alumni will support College by donating their time and financial support.
- Faculty, staff, and students will receive professional recognition for their participation and support of program.
- Students are attracted to the College of Veterinary Medicine because of the skill development offered through the program.
- Students are better prepared to generate revenues in excess of \$250,000 gross a year for their future employers in private practice.
- The University receives national and international recognition for being leaders in developing innovative and effective experiences in communications, self awareness and team projects for students that translate into productivity in private practice and research.
- Students are sought out for employment more than graduates of any other veterinary program in North America.

This is a new program and baseline data are currently being collected. The PEW National Veterinary Education Program completed a survey in 1988, and the CVM surveyed CVM alumni, employers, and agribusiness leaders was done in 1993. Both surveys highlighted the need for improved interpersonal skills for veterinary students.

Ongoing Assessments will include:

- Surveys of current 2nd, 3rd and 4th year students.
- Surveys of faculty comparing this year's students with prior years will be conducted each spring.
- Surveys of teaching hospital staff will be conducted.
- Surveys of this year's students will be conducted annually.
- Surveys of the Class of 2003 employers will be conducted. (This will occur after their graduation.)
- Surveys of intern supervisors will be conducted.
- Surveys of NCVT technicians and practitioners will be conducted starting in 2000.

Resources:

- Budget for Fundamentals of Veterinary Life Skills: \$19,000.
- Salaries and benefits for staff are provided by reallocation of CVM resources and total \$108,045
- As demand for facilitation, mediation, coaching, consulting, project management increases throughout the University and within the College revenue will be generated through fees charged for these services.

Initiative B 4. Sustain the Educational Benefits of the Teaching Animal Unit (TAU):

Sustain the educational diversity and prowess of the Teaching Animal Unit (TAU). The TAU is a unique facility that is held in high esteem by faculty of the former FAE department, alumni, and DVM professional students. For many students the TAU affords the first opportunity to develop confidence, a level of comfort and understanding of farm animal species and horses through hands on curricular and extracurricular activities. In addition, students are exposed to issues of production management, food safety, housing, animal welfare, biosecurity, and environmental regulations.

Strategies and schedule:

The CVM development office will work with an ad hoc departmental committee (Wages, Hunt, Farin, Rogers, Almond) to develop a plan and publicity directed at the CVM community, friends, and alumni to fund an endowment to sustain the operations of the TAU. The Board of Directors of the newly created CVM Alumni Society will take on raising this endowment and will begin the planning process at their meeting in July 1999.

Outcomes and measures:

- Support from the CVM Alumni Society by August 1, 1999.
- Goal established for amounts to be generated per year with \$1M raised by December 2005.

Summary of Resources for Section B

Initiative	Start	Strategy	Sal/Ben	StartUp	5999	Subtotal	Total	Comment
Reaccreditation	1999	Supplies			\$25,000		\$ 25,000	Current Budget
Reorganization	1999	APR Hd FAHRM Hd Research SPA Staff Personnel	\$160,000 160,000 29,200 61,000 67,410	\$250,000 50,000 85,000	9,000 9,000 9,000	\$419,000 219,000 123,200 61,000 67,410	889,610	Exist+ SalSav+ Exist+ 1903 PP
Career & Life Skills	1999	Staff Orientation	108,045		19,000		127,045	Current PP
TAU	2005 2001	Endowment Staff	50,000		40,000		90,000	Gifts (1M) Inc DVM tuition

C. Initiatives related to Enrollment Planning

See Attachment 4 for enrollment spreadsheet.

Initiative C 1. Increase DVM class size by two students per year until a class size of 76 is achieved.

The number of students admitted to the veterinary program was held constant at 72 from 1987-1993. Of the 72 admitted, 60 are NC residents and 12 are non-residents. Our applicant pool has continued to increase, with >900 non-residents and 238 residents applying for admission in fall of 1999.

From 1994-1999, slightly larger classes were admitted to address student attrition and to attempt to graduate 72 students per year. All graduating students who seek jobs find employment with most receiving several job offers. North Carolina projects continued growth of its population well into the next century. The state's population has increased over 22% since the College of Veterinary Medicine graduated its first class in 1985. North Carolina State projects a 14% increase in undergraduate enrollment between now and the year 2010. The DVM class size can increase to 76 without exceeding the capacity of current classrooms and laboratories. This small increase in class size would not necessitate additional instructors, but an increase in instructional funds will be needed, particularly for laboratory supplies. The veterinary curriculum is laboratory intensive. (Both base budget and Educational Technology Fee allocations should increase). Any increase beyond 76 will require new facilities in addition to teaching budget needs. Currently, the factors limiting expansion beyond 76 are the size of the anatomy lab and the size of the multipurpose (microbiology/parasitology/etc.) laboratory.

We will propose a tuition increase of \$750 per year for each of the next four years for a total increase of \$3,000 per DVM student. Our current tuition and fees for in-state residents place us 27th of 27 US veterinary colleges. A \$3,000 increase would move us to 19th. We need these resources to partially replace the over \$2M in reductions to our state support that have occurred over the last eight years. Our Campaign for NC State Students has generated cash gifts in excess of \$2.4M and deferred gifts of over \$8M (total of over \$10.5M exceeds our goals of \$4.1M). We will have increasing ability to help our DVM students with scholarships and project an increase from \$107,000 in 1999-00 to \$200,000 by 2005.

Enrollment targets:

1999 74 (61 residents and 13 non-residents)
 2000 76 (62 residents and 14 non-residents)
 No further increase without expanding facilities

Outcomes and measures:

- Address the need for veterinarians in the state of North Carolina
- All graduates seeking employment find positions.
- No decrease in pass rate on licensing examinations with increased class size. (Instructional quality remains high.)
- CVM budget increases based on increased student FTE and SCH generated.
- Increase DVM tuition by \$3000 per student. Generates an estimated \$876,000 (assumes 76 per class with attrition of 4% over the four years) in additional support for CVM when fully implemented.

Our status quo or non-aspirational enrollment plan is to remain at the current 72 students per year.

D. Initiatives Addressing Performance Aspirations

Initiative D 1. Veterinary Clinical Trials Program:

The Veterinary Clinical Trials Program will be a multidisciplinary unit that will support the University goal of fostering new partnerships, both internally and externally while enhancing clinical research, training, and service at the CVM. The Veterinary Clinical Trials Program will provide funding and expertise to scientifically sound, clinically relevant projects that answer questions about the safety and efficacy of diagnostic or therapeutic techniques. While some trials are being carried out in veterinary medicine, funding is severely limited for trials focused on providing evidence for the efficacy or safety of medications, diagnostic techniques, or therapeutic interventions aimed primarily at improving the lives of companion animals. This funding limitation results from market forces as well as societal values. For example, the market for veterinary pharmaceuticals (except for dietary interventions, preventive medicines, vaccines, or flea control products) is generally considered too small to justify funding the clinical trials needed to obtain FDA approval of a drug for veterinary use. The National Institute of Health provides considerable funding for experiments performed in animals with either induced or spontaneous diseases believed to closely model human disease, but the availability of such funds is restricted by the understandable necessity that the results of such experiments eventually prove applicable to humans. As a result of these forces, practicing veterinarians commonly utilize "off label" treatments and procedures based on anecdotal evidence or evidence extrapolated from experimental models or human clinical trials. The Veterinary Clinical Trials Program would provide a magnet for the funding and expertise needed to promote independent, commercially unbiased large scale clinical trials needed to advance veterinary practice.

Goals:

- Establish partnerships with our customers to conduct research that benefits the practice of veterinary medicine.
- Provide expertise and services that will help investigators and customers achieve our research goals.
- Provide innovative solutions to our customers' needs by continuously improving our knowledge and research methods.
- Be cost effective and flexible in working to bring new diagnostic and therapeutic methods to patients as quickly as possible.

Strategies and schedule:

- Existing faculty at the College united across departments to create and guide the program. Several of the faculty have extensive experience and training in the design, funding, and performance of clinical trials.
- A steering team for the Veterinary Clinical Trials Program was formed in October 1999.
- A plan for initial implementation of a clinical trials program will be completed by January 1, 2000, and will include a budget for year 1 and 2.
- The needs of the profession will be assessed using a sophisticated computer-based survey instrument administered to practicing veterinarians attending continuing education meetings. The results will be used to enhance our understanding of the current practical needs of the profession.
- The team will oversee scientific resources and practical technical support for NCSU faculty designing and managing clinical trials, and aiding them in pursuit of outside funding for trials where such funding may be available.
- Clinician investigators will be identified who are capable of and interested in directing and participating in high quality, independent, multi-center clinical trials. The College of Veterinary Medicine is fortunate to have among its faculty the experience, expertise, and international reputation needed to successfully lead multi-center clinical trials once financial and personnel support for experimental design, data management, and statistical evaluation are available.

Outcomes and measures:

- Objective measurements of success will include the number of independent clinical trials initiated by the Clinical Trial Center's participants, and the number of trials completed and published in peer-reviewed journals and presented at national and international scientific meetings.
- Track progress in outside fund-raising, and in our ability to forge partnerships with governmental, industrial, and private institutions to enhance the overall practice of clinical veterinary medicine.

Resources:

- Many valuable and scientifically valid veterinary clinical trials can be done using simple methodology on a relatively low budget once the communications and data management infrastructure is in place. We estimate that it will take approximately three years for the Clinical Trials Program to become fully established, with an anticipated operational, personnel, and research budget of approximately \$400,000/ year, 80% of that budget provided by outside funding from the constituents identified.
- Resources required to fund the Clinical Trials Center include operating resources and personnel. We anticipate that initial personnel requirements will include an administrative assistant/information technologist to coordinate fund-raising presentations, facilitate meetings of participating clinician investigators, and coordinate data acquisition and management.
- The purchase and installation of TrialLink or similar software will allow customizable, secure, internet-based interactions between the trial coordinators at NCSU and multiple participating state, national, and international investigative sites for each of the clinical trials coordinated by the Clinical Trial Program investigators.
- Funding for the Center will be sought from multiple sources, emphasizing the unique mission of the Veterinary Clinical Trials Program in veterinary medicine, the resources of the NCSU-VTH (including an advanced computerized medical record system designed specifically to capture data relevant to a variety of clinical outcome measurements), and the faculty and steering team members to facilitate the performance of high quality, scientifically sound trials.

- The CVM VTH has implemented a plan to increase hospital revenue by a million dollars; \$100,000 of this is earmarked to support infrastructure for the Clinical Trials Program. Top priority will be to hire a clinical trials data manager who will help with protocol designs and statistical analysis.

Fund-raising presentations will be scheduled to constituent groups throughout 1999-2000 in coordination with the NCSU CVM development office. The independence of the program from a particular company or industry is critical to its mission to test the clinical efficacy and safety of a wide variety of therapeutic and diagnostic products marketed to veterinarians and their patients. The University, private veterinary practitioners, companion animal owners and breeders, the Food and Drug Administration's Center for Veterinary Medicine, as well as manufacturers and distributors of veterinary pharmaceuticals and medical equipment have a common interest in the mission of the Center, and funding will be sought from each of those constituents.

Initiative D 2. Veterinary Scholars Program:

This initiative supports the University goal of building a diverse and inclusive campus community, fostering demographic and intellectual diversity. The faculty and staff of the College of Veterinary Medicine's Department of Clinical Sciences and Veterinary Teaching Hospital have achieved international recognition as a center for excellence in the teaching and delivery of specialized veterinary care. Each year, dozens of faculty, house officers (graduate, licensed veterinarians in training for specialty board certification in their country), and veterinary students from around the world seek to enhance their clinical and/or research skills and training by visiting a clinical service at the NCSU VTH. The length of these visits and degree of participation of these visitors in the life of the NCSU VTH generally varies from a few days to up to two years, but the large majority of such visits are between one week and one month long. The program includes veterinarians living in NC and the region who desire additional training or who wish to retool for other careers within the profession. We envision this initiative as an extension of continuing education. Its implementation would place CVM in a competitive advantage among veterinary colleges in offering nontraditional CE programs and opportunities.

• **Partnership with College of Management**

There is potential for the College of Management (COM) to develop an executive education program to help veterinarians better manage the small businesses that they operate. We have had preliminary discussions with Dean Bartley and are committed to continue to work with the COM for the development of executive programs for veterinarians.

Outcomes and measures:

- Tracking the numbers of international visitors to the NCSU VTH.
- Survey scholars with regard to the quality of their experience.
- Survey faculty regarding the utility of the program in enhancing diversity in the teaching hospital environment.
- The program would be judged successful if 24 international visitors per year participated, with 90% of them rating their educational and cultural experience at NCSU as "excellent", and 90% of our faculty and staff holding the same opinion.

Summary of Resources Section D

Initiative	Start	Strategy	Sal/Ben	StartUp	5999	Subtotal	Total	Comment
Vet Clinical Trails	2002	Director	\$92,250		\$ 7,750		\$ 100,000	Inc VTH Revenue
Vet Scholars	2001	Supplies			5,000		\$ 5,000	VTH Revenue

Summary of Initiatives:

- A master plan for the CVM part of the NC State campus will be submitted by March 1, 2000.
- A design plan for additions/renovations and/or a new building will be submitted by April 15, 2000. (Note: Hurricane Floyd led to freeze on funds appropriated for this purpose – preliminary plans for research building will be generated.)
- The CVM self-study report will be submitted to the provost by March 15, 2000.
- A report on feasibility of a capital campaign for CVM facilities will be submitted to the provost and to the vice chancellor for advancement by May 1, 2000.
- A report of development office activities will be submitted by June 30, 2000, and will show that CVM met or exceeded its goals for cash receipts and deferred gifts.
- A long-term plan to transfer lease payment for space in Pylon Industrial Park to payments for a University-owned research facility built under Centennial Campus funding authority will be developed by June 30, 2000.
- A report on partnership development status will be provided by June 30, 2000, and will indicate progress toward meeting outcomes for the several partnerships included in our initiatives.
- The CVM Annual Report for 1999-00 will provide data showing progress toward increasing extramural grant support by 55% by 2003. Information on progress toward projected composition of faculty, staff, and students will be included. Also included will be updates on the status of our reorganization efforts.
- A report on the Career and Life Skills program including evaluations from student and faculty participants will be available by December 1, 1999.
- Survey results from CVM alumni will be available for the self-study report and provided to the provost by June 30, 2000.
- A report on the status and future directions of THIS will be completed by September 1, 1999. The status reports on progress toward implementation of PACS will be available by June 30, 2000.
- Unit reports on progress toward benchmarks in their initiatives will be provided by June 30, 2000.
- A request for a \$3,000 increase in tuition for the DVM degree program will be submitted by November 15, 1999.
- A report on Hospital revenue with appropriate income and loss statements will be complete by August 15, 2000. Case numbers and other benchmark data will be included in this report.
- A report on progress toward meeting outcomes specified in the community partnership programs will be complete by August 1, 2000.
- A progress report on implementation of THIS and the PACS will be made by June 30, 2000.
- By August of 2001, a report on CMAST activities including number of students receiving coastal based education in aquatic health, number of extramurally funded projects, number of publications, and number of external partnerships will be submitted.
- An update of our comparative data benchmarks will be available in January 2000.

Attachment 1

Comparative rank based on data from the Association of American Veterinary Medical Colleges:

Category	Relative Position AAVMC Comparative Data								
	91	92	93	94	95	96	97	98	99
Total Expenditures	7	6	6	6	6	6	6	8	7
Total Direct Expenditures	NA	NA	NA	NA	NA	7	7	8	7
Teaching Hospital Expenditures	7	7	6	8	8	11	12	12	12
Research Expenditures	5	4	4	6	6	6	6	6	6
Instructional Expenditures	5	5	5	5	4	5	5	6	6
State Appropriations	3	3	4	4	3	4	4	5	5
Total Academic Employed	10	9	8	6	8	8	8	11	6
Total Women - Academic	9	5	9	6	7	5	5	6	4
Minority Academic Employed	10	7	7	8	6	8	7	8	9
DVM Students	17	17	18	19	19	18	18	18	20
First Year DVM Enrollment	19	20	19	18	16	18	19	20	20
Minority Students	23	19	19	19	14	13	17	18	19
DVM Seeking Ph.D.	5	5	3	4	4	4	7	4	3
NonDVM Seeking Masters	5	5	5	8	7	6	7	9	8
NonDVM Seeking Ph.D.	14	10	8	10	6	6	5	6	7
Tuition & Fees - Residents	27	27	27	27	27	27	27	27	27
Tuition & Fees - Nonresidents	11	9	9	9	8	12	9	9	10
Mean Educational Debt	NA	NA	NA	NA	NA	27	27	13	26
Mean Salary Professor	3	6	5		5	4	5	7	9
Mean Salary Associate	7	7	8		6	3	3	6	9
Mean Salary Assistant	6	4	5		5	1	3	3	3
Interns	4	3	3	3	3	4	3	7	7
Residents	3	4	3	3	3	5	3	6	5
DVM Seeking MS	12	17	14	20	18	17	20	19	12

Attachment 2. Benchmarks

Representative Benchmarks and Performance

	1994	1995	1996	1997	1998	1999
95% Graduate in 4 years	91.7%	93%	88.6%	94.4%	84%	94.9%
75% seeking post DVM education are successful	58%	75%	79%	67%	73%	92%
95% employed within 3 months		95.3%	Awaiting 1999 survey	Awaiting 1999 survey	Awaiting 1999 survey	Awaiting 1999 survey
100% Success on NBE	96%	93%	100%	100%	97%	93.4%
100% Success on CCT	100%	100%	100%	100%	100%	96.2%
8:1 Ratio of applicants to House office positions	25:1	18:1	31;1	28:1	33:1	25:1
Students express high level satisfaction with student services*	Low	Low	Few comments – Rhonda excellent	Comments Positive	High	High
DVM students total 284	281	285	286	291	297	298
Expenditures for research (contracts & grants) exceed \$6.0M	\$5.5M	\$5.4M	\$4.8M	\$4.9M	\$5.3M	\$6.6M

*Based on senior exit interviews.

Attachment 3. Benchmarks for Faculty, Teaching Hospital, and Development

Benchmarks for Faculty and Teaching Hospital Performance

	1994	1995	1996	1997	1998	1999
80% of faculty author/coauthor peer reviewed papers					76%	75%
Two new patents issued annually					4	3
Ten new copyrights issued annually					3	4
50% of faculty apply for extramural funding					63%	52%
70% of faculty have funded research grants					56%	61%
# Extramural Awards	NA	86	71	77	84	93
Extramural Award \$	\$5.6M	\$5.5M	\$4.8M	\$4.2M	\$5.3M	\$7.6M
At least 50% of faculty will serve as consultants/editorial boards and/or grant review panels						
VTH revenues will be >\$4.8M	\$3.79M	\$4.1M	\$4.5M	\$4.7M	\$5.1M	\$6.1M
VTH accounts receivable will be <\$125K	NA	NA	\$1.3M	\$615,316	\$292,908	\$214,397
VTH case load will be >16,500	16,850	16,552	16,921	16,507	17,301	17,734

Development Performance

	1994	1995	1996	1997	1998	1999
Cash & In-Kind Gifts	\$390,135	\$775,200	\$1.1M	\$1.3M	\$1.8M	\$2.2M
Pledges & Deferred	NA	NA	NA	\$2.1M	\$3.9M	\$4.5M

Attachment 4. CVM Enrollment Projections

A. Conservative Projections

	Actual			Projected											
	Fall 96	Fall 97	Fall 98	Fall 99	Fall 00	Fall 01	Fall 02	Fall 03	Fall 04	Fall 05	Fall 06	Fall 07	Fall 08	Fall 09	Fall 10
New DVM Students	78	75	72	72	72	72	72	72	72	72	72	72	72	72	72
New CVM Grad Students	21	21	28	28	28	28	28	28	28	28	28	28	28	28	28

B. Aspiration Projections

	Actual			Projected											
	Fall 96	Fall 97	Fall 98	Fall 99	Fall 00	Fall 01	Fall 02	Fall 03	Fall 04	Fall 05	Fall 06	Fall 07	Fall 08	Fall 09	Fall 10
New DVM Students	78	75	72	74	76	76	76	76	76	76	76	76	76	76	76
New CVM Grad Students	21	21	28	28	30	31	33	36	40	44	49	53	56	58	60