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I. Introduction

A. Background

The Ohio State University (OSU) College of Veterinary Medicine is a member of the most comprehensive Health Sciences Center in the United States, which includes the Colleges of Veterinary Medicine, Medicine, Pharmacy, Dentistry, Optometry, Nursing, and Public and Allied Health on a single campus. Veterinary Clinical Sciences (VCS) is one of three Departments in the College of Veterinary Medicine and combines the clinical disciplines of anesthesiology, emergency and critical care, cardiology, clinical pharmacology, ophthalmology, neurology, nutrition, internal medicine, oncology, dermatology, surgery, radiology, and theriogenology across companion animal and livestock species. The research initiatives of the department include scholarly work in clinical, translational and basic research relevant to clinical disciplines (Table 1). The range of faculty expertise offers exceptional opportunities for advancement and application of new medical knowledge for the benefit of both animals and humans. The department has a strong combined clinical residency and graduate program for veterinarians seeking advanced specialty and scientific training, preparing them for careers in specialty practice, academic veterinary medicine or further advanced training as clinician scientists. Departmental supported facilities include a state-of-the-art Veterinary Teaching Hospital, rehabilitation center, gait analysis laboratories for small and large animals, an Exact System for histologic sectioning of implants and bone, as well as molecular biology laboratories for basic research. Combined with other college-based research facilities housed in our Department building, including the In Vivo Imaging System (IVIS), microcomputed tomography (2008), clinical and microbiology laboratories, cardiovascular physiology research laboratories, the Clinical Trials Office, and animal facilities, our faculty has direct access to outstanding research resources. In 2007, the Department Chair charged a newly formed Veterinary Clinical Sciences Research Committee to address the short and long term needs and goals of the Department in order to develop a research enterprise with a supportive culture for research.

B. The Planning Process

The VCS Research Committee, under directive from the Chair of VCS, initiated the development of a strategic initiatives document to facilitate and guide the accomplishment of agreed upon goals to promote and support the research interests and activities of faculty, graduate students, residents, interns and professional students in an environment that is positive and engaging toward research. The Department Chair selected the Chair of the VCS Research Committee and the initial members for a three-year term.

The Chair of the VCS Research Committee initiated regular meetings to gather information and strategy to complete this document. Subcommittees of two
members each were formed to draft the initial document for each area: current activities, faculty development, infrastructure, administrative support, and assessment of outcome. Each draft of the document was reviewed by the committee for content and congruency with the mission of the department and 2002 College of Veterinary Medicine Strategic Plan. Following a series of meetings by the subcommittees in the Spring and Summer Quarters, a draft document was produced in Fall Quarter to submit for Departmental Review. After discussion at a Departmental Faculty meeting, a final document considering all suggestions and comments was submitted to the Chair by 2008.

II. MISSION STATEMENT

To promote and facilitate research by engaging all faculty in clinical, preclinical, translational, or basic scholarly activity; to discover innovative knowledge pertinent to veterinary clinical disciplines and impart this knowledge to the veterinary community and the biomedical sciences; and to educate future scientists.

III. RESEARCH PLAN

The Research Strategic Initiative is based on review of a five-year period starting 01/01/2002 through 12/31/2006. The document is divided into three sections.

A. Current status of the department in terms of personnel, research funding, and publications.

This information provides the important basis with which to evaluate progress over the next five years. Most notable is that the department’s extramural research expenditures (excluding F&A) increased 2.3-fold from calendar year 2002 to 2006 ($0.86M in 2002 to $2M in 2006) for a total of $6.05M in direct costs and $8.1M total awarded for the five-year period. Intramural funding during this time period totaled $1.2M. Average Facilities and Administrative (F&A) recovery from all extramural grants was 17.2% and for intramural grants was 4.5% during the five-year time span. See Tables 2 and 3.

B. Research goals and strategies to accomplish the overall goal of increasing the size, quality, and reputation of the research program.

This section is broken down into short-term and long-term strategies to facilitate faculty development, infrastructure improvements in space, resources, and administrative support.

C. Methods to evaluate success of the five-year Research Initiative plan.
Specific indicators would include a sustained dissemination of scholarly activity, including publications in high quality peer reviewed journals and an increase in
grants and contracts. Specific goals would include a similar or increased number of publications in widely disseminated forums that would register with Current Contents and the Veterinary community. It is recognized that an increase in quality of publications may occur without an increase in quantity of publications and could be assessed as an increase in impact factors and invitations for presentations of scholarly activity obtained from faculty annual reports over the next 5 years. Specific goals for research grants and contracts would include a 1.5-fold change in total awards and a 2.0-fold change (doubling) in research expenditures from the most recent five year total of $7.3 M to at least $14.6 M by 2011; a 1.5-fold change in the number of grants with full F&A (current federal rate is 50%); an increase in usable research space and major equipment to support research; an improved research culture engaging all faculty; greater numbers of faculty participating in the professional faculty leave program (sabbatical), and an increase in the number of quality faculty and research trained faculty (PhD degree), research scientists, scholars, and graduate students devoted to research.

A. Research: Summary of Current Status

1. Personnel. There are currently (2006) 47 primary departmental faculty: 15 professors -tenured, 13 associate professors - tenured, 4 assistant professors – tenure-track, one professor-clinical, 3 associate professors - clinical and 11 assistant professors - clinical. For the most part, faculty function within a clinical discipline (Tables 1A and 1B).

In addition, the department has one joint-appointed faculty (assistant professor), two clinical assistant professors (annual), four clinical instructors, one fellow and 30 residents. The majority of the graduate students in the department are residents in the clinical specialty training program, of which 29 are in the masters degree program. From 2002-2006, 45 VCS Masters of Science students and nine VCS PhD students matriculated (Table 6).

2. Research Space. Current (2006) faculty assigned research space is shown in Table 4.

3. Research Funding. Complete data were collected for calendar years 2002 through 2006 for all extramural (federal and non-federal) sources. Only faculty contributing at least ½ time to the 2002-2006 window were included in funding tables. Thirty seven faculty were collectively awarded a total of $8.1M in extramural funds (6.05M in direct costs) during this five-year period. Annual extramural research expenditures (excluding F&A) increased 2.3-fold from calendar year 2002 to 2006 ($0.86M to ~$2M). These awards were totaled for the five years and grouped by faculty clinical discipline into research disciplines including: internal medicine (cardiology, neurology, nutrition, dermatology, ophthalmology etc.), surgery, and radiology (Table 2A). Faculty are also listed by services as structure in 2002-2006 (Table 1B) and as structured in 2008 (Table
Federal extramural research expenditures over the five-year span totaled $1.7M (direct costs). Non-federal extramural expenditures totaled $4.9M, which included funding from private companies, research foundations, etc.

i. Research Funding by Discipline. A summary of extramural and intramural funding by discipline (A), including F&A rate, is listed in Tables 2 and 3. Disciplines represented were selected based on clinical specialties to reflect a connection through board certification, associations among faculty with graduate students and graduate courses, and to the clinical specialties in the rest of the academic medical center. Division of faculty by hospital section during 2002-2006 is represented in Table 1B and virtual assignment of these same faculty to our current hospital structure is represented in Table 1C. Variations among disciplines in FTE, matriculated graduate students, and specialty training are clarified below. Research effort as a percent FTE cannot be determined as faculty were assigned effort by % clinical effort, and remaining effort is divided among didactic teaching, service, and research. Research effort was unrecorded from 2002-2006. A brief description of the faculty research effort by clinical discipline (2002-2006) is listed below.

A. ANESTHESIA: Since 2002, the section of anesthesia has matriculated three MSc and two PhD graduates, had ~$1.27 million in extramural funding by the approximately five FTE. Areas of research expertise include anesthetic monitoring, pharmacology, cardiopulmonary physiology and cardiopulmonary resuscitation.

B. CARDIOLOGY: Since 2002, the subsection of cardiology has matriculated three PhD graduates, had ~$0.5 million in extramural research funding by the approximately three FTE. Research expertise included clinical and preclinical trials on cardiomyopathy of dogs and cats.

C. EMERGENCY AND CRITICAL CARE: Since 2002, the subsection of Emergency and Critical Care emerged under the small animal medicine section with 2 FTE.

D. DERMATOLOGY: Since 2002, the subsection of dermatology has matriculated two MSc graduates, had ~$0.1 million in extramural research funding by the two FTE. Research expertise has included medical management of otitis and immunology of dermatologic diseases.

E. INTERNAL MEDICINE: Since 2002, the general internal medicine subsection has matriculated 12 MSc and two PhD graduates, had ~$0.8 million in extramural research funding by the nine FTE. Research expertise has included exercise physiology, endocrine disorders, and inflammatory and infectious disease. The majority of research funding was in equine physiology.
F. NEUROLOGY: Since 2002, the subsection of neurology has matriculated one MSc graduate, had ~$0.3 million in extramural research funding by the two FTE. Research expertise has included infectious neurologic diseases in cats and imaging.

G. NUTRITION: Since 2002, the subsection of nutrition has matriculated one PhD graduate, had ~$1.4 million in extramural research funding by the one FTE. Research expertise has included interstitial cystitis and pain behavior in cats.

H. ONCOLOGY: Since 2002, the subsection of oncology has matriculated two MSc graduates, had ~$0.9 million in extramural research funding by the three FTE. Research expertise has included osteosarcoma and clinical trials and preclinical trials.

I. OPHTHALMOLOGY: Since 2002, the subsection of ophthalmology has matriculated three MSc graduates, had ~$0.32 million in extramural research funding by the three FTE. Research expertise has included keratitis and pharmacology of topical medications.

J. CLINICAL PHARMACOLOGY: Since 2002 until ~2005, the clinical pharmacology laboratory in our VCS department has had ~$4.5 million in contracts with one FTE, two faculty Fellows in the American College of Clinical Pharmacology, and provided the faculty oversight for the Ohio Racing Commission Drug Testing Program. During this period, The Thomas Powers Professorship of Clinical Pharmacology was awarded to our Department and the Endowed Chair was established.

K. RADIOLOGY: Since 2002, the section of radiology has matriculated six MSc graduates by the four FTE. Research expertise has been extensively collaborative and supported equipment purchases with emphases in advanced diagnostic imaging, interventional radiology and musculoskeletal imaging. In 2005, radiation therapy was initiated as a specialty.

L. SURGERY: Since 2002, the section of surgery has matriculated 15 MSc and one PhD graduate, had ~$2.3 million in extramural research funding by the 12 FTE. Research expertise has included orthobiologics, bone diseases in dogs, and implant mechanics. The majority of research funding was in equine and orthopedics.

M. THERIOGENOLOGY: Since 2002, theriogenology has matriculated one MSc graduate by the one FTE. Research expertise has been primarily collaborative.

5. Publications. The diversity in faculty research interests was reflected in the broad spectrum of published manuscripts obtained by electronic search of
current contents.
(http://apps.isiknowledge.com/WOS_GeneralSearch_input.do?product=WOS&search_mode=GeneralSearch&SID=4F9mC9Bg1KoekL1DiLG&preferencesSaved=&highlighted_tab=WOS) (12_05_07). Over the last 5-year period (calendar years 2002-2006), a total of 391 papers were published in scientific peer-reviewed journals disseminated in Current Contents. Table 7 shows the number of journal articles by discipline and by year. Articles were assigned to a discipline if the first, second, or last author was from that discipline. Articles were not duplicate counted.

6. VCS Contribution to College Signature Programs:

Biomedical Imaging Signature Program

The Biomedical Imaging Signature Program (BISP) was established in October of 2005 under the leadership of Dr. Wm. Tod Drost, Department of Veterinary Clinical Sciences. BISP is the newest of the signature programs to be formed and is still in its growing stage. BISP meets in our Department building every other Wednesday during Fall, Winter and Spring Quarters and averages 17 people per meeting, with ~12 members from VCS. The participants, presenters and attendees include people from the College of Veterinary Medicine; College of Medicine, Division of Imaging Research; Biomedical Engineering; Electrical Engineering; OSU Supercomputer Center; and University Laboratory Animal Resources. The VCS radiology service and equipment used for research within the building housing our Department includes the IVIS, MicroCT, CT, High Frequency Research Ultrasound.

Comparative Oncology Signature Program

The Comparative Oncology Signature Program was established in January of 2004 and of the ~25 members, nine are from VCS. The COP has moved aggressively to improve the environment and infrastructure for cancer research and clinical application to serve as a college translational research program. The Clinical Oncology Service within our department serves as the clinical arm for preclinical trials and clinical trials of research. The Clinical Trials Office, a college resource, is housed with our Department building. The Director of the OSUCVM Consortium program is within our department.

Infectious Disease Signature Program

The Infectious Disease Signature Program was established in June of 2004 and is comprised of ~35 faculty of which 3-4 are from the Department of VCS. The ISDP investigates infectious disease diagnostics needs of the College, and facilitates communications and research within the College and across the University. Our Department supports this program with 1 FTE that coordinates
the clinical microbiology program and 2 faculty within our department head many initiatives and policy committees.

7. Research Awards

Between 2002 and 2006, one faculty member from VCS received the Pfizer research award for excellence in research and two faculty have served as advisors for Barber Award recipients.

B. Research Goals and Strategies

B.1. Faculty Development

a. *Increase research productivity and quality*

Our overall goal is to develop an environment where existing and new faculty can develop productive, nationally recognized research and other scholarly activities representative of a high quality program. We propose an increase in total extramural expenditures for basic and applied research by 2-fold over the next five years (expectation is approximately $14.6 M in expenditures by year 2011 based on $7.3 M from 2002-2006). New faculty hires should be capable of and be provided opportunities to develop sustained extramural research funding in specific areas of research that compliment existing areas within the Veterinary Clinical Sciences and College faculty. In general, these faculty members also would develop productive collaborations with compatible interdisciplinary research groups within the College or University. Hiring strategies should be developed to take advantage of emerging areas to compliment and/or extend existing research strengths to support programmatic growth and support areas of expertise in clinical medicine and surgery.

*Short-term Strategies (<2 years):*

The Office of Research will sponsor seminars on identifying funding opportunities and grantsmanship. Objectives include better integration with other CVM faculty research projects, larger grants, and greater indirect cost recovery. The goal will be to help VCS investigators become better at identifying and exploiting research opportunities, when and wherever they might arise. The Office of Research also will provide enhanced administrative support, and assist with “marketing” our faculty and facilities for research. The Office of Research along with the VCS Department administration will develop online access to internal accounts for researchers. Improved efficiency in timely invoicing of expenses and application to accounts should immediately improve our research expenditure figures.

The offices of Research and Clinical Trials will provide administrative assistance to faculty engaged in these efforts, which will result in:

a. Increased extramural expenditures (support) by:
• Decreasing the time for invoicing expenses and remittances to accounts. Currently, the delay is extensive and unreliable. By reducing this turn-around time of posting expenditures, our research expenditures are expected to increase even without an increase in total funds awarded.

• Increasing the number and dollar value of grants submitted by~40% from the current level would provide most of the 1.5-fold (50%) increase projected in total awards.

• Increasing salary recovery (release time) on grants by 100% (2-fold) from the current level which is almost nonexistent. When the College recommendation of requesting 10% faculty release time on all extramural grants is achieved, we anticipate VCS will exceed the 2-fold (100%) increase in release time funding.

• Increasing equipment requests on grants by 25% from the current level.

b. Successful recruitment and hiring of faculty members to support departmental interdisciplinary programs. Programs will be identified based on proposals submitted by each program interested in support to the VCS Department Chair. Criteria will be “return on investment” as well as quality of scientific training and scholarly productivity.

c. Drafting of a plan by the Department Chair, in cooperation with the faculty, containing: number of faculty hires, faculty profile (background, qualifications, research interests, and expected level of funding), and salary sources.

d. Active participation in college signature programs, including Homeland security with infectious diseases associated with animal contacts.

e. Ability to quantify and assess quality of research performance of faculty as part of the annual report: statistics may include number and type of grants submitted (indirect costs), success rate of grant applications, total direct dollars, number and quality of publications [impact factors, number of citations, clinical paper evidence level], high profile research service positions (positions that facilitate competitiveness in one’s research field such as research review committee member, editorships, editorial board member, meeting organizers or session chairs), invitations to speak on focus of work [distinguished lectureships, state of the art lectureships]. The goal would be that all faculty members will be engaged in participating in scholarly research and extramural funding as principal, co-investigator, or collaborators. Internal funding should support clinical research as well as serve as seed money for extramural grants or contracts. Administrative support to capture this information electronically for the department would improve outcome assessment. Further development of quality indicators of research is warranted.
**Long-term Strategies (2-5 years):**

i. Identify opportunities to obtain funds to hire and support additional faculty. Partner with the biomedical community including the College of Veterinary Medicine, OSU Office of Research, The College of Medicine, The James Cancer Hospital and Solove Research Institute and the Comprehensive Cancer Center, Heart Lung Research Institute, Bioinformatics, Imaging Center, Neurobiotechnology Center and Transgenic Core, Heart Hospital, and Biomedical Research Tower, as well as other Departments within the University, Children’s Research Institute, and commercial entities.

ii. Investigate ways to facilitate and encourage the use of sabbatical leave to enhance research. Provide guidelines for arranging sabbatical leave including identifying funding mechanisms, and identifying teaching and service substitutes. Invite experienced faculty speakers to give presentations on implementation of sabbatical leave, particularly for faculty with partial clinical appointments.

iii. Improve research incentive policies. Develop incentive/opportunity programs for obtaining research funding to supplement faculty salary. Implement the start date of raises for 9-month faculty to be July 1 instead of October 1, and increase access to faculty salary recovery funds. Clarify OSU policy regarding salary remuneration from grants, identify pertinent funding agency guidelines, and investigate incentive policies of other universities including removal of the restriction on direct salary supplementation from research grants.

iv. Consider implementation of Assistant, Associate and Professor – Research Track. Potential advantages include increased salary expenditures on extramural research dollars.

v. Establish greater internal research funding through fund raising, development, and legislative lobbying for programmatic research support and unrestricted funds for internal research. Currently internal funding is limited to dogs and farm animals. Support for a wide array of species, including cats should be sought. The equine research internal funding mechanism through the Ohio Racing Commission should be reexplored. 

**b. Enhance diversity among faculty through the hiring and retention of qualified women and underrepresented minorities.**

*Short-term Strategies:*

i. Utilize College resources to directly assist in recruitment of women faculty and faculty from underrepresented racial and ethnic groups by funding visits to colleges or research institutions that train qualified women and underrepresented minority scientists.

ii. Use existing programs at OSU including those sponsored by the Office of Minority Affairs (OSU) to recruit research scientists at OSU to improve the
visibility and exposure of underrepresented groups to research opportunities and faculty positions.

iii. Incorporate staff members of the Office of Minority Affairs into recruitment efforts. Recruitment efforts should include visits to the Office of Minority Affairs by all appropriate faculty recruits brought to visit the OSU campus. During this visit the staff will orient the prospective recruit on the various activities on campus for social events, retention services, and cultural activities that encourage and support underrepresented minorities.

iv. Closely monitor women and underrepresented minority faculty’s academic progress through the Faculty Advisory Committee to ensure that there is professional and social/cultural support for these scientists.

v. Personal interviews should be conducted by the Chair of the Department to ensure the comfort level of each faculty member on a regular basis. This will provide a setting for the faculty member to voice concerns or suggestions for the academic program or broader issues relevant to completion of research plans and to enhance involvement with interdisciplinary research groups on campus.

Long-term Strategies:

i. Pursue internal and external funding from programs that support research participation of women and underrepresented minority scientists; obtain funds to invite underrepresented racial/ethnic groups to visit OSU, and to conduct receptions/special programs for prospective scientists.

ii. Distribute targeted recruitment brochures and provide specific announcements via our website to encourage the application of women and underrepresented racial/ethnic scientists at the pre-doctoral, professional, and post-doctoral level.

iii. Promote networking with other groups that support women scientists and underrepresented minority scientists at OSU.

B.2. Department Infrastructure, Resources, and Administrative Support

The overall goal is to determine existing department research assets and future needs.

B.2.1. Infrastructure

a. Short-term Strategies (< 2 years):
Currently assigned VCS faculty space and other department research space and locations are listed in Table 4.

i. Assess departmental infrastructure needs
   a. Appoint a Departmental Focus Group, suggested to be part of the Department internal review, to assess currently unmet infrastructure needs, including a feasibility study to renovate current research space.
b. This group also will assess expected future infrastructure needs (see below).

ii. Establish departmental core laboratories
   c. VCS departmental core laboratories ideally will be centrally located within the basement of VTH in renovated research space. Core laboratories may include a molecular biology laboratory, assay laboratory, biologic laboratory, or others as the need is identified.
   d. Instrumentation for this laboratory initially will be provided from the laboratories of departing VCS faculty and existing equipment or other sources.
   e. Technical support for the laboratory will be provided by the faculty director of the laboratory or the Department. Accounting and reimbursement for the core laboratory should be supported by the Department.
   f. The laboratory will be supervised by an appointed faculty Director from VCS.

iii. Define criteria for assignment of lab space
   Guidelines may include % effort in research, extramural funding, and overall activity in research. Guidelines would include relegated and shared research space. Faculty Directors should be assigned to shared space or Core Facilities for the Department and be responsible for maintaining and operating these facilities. The efficiency of use of these Department resources should be evaluated annually by the VCS Research Committee. When appropriate, shared assignment of laboratory space to a group of investigators, with a faculty Director, may be appropriate. Recommendations include:
   g. The Chair will be responsible for assuring research space
   h. The Chair will be responsible for research space allocation
   i. Space will be allocated to increase the likelihood of achieving the goals of the Faculty and the Department
   j. Consideration of program size and type of research program
   k. Consideration of number of graduate students
   l. Consideration of funding
   m. Involvement in collaborative research
   n. Additional information on space allocation is provided in the Patterns of Administration document (Research Space Assignments)
   o. Assignment of Space will be made by the Chair in consultation of the College Space Committee and Dean.

iv. Strategy for renovation of research space
A feasibility study is recommended for the strategic renovation of research space available within the VTH. Renovation of this space for “Areas of Excellence” in clinical disciplines is considered critical to the advancement of translational research in our department.
p. It is recommended that the basement of the VTH be renovated. Due to the architectural limitations and restrictions, a feasibility study and budget is recommended. Ideally, investigators working in similar areas of research would be housed in close proximity and in close proximity to the clinics in their discipline.

q. An assessment of current and future needs of the Department should be included in our Academic Review and be updated at least every five years.

**Medium Term strategies (2-5 years)**

i. Renovation of VTH research space

a. The Department Focus Group will meet with Dr. Moore to discuss their initial assessment of currently unmet and future infrastructure needs. The Academic Review team for the Department should be requested to focus on research as one objective and the results of their review and the external review considered in the discussions.

b. Together, Dr. Moore and the Focus Group will initiate a feasibility study to perform an initial assessment of current and potential research space available in the basement of the VTH and options for renovation.

c. Renovation of VTH research space will be planned within the context of the overall CVM infrastructure plans.

d. Develop a plan for funding and renovation of research space.

e. Renovated space should be of the highest quality and designed to maximize investigator, staff, and student interactions. Options may include centralization of common use equipment and techniques, a more open floor plan, glass or split doors that can be open would create a more welcome environment.

f. Ideally, investigators whose research would benefit from close proximity to the clinics would occupy renovated VTH research space.

B. Upgrade Hospital Information System

a. VCS will actively participate in the process of upgrading the hospital information system.

b. The ability of any upgrade of the hospital information system to facilitate clinical research should be a major factor in choosing which system to adopt.

**Long Term Strategies (5-10 years)**

A. Translational Clinical and Research Center

a. The concept of a Translational Clinical and Research Center will be promoted within the OSU community and to private industry. The goal will be to promote our unique ability to perform clinical research for animals. Our clinical patient population could receive new treatments establishing foci of “centers of clinical excellence” and provide clinical studies for future work.
b. The concept of preclinical testing and modeling of human disease in large (non-rodent) animals will be promoted.

c. The concept of “one medicine” and collecting data on companion animals to provide information to human medicine will be promoted.

d. Partnering with other colleges and departments within the OSU community and industry for these activities will be actively pursued and supported by the department and college.

B. New VTH

a. Plans for a new VTH should include clinical research space, especially for those activities that require or would benefit from close proximity to clinical patients.

C. Completely new research facilities: The long term goals would be a new research tower for our College to provide state-of-the-art facilities to recruit and support a growing research faculty.

B.2.2. Resources and Administrative Support

The overall goal is to optimize the use of department resources and support services for maximal research productivity, including staff, students, equipment, space and faculty expertise.

Short-term Strategies (< 2 years)

i. Current assigned VCS faculty space and other department research space and locations are listed in Table 4. Current staff (technical) and research titles are listed in Table 5. A job description for a Research Coordinator as a new hire for the Department is listed in Appendix I.

ii. The appointed Departmental Focus Group, suggested to be part of the Department internal review, will assess current resources within the department including a list of inventory of research equipment and clinical equipment that can be used for research. It is recommended that a survey to assess inefficiencies in research, including administrative support, resources, space, technical staff and faculty expertise be included in their report. This research needs assessment report would be provided to the VCS Department Chair. Several concerns relevant to Research were identified by the Task Force (Dr. Drost, Chair) to investigate Administrative Efficiency for VCS and are listed in Appendix II.

iii. Hire a department Research Coordinator (Appendix I) with excellent management, communication, and technical skills. The role of this individual would be to assist faculty with research by: 1) serving as a central resource for coordination of space, equipment, and resources, 2) providing research assistance on an assigned basis, 3) providing faculty with enabling information such as SOP documents, updated price lists for research,
resource descriptions for grants and sign up for room use, and 4) serving as a liaison to the CTO and Office of Research.

iv. Finalize a Clinical Trials Document with the Clinical Trials Office and Director, Dr Cheryl London, which describes the process and procedures for use of that office by VCS faculty. The Current draft Clinical Trials Office Mission Statement and list of responsibilities is in the **Appendix III**.

v. Faculty should be surveyed for expertise in outcome measures for clinically-related research. The results will be compiled by the VCS Research Committee and distributed to faculty and the Office of Research. Examples would include small and large animal force plate analysis, expiratory anesthetic gas analysis, cardiac output monitoring, etc.

**Medium Term strategies (2-5 years)**

i. The VCS Research Committee would provide a biennial report to the Department Chair and include metrics of faculty and programmatic participation in research. Metrics would include funding, publications and scientific presentations as well as attendance at department research seminars, guest research lectures, and attendance at programmatic research meetings that cross species or disciplines, such as imaging, infectious disease or pharmacology. The committee would annually update descriptions of research positions, fee schedules, equipment, laboratories, core laboratories, faculty expertise, and research space. The VCS research committee would request reports from the research constituency groups and include these in the final annual report to the Chair. Constituency groups would include core laboratories, shared laboratories and the research coordinator.

ii. Use biennial surveys of the faculty to identify obstructions to research coordinated by the VCS Research Committee.

iii. Maintain biennial update of the Department-wide central resource document with pricing by the Department Research Coordinator. This document would include, but not be limited to, pharmacy, central supply, surgery, radiology, anesthesia, gait analysis, assays in core labs, and clinical pathology.

iv. An SOP to coordinate research staff within the department for shared purposes will be developed. As faculty train technicians with expertise in certain techniques and assays, this information, along with a fee schedule, is recommended to be collated and access provided to all faculty.

v. Actively pursue funding and renovation of research space.
vi. Identify and distribute information for Department and College Core Facilities and Resources. Develop a brochure describing programs.

vii. Upgrade the Hospital Information System to facilitate clinical research on patient information will be upgraded.

**Long Term Strategies (5-10 years)**

i. Identify in the new building or identify renovated space to support a Translational Clinical and Research Center. New foci may include Interventional Radiology, Cell-based therapy, Pain Therapy, Musculoskeletal Program, Critical Care Program, etc.

ii. Work with Development to recruit Endowments for programmatic development, including endowed chair positions.

iii. See infrastructure sections on new VTH and Research Tower for CVM.

**C. Methods to Evaluate Success of the Research Initiative.**

A biennial peer-review of research progress performed by the VCS Research Committee in consultation with the Department Chair will provide objective metrics for success. Such review will include consideration of the annual report provided by the Office of Research and summary statistics of Faculty Annual Report Forms. See below for specific recommendations on criteria to assess success. Administrative support to collate these data for the committee will be paramount.

Application of a survey instrument generated by a specialist in the field or a survey agency will facilitate metric gathering. The instrument should include subjective metrics of success including the research atmosphere, research culture, and collaboration. Satisfaction in the Department of VCS will be objectively quantified using a PC-based online research data collection system and a questionnaire specifically designed and developed for such assessment. Obstacles in the way of satisfaction and success will be identified and should promptly be addressed by recommendations from the VCS research committee and the Department Chair.

**1. Publishing and Presentation: Criteria for Department Success in Supporting Research**

A goal of an increase in quality and quantity of research publications and research presentations by approximately 1.5-fold (50% increase) in the next five years would reflect an increase in research productivity. Measures of quality include the type of publication with publication of original, hypothesis-driven studies in peer-reviewed journals having highest importance and may be clinical or basic studies, impact factor, citation index, papers published in the upper half
of the top journals of the respected disciplines, the impact of the studies on the understanding of animal diseases, the practice of veterinary medicine and the potential benefit of the study results with regard to further funding.

2. Funding
An approximately 1.5-fold increase in total awards and 2-fold increase (doubling) in extramural expenditure dollars in the next five years. In addition, a 1.5-fold increase in average F&A rate per discipline as a goal can be achieved by less reliance on internal funds that pay minimal overhead, greater numbers of submissions for grants and contracts paying full overhead, and formation of teams that can compete for larger grants. It is anticipated that improvements in accounting alone should increase the department expenditures and explains the anticipated greater increase in expenditures than total awards or F&A rate. It is vitally important for a clinical science department to strive for a balance in basic research and clinical research resulting in a balance of scholarly publications in clinical and basic journals and this should be assessed. It is recognized in a clinical department that many prestigious funding sources will pay less F&A rate, or in some instances, no F&A rate. Faculty should consider the submission of grant applications and whenever possible select agencies that pay F & A. In a Veterinary Clinical Science Department, careful consideration of the tabulated data for funding in comparison to total FTE and Research FTE allocation should be tabulated. Administrative assistance in collating the electronic annual report data for the department will be critical to accurate assessment of departmental productivity. Productivity in balanced scholarly activity would be ideal with FTE dedicated to clinical scholarship and basic research scholarship in order to have the highest impact programs in veterinary clinical disciplines. Well-rounded programs will represent programmatic strength that spans clinical and innovation expertise.

3. Personnel
An approximately 1.5-fold (50%) increase in effort “hours” toward research provided by research-oriented faculty, scholars, graduate students, and FTE technicians devoted to research. Improved professional placement of our graduates (i.e. tenure track academic positions and prestigious post-doctoral fellowships) should result from this effort.

4. Research Awards, honors, and recognitions
Increased number of research awards and nominations for such awards for individual faculty members, graduate students, residents, and mentored professional students at national and international levels. Other metrics include faculty participation on national grant review panels, study sections, etc.

5. Signature Programs
Greater number of and impact on the design and conduct of signature-like programs, specifically those with high impact in our department (see also under Faculty Development Goals).
6. Multicenter Initiatives and Scholarly Activity
Participation in a greater number of multicenter trials and other scholarly activity outside OSU as an indicator of national and international research recognition (e.g. journal editorship, journal editorial board member, review board of funding agencies, professional extra-departmental task forces, manuscript review, members of consortia).

7. Laboratory space
An increase of two-fold in quantity of usable research space and equipment. Increased research resources are anticipated to be an indicator of research activity. Recording dates and square footage of renovations in laboratories should be an indicator of improvement in quality of research laboratories and expansion of research programs. Renovation, reconstruction, and reallocation of currently available lab space will be performed according to a Master Plan for Reconstruction and Renovation of Research Space drafted as part of a recommended feasibility study with the long-term goal of developing state-of-the-art facilities. VCS should strive to be part of college initiatives to build research programs.

8. Endowments - Program and Faculty Quality
The number of VCS faculty in named endowed professorships and chairs is a metric of faculty quality. Other metrics of research quality in faculty would include numbers of faculty with PhD degrees and Post-doctoral research fellowships. A two-fold increase in research faculty awarded named professorships and endowed chairs with faculty commitment of effort to VCS is desirable. In addition, an increase in at least one endowment identified for a programmatic group based in our Department.

9. New faculty recruitments with Research Emphasis
In consideration of high impact discipline programs, recruitment of research intensive faculty to balance our clinical programs should be a goal. This may include hires of Research Track faculty. In programs that are predominately clinical, strategic hires of faculty with a significant portion of effort in research should be strongly encouraged in faculty replacements.

10. Sabbatical Leave Programs (Faculty Professional Leave)
Numbers of faculty that participate in the University Faculty Professional Leave program reflect the success of our research program. It is recommended that VCS develop a plan to strategically ensure faculty use this program for research development. Plans may include a rotation schedule and assistance with finding funding to support faculty salaries and salaries for replacement clinicians. If all faculty in VCS took advantage of the FPL, ~ 7 faculty would be absent on FPL each year.

11. Graduate Programs
VCS faculty should serve as graduate advisors and employers of research trainees, such as post-doctoral fellows. Well-rounded graduate program goals include a diverse didactic course plan with VCS faculty serving as team leaders and many faculty engaged as graduate committee members. Extramural funding for research trainees will strongly support faculty productivity in research. Other metrics of quality of graduate training in the VCS department would include numbers of PhD students and Post-doctoral Fellows in Research Training, number of graduate students with Mentored K award or equivalent, number of national research awards won, etc.

12. Other scholarly activities
An increased number of departmental research seminars, seminar mini-series coordinated by faculty in our department, research presentations by VCS faculty, and number of attendees from our department of such events. A goal is for every faculty member to be engaged in productive scholarly activity.

13. Participation
Faculty participation in scholarly activity is an expectation with a goal of 100% engagement. The form of participation is expected to vary based on appointment and time commitment to research. Active participation on graduate committees of residents in faculty discipline areas, attendance at seminars in areas of specialty and discipline, and participation as an instructor and team leader in graduate courses in one’s area of expertise is expected of all faculty.

14. New course development
Faculty development of new courses that would include participation from other departments within the university would improve the recognition of our department and faculty and potentially expand department resources. Programs most successful within the department with the highest impact on advancing veterinary medicine would be expected to include course development as a component of the program.
Table 1A. VCS Faculty, present for > 2.5 of the 5 year span from 2002-2006, listed by discipline and included in $ totals for Tables 2 and 3.

A. Anesthesia
Bednarski, Richard
Hubbell, John A. E
Muir, William W. III*
Skarda, Roman T.*
Abrahamsen, Eric*

B. Critical Care
Bateman, Shane W.
O’Toole, Elizabeth*

C. Cardiology
Bonagura, John
Meurs, Kathryn*
Schober, Karsten E.

D. Dermatology
Cole, Lynette K.
Hillier, Andrew

E. Internal medicine
Chew, Dennis J. (SA)
DiBartola, Steven (SA)
Gallatin, Laurie (Eq)
Hinchcliff, Kenneth* (Eq)
Johnson, Susan (SA)
Kohn, Catherine (Eq)
Lakritz, Jeffrey (FA)
Miesner, M.D.* (FA)
Reed, Steven* (Eq)
Rings, D. Michael (FA)
Schmall, Michael (Eq)
Sherding, Robert (SA)

F. Neurology
Abramson, Carley J.*
March, Philip*

G. Nutrition

Buffington, C. Anthony

H. Oncology
Couto, C. Guillermo
Kisseberth, William
London, Cheryl A. (75% VBS and 25% VCS)

I. Ophthalmology
Colitz, Carmen*
Metzler, Anne Gemensky
Wilkie, David A.

J. Clinical Pharmacology
Sams, Richard*

K. Radiology
Drost, W. Tod
Green, Eric M.
Mattoon, John*
Samii, Valerie

L. Surgery
Anderson, David E.* (FA)
Bertone, Alicia L. (Eq)
Birchard, Steven J. (SA)
Chase, James (Eq)
Dyce, Jonathan (SA)
Hull, Bruce D.* (FA)
Johnson, Ken (SA)
Kowaleski, Michael* (SA)
Latimer, Federico* (Eq)
McLoughlin, Mary Ann (SA)
Robertson, James * (Eq)
Smeeck, Daniel S.* (SA)

M. Clinical Microbiology
Kowalski, Joseph J.*

N. Theriogenology
Threlfall, Walter R.

* denotes no longer at OSU
Table 1B. VCS Section Faculty 2002-2006**

** Section Divisions listed are based on hospital services as aligned in 2002-2006

A. Anesthesia

Bednarski, Richard (anesthesia)
Hubbell, John A.E. (anesthesia)
Muir, William W. III* (anesthesia, Critical care, clinical pharmacology)
Skarda, Roman T.* (anesthesia)
Abrahamsen, Eric* (anesthesia)

B. Small Animal Medicine

Bateman, Shane W. (Critical Care)
O'Toole, Elizabeth* (Critical Care)
Bonagura, John (Cardiology)
Meurs, Kathryn* (Cardiology)
Schober, Karsten E. (Cardiology)
Cole, Lynette K. (Dermatology)
Hillier, Andrew (Dermatology)
Chew, Dennis J. (Internal Medicine)
DiBartola, Steven (Internal Medicine)
Johnson, Susan (Internal Medicine)
Sherding, Robert (Internal Medicine)
Abramson, Carley J.* (neurology)
March, Philip* (neurology)
Buffington, C. Anthony (nutrition)
Couto, C. Guillermo (Oncology)
Kisseberth, William (Oncology)
London, Cheryl A. (50% VBS and 50% VCS) (Oncology)
Colitz, Carmen* (Ophthalmology)
Metzler, Anne Gemensky (Ophthalmology)
Wilkie, David A. (Ophthalmology)

C. Pharmacology

Sams, Richard*

D. Radiology

Drost, W. Todd (Radiology)
Green, Eric M. (Radiology, Radiation Oncology)
Mattoon, John* (Radiology)
Samii, Valerie (Radiology)

E. Equine

Beard, Warren L.* (Surgery thru 2003)
Belknap, James (Surgery 2004 on)
Bertone, Alicia L. (Surgery)
Latimer, Federico* (Surgery)
Robertson, James* (Surgery)
Sutter, Wesley W.* (Surgery 2003-2005)
Hinchcliff, Kenneth* (Internal Medicine)
Kohn, Catherine (Internal Medicine)
Reed, Steven* (Internal Medicine)
Chase, James (Ambulatory, Surgery)
Gallatin, Laurie (Ambulatory, Internal Medicine)
Schmall, Michael (Ambulatory)

F. Food Animal

Anderson, David E.* (Surgery)
Hull, Bruce D.* (Surgery)
Lakritz, Jeffrey (Internal Medicine)
Miesner, M.D.* (Internal Medicine)
Rings, D. Michael (Internal Medicine)

G. Small Animal Surgery

Birchard, Steven J.
Dyce, Jonathan
Johnson, Ken
Kowaleski, Michael*
McLoughlin, Mary Ann
Smee, Daniel S.*

J. Clinical Microbiology

Kowalski, Joseph J.*

K. Theriogenology

Threlfall, Walter R.

* denotes no longer at OSU
Table 1C. VCS 2002-2006 Faculty allocated to current 2008 Services

A. Anesthesia

- Bednarski, Richard (anesthesia)
- Hubbell, John A.E (anesthesia)
- Muir, William W. III* (anesthesia, Critical care, clinical pharmacology)
- Skarda, Roman T.* (anesthesia)
- Abrahamsen, Eric* (anesthesia)

B. Cardiology

- Bonagura, John (Cardiology)
- Meurs, Kathryn* (Cardiology)
- Schober, Karsten E. (Cardiology)

D. Dermatology

- Cole, Lynette K. (Dermatology)
- Hillier, Andrew (Dermatology)

E. Equine

- Beard, Warren L.* (Surgery thru 2003)
- Belknao, James (Surgery 2004 on)
- Bertone, Alicia L. (Surgery)
- Latimer, Federico* (Surgery)
- Robertson, James* (Surgery)
- Sutter, Wesley W.* (Surgery 2003-2005)
- Hinchcliff, Kenneth* (Internal Medicine)
- Kohn, Catherine (Internal Medicine)
- Reed, Steven* (Internal Medicine)
- Chase, James (Surgery, Ambulatory)
- Gallatin, Laurie (Internal Medicine, Ambulatory)
- Schmall, Michael (Ambulatory Practice)

F. Food Animal

- Anderson, David E.* (Surgery)
- Hull, Bruce D.* (Surgery)
- Lakritz, Jeffrey (Internal Medicine)
- Miesner, M.D.* (Internal Medicine)
- Rings, D. Michael (Internal Medicine)

G. Neurology

- Abramson, Carley J.* (neurology)
- March, Philip* (neurology)

H. Oncology

- Couto, C. Guillermo (Oncology)
- Kisseberth, William (Oncology)
- London, Cheryl A. (75% VBS and 25% VCS) (Oncology)

I. Ophthalmology

- Colitz, Carmen* (Ophthalmology)
- Metzler, Anne Gemensky (Ophthalmology)
- Wilkie, David A. (Ophthalmology)

J. Radiology

- Drost, W. Todd (Radiology)
- Green, Eric M. (Radiology, Radiation oncology)
- Mattoon, John* (Radiology)
- Samii, Valerie (Radiology)

K. Small Animal Care and Wellness

- Bateman, Shane W. (Critical Care)
- O’Toole, Elizabeth* (Critical Care)
- Buffington, C. Anthony (nutrition)

L. Small Animal Internal Medicine

- Chew, Dennis J. (Internal Medicine)
- DiBartola, Steven (Internal Medicine)
- Johnson, Susan (Internal Medicine)
- Sherding, Robert (Internal Medicine)

M. Small Animal Surgery

- Birchard, Steven J.
- Dyce, Jonathan
- Johnson, Ken
- Kowaleski, Michael*
- McLoughlin, Mary Ann
- Smek, Daniel S.*

N. Clinical Microbiology

- Kowalski, Joseph J.*

O. Theriogenology

- Threlfall, Walter R.

P. Pharmacology

- Sams, Richard*

* denotes no longer at OSU
Table 2. Overview of VCS Awards by Discipline 2002-2006

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Extramural Directs</th>
<th>Extramural F&amp;A</th>
<th>Extramural Total</th>
<th>Intramural Directs</th>
<th>Intramural F&amp;A</th>
<th>Intramural Total</th>
<th>Award Total</th>
<th>Average F&amp;A</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesia/Crit. Care</td>
<td>$2,532,228</td>
<td>$644,652</td>
<td>$3,176,880</td>
<td>$110,466</td>
<td>$6547</td>
<td>$117,013</td>
<td>$3,293,893</td>
<td>19.8%</td>
<td>6</td>
</tr>
<tr>
<td>Cardiology</td>
<td>$533,061</td>
<td>$13,965</td>
<td>$547,026</td>
<td>$107,944</td>
<td>$3399</td>
<td>$111,343</td>
<td>$658,359</td>
<td>2.6%</td>
<td>3</td>
</tr>
<tr>
<td>Dermatology</td>
<td>$85,858</td>
<td>$14,720</td>
<td>$100,578</td>
<td>$80,360</td>
<td>$3594</td>
<td>$83,954</td>
<td>$184,532</td>
<td>9.9%</td>
<td>2</td>
</tr>
<tr>
<td>Internal Med.</td>
<td>$661,478</td>
<td>$125,593</td>
<td>$787,071</td>
<td>$147,296</td>
<td>$6622</td>
<td>$153,918</td>
<td>$940,989</td>
<td>14.0%</td>
<td>9</td>
</tr>
<tr>
<td>Microbiology</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Neurology</td>
<td>$255,484</td>
<td>$18,386</td>
<td>$273,870</td>
<td>$37,837</td>
<td>$1,349</td>
<td>$39,186</td>
<td>$313,056</td>
<td>6.3%</td>
<td>2</td>
</tr>
<tr>
<td>Nutrition</td>
<td>$997,311</td>
<td>$359,261</td>
<td>$1,356,572</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$1,356,572</td>
<td>26.5%</td>
<td>1</td>
</tr>
<tr>
<td>Oncology</td>
<td>$739,286</td>
<td>$123,308</td>
<td>$862,594</td>
<td>$51,849</td>
<td>$7725</td>
<td>$59,574</td>
<td>$922,168</td>
<td>14.2%</td>
<td>3</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>$296,590</td>
<td>$21,038</td>
<td>$317,628</td>
<td>$120,369</td>
<td>$0</td>
<td>$120,369</td>
<td>$437,997</td>
<td>4.8%</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>$81,870</td>
<td>$0</td>
<td>$81,870</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$81,870</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Radiology</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$141,853</td>
<td>$4585</td>
<td>$146,438</td>
<td>$146,438</td>
<td>3.1%</td>
<td>5</td>
</tr>
<tr>
<td>Surgery</td>
<td>$1,937,963</td>
<td>$360,589</td>
<td>$2,298,552</td>
<td>$347,786</td>
<td>$7231</td>
<td>$355,017</td>
<td>$2,653,569</td>
<td>13.9%</td>
<td>11</td>
</tr>
<tr>
<td>Theriogenology</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>$8,121,129</td>
<td>$1,681,512</td>
<td>$9,802,641</td>
<td>$1,145,760</td>
<td>$41,052</td>
<td>$1,186,812</td>
<td>$10,989,463</td>
<td>11.5%</td>
<td>47</td>
</tr>
</tbody>
</table>

*Avg. F&A for extramural = 17.2% for intramural = 4.5%
Table 3. Overview of VCS Expenditures by Discipline 2002-2006
(Extramural Only)

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Extramural Directs</th>
<th>Extramural F&amp;A</th>
<th>Extramural Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesia/Crit. Care</td>
<td>$1,016,520</td>
<td>$245,663</td>
<td>$1,262,184</td>
</tr>
<tr>
<td>Cardiology</td>
<td>$512,371</td>
<td>$8,079</td>
<td>$520,450</td>
</tr>
<tr>
<td>Dermatology</td>
<td>$88,280</td>
<td>$16,618</td>
<td>$104,899</td>
</tr>
<tr>
<td>Internal Med.</td>
<td>$957,944</td>
<td>$200,153</td>
<td>$1,158,097</td>
</tr>
<tr>
<td>Microbiology</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Neurology</td>
<td>$197,320</td>
<td>$71,814</td>
<td>$269,134</td>
</tr>
<tr>
<td>Nutrition</td>
<td>$1,014,708</td>
<td>$326,690</td>
<td>$1,341,398</td>
</tr>
<tr>
<td>Oncology</td>
<td>$318,421</td>
<td>$52,914</td>
<td>$371,335</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>$367,816</td>
<td>$25,299</td>
<td>$393,116</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>$82,684</td>
<td>$0</td>
<td>$82,684</td>
</tr>
<tr>
<td>Radiology</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Surgery</td>
<td>$1,412,364</td>
<td>$306,767</td>
<td>$1,719,132</td>
</tr>
<tr>
<td>Theriogenology</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td>$6,058,428</td>
<td>$1,253,997</td>
<td>$7,312,425</td>
</tr>
</tbody>
</table>

*Avg. F&A for extramural = 17.2%
### Table 4. Current (2006) assigned VCS faculty research space

<table>
<thead>
<tr>
<th>Current Faculty</th>
<th>Room</th>
<th>Total Sq Ft</th>
<th>Current Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belknap</td>
<td>VMAB 461</td>
<td>439</td>
<td>Mol Bio/ Cell Bio</td>
</tr>
<tr>
<td>Bertone</td>
<td>VMAB 325</td>
<td>1069</td>
<td>Mol Bio/Cell Bio</td>
</tr>
<tr>
<td>Bonagura</td>
<td>VTH 0133</td>
<td>704</td>
<td>Clin Research</td>
</tr>
<tr>
<td>Buffington</td>
<td>VTH 0121</td>
<td>759</td>
<td>Assays</td>
</tr>
<tr>
<td>Kisseberth</td>
<td>VMAB 465</td>
<td>439</td>
<td>Mol Bio/ Cell Bio</td>
</tr>
<tr>
<td>Lakritz</td>
<td>VTH 0155</td>
<td>784</td>
<td>Mol Bio/ Cell Bio</td>
</tr>
<tr>
<td>Muir</td>
<td>VTH 0137, 0034</td>
<td>853</td>
<td>Physiology</td>
</tr>
<tr>
<td>Johnson</td>
<td>VTH 049, 052</td>
<td>~400; ~200</td>
<td>Surgical Res; Exackt</td>
</tr>
<tr>
<td>Toribio</td>
<td>VMAB 331</td>
<td>450</td>
<td>Mol Bio/ Cell Bio</td>
</tr>
<tr>
<td>Threlfall</td>
<td>VTH 0113</td>
<td>688</td>
<td>Repro Research</td>
</tr>
</tbody>
</table>

### Table 4A. Proposed assigned research space for new VCS Faculty (2007)

<table>
<thead>
<tr>
<th>Allen</th>
<th>SAM position</th>
<th>Clin Pharm</th>
</tr>
</thead>
</table>

### Table 4B. VCS research space vacated 2006-2007 due to faculty attrition

<table>
<thead>
<tr>
<th>Anderson</th>
<th>Meurs</th>
<th>VMAB 339</th>
<th>439</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colitz</td>
<td>VMAB 335</td>
<td>551</td>
<td></td>
</tr>
<tr>
<td>Sams</td>
<td>VTH 0129</td>
<td>704</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>VTH 050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kowaleski</td>
<td>VTH 046, 048</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4C. VCS department research space

<table>
<thead>
<tr>
<th>Bertone</th>
<th>VTH 1338</th>
<th>250</th>
<th>Force Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clin Path PCR</td>
<td>VTH 027, 029</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCS Core</td>
<td>VTH 0109</td>
<td>640</td>
<td>Mol Biol</td>
</tr>
</tbody>
</table>

### Table 4D. Other VTH basement space

<table>
<thead>
<tr>
<th>Hamlin lab</th>
<th>VTH 0143</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacated Race lab</td>
<td>VTH 0151, 0152, 0155, 0156</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy storage</td>
<td>0154</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Veterinary Clinical Sciences Research Staff (Funded by PIs)

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Faculty Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gregory Bannikov</td>
<td>Res Assoc 2 B/H</td>
<td>Dr. Lakritz</td>
</tr>
<tr>
<td>Ping Liu</td>
<td>Res Assoc 2 B/H</td>
<td>Dr. Buffington</td>
</tr>
<tr>
<td>Liliana Marin</td>
<td>Res Assist 1 B/H</td>
<td>Dr. Couto</td>
</tr>
<tr>
<td>Sridhar Murahari</td>
<td>Res Assoc 1 B/H</td>
<td>Dr. Kisseberth</td>
</tr>
<tr>
<td>David Smith</td>
<td>Res Assist 1 B/H</td>
<td>Dr. Bertone</td>
</tr>
<tr>
<td>Judith Stella</td>
<td>Res Assist 1 B/H</td>
<td>Dr. Buffington</td>
</tr>
<tr>
<td>Cailing Yin</td>
<td>Res Assoc 1 B/H</td>
<td>Dr. Belknap</td>
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Table 6. PhD and MS graduates 2002-2007 in Department of Veterinary Clinical Sciences

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<th>DISCIPLINE</th>
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Data compiled from library data base 11/24/07
### Table 7. Publications by Discipline* (2002-2006)

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<td>62</td>
<td>87</td>
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</tbody>
</table>

Data obtained by Current Contents Publication search for years 2002-2006. Publications from 2002-2006 that were not performed at OSU and have no other authors from OSU were not counted. Publications were not duplicate-counted.

*Discipline represented by first author; or second author behind resident/graduate student; or last author if first author is not a faculty member of a different discipline.

**Faculty FTE were counted if they were hired at OSU for ≥2.5 of the years from 2002-2006. Dr London’s FTE is 75% VBS and 25% VCS. She was counted as 50% VCS. Drs Bednarski and Hubbell were ½ FTE VCS due to an administrative appointment.
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Workforce needs for clinical specialists at colleges and schools of veterinary medicine in North America

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Ureteral ligation prevents the haemodynamic effect of frusemide in pentobarbitol anaesthetised horses

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Antagonism of detomidine sedation in the horse using intravenous tolazoline or atipamezole

Lerche P, Muir WW
Effect of medetomidine on respiration and minimum alveolar concentration in halothane-and isoflurane-anesthetized dogs
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JAVMA-JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION 228 (8): 1221-1227 APR 15 2006

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*Pain therapy in horses*
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*Use of the alpha-2 agonists xylazine and detomidine in the perianaesthetic period in the horse*
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*Effects of morphine, lidocaine, ketamine, and morphine-lidocaine-ketamine drug combination on minimum alveolar concentration in dogs anesthetized with isoflurane*
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*Sodium nitroprusside-induced deliberate hypotension to facilitate patent ductus arteriosus ligation in dogs*

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*Is evidence-based medicine our only choice?*
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*Chronic cardiac resynchronization reverses abnormal calcium handling in failing ventricular myocytes*
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In vitro activity of an ear rinse containing tromethamine, EDTA, and benzyl alcohol on bacterial pathogens from dogs with otitis  
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VETERINARY DERMATOLOGY 15 (2): 127-136 APR 2004

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VETERINARY CLINICS OF NORTH AMERICA-SMALL ANIMAL PRACTICE 34 (2): 397+ MAR 2004

Pyoderma caused by Pseudomonas aeruginosa infection in dogs: 20 cases  
VETERINARY DERMATOLOGY 17 (6): 432-439 DEC 2006

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*Comparison of bacterial organisms and their susceptibility patterns from otic exudate and ear tissue from the vertical ear canal of dogs undergoing total ear canal ablation*

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**AMERICAN JOURNAL OF VETERINARY RESEARCH 66 (1): 143-149 JAN 2005**

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*Evaluation of an ear cleanser for the treatment of infectious otitis externa, in dogs*

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JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION 220 (5): 623-627
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AMERICAN JOURNAL OF VETERINARY RESEARCH 66 (8): 1330-1336 AUG 2005

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VETERINARY RADIOLOGY & ULTRASOUND 46 (3): 267-272 MAY-JUN 2005

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APPENDIX I – JOB DESCRIPTIONS FOR VCS RESEARCH PERSONNEL

Research Coordinator
- Qualifications: Relevant background and experience in the design and conduct of basic research, including animal technical experience; must have excellent management, communication and technical skills.
- Job Description: Assists Investigators with identifying resources (space, equipment, technical help) for projects on a priority basis; works closely with CVM Grant Support Office and CVM Clinical Trials Office to facilitate project administration; assist with project implementation; provide relevant information to investigators including protocols, catalog/website information for obtaining supplies, specific forms for purchasing. Maintains department SOPs for procedures and pricing indices for support services for research.

APPENDIX II - TASK FORCE ON ADMINISTRATIVE EFFICIENCY

The following recommendations were made to improve service to research faculty (excerpted from the Task Force document to the VCS Chair in 2007)

a. On-line access to internal account statements
b. Course numbers for all graduate courses
c. Orientation to research for all new faculty
d. Rapid invoicing and account reimbursement of Research Expenses
e. Administrative assistance with scheduling of research seminars, distinguished lecture series, etc
f. Rapid processing of purchase orders with on-line tracking
g. Faculty access to credit card purchases for research supplies

APPENDIX III - Mission Statement – DRAFT (Nov 2007)

Clinical Trials Office, OSUCVM

The Clinical Trials Office (CTO) provides assistance in the design, execution, and evaluation of veterinary clinical trials using client-owned animals, with the overriding goal of advancing the diagnosis and treatment of disease in veterinary patients.

Responsibilities of the CTO include:
- providing guidance with respect to clinical trial design including a testable hypothesis, establishment of patient entry criteria, use of appropriate toxicity assessments
- reviewing each study for appropriate statistical end points
- confirming compliance with applicable hospital, IRB, and/or IACUC requirements
- insuring that an accurate budget has been provided
- assisting with a risk assessment to determine the likelihood of adverse events
• review of proposal prior to presentation to Hospital Executive Committee
• establishing and maintaining a network of regional specialists, veterinarians, and breed clubs to assist with patient enrollment
• providing education in GCP, GLP, and the requirements of individual organizations sponsoring trials
• overseeing and verifying correct and complete data entry, as well as compliance with established study guidelines

Responsibilities of the Principle Investigator include:
• providing the CTO with a proposal for which appropriate statistical analysis has been included
• providing the CTO with a proposal containing an accurate budget that includes all relevant direct and indirect costs
• addressing all potential adverse events and providing appropriate budgetary support should these occur
• completing appropriate IRB and IACUC forms prior to evaluation by the Hospital Executive Committee
• ensuring that patients entered into clinical trials meet inclusion criteria
• obtaining client consent and maintaining client contact as needed
• performing actual data entry and sample collection as specified in the study guidelines
• performing final analysis upon study completion

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