

University Plan III, 2009 – 2014
Department of Veterinary Sciences
Academic Plan

1 Mission and Aspirations

The Department of Veterinary Sciences has two primary missions. One is to fulfill the tripartite obligations typical of a traditional university academic department: education, research, and university service. The second mission created by legislative statute is unique: to provide quality and timely animal disease surveillance, professional diagnostic services, and outreach to the general populace via the Wyoming State Veterinary Laboratory (WSVL). These two primary missions are inseparable.

The Department aspires to the University-wide goals of *access* to educational opportunities and new knowledge via teaching, research, and extension; *excellence* in these areas as well as in professional diagnostic service, and *leadership* in the fields of animal and public health. Departmental goals embrace the concept of ‘one health’, the complex interrelationships between the environment, animal health, and human health. At the interface between the environment, wildlife and domestic animal disease, and public health, the Department of Veterinary Sciences and the WSVL are ideally situated to assume a leadership role in applying the “one health” initiative and integrating these concepts into college and university plans and issues. As one author* stated, “The convergence of people, animals, and our environment has created a dynamic in which the health of each group is inextricably interconnected.” This author goes on to say that of the recognized infectious diseases in humans, approximately 60% are caused by multi-host pathogens able to be transmitted across species lines. “...over the past 3 decades, approximately 75% of new emerging human infectious diseases have been zoonotic”, i.e. transmitted from animals. With continued energy development and expansion of the Wyoming populace into rural and semi-rural areas, diseases at the wildlife/domestic animal/human interface will become more prevalent. “One health” will become an imperative, not just an initiative.

*Lonnie J. King, et al: Executive summary of the AVMA One Health Initiative Task Force report. JAVMA 233(2):259-261, July 15, 2008.

2 Previous Planning Accomplishments

Goal	Departmental Accomplishments
Goal #1 – Support Medical Microbiology	Faculty searches and hires with relevant knowledge and experience for this program are successful.
Goal #2 – Wildlife research chair	The endowment is not fully funded to date but progress has been made.
Goal #3 – Partner with Renewable Resources	A search is currently under way to replace the departed epidemiologist hired in 2004.
Goal #4 – Renew AAVLD WSVL accreditation	Achieved in 2005. Reaccreditation will be sought during the period for APIII (2010).
Goal #5 – Expand NAHLN and seek membership	WSVL is currently a member of NAHLN providing national surveillance for high impact pathogens.

Goal #6 – New LIMS for WSVL	The Department and WSVL have purchased a new LIMS. Development and implementation will take place during APIII.
Goal #7 – Develop residency programs	No progress. Avenues for increased funding to provide a suitable stipend have not been identified.
Goal #8 – Annual depreciation schedule for major equipment	Submitted in 2004.
Goal #9 – Select Agent Laboratory	A small 145 ft ² lab was completed. The new addition (Goal #10) will include BSL-3 laboratory space housing a select agent laboratory.
Goal #10 – Additional BSL-3 laboratory	After an unsuccessful bid in 2007, plans were revised in 2008. The revised plan was successful in receiving Wyoming Legislative funding in 2009. Construction, completion, and commissioning will occur during APIII.
Goal #11 – Develop TSE laboratory	No progress; space constraints and funding issue.
Goal #12 - Faculty with foreign animal disease training	Four faculty received training. Two are no longer employed. These efforts will be continued.

3 *Relevant Institutional Issues*

In addition to the University goals of access, excellence, and leadership mentioned above, several institutional motifs identified in the *Creation of the Future Series* are relevant to the Department of Veterinary Sciences. In a small and diverse department such as veterinary sciences, **building depth versus adding breadth** in course offerings, research focus, and services offered via the WSVL, **reinforcing and refining areas of distinction**, and **fostering excellence**, will be instrumental if we are to progress toward these goals for Academic Plan III. The breadth of expertise in the Department is adequate but there is little depth in some critical areas. Access to the knowledge of our faculty is limited; we seek ways to improve access to students university-wide and citizens throughout Wyoming. Areas of distinction include diagnostic service and basic and applied research on infectious diseases that occur at the wildlife/domestic animal interface and on chronic wasting disease. Several faculty contribute to course offerings in support of the Microbiology program, the Neuroscience Graduate Program, and WWAMI medical education. Faculty members also spend considerable time with senior veterinary students participating in the Wildlife Disease and Diagnostic Externships. These efforts should be University-sanctioned and official credit received at the University level. If we are to truly become leaders in the one health initiative, we should foster excellence in environmental quality as it impacts animal health and the transmission of multi-host pathogens between species. Environmental issues and expansion of the populace into rural and semi-rural Wyoming have the potential to increase the spread of infectious disease at the wildlife/livestock/human interface. To complete the tripartite association that typifies the one health initiative and to augment **professions critical to the region's future-health care**, the department should foster excellence and interagency cooperation in public health as it relates to zoonotic disease.

4 *Action Items*

- Building excellence in capital facilities and infrastructure is a University priority. Current departmental facilities are stretched beyond their limit. At a time when modern new diagnostic

tests are being implemented, service and research laboratories are crowded with no room for expansion and there is a shortage of offices for faculty and graduate students.

ACTION ITEM #1: With approval of the new building addition for Veterinary Sciences; work toward successful completion and commissioning of the new construction to ensure a seamless transition that will strengthen and augment existing capabilities.

RATIONALE: There are currently four infectious diseases of animals in Wyoming that are classified as ‘select agents’ including Q-fever, tularemia, plague, and brucellosis. Anthrax, another disease caused by a ‘select agent’ has occurred in Wyoming and this year in adjoining states. Laboratory work with these zoonotic pathogens requires safe, secure BSL-3 facilities. New construction will **reinforce departmental areas of distinction** and **foster excellence** in disease diagnosis and research on these high impact diseases as well as contributing to public health awareness.

- Departmental faculty typically have a large diagnostic service component through the WSVL, limiting their exposure to students and the populace of Wyoming. Arguably, expansion and improvement of graduate student recruitment and postgraduate training programs in the department would assist with the teaching, research and diagnostic services leading to greater efficiencies in fulfilling departmental missions.

ACTION ITEM #2: Improve and expand programs in graduate and post-graduate education.

Ways in which this could be accomplished include:

- Funds permitting, create a monthly seminar series for invited outside speakers of distinction in animal health, zoonotic disease, environmental impact on animal/human health, etc.
- Seek funding and University-wide acceptance for a post-DVM or post-graduate 3-year residency program in fields relevant to diagnostic veterinary medicine and public health. When funded, success will be measured by residents who become board-certified in a recognized specialty and/or by successful job placement in their field.
- Seek participation in existing and developing interdisciplinary PhD programs such as the proposed Biomedical Graduate Program.

RATIONALE: Success of any one of these would increase **access** to departmental programs, **foster excellence**, **reinforce departmental areas of distinction**, and/or augment **professions critical to the region** by increasing departmental **depth** while adding little breadth.

- The pre-veterinary option is one of the more attractive majors in the College of Agriculture but there are courses being taught that would appeal to students at community as well as other colleges. From the standpoint of diagnostic service, faculty interact on a daily basis with clientele throughout the state. Ways need to be found, however, to improve the recognition of WSVL and Veterinary Sciences throughout the state.

ACTION ITEM #3: Increase communication with clientele throughout the state and region.

- Explore ways to more efficiently deliver classroom instruction to students at community and other colleges, i.e. distance learning, AG*IDEA and Adobe Connect.
- Develop a new user friendly, accessible Laboratory Information Management System (LIMS) for clientele of WSVL to include searchable database for epidemiology, public health and other disease investigations, web-based client access to diagnostic reports, and timely notices of animal/zoonotic disease in the state.
- Explore ways for departmental faculty to interact more efficiently with R&E centers.
- Continue to improve the Departmental and WSVL website.

RATIONALE: Success of any of these items would promote *access, foster excellence,* and *reinforce departmental areas of distinction.*

- The contributions of Veterinary Sciences and WSVL to public health and environmental issues are neither readily recognized nor easily measured. Timely and accurate diagnosis of potential zoonoses including plague, tularemia, brucellosis, Q-fever, rabies, and identification of potential methicillin-resistant *Staphylococcus aureus* are exemplary. Likewise are the contributions made regarding animal health as they relate to environmental quality. Examples include high sulfate content in drinking water leading to an often fatal neurological disease in ruminants, potential animal toxicities associated with energy development, and excess selenium in soils.
ACTION ITEM #4: Continue to foster ties and improve communications with the Wyoming Department of Health and Livestock Board regarding incidence of zoonotic disease and other high impact animal pathogens and develop infrastructure for more in depth research aimed at lessening the burden of these pathogens.
ACTION ITEM #5: Develop ties with the Haub School of Environment and Natural Resources, WyGIS, and the Department of Renewable Resources to explore how energy development may impact animal health and the occurrence of diseases at the wildlife/animal/human interface.
RATIONALE: Items #4 and #5 will *foster excellence* and *reinforce departmental areas of distinction.*
- The economic impact of animal disease, especially those caused by high-impact pathogens, on the sustainability of wildlife populations and domestic animal production has not been examined in depth. Veterinary Sciences and WSVL in concert with the Wyoming Game and Fish Department and Wyoming Livestock Board are ideally situated to assist the Department of Agricultural and Applied Economics in studying the economic impact of animal disease.
ACTION ITEM #6: Strengthen ties with the Department of Agricultural and Applied Economics. Successful hiring of a veterinary epidemiologist is one mechanism.
RATIONALE: Item #6 will *foster excellence* and improve *access* to departmental areas of distinction.
- The Department of Veterinary Sciences and WSVL enjoy considerable disciplinary breadth, having faculty positions representing the fields of bacteriology, virology, parasitology, pathology, toxicology, immunology, and epidemiology. This breadth allows the department to excel in disease diagnosis, graduate and undergraduate education, and basic as well as applied research in animal diseases. These are medical disciplines that provide services *critical to the region.* The Department and WSVL also enjoy a stable cadre of well trained and conscientious technical staff that contributes to *depth* without adding *breath.* This two-tiered depth, however, is superficial and tenuous. Loss of a single senior technician in a key discipline would jeopardize our missions. During the period of APII, most technicians were moved to permanent state budgeted positions. Also during the period of APII, three new faculty positions were added to the Department with no concomitant increase in budgeted support staff positions. During APII, WSVL increased the scope and sophistication of tests offered for timely and accurate disease diagnosis and requiring purchase of additional instrumentation; again with no concomitant increase in budgeted staff positions or alternative means to replace depreciated instrumentation. Currently, WSVL employs 3.5 FTEs staff in laboratory sections dedicated to disease diagnosis and surveillance that are on soft money positions and that must be paid from other resources. The State has not otherwise increased its support for WSVL activities since the early 1990s. As a consequence, WSVL has had to increase fees paid by consumers of our services. There is a point where increased fees will lead to reduced

utilization and ultimately jeopardize departmental missions. Currently there is no flexibility and no seamless means to increase budgeted WSVL staff positions within the University.

ACTION ITEM #7: Explore ways to seamlessly add budgeted staff positions and scheduled replacement of depreciated instruments to meet the needs of WSVL. Veterinary Sciences should work closely with the Dean and Administration to increase State funding for WSVL operations. To augment state funding, WSVL should seek greater annual support than the current \$50 - \$60K for participation in the state-federal partnership (National Animal Health Laboratory Network). With the new building addition scheduled for completion in late 2010 staffing and equipment needs, especially for BSL-3 and select-agent laboratories, will increase. At a minimum over the course of APIII, the WSVL will seek sufficient funding for the salary and benefits of two additional laboratory technicians and one Academic Professional, as well as sufficient supplies and reagents to test for high-impact and/or trans-boundary diseases.

RATIONALE: The single goal of this action is to increase and maintain *depth versus adding breadth*. This action would, however, encompass all previously mentioned issues: promoting access, fostering excellence, promoting leadership, reinforcing areas of distinction, and sustaining professions critical to the region.

5 *Implementation*

