

2012-2018 Strategic Plan for the Virginia-Maryland Regional College of Veterinary Medicine

September 30, 2012

A. Introduction: Setting the fundamentals for adaptation and evolutionary change.

The Virginia-Maryland Regional College of Veterinary Medicine (VMRCVM) is the only 4-year Regional Veterinary College in the nation. It has 3 main sites: The Virginia Tech Blacksburg campus which houses most of the College's programs and instructional facilities including the comprehensive, multi-species Veterinary Teaching Hospital (VTH); the "Leesburg campus" representing the Equine Medical Center (EMC) which is a VTH specialized in equine medicine; and the University of Maryland College Park campus which houses the "Center for Public and Corporate Veterinary Medicine" at the Gudelsky Center.

The College derives a large portion of its budget through revenues (tuitions and fees and VTH income), research and donations. Direct State allocations have been on a decreasing trend for several years and this trend is expected to continue. The assumption is that revenues and other "income" sources, newly implemented efficiencies and cut or repurposing of unnecessary or outdated programs will have to make up the difference without lowering the quality of the output.

One critical mission of the CVM is to train competent, entry level veterinarians (4 year DVM program – professional students) able to pass the national board examination and demonstrate competency in clinical skills and other aspects of veterinary medicine in order to fulfill the broad spectrum of societal needs demanded from the veterinary profession. Related to that mission is to train residents and interns as well as graduate students.

It is important for Colleges of Veterinary Medicine to train the veterinarian of the future. Society is changing as a reaction to a variety of demographic, political, economical, environmental, and technological influences that in turn are impacting the future of veterinary medicine as a profession. This changing reality demands that the content of veterinary medical education and the way it is delivered must be adjusted if not changed.

Several studies have been carried out in order to predict the future direction veterinary medical education must undertake to prepare the veterinarian of the future. One of these studies utilized foresight technology and it clearly indicated the need for change in veterinary medical education (1). The Foresight report engendered two more studies and consequent reports which describe and recommend future directions for veterinary medical education (2,3). They also

define some of the shortcomings that may interfere with the appropriate pathways to change. It is the College's intent to follow up and implement many of these recommendations and make them part of its educational strategic plan in a format consistent with the VT 2012-2018 Strategic Plan (A Plan for a New Horizon).

The College has recently increased its DVM student capacity to 120 students/class based on a variety of reasons, and creating a four-year growth period until steady state in 2016-17. Recent accreditation of foreign schools, the announcement of the opening of new, private Veterinary Schools in the USA with potential for accreditation as well as an increase of available seats at the majority of existing Veterinary Colleges in the USA, will put severe pressure on recruiting high quality applicants to our program. Creative curricular approaches, up to date instructional technologies, updated facilities and a "hands on" study environment as well as good post-graduation employment rates will be important factors in continuing to attract the best and brightest students to the College.

The College, in recognition of expanding responsibilities of the veterinary profession to societal needs, has added a new department of population health sciences and now offers an MPH degree to provide veterinary students and Virginia Tech students at large the opportunity to gain knowledge and skills in the core public health competencies emphasizing the human, animal, and environmental health interface also known as One Health.

Research is an important component of the academic life and learning environment and is another critical mission of the College. Veterinary academe should increase its commitment to research in general, developing future research trained faculty, and encouraging current faculty to work across disciplinary and professional boundaries. Dissemination of the research findings and its application to practical problems also needs to be stressed.

This strategic plan is focused on addressing the issues mentioned above and strengthens the overall capacities of the College.

B. VMRCVM 's Strategic Goals.

Goal 1: Provide a high quality environment for teaching, learning and research.

In order to attract high quality students the College needs to make sure that its training programs and facilities are state-of-the-art and create an environment that fosters active learning. This is an important goal for the College.

We have begun to update our facilities to help fulfill this requirement, but further additions/renovations are needed to ensure that we remain at the forefront of veterinary education, particularly in the area of clinical skills teaching within the Veterinary Teaching Hospital. The College has recently expanded its teaching and research facilities. This includes a research facility (IDRF) and an instructional

building (VMIA) that includes a state-of-the-art laboratory for teaching “hands-on” clinical techniques for DVM students. In addition, the College has completely renovated three existing teaching laboratories to bring these facilities to contemporary standards and to accommodate an increased class size. The following are renovations goals of the College:

- a. Dynamic-Learning Center: the current commons and library spaces will be converted into a combined dynamic-learning center which includes individual and group learning spaces, accessibility to electronic resources, as well as the College cafeteria.
- b. A “SMART” space, which emphasizes flexible seating arrangements, group work, and the use of eLearning resources, will be created with the renovation of a current laboratory.
- c. A Clinical Skills Laboratory will be created to house models and simulations of required clinical techniques. Many such models are available and are being increasingly used at veterinary colleges to develop fundamental skills in core clinical techniques. The availability of these simulations 24/7 allows students to study and practice at their own pace, and to refine these skills before entering the clinics and working on live animals.
- d. Veterinary Teaching Hospital Expansion. The VTH is the flagship of the College. It is an invaluable recruiting tool for top-quality students, faculty and staff as well as being a strong determinant relative to their retention. It is also the destination for thousands of clients and their animals referred to us for advanced medical care from all corners of the Commonwealth and surrounding states; this is a crucial element to instruct our students. Much of the facility is 25-30 years old and in need of updating, repair and expansion. Over the next two years, it is the College’s goal to upgrade the existing facility and equipment. Expansion will be accomplished through construction of the proposed Translational Medicine Building, a crucial component for teaching, clinical service with revenue generation and translational research.
- e. Increase faculty/instructors. In response to the increased number of students, additional faculty will be appointed to ensure the quality of education remains high for DVM students. This is particularly the case for laboratory classes involving animals, where higher faculty: student ratios are needed to ensure students receive an excellent learning experience in a safe environment. We anticipate adding full-time, 9-month and part-time instructional faculty appointments to accommodate this requirement in a fiscally sound way. Many of the new faculty will have advanced research degrees and demonstrated interest in translational medicine.
- f. Renovation of offices. Thirty five faculty have moved into our new Instructional building allowing us to start rebuilding the existing offices in the old building. These offices will have full walls, doors and ventilation becoming independent units. It will also permit moving the faculty in the Population Health Science Department into the College facilities. The work will be spread over a period of 2 – 3 years depending on cost and amount of supplemental funding by the University.

In summary, we will renovate teaching space and facilities to create a high quality environment for delivery of our curriculum. The new teaching space will facilitate the use of computer technology and provides the necessary environment for the sequential development of clinical skills. These renovations will require the identification of sufficient resources.

Goal 2: Recruit, educate and graduate a high quality and diverse DVM and graduate student body.

The College recently hired a recruitment “officer” whose function and goal is to aggressively assist the Director of Admissions to recruit high quality students into the DVM program paying particular attention to the recruitment of a diverse student body. Goals are:

- a. Attend Recruitment Fairs including those with a focus on diverse student populations.
- b. Visit Universities and Community Colleges to provide advice to prospective students and focus on Universities/Colleges with a diverse student population (e.g., HBCUs).
- c. Develop a recruitment microsite and other recruitment materials.
- d. Increase recruitment effort in West Virginia as a result of the Memorandum of Agreement with the State of West Virginia.
- e. Hold and attend SE Colleges of Veterinary Medicine Diversity Matters Symposiums.
- f. Divulge the Diversity initiatives within the College and the DVM curriculum by attending the yearly Iverson-Bell Symposium at the AAVMC (Iverson-Bell has a Diversity Focus).
- g. Continue ongoing support for the VOICE chapter (Veterinary Students as One in Culture and Ethnicity).
- h. Minority Institutions: visit Tuskegee and other minority institutions to recruit into our research and graduate training programs.
- i. Focus a good portion of our Public Relations program on marketing of the College to prospective students nationwide and internationally.

Goal 3: Update DVM curriculum according to major applicable NAVMEC recommendations.

We will increasingly use computer technology to deliver a “blended” teaching modality and enable students to use this technology to flexibly engage in their own learning.

a. Create an expanded blended approach to learning within the DVM curriculum. Traditional lectures and laboratory classes are blended with a range of eLearning opportunities including use of “camtasia” (lecture capture), blogs, wikis, distance teaching through vTEL, video feedback, and ePortfolio development. This approach will continue and grow.

b. Develop more on-line courses at the College to enhance our DVM curriculum and to potentially make savings (decrease cost of teaching) in these areas as well as produce revenues through delivery to other Veterinary Schools.

c. Further develop a repository for digital teaching resources. This is similar to the University initiative to develop a digital repository for research, but is being developed independently by the College and is housed on a server within the College.

d. Hire distance learning (DL) educational design experts and support faculty training and development of distance learning courses and other educational techniques.

One of the NAVMEC recommendations included a competency driven curriculum with *9 recommended* competencies: multispecies and one health knowledge as well as *7 professional* competencies; communication, collaboration, management (self, team, system), lifelong learning/scholarship/value of research, leadership, diversity/multicultural awareness, and adapt to changing environments (2). We will continue to teach the fundamental knowledge and skills of veterinary medicine therefore preparing our students to be life-long learners and critical thinkers by using pedagogical methods that go beyond remembering and reciting information. The expanded use of simulators and manikins will provide the student with opportunities to sequentially develop the required day-one skills and therefore, fulfill an appeal from practitioners for graduates with improved technical skills.

In response, to the above NAVMEC recommendations, the goals of the College are:

a. Undertake a curriculum mapping exercise to determine where in the curriculum the NAVMEC competencies that are currently being taught and assessed. Curricular revisions will be based on the curriculum mapping exercise.

b. Develop a set of core competencies that are needed for our graduates to have the necessary knowledge and skills to be an effective veterinarian at time of graduation. We will develop a student assessment method that will track each student, and will provide an objective evaluation of their skill development across the curriculum. The information will allow us to spot strengths and weakness in our curriculum. This information will then be used to focus modification in the teaching methods or curricular content as a means of process improvement.

c. A combined DVM-MBA program will be implemented to address the need for graduates with improved business skills in the veterinary profession.

d. A partially-distributed model for clinical education will be investigated to decrease student load in the VTH and if doable, allow for the currently ongoing training of students attending off-shore veterinary schools since this represents an additional revenue source.

Goal 4: Bring the Population Health Sciences to maturity.

Global food security is one of the most pressing challenges of the 21st century. The food and water security and safety concerns confronting the world today are far more daunting than anything veterinary medicine has had to confront previously. Health and disease of food production and companion animals may serve as indicators and sentinels for broad human health challenges. Because these challenges are important and enormously complex, they will require the veterinary profession to engage in interdisciplinary and inter-professional “One Health” approaches and solutions and students will need training in these areas. One Health recognizes the dynamic interdependence of human, animal, and environmental health, and encompasses the interdisciplinary efforts of medical, veterinary, public health and environmental professionals to protect, promote, and improve health. This is consistent with the University’s strategic plan; “Some of the health care professional training and activities will adopt a “one health” approach in order to cope with global health challenges that will affect the well-being of humans, animals and the environment. Virginia Tech will also continue to promote communication, integration and collaboration among its professional health programs”.

- a. Obtain Council of Education for Public Health (CEPH) accreditation for the College’s Public Health Program. Emphasize local, regional and global One Health concepts and approaches in the curriculum of DVM and MPH degree students.
- b. Strengthen the links with the Virginia Tech Carilion School of Medicine leveraging efficiencies in development of curricula, including student placements in clerkships and practica, research projects and service activities for DVM, MPH, MD and simultaneous degree students.
- c. Integrate selected courses taught in the MPH program into the DVM curriculum.
- d. In the context of One Health, evaluate health of food production and companion animals as indicators or sentinels of human health challenges.
- e. Strengthen links with the Center for Public and Corporate Veterinary Medicine (at College Park) and coordinate funding and teaching activities with the Center.

Goal 5: Increase and enhance the interaction with the College Park campus in order to strengthen the Regional College concept and interaction among the two campuses as well as establish the Center for Public and Corporate Veterinary Medicine as a national Center of Excellence.

The College will emphasize the uniqueness of the Center for Public and Corporate Veterinary Medicine (CPCVM) located at the MD College Park campus since the VMRCVM is the only veterinary college with full time faculty devoted to training students for public and corporate veterinary practice.

In order to enhance the interaction between the College Park and Blacksburg campuses the following goals are being pursued:

- a. Increase research collaborations between Blacksburg and College Park campuses leading to joint grant proposals and research publications.
- b. Increase interaction in graduate studies and related activities between Blacksburg and College Park campuses.
- c. Increase visibility of the VMRCVM Maryland Campus and the CPCVM program by emphasizing the uniqueness of the regionalism concept and the programs.

In order to enhance the status of the CPCVM the following goals have been established:

- a. Bring CPCVM full time faculty members to a number needed to establish it as a national center of Excellence and empower Director to implement and manage the goals listed below.
- b. Establish the CPCVM as a pilot national Center of Excellence, targeting federal and state agencies and industry for funding.
- c. Support training of faculty in the development of distance learning (DL) courses and Support CPCVM development of shareable public practice curriculum courses.
- d. Promote the value of veterinary medicine to human, animal and environmental health funded through proposals to USUHS, World bank and others.
- e. Designate and resource CPCVM as the VMRCVM lead for Global/ International Programs.
- f. Expose DVM students to biomedical research through summer training programs. Expand career transition training and opportunities for practicing veterinarians. Enhance post DVM career opportunities at NIH, FDA, USDA, biotech companies, and in non-veterinary schools (e.g. medical schools).
- g. Expand the newly developed CPCVM Career Advisor program.

Goal 6: We will strive to keep the cost of veterinary education to the students as low as possible.

The current return on investment for veterinary education is probably unreasonably low as the cost of veterinary education is reaching crisis levels. The profession is at risk for lowering the quality of applicants to the profession and the quality of veterinary education if these issues are not dealt with (3). At the local

level, the College needs to seek creative and progressive ways to address the issues of cost of veterinary education and student debt. In response to NAVMEC recommendation for an economically viable education system, the primary focus of the college is to investigate models for earlier entrance to the DVM program.

Further measures to address this problem are embedded in the goals defined throughout this strategic plan.

- a. Continuously seek creative and progressive ways to address the issues of cost of veterinary education and student debt.
- b. Further develop initiatives to encourage students to apply to the VMRCVM after 2 or 3 years of undergraduate education instead of the traditional 4 years. This will potentially save students 1-2 years of college tuition and allow them to graduate with a DVM degree in an earlier time-frame. Additionally, we will study the possibility of establishing summer and winter courses designed to shorten the College time for pre-veterinary students. With the advent of a Health Science Faculty we will explore the possibility of developing a University wide BS degree in “health science” as a pre-professional program that would also feed students into medical school, veterinary school, dental school or graduate programs in the health science arena.

Additional savings may be made through sharing responsibility, facilities, courses and training materials through regional inter-veterinary-school collaborations, as well as expanding cooperation with private veterinary practices, specialty practices, industry and public agencies. This approach appears to be a way of enhancing the College’s programs and training opportunities and reducing costs. More emphasis should be placed on partnering and enlisting the support of government, nongovernmental organizations, and other stakeholders.

- c. Develop regional partnerships. We will continue to advocate for a regional veterinary college consortium involving; North Carolina, Georgia and Tennessee to facilitate our teaching and research programs. In general, expand partnerships with quality private practices for student training.
- d. Expand Center of Excellence in Beef Herd Health and Management Systems and offer training to students in the regional veterinary College consortium.

Goal 7: Support and encourage translational medicine within the CVM and across Colleges and disciplines.

As stated in the University plan: “Our goal is to establish a distinctive and globally recognized profile that emphasizes translational research and scholarship and builds upon our existing and emerging strengths.” The College and University have great opportunities to expand and focus on translational research particularly in the area of research benefiting animal, human and environmental health. For example, very few Universities have Veterinary and Medical Schools in close proximity as VT has, this creates unique opportunities for us. Basic research findings can be applied

to animal patients afflicted with diseases that mimic the human counterparts as an intermediate step before applications go to human medicine. Successful applications in animals would accelerate practical applications in humans and would increase the value of intellectual properties. This will also increase the value of the VTH services to clients consequently increasing hospital revenues enabling support of both graduate and professional educational programs.

The VTH is the lynchpin relative to the University's desire for growth in the health sciences especially as this relates to Translational Medicine Research. Our unique, indeed crucial, contribution rests on access that the VTH provides in terms of patients with primary, organic disease. As hurdles to product and procedure development in human medicine ever increase, veterinary medicine still remains a viable avenue for the advancement of medical science. Clients seeking potentially lifesaving options for their animals will be able to do so at the VTH. As such, it is the logical and most practical outlet for translational technologies, allowing for the conduct of clinical, proof-of-concept and validation trials. Innovation and resultant intellectual properties will be the hallmark of the VTH and dependent partners in translational medicine.

The following goals are crucial to grow the translational medicine research approach:

- a. Move forward with plans to build the translational research building that will enhance collaborative research in biomedical science by expanding our client base and capabilities in defined areas (e.g. Oncology, regenerative medicine).
- b. Participate in the creation of the Health Science faculty and share in the education of professional and graduate students across disciplines.
- c. Reward faculty who participate in collaborations that blend basic and clinical research.
- d. Expand studies of spontaneous, naturally occurring disease in animal patients. This will involve recruiting animals from a network of specialty practices for enrollment in clinical trials. Results using these subjects are most applicable and translatable to human diseases.
- e. Recruit clinical faculty with a demonstrated interest in partnering with basic scientists in the translational research enterprise.
- f. Appoint a "lead technical liaison" specifically charged with fostering research collaborations, especially in translational medicine.

Goal 8: Increase opportunities and activities in the international arena through student and faculty exchanges, cooperative research and specific twinning.

There is a need to become strongly engaged in the understanding of global issues making "international experiences" for undergraduate, professional and graduate

students an important part of their educational experience. Furthermore, the development of cultural competence will serve our student not only internationally but also nationally as the US population becomes increasingly diverse. Veterinary students will need to be familiar with customs, regulations and habits of foreign countries particularly of those from where we import food sources and animals. The involvement and on site observation of issues of global importance is important for Veterinary Students as the federal government implements regulations promulgated under the new “Food Safety Modernization Act”. As a profession, veterinarians have always been integral to the safety and security of the world’s food supply.

This is in accordance with VT plan for a new horizon: “International engagement is becoming an imperative for higher education, given the pace of globalization and the flow of people, animals and ideas across geographical borders. We will intensify our focus in the international arena and will ensure that opportunities for international engagement are viable for as many students as possible”.

a. Our overarching goal is to give our students the opportunity to become involved in structured, well-defined and goal oriented international learning experiences. These can be achieved either in their preclinical program or final year as elective activities in their clerkship experiences.

b. Develop a general International strategic plan identifying mission, standard learning goals and methods of evaluation.

c. The focus of our international experiences will continue in areas we already have had safe and diverse experiences. These areas (countries) are: Chile (University Austral), India (Tanuvas), Dominican Republic (in conjunction with the VCOM) and France (Ecole Nationale des Services Veterinaires).

d. Expand our research collaborations with the above mentioned countries.

e. Investigate the possibility of establishing a Global Health Certificate Program.

Goal 9: Ensure sustainability of VTHs and view as revenue and innovation centers.

The VTH in Blacksburg is somewhat unique in its capacity to generate client-based revenue (5 year total FY 08-12 = 32.3 M, average annual growth 4.45%, FY 12 = 7.1%) for the sole purposes of offsetting operational and instructional costs. An infusion of funds for modernization will help propel the VTH into an era of even greater sustainability over the next 5 year; thus enabling it to become a nexus for medical innovation and further enhance its reputation for excellence in veterinary medical education.

We plan to open a satellite facility (University Policy 3005 compliant) close to the Roanoke Regional Airport in partnership with Emergency Veterinary Service of

Roanoke (EVS Corporation). This will be the first joint private-public venture of its kind for the College and may pave the way for other such collaborations around the Commonwealth; broadening the College's reach, augmenting its instructional infrastructure, and ensuring its financial resiliency for the purpose of instruction, research and extension.

- a. Continue to upgrade facilities and equipment of the VTH to insure quality student instruction and service.
- b. Develop a partnership with Roanoke Valley Veterinarians to create a VTH satellite in Roanoke to increase the availability of referral services to local practitioners and insure the availability of instructional material.
- c. Continue to develop strong relationships with veterinarians to provide them with the highest quality referral veterinary services for their clients and insure the availability of instructional material.
- d. Gain economic recognition of the significant faculty effort required to create clinical revenue in the VTHs (on par with economic impact of sponsored research).

The Equine Medical Center (EMC), our second teaching hospital specializing in horses, has reached a status of economic unsustainability. The EMC business plan will be changed drastically and includes a rapid and significant contraction of personnel and activities followed by the establishment of strategic partnerships with local horse practices and an altered and more cost efficient way of delivering medicine.

- a. Change business plan of the EMC and alter the way it delivers its functions. Bring back to economic sustainability.

Goal 10: Enhance the scope of research programs.

The College has a limited number of faculty with significant research appointments. We have expanded this number over the last couple of years by hiring research intensive faculty in various targeted areas; this growth has essentially reached its limit, but we expect a significant increase of research output and funding in the coming years based on these hiring actions. Clinical faculty who have much less of a research appointment will concentrate more on translational research particularly cooperating with faculty with high research appointments within the College and VT as well as with existing and new external research partners.

- a. Continue to work across college boundaries with colleagues in PCOB, CLAHS, CALS, COS, COE, VTCRI, Fralin and VBI through our NIH T35, NIH T32 and IGEP training grants and research.
- b. Submit a Virology Training Grant to NIH in collaboration with colleagues from CALS and COS.

- c. Expand research collaborations with commercial enterprises in response to several recent approaches. Our animal facilities and AAALAC accreditation are powerful drivers of these collaborations.
- d. Focus increasingly on the use of pigs in research studies (building on the facilities and expertise we have acquired) and non-rodent, non-primate animal models (currently a priority for NIH). We are well positioned to exploit this niche.
- e. Submit a G20 renovation proposal to NIH to partially fund an expansion of our gnotobiotic swine facilities.
- f. Expand the Center for Veterinary Regenerative Medicine by increasing our external collaborations and attracting more funding and graduate students.
- g. Our college graduate programs (BMVS and PHS) are interdisciplinary by nature. We will reach out to the rest of the campus by developing an IGEP proposal in public health to add to the one already funded in regenerative medicine (BMVS).
- h. Expand our graduate student numbers as already communicated to the Graduate School. This will be achieved with external funding and include the expansion of our IGEP program in regenerative medicine from 4 to at least 10 students. The program can be further expanded by taking advantage of the “Stamps Foundation” matching funds for scholarships. This program is tailored for the combined DVM-Ph.D students and an additional 10 positions could be funded by Stamps if the College can come up with 50% of matching funds (not presently available in our budget).
- i. Bolster evaluation of graduate courses to ensure high quality.
- j. In general, stimulate applications for funding by faculty through the allocation of competitive internal seed moneys.

Goal 11: Maximize the efficiency of our administration and consolidate or repurpose units within the College for maximal efficiency.

The College has a matrix system of administration that is unique to the University. This allows us having only four Academic Departments , three Divisions (Instruction, Research and Finances) and two clinics making operations more efficient than classical arrangements. In 2006, a study analyzing the efficiency of combining the 2 clinical departments found that the two departments were best organized separately. In 2010, two assistant Dean positions were combined into one Associate Dean position. The decision making process has also been adjusted to allow approval of changes, policies etc. in an accelerated way. Presently, the College’s Executive Board (Dept. Heads, Associate Deans, hospital Directors and Dean) makes final decisions and meets monthly as a group or via e-mail and entertains recommendations from the Department Head and Clinical Board. Its actions are reviewed by the College Council where the entire College community has a voice.

Currently a new business plan is being designed for the EMC and will include the centralization of major business transactions at the College to avoid duplication of efforts.

The College will consider hiring an external consulting group to review our administrative system and organization in order to obtain unbiased recommendations on how to maximize efficiency.

References.

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