Rationale for the proposed revision to Standard 10, Research Programs

These proposed revisions are designed to further clarify the expectations of the Council with regard to the research program of veterinary medical colleges and its integration with the veterinary medical educational program. Metrics that will be used by the Council to evaluate veterinary medical education programs are described in more detail.

The Council has proposed the following revisions for Standard 10, Research Programs (additions are underlined, deletions are ~~struck through~~):

Standard 10, Research Programs

The College must ~~maintain~~ demonstrate substantial research ~~activities of high quality~~ activity that integrates with and strengthens the professional program.

1. The college must provide student training in established and evolving biomedical concepts, assimilation of scientific evidence, principles of hypothesis-driven research, and evaluation of scientific literature.

2. Students must demonstrate the ability to appraise and integrate scientific evidence through their core curricular scholarly activities.

3. Colleges must provide evidence that all interested students have the opportunity to engage in further systematic investigations using the hypothesis-driven scientific method.

4. The majority of full-time faculty must be engaged in research that results in peer-reviewed scholarship.

In addition, the Council proposes making the following changes to Section 12.10, Elements of the Self-Study, Research Programs, of the Accreditation Policies and Procedures of the AVMA Council on Education which states the information veterinary medical educational programs need to include in their self-study (additions are underlined, deletions are ~~struck through~~).

12.10. Research Programs

Research has the primary objective of creation and dissemination of knowledge. It consists of activities specifically organized to produce peer-reviewed outcomes. The research standard serves to ensure student exposure to and/or participation in performance of high quality research and ability to acquire, evaluate, and use new knowledge. DVM students should be introduced to how new knowledge is developed and disseminated and should have access to participation in coursework and career development in research. Examples of learning objectives may include acquisition and evaluation of scientific literature, experimental and non-experimental design, critical analysis of data, scientific writing including writing of research proposals and submission of manuscripts for publication, and hands-on experience in bench, clinical, or field research. Student engagement must be demonstrated through core requirements and opportunities for further training. Expenditures are separately accounted for, and reports are made concerning the expenditures and achievements of objectives.

12.10.1. Describe up to five programs of research emphasis and excellence that integrate with and strengthen the professional program.

~~**12.10.2.** Provide evidence for the breadth and quality of the college research program, including:~~

~~12.10.2.a. The number of individual faculty members within each department involved in research, total research FTE, and research productivity (tabulate below for each of~~

~~the last three years). For example: Dept. A has 35 faculty members with 30 involved in research and 6 FTE assigned to research.~~

~~12.10.2.b. A description (one page or less) of other measures of faculty research activity (e.g., faculty participation and presentation of original research in scientific meetings, involvement of faculty in panels, advisory boards or commissions, and national and international research awards received).~~

~~Year _____~~

	~~Number of faculty~~	~~Number of faculty involved in research~~	~~Number of research faculty involved in delivering the professional curriculum~~	~~Total research FTE~~	~~Number of original peer-reviewed research publications~~	~~Number of original book chapters~~
~~Dept. A~~						
~~Dept. B, etc.~~						
~~Other unit~~						
~~College total~~						

	~~Extramurally-sponsored federal grants~~		~~Extramurally-sponsored state grants~~		~~Extramurally-sponsored private contracts~~		~~Patents~~
	~~Number~~	~~Value~~	~~Number~~	~~Value~~	~~Number~~	~~Value~~	~~Number~~
~~Dept. A~~							
~~Dept. B, etc.~~							
~~Other Unit~~							
~~College total~~							

12.10.2. Students

Describe the impact of the overall research program on the professional program and on professional students, including:

12.10.2.a Core curriculum

12.10.2.a.i. Describe mandatory courses or portions of the curriculum where research-related topics are covered. These must include training in established and evolving biomedical concepts, assimilation of scientific evidence, principles of hypothesis-driven research, and scientific writing. Describe the college research seminars and presentations for DVM students, including the number of internal and external speakers, endowed research lectureships, DVM student research seminars, DVM student poster presentations, and college research days and awards and presentations made by veterinary medical students at scientific meetings or seminars at external sites.

12.10.2.a.ii. Describe how the ability of all students to appraise and integrate scientific evidence is assessed. Core skills in students must encompass awareness of current biomedical concepts and techniques, the ability to appraise and integrate scientific evidence, and understanding of hypothesis driven methods, and the ability to formulate a written argument or summary. Each student must experience, or demonstrate proficiency in the following: formal testing of course material, rotations though research, industrial or corporate settings, and case reports or review papers presented to local, regional, or national peers.

12.10.2.b. Additional research opportunities

12.10.2.b.i. Describe efforts by the college that facilitate the link between veterinary medical student research and subsequent or concurrent graduate education, and that enhance the impact of college research on the veterinary professional program. Additional research training may include exposure

to a comprehensive knowledge of the scientific method, hypothesis creation, acquisition and evaluation of scientific literature, experimental and non-experimental design, critical analysis of data, scientific writing that includes writing of research proposals, submission of manuscripts for publication, understanding the peer-review process, and hands-on experience in bench, clinical, or field research.

12.10.2.b.ii. Describe/list the current opportunities for participation in research, including summer research programs (Merial, NIH, Howard Hughes, etc.), academic year programs (NIH fellowships, industry funded, curricular time allowed for research), student employment in research labs and projects, and individually mentored research experiences.

	Number of students in funded & unfunded research projects	Number of peer reviewed publications in which DVM students are authors/co-authors	Number of veterinary medical students in a joint DVM/graduate academic program	
			PhD (or equivalent)	Master's (or equivalent
Year				
Year				
Year				
Year				
Year				
Year				

12.10.3. Faculty

The majority of full-time faculty (including those at distributed sites and in the curricular component (professional courses, journal clubs) must be engaged in research that results in peer-reviewed scholarship. A majority of full-time faculty engaged in teaching students must publish (or confirm to have in-press) as senior or co-author at least one peer-reviewed scientific manuscript each year. A majority of full-time faculty must have sought or have acquired research funding each year. Provide evidence for the breadth and quality of the college research program, including:

12.10.3.a. The number of individual faculty members within each department involved in research, total research FTE, and research productivity (tabulate below for each of the last three years). For example: Dept. A has 35 faculty members with 30 involved in research and 6 FTE assigned to research.

12.10.3.b. A description (one page or less) of other measures of faculty research activity (e.g., faculty participation and presentation of original research in scientific meetings, involvement of faculty in panels, advisory boards or commissions, and national and international research awards received).

Year_____

	Number of faculty	Number of faculty involved in research	Number of research faculty involved in delivering the professional curriculum	Total research FTE	Number of original peer-reviewed research publications	Number of original book chapters
Dept. A						
Dept. B, etc.						
Other unit						
College total						

	Extramurally-sponsored federal grants		Extramurally-sponsored state grants		Extramurally-sponsored private contracts		Patents
	Number	Value	Number	Value	Number	Value	Number
Dept. A							

Dept. B, etc.							
Other Unit							
College total							

12.10.4. Definitions

12.10.4.a. Research activity that integrates with and strengthens the professional program

Research has the primary objective of creation and dissemination of knowledge. It consists of activities that have been specifically organized to produce research outcomes. Expenditures are separately accounted for and reports are made concerning the expenditures and achievements of objectives. Student engagement must be demonstrated through core requirements and opportunities for further training.

12.10.4.b. Substantial

All students must be exposed to and demonstrate proficiency in core concepts and abilities (Standard 10, #1 and 2).

The formal research program must be sufficiently established to accommodate students who express an interest in obtaining additional research experience (Standard 10, #3).

The majority (> 50%) of full-time faculty must be engaged in research (Standard 10, #4) that results in peer-reviewed scholarship.

12.10.4.c. Scholarship:

Faculty:

Creation of knowledge through traditional basic or clinical research, and dissemination of knowledge through didactic and clinical teaching. A majority of full-time faculty engaged in teaching students must publish (or confirm to have in-press) as senior or co- author at least one peer-reviewed scientific manuscript each year. A majority of full-time faculty engaged in research must have sought or have acquired extramural research funding each year.

Students:

Core curriculum: Demonstrate ability to appraise and integrate scientific evidence, and to formulate a written summary on the topic that is presented to local, regional, or national peers.

Those pursuing further research experience: Demonstrate the ability to formulate a hypothesis based on critical review of the literature, to propose appropriate means, and collaborate with mentors and colleagues to test the hypothesis, assess outcomes, and propose alternate approaches if indicated.

12.10.5. Metrics

Five programs of research emphasis.

The majority of full-time faculty must be engaged in biomedical research

A majority of full-time faculty engaged in teaching students must publish as senior or co-author at least one peer-reviewed scientific manuscript each year.

A majority of full-time faculty engaged in research must have sought or have acquired extramural research funding each year.

All students must complete core research-related curricular requirements.

All students must experience, or demonstrate proficiency in the following: formal testing of course material, rotations though research, industrial or corporate settings, and case reports or review papers presented to local, regional, or national peers.

The majority of students must have engaged in further systematic investigations using the hypothesis-driven scientific method in biomedical research.

~~**Table Definition**~~

Research ~~— has the primary objective of creation and dissemination of knowledge. It consists of activities that have been specifically organized to produce research outcomes commissioned by an agency external to the institution or authorized by an organizational unit above the department level within the institution. Expenditures are separately accounted for and reports are made concerning the expenditures and achievements of objectives.~~

~~**12.10.4.** Describe the impact of the overall research program on the professional program and on professional students, including:~~

~~12.10.3.a. Describe courses or portions of the curriculum where research-related topics are covered (literature review/interpretation, research ethics, research methods or techniques, and study design).~~

~~12.10.3.b. Describe/list the current or proposed opportunities for participation in research, including summer research programs (Merial, NIH, Howard Hughes, etc.), academic year programs (NIH fellowships, industry funded, curricular time allowed for research), student employment in research labs and projects, and individually mentored research experiences.~~

~~12.10.3.c. Describe efforts by the college that facilitate the link between veterinary medical student research and subsequent or concurrent graduate education, and that enhance the impact of college research on the veterinary professional program.~~

~~12.10.3.d. Describe college research seminars and presentations for DVM students, including the number of internal and external speakers, endowed research lectureships, DVM student research seminars, DVM student poster presentations, and college research days and awards and presentations made by veterinary medical students at scientific meetings or seminars at external sites.~~