



Masters in Veterinary Clinical Care: Exploratory Project Report

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On behalf of:

The Veterinary Innovation Council (VIC)

February 4, 2021

Background

Presentations at the 2020 Banfield Pet Healthcare Industry Summit (PHIS) highlighted the alarming projection that by 2030, as many as 75 million companion animals in the US may not have access to healthcare. Based in large part on a growing shortage of veterinarians, this startling forecast generated a robust discussion leading to an urgent call to action to address this impending workforce shortfall. To help avert a crisis, academic institutions were challenged to explore new paradigms for educating veterinary professionals, both veterinarians and an innovative, well-trained, structured team of allied professionals to effectively extend the traditional reach of the veterinarian.

A considerable amount of attention has been focused on the roles, capabilities, and utilization of veterinary nurses/technicians in veterinary medical practice. Emphasis has primarily centered on working toward 1) a more complete utilization of credentialed veterinary nurses/technicians¹, and 2) a clear differentiation in the skills, knowledge, and competencies inherent in veterinary nurses/technicians who graduate from accredited associate (A.S.) degree vs. bachelor's (B.S.) degree programs².

Although credentialing and utilization of existing veterinary nurses/technicians are appropriately considered as top priorities across the industry, interest is growing in a new mid-level veterinary professional following the model from human medicine of the physician assistant or nurse practitioner. Earlier suggestions of this concept may be found in the literature,^{3,4} but more recently the topic is surfacing with increasing frequency:

- Fults, et al⁵ conducted research that clearly demonstrated strong interest in an advanced practice registered veterinary nurse (APRVN) through a veterinary nurse graduate program. This research was also the focus of a 2021 NAVTA Corner article in *Today's Veterinary Nurse*.⁶
- The topic surfaced multiple times during research conducted by the Veterinary Innovation Council (VIC) toward differentiation between A.S. and B.S. degree programs.²

- Several deans from AAVMC member institutions expressed an interest during a virtual group conversation conducted during the summer of 2020.
- The idea was highlighted several times during break-out group discussions associated with both the 2020 Banfield PHIS (September 2020) and the 2020 AVMA Economic Summit (October 2020).

To further investigate the concept of a new mid-level professional in veterinary medicine, the VIC designed a project whose objectives were to:

1. More fully characterize the potential interest in creation of a new mid-level professional,
2. Begin to explore the skills, knowledge, and competencies that might be considered core in such a program, and
3. Consider several aspects of possible educational delivery models.

Methods

Two separate methods were employed to achieve the desired objective:

1. Individual interviews were conducted with a group of key corporate practices and other animal health companies via video conference, telephone, or email. In total, approximately 20 people participated in these interviews, affiliated with 12 different organizations.
2. An online survey of a companion animal practitioner panel was conducted, along with an associated online discussion. In total, the standing panel included 349 practitioners.

Interviews sought comments on a sample, draft curriculum prepared and provided by the College of Veterinary Medicine at Lincoln Memorial University (LMU-CVM – see Appendix A). Invited reviewers were provided the following context:

- Such a degree program would be offered exclusively by accredited veterinary colleges, and most if not all accredited veterinary colleges already are authorized to offer Master's degree programs.
- This degree-holder would be an extender (think of a nurse practitioner, without nurse in the title), bridging the gap between a 2-year Associate's degree holder (current RVTs) and the 8-year DVM degree, and would be restricted to working under the supervision of a veterinarian as permitted by existing practice acts.
- The focus of the curriculum would be two-fold: (1) substantive medical training, to become a more effective colleague alongside DVMs in the clinic, and (2) high level training in nurse-style clinical care management and delivery.
- This person should be able to manage all para-professional staff and the care delivery system, plus more.
- The test for each stakeholder (at least those in a practice setting) being interviewed regarding the curriculum and course objectives was: would you be willing to fund your associate in this one-year, online program, knowing that all clinical work will be performed in your practice during the year.

- Candidates would need a bachelor's degree with a minimum level of science courses, but would not have to possess an AS or BS in Veterinary Technology.
- The curriculum includes pharmacology and surgery in case these degree-holders are encouraged or allowed at some point to prescribe medications or perform minor surgery under veterinary supervision.

All comments were compiled in summary form, without specific attribution. Interviews were conducted by M. Cushing and J. Lloyd.

The survey was conducted by Zoetis US Market Research, involving a standing panel of 349 companion animal practitioners (Veterinary Online Interactive Community Exchange – VOICE). Two primary objectives provided context for the survey:

- To understand veterinarians' current perceptions of veterinary technicians' role and responsibilities.
- To gauge reaction and level of interest in a hypothetical master's program (mid-level professional).

The follow-up discussion was designed to provide a "deeper dive" to more fully define the value that current and future veterinary technicians may bring to a clinic. The Zoetis research was organized by L. Olsen, and conducted by an independent third party research company.

Results

- Interview Results** – A full summary of the interview comments is presented in Appendix B. In addition to an overall synopsis, specific comments on three dimensions are provided:
- Reviewers' individual reactions to the overall concept of creating an "extender" at the level of an MS degree in veterinary medicine are listed.
 - Support of the concept notwithstanding, reviewers' thoughts on the curriculum content and the implied competencies that would be anticipated for graduates are identified.
 - Because the draft curriculum proposed a somewhat unique delivery model, related opinions offered by reviewers are also detailed.

Importantly, interviewees were not asked – nor expected – to provide responses that were representative or necessarily in any way endorsed by their parent organizations. However, their organizational context is important as their comments are considered. Therefore, reviewers' affiliations are also listed, without attribution, in Appendix B. Interviewees included veterinarians (both generalists and specialists), veterinary nurses/technicians, and industry executives.

Overall, comments on the concept of a MS level "extender" for veterinary medicine were clearly supportive. Although some hesitation/lack of support was identified, most interviewees liked the idea, with several expressing strong interest in supporting enrollments when such a program is available.

Interviewees had many positive comments related to the draft program and delivery model reviewed, along with some suggestions for potential modifications that might be

considered. A number of these comments/suggestions, both positive and negative, were strongly stated by individual reviewers. In fact, some specific features generated passionate discourse on both sides of the same issue.

For example, the topic of proposed admissions pathways was particularly provocative. Detractors emphatically stated their belief that an AS or BS in veterinary technology was critical to avoid introducing additional confusion into the realm of veterinary nurse/technician education and utilization. Just as emphatically, those who embraced the multiple pathways as proposed acknowledged that, in the absence of appropriate credentialing and licensing, graduates would clearly be limited by state practice acts in the degree to which they would be able to actively engage in clinical activities, but that it would be most appropriate to “let the market” decide rather than be unduly restrictive *a priori*.

Ultimately, the details of both curriculum and delivery model will rightly be determined by the academic institutions that might create such programs. In light of this reality, and recognizing that the markets for veterinary services will clearly be the final arbiter, it was beyond the scope of this project to distill a definitive set of specific recommendations on curricular or delivery model details.

Survey Results – A comprehensive summary of the survey results is presented in Appendix C. A total of 114 practitioners completed the online survey, and 86 participated in the online discussion. Importantly, the data provide a distinctly different perspective than that obtained from the interviews – that of individual companion animal practitioners.

Useful insights are provided on both the existing situation surrounding veterinary nurses/technicians and the prospects of a new, mid-level professional. Key findings indicate that credentialed veterinary nurses/technicians are highly valued, underpaid, and in critically short supply. Survey respondents expressed concern that a new MS-level “extender” might well exacerbate this situation. However, they also acknowledged that a new MS-level “extender” could bring value if they generated a positive impact on the bottom line. In respondents’ view, such MS programs would hold greatest viability if graduates’ competencies included the independence and ability to lighten veterinarians’ workloads sufficiently so that they could see more patients.

Considering a prospective MS-level “extender” more specifically, important findings included:

- These individuals could be especially beneficial in larger or more specialized practices.
- The ability to fill managerial roles, or creation of a distinct role above and beyond what LVTs are currently able to do, will likely yield the greatest benefits.
- The program will hold more viability if it creates professionals that can ultimately increase the volume of visits, client satisfaction, and overall clinic revenue.

In summary, the concept of a MS level “extender” did not enjoy as much widespread support in this group of practitioners as it did in the corporate practice/animal health

companies interview group described above. However, even here the idea did resonate somewhat among a subset of survey respondents if envisioned within a particular context.

Discussion

The findings of this study indicate that considerable interest exists for the development of a new, mid-level veterinary professional, whose purpose would be to “extend” the reach of the veterinarian. Although case volume might not be adequate to warrant hiring such an individual in every practice, sufficient potential seems to exist across the profession to warrant development of several pilot training programs. To appropriately add value, capabilities should clearly be distinct from those currently available through traditionally trained and credentialed veterinary nurses/technicians, whether AS or BS degree graduates. And a key competency will be the ability to assume an active leadership role in the practice in relation to case management and coordination of clinical care.

Recommendations

Based on these findings, the Veterinary Innovation Council recommends that accredited colleges/schools of veterinary medicine explore the development of pilot MS training programs guided by the following parameters:

- Graduates will be “extenders” for the veterinary medical practice, bridging the gap between existing credentialed veterinary nurses/technicians (whether AS or BS graduates) and the veterinarian.
- Graduates would be restricted to working under the supervision of a licensed veterinarian as permitted by existing practice acts.
- The core of the curriculum should include:
 - Strong core of scientific and clinical skills/training
 - Advanced nursing/care delivery skills, and
 - Non-clinical skills, especially communications, critical thinking, and leadership
- Graduates should be able to manage all professional and paraprofessional staff and the care delivery system.

References

1. Report of AVMA Task Force on Veterinary Technician Utilization. AVMA internal document (unpublished), December 23, 2019, Schaumburg, IL, 23 pp.
2. Lloyd, J.W. High Value Veterinary Technician Initiative: 2-yr vs. 4-yr Education Project Report. Veterinary Innovation Council, February 2020, Orlando, 13 pp.
3. Michigan State University College of Veterinary Medicine. Creating the Future of Veterinary Technology: A National Dialogue, Nov 13–15, 2011, East Lansing, MI, 20 pp.
4. Chadderdon, L.M., J.W. Lloyd, and H.E. Pazak. New directions for veterinary technology, *Journ Vet Med Ed*, 41(1):96-101, 2014.
5. Fults, M.K., K. Yagi, J. Kramer, and M. Maras. Development of advanced veterinary nursing degrees: rising interest levels for careers as advanced practice registered veterinary nurses, *Journ Vet Med Ed*, <https://doi.org/10.3138/jvme.2019-0041>.
6. Yagi, K., and M. Fults. NAVTA Corner: Perspectives on the creation of advanced veterinary nurse degrees, *Today's Veterinary Nurse*, winter 2021, p 8-9.

Appendix A

**Curriculum Digest for Master's of Veterinary Clinical Care
DRAFT**

**College of Veterinary Medicine
Lincoln Memorial University
Stacy Anderson, DVM, MVSc, PhD, DACVS-LA
Dean**

September 25, 2020

Curriculum Digest for Master's of Veterinary Clinical Care		
First Semester	Summer	Credits
MVCC500	Intro to Veterinary Practice	1
MVCC510A	Clinical Anatomy - SA	(Choose 1) 2
MVCC510B	Clinical Anatomy – LA	
MVCC511	Physiology / Pathophysiology	3
MVCC515	Clinical Skills I	1
MVCC518	Professional Life Skills I	2
	Total Credits	9
Second Semester	Fall	
MVCC522	Veterinary Therapeutics	2
MVCC523	Veterinary Imaging	1
MVCC524	Adv Veterinary Case Management	2
MVCC525	Clinical Skills II	1
MVCC526	Anesthesia & Pain Management	1
MVCC527	Veterinary Surgery	1
MVCC528	Professional Life Skills II	2
	Total Credits	10
Third Semester	Spring	
MVCC530A	Small Animal Clinical Medicine	(Choose 1) 4
MVCC530B	Exotics and Avian Medicine	
MVCC530C	Equine Clinical Medicine	
MVCC530D	Food Animal Clinical Medicine	
MVCC531A	SA Emergency Medicine& Surgery	(Choose 1) 3
MVCC531B	LA Emergency Medicine & Surgery	
MVCC532	Clinical Skills 3	1
MVCC533	Adv Veterinary Care Coordination	2
	Total Credits	10
Fourth Semester	Summer	
MVCC600	Capstone Project	1
MVCC620A	Mixed Animal General	(Choose 1) 4
MVCC620B	Companion Animal General	
MVCC620C	Large Animal General	
MVCC620D	Exotics and Avian General	
MVCC630A	Companion Animal Emergency Medicine & Surgery	(Choose 1) 3
MVCC630B	Large Animal Emergency Medicine & Surgery	
	Total Credits	8
	Total Credits for Degree	37

	First Semester	Credits
MVCC500	Intro to Veterinary Practice	1
CO1	Identify the trends in veterinary history.	
CO2	Describe issues in veterinary ethics and jurisprudence.	
CO3	Describe the value of diversity, cultural competence, and inclusion for the profession.	
CO4	Describe the Human-Animal bond and implications to veterinarians	
MVCC510A	Clinical Anatomy - SA	(Choose 1) 2
CO1	Properly define, use, and interpret anatomic terminology as related to the description of structures, principles, and relationships of veterinary anatomy	
CO2	Identify and describe the boundaries, features, and contents of the body cavities, including how they are related and/or differentiated	
CO3	Identify, describe, and relate the features/organs in the following systems: musculoskeletal, nervous, sensory, cardiovascular, respiratory, urogenital, endocrine, digestive	
CO4	Demonstrate and interpret knowledge of applicable content from all objectives in the context of live animal palpation and medical imaging	
MVCC510B	Clinical Anatomy – LA	
CO1	Properly define, use, and interpret anatomic terminology as related to the description of structures, principles, and relationships of veterinary anatomy	
CO2	Identify and describe the boundaries, features, and contents of the body cavities, including how they are related and/or differentiated	
CO3	Identify, describe, and relate the features/organs in the following systems: musculoskeletal, nervous, sensory, cardiovascular, respiratory, urogenital, endocrine, digestive	
CO4	Demonstrate and interpret knowledge of applicable content from all objectives in the context of live animal palpation and medical imaging	
MVCC511	Physiology / Pathophysiology	2
CO1	Describe the fundamental mechanisms underlying normal function of cells, tissue, organs, and organ systems in animals	
CO2	Explain the basic mechanisms of homeostasis by integrating the function of cells, tissues, organs, and organ systems	
CO3	Evaluate and investigate the important physiological challenges animals face, how those challenges vary in relation to the animal’s environment, and the processes by which animals deal with those challenges	
CO4	Describe the role of evolutionary processes in driving the organization of physiological systems	
CO5	Identify and describe structural differences of major physiological systems that characterize different taxonomic groups of animals	
CO6	Apply knowledge of functional mechanisms and their regulation to explain the pathophysiology underlying common diseases	

MVCC515	Clinical Skills I	1
CO1	Restraint and handling skills for common domestic species, including fear free certification	
CO2	Physical examination skills for common domestic species	
CO3	Surgical skills including instrument handling, suture handling, clamping, ligating, and suturing	
CO4	Demonstrate how to create a medical record and describe the components of a medical record	
MVCC518	Professional Life Skills I	2
CO1	Identify and demonstrate the 4 Core Communication skills	
CO2	Explain the full concepts of the Calgary Cambridge Guide	
CO3	Demonstrate proficiency in communication skills covered by the Calgary Cambridge Guide	
CO4	Explain the concepts of Emotional Intelligence	
CO5	Explain & illustrate concepts of Wellbeing	

	Second Semester	Credits
MVCC522	Veterinary Therapeutics	2
CO1	Describe the basic principles and fundamental concepts of pharmacokinetics as they pertain to the use of drugs in therapy in veterinary medicine.	
CO2	Utilize mechanism of action (pharmacodynamics) of therapeutic agents to predict potential therapeutic use, contraindications to use, appropriate monitoring, and adverse effect profile based on the impact to the structure and function of the animal.	
CO3	Correlate the most appropriate pharmacologic management for a given indication and organ system.	
MVCC523	Veterinary Imaging	1
CO1	Describe the principles of physics used to create images using the following modalities: analog radiographs, digital radiographs, computed tomography, ultrasound, and magnetic resonance imaging.	
CO2	Describe and apply the principles of radiation safety	
CO3	Describe the application of various imaging modalities used to diagnose veterinary diseases and disorders	
CO4	Describe how to acquire diagnostic radiographic images for the thorax, abdomen, head and neck, and limbs in the canine, feline, and equine species	
CO5	Recognized poor radiographic image quality and describe how to require diagnostic quality images	
MVCC524	Advanced Veterinary Case Management	2
CO1	Describe the principles and methods of veterinary clinical diagnosis	
CO2	Explain the principles and demonstrate competency in evidence-based, economically informed, culturally competent treatment planning	
CO3	List case referral options and discuss the elements of referral decisions	
CO4	Discuss key elements of effective patient monitoring systems	
CO5	Demonstrate competence in discharge management	
CO6	Explain the potential roles of, and opportunities for, virtual care/telemedicine	
CO7	Demonstrate competence in virtual care/telemedicine	
MVCC525	Clinical Skills II	1
CO1	Physical examination skills for common domestic species	
CO2	Anesthesia and surgical skills including instrument handling, suture handling, tissue handling, clamping, ligating, and suturing	
CO3	Demonstrate basic diagnostic clinical skills used for common domestic species	

MVCC526	Anesthesia & Pain Management	1
CO1	Explain normal anatomy and physiology in relation to anesthesia and pain management of multiple veterinary species.	
CO2	Identify a balanced anesthetic and/or multi-modal analgesic plan for multiple species that includes knowledge of drugs or techniques that should be avoided or are contraindicated in a patient; and also, to evaluate which patient would benefit from referral to a specialist.	
CO3	Correctly complete common calculations discussed in lecture that are used in the anesthesia and pain management of multiple veterinary species.	
CO4	Identify signs of anesthetic depth in the different species, especially what an adequate surgical plane of anesthesia looks like.	
CO5	Discuss the basic principle and use of different anesthetic monitoring equipment and techniques as it pertains to multiple animal species discussed in lecture.	
CO6	Distinguish among anesthetic drugs that can be selected for the premedication, induction, and maintenance of anesthesia, and to provide sedation and/or analgesia for common domestic species.	
CO7	Distinguish among appropriate methods for euthanasia of common domestic species.	
MVCC527	Veterinary Surgery	1
CO1	Apply concepts of aseptic technique and surgery room etiquette for preparation of performing veterinary surgical procedures.	
CO2	Explain the Halsted principles and describe how surgical technique contributes to patient outcome	
CO3	Apply knowledge of surgical instruments, materials, and tissue handling to make educated decisions during simple surgical procedures on small and large animals	
CO4	List and describe methods of providing hemostasis during surgical procedures	
CO5	Select appropriate methods of post-operative care for small and large animal patients in order to effectively manage surgical cases post-operatively	
CO6	Explain the principles of wound management including suturing, drainage, and bandaging	
CO7	Explain the principles of managing trauma cases, including orthopedic emergencies	
MVCC528	Professional Life Skills II	2
CO1	Explain & illustrate Diversity, Equity, and Inclusion in Veterinary Medicine	
CO2	Explain and demonstrate concepts related to Leadership Fundamentals	
CO3	Explain and demonstrate the concepts partnering with clients with disabilities	
CO4	Define and explain concepts related to professional work environments	
CO5	Communicate with team members or clients in difficult situations	

	Third Semester	Credits
MVCC530A	Small Animal Clinical Medicine	(Choose 1) 4
CO1	Recognize and describe the clinical signs corresponding to common canine and feline diseases and disorders	
CO2	Establish a diagnosis and treatment plan for common canine and feline diseases and disorders	
MVCC530B	Exotics and Avian Medicine	
CO1	Recognize and describe the clinical signs corresponding to common avian and exotics diseases and disorders	
CO2	Establish a diagnosis and treatment plan for common avian and exotics diseases and disorders	
MVCC530C	Equine Clinical Medicine	
CO1	Recognize and describe the clinical signs corresponding to common equine diseases and disorders	
CO2	Establish a diagnosis and treatment plan for common equine diseases and disorders	
MVCC530D	Food Animal Clinical Medicine	
CO1	Recognize and describe the clinical signs corresponding to common bovine, ovine, camelid, and porcine diseases and disorders	(Choose 1) 3
CO2	Establish a diagnosis and treatment plan for common bovine, ovine, camelid, and porcine diseases and disorders	
MVCC531A	SA Emergency Medicine & Surgery	
CO1	Recognize and describe the clinical signs corresponding to common equine, bovine, and small ruminant emergencies	
CO2	Establish a diagnosis and treatment plan for common equine, bovine, and small ruminant emergencies	
CO3	Describe how to perform small animal emergency procedures, including simple surgeries	
MVCC531B	LA Emergency Medicine & Surgery	
CO1	Recognize and describe the clinical signs corresponding to common equine, bovine, and small ruminant emergencies	
CO2	Establish a diagnosis and treatment plan for common equine, bovine, and small ruminant emergencies	
CO3	Describe how to perform common large animal emergency procedures, including simple surgeries & laceration repair	

MVCC532	Clinical Skills 3	1
CO1	Physical examination skills for common domestic species	
CO2	Demonstrate basic diagnostic clinical skills used for common domestic species	
MVCC533	Advanced Veterinary Care Coordination	2
CO1	Identify the core principles and values of an effective healthcare team	
CO2	Identify the roles and responsibilities of all health care team members	
CO3	Demonstrate proficiency in interprofessional communication and team leadership	
CO4	Explain relevant state regulations related to potential roles and responsibilities	

	Fourth Semester	Credits
MVCC600	Capstone Project	1
CO1	Present a focused study and presentation of a topic encountered during a clinical rotation.	
MVCC620A	Mixed Animal General Rotation	(Choose 1) 4
CO1	Demonstrate competence in clinical reasoning skills through managing standard and non-standard clinical cases.	
CO2	Accurately and effectively create medical records.	
CO3	Demonstrate consistently effective and appropriate communication and professional skills with a variety of people	
CO4	Demonstrate competence and confidence in examining, diagnosing, and treating simple clinical cases	
MVCC620B	Companion Animal General Rotation	
CO1	Demonstrate competence in clinical reasoning skills through managing standard and non-standard clinical cases.	
CO2	Accurately and effectively create medical records.	
CO3	Demonstrate consistently effective and appropriate communication and professional skills with a variety of people	
CO4	Demonstrate competence and confidence in examining, diagnosing, and treating simple clinical cases	
MVCC620C	Large Animal General Rotation	
CO1	Demonstrate competence in clinical reasoning skills through managing standard and non-standard clinical cases.	
CO2	Accurately and effectively create medical records.	
CO3	Demonstrate consistently effective and appropriate communication and professional skills with a variety of people	
CO4	Demonstrate competence and confidence in examining, diagnosing, and treating simple clinical cases	
MVCC620D	Exotics and Avian General Rotation	
CO1	Demonstrate competence in clinical reasoning skills through managing standard and non-standard clinical cases.	
CO2	Accurately and effectively create medical records.	
CO3	Demonstrate consistently effective and appropriate communication and professional skills with a variety of people	
CO4	Demonstrate competence and confidence in examining, diagnosing, and treating simple clinical cases	

MVCC630A	Companion Animal Emergency Medicine & Surgery Rotation	(Choose 1) 3
CO1	Demonstrate competence in clinical reasoning skills through managing emergency clinical cases.	
CO2	Accurately and effectively create medical records.	
CO3	Demonstrate consistently effective and appropriate communication and professional skills with a variety of people	
CO4	Demonstrate competence and confidence in examining, diagnosing, and treating simple emergent clinical cases	
MVCC630B	Large Animal Emergency Medicine & Surgery Rotation	
CO1	Demonstrate competence in clinical reasoning skills through managing emergency clinical cases.	
CO2	Accurately and effectively create medical records.	
CO3	Demonstrate consistently effective and appropriate communication and professional skills with a variety of people	
CO4	Demonstrate competence and confidence in examining, diagnosing, and treating simple emergent clinical cases	

Appendix B

Summary Comments on Draft Masters Curriculum Reviews Veterinary Innovation Council

February 4, 2021

Summary Comments on Draft Masters Curriculum Reviews

Veterinary Innovation Council

February 4, 2021

Mark L. Cushing, JD

James W. Lloyd, DVM, PhD

Overall Summary

- Concept – generally very positive feedback, although not unanimous
 - Mostly strong support, with key organizations ready to support enrollments
 - Some hesitation/lack of support
- Content – viewed as a strong first draft by those supportive of concept
 - Support for:
 - Strong core of clinical skills/training
 - Advanced nursing/care delivery skills, and
 - Non-clinical skills, especially communications and leadership
 - Could maybe use some fine-tuning/focus to be clear about value proposition
 - Will likely evolve a bit over time and possibly vary between institutions
 - As core emerges, a new national certification examination will be important
- Delivery model – mixed reviews
 - Some voiced strong support – reasonable timeline, practical in-clinic training
 - Some expressed hesitation – question timeline, efficacy of all distance learning
 - Will likely vary over time and between institutions

Specific Comments on Concept

- Wish that the program could be called Veterinary Nurse Practitioner out of the gate, with broader scope of practice, but understand political realities of why that isn't realistic. Master's in Veterinary Clinical Care has support as name for program.
- Key is portability and willingness of practices to recognize this degree-holder with great compensation and leadership opportunities.
- Ideally this person is bridge between 2-year AS degree Vet Techs and the medical doctors.
- Cannot wait for practice act reforms to happen before launching
- Doesn't change priority on getting DVMs to delegate more duties and tasks to Vet Techs, but see the Master's degree professional as helping to make this happen.
- Like the fact program will allow practices to leverage DVMs more effectively due to skill set and knowledge base of the Master's degree individual.
- This type of professional is greatly needed in specialty and emergency practices.
- See it as valuable for a new professional who isn't just focused on tasks or functions, but able to converse with DVMs about medical and procedural subjects.
- "We'd send 50 credentialed Vet Techs to get started"
- Would definitely fund Vet Techs to go through program.
- See a financially attractive proposition at \$25,000 tuition or thereabouts.
- Would like to see program succeed and serve as vehicle to expand scope of practice.

- Unsure if this 2-year program will add value to the learner or employer
- State goal of bridging the gap between 2-year AS and DVM is confusing
- New career option would undoubtedly be very interesting to many in the workforce
- It is a higher priority to improve utilization of graduates from existing programs than to create a new program at this time
- Need to be clear about the value proposition – What are the expected benefits or outcomes, and how might they be quantified?
 - Clinical care – enhanced patient outcomes
 - Improved service – client satisfaction
 - Increased revenue/profit
- Need to include voices of
 - Veterinary nurses/technicians
 - Corporate practices
 - Private practices
- Bridge gap between BS and DVM, not AS and DVM – new career option
- Endorsement and limited to offering by vet schools is helpful
- Idea has merit, especially to improve access for under-served communities
- Importance of parallel initiative with AAVMC for DVM grads to recognize value
- Overall impressed by idea/program to meet the need for a mid-level extender. A professional bridging the gap between 2-year degree Vet Techs and 8-year degree DVMs.
- The concept has the risk of displacing veterinary technicians to remain underpaid and underutilized if implemented incorrectly.
- Although not everyone agreed, there was generally strong support for this initiative

Specific Comments on Content/Competencies

- Needed focus on specific competencies
- Well-balanced and content matches goals.
- Need more specificity in course objectives for some areas/topics
- Make sure leadership, communications (including writing and documentation), business, hospital operations are part of training.
- Nursing elements are critical: care delivery, patient advocacy, hospital flow, team management.
- Like the telemedicine element.
- Do not see value of 3 credit hours for research
- Dentistry should be an option for possible specialization, and there is interest in whether program could be linked to specialty certification for vet techs.
- Clinical pathology training should be included, and possible epidemiology
- Overall, very strong core
- Like the emphasis in curriculum on combination of medical/veterinary knowledge and softer skills: leadership, communication, advanced nursing care modalities.
- Would like to see more emphasis on lab diagnostics running the gamut of diagnostics utilized in specialty and general practices.

- Needs to be species-tracked – include lab animal as a possible species track
- Make anatomy and physiology prerequisites
- Expand therapeutics, pathology, and infectious disease
- Highlight laboratory sciences – immunology/vaccinology, cytology, endocrinology, microbiology
- Science needs to support case management – evidence-based dx, rx, and tx
- Be more explicit about advanced nursing competencies
 - Advanced clinical skills
 - Clinical acumen – case evaluation/assessment
 - Triage – prioritization
 - In advanced care coordination, include strategic workforce planning
- Really emphasize non-clinical skills
 - Capstone with science-based project is important – research skills
 - Basic business skills are important – aspects of practice management in various courses
 - Strengthen leadership – especially team leadership
 - Communications should include both client-based and leadership competencies
 - Wellness is important as a “competency”

Specific Comments on Delivery Model

- Like the idea of 3-4 semesters running back-to-back, so equivalent of 2-year Master’s achieved in 12-15 months. Some may go at slower pace.
- A one-year period for a master's is extremely short, but now understand it is 3 or 4 semesters, not typical 2-semester year.
- Like the fact that clinical work may be done at the clinics in which students are working.
- Comfortable with ability of students to enter the program with a Bachelor’s degree in any subject, provided pre-veterinary courses were covered, and Bachelor’s may not be required if pre-vet course requirements satisfied. But assume that the students they would send are working already as Vet Techs.
- Take VTNE as a prerequisite or at the completion of the MS degree
- Needs a unique accreditation, though not required as veterinary colleges are already approved to issue Master’s degrees.
- Consider three options for admission
 - BS in veterinary nursing/technology
 - AS in veterinary nursing/technology + earned BS in something
 - Bachelor’s degree in something – This option, which was not universally endorsed, would require candidates to take specified science prerequisites, and may or may not include specific training in veterinary nursing/technology.
- Career options need to be clearly considered as part of the coursework
- Possible track toward government, R&D, corporate positions?
- Four semesters may not be enough time – most MS programs are 1.5 to 2.5 years
 - Is any time required on-campus (e.g., 2-3 weeks over the course of the program)?

- Logistical challenges if entirely online?
- Practical, clinical experience will be vital to success.
- Establishment of a route of admission without requiring a veterinary nursing or technology degree will serve to further devalue veterinary technicians.

Reviewer Affiliations

- Veterinary Innovation Council (VIC) Board – seven members
- Compassion First
- Pathways Vet Alliance
- Pet IQ
- Veterinary Study Groups, Inc.
- WellHaven

Appendix C

**Mid-level Veterinary Professional – Exploration Study Summary
Veterinary Innovation Council**

Zoetis US Market Research
December 7, 2020

Mid-level Veterinary Professional – Exploration Study Summary

Veterinary Innovation Council

November 23, 2020

Zoetis US Market Research

Background, Objectives, Methodology

- Background – Veterinary Innovative Council is looking to identify ways to advance credentialed veterinary technicians as a highly attractive, sustainable career option, and increase the use of veterinary technician skills and competencies to help provide a best-in-class patient experience by supporting veterinarians, expanding their reach, making them more efficient, and helping them ensure superlative service to their clients and patients, while enhancing the business of the veterinary clinic/hospital.
- Business goal and objectives – Determine if and how to move forward with a master’s program for veterinary technicians to play the equivalent role of an NP/PA role in human health.
- Research objectives
 - Collect veterinarian current experiences and perceptions of the role and responsibilities of veterinary technicians
 - Introduce hypothetical master’s program to gauge reaction and level of interest
- Methodology
 - Online Survey – VOICE Community
 - “Technically Speaking”
 - Fieldwork: 10/23/2020 – 11/5/2020
 - Total Sample: n=114
 - Online Discussion – VOICE Community
 - “Continuing the Conversation”
 - Fieldwork: 10/23/2020 – 11/5/2020
 - Total Sample: n=86

Two Major Takeaways

- Veterinary technicians are highly valued, but their industry is broken
 - DVMs can’t get enough of their veterinary technicians – they even point out a consistent shortage of LVTs.
 - The best technicians, licensed or not, are Jacks-of-all-trades and DVMs can’t envision their clinic without them.
 - Their current pay scale does not match their value nor their demand.
 - Most DVMs feel a Master’s program would exacerbate this divide instead of solving for the bigger need; a larger, more experienced pool of technicians.
- A Master’s LVT brings value only if they impact the clinic’s bottom line
 - Since these MA graduates will cost more, they will need to “pay for themselves” by driving clinic efficiency.

- The program holds more viability if it creates veterinary technicians with the independence and skillset to take work off DVMs' plates thus freeing up DVM time to see more patients, thereby increasing;
 - Volume of visits
 - Patient satisfaction
 - Overall clinic revenue

Key Findings and Implications

- Key Findings
 - While the potential Master's program is appealing "on paper" DVMs are immediately concerned about its value for cost and ability to afford the pay it would warrant. This "knee jerk" reaction is the dominant theme across feedback on the program. Money is an extremely top-of mind concern for veterinarians, and they struggle to see how the program would help the existing challenge of technicians being highly sought-after but already underpaid.
 - Doubts about the benefits of the program are especially pronounced at smaller, private practice clinics where there aren't as many employees on staff or as much budget to support a new hire.
 - Paying more for higher education is especially hard to envision as veterinarians do not naturally differentiate veterinary technicians by education – licensing and hands-on experience are more relevant.
 - Bachelor's degrees represent a minority of current veterinary technicians.
 - DVMs at a clinics with different levels of technician education typically report they perform the same role, and 2- and 4-year educated technicians demonstrate similar levels of success against standard competencies.
 - A master's degree is currently seen as a more academic pursuit which doesn't align with what DVMs find most valuable from their technicians: practical knowledge and skills that effectively free up DVMs' time.
 - DVMs do see an opportunity for technicians to take on more responsibility within the clinic, particularly with client communications and basic patient care.
 - For those who see the merits of a potential Master's program:
 - They hope it would allow veterinary technicians to function more independently, with critical thinking and communication skills seen as key elements of the program.
 - They believe it could be especially beneficial in larger or more specialized practice, among those with a need to fill managerial roles, or if it creates a distinct role above and beyond what LVTs are currently able to do.
 - However, many DVMs are not fully connecting the dots – between what they need (more support) and what this program offers based on the current description, suggesting the challenge to solve may be partly in how the program is presented.

- Implications
 - There is an opportunity to distinguish graduates of the Master’s program from current LVTs beyond the increased years of education.
 - “Master’s degree” carries assumptions related to post-graduate academia that leads DVMs to conclude high cost and lack of practicum
 - For DVMs to fully see the program’s value, it will need to be clear that graduates are more than just LVTs with a Master’s degree

This could be done through title or by creating an entirely separate role within the clinic – similar to a PA in human medicine.
 - A potential Master’s program will need to take tasks off the veterinarian’s plate in a meaningful enough way that allows the clinic to run more efficiently in order to overcome concerns about cost. To accomplish this, the program should build on the importance of communication and critical thinking as core tenets that foster technician independence, and also emphasize building the practical skillset of a veterinary technician through hands-on experience rather than general education.
 - For maximum impact, the program should be positioned especially to address the most receptive audiences:
 - Large clinics that will be more likely to have the resources to pay more highly educated candidates and the demand for differing levels of management, or who are looking to fill a specialized role.
 - Specialty practices looking to fill roles requiring a more nuanced skillset.
 - Because a higher salary upon graduation is far from guaranteed, the program needs to also show the ROI for veterinary technicians. Any opportunity to lower the barrier to entry, either in terms of cost or years needed to complete, will help veterinary technicians feel like it is worth the investment of time and money.

Recommendations

- Right now, this program has limited appeal: large clinics and specialty practices who have the need and funds necessary.
- For broader appeal, the program needs to accomplish the following:
 - Enable LVTs to operate more independently so DVMs can operate more efficiently
 - Maximize practical experience over academia
 - Create a distinct role beyond the current LVT designation
 - Consider the barriers to entry for potential candidates of the program (time & cost)