Professional Competencies of Canadian Veterinarians:
A Basis for Curriculum Development

DVM 2000
Ontario Veterinary College
University of Guelph

Revised, April 1996

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Summary

In September 1993, the Ontario Veterinary College Curriculum Committee began a consultative process, known as ***DVM 2000***, the aim of which is to match the knowledge, skills and attitudes acquired in the DVM Program with societal expectations of the entry-level veterinarian. This has implications for admission criteria for the DVM Program, approaches to teaching, learning and evaluation within the Program, resource allocation in the College and "outcomes assessment" of the DVM Program.

DVM 2000 was set up as a series of consultative steps, each requiring approval by the DVM Program Committee. The first step was to define the competencies that characterize the entry-level veterinarian. These competencies describe measurable behavioral objectives for the DVM program. The result, "Professional Competencies of Canadian Veterinarians: a Basis for Curriculum Development", was the subject of broad discussion and revision. The competencies embodied in it were adopted by the OVC DVM Program Committee in September 1994. It now is being used in clarification of course and rotational objectives, and as the basis for relevant performance-based means of assessment.

"Professional Competencies of Canadian Veterinarians" is based on a model, developed in Australia, for the definition of competency standards for professions.[1] Its central premise is that the knowledge, skills and behaviours which characterize a graduating professional can be described by a series of explicit and objective statements. These statements are inter-related and are arranged in a hierarchical manner, from specific standards of performance which would apply in the workplace, to more generic concepts that describe the outcomes of acceptable standards of behaviour.

To describe the professional context within which these entry-level competencies apply, "Range Indicators" were developed, following a further process of broad consultation, from fall 1994 to December 1995. Range Indicators modify the competencies, delineating what is expected of entry-level veterinarians in various settings, generally based on the species of animal being dealt with. In this sense, they expand upon the curricular objectives defined by the competencies. While the range indicators describe in some detail the expectations of the graduating veterinarian, by virtue of what is omitted they also draw a line around the curriculum. Hence, they help us with the difficult choices about what to include and exclude, without preempting the opportunity for change or enrichment.

This document, now embodying both the Competencies and the Range Indicators which modify them, is being made widely available to all members of the OVC community. It will serve as the basis for evaluation and development of the DVM Program at the Ontario Veterinary College. Its contents can be used by every faculty member in the development of learning objectives and evaluative instruments, and by every undergraduate student to clarify curricular expectations, and as the basis for ongoing self-assessment. It will be reviewed, and, as appropriate, modified, on a regular basis. Users are encouraged to submit questions or comments to the Office of the Assistant Dean, Undergraduate Academic Affairs.

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[1] Heywood et al., (1992). NOOSR Research Paper No.7 AGPS, Canberra, ACT, Australia

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A. Background

Since the mid 1980's, the Ontario Veterinary College has engaged in debate about how we teach - the merits of active teaching and learning strategies versus more traditional forms of teaching; and what we teach - the concepts of core versus elective components of the Program. These debates were frustrated by the need to understand what society and the profession expects of the graduating veterinarian, and by difficulty in expressing those expectations as achievable, measurable behavioral objectives for the DVM Program.

The DVM 2000 Steering Group set out to define, in a measurable way, the knowledge, skills and behaviours expected by society of an entry-level veterinarian, and to establish them as the behavioral objectives for the DVM Program. This definition has implications with respect to criteria for admission to the DVM Program, approaches to teaching, learning and evaluation within the Program, resource allocation in the College, and "outcomes assessment" of the DVM Program. It will be critical in guiding the Curriculum Committee in the design of the DVM Program into the next millennium.

A.1 THE DVM 2000 PROCESS

Professional Competencies of Canadian Veterinarians.

The first step was to develop "Professional Competencies of Canadian Veterinarians", which describes the behavioral objectives of the DVM Program, expressed as the Competencies expected of a graduating veterinarian, defined to the level of Performance Criteria. General Competencies reflect the Learning Objectives of the University of Guelph, and complement the Veterinary Competencies, which describe narrower professional attributes. This document was approved by the DVM Program Committee in September 1994.

Description of Range Indicators.

The next phase was definition of the professional contexts in which competent performance would be expected. Stated as "Range Indicators", these modify the competencies, delineating what is expected of entry-level veterinarians in various settings, generally based on the species of animal being dealt with. In this sense, they expand upon the curricular objectives defined by the competencies. While the Range Indicators describe in some detail the expectations of the graduating veterinarian, by virtue of what is omitted they also draw a line around the curriculum, and they will help us with the difficult choices about what to include and exclude, without preempting the opportunity for curricular change or enrichment.

"Professional Competencies of Canadian Veterinarians", now embodying both the Competencies and the Range Indicators which modify them, is being made widely available to all members of the OVC community. It will serve as the basis for evaluation and development of the DVM Program at the Ontario Veterinary College in the foreseeable future. Its contents can be used by every faculty member in the development

of learning objectives and evaluative instruments, and by every undergraduate student to clarify curricular expectations, and as the basis for ongoing self-assessment. It will be reviewed, and, as appropriate, modified, on a regular basis. Users are encouraged to submit questions or comments to the Office of the Assistant Dean, Academic Affairs.

The Future

A set of principles for the DVM 2000 process guide curriculum review and revision. They embody the following concepts:

- the curriculum will be competency based
- its breadth will be defined by "Professional Competencies of Canadian Veterinarians", and the foundation basic sciences implicit in that document
- curricular depth will be defined by the learner, who will be provided with opportunities for enrichment and a degree of career emphasis
- students will be expected to learn in a variety of ways, and will be provided with an environment which encourages independent learning and self-evaluation
- artificial barriers to integration of curricular offerings should be minimized, and clinical elements should be introduced early in the program
- all components of the program will explicitly address the processes by which medical and ethical decisions are made
- appropriate forms and modes of professional communication will be a component of every program offering
- instruments for evaluation of learners will be of high quality and congruent with their purpose
- the program will reflect the "Curriculum Essential" of the AVMA Council on Education, as endorsed by the National Examining Board of the Canadian Veterinary Medical Association

Implementation of a curriculum embodying these principles will require a period of familiarization with them, and with the Competencies and their associated Range Indicators. Faculty and students will be encouraged to utilize the competencies in the design and evaluation of evolving curricular components, and in independent learning and ongoing self-evaluation. Knowledge of clear behavioral objectives empowers students to develop their own learning and self-evaluation programs, which they can integrate with or superimpose upon the formal curricular structure.

Curriculum inventory and outcome assessment will identify areas where these objectives and principles are not being met, and steps will be taken to address deficiencies. Opportunities and strategies to enhance curricular integration will be identified and employed. The goal of DVM 2000 is to obtain the best possible cost:benefit ratio in delivery of the DVM program, applying the most appropriate approaches to veterinary education, given the resources (fiscal, physical, human, technical, caseload etc.) available.

Performance-based evaluation throughout the program, founded on "Professional Competencies of Canadian Veterinarians", will be combined with self-evaluation by recent graduates, performance on National Board examinations, and periodic surveys of employers, as a means of outcome assessment. This will permit ongoing evaluation and

modification of the curriculum, in response to perceived deficiencies, and shifts in societal expectations of the veterinary profession. At the same time, it will serve as a defensible running audit of our efficacy, capable of meeting any externally imposed requirements for quality assurance.

In the meantime, until the broader issues surrounding delivery of the DVM program in the new sociopolitical context can be scoped and planned for in the longer term, there should be no hesitation on the part of faculty about using the Competencies and Range Indicators described in this document in ongoing revision of current course offerings, and in dealing in the short term with constraints imposed by the fiscal crisis in higher education. Students are encouraged to employ this document to discover the relevance of curricular offerings, in mapping out learning strategies for meeting course and rotational objectives, and as a basis for evaluating their progress through the program.

A.2 PROFESSIONAL COMPETENCIES OF CANADIAN VETERINARIANS

Starting from the Mission Statement of the Ontario Veterinary College and working with the Competency Document developed by the Australian Veterinary Association[1], the DVM 2000 Steering Committee established three working groups. These groups were comprised of internal and external stakeholders, including faculty, staff and students at the College, veterinarians in practice and in industry, members of professional associations in Ontario, members of commodity and animal-focus groups, and the public. These three working groups drafted the components of a document describing the competencies of veterinarians at entry into the profession in Canada, using the Australian Veterinary Profession Competency Standards as a model.

In June 1994 the draft Competency document was circulated to approximately 500 stakeholders, and the final version was based on the feedback received. It was adopted by the DVM Program Committee in September 1994.

Beginning in November 1994, committees of OVC faculty developed draft Range Indicators for the various species (dogs, cats, horses, cattle, sheep, goats, swine, poultry, fish, amphibians and reptiles, rodents, rabbits, ferrets and "non-domestic" carnivora and ungulates). These were further refined by four panels comprised of practitioners and OVC faculty, between December 1994 and May 1995. The outcome of this exercise was edited by the DVM 2000 Working Group to establish uniformity of expression of the Range Indicators across all species, and was reviewed by an advisory group of faculty and veterinarians at a day-long workshop held in November 1995. The DVM 2000 Working Group then revised the Range Indicators, based on the outcome of the November workshop, and brought them forward for approval by the DVM Program Committee in 1996.

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[1] Heywood, L (1992). The Australian Veterinary Professional Competency Standards. Australian Veterinary Association, Artarmon, NSW, Australia.

A.3 FORMAT OF "PROFESSIONAL COMPETENCIES OF CANADIAN VETERINARIANS"

"Professional Competencies of Canadian Veterinarians" was prepared following the model proposed by Heywood et al. (1992) for competency standards for professionals. The terminology used is described in the section below and in the Glossary.

Professional performance must meet a standard that is acceptable to the public, the profession, and other users of the profession, but it has been difficult to establish an objective way of describing the integrated skills and behaviours that embody competence. Heywood et al. (1992) outlined a process for objective definition of competency standards. They argued that specific knowledge, skills and attitudes, which are necessary for competent performance, can be defined by creating hierarchical statements which describe performance in the veterinary workplace and link with more generalized areas of competence which may be characteristic of any professional.

The Ontario Veterinary College can achieve the goals of its Mission statement by ensuring that graduates possess core competencies, which we have divided into two categories, **General Competencies** and **Veterinary Competencies**. General competencies are generic, in that they may apply to graduates of any professional program, and they embody many of the attributes described in the University's learning objectives (Appendix 1). Veterinary competencies are specific to the Mission of the Ontario Veterinary College to prepare veterinary professionals for service to society. Each unit of these core competencies (seven units of general competencies and six units of veterinary competencies) is further divided into a series of **Elements of Competency** which represent components of the unit. Acceptable performance within each Element is defined by the **Performance Standard**. The **Performance Criteria** list observable characteristics which would be regarded as evidence of competent performance in the workplace (i.e. the Performance Standard is met). Finally, **Range Indicators** describe the professional context in which the Performance Criteria apply.

The fundamentally important feature of this hierarchy is that the Performance Standard for each Element of Competency is described by an explicit statement which has been developed in consultation with members of the profession and other stakeholders. The Performance Criteria have also been developed by the same consultative process. They comprise the observable, measurable behavioural objectives which can be employed in curriculum development, and in design of instruments to evaluate competence of professional performance. The Range Indicators have also been developed in consultation with the profession, and they clearly define the professional context within which competent performance is expected of the veterinarian at graduation from OVC.

Outline of the document

In **Part B**, the Units of Competency which underlie standards of professional behaviour are described in overview. The General Competencies reflect the Learning Objectives of the University of Guelph.[1] Elements of the same performance domains are also integrated to some extent into the Veterinary Competencies, which describe the professional attributes of the graduating DVM student.

In **Part C**, each of the units of competency is set out in the format below:

FORMAT FOR VETERINARY COMPETENCIES

V6. PRIMARY VETERINARY CARE AND EXPERTISE:	←	**Unit of competency**
V6.2 Create a medical record that solves patient problems, fosters health, promotes the delivery of ongoing and comprehensive care and monitors performance	←	**Element of competency**
The medical record reflects a logical, systematic approach to the process of diagnosis, therapy and case management, and meets legal requirements.	←	**Performance Standard**

Graduates will be able to create a medical record that is:

a. Legible. b. Accurate. c. Current. d. Systematic. e. A concise report of relevant findings and outcomes. f. Indicative of how clinical data was handled. g. Consistent with legislative requirements.	←	**Performance Criteria**
Common to all species groups	←	**Range Indicator**

[1] Learning Objectives, University of Guelph Undergraduate Calendar - see Appendix 1

In **Part D**, the Range Indicators summarize the context in which animals are encountered, and, by Element of Veterinary Competency, they tabulate or list in detail the species context describing the expectations of entry level veterinarians in the workplace.

B. Overview of "Professional Competencies of Canadian Veterinarians"

B.1 MISSION STATEMENT

The mission statement for the Ontario Veterinary College is:

"To educate veterinary professionals and biologists, and to advance the art and science of veterinary and comparative medicine through research and service."

- *To serve society and nature by promoting health and preventing disease of vertebrates in the broad subject areas of domestic animals, wildlife, public health and biomedical sciences.*
- *To pursue the diagnosis and treatment of disease.*
- *To strive for excellence in specific areas of acknowledged strength while encouraging developing areas, and to exceed the standards expected by the University and the profession.*
- *To help provide society with an adequate supply of trained veterinary professionals.*
- *To strive for the welfare of animals.*
- *To pursue activities consistent with the Aims of the University of Guelph.*

B.2 SUMMARY OF UNITS OF COMPETENCY

B.2.1 GENERAL COMPETENCIES

G1. LITERACY AND NUMERACY

Literacy and numeracy are the bases on which all knowledge is founded. The abilities to read, write, and calculate are fundamental intellectual tools. Through use and communication of thoughts, literacy and numeracy pass through stages of intellectual achievement which are reflected in the personal growth of an individual.

G2. INTERPERSONAL COMMUNICATION SKILLS

Communication is the process of interacting with others respectfully and involves an exchange of information, feelings and values. It includes intrapersonal communication (self-understanding, self-evaluation, and reasoning) and interpersonal communication (interaction with others, relationship and self-disclosure). Through interpersonal communication, relationships are started, maintained, or destroyed. Good communication involves an understanding of self-awareness, of self-esteem, of feelings and emotions, and the development of listening skills and the willingness to disclose oneself truthfully and freely. Good communication also requires an understanding of principles of language and verbal interaction, principles of nonverbal communication, and interpersonal communication and relationships

(relationship development and deterioration, improvement of interpersonal communication, conflict management, interviewing skills etc.)

G3. DEPTH AND BREADTH OF UNDERSTANDING

Depth and breadth of understanding are the vertical and horizontal axes of knowledge. Depth of understanding implies mastery of a substantial proportion of available knowledge about a relatively narrow topic. In contrast, breadth implies integration of knowledge from a variety of disparate sources. An appropriate blend of the two is essential for entry into the veterinary profession.

G4. FORMS OF INQUIRY

Inquiry, the search for information and understanding, follows a methodology based upon systematic study, reflection, intuition and creativity. Forms of inquiry differ among areas of society and an appreciation of these differences, their strengths and weaknesses, is a fundamental tool of the entry-level veterinarian.

G5. JUDGEMENT

Judgement is characterized by the depth and consistency of moral and ethical maturity. Moral and ethical judgements are based on application and integration of a body of knowledge, interpretation of information in the light of social precepts, and recognition of a balance of conflicts among values within a society. Judgements are fallible and subject to modification.

G6. ONGOING CURIOSITY (SELF-INITIATED LEARNING)

On-going curiosity is often referred to as 'love of learning'. Curiosity is reflected in continuing to ask useful questions; to seek connections between disparate themes or bodies of knowledge; and to possess energy in the pursuit of knowledge and understanding.

G7. TECHNICAL SKILLS

In solution of veterinary problems, knowledge must be integrated with technical skills. Graduates of the DVM Program will have fundamental competence in the technical skills underlying veterinary procedures. They will recognize the importance of, and derive pride from, the efficient and dexterous application of technical skill.

B.2.2 VETERINARY COMPETENCIES

V1. PLANNING AND ANALYSIS

The ability to solve problems in a variety of circumstances, and the use of critical thinking to evaluate information, are fundamental skills for an entry-level veterinarian, irrespective of the field of activity. Professionals must be able to analyze the situation; identify and analyze the problem; determine the nature of further information required; critically review information; synthesize and hypothesize, with the goal of developing a further plan of action which is compatible with desired outcomes. The plan of action should be as timely, cost-

effective and as practical as possible. The actual outcome of the plan must be compared with the anticipated outcome.

V2. PROFESSIONAL INTERACTIONS

Effective interpersonal interaction and communication characterize a veterinarian in the professional workplace. A veterinarian must be able to communicate effectively with other professionals, clients, staff, members of the public, industry, and specific focus groups. This activity includes listening, offering professional advice, and delivering instruction or direction.

V3. PROFESSIONAL CONDUCT

Professional conduct embodies a knowledge of ethical, moral and legal issues and scientific principles that are balanced to provide informed judgement and action in the workplace.

V4. PROFESSIONAL DEVELOPMENT AND ADAPTABILITY

Besides sustaining and developing existing competencies, entry-level veterinarians must be prepared to adapt their knowledge, behaviour and skills to new fields of endeavour. A veterinarian must show the ability to transfer knowledge from one context to another in solving problems.

V5. MANAGEMENT OF VETERINARY ACTIVITIES

Veterinarians must be able to organize and manage their work activities in a responsible, efficient and effective manner, recognizing the need for cooperation, collaboration, supervision, and delegation where appropriate. They should also be able to demonstrate leadership where appropriate, and take responsibility for promoting group goals and change when needed. Such management behaviour should be founded on a basic understanding of good business practices and on good interpersonal skills.

V6. PRIMARY VETERINARY CARE AND EXPERTISE

Primary veterinary care embodies the knowledge, skills and attitudes used independently by veterinarians, at entry level into the profession, in the care of animals and human beings, including: the maintenance and promotion of health of individuals and populations of animals; maintenance and promotion of public and environmental health; and the recognition, diagnosis, treatment and prevention of disease in individual animals and animal populations. It is critical, at all times, that the entry-level veterinarian should record any aspect of veterinary work, including the details of diagnostic tests, actions and advice given to the client, and their outcomes, in a medical record which is legible, intelligible and retrievable. Unlike other units of veterinary competency, which address aspects of professional work that apply to all levels of the profession, this unit is concerned exclusively with entry level to the profession, and it tends to be more specific. The professional contexts in which competent performance is expected within this unit are described by the relevant Range Indicators (Part D).

C. Competency Standards

GENERAL COMPETENCIES

G1. LITERACY AND NUMERACY

G1.1 Use reading and writing as fundamental tools of communication.

Demonstrate advanced level[1] literacy.
Graduates will be able to:
a. Assimilate and comprehend written language at an advanced level.
b. Summarize information in a coherent manner.
c. Use appropriate language in context.
d. Devise a topic or concept for discussion, frame its bounds and communicate its content.
e. Demonstrate critical and analytical skills in the assessment of written and oral communications.
f. Draw out implications, synthesize and hypothesize from a body of knowledge.
g. Demonstrate the ability to enter into open debate.

G1.2 Use a numeric approach[1] to investigate problems.

Demonstrate advanced level[1] numeracy.
Graduates will be able to:
a. Understand the value and principles of describing situations in numeric terms.
b. Assimilate and comprehend numeric data and use appropriate tools to manage such information.
c. Use skills of numeracy to check validity of information.
d. Use numeric interpretation of data to make connections and develop new principles and thoughts.
e. Integrate literacy and numeracy.

G2. INTERPERSONAL COMMUNICATION SKILLS

G2.1 Communicate effectively.

Demonstrate effective interpersonal skills.
Graduates will be able to:
a. Listen respectfully and comprehend appreciatively.
b. Practise the elements of good interpersonal communication successfully.
c. Demonstrate the ability to work cooperatively.
d. Effectively manage interpersonal conflict.
e. Communicate effectively by oral, written and electronic means.
f. Understand the importance of feelings, emotions, and values as elements of communication.

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[1] Learning Objectives of the University of Guelph - see Appendix 1

G3. DEPTH AND BREADTH OF UNDERSTANDING

G3.1 Develop depth and breadth of understanding.

Demonstrate critical and creative thinking in the acquisition, organization and application of knowledge at a depth and breadth appropriate for entry to the profession.
Graduates will be able to:

a. Appreciate the difference between acquiring and understanding information.
b. Recognize when and how to obtain, and to use, specialized information essential to solving problems.
c. Demonstrate mastery of a specific body of knowledge within the context of a broad base of knowledge.
d. Evaluate information from a number of different contexts to create a clearer understanding of the body of knowledge.

G4. FORMS OF INQUIRY

G4.1 Use various methods of obtaining and evaluating information.

Demonstrate the ability to obtain and use information in different ways.
Graduates will be able to:

a. Identify and articulate the strengths and weaknesses, similarities and differences, of various forms of inquiry.
b. Describe and apply the scientific method.
c. Demonstrate an ability to evaluate information.
d. Describe, evaluate and apply various approaches to the diagnostic process.
e. Articulate and evaluate personal problem-solving processes.
f. Use, where appropriate, alternative approaches in an investigation.

G5. JUDGEMENT

G5.1 Combine knowledge and value systems when making decisions.

Use knowledge, observational and analytical skills, with due consideration of value systems, to evaluate and implement decisions.
Graduates will be able to:

a. Identify and articulate their personal value system.
b. Identify ethics and standards of conduct.
c. Identify the values and assumptions that may be operative in various contexts.
d. Identify, critically evaluate and accept the implications and consequences of decisions.
e. Reevaluate decisions based on new information.
f. Deal effectively with uncertainty.
g. Accept that self assessment of ethics and standards of conduct is a professional responsibility.
h. Accept that others may have different values and assumptions and respect those differences.

G6. ONGOING CURIOSITY (SELF-INITIATED LEARNING)

G6.1 Use self-initiated learning to maintain and enhance depth and breadth of understanding.

Identify learning needs through self-assessment, and develop and implement plans to address these needs. Evaluate the outcomes of self-directed learning.

Graduates will be able to:

a. Recognize limitations of their knowledge, skills and attitudes.
b. Identify the desired standards of knowledge, skills, attitudes and behaviours of a veterinarian.
c. Identify sources of ongoing learning opportunities.
d. Demonstrate an ability to monitor and act upon current trends in society and the profession.
e. Demonstrate a commitment to on-going learning and self-evaluation.

G7. TECHNICAL SKILLS

G7.1 Perform fundamental veterinary procedures in a skillful way.

Perform fundamental veterinary procedures and techniques in an efficient and skillful manner.

The technical skills underlying veterinary procedures identified in relevant elements of competency in Veterinary Competencies will be carried out effectively and efficiently.

VETERINARY COMPETENCIES

V1. PLANNING AND ANALYSIS

V1.1 Analyze a variety of contexts in which veterinary input would be beneficial and determine the veterinary care and expertise required.

Identify practical options for veterinary input.
Graduates will be able to:

a. Recognize areas of veterinary responsibility.
b. Determine the interests and expectations of the parties involved.
c. Demonstrate the ability to obtain sufficient information about a situation .
d. Validate information to ensure accuracy.
e. Draw valid conclusions.
f. Identify and rank problems in order of importance and urgency.
g. Identify and articulate potential and desired outcomes from the various participants in the problem-solving process and be able to come to a consensus as to the eventual desired outcome.
h. Identify the nature of the veterinary input required to achieve the desired outcome(s).

V1.2 Plan how to obtain and implement the veterinary input required in those contexts identified in 1 above.

Establish a timely, practical and cost-effective plan to deliver the required veterinary input.
Graduates will be able to:

a. Recognize the expectations of the community and the profession.
b. Consult relevant reference material when warranted.
c. Identify the level of professional competence and the branch(es)/level(s) of the profession likely to be involved in a situation.
d. Demonstrate the ability to recognize potential roles for individual action, collaboration and/or referral.
e. Recognize the limitations of personal qualifications, abilities and experience involved in a situation.
f. Recognize situations in which collaboration is mandatory .
g. Evaluate options for veterinary input in relation to significant prevailing factors (e.g. client, economic, humane considerations).
h. Identify the initial and continuing roles of the attending veterinarian.

V2. PROFESSIONAL INTERACTIONS

V2.1 Communicate effectively with clients, colleagues and others during the course of professional veterinary activity.

Communicate effectively.
Graduates will be able to:
a. Communicate clearly in a form appropriate to the context.
b. Consider the needs of the audience.
c. Give due emphasis to listening.
d. Maintain orderly, legible records of veterinary work in a form suitable for use by others. (Maintenance of records, in particular the Medical Record for veterinarians in practice, is a critical function which should be addressed at all times).

V2.2 Consult, collaborate or refer as necessary to provide appropriate veterinary attention in particular contexts.

Implement a practical plan for joint activity.
Graduates will be able to:
a. Recognize situations in which consultation/referral is likely to be beneficial.
b. Consult with sources of relevant expertise.
c. Formulate criteria for undertaking joint activity.
d. Identify a desired outcome(s).
e. Recognize the individual roles of participants in joint activity.
f. Propose courses of action which are communicated clearly to all interested parties.
g. Implement joint plan(s) effectively.

V2.3 Establish effective working relationships in the course of professional veterinary activities.

Establish productive interactions in the workplace.
Graduates will be able to:
a. Recognize the roles and responsibilities of veterinarians and other contributors in the workplace.
b. Work towards positive outcomes of working relationships.
c. Demonstrate initiative in team work and leadership.
d. Establish effective team work.
e. Be empathetic towards sensitive aspects of veterinary work.
f. Identify ways of resolving differences in the workplace.

V2.4 Offer professional opinions and advice.

Give professional opinions and advice.
Graduates will be able to:
a. Communicate opinions and advice in a relevant, practical and effective manner.
b. Justify the reasons for opinions and advice that are offered.
c. Identify areas of uncertainty or ambiguity.
d. Recognize local and regional factors of significance to professional activity .

V2.5 Give instruction and direction for the delivery of veterinary care and implementation of veterinary policies.

Give practical instructions/directions.
Graduates will be able to:
a. Appreciate the need to accept professional responsibilities to instruct or direct others.
b. Give valid instructions or directions which are appropriate for the situation.
c. Communicate instructions or directions clearly.
d. Provide training when warranted.
e. Monitor and record outcomes and revise instructions or directions when necessary.

V3. PROFESSIONAL CONDUCT

V3.1 Comply with legislation governing licenced veterinarians.

Veterinary work complies with legislation[2].
Graduates will be able to:
a. Recognize and comply with the privileges and responsibilities of licenced veterinarians.
b. Recognize and comply with professional obligations arising from other legislation.
c. Recognize contractual arrangements.
d. Recognize situations in which prevailing legislative regulations are unclear or open to interpretation.
e. Identify and use sources of expert advice concerning compliance with legislation when warranted.
f. Report suspected illegal activities to the appropriate authorities.

V3.2 Apply ethical principles and promote the welfare of animals.

Veterinary work is ethical.
Graduates will be able to:
a. Engage in professional behaviour which is consistent with the standards of the veterinary profession.
b. Recognize factors affecting the welfare of animals and recommended codes of practice[1] .
c. Obtain permission to undertake procedures when required.
d. Take appropriate action in the case of suspected unethical behaviour.
e. Promote the welfare of animals.

V3.3 Apply scientific principles in the course of veterinary activity.

Veterinary work is scientifically based.
Graduates will be able to:
a. Consult, comprehend and apply current veterinary information when warranted.
b. Incorporate the principles of the scientific method into the practice of veterinary medicine.
c. Employ relevant analytical techniques.
d. Draw valid conclusions from observations and data.
e. Recognize the limitations of anecdotal evidence.

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[2] Statutes relating to the legal obligations of veterinarians are attached in Appendix 2.

V3.4 Contain the spread of disease in the course of veterinary activity.

The risk of spread of disease during veterinary work is minimized.
Graduates will be able to:

a. Based on valid epidemiological principles, apply practices related to the control of disease in the work place.
b. Identify situations in which there is a high risk of contamination and/or infection and take appropriate action.
c. Identify notifiable diseases and take appropriate action.
d. Identify and use sources of advice.
e. Recognize the possibility of zoonotic diseases and take appropriate actions.
f. Explain the risks of diseases to others in the workplace.

V3.5 Support involvement in professional organizations and associations.

The importance of involvement in professional organizations is recognized.
Graduates will:

a. Participate actively in professional veterinary organizations.
b. Recognize the importance of membership and involvement in self-governing organizations which control licensing of veterinarians.

V4. PROFESSIONAL DEVELOPMENT AND ADAPTABILITY

V4.1 Recognize the need to sustain existing competency and develop new competencies.

Professional competency is sustained and developed in the workplace.
Graduates will be able to:

a. Identify emerging and continuing trends in the workplace.
b. Recognize obligations with regard to continuing professional development in the context of realistic self-appraisal.
c. Identify emerging new competencies in the professional field in which they work.
d. Obtain relevant continuing professional experience and/or education when warranted.
e. Maintain standards of professional performance.

V4.2 Implement improvements in the veterinary workplace.

Current work practices are reviewed in the light of current professional standards and improvements in veterinary work practices are implemented.
Graduates will be able to:

a. Identify and eliminate unsatisfactory work practices.
b. Identify improvements that are required to meet professional standards and become involved in steps that will lead to their implementation.
c. Recognize and evaluate emerging trends in the workplace.

V4.3 Adapt existing skills, knowledge and behaviours to deal with new situations.

Competent performance can be achieved in new circumstances.
Graduates will be able to:

a. Recognize the limitations of personal abilities in new situations.
b. Recognize the probable expectations of the profession and community.
c. Demonstrate the ability to transfer skills, knowledge and behaviours learned in a specific context to a novel situation.
d. Identify relevant advice, reference material and new training required.
e. Verify the validity and applicability of new information and skills.
f. Achieve a degree of new competence appropriate to the context and standards of the profession.

V5. MANAGEMENT OF VETERINARY ACTIVITIES

V5.1 Take appropriate steps to identify and manage situations and personnel.

Managerial responsibilities are fulfilled
Graduates will be able to:

a. Identify managerial responsibilities.
b. Take steps to ensure that managerial responsibilities are fulfilled.
c. Recognize and contribute to group goals.
d. Demonstrate individual leadership when warranted.
e. Identify and organize work priorities.
f. Delegate, supervise and collaborate where appropriate.
g. Observe procedures for record keeping, reporting and accountability.

V6. PRIMARY VETERINARY CARE AND EXPERTISE

V6.1 Obtain a relevant and accurate history of animals and their environment.

A relevant, accurate history is obtained.
Graduates will be able to:
a. Establish a productive relationship with the person(s) involved.
b. Ask questions which are systematic, relevant, precise, objective, non-leading and interactive with respect to information obtained.
c. Assess information obtained for accuracy and reliability.
d. Clarify uncertainties and inconsistencies.
e. Organize information obtained accurately in a medical record.

Range Indicators: Common to all species groups.

V6.2 Create a medical record that solves patient problems, fosters health, promotes the delivery of ongoing and comprehensive care and monitors performance.

The medical record reflects a logical, systematic approach to the process of diagnosis, therapy and case management, and meets legal requirements.
Graduates will be able to create a medical record that is:
a. Legible.
b. Accurate.
c. Current.
d. Systematic.
e. A concise report of relevant findings and outcomes.
f. Indicative of how clinical data was handled.
g. Consistent with legislative requirements.

Range Indicators: Common to all species groups.

V6.3 Handle and restrain animals in a safe and humane manner.

Animals are approached, handled and restrained in a manner (behavioral, physical or chemical) appropriate to the situation.
Graduates will be able to:
a. Handle and restrain animals using an approach, and method(s) of restraint, which are humane, effective, and consistent with the context.
b. Minimize discomfort and risk of additional injury to a restrained animal.
c. Anticipate the behaviour of the animal, and adapt methods of restraint in response to changing needs.
d. Anticipate, and take steps to minimize, the risks to people associated with the situation.
e. Demonstrate effective control of the situation.

Range Indicators: See Part D.

V6.4 Carry out an evaluation of animals and their environment.

Perform a thorough and systematic evaluation of animals, and a general assessment of their environment.
Graduates will be able to:
a. Carry out an appropriate and effective general assessment of animals and their environment.
b. Carry out a systematic, thorough physical examination of animals, giving adequate, but not exclusive, emphasis to the purpose of the examination and to presenting complaints.
c. Carry out a systematic examination of the health and production records of animals according to the needs and circumstances.
d. Make accurate observations, using appropriate diagnostic instruments and examination techniques.
e. Recognize physical, behavioral and production abnormalities.

Range Indicators: See Part D.

V6.5 Develop a problem list.

A list is developed which summarizes problems identified.
Graduates will be able to:
a. Develop a problem list using relevant information derived from the history, general assessment and physical examination.
b. Clearly identify and state problems succinctly, at the level at which they are understood.
c. Communicate problems identified in a manner consistent with the client's ability to understand them.

Range Indicators: See Part D.

V6.6 Tend to the immediate needs of animals.

Immediate needs of animals are recognized and dealt with appropriately.
Graduates will be able to:
a. Identify and rank problems in order of importance and urgency.
b. Evaluate, promptly, options for care and treatment, and, if possible, communicate these effectively with the owner.
c. Implement appropriate and effective emergency measures, and/or alleviate suffering.
d. Deliver emergency veterinary care which is consistent with prevailing ethical and legal constraints.

Range Indicators: See Part D.

V6.7 Develop a diagnostic plan.

A diagnostic plan is developed.
Graduates will be able to:
a. Apply knowledge and reasoning skills in evaluating the problem list to develop a tenable list of rational diagnostic hypotheses, based on the information available.
b. Communicate the diagnostic hypotheses developed in a manner consistent with the client's ability to understand them.
c. Discuss, with the client, management options which are appropriate to the diagnostic hypotheses.
d. Develop a rational diagnostic plan based on 'a' and 'c' above.

Range Indicators: Common to all species groups.

V6.8 Select and/or perform relevant ancillary diagnostic tests and procedures where appropriate.

Appropriate and cost-effective diagnostic tests and procedures are selected and/or performed accurately and reliably.

Graduates will be able to:

a. Select appropriate ancillary diagnostic tests and procedures, based on the diagnostic plan.
b. Evaluate the scope, role and limitations of ancillary diagnostic techniques, the abilities of the veterinarian, and the resources available, in the light of the diagnostic requirements.
c. Evaluate the costs, risks and benefits of procedures under consideration.
d. Collect and preserve samples correctly.
e. Comply with regulations pertaining to the spread of disease, health and safety, transport, and import/export of animals or animal products (see Veterinary Competency 3.1 & Appendix 2).
f. Operate instruments and equipment in a manner consistent with their design, operating principles, and regulations governing their use.
h. Recognize the importance of, and apply the principles of, quality control in diagnostic tests and procedures.
i. Ensure that the quality of results obtained is consistent with the nature and specifications of the equipment and the circumstances of use.
j. Recognize artifacts in results and take effective steps to minimize their occurrence.
k. Ensure that diagnostic procedures conform to an accepted standardized protocol, if one exists.

Range Indicators: See Part D.

V6.9 Interpret outcomes of history, physical examination and ancillary diagnostic tests and procedures, and refine diagnostic hypotheses.

The outcomes of history, physical examination, and ancillary diagnostic tests and procedures are assessed and, on that basis, diagnostic hypotheses are refined.

Graduates will be able to:

a. Identify abnormalities and prioritize them in relation to their importance to the animal(s).
b. Identify probable inter-relationships among abnormalities, and recognize the organ system(s) involved.
c. Recognize anomalous data, and take steps to evaluate their accuracy.
d. Refine the set of diagnostic hypotheses to establish a list of differential diagnoses, based on analysis of all data available.
e. Establish tentative or definitive diagnoses at a level of certainty appropriate to the circumstances, if necessary by application of further confirmatory diagnostic tests or procedures, or by referral.
f. Recognize that disease problems are either common, uncommon, or notifiable.
g. Discuss with the client the diagnoses, to their level of certainty, in understandable terms, including their prognosis and implications.

Range Indicators: Common to all species groups.

V6.10 Develop strategies for dealing with common[1] diagnoses.

Appropriate strategies are developed to deal effectively with common diagnoses.
Graduates will be able to:

a. Develop management and/or therapeutic options to deal with problems or diagnoses which have been identified, based on scientific principles, and a knowledge of the natural history and biology of common diseases.
b. Apply knowledge of, and sensitivity to, the client's situation and/or objectives (economic, cultural, sociological, emotional, human-animal bond, legal) in developing management and/or therapeutic options.
c. Consider the cost, risk/benefit and feasibility of management and/or therapeutic options.
d. Consider their competence, and the resources available to deal with the condition, when developing management and/or therapeutic options, which will include referral.
e. Consider the implications of various management and/or therapeutic options for human and animal health and economic well-being.
f. Consider the ethical, legal and animal welfare implications of various management/therapeutic options.

Range Indicators: See Part D.

V6.11 Develop strategies for dealing with uncommon[2] diagnoses (including exotic non-notifiable diseases).

Appropriate strategies are developed to deal effectively with uncommon diagnoses.
Graduates will be able to:

a. Use tenable criteria (diagnostic & epidemiologic) for recognition of uncommon diseases.
b. Expand their knowledge base related to the problem, by consultation of relevant material or by seeking advice.
c. Recognize personal and resource limitations in developing management and/or therapeutic options, which include referral.
d. Apply a knowledge of, and sensitivity to, the client's situation and/or objectives (economic, cultural, sociological, emotional, human-animal bond, legal) in developing management and/or therapeutic options.
e. Consider the cost, risk/benefit and feasibility of management and/or therapeutic options.
f. Consider the implications of various management/therapeutic options for human and animal health and economic well-being.
g. Consider the ethical, legal and animal welfare implications of various management and/or therapeutic options.

Range Indicators: See Part D.

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[1] Those diseases which the entry level veterinarian would be expected to diagnose and manage unaided.

[2] Those diseases which the entry level veterinarian will be able to rationally include in a list of diagnostic hypotheses on the basis of presenting syndrome/epidemiologic pattern, but not be expected to diagnose and manage without consultation.

V6.12 Recognize the possibility of a notifiable disease and take action to contain it.

The possibility of notifiable disease is recognized, and established mechanisms to contain these are activated promptly.
Graduates will be able to:

a. Use tenable criteria (diagnostic & epidemiologic) for suspicion/recognition of notifiable diseases .
b. Recognize the obligations of veterinarians in relation to suspected notifiable diseases.
c. Implement an appropriate and effective strategy for immediate action and prompt notification of the relevant authorities.
d. Give appropriate advice and take steps to eliminate the potential for spread until the relevant authorities take action.

Range Indicators: See Part D.

V6.13 Assist the client in making a decision regarding management and/or therapy of an animal health problem.

Options are explained effectively to enable the client to make an informed decision regarding management and/or therapy of an animal health problem.
Graduates will be able to:

a. Explain clearly to the client the management and/or therapeutic options developed for dealing with the problem.
b. Clarify any uncertainties.
c. Offer advice and support where appropriate.

Range Indicators: Common to all species.

V6.14 Perform therapeutic procedures on animals, in a professional, humane and ethical manner.

Therapeutic procedures are performed in a professional, humane and ethical manner.
Graduates will be able to:

a. Identify achievable outcomes, consistent with prevailing circumstances (including the option of referral), in consultation with the client.
b. Justify treatments and control measures based on valid scientific principles.
c. Apply treatments and control measures with due consideration of professional, ethical, humane and public health issues.
d. Apply treatments in a manner which does not imperil food safety and quality.
e. Anticipate untoward side-effects and sequelae.
f. Monitor the problems being addressed in relation to the intended outcome.
g. Modify the problem list, diagnosis, therapeutic procedures and intended outcomes when warranted, after consultation with the client.
h. Identify probable causes of failure of treatments and take appropriate actions.
i. Take steps to achieve the intended outcome.
j. Carry out follow-up procedures effectively.

Range Indicators: Common to all species.

V6.15 Recognize when euthanasia is warranted, and carry it out humanely.

Humane euthanasia is carried out when warranted.
Graduates will be able to:

a. Ensure appropriate medical, behavioral, economic and humane criteria are applied in evaluating the need for euthanasia.
b. Observe prevailing legal and ethical obligations.
c. Utilize a method that is consistent with the situation, humane, effective, and carries a minimum of risk.
d. Recognize the sensitivity of the situation.
e. Provide comfort to those who are grieving.

Range Indicators: See Part D.

V6.16 Recognize when analgesia and anesthesia are warranted and implement effective techniques.

Effective analgesia/anesthesia is implemented when warranted, with minimum risk.
Graduates will be able to:

a. Recognize the need for analgesia and/or anesthesia, using prevailing standards appropriate to the circumstances.
b. Identify options for analgesic and/or anesthetic techniques.
c. Identify and discuss with the client, to an appropriate extent, the risks associated with particular anesthetic and/or analgesic options.
d. Adopt and implement tenable procedures.
e. Observe ethical and statutory obligations.
f. Anticipate and take steps to prevent untoward sequelae.
g. Monitor results and adapt techniques according to need.
h. Deal with emergencies effectively.
i. Take steps to ensure safe and humane recoveries.

Range Indicators: See Part D.

V6.17 Perform common surgical and physical procedures, and implement aftercare.

Surgical and physical procedures are employed effectively, when warranted.
Graduates will be able to:

a. Identify appropriate surgical and physical procedures as diagnostic and/or therapeutic options, with due regard given to the urgency of the procedure.
b. Discuss with the client the risks, prognosis and cost/benefit of procedures, as appropriate.
c. Carry out preoperative planning effectively.
d. Prepare the facilities, the animal and the personnel consistent with the needs of the procedure and prevailing standards.
e. Use techniques, materials and equipment which are appropriate, and consistent with prevailing standards.
f. Anticipate complications and take steps to prevent their occurrence.
g. Monitor the patient, personnel and procedures effectively.
h. Modify the techniques according to changing needs.
i. Provide supportive care and/or therapy which is consistent with the needs of the animal.
j. Ensure that post-operative care and assessment is complete.

Range Indicators: See Part D.

V6.18 Assess, advise on, and modify animal behaviour.

Effective advice is given, or action is taken, to maintain normal animal behaviour and to modify and/or resolve common behavioural problems.
Graduates will be able to:

a. Anticipate the behaviour of animals in various circumstances.
b. Take steps to establish an appropriate rapport with animals during veterinary interventions.
c. Recognize common behavioural problems.
d. Identify the probable influences of people, other animals, and the environment on animals with behavioral problems.
e. Identify causal associations between common behavioral problems and underlying diseases.
f. Consider personal competence to deal with the problem in developing the management and/or therapeutic options, which may include consultation and/or referral.
g. Discuss tenable explanations of abnormal behaviour effectively with the client.
h. Formulate and implement tenable, feasible programs for modification of animal behaviour, or of owner expectations, in a safe and humane manner.
i. Take steps to identify potential complications of behavioral modification, and prevent them from occurring.
j. Monitor the effects of behavioral therapy, and modify anticipated outcomes as necessary.

Range Indicators: See Part D.

V6.19 Assess and advise on animal production and performance.

Animal production and performance are evaluated and effective advice is given.
Graduates will be able to:

a. Analyze production data accurately and systematically by appropriate methods.
b. Recognize when norms in animal husbandry, production and performance are not being met, bearing in mind societal standards, economic factors, and the objectives of the client.
c. Develop tenable hypotheses (e.g., management, environmental, infectious, parasitic, genetic, nutritional, interacting) to account for deviations from norms or production/performance objectives.
d. Gather further information by appropriate means to test hypotheses regarding anomalies in production/performance.
e. Consider personal competence to deal with an issue in developing the evaluation/ management and/or therapeutic options, which may include consultation and/or referral.
f. Give due regard to ethical, humane, legal and regulatory concerns.
g. Effectively discuss advice and management options, including risks, cost/benefit, priorities and achievable outcomes, with the client.
h. Establish means of monitoring outcomes of actions taken, in consultation with the client.
i. Modify management manipulations and/or expected outcomes, as necessary.

Range Indicators: See Part D.

V6.20 Evaluate the necessity for, and implement, health maintenance programs.

The necessity for health maintenance programs is recognized, and dealt with appropriately.
Graduates will be able to:

a. Recognize circumstances where it is appropriate to offer advice on health maintenance programs for individuals or groups of animals.
b. Consider personal competence to deal with the circumstances in developing the evaluation and management options, which may include consultation and/or referral.
c. Effectively communicate the risks, costs and benefits of health maintenance programs to the client.
d. In consultation with the client, develop and implement a health management program consistent with the client's objectives, considering principles of husbandry, hygiene, biosecurity, immunology and epidemiology.
e. Monitor the efficacy of the program implemented, using appropriate qualitative and/or quantitative criteria.
f. Modify the program, or its objectives, if appropriate, in consultation with the client.

Range Indicators: See Part D.

V6.21 Evaluate and address animal welfare issues.

Animal welfare issues are evaluated and dealt with effectively.
Graduates will be able to:

a. Evaluate the welfare of animals, considering relevant environmental, behavioral and physical issues.
b. Recognize when animals are being treated inappropriately, using tenable criteria, based on societal standards, statutory guidelines (Appendix 2) and knowledge of animal behaviour and physiology.
c. Demonstrate sensitivity to animal needs and welfare in dealing with animals.
d. Consider ethical and legal responsibilities of veterinarians with respect to animal welfare issues.
e. Counsel and advise care-givers effectively with respect to animal welfare issues.
f. Monitor the outcome of counselling and advice given, to ensure that an acceptable standard of animal welfare is met.
g. Report animal welfare concerns to relevant agencies, when appropriate (Appendix 2).

Range Indicators: Common to all appropriate species.

V6.22 Interpret the requirements for inspection of animals and animal products for human consumption, carry out and/or participate in such inspections, and decide on the fitness of animal products for human consumption.

Unfit animals, products and processes are identified and appropriate policies are implemented.
Graduates will be able to:

a. Recognize the responsibilities and authority of the veterinarian.
b. Implement effective inspection policies.
c. Recognize and apply hygiene, quality and safety standards.
d. Identify products and processes that do not meet standards of hygiene, quality and safety.
e. Recognize the epidemiologic, economic and public health implications of abnormalities in products and processes.
f. Carry out appropriate testing of products and processes.

g. Take steps to give appropriate advice and monitor its implementation.
h. In the context of a regulatory role, establish productive working relationships with those being regulated.

Range Indicators: Common to all appropriate species.

V6.23 Carry out post-mortem examinations, interpret findings and initiate and interpret results of further investigations.

Post-mortem examination is employed effectively.
Graduates will be able to:
a. Identify the potential role of post-mortem examination (e.g. diagnostic, medico-legal, quality control).
b. Address ethical, legal, resource and competency issues, appropriately .
c. Ensure that examinations are thorough and systematic giving adequate, but not exclusive, emphasis to the purpose of the examination, the presenting complaints, and the containment of disease.
d. Recognize artifacts.
e. Recognize and describe abnormalities effectively.
f. Establish a tenable list of common differential diagnoses, and/or recognize the possibility of an uncommon or notifiable disease.
g. Communicate tentative diagnoses effectively.
h. Collect and preserve specimens correctly for appropriate ancillary diagnostic tests.
i. Comply with transport and import/export regulations (Appendix 2).
j. Interpret the results of ancillary diagnostic tests correctly.
k. Reach tenable conclusions and communicate them effectively.
l. Apply post mortem findings in the management of the presenting problems.

Range Indicators: See Part D.

D. Range Indicators

INTRODUCTION TO RANGE INDICATORS

Range Indicators define the workplace context in which professional competencies are met. They describe and clarify the circumstances under which performance criteria for a particular competency apply. In the context of this document, which is intended to define behavioral objectives of the DVM program at the Ontario Veterinary College, Range Indicators permit explicit description of the expectations of graduates of the program, while at the same time they establish the limits of those expectations. It should be noted, however, that Units of Veterinary Competency 1, 2, 3 and 6 do encompass the expectation that entry-level veterinarians will be capable of managing circumstances beyond the limits of independent action defined in these Range Indicators, by referral or consultation. They are expected to be able to engage veterinary issues of any type to that extent.

The over-riding professional contexts in which the Veterinary Competencies are to apply at entry-level are defined by species or species group in the section **"Context in Which Animals Are Encountered"**. This section describes the range of animal species and professional circumstances with which entry-level veterinarians will be expected to deal. While requirements for demonstrable competence of entry-level veterinarians are restricted to these contexts, this does not relieve entry-level veterinarians of the responsibility to know how to obtain appropriate veterinary care or advice for any species in other circumstances (eg. by referral or consultation). They are expected to be able to give or obtain appropriate veterinary attention for all species, in any circumstance, whether or not they are able to provide that attention themselves.

The Range Indicators in this document are arranged by Element of Competency, and they describe the context for application of each Element by species or species group. Some Elements of Competency which apply across all species do not require definition by Range Indicators. The items comprising the Range Indicators are laid out in tables, which indicate whether or not a particular item applies to veterinary activity dealing with a species or species group, or which list expectations with respect to diagnostic competence by species or species group. The individual items are laid out alphabetically within tables for ease of reference, by body system if appropriate, and are not in order of importance.

CONTEXT IN WHICH ANIMALS ARE ENCOUNTERED

The expectation of the entry level veterinarian with regard to each species is in the following context. It is expected that graduates will be able to transfer knowledge, skills and attitudes applicable in particular species contexts to other species in appropriate circumstances.

Dogs: as individual companion or working animals, whether found singly or in greater numbers, but not in the context of a performance or breeding operation.

Cats: as individual companion animals, whether found singly or in greater numbers, but not in the context of a breeding operation.

Horses: as individual recreational or working animals, whether found singly or in a situation in which several horses are housed together, but not in the context of a breeding operation, racing stable, or pregnant mares' urine farm.

Cattle: as individual animals, or as a production unit.

Sheep: as individual animals, or as a production unit.

Goats: as individual animals, or as a production unit.

Swine: as individual animals, or as a production unit.

Fish: in fresh water display aquaria, but not in the context of a production unit.

Amphibians & Reptiles: as individual or small group pets; injured or ill wildlife; or individuals from zoological/captive collections or laboratory facilities (non-venomous reptiles; not rare or uncommon species).

Birds: as individual or small group pets, injured or ill wildlife, or individuals from a zoological/captive collection, aviary or small farm flock, but not in the context of a production unit (psittacines; common aviary spp.; gallinaceous spp.; waterfowl; raptors; common North American spp. of other groups).

Nondomestic Mammals: as individual or small group pets; injured or ill wildlife; individual animals from a farm, zoological/captive collection or laboratory facility. (rabbits; rodents (mice, rats, gerbils, hamsters, guinea pigs); ferrets; wild carnivores (Canids-dogs; Felids-cats; Procyonidae-raccoons, etc.; Ursids-bears); ungulates - Bovidae (cattle, sheep, goat-like), Cervidae (deer), Camelidae (llama, etc.), Suidae (pig family)).

Element of Competency V6:3 ***Handle and restrain animals in a safe and humane manner***

HANDLE & RESTRAIN	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Carrying animals	×	×	×	×	×
• Chemical Restraints:					
- analgesics	×	×	×	×	except fish, reptiles
- hand syringe	×	×	×	×	except fish
- pole syringe					avian, carnivores, ungulates
- tranquilizers/sedatives	×	×	×	×	except fish
- water-borne agents					fish
• Containment/behavioural management:					
- alleys, chutes, pens, raceways, etc.	×	×			ungulates
- blindfolding			×	×	ungulates
- opaque containers					except fish, ungulates
- weighing cages		×			except fish, ungulates
• Lifting of animals	×	×	×	×	
• Physical restraint:					
- blanket/fleece/cat bag				×	except fish, reptiles
- bull ring	cattle				
- casting, double side-line, Burley	cattle				
- cinch rope, abdominal	cattle				
- collar				×	ferrets
- crush					carnivores, ungulates
- flank clamp to prevent kicking	cattle				
- foot lift, with or without rope	cattle		×		
- fore and aft restraint, foals			×		
- halter	×		×		ungulates
- headgate	×	×			ungulates
- hobbles over gastroc tendon	cattle				

Element of Competency V6:3 ***Handle and restrain animals in a safe and humane manner***

HANDLE & RESTRAIN (cont'd)	CATTLE/ SHEEP /GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
- lariat	cattle				ungulates
- lead shank, chain shank			⨯		
- leash/jesses				dogs	avian, ferrets
- manual restraint, various positions	⨯	⨯	⨯	⨯	⨯
- muzzle and alternatives				dogs	carnivores
- neck grip			⨯		avian, ferrets, carnivores
- net					fish, avian, carnivores, ungulates
- nose tongs	cattle				
- ocular vagal response					lizard
- pig board		⨯			
- rump chest rope in foals			⨯		
- snares				⨯	carnivores
- snout snares		⨯			
- tail jack	cattle				
- tape, velcro, restraint board					reptiles, avian
- twitch			⨯		

Element of Competency V6:4 ***Carry out an evaluation of animals and their environment***

	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
Environment					
• Cage/aviary					avian
• Clinic	⨯		⨯	⨯	except fish, ungulates
• Farm	⨯	⨯	⨯		avian
• Fresh water aquarium					fish, amphibians/reptiles
• Home				⨯	except fish, carnivores, ungulates
• Kennel				⨯	
• Pet store/Collection/Display/Laboratory				⨯	⨯
• Stable			⨯		
• Terrarium					amphibians/reptiles
• Vehicle	cattle		⨯		
Records					
• Deworming history	⨯	⨯	⨯	⨯	except fish, ferrets
• Management protocols					⨯
• Medical history	⨯	⨯	⨯	⨯	except fish
• Morbidity/Mortality	⨯	⨯			⨯
• Production history	⨯	⨯			
• Reproduction history	⨯	⨯	⨯	⨯	except fish
• Tank population					fish
• Vaccination history	⨯	⨯	⨯	⨯	avian, ferrets, carnivores, ungulates
• Water quality					fish, amphibians/reptiles

Element of Competency V6:4 ***Carry out an evaluation of animals and their environment***

	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/ CATS	OTHER SPECIES
Instruments					
• Hemostat			×		except fish
• Hoof testers			×		
• Hoofpick/knife			×		ungulate
• Lens, ophthalmic				×	
• Ophthalmoscope				×	except fish
• Otoscope				×	except fish, reptiles, avian
• Penlight	×		×	×	except fish
• Pleximeter	cattle		×	×	
• Rumen pH papers	cattle				
• Stethoscope	×		×	×	except fish
• Stomach tube	cattle				except fish, rodents, rabbits
• Stripcup, CMT paddle	cattle				
• Test kits				×	fish
• Thermometer	×	×	×	×	×
Procedures					
• Auscultation:					
-abdomen	×		×	×	except fish, reptiles, avian
-thorax	×		×	×	except fish
• Ballotment	×		×	×	ferrets, carnivores, ungulates
• Locomotion evaluation	×	×	×	×	×
• Observation	×	×	×	×	×
• Palpation	×	×	×	×	×
• Percussion:					
-abdomen	×		×		×
-sinuses			×		
-thorax	×		×		×
• Visual assessment of aeration					fish

Element of Competency V6:5 ***Develop a problem list***

WHOLE BODY	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/ CATS	OTHER SPECIES
• Abdominal distension	⊠	⊠	⊠	⊠	⊠
• Appetite, abnormal:					
- anorexia	⊠	⊠	⊠	⊠	⊠
- polyphagia	⊠	⊠	⊠	⊠	ferrets
• Body or appendages, abnormality:					
• - size, shape, including hernias	⊠	⊠	⊠	⊠	⊠
• - symmetry, consistency	⊠	⊠	⊠	⊠	⊠
• Body size, abnormal	⊠	⊠		⊠	⊠
• Body temperature, abnormal	⊠	⊠	⊠	⊠	except fish, reptiles
• Body weight, abnormal:	⊠	⊠	⊠	⊠	⊠
- Δ in body weight	⊠	⊠	⊠	⊠	⊠
• Collapse/weakness/prostration	⊠	⊠	⊠	⊠	except fish
• Cyanosis	⊠	⊠	⊠	⊠	except fish, reptiles
• Dehydration	⊠	⊠	⊠	⊠	except fish
• Exercise intolerance	⊠	⊠	⊠	⊠	except fish, reptiles, rodents
• Icterus	⊠	⊠	⊠	⊠	all mammals
• Pallor	⊠	⊠	⊠	⊠	⊠
• Stance/posture/orientation	⊠	⊠	⊠	⊠	⊠

Element of Competency V6:5 ***Develop a problem list***

BEHAVIOUR/DEMEANOR	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Aggression	⊠	⊠	⊠	⊠	except fish
• Anxiety/nervousness/fear	⊠	⊠	⊠	⊠	except fish, reptiles
• Dullness/depression	⊠	⊠	⊠	⊠	⊠
• Excitement/mania	⊠	⊠	⊠	⊠	rabbits, carnivores, ungulates
• Grooming/licking/biting/chewing, excessive	⊠	⊠	⊠	⊠	except fish, reptiles
• Head shaking			⊠	⊠	
• Hibernation					rodents
• Isolation from group/owner	⊠	⊠			except reptiles
• Lethargy	⊠	⊠	⊠	⊠	⊠
• Maternal behaviour, abnormal:					
- cannibalism		⊠		⊠	fish, avian, rodents, ferrets, carnivores
- mismothering	⊠	⊠	⊠	⊠	except fish, reptiles
- savaging young		⊠			except fish, reptiles
- stealing young	sheep, goats				
• Pain (any body system)	⊠	⊠	⊠	⊠	except fish
• Pica	⊠	⊠	⊠	dogs	except fish
• Scratching/rubbing	⊠	⊠	⊠	⊠	except fish
• Self mutilation	⊠	⊠	⊠	⊠	except fish, ungulates
• Sexual behavior, inappropriate	⊠	⊠	⊠	⊠	avian, rabbits, ungulates
• Submission/supersubmission				⊠	avian, rabbits, carnivores, ungulates
• Swimming/flotation abnormality					fish, amphibian/reptiles
• Vocalization, excessive	⊠		⊠	⊠	avian, ungulates

Element of Competency V6:5 ***Develop a problem list***

ALIMENTARY	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Abdominal (G-I) sounds, abnormal:					
- frequency, location, strength	⊠		⊠	⊠	rabbits, ferrets, carnivores, ungulates
- tympany	⊠		⊠	⊠	all mammals
• Bill/beak, abnormal					avian
• Bruxism	⊠	⊠	⊠	⊠	rabbits, rodents, ungulates
• Crop emptying, delayed					avian
• Dental abnormalities:					
- number, appearance	⊠	⊠	⊠	⊠	all mammals
• Dysphagia	⊠	⊠	⊠	⊠	except fish
• Feces, abnormal:					
- blood, mucus, casts, fibre	⊠	⊠	⊠	⊠	except fish
- colour, odour	⊠	⊠	⊠	⊠	except fish
- consistency	⊠	⊠	⊠	⊠	except fish
- frequency, volume	⊠	⊠	⊠	⊠	except fish
• Flatus			⊠	⊠	
• Halitosis	⊠		⊠	⊠	except fish
• Oral, pharyngeal cavity/mucosa, abnormal					
- deformity	⊠		⊠	⊠	except fish
- mass, colour, ulcer	⊠		⊠	⊠	except fish
• Prehension/mastication, abnormal	⊠	⊠	⊠	⊠	except fish
• Ptyalism	⊠	⊠	⊠	⊠	all mammals
• Rectum/anus/cloaca abnormal (including prolapse)	⊠	⊠	⊠	⊠	except fish
• Tenesmus	⊠	⊠	⊠	⊠	except fish, rodents
• Vomiting/regurgitation	⊠	⊠	⊠	⊠	except fish, rabbits, rodents

Element of Competency V6:5 *Develop a problem list*

CARDIOVASCULAR/HEMIC-LYMPHATIC	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Arrhythmia	⊠	⊠	⊠	⊠	ferrets, carnivores, ungulates
• Edema	⊠	⊠	⊠	⊠	⊠
• Heart rate, abnormal	⊠	⊠	⊠	⊠	rabbits, ferrets, carnivores, ungulates
• Heart sounds, abnormal					
- murmurs	⊠	⊠	⊠	⊠	ferrets, carnivores, ungulates
- rhythm, intensity	⊠	⊠	⊠	⊠	rabbits, ferrets, carnivores, ungulates
• Hemorrhage	⊠	⊠	⊠	⊠	⊠
• Lymphadenopathy:					
- shape, size	⊠	⊠	⊠	⊠	all mammals
• Mucous membrane, abnormal:					
- CRT	⊠	⊠	⊠	⊠	except fish, reptiles, rodents
- pallor, injection, colour	⊠	⊠	⊠	⊠	except fish
- petechiation	⊠	⊠	⊠	⊠	except fish
• Pericardial fluid sounds	cattle				
• Pulse, abnormal:					
- rate, rhythm, intensity	⊠	⊠	⊠	⊠	all mammals
• Syncope	⊠	⊠	⊠	⊠	avian, all mammals
• Venous distension/jugular pulse	⊠	⊠	⊠	⊠	ungulates

Element of Competency V6:5 ***Develop a problem list***

INTEGUMENT	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Blister/bulla/vesicle	⊠	⊠	⊠	⊠	⊠
• Callus	⊠	⊠	⊠	⊠	except fish, reptiles
• Coat/feather, abnormal:					
- alopecia	⊠	⊠	⊠	⊠	except fish, reptiles
- colour	⊠		⊠	⊠	avian, all mammals
- length	⊠	⊠	⊠	⊠	all mammals
- quality/density	⊠	⊠	⊠	⊠	except fish, reptiles
• Collarette				⊠	ferrets, carnivores
• Comedome				⊠	ferrets, carnivores
• Cracked skin	⊠	⊠	⊠		except fish, carnivores
• Cutaneous/subcutaneous mass:					
- abscess, nodule, tumour	⊠	⊠	⊠	⊠	⊠
• Ecdysis					reptiles
• Ectoparasites	⊠	⊠	⊠	⊠	⊠
• Edema	⊠	⊠	⊠	⊠	⊠
• Emphysema	⊠	⊠	⊠	⊠	⊠
• Erosion/ulcer/excoriation	⊠	⊠	⊠	⊠	⊠
• Erythema	⊠	⊠	⊠	⊠	⊠
• Exudation/crust/scab	⊠	⊠	⊠	⊠	except fish
• Fistula/sinus	⊠	⊠	⊠	⊠	⊠
• Hyperkeratosis	⊠	⊠	⊠	⊠	except fish, reptiles
• Mucus strings					fish, amphibians
• Papule	⊠	⊠	⊠	⊠	except fish, reptiles
• Pigmentation, abnormal	⊠	⊠	⊠	⊠	⊠
• Pruritus	⊠	⊠	⊠	⊠	avian, all mammals
• Pustule	⊠	⊠	⊠	⊠	except fish
• Scale	⊠	⊠	⊠	⊠	all mammals
• Sweating, abnormal:					
- absent			⊠		
- excessive			⊠		
• Wheal	⊠	⊠	⊠	⊠	all mammals
• Wound/laceration/trauma	⊠	⊠	⊠	⊠	⊠

Element of Competency V6:5 ***Develop a problem list***

MUSCULOSKELETAL	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Conformational abnormality, overt	×	×	×	×	×
• Bone, abnormality:					
- crepitus	×	×	×	×	except fish
- physeal swelling,			×		avian
- size, shape	×	×	×	×	except fish
• Gait abnormality, overt	×	×	×	×	except fish
• Hoof/claw/nail, abnormal:					
- consistency	×	×	×	×	except fish, reptiles
- overt conformation	×	×	×		avian, ungulates
- quality, wear	×	×	×	×	except fish
• Joint, abnormality:					
- crepitus, heat	×	×	×	×	except fish
- motion, luxation	×	×	×	×	except fish
- size, symmetry	×	×	×	×	except fish
• Lameness, overt	×	×	×*	×	except fish
• Muscle, abnormal:					
- consistency, temperature	×	×	×	×	except fish
- mass, shape, symmetry	×	×	×	×	except fish
- tremor/fasciculation	×	×	×	×	except fish
• Stiffness	×	×	×	×	except fish
• Tendon/ligament, abnormal:					
- swelling, heat, laxity	×	×	×	×	except reptiles, rodents, fish
• Weightbearing, reluctance	×	×	×	×	except fish

* American Association of Equine Practitioners Lameness Grade 2 or greater

Element of Competency V6:5 ***Develop a problem list***

NERVOUS	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Ataxia	⊠	⊠	⊠	⊠	except fish
• Circling	⊠	⊠	⊠	⊠	⊠
• Head pressing	⊠	⊠	⊠	⊠	ferrets, carnivores, ungulates
• Head tilt	⊠	⊠	⊠	⊠	except fish
• Hyperesthesia	⊠	⊠	⊠	⊠	
• Mentation, abnormal:					
- coma	⊠	⊠	⊠	⊠	avian, all mammals
- depression, somnolence	⊠	⊠	⊠	⊠	except fish
- disorientation, unawareness	⊠	⊠	⊠	⊠	avian, all mammals
- excitement, delerium	⊠	⊠	⊠	⊠	
• Paresis/paralysis	⊠	⊠	⊠	⊠	except fish
• Proprioception, abnormal	⊠	⊠	⊠	⊠	except fish, reptiles
• Seizure	⊠	⊠	⊠	⊠	except fish
• Sensation, abnormal	⊠	⊠	⊠	⊠	except fish
• Spasticity/tetany	⊠	⊠	⊠	⊠	except fish
• Tremor	⊠	⊠	⊠	⊠	except fish
• Vocalization, abnormal	⊠	⊠	⊠	⊠	carnivores, ungulates

PERITONEUM/PLEURA	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Peritoneal effusion (fluid wave)	⊠		⊠	⊠	except fish
• Pleural effusion	⊠		⊠	⊠	rabbits, ferrets, carnivores, ungulates

Element of Competency V6:5 ***Develop a problem list***

REPRODUCTIVE	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Abortion/premature birth	⊠	⊠	⊠	⊠	rabbits, ferrets, carnivores, ungulates
• Dystocia/egg binding	⊠	⊠	⊠	⊠	except fish
• Eggs, failure to lay/overdue					reptile, avian
• Estrus cycle, abnormal:					
- intensity, length, frequency	⊠	⊠	⊠	⊠	ferrets
• Infertility	⊠	⊠		⊠	ungulates
• Libido, abnormal	⊠	⊠		dogs	
• Litter, abnormal:					
- size, stillbirth		⊠		⊠	
• Mammary gland, teats, abnormal:					
- consistency, temperature	⊠	⊠	⊠	⊠	all mammals
- shape, size, symmetry	⊠	⊠	⊠	⊠	all mammals
• Milk, abnormal:					
- quantity, quality	⊠	⊠	⊠	⊠	all mammals
• Mismating				⊠	
• Ovary, abnormal:					
- consistency	cattle		⊠		
- shape, size	cattle		⊠		
• Prepuce/penis, abnormal:					
- mass, discharge	⊠	⊠	⊠	⊠	all mammals
- shape, size	⊠	⊠	⊠	⊠	rabbits, ungulates
- symmetry, consistency	⊠	⊠	⊠	⊠	rabbits, ungulates
• Retained placenta	⊠		⊠		ungulates
• Testis/scrotum, abnormal:					
- shape, size	⊠	⊠	⊠	⊠	all mammals
- symmetry, consistency	⊠	⊠	⊠	⊠	all mammals
• Uterus, abnormal:					
- consistency	cattle		⊠		rabbits, ungulates
- position (prolapse)	⊠	⊠	⊠	⊠	ungulates
- shape, size	cattle		⊠		rabbits, ungulates

Element of Competency V6:5 ***Develop a problem list***

REPRODUCTIVE (con't)	**CATTLE/ SHEEP/GOATS**	**SWINE**	**HORSES**	**DOGS/CATS**	**OTHER SPECIES**
• Vagina/cervix, abnormal:					
- discharge	⊠	⊠	⊠	⊠	all mammals
- mass				dogs	ungulates
- position (prolapse)	⊠	⊠	⊠	dogs	ungulates
- shape, size, consistency	⊠		⊠		ferrets, ungulates
- vaginal trauma	⊠		⊠	⊠	ungulates

Element of Competency V6:5 *Develop a problem list*

RESPIRATORY	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Breath odour (not halitosis), abnormal	×		×	dogs	avian, all mammals
• Cough/snick	×	×	×	×	avian, all mammals
• Mouth breathing/gaping					avian, all mammals
• Mucus string from gills					fish
• Nasal discharge, abnormal	×	×	×	×	except fish
• Opercular flaring					fish
• Resonance on percussion, abnormal:					
- chest	×		×	×	ungulates
- sinus			×		
• Respiration, abnormal:					
- dyspnea	×	×	×	×	except fish
- nasal airflow symmetry	×	×	×	×	except fish
- pattern	×	×	×	×	avian, all mammals
- rate, depth	×	×	×	×	×
• Respiratory sounds, abnormal:					
- airway sounds	×	×	×	×	except fish
- lung sounds	×	×	×	×	all mammals
• Sneeze:	×	×	×	×	
- reverse sneeze				dogs	

Element of Competency V6:5 *Develop a problem list*

SPECIAL SENSES	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
EYE					
• Anterior chamber, abnormal:					
- contents	×		×	×	except fish
• Blindness	×	×	×	×	avian, all mammals
• Cornea, abnormal:					
- colour, transparency	×	×	×	×	except fish
- discontinuity	×		×	×	avian, all mammals
• Conjunctiva, abnormal:					
- colour, discharge	×	×	×	×	except fish
- mass	cattle		×	dogs	except fish
• Eye (external), abnormal:					
- size, position, colour	×	×	×	×	×
- discharge	×	×	×	×	except fish
• Eyelid/spectacle, abnormal:					
- position, size	sheep		×	×	except fish
• Lens, abnormal:					
- position	×		×	×	except fish, reptiles, rodents
- transparency	×		×	×	except fish, reptiles
• Pupil, iris, abnormal:					
- shape, size	×		×	×	except fish, rodents
- response to light	×		×	×	except fish
EAR					
• Deafness				×	
• Ear, abnormal:					
- contents, discharge	×	×	×	×	avian, all mammals
- odour				×	rabbits, ferrets, carnivores, ungulates
- position, symmetry	×	×	×	×	rabbits, ferrets, carnivores, ungulates

Element of Competency V6:5 ***Develop a problem list***

URINARY	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Bladder, abnormal					
- size, consistency	⊠		⊠	⊠	
• Kidney, abnormal					
- size, consistency, shape	⊠			⊠	
• Urine, abnormal:					
- appearance	⊠	⊠	⊠	⊠	except fish
- volume	⊠		⊠	⊠	except fish, rodents
• Urination, abnormal:					
- difficulty	⊠		⊠	⊠	all mammals
- frequency	⊠		⊠	⊠	except fish
- incontinence	⊠		⊠	⊠	rabbits, ferrets, carn, ungulates

Element of Competency V6:6 ***Tend to the immediate needs of animals***

IMMEDIATE NEEDS	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Anaphylaxis	⊠	⊠	⊠	⊠	except fish, reptiles, avian
• Cardio-respiratory failure	neonate		neonate	⊠	avian, all mammals
• Dystocia/Egg binding	⊠	⊠	⊠	⊠	except fish
• Fractures/unstable limbs/joints	⊠	⊠	⊠	⊠	except fish
• Gastro-intestinal tympany/distension	⊠	⊠	⊠	⊠	rabbits, ferrets, carnivores, ungulates
• Hemorrhage	⊠	⊠	⊠	⊠	⊠
• Hypocalcemia	⊠			⊠	reptiles, avian
• Hypoglycemia	⊠	⊠	⊠	⊠	avian, all mammals
• Hypothermia/hyperthermia	⊠	⊠	⊠	⊠	⊠
• Intoxication/poisoning, suspected				⊠	avian, ferrets, carnivores, ungulates
• Pain, severe	⊠	⊠	⊠	⊠	avian, all mammals
• Respiratory distress	⊠		⊠	⊠	⊠
• Seizures	⊠	⊠	⊠	⊠	except fish
• Self-mutilation/entrapment:	⊠	⊠	⊠	⊠	avian, all mammals
• Shock	⊠	⊠	⊠	⊠	
• Trauma, life threatening, (including burns)	⊠	⊠	⊠	⊠	⊠
• Urinary obstruction	⊠			⊠	ferrets, carnivores, ungulates

Element of Competency V6:8 ***Select and perform relevant ancillary diagnostic tests and procedures where appropriate***

Tests and procedures carried out by the veterinarian	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Antigen identification, in house (eg. *Chlamydia*)					avian
• Bacterial culture, isolation, sensitivity, Gram stain (basic level)	×	×	×	×	×
• Body condition scoring (BCS)	×				
• California Mastitis Test	cattle, goats				
• Coagulation - animal side screening tests	×	×	×	×	except fish, reptiles, avian
• Corneal stains	×		×	×	avian, all mammals
• Cytology - effusion, exudate, aspirate, imprint (inflammatory vs. neoplastic)	×	×	×	×	×
- vaginal smear - stage of estrus				dogs	
• Fecal flotation/smear	×	×	×	×	×
• IgG, evaluation of passive transfer	×		×		ungulates
• Knott's test				dogs	
• Milk Progesterone	×				
• Milk/urine ketones	×				
• Occult blood	×		×	×	except fish
• Packed cell volume/Hb determination	×	×	×	×	except fish
• Radiography - diagnostic image of obvious abnormalities relevant to Competencies V6.5, V6.6, V6.10, V6.11, V6.17	×		×	×	except fish
Contrast - G.I. tract				×	except fish, rodents, ungulates
- urinary bladder				×	
• Rumen fluid examination	×				ungulates
• Schirmer tear test				×	
• Semen evaluation	×	×		×	
• Skin/gill scraping	×	×	×	×	×
• Total serum protein	×	×	×	×	×
• Total white cell count, differential, platelet estimate, polychromasia	×		×	×	×
• Urinalysis (sediment, dipstick, S.G.)	×		×	×	all mammals

Element of Competency V6:8 ***Select and perform relevant ancillary diagnostic tests and procedures where appropriate***

Tests and procedures that graduates should be aware of but not necessarily able to perform.	**CATTLE/ SHEEP/GOATS**	**SWINE**	**HORSES**	**DOGS/CATS**	**OTHER SPECIES**
• Bacterial/fungal identification sensitivity/typing	⊠	⊠	⊠	⊠	⊠
• Coagulation tests, laboratory	⊠	⊠	⊠	⊠	except fish, reptiles, avian
• Complete blood count	⊠	⊠	⊠	⊠	⊠
• Cytopathology reports	⊠		⊠	⊠	⊠
• DNA sexing					avian
• Endoscopy procedures			⊠	⊠	except fish, rodents, ungulates
• Parasitology tests	⊠	⊠	⊠	⊠	⊠
• Pathology: gross and histo reports	⊠	⊠	⊠	⊠	⊠
• Radiology: Advanced diagnostic imaging (eg. ultrasound, radiographic, scintigraphy)	⊠		⊠	⊠	except fish
• Serology	⊠	⊠	⊠	⊠	avian, carnivores, ungulates
• Serum biochemistry	⊠	⊠	⊠	⊠	⊠
• Toxicology tests	⊠	⊠	⊠	⊠	avian, ferrets, carnivores, ungulates
• Urinalysis (other than sed./stick)	⊠	⊠	⊠	⊠	all mammals
• Virus identification	⊠	⊠	⊠	⊠	except fish

Element of Competency V6:8 ***Select and perform relevant ancillary diagnostic tests and procedures where appropriate***

Instruments and Equipment with which diagnostic skills are required	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Biopsy needle/punch	×	×	×	×	×
• Dental probe				×	ferrets
• ECG machine			×	×	avian, ferrets
• Fiberoptic endoscope			×		
• Hematocrit centrifuge	×	×	×	×	×
• Hemocytometer	×	×	×	×	avian, all mammals
• Hoof knife/testers	×	×	×		ungulates
• Microscope	×	×	×	×	×
• Mouth speculum/gag	×		×		
• Ophthalmoscope			×	×	except fish
• Otoscope				×	all mammals
• Radiology equipment	×		×	×	except fish
• Refractometer	×	×	×	×	×
• Rhinoscope/laryngoscope				×	
• Stomach tube	×		×		except fish, rabbits, rodents
• Teat cannula	cattle, goats				
• Tonometer				×	
• Urinary catheter				×	
• Vaginal speculum	cattle		×	×	ungulates

Element of Competency V6:10 *Develop management strategies for dealing with common diagnoses*

Those diseases which the entry level veterinarian would be expected to diagnose and manage unaided.
* see Competency V6.23f, page 121; diagnoses which will be considered on the basis of necropsy
[z] = zoonotic potential

WHOLE BODY/PAN- OR MULTI SYSTEMIC	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Allergy (milk/idiopathic) Anaphylaxis Bovine viral diarrhea*/mucosal disease Electrocution (includes lightning)* Enzootic bovine leukosis* Hypocalcemia Hypomagnesemia Ketosis/Pregnancy toxemia Leptospirosis*[z] Malnutrition* Septicemia *(including Hemophilus, E.coli)** Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Caseous lymphadenitis* Copper toxicity* Hypocalcemia Maedi Visna (OPP)* Malnutrition* Pregnancy toxemia* Septicemia* (including *Pasteurella)** Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Caprine arthritis/encephalitis* Caseous lymphadenitis* Hypocalcemia Malnutrition* Pregnancy toxemia*/Ketosis Septicemia* Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Electrocution* Malnutrition* Porcine reproductive & respiratory syndrome* Septicemia (including *Erysipelas*, *S. suis*[z], salmonellosis[z])* Glasser's disease* Shock (hypovolemic, toxic, cardiogenic)
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Anaphylaxis Copper deficiency Leptospirosis*[z] Malignant catarrhal fever* Malnutrition* Septicemia* Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Malnutrition* Septicemia* Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Malnutrition* Septicemia* Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Canine distemper* Eclampsia Infectious canine hepatitis* Malnutrition* Obesity Septicemia* Shock (hypovolemic, toxic, cardiogenic)	Anaphylaxis Feline Infectious Peritonitis* Malnutrition* Obesity Septicemia* Shock (hypovolemic, toxic, cardiogenic) Toxoplasmosis[z]

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

WHOLE BODY/PAN- OR MULTI SYSTEMIC	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
	Gas bubble disease* Mycobacteriosis*z	Abscesses* Bacterial septicemia (including redleg)* Hyperuricemia* Hypocalcemia Malnutrition* Neoplasia (any organ)* Obesity* Shock Vitamin D excess*	Chlamydiosis*z Hyperuricemia* Lead toxicity* Malnutrition* Mycobacteriosis*z Neoplasia (any organ)* Obesity* Paramyxovirus* Polyomavirus Septicemia (incl. *Salmonella*z, *Pasteurella, Staphylococcus)** Shock	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Domestic rabbits: Encephalitozoon* Pasteurellosis* Staphylococcal infections* Wild rabbits: Cat bite sepsis*	Chinchilla: Listeriosis*z Guinea pigs: Hypovitaminosis C* Mice: Septicemia* Rats: Septicemia*	Anaphylaxis Canine distemper* Eclampsia Malnutrition Obesity Septicemia* Shock (hypovolemic, toxic, cardiogenic)	See dog & cat as appropriate/ feasible Canidae: Canine distemper* Infectious canine hepatitis* Mustelidae: Aleutian disease (mink)* Canine distemper* Infectious canine hepatitis* Procyonidae: Canine distemper*	Cervids/camelids - as per farmed Bovidae: Bovine viral diarrhea/ mucosal disease* Caprine arthritis/ encephalitis* Caseous lymphadenitis* Copper toxicity* Leptospirosis*z Maedi Visna* (OPP) Malnutrition* Pregnancy toxemia* Septicemia* Shock (hypovolemic, toxic, cardiogenic)

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

ALIMENTARY	CATTLE	SHEEP	GOATS	SWINE
	Abomasal ulceration*	Acute carbohydrate engorgement*	Acute carbohydrate engorgement (rumen overload)*	Ascaridiasis*
	Abomasal volvulus/ displacement*	Clostridial enterotoxemia*	Clostridial enterotoxemia*	Atresia ani
	Actinomycosis* (lumpy jaw)	Coccidiosis*	Coccidiosis*	Gastric ulceration*
	Acute carbohydrate engorgment (rumen overload)*	Dental attrition	Gastrointestinal parasitism*	Neonatal diarrhea:
	Atresia coli*	Gastrointestinal parasitism*	Neonatal diarrhea*	- Coccidiosis*
	Bovine papular stomatitis*z	Neonatal diarrhea:	Paratuberculosis*	- *E. coli**
	Bovine virus diarrhea*	- *E. coli*		- Rotavirus*
	Cecal displacement/volvulus*	- *Cryptosporidium**z		- TGE*
	Coccidiosis*	- Rotavirus*		Postweaning diarrhea*
	Esophageal obstruction*	Paratuberculosis*		Proliferative intestinal adenomatosis*
	Fatty liver*	Periodontal disease*		Swine dysentery*
	Gastrointestinal parasitism*			TGE
FARMED DEER	Malignant catarrhal fever*	**HORSES**	**DOGS**	**CATS**
Acute carbohydrate engorgement*	Neonatal diarrhea:*	Abnormalities of dentition:*	Acute gastritis	Acute gastritis
Gastrointestinal parasitism*	- Coronavirus*	- dental fractures	Acute pancreatitis*	Eosinophilic granuloma complex*
Oral necrobacillosis*	- *Cryptosporidium**z	- retained deciduous cap	Colitis*	Foreign body (linear intestinal)*
Paratuberculosis*	- *E. coli**z	- sharp cheek teeth	Foreign body (gastric, intestinal, oral)*	Gingivitis/stomatitis*
Yersiniosis*z	- nutritional	- tooth root abscess	Gastric dilatation and volvulus*	"Hair balls"*
	- Rotavirus*	- wolf teeth	Infectious agents:*	Hepatic lipidosis*
	Oral necrobacillosis*	Colic: medical vs. surgical*	- Ascaridsz	Infectious agents:*
	Paratuberculosis*	Colitis: undifferentiated*	- Coronavirus	- Ascarids*
	Ruminal tympany*	- Potomac Horse Fever	- Giardiasisz	- Coronavirus
	Simple indigestion	- salmonellosis*z	- Hookworms*	- Giardiasisz
	Winter dysentery*	Esophageal foreign body (choke/perforation)*	- Isospora	- Isospora
	Vagal syndrome*	Gastrointestinal parasitism:*	- Parvovirus*	- Tapeworms*
	FARMED CAMELID	- *Gasterophilus* spp. infection*	- Tapeworms*z	- Parvovirus*
	Acute carbohydrate engorgement*	- large & small strongyles*	- Whipworms*	Oral:*
	Clostridium perfringens type A*	- roundworms* (ascariasis)*	Intestinal obstruction including intussusception*	- fractured teeth
	Paratuberculosis*	- tapeworms*	Oral:* - carnassial disease	- odontoclastic resorptive lesions (caries)
		Meconium impaction*	- fractured teeth	- periodontal disease
		Non-steroidal anti-inflammatory drug toxicity*	- oral neoplasia*	
		Rectal perforation*	- periodontal disease	
			- retained primary teeth	

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

ALIMENTARY	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Entamoeba invadens[*] Gastric cryptosporidiosis[*] Helminths[*] Necrotic stomatitis[*] Obstruction/impaction/ constipation[*] Salmonellosis[* z]	Candidiasis[*] Helminths[*] Protozoal infections[*] Proventricular/venticular impaction/foreign bodies[*] Proventricular wasting disease[*]	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Coccidiosis[*] Enteritis complex[*] Gastric hairballs[*] Helminths[*] Malocclusion[*]	Chinchilla: Malocclusion[*] Guinea pigs: Antibiotic toxicity[*] Malocclusion[*] Hamsters: Antibiotic toxicity[*] Impacted cheek pouches[*] Wet tail[*] Mice: Helminths[* z] Rats: Helminths[* z]	Gastric foreign bodies[*] Endoparasites[*] Intestinal obstruction including intussusception[*] Oral:[*] - carnassial disease - fractured teeth - periodontal disease	See dog & cat as appropriate/ feasible Canidae: Canine Parvovirus[*] Helminths[* z] Felidae: Feline Parvovirus[*] Mustelidae: Mink virus enteritis[*] Procyonidae: *Baylisascaris*[* z] Feline Parvovirus[*]	Cervids/camelids - as per farmed Bovidae: Abomasal ulceration[*] Actinomycosis (lumpy jaw)[*] Acute carbohydrateengorgment (rumen overload)[*] Clostridial enterotoxemia[*] Coccidiosis[*] Dental attrition[*] Esophageal obstruction[*] Gastrointestinal parasitism[*] Malignant catarrhal fever[*] Neonatal diarrhea:[*] - Coronavirus[*] - *Cryptosporidium*[* z] - *E. coli*[*] - Rotavirus[*] Parapox infection[* z] Paratuberculosis[*] Periodontal disease[*] Ruminal tympany[*] Yersiniosis[* z]

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

CARDIOVASCULAR/ HEMIC-LYMPHATIC	CATTLE	SHEEP	GOATS	SWINE
	Anemia* Bacterial endocarditis* Cardiac arrhythmia Failure of passive transfer of immunoglobins Congenital cardiac defects* Congestive heart failure* Omphalophlebitis/omphalitis* Thrombophlebitis* Traumatic pericarditis*	Anemia* Congenital cardiac defects*	Anemia*	Anemia* Mulberry heart disease*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
	Anemia*	Abscessation of lymph nodes* Anemia* Cardiac arrhythmia (atrial fibrillation, premature systole, 2nd degree AV block) Failure of passive transfer of colostral immunoglobulins Lymphangitis* Mesenteric arteritis (*Strongylus*)* Neonatal isoerythrolysis* Thrombophlebitis* Valvular insufficiency	Anemia* (including secondary to chronic renal disease) Cardiac arrhythmia (atrial fibrillation, premature systole,2nd degree AV block) Chronic valvular heart disease (endocardiosis)* Congestive heart failure* Dilated cardiomyopathy* Heartworm disease* Immune mediated hemolytic anemia* Lymphosarcoma* Thrombocytopenia (including immune mediated) Vitamin K antagonist toxicity	Anemia* (including secondary to renal disease) Cardiac arrhythmia Feline Immunodeficiency virus Feline Leukaemia virus* Cardiomyopathy,* hypertrophic

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

CARDIOVASCULAR/ HEMIC-LYMPHATIC	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
			Anemia* Infectious bursal disease* Lymphoid leukosis* Marek's disease*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Guinea pigs: Streptococcal lymphadenitis* Hamsters: Lymphoma* Mice: Lymphoid neoplasia* Rats: Lymphoid neoplasia*	Anemia* (including secondary to chronic renal disease Congestive heart failure* Hypersplenism* Lymphoid neoplasia*	See dog & cat as appropriate/ feasible	Cervids/camelids - as per farmed Bovidae: Anemia* Bacterial endocarditis* Congenital cardiac defects* Omphalophlebitis/ omphalitis*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

ENDOCRINE	CATTLE	SHEEP	GOATS	SWINE
				Goiter*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
			Canine primary hypothyroidism* Diabetes mellitus* Hyperadrenocorticism*	Diabetes mellitus* Hyperthyroidism*

ENDOCRINE	FISH	AMPHIBIANS/REPTILES	AVIAN	
			Goiter*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
		Adrenal cortical dysfunction, including neoplasia* Insulinoma*	See dog & cat as appropriate/ feasible	

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

INTEGUMENTARY	CATTLE	SHEEP	GOATS	SWINE
	Cellulitis* Dermatophilosis* Fly infestation (face, horn) Frostbite* Mange* (*Chorioptes*) Myiasis* (including warbles) Papillomatosis* Pediculosis* Ringworm*z	Cellulitis* Contagious ecthyma*z Dermatophilosis* Ked infestation* Mange* (*Chorioptes*) Myiasis* Pediculosis*	Cellulitis* Contagious ecthyma*z Mange* (*Chorioptes*) Pediculosis* Staphylococcal dermatitis*	Cellulitis* Exudative epidermitis* Mange* Parakeratosis* Pediculosis* Pityriasis rosea* Ringworm* Sunburn* Swine pox* Tail/ear biting*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Cellulitis* Pediculosis*	Cellulitis* Contagious pustular dermatitis* Idiopathic hyperkeratosis* (zinc- responsive dermatosis) Idiopathic nasal/perioral hyperkeratotic dermatosis* (munge) Idiopathic necrolytic/ neutrophilic/ hyperkeratotic dermatosis* (generalized munge) Pediculosis*	Aural plaques* Burns* Cellulitis* Dermatitis*, including scratches Dermatophilosis* Exuberant granulation tissue* Galls* (girth, saddle) Insect hypersensitivity* Mange* Melanoma* Papillomatosis* Pediculosis* Ringworm*z Sarcoid* Urticaria*	Allergic skin disease* Anal sac disease* Cellulitis* Dermatitis*, bacterial Eczema* Endocrine alopecia* Fleas*z 'Hot-spot'* Juvenile pyoderma* Mange*z Psychomotor/behavioural problems affecting integument* Ringworm*z Seborrhea* Skin fold pyoderma* Skin tumor* Urticaria/angioedema*	Allergic skin disease* Cellulitis/abscess* Chin acne* Eczema* Eosinophilic granuloma complex* Fleas*z Mange* Psychomotor alopecia* Ringworm*z Seborrhea* Squamous cell carcinoma*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

INTEGUMENTARY	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Abscesses* Dermatitis* Mites*	Avian Pox* Beak and Feather Disease* Ectoparasites (including *Kniemidocoptes*)* Oil fouling*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Domestic Rabbits: Ear mites* Mange* Ringworm*z Wild Rabbits: Cottontail Fibroma*	Gerbils: Marking gland carcinoma* Nasal dermatitis/porphyria* Guinea pigs: Ectoparasites* Pododermatitis* Hamsters: Porphyria* Mice: Ectoparasites* Rats: Ectoparasites* Porphyria* Ringworm*z Ulcerative dermatitis* Squirrels: Mange* Pox*	Anal sac disease* Endocrine alopecia* Fleas* Mange* Mast cell tumors Skin tumor*	See dog & cat as appropriate/ feasible	Cervids/camelids - as per farmed Bovidae: Cellulitis* Dermatophilosis* Frostbite* Mange* Papillomatosis* Ringworm*z Ked infestation*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

MUSCULOSKELETAL / LOCOMOTOR INCLUDING DISORDERS OF THE FOOT	CATTLE	SHEEP	GOATS	SWINE
	Arthritis* Blackleg* "Downer cow syndrome"* Flexural limb deformities (including arthrogryposis)* Fractures* Digital dermatitis* Disorders of claw growth* Infectious pododermatitis* Interdigital fibroma* Laminitis* Luxations/subluxations* Malignant edema* Nutritional myodegeneration* Obstetrical paralysis* Osteomyelitis* Periodic spasticity Stable foot rot* Sole (abscess, ulcer)* Tarsal/carpal cellulitis*	Arthritis* Clostridial myositis* Flexural limb deformities (including arthrogryposis)* Foot abscess* Foot rot (contagious)* Foot scald* Fractures* Nutritional myodegeneration* Osteomyelitis*	Arthritis* Fractures* Flexural limb deformities (including arthrogryposis)* Nutritional myodegeneration* Osteomyelitis*	Arthritis* Downer sows postweaning Fractures* Osteochondrosis* Porcine stress syndrome* Splay leg*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Clostridial myositis* Fractures* Myodegeneration (exertional, nutritional)* Osteomyelitis*	Fractures* Nutritional myodegeneration* Osteomyelitis*	Angular limb deformities* Arthritis (septic, traumatic, degenerative)* Bucked shins (stress fractures) Developmental bone disease (osteochondrosis, subchondral bone cysts, physitis)* Flexural limb deformities* Fractures* Hoof abnormalities* (overt abnormalities of hoof growth & wear, heel contraction, penetrating wounds of the foot, foot, abscess, quarter cracks seedy toe, thrush) Laminitis (including Black Walnut intoxication, carbohydrate overload)* Myodegeneration (nutritional, exertional)* Navicular disease Osteomyelitis*	Degenerative joint disease* Developmental anomalies (OCD, HD, elbow dysplasia, panosteitis)* Fractures* Hip luxation* Ligament, muscle, or tendon injuries (sprains, strains) Luxating patella* Osteomyelitis* Primary bone tumour* Rupture of cranial cruciate* Suspensory desmitis Splint bone exostoses/fractures* Tendon/muscle laceration/ rupture* Tendonitis* (deep and superficial flexor) Upward fixation of the patella/ patellar luxation	Fractures* Hip luxation* Osteomyelitis*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

MUSCULOSKELETAL / LOCOMOTOR INCLUDING DISORDERS OF THE FOOT	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
		Articular gout* Arthritis, bacterial* Bone disease:* nutritional/metabolic* Fractures/luxations*	Angular limb deformities* Articular gout* Bone disease:* nutritional/metabolic* Bumblefoot* Fractures/luxations*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Fractures/luxations*	Fractures/luxations, all species*	Fractures/luxations* Ligament, muscle, or tendon injuries (sprains, strains)	See dog & cat as appropriate/ feasible Procyonidae: *Mycoplasma* arthritis*	Cervids/camelids - as per farmed Bovidae: Arthritis (septic, degenerative)* Clostridial myositis* Disorders of claw growth Exertional myopathy* Flexural limb deformities Fractures* Infectious pododermatitis* Luxations/subluxations* Nutritional myodegeneration* Osteomyelitis*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

NERVOUS EXCLUDING LOCOMOTOR & BALANCE	CATTLE	SHEEP	GOATS	SWINE
	Cerebellar hypoplasia* Cerebral hypoxia Lead toxicity* Listeriosis* Meningoencephalitis* Polioencephalomalacia* Rabies*z Tetanus	Cerebral hypoxia Listeriosis* Polioencephalomalacia* Tetanus	Cerebral hypoxia Listeriosis* Polioencephalomalacia* Tetanus	Edema disease* Meningitis*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Listeriosis* Tetanus		Meningoencephalomyelitis (protozoal, Herpes, other viral, eastern, western, Venezuelan)* Neonatal maladjustment syndrome* Rabies*z Tetanus Trauma (CNS, peripheral nerves: radial, facial suprascapular paralysis)* Wobbler syndrome (cervical vertebral instability/ malformation/ malarticulation)*	Degenerative myelopathy* Epilepsy* Geriatric vestibular disease Idiopathic polyradiculoneuritis Intervertebral disc disease* Rabies*z Trauma (cranial, spinal, peripheral nerve)*	Avulsion of tail* Idiopathic vestibular syndrome Rabies*z Trauma (cranial, spinal, peripheral nerve)*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

NERVOUS EXCLUDING LOCOMOTOR & BALANCE	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
			Avitrol intoxication* Botulism* Trauma*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Wild rabbits: *Baylisascaris* larva migrans*	Gerbils: Epilepsy* Groundhogs: *Baylisascaris* larva migrans* Rats: Pituitary tumors* Squirrels: *Baylisascaris* larva migrans*	Trauma* (cranial, spinal, peripheral)	See dog & cat as appropriate/ feasible Botulism (mink)*	Cervids/camelids - as per farmed Bovidae: Listeriosis* Meningoencephalitis* Polioencephalomalacia* Tetanus

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

PERITONEUM/PLEURA	CATTLE	SHEEP	GOATS	SWINE
	Hernia:* - inguinal/scrotal* - umbilical* Peritonitis* Traumatic reticuloperitonitis*	Peritonitis*	Peritonitis*	Hernia:* - inguinal/scrotal - umbilical Peritonitis*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Peritonitis*	Peritonitis*	Hernia:* - inguinal/scrotal - umbilical Peritonitis*	Hernia:* - diaphragmatic - umbilical - perineal Peritonitis*	Peritonitis*

PERITONEUM/PLEURA	FISH	AMPHIBIANS/REPTILES	AVIAN	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
		Peritonitis*	See dog & cat as appropriate/ feasible	Cervids/camelids - as per farmed Bovidae - as per domestic

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

REPRODUCTIVE/MAMMARY	CATTLE	SHEEP	GOATS	SWINE
	Abortion/stillbirths* Cystic ovarian degeneration* Dystocia* (fetal, maternal) Freemartinism* Macerated fetus* Mastitis* Metritis/endometritis/pyometra* Mummified fetus* Retained fetal membranes* Teat*, supernumerary/web/ anomalies Testicular hypoplasia* Udder edema* Udder*, dermatitis/ulceration Uterine perforation/rupture* Vaginitis* (traumatic/ infectious)	Abortion/stillbirths* *(Toxoplasma, Campylobacter, Coxiella[z], Chlamydia[z])* Dystocia* (fetal, maternal) Freemartinism* Mastitis* Metritis/endometritis* Orchitis* Retained fetal membranes* Ulcerative balanoposthitis*	Abortion/stillbirths* *(Toxoplasma, Coxiella[z], Chlamydia[z])* Dystocia* Intersex*/Freemartinism Mastitis* Metritis/endometritis* Orchitis*	Abortion/stillbirths* (including parvovirus, leptospirosis) Dystocia* Mastitis* Metritis/pyometra/agalactia* Mycotoxicosis Orchitis*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Abortion* (Herpes, idiopathic) Balanoposthitis* Cryptorchidism* Dystocia* (common causes) Mastitis* Metritis/endometritis* Perineal laceration/rectovaginal fistula* Persistent hymen/mucometra* Retained fetal membranes* Twinning* Udder edema* Uterine artery rupture* Uterine perforation/rupture*	Abortion/stillbirths* Benign hypertrophy of prostate* Cryptorchidism* Dystocia* (fetal, maternal) Mammary neoplasia* Mastitis* Metritis/pyometra* Pseudopregnancy Vaginitis*	Abortion/stillbirths* Cryptorchidism* Dystocia* (fetal, maternal) Mammary neoplasia* Pyometra* Vaginitis*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

REPRODUCTIVE/MAMMARY	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Egg binding/failure to lay* Paraphimosis*	Egg binding/failure to lay*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Mastitis* Uterine carcinoma*	Guinea pigs: Pregnancy toxemia* Mice: Mammary neoplasia* Rats: Mammary neoplasia*	Cryptorchidism* Dystocia* (fetal, maternal) Mammary neoplasia* Persistent heat/pancytopenia*	See dog & cat as appropriate/ feasible Mustelidae: Nursing disease (mink)*	Bovidae: Abortion/stillbirths* *(*including *Toxoplasma, Campylobacter, Coxiella*[z]*, Chlamydia*[z]*)* Dystocia (fetal, maternal)* Mastitis*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

RESPIRATORY	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Aspiration pneumonia* Bronchopneumonia* Calf diphtheria* Enzootic pneumonia of calves* Interstitial pneumonia* Lung abscessation* Undifferentiated bovine respiratory disease (including BRSV*, PI3*, IBR* and early bacterial) Verminous pneumonia*	Bronchopneumonia* Enzootic pneumonia of lambs* *Oestrus ovis** Verminous pneumonia*	Bronchopneumonia* Enzootic pneumonia* Verminous pneumonia*	Atrophic rhinitis* Enzootic pneumonia* Pleuropneumonia* Swine influenza*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Pneumonia* Verminous pneumonia*		Abnormalities/obstruction of the upper airway: - Aryepiglottic entrapment - Dorsal displacement of the soft palate - Laryngeal hemiplegia* - Pharyngitis/lymphoid hyperplasia* Allergic small airway disease/ chronic obstructive pulmonary disease* Exercise-induced pulmonary hemorrhage* Pneumonia/pleuritis/lung abscess (*Streptococcus, Rhodococcus, E. coli*, anaerobic bacteria)* Sinusitis* Upper respiratory tract infection* (Herpes virus, influenza, strangles)	Brachycephalic syndrome* Kennel cough* Metastatic neoplasia* Pneumothorax* Rhinitis* Tracheal collapse*	Asthma Chronic sinusitis/rhinitis* Feline upper respiratory tract disease (Herpes virus, Calicivirus, *Chlamydia*, *Mycoplasma*)* Pneumothorax*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

RESPIRATORY	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
	(See Integumentary System)	Pneumonia* - bacterial* - parasitic*	Aspergillosis* Bacterial airsacculitis/ pneumonia/sinusitis*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Rats: Chronic respiratory disease*	Metastatic neoplasia* Pneumothorax	See dog & cat as appropriate/ feasible Mustelidae: - *Pseudomonas* pneumonia (mink)*	Cervids/camelids - as per farmed Bovidae: Bronchopneumonia* Interstitial pneumonia* Lung abscessation* Undifferentiated bovine respiratory disease (Including BRSV, PI3, IBR and early bacterial) Verminous pneumonia*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

SPECIAL SENSES	CATTLE	SHEEP	GOATS	SWINE
	Infectious keratoconjunctivitis* Ocular squamous cell carcinoma*	Entropion* Infectious keratoconjunctivitis*	Infectious keratoconjunctivitis*	Otitis media/interna*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Cataract Conjunctivitis* Corneal ulceration/trauma/ perforation* Entropion* Keratitis* Obstructed nasolacrimal duct Periorbital trauma/lacerations Uveitis*	Cataracts Conjunctivitis* Corneal ulcer/perforation* Ectropion/entropion* Exposure keratitis* Eyelid tumour* Glaucoma Keratoconjunctivitis sicca Otitis - externa* - media* Pannus* Prolapsed third eyelid Uveitis	Conjunctivitis* Corneal ulcer/perforation* Otitis externa (including *Otodectes)** Uveitis

SPECIAL SENSES	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Retained spectacle* Subspectacular abscess* Vitamin A deficiency*	Conjunctivitis* Ocular trauma*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
		Ear mites*	See dog & cat as appropriate/ feasible	Bovidae: Infectious keratoconjunctivitis*

Element of Competency V6:10 ***Develop management strategies for dealing with common diagnoses***

URINARY	CATTLE	SHEEP	GOATS	SWINE
	Contagious bovine pyelonephritis* Urolithiasis and associated ruptures*	Urolithiasis*	Urolithiasis*	Cystitis* Pyelonephritis*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Uroperitoneum* Patent urachus*	Acute/chronic renal failure* Bacterial cystitis* Nephropathy (ethylene glycol poisoning*) Trauma of urinary bladder* Urinary incontinence Urolithiasis*	Acute/chronic renal failure* Lower urinary tract disease* Urolithiasis*

URINARY	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Calculi* Urate nephrosis*	Urate nephrosis*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Guinea pigs: Chronic renal failure* Urinary calculi* Hamsters: Chronic renal failure* Mice: Chronic renal failure* Rats: Chronic renal failure*	Acute/chronic renal failure* Bacterial cystitis* Urinary incontinence Urolithiasis*	See dog & cat as appropriate/ feasible *Leptospira*[z]	Bovidae: Urolithiasis and associated ruptures*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

Those diseases which the entry level veterinarian will be able to rationally include in a list of diagnostic hypotheses on the basis of presenting syndrome/epidemiologic pattern, but not be expected to diagnose and manage without consultation.

* see Competency V6.23f, page 121; diagnoses which will be considered on the basis of necropsy

[z] = zoonotic potential

WHOLE BODY/PAN - OR MULTI SYSTEMIC	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Copper deficiency* Ergotism* Exposure/Frostbite* Hypovitaminosis A Neonatal metabolic acidosis without dehydration Toxicities*/poisonings: - algae - copper - iodine - lead* - organophosphate* - nitrite/nitrate - rodenticide - urea* - yew*	Copper deficiency* Ergotism* Exposure/Frostbite* Leptospirosis*z Toxoplasmosis	Copper deficiency* Exposure/Frostbite* Leptospirosis*z *Mycoplasma mycoides** Toxicities/poisonings: - copper* - organophosphate* - yew* Toxoplasmosis Neonatal metabolic acidosis without dehydration	Exposure/Frostbite* Iron sensitivity* Malignant hyperthermia*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Exposure/Frostbite*	Exposure/Frostbite*	Electrocution (includes lightning)* Exposure/Frostbite* Toxicities/poisonings: * - organophosphate - yew*	Electrocution* Exposure/Frostbite* Hypoglycemia, adult Leptospirosis* z Lyme disease (Borreliosis) Neospora Systemic Lupus Erythematosis Systemic mycosis* Toxicities/poisonings: * - chocolate - copper - organophosphate	Electrocution* Exposure/Frostbite* Systemic mycosis* Toxicities/poisonings: * - acetominophen - organophosphate

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

WHOLE BODY/PAN - OR MULTI SYSTEMIC	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
	Gram negative bacterial septicemia* Microspora Myxosporea	Inclusion body disease of boids Vitamin E deficiency*	Amyloidosis* Duck plague* Erysipelas Organophosphate/carbamate toxicity	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Tyzzer's disease* Listeriosis*z	Gerbils: Tyzzer's disease* Guinea pigs: Metastatic calcification* Rats: Tyzzer's disease*		See dog & cat as appropriate/ feasible Felidae: Canine distemper Feline infectious hepatitis Procyonidae: Infectious canine hepatitis Ursidae: Infectious canine hepatitis Viveridae: Canine distemper	Cervids/camelids - as per farmed Bovidae: Copper deficiency* Exposure/Frostbite* *Mycoplasma mycoides** Toxicities/poisonings:* - lead* - organophosphate* - yew* Toxoplasmosis

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

ALIMENTARY	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Abomasal impaction* Actinobacillosis* Cleft palate* Fascioliasis* Intussusception* Pyrrolizidine alkaloid intoxication* Salmonellosis (enteric)*z Tooth abscess* Traumatic pharyngitis*	Abomasal emptying defect* Abomasal impaction* Cleft palate* Cysticerciasis* Fascioliasis* Oral necrobacillosis* Salmonellosis (enteric)*z Tapeworms*	Cleft palate* Cysticerciasis* Salmonellosis (enteric)*z Yersiniosis*z	Cleft palate* Mycotoxin feed refusal Rectal prolapse* (feed change) Salmonellosis (enteric)*z Splenic/gastric/hepatic torsion*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Hepatic fascioliasis* Neonatal diarrhea*	Gastrointestinal parasitism*	Cleft palate* Dental attrition (2º to cribbing) Dentigerous cysts* Enteroliths/fecoliths/bezoars* Gastric/esophageal ulcers* Hepatic dysfunction/failure* (including Theiler's disease) Malassimilation/protein-losing enteropathy:* - inflammatory bowel disease* - intestinal lymphosarcoma* Rectal prolapse*	Chronic active hepatitis Cleft palate* Enteric neoplasia* Enteritis (bacterial - *Campylobacter*z, *Salmonella*z, *Clostridia)* Esophagitis* Hepatopathy* (drug-induced) Malabsorption Maldigestion/pancreatic exocrine insufficiency* Malocclusion* Megaesophagus* Portosystemic shunts* Protein-losing enteropathy/ lymphangectasia* Sialocoele*	Cholangiohepatitis* Cleft palate* Colitis/Gastritis/Enteritis* Megacolon Oral neoplasia*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

ALIMENTARY	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Coccidiosis*	Hepatic dysfunction* Pacheco's parrot disease*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Guinea pigs: Coccidiosis* Cryptosporidiosis*	Enteric neoplasia* *Helicobacter* gastritis*	See dog & cat as appropriate/ feasible	Cervids/camelids - as per farmed Bovidae: Actinobacillosis* Cleft palate* Intussusception* Oral necrobacillosis* Salmonellosis (enteric)*z Tooth abscess*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

CARDIOVASCULAR/ HEMIC-LYMPHATIC	CATTLE	SHEEP	GOATS	SWINE
	Bracken fern toxicosis Ionophore toxicity* Myocarditis* (*H. somnus*) Sporadic bovine leukosis/ lymphosarcoma* Sweet clover toxicity Vitamin D toxicity	Bracken fern toxicosis *Brassica* anemia	*Brassica* anemia Thymoma*	Encephalomyocarditis (picornavirus)* Eperythrozoonosis
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Anticoagulant rodenticide intoxication* Aortoiliac thrombosis* Combined immunodeficiency Congenital heart defects (Simple (e.g. VSD) vs Complex (e.g. Tetralogy of Fallot))* Congestive heart failure* Equine Infectious Anemia Hemorrhagic diatheses (thrombocytopenia, DIC)* Hemorrhagic purpura* Ionophore toxicity* Lymphosarcoma*	Congenital cardiac defects (VSD, PS, AS)* Immune-mediated hematopoietic disease (bone marrow disorders) Factor VIII Deficiency Von Willebrand's disease	Arteriothromboembolism* Cardiomyopathy* (other than hypertrophic)

CARDIOVASCULAR/ HEMIC-LYMPHATIC	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Blood parasites	Blood parasites	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Hamsters: Thrombosis of left auricle*	Cardiomyopathy* Heartworm disease*	See dog & cat as appropriate/ feasible Felidae: FeLV, FIV*	Bovidae: Ionophore toxicity*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

ENDOCRINE	CATTLE	SHEEP	GOATS	SWINE
		Goiter*	Goiter*	
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Hyperlipemia* Pituitary adenoma*	Diabetic ketoacidosis Insulinoma Hyperlipidemia Hypoadrenocorticism*	Diabetic ketoacidosis

ENDOCRINE	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Goiter*		
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Gerbils: Adrenal cortical neoplasia*		See dog & cat as appropriate/ feasible	Bovidae: Goiter*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

INTEGUMENTARY	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Photosensitization* Stephanofilariosis* Tail tip necrosis* Tick infestation*	Photosensitization* Ringworm*z Squamous cell carcinoma*	Ringworm*z	Contact dermatitis* Epitheliogenesis imperfecta* Melanoma*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
	Grunge	Anhidrosis Cutaneous lymphoma* Fistulous withers* Habronemiasis* Nodular necrobiosis* Onchocerciasis* Photosensitivity* Selenosis* Squamous cell carcinoma* Vitiligo* Myiasis (warble infestation*)	Bacterial/fungal dermatitis* (superficial, deep, regional) (juvenile cellulitis, *Malassezia*, organisms causing granulomas) Endocrine dermatitis* (Cushings, Sertoli cell tumor, interstitial cell tumor, GH deficiency) Immune-mediated disease* (Pemphigus group, SLE, drug eruptions, vasculitis, superfical necrolytic) Parasitic dermatitis* (lice, ticks, *Cuterebra*, rhabditis) Perianal fistula* Solar dermatitis*	Idiopathic ulcerative dermatitis* Immune-mediated disease* (Pemphigus group) Plasma cell pododermatitis* Solar dermatitis*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

INTEGUMENTARY	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
	Dermatitis: *Chilodonella sp.* Copepods* Fish lice* *Ichthyophthirius sp.* * Monogenean trematodes* *Saprolegnia** *Trichodina sp.* *	Leeches* Ticks*		
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Sore hocks	Hamsters: Pododermatitis* Rats: Ringtail*		See dog & cat as appropriate/ feasible	Bovids/cervids/camelids - as per domestic

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

MUSCULOSKELETAL/ LOCOMOTOR INCLUDING DISORDERS OF THE FOOT	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Botulism Corkscrew claw* Double muscling* Osteochondrosis* Osteodystrophy* Spastic paresis	Arthrogryposis* Chondrodysplasia (Spider lambs)* Foot abscess* Ionaphore toxicity Laminitis* Osteodystrophy* Osteoporosis*	Clostridial myositis* Laminitis* Osteodystrophy* Osteoporosis*	Biotin deficiency
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Botulism Clostridial myositis* Hyperkalemic periodic paralysis Nutritional 2° hyperparathyroidism* Quittor Stringhalt "Shivers"	Angular limb deformities* Fracture* non-union/ mal-union Hypertrophic osteodystrophy* Hypertrophic osteopathy* Polyarthropathy*	

MUSCULOSKELETAL/ LOCOMOTOR INCLUDING DISORDERS OF THE FOOT	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
			Nutritional/exertional myopathy* Septic arthritis*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
			See dog & cat as appropriate/ feasible	Bovidae: Arthrogryposis* Osteodystrophy*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

NERVOUS EXCLUDING LOCOMOTOR & BALANCE	CATTLE	SHEEP	GOATS	SWINE
	Brain/pituitary abscess* Hydrocephalus* Vertebral body abscess*	Border Disease* Brain/pituitary abscess* Scrapie* Vertebral body abscess*	Brain/pituitary abscess* Mannosidosis* Vertebral body abscess*	Encephalomyelitis* Salt poisoning* Selenium toxicity Vertebral body abscess*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Parelaphostrongylosis* Polioencephalomalacia*	Parelaphostrongylosis*	Atlantal-occipital malformation* Cerebellar abiotrophy/ hypoplasia Equine degenerative myeloencephalopathy* Hepatic encephalopathy* Horner's syndrome Hydrocephalus*	Cervical vertebral malformation/ malarticulation* Discospondylitis* Distemper* Facial paralysis (idiopathic) Fibrocartilaginous embolization* Hepatic encephalopathy* Horner's syndrome Hydrocephalus* Lumbosacral syndrome Meningitis* Metaldehyde toxicity Polyneuropathy Strychnine toxicity	Cerebellar hypoplasia* Feline ischemic encephalopathy Horner's syndrome Meningioma*

NERVOUS EXCLUDING LOCOMOTOR & BALANCE	FISH	AMPHIBIANS/REPTILES	AVIAN	
		Thiamine deficiency		
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Hamsters: Lymphocytic choriomeningitis[z] Mice: Lymphocytic choriomeningitis[z]		See dog & cat as appropriate/ feasible	Cervids/camelids - as per farmed Bovidae: Hydrocephalus* Vertebral body abscess*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

PERITONEUM/PLEURA	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Pneumoperitoneum	Hernias:* - inguinal/scrotal - umbilical	Hernias:* - inguinal/scrotal - umbilical	
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
Hernias:* - umbilical - inguinal/scrotal	Hernias:* - inguinal/scrotal - umbilical		Hernias:* - diaphragmatic/perineal - inguinal/scrotal	Hernias:* - inguinal/scrotal - umbilical - diaphragmatic

PERITONEUM/PLEURA	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
			Ascites* Yolk peritonitis*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
			See dog & cat as appropriate/ feasible	Cervids/camelids - as per farmed Bovidae: Hernias:* - inguinal/scrotal - umbilical

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

REPRODUCTIVE/MAMMARY	CATTLE	SHEEP	GOATS	SWINE
	Bovine herpes mammilitis/ pseudocowpox* Hydrops allantois* Neospora* Penile hematoma* Ruptured uterine artery*	Epididymitis* Estrogenism* Uterine perforation/rupture*	Cystic ovarian disease* Precocious milkers Pseudopregnancy Uterine perforation/rupture*	Teat necrosis*
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Granulosa cell tumor* Orchitis* Paraphimosis/phimosis* Premature placental separation* Rupture of prepubic tendon* Squamous cell tumor of the penis* Testicular neoplasia* Testicular torsion*	Azoospermia Balanoposthitis* Brucellosis* Canine herpes virus* Cystic endometrial hyperplasia* Prostatitis/cystic disease/ tumour* Reproductive tract anomalies* (septate vagina, persistent hymen) Retained placentae* Testicular neoplasia* Transmissible venereal tumour* Vaginal mucosal hyperplasia*	

REPRODUCTIVE/MAMMARY	FISH	AMPHIBIANS/REPTILES	AVIAN	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
Treponema infection*	Gerbils: Ovarian tumors*		See dog & cat as appropriate/ feasible	Bovidae: Bovine herpes mammilitis/ pseudocowpox* Uterine perforation/rupture*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

RESPIRATORY	CATTLE	SHEEP	GOATS	SWINE
	Cornual sinus empyema* Diaphragmatic hernia* Embolic pneumonia* Laryngitis/pharyngitis*	Aspiration pneumonia* Nasal tumor*/polyp	Aspiration pneumonia*	Inclusion body rhinitis Manure gas inhalation
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Dictyocaulus arnfieldi infection* Ethmoid hematoma* Equine viral arteritis Guttural pouch tympany/ empyema/ mycosis* Nasal polyps* Synchronous diaphragmatic flutter	Aspiration pneumonia* Bronchitis Interstitial pneumonia* Laryngeal obstruction*/ paralysis Nasal polyp/tumor*	Empyema (pyothorax)* Nasal polyp/tumor*

RESPIRATORY	FISH	AMPHIBIANS/REPTILES	AVIAN	
	(see Integumentary System)	Viral pneumonia	Infectious bronchitis* Infectious laryngotracheitis* *Mycoplasma* infections*	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
	Guinea pigs: *Bordetella* infections* Pneumococcal infections*	Aspiration pneumonia* Influenza	See dog & cat as appropriate/ feasible Felidae: Feline upper respiratory tract disease (Herpes virus, Calicivirus, *Chlamydia*, *Mycoplasma*)*	Bovidae: Aspiration pneumonia* Embolic pneumonia* Nasal polyp/tumor*

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

SPECIAL SENSES	CATTLE	SHEEP	GOATS	SWINE
	Dermoid (ocular)* Otitis externa/media*		Ear mites*	
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Glaucoma Ocular squamous cell carcinoma* Panophthalmitis*	Blepharitis Lens luxation Ocular and orbital neoplasia* Retinal disease (PRAA/SARD)	Cataracts Corneal sequestrum* Exposure keratitis* Glaucoma Lens luxation

SPECIAL SENSES	FISH	AMPHIBIANS/REPTILES	AVIAN	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
			See dog & cat as appropriate/ feasible	

Element of Competency V6:11 ***Develop management strategies for dealing with uncommon diagnoses (including exotic non-notifiable diseases).***

URINARY	**CATTLE**	**SHEEP**	**GOATS**	**SWINE**
	Cystitis* Patent urachus* Urinary bladder paralysis			
FARMED DEER	**FARMED CAMELID**	**HORSES**	**DOGS**	**CATS**
		Acute and chronic renal failure* Nephrotoxicosis* (due to Vit K_3 toxicity, aminoglycosides, mercury blisters, NSAIDS)	Bladder tumors*	Urinary tract trauma*

URINARY	**FISH**	**AMPHIBIANS/REPTILES**	**AVIAN**	
RABBITS	**RODENTS**	**FERRETS**	**NON-DOM CARNIVORES**	**NON-DOM UNGULATES**
			See dog & cat as appropriate/ feasible	

Element of Competency V6:12 ***Recognize the possibility of a notifiable disease and take action to contain it.***

Health of Animals Act of Canada
Reportable Diseases

African Swine Fever
Anaplasmosis
Anthrax
Avian Pneumoencephalitis (Newcastle Disease-Exotic)
Avian Influenza
Bluetongue
Brucellosis (*Brucella abortus*)
Bovine Spongiform Encephalopathy (BSE)
Bovine Cysticercosis
Contagious Equine Metritis
Equine Infectious Anemia
Equine Piroplasmosis
Foot and Mouth Disease
Fowl Typhoid
Glanders
Hog Cholera
Maladie du Coit (Dourine)
Mange
Pseudorabies
Pullorum Disease
Rabies
Rinderpest
Scrapie
Sheep Scab
Trichinosis
Tuberculosis (*Mycobacterium bovis* and *tuberculosis*)
Vesicular Stomatitis
Vesicular Diseases of Swine
Vesicular Exanthema of Swine

Element of Competency V6:15 ***Recognize when euthanasia is warranted, and carry it out humanely***

HUMANE EUTHANASIA	**CATTLE/ SHEEP/GOATS**	**SWINE**	**HORSES**	**DOGS/CATS**	**OTHER SPECIES**
• Cervical dislocation/guillotine					avian, rodents
• Physical trauma to brain:					
- captive bolt/gunshot landmarks	⨯	⨯	⨯		ungulates
- blunt trauma (neonates only)	sheep, goats	⨯			ungulates
• Use of approved euthanasia agent:					
- injectable anesthetic:					
- IV administration	⨯	⨯	⨯	⨯	except fish, rodents
- IP or IC administration				⨯	⨯
- acceptable noninjectable anesthetic:					
- inhalant					except fish, ungulates
- water-borne					fish, amphibians

Element of Competency V6:16 ***Recognize when analgesia and anesthesia are warranted and implement effective techniques.***

ANALGESIA AND ANESTHESIA	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Local anesthesia:					
- diagnostic blocks:					
- regional/limb/intra-articular			×		
- surgical blocks:					
- local infiltration	×	×	×	×	except fish
- epidural	×			×	
- cornual	×				
- inverted L block	×				
- line block	×				
- local anesthesia of digit	×				
- paravertebral distal & proximal	×				
- ring block	×				
- 4-point eye enucleation block	×				
• Chemical restraint/sedation/tranquilization	×	×	×	×	except fish
• General anesthesia:					
Induction:					
- IV/IM injectable agents	×	×	×	×	except fish
- inhalant (mask) drugs for induction	×	×	×	×	except fish
Short/long term anesthesia/maintenance:					
- inhalant anesthetic/anesthetic drugs	×	×	×	×	except fish
• Water borne general anesthesia					fish
• Analgesia :					
- pain prediction and diagnosis	×	×	×	×	except fish, reptiles, rodents
- cold therapy	×	×	×	×	
- pharmacologic analgesia (including NSAIDS, corticosteroids, opioids)	×	×	×	×	except fish, reptiles, rodents
• Monitoring:					
- visual/manual collection of parameters	×	×	×	×	×
• Risk identification and reduction (due to age, size, temperament, recumbency, disease/drug interactions)	×	×	×	×	except fish

Element of Competency V6:17 ***Perform common surgical and physical procedures, and implement aftercare.***

PROCEDURE	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
WHOLE BODY					
• Amputation (digit, tail)	⊠	⊠		⊠	except fish, rabbits, rodents
• Bandaging	⊠	⊠	⊠	⊠	except fish
• Biopsy, punch/incisional/excisional	⊠	⊠	⊠	⊠	⊠
• Excise cutaneous/subcutaneous and oral mass (including mastectomy-dogs & cats)	⊠	⊠	⊠	⊠	except fish
• Fine needle aspiration	⊠	⊠	⊠	⊠	⊠
• Increase environmental 0_2					⊠
• Injection - I.M., I.V., S.C.	⊠	⊠	⊠	⊠	⊠
• Lance/drain: abscess/hematoma/seroma	⊠	⊠	⊠	⊠	except fish
• Laparotomy	⊠			⊠	avian, ferrets, carnivores
• Move/lift downer cow	cattle				
• Rectal Palpation:					
- abdominal visceral abnormalities	cattle				
- pregancy diagnosis	cattle - 50 days/90% accuracy				
• Temperature - modification of core	⊠	⊠	⊠	⊠	⊠
• Withers pinch/abdominal pain test	cattle				
ALIMENTARY					
• Abomasopexy	cattle				
• Anal sac removal				dogs	ferrets
• Cecal dilation/volvulus, correct	cattle				
• Deciduous caps (premolars), remove			⊠		
• Dental cleaning				⊠	ferrets, carnivores
• Dental extraction, open/closed				⊠	ferrets, carnivores
• Enema			⊠	⊠	except fish, avian, rodents
• Enterotomy				⊠	avian, ferrets, carnivores
• Esophageal lavage			⊠		
• Float teeth			⊠		rabbits, rodents
• Gastric lavage			⊠	dogs	
• Gastropexy				dogs	

Element of Competency V6:17 ***Perform common surgical and physical procedures, and implement aftercare.***

PROCEDURE (cont'd)	**CATTLE/ SHEEP/GOATS**	**SWINE**	**HORSES**	**DOGS/CATS**	**OTHER SPECIES**
• Gastrotomy				⊠	avian, ferrets, carnivores
• Oral medication (balling , drenching, etc.)	⊠	⊠	⊠	⊠	except fish
• Rectal examination, digital				⊠	except fish, rodents, ungulates
• Rectal prolapse, repair	⊠				avian, ungulates
• Rumenotomy/rumenostomy/trocharization	⊠				ungulates
• Stomach tube	⊠		⊠	⊠	except fish, rabbits, rodents
• Wolf teeth, remove			⊠		
CARDIOVASCULAR/HEMIC-LYMPHATIC					
• Cardiopulmonary resuscitation	(neonate)		(neonate)	⊠	except fish, reptiles
• Hemostasis (vascular ligation, pressure bandaging, cautery, suturing)	⊠	⊠	⊠	⊠	except fish
• Venipuncture	⊠	⊠	⊠	⊠	except fish, rodents
• Venous catheter, place & secure	⊠		⊠	⊠	except fish, reptiles, rodents
INTEGUMENT					
• Dehorn: cautery/excise	⊠				
• Nose ring (bull)	cattle				
• Subcutaneous implantation	⊠	⊠	⊠	⊠	
• Trim, nails/beak/feathers				⊠	except fish
• Velvet removal					deer
• Wound management	⊠	⊠	⊠	⊠	except fish
MUSCULOSKELETAL					
• Arthrocentesis	⊠		⊠	⊠	
• Declaw				cats	
• Cruciate ligament rupture, manage				dogs	
• Femoral head & neck excision				⊠	
• Foot block	cattle				
• Foot trimming (corrective/therapeutic)	⊠	⊠	⊠		ungulates
• Fracture repair:					
- mandibular symphyseal				cats	

Element of Competency V6:17 ***Perform common surgical and physical procedures, and implement aftercare.***

PROCEDURE (cont'd)	**CATTLE/ SHEEP/GOATS**	**SWINE**	**HORSES**	**DOGS/CATS**	**OTHER SPECIES**
- external fixation (splint, cast)	⊠	⊠	⊠	⊠	except fish
- internal fixation (pinning)				⊠	avian, rabbits, ferrets, carnivores
• Lameness examination, basic			⊠	⊠	
NERVOUS					
• Neurological examination, basic	⊠	⊠	⊠	⊠	except fish
PERITONEUM/PLEURA					
• Hernia repair:					
- umbilical	⊠	⊠	⊠	⊠	
- inguinal		⊠	(non surgical)		
• Paracentesis:					
- abdominal	⊠		⊠	⊠	⊠
- thorax			⊠	⊠	rabbits, ferrets, carnivores
REPRODUCTIVE					
• Breeding soundness examination (male)	⊠	⊠		dogs	
• Caslick's surgery	⊠	⊠	⊠		
• Castration	⊠	⊠	⊠	⊠	all mammals
• Cryptorchidectomy		⊠		dogs	
• Ejaculation				dogs	
• Management of dystocia:					
- caesarean section	⊠	⊠		⊠	all mammals
- episiotomy	⊠	⊠			ungulates
- fetotomy	⊠				ungulates
- physical manipulation	⊠	⊠			rabbits, ungulates
• Management of egg binding					reptiles, avian
• Milk sampling, aseptic	⊠				
• Ovariohysterectomy				⊠	rabbits, rodents, ferrets, carnivores
• Prediction of ovulation/stages of cycle	cattle			dogs	
• Prostatic massage & collection				dogs	
• Retained placenta, remove			⊠		
• Teat obstruction (relieve)	⊠				
• Teat, removal of supernumary	cattle				

Element of Competency V6:17 ***Perform common surgical and physical procedures, and implement aftercare.***

PROCEDURE (cont'd)	**CATTLE/ SHEEP/GOATS**	**SWINE**	**HORSES**	**DOGS/CATS**	**OTHER SPECIES**
• Uterine biopsy			⊠		
• Uterine infusion	cattle		⊠		
• Uterine lavage			⊠		
• Uterine prolapse, replace	⊠				
• Uterine torsion, correct	⊠				
• Vaginal examination	cattle		⊠	⊠	ungulates
• Vaginal prolapse, replace	⊠				
RESPIRATORY					
• Endoscopy of upper airways			⊠		
• Laryngoscopy				⊠	avian, rabbits, ferrets, carnivores
• Nasal flush				⊠	avian
• Nasal insufflation (neonate)	⊠		⊠	⊠	ungulates
• Nasotracheal tube			⊠		
• Rhinosopy				⊠	ferrets, carnivores
• Tracheostomy	⊠		⊠	⊠	
• Trans-tracheal wash			⊠	⊠	avian, rabbits, ferrets, carnivores
SPECIAL SENSES					
• Ear cleaning				⊠	
• Entropion/ectropion correction	sheep				
• Eye ablation	⊠			⊠	ungulates
• Lacrimal duct flush			⊠	⊠	avian, rabbits, ferrets, carnivores
• Otoscopy				⊠	rabbits, rodents, ferrets, carnivores
• Third eyelid flap				⊠	
URINARY					
• Catheterization, urethral				⊠	
• Cystocentesis				⊠	ferrets, carnivores
• Cystotomy				⊠	reptiles, ferrets, carnivores
• Patent urachus, non-surgical correction			⊠		
• Urethral obstruction, relieve	⊠			⊠	
• Urethrostomy/urethrotomy	⊠			⊠	
• Urine sample collection	⊠		⊠	⊠	all mammals

Element of Competency V6:18 ***Assess, advise on, and modify animal behaviour.***

	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
NORMAL BEHAVIOUR IN SPECIFIC CIRCUMSTANCES					
• Estrus	⊠	⊠	⊠	⊠	
• Male aggression	⊠	⊠	⊠	⊠	⊠
• Maternal/Peripartum	⊠	⊠	⊠	⊠	avian, carnivores, ungulates
• Response to:					
- confinement	⊠	⊠	⊠	⊠	reptiles, avian, carnivores, ungulates
- pain	⊠	⊠	⊠	⊠	except fish
- restraint	⊠	⊠	⊠	⊠	except fish
ABNORMAL BEHAVIOUR					
• Aggression/ submission:					
- aggression	⊠	⊠	⊠	⊠	except fish
- cannibalism		⊠		⊠	fish, avian, rodents
- savaging young		⊠			avian, rabbits, rodents
- supersubmission				dogs	
• Elimination:					
- inappropriate soiling of pen		⊠			
- inappropriate urination, defecation		⊠		⊠	rabbits, ferrets
• Maternal behaviour:					
- cannibalism		⊠		⊠	fish, rodents
- mismothering	⊠	⊠	⊠	⊠	avian, all mammals
- savaging young		⊠			except fish, reptiles, ungulates
- stealing young	sheep, goats				
• Vices/Stereotypic Behaviours:					
- barbering/feather plucking					rodents, avian
- chewing				dogs	avian, rabbits, ferrets
- circling, pacing, tail chasing				dogs	ferrets, carnivores, ungulates
- coprophagia			⊠	⊠	
- cribbing			⊠		
- digging				dogs	
- excessive & lack of grooming				⊠	except fish, reptiles, ungulates
- fleece biting (no parasites/scrapie)	sheep				

Element of Competency V6:18 ***Assess, advise on, and modify animal behaviour.***

	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
ABNORMAL BEHAVIOUR (cont'd)					
- masturbation, mounting				⊠	avian
- predatory behaviour				dogs	ferrets
- psychogenic polydypsia			⊠		
- self & intersucking	cattle, goats				
- self mutilation	⊠	⊠	⊠	⊠	avian, rodents, ferrets, carnivores
- self nursing				⊠	
- stall walking			⊠		
- tail biting		⊠			
- tongue lolling	cattle				
- vocalization	⊠		⊠	⊠	avian
- weaving			⊠		
- wool/object sucking				⊠	

Element of Competency V6:19 ***Assess and advise on animal production and performance.***

ASSESS & ADVISE ON ANIMAL PRODUCTION	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Culling:					
- disease specific rate	⊠	⊠	⊠		
- criterion specific rate	⊠	⊠			
• Disease:					
- disease/age specific mortality	cattle, sheep				
- disease/age specific morbidity	cattle, sheep				
- SCC herd/individual	cattle				
- preventable mortality	⊠				
• Growth:					
- average daily gain	cattle, sheep	⊠			
- birth weight	cattle, sheep	⊠			
- body condition score	cattle		⊠		
- growth curves age. wt/height	cattle			dogs	
• Performance/productivity:					
- age at first parturition	cattle				
- calf crop %	cattle				
- calf crop distribution	cattle				
- carcass quality/index	cattle, sheep	⊠			
- days in milk/lactation length	cattle, goats	⊠			
- feed/gain ratio	cattle	⊠			
- genetic merit comparison/prediction	cattle, sheep				
- measure of productivity					
- absolute	⊠				
- corrected	cattle, sheep				
- relative	cattle, sheep				
- non productive days	cattle	⊠			
- peak milk/persistence	cattle				
• Profitability:					
- cost of production $ per kg/,L	cattle	⊠			
- partial budget	cattle				
- return on investment	cattle	⊠			

Element of Competency V6:19 ***Assess and advise on animal production and performance.***

ASSESS & ADVISE ON ANIMAL PRODUCTION *(cont'd)*	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Reproduction:					
- age at first parturition	cattle, sheep				
- abortion rate	cattle, sheep	×			
- estrus detection efficiency/accuracy	cattle				
- farrow/lamb/calving interval	×	×			
- length of breeding season	×				
- litter size, 1 litter		×			
- number born/live/dead/weaned	×	×		×	
- parturition to first service	cattle				
- parturition ease	cattle				
- parturition rate	cattle, sheep	×			
- parturition-conception interval	cattle, goats	×			
- pregnancy rate	cattle, sheep	×	×	×	
- stillbirth rate	cattle, sheep	×			
- voluntary waiting period	cattle				

Element of Competency V6:20 ***Evaluate the necessity for, and implement, health maintenance programs.***

	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Breeding/selection strategies:					
- disease	⨯			⨯	
- productivity	⨯	⨯			
• Contraception				IND	all mammals IND
• Dental prophylaxis			IND	IND	ferrets, carnivores IND
• Depopulation/repopulation		⨯			fish, avian IND
• Disease minimization/elimination/ eradication/including environmental management	⨯	⨯	IND	IND	IND
• Geriatric management			IND	IND	ferrets, carnivores, ungulates IND
• Neonate management	⨯	⨯	IND	IND	avian, rabbits, ungulates IND
• Nutritional management	⨯	⨯	IND	IND	IND
• Sanitation: Biosecurity, sanitation, quarantine, isolation	⨯	⨯	IND	IND	IND
• Strategic medication	⨯	⨯	IND	IND	IND, except fish
• Udder health	cattle				
• Vaccination program	⨯	⨯	IND	IND	IND where appropriate
• Water quality					fish, amphibian/reptiles IND

⨯ = Health management program for a group.
IND = Health management program in which species is considered on an individual animal basis only.

Element of Competency V6:23 ***Carry out post-mortem examinations, interpret findings and initiate and interpret results of further investigations.***

Performance Criterion d.: Recognize artifacts

Range Indicators: Common to all species groups

- Bile imbibition
- "Chicken fat" & post mortem clots
- Freezing artifact
- Hemoglobin imbibition
- Hypostatic congestion
- Post mortem emphysema/tympany/post mortem rupture
- Post mortem trauma, including scavenging
- Putrefaction, including pseudomelanosis
- Rigor mortis

Element of Competency V6:23 ***Carry out post-mortem examinations, interpret findings and initiate and interpret results of further investigations.***

Performance Criterion e.: Recognize and describe abnormalities effectively

ANY TISSUE/SYSTEM/WHOLE BODY	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Abnormal discharges, contents of hollow/tubular structures or body/tissue spaces, including:					
- blood	×	×	×	×	×
- discoloration	×	×	×	×	×
- exudates	×	×	×	×	×
- foreign bodies/matter	×	×	×	×	×
- ingesta/digesta	×	×	×	×	×
- odours	×	×	×	×	×
- parasites	×	×	×	×	×
- transudates (hydropericardium, hydrothorax, ascites)	×	×	×	×	×
• Abnormalities of carcass condition, including:					
- emaciation/reduced mass of muscle or depot fat	×	×	×	×	×
- inappropriate size for age/breed	×	×	×	×	×
- obesity	×	×	×	×	×
- obvious dehydration	×	×	×	×	except fish
- serous atrophy of fat	×	×	×	×	avian, all mammals
• Abnormalities of circulation, including:					
- congestion	×	×	×	×	×
- edema, including anasarca	×	×	×	×	×
- embolism	×	×	×	×	×
- hemorrhage (various patterns) including hematoma	×	×	×	×	×
- ischemia/infarct	×	×	×	×	×
- thrombosis	×	×	×	×	×

Element of Competency V6:23 ***Carry out post-mortem examinations, interpret findings and initiate and interpret results of further investigations.***

ANY TISSUE/SYSTEM/WHOLE BODY (cont'd)	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Abnormalities of size/shape, organogenesis, location, integrity, including:					
- absence of/aplasia/agenesis/ dysgenesis	×	×	×	×	×
- atrophy	×	×	×	×	×
- displacements of organs/herniations	×	×	×	×	×
- hypertrophy/hyperplasia	×	×	×	×	×
- laceration/fracture	×	×	×	×	×
• Cystic abnormalities	×	×	×	×	×
• Deviations from normal colour, including:					
- cyanosis	×	×	×	×	avian, mammals
- hemosiderosis	×	×	×	×	all mammals
- icterus	×	×	×	×	all mammals
- melanosis	×	×	×	×	×
- pallor	×	×	×	×	×
• Emphysema/tympany	×	×	×	×	×
• Fatty change/lipidosis	×	×	×	×	×
• Inflammatory phenomena, including:					
- abscess	×	×	×	×	×
- fibrinous exudate	×	×	×	×	except fish
- granuloma	×	×	×	×	×
- non-suppurative exudate	×	×	×	×	×
- suppurative exudate	×	×	×	×	all mammals
• Mineralization/calcification	×	×	×	×	×
• Necrosis:					
- appearances/patterns, including gangrene	×	×	×	×	×

Element of Competency V6:23 ***Carry out post-mortem examinations, interpret findings and initiate and interpret results of further investigations.***

	CATTLE/ SHEEP/GOATS	SWINE	HORSES	DOGS/CATS	OTHER SPECIES
• Neoplasia (appearance/distribution indicative of benign/malignant neoplasia)	⨯	⨯	⨯	⨯	⨯
• Reparative phenomena:					
- fibrosis	⨯	⨯	⨯	⨯	⨯
- granulation tissue	⨯	⨯	⨯	⨯	avian, mammals
RESPIRATORY SYSTEM					
• Applicable abnormalities above, plus:	⨯	⨯	⨯	⨯	
- atelectasis	⨯	⨯	⨯	⨯	mammals
- bronchiectasis	⨯	⨯	⨯	⨯	mammals
- consolidation	⨯	⨯	⨯	⨯	except fish
- overinflation/emphysema	⨯	⨯	⨯	⨯	except fish, avian
- pneumothorax	⨯	⨯	⨯	⨯	all mammals
FEMALE REPRODUCTIVE SYSTEM					
• Applicable abnormalities above, plus:	⨯	⨯	⨯	⨯	
- fetal mummification/maceration	⨯	⨯	⨯	⨯	all mammals
MUSCULOSKELETAL SYSTEM					
• Applicable abnormalities above, and applicable abnormalities listed in Element of Competency V6.5, plus:	⨯	⨯	⨯	⨯	
- parasites	⨯	⨯	⨯	⨯	fish, reptiles, avian, rabbits, ungulates
INTEGUMENTARY SYSTEM					
• Applicable abnormalities above, and applicable abnormalities listed in Element of Competency V6.5	⨯	⨯	⨯	⨯	⨯

Element of Competency 4:23 ***Carry out post-mortem examinations, interpret findings and initiate and interpret results of further investigations.***

Performance Criterion f: *Establish a tenable list of differential diagnoses, and/or recognize the possibility of an uncommon or notifiable disease.*

Based on differential diagnoses established under I. or II. below, Performance Criteria g.-k. will be met (communicate diagnoses; select appropriate ancillary tests; comply with transport regulations; interpret the results of ancillary tests; reach tenable conclusions and communicate them; apply findings in management of presenting problems).

(I) Graduates will be able to establish morphologic diagnoses for all organs/systems based on abnormalities recognized and described under Performance Criterion e, above;

(II) In addition, at necropsy they will be able to invoke as explicit differential or tentative diagnoses, in appropriate circumstances, diagnoses in Competencies V6.10 and V6.11 which are indicated by an asterisk (*) as well as the diagnoses listed in the following table:

CATTLE	SHEEP	GOATS	SWINE	DEER
Hydranencephaly Hydronephrosis Injection site Liver abscess White spotted kidney	Clostridial abomasitis Hydranencephaly Hydronephrosis Liver abscess		Congenital cardiac defects Injection site Hepatosis dietetica Hydronephrosis Rectal stricture	Hydronephrosis
CAMELID	**HORSES**	**DOGS**	**CATS**	**OTHER SPECIES**
Hydronephrosis	Cholesteatoma Hemomelasma ilei Hydronephrosis Muscular hypertrophy (ileum/ esophagus)	Adrenal cortical tumor Cirrhosis of liver Clostridial enteritis Diabetes mellitus Hemangiosarcoma Hepatic neoplasia Hydronephrosis Islet cell tumor Luxations - tendons, joints Pancreatic fibrosis/exocrine atrophy Pancreatic neoplasia Pheochromocytoma Pituitary neoplasia Thyroid carcinoma	Hydronephrosis	Ungulates Hydronephrosis

Appendix 1.

Learning Objectives of the University of Guelph

Approved by the Senate of the University of Guelph - 1987

1. Literacy. Literacy is the base on which all else is predicated. The ability to read and write and in general to communicate properly is a fundamental intellectual tool. With it, students can learn to think clearly and to some purpose. Without it, they cannot analyze properly nor develop an independence of thought. Literacy affords a means of access to the raw material upon which the critical or creative intelligence is to be exercised. It affords a means of communication, of shaping ideas and concepts, of selecting between different or competing formulations. It is a means of instructing others. The most basic experience in literacy given to the student should be the writing of a short expository paper, or the oral presentation of an informational report, on a prescribed topic or on a topic chosen from a restricted list.

At the next level the student should be required to write a paper (or give a seminar) critical and analytical in its intent, on a topic of the student's devising. The ability to devise a topic, to frame its bounds, is at the same time an aspect of understanding of first-order importance.

At the highest level there should be produced a paper, in an appropriate style that analyzes or synthesizes, argues from a hypothesis and itself generates hypotheses; that produces knowledge, insight, or understanding in the reader and manifests it on the part of the writer; that shows a breadth of understanding in drawing out implications and making connections between remote features of the domain; that, in short, demonstrates a love of learning and intelligent creativity. This requirement may readily be met in existing senior honours-paper courses and the like. Over the course of an undergraduate education the level of difficulty of the material which the student can read comprehend and utilize should increase. In the broadest sense, the objective of literacy implies that it is desirable that the student have skill in another language, so as to be able to comprehend material of the appropriate level of sophistication in that language.

2. Numeracy. For the purposes of this discussion numeracy may be defined as the ability to use mathematics at a level and in a manner appropriate to good citizenship and to vocational fitness. Mathematics deals with quantity and form, with measurement, structures, and relations, and encompasses a richer intellectual domain that just the utilitarian skills of numerical computation. It is as a mode of thinking, no less than as a collection of useful techniques, that it justifies its place in any well-rounded curriculum. Numeracy, in the sense adopted here, is an essential attribute of the informed and responsible citizen. A correct understanding of the proper use of numbers is necessary in a culture in which information routinely comes in numeric form and significant decisions of social policy often have quantification at their base. Without the ability to comprehend the use of quantitative data, and to detect instances of misuse, we may have to forego opportunities for independent judgment. Numeracy, more generally, enforces an accuracy and precision of procedure and thought that is valuable to all educated persons. As a mode of conceptualization of thought, it should be part of the mental apparatus of all graduating students. While a grasp of the nature and principles of mathematical forms of inquiry is essential to an understanding of scientific thought, it can be of benefit in other areas of intellectual activity. Opportunities for fostering numeracy exist in more disciplines than those traditionally required a substantial knowledge in association with literacy forms the foundation of most if not all of the

other learning objectives, should result in greater exploitation of those opportunities than in their avoidance.

3. Sense of Historical Development. All disciplines have a history, an understanding of which contributes to an understanding of the place each has in contemporary society. No discipline is self-sufficient, and no discipline is autonomous. "Historical development" should not be narrowly construed to mean only the history of the discipline within its own limits, but efforts should be made to connect developments in the discipline to wider coeval social conditions. Students may thereby be endowed with a sense of the fundamental relativity of knowledge and understanding at any given time.

This objective comports also a sense of the continuity of change (and indeed, of discontinuities), over time.

This objective may facilitate the acceptance, on the part of students, of intellectual ambiguity or uncertainty; such acceptance is a mark of depth of understanding.

4. Global Understanding. Global understanding may be associated with Sense of Historical Development. It can be described as comprehension of the variety of political, religious, cultural, geographical, biological, environmental, and historical forces in the shaping of nature and the human condition. It conveys to the student an understanding of the ways in which specific cultural or geographical or other circumstances condition the differences between nations or peoples, and an understanding of the place of his or her discipline in the international setting. Global understanding may be enhanced by a sense of historical perspective, by breadth of understanding, and by independence of thought. In its turn it may itself contribute to these.

5. Moral Maturity. Moral maturity is marked by depth and consistency of moral judgement; by recognition that any moral judgement may be fallible; that moral judgement is complex, in that moral principles, if they are to be applied to a specific case, may need to be interpreted. Moral maturity is a requirement in the person who is to apply a body of knowledge or a skill to the solution of a problem, or to the understanding of a situation, if the knowledge is not to remain abstract and the skill potential unrealized. Attainment of this objective is probably best realized by appropriate consideration of moral issues in context, as they arise in the course of study. In this way, a moral perspective may be shown to be inherently important to study of a body of material, and not merely something supplementary to it (guidelines for conducting ethical discussion in the classroom have been written by the Ethics Research Group in the Department of Philosophy).

Scope for demonstration of moral maturity can be provided in seminars and other assignments, if problems in the moral issues associated with a subject are set for consideration alongside problems in content and process.

6. Aesthetic Maturity. Aesthetic maturity may be described as a quality of the critical response to some object, natural or artificial, external to the self. Or it may be a process of creation and development of the self. In the former case, aesthetic maturity may be attained by a sufficient exposure, not necessarily in courses alone, to works of art (inclusive of music, literature, and drama) and to the critical traditions concerning them. Such maturity may also be directed at aesthetic valuing of features of the natural environment.

In the latter case, attainment of the quality will require an active involvement in the work of creation itself. A different order of aesthetic maturity may be attained by practice of that form of manipulation and recreation of the original object known as criticism (as distinct from

appreciation). Viewed this way, aesthetic maturity has a certain resemblance to both independence of thought and depth of understanding, in requiring an active creativity.

Aesthetic Maturity need not be divorced from the specific character of individual disciplines. By possession and exercise of aesthetic maturity, students may be brought to appreciate the order, elegance, and harmony not only of the subject matter, but also of the procedures, of the discipline.

7. Understanding of Forms of Inquiry. Inquiry, the search for truth, information, knowledge and understanding, follows a methodology based upon systematic study, reflection, intuition and innate creativity. Inquiry involves resolving an identified problem, collecting relevant information, evaluating the information and observing relationships in order to reach a conclusion. The student is the active inquirer and must be able to undertake the process independently. Scientific method represents a form of inquiry concerned with hypotheses development, data collection, analyses and interpretation. Just as an understanding of scientific inquiry is necessary for the educated citizen functioning in the midst of the technologies of the contemporary world, so too an appreciated of other modes of inquiry is an essential characteristic of an educated citizen.

Graduates should be familiar with the modes of inquiry utilized, for example, by historians, by philosophers and by scholars concerned with the various fields of creative expression. As outcomes of this objective, students will understand the strengths and limitations of the various forms of inquiry, and the cultural, intellectual and historic impact of these forms. The student will be able to describe similarities and differences between the inquiry methods of the physical scientist, the biological scientist, the social scientist and the scholar of the humanities.

8. Depth and Breadth of Understanding. Breadth of understanding is an expression of the ability to operate across disciplinary boundaries in a coherent and productive way, with principles drawn from different disciplines. Depth of understanding depends upon mastery of a body of knowledge, but it is not to be confused with knowledge, and is not necessarily commensurate with the number of courses taken in a subject.

Depth and breadth of understanding depend upon, and themselves contribute to, independence of thought; they contribute also to a love of learning. Possession of a historical perspective may be essential to a broad and deep understanding of a subject.

At the lowest level of experience, in courses introductory to a subject, students might be shown how sets of facts may be related to others both laterally and vertically (or hierarchically). The outcome of this might be simply consciousness, on the part of the student, of the possibilities of understanding, as distinct from simply knowing. The next higher level moves from demonstration, to the student, of interrelationships to the development of the student's own ability to create interrelations. The experience provided will develop a creative imaginativeness skillfully exercises on a body of material mastered in some detail. But the experience, like that provided for independence of thought, goes beyond display of erudition, and requires alert curiosity and a refusal to be content with mere assemblage of data. At this level the student should be expected to integrate knowledge and modes of interpretation and comprehension from different disciplines, so as to generate a new understanding. The highest level takes the student to the ability to deal in abstractions, to generate abstractions.

In general, depth and breadth of understanding are characterized by the ability to recognize the implications of the information at hand and to put it into a broader context; and by the ability to draw upon different disciplines to provide a clearer and deeper understanding of the discipline with which the student is immediately concerned.

These outcomes might be assessed in a piece of written work such as an independent research paper, in the design of an experiment, in the identification and solution of a problem, or in a work of aesthetic creation.

9. Independence of Thought. At the lowest level students are shown the possibilities of independent thinking, by an instructor who, in the classroom and elsewhere, challenges orthodoxies and criticizes received opinions. The experience provided is that of imitation or emulation of a role model. At this level, the outcome might be no more than a receptivity, on the part of the student, to critical thinking and an openness to reasoned skepticism about the authority of the expert.

At a higher level students become actively engaged in learning and thinking. At this level, they should be given the opportunity, in seminars, tutorials, or structured small-group discussions, to offer their own challenges. The bases for such challenges may be unformed, and so the challenges themselves will be open to challenge. As students become more independent in thought, they are better able to combine ideas and to generate new ideas.

At the highest level, independence of thought is a manifestation of love of learning, and it may contribute to a sense of self-worth and of well-being. At this level, opportunities are provided for self-directed learning. One accomplishment may be the ability to ask the right kinds of questions, rather than the ability always to have answers.

10. Love of Learning. Love of learning is perhaps the quality that activates all other qualities that are the focus of learning objectives. Its expression is not easily separable from demonstration of other virtues. Thus, the true lover of learning will demonstrate both independence of thought and depth of understanding. As a consequence, setting an objective for love of learning comports also setting an objective for other qualities as well. But love of learning is not exhausted by (e.g.) independence of thought.

Love of learning may be reflected in, or expressed in terms of, intellectual curiosity; the ability (as in independence of thought) to ask useful kinds of questions (rather than the ability always to have answers); the ability to see far-reaching implications; the ability to make connections between disparate topics; energy and passion in the pursuit of knowledge and understanding; dissatisfaction with simply accumulating facts or data; critical ability.

Testing, and instruction, must minimize rote-learning, and so far as possible give scope for the exercise of individual interests.

Love of learning may be impeded by the demands of frequent evaluation of students' performance. The time frames imposed at an institutional level to provide an organizational framework for the university experience, may also impair love of learning. Love of learning may best be enhanced by the provision of opportunities for the student's personal involvement in learning. Such opportunities are perhaps best furnished in independent research projects initiated by the student. In such autonomous, but supervised, study the student can not only engage with the conflicting views of published authorities but also see in action, close at hand, the supervisor's own love of learning.

Appendix 2

Legislation, Regulations and Codes of Practice Relevant to the Veterinary Profession in Ontario

Federal

- Animal Disease and Protection Act
- Animal Disease and Protection Regulations
- Charter of Rights
- Convention on International Trade in Endangered Species (CITES)
- Criminal Code of Canada. Canada Gazette Part II, Vol. 125, No. 13.Regulations on racetrack operation, including those relating to veterinarians, drugs etc.
- Customs Act
- Excise Tax Act
- Feeds Act
- Food and Drug Act
- Goat Skin and Goat Hair Importation Prohibition Order
- Health of Animals Act
- Income Tax Act
- International Air Transport Association (IATA) regulations on transport of animals by air
- Meat Inspection Act
- Migratory Birds Convention Act
- Narcotics Control Act
- Transportation of Dangerous Goods Act
- Unemployment Insurance Act
- Wild Animal and Plant Protection Act

Provincial

- Artificial Insemination Act, 1990
- Animals for Research Act, 1990
- Building Code Act, 1990
- Business Corporations Act, 1990
- Business Names Act, 1990
- Business Practices Act, 1990
- Consumer Protection Act, 1990
- Dangerous Goods Transportation Act, 1990
- Dead Animal Disposal Act, 1990
- Dog Licensing and Live Stock and Poultry Protection Act, 1990
- Dog Owner's Liability Act, 1990
- Drug and Pharmacies Regulation Act, 1990
- Employment Standards Act, 1990
- Endangered Species Act, 1990
- Environmental Protection Act, 1990, Regulation 347
- Family Law Act, 1990
- Farm Products Grades and Sales Act, 1990
- Farm Products Marketing Act, 1990
- Freedom of Information and Protection of Privacy Act, 1990
- Game and Fish Act, 1990
- Health Protection and Promotion Act
- Human Rights Code
- Income Tax Act, 1990
- Landlord and Tenant Act, 1990
- Limitations Act, 1990
- Livestock Branding Act, 1990

- Livestock and Livestock Products Act, 1990
- Livestock Community Sales Act
- Livestock Medicines Act, 1990
- Livestock Poultry and Honey Bee Protection Act, 1990
- Meat Inspection Act (Ontario), 1990
- Milk Act, 1990
- Municipal Act, 1990
- Negligence Act, 1990
- Occupational Health and Safety Act, 1990
- Occupier's Liability Act, 1990
- Ontario Business Corporations Act
- Partnerships Act, 1990
- Personal Property Security Act, 1990
- Pesticides Act, 1990
- Pharmacy Act, 1990
- Pounds Act, 1990
- Ontario Society for the Prevention of Cruelty to Animals Act
- Racing Commission Act, 1990
  Ontario Racing Commission
  - Rules of Thoroughbred Racing, Jan. 31, 1991
  - Rules of Standardbred Racing, Jan. 31, 1992
- Regulated Health Professions Act, 1990
  - Regulation 551 under the RHPA (Pharmacy)
- Repair and Storage Liens Act, 1990
- Retail Sales Tax Act, 1990
- Riding Horse Establishments Act
- Sale of Goods Act, 1990
- Statutory Powers Procedures Act, 1990
- Stock Yards Act, 1990
- Veterinarians Act, 1990
  - Regulations and Bylaws of the College of Veterinarians of Ontario
  - Minimum Standards for Veterinary Facilities in Ontario
- Workers Compensation Act, 1990

Municipal

- Municipal bylaws and planning codes re establishment of businesses, prohibited pet species etc.
- Ontario Fire Code (provincial code, enforced by municipal fire departments)

Codes of Practice for Husbandry of Domestic and Research Animals

- Recommended Code of Practice for the Care and Handling of Beef
- Recommended Code of Practice for the Care and Handling of Diary Cattle
- Recommended Code of Practice for the Care and Handling of Mink
- Recommended Code of Practice for the Care and Handling of Pigs
- Recommended Code of Practice for the Care and Handling of Poultry
- Recommended Code of Practice for the Care and Handling of Ranched Fox
- Recommended Code of Practice for the Care and Handling of Special Fed Veal

- Ontario Farm Animal Council
- Canadian Council on Animal Care Guide to the Care and Use of Experimental Animals

Glossary:

Assessment:	A method or process of measuring performance. Formative assessment: Performed during a course or learning experience with the primary purpose to provide the necessary feedback to shape and direct future learning. Summative assessment: Performed after a course or instructional experience, to provide an overall measure of achievement which permits conclusions.
Attributes:	The personal characteristics such as skills, knowledge and attitudes that underlie competent performance.
Collaboration:	Working with other individuals including members of the profession, industry, commodity groups and public.
Common:	In describing diseases/conditions, refers to those which the entry level veterinarian would be expected to diagnose and manage unaided.
Competency:	The ability to perform the required activities within an occupation or function to the standard expected in employment.
Competency Standards:	A combination of the Units of Competency, Elements of Competency, Performance Criteria and Range Indicators that together specify competent performance in the workplace.
Competent:	Possessing the attributes necessary to perform a job to appropriate standards.
Consultation:	Seek advice from others.
Diagnostic Hypothesis:	One or more diseases or conditions that may be responsible for causing the animal's clinical signs.
Differential Diagnosis:	A set of surviving, competing diagnostic hypotheses
Working Diagnosis:	A diagnostic hypothesis sufficiently accepted to form the basis for the next step in case management.
Effective:	Produces, or is likely to produce, an intended result.
Element of Competency:	A subdivision of a Unit of Competency that is observable in the workplace.
Evaluation:	To make a judgement about what is being assessed.

Entry-level:	Entry to the profession. More commonly this refers to graduates of the DVM Program but is may also apply to individuals who are required to pass Part C of the National Board Examinations.
Goal:	A general statement of intent.
Including:	An example that is not exclusive.
Independent:	Performance is initiated and carried out without assistance except in so far as assistance is a normal feature of the context.
Knowledge:	Theoretical and practical understanding
Learning Objective:	A statement of proposed change in knowledge, skill, or attitude as a result of some educational or training experience.
Notifiable:	Diseases notifiable to veterinarians of Agriculture and Agri-food Canada, or to public health agencies, under the terms of Federal or Provincial statutes.
Novel:	New to the Ontario veterinary context and/or to the experience of the individual veterinarian.
Performance:	Activity in the workplace.
Performance Criteria:	An integrated list of the aspects of professional performance that would be regarded as evidence of competent performance in the workplace in an Element of Competency.
Performance Standard:	The standard at which a particular Element of Competency is to be performed; attained when the Performance Criteria are met.
Range Indicator:	A statement of circumstances in which the Performance Criteria apply.
Referral:	Transfer of responsibility for an outcome to others, by mutual agreement.
Skill:	A behavioral aspect of professional performance in which practised facility is required.
Uncommon:	In describing diseases/conditions, refers to those which the entry level veterinarian will be able to rationally include in a list of diagnostic hypotheses on the basis of presenting syndrome/epidemiologic pattern, but is not expected to diagnose and manage without consultation.
Unit of Competency:	A major component of the overall Competency of a professional.
Workplace:	The actual environment(s) in which professionals work, which may be simulated for the purposes of assessment.