

# Innovation in veterinary medical education: the concept of 'One World, One Health' in the curriculum of the Faculty of Veterinary Medicine at the University of Calgary

A. Cribb & B. Buntain

University of Calgary Faculty of Veterinary Medicine, G359, Health Sciences Centre, 3330 Hospital Drive, Calgary, Canada AB T2N 2N1. E-mail: acribb@ucalgary.ca

## Summary

'One World, One Health' is a foundation concept in veterinary medicine, much like comparative medicine. However, teachers of veterinary medicine often fail to identify it or speak of its importance within the veterinary curriculum. The resurgence of interest in the 'One World, One Health' concept aligns well with the underlying principles on which the University of Calgary Faculty of Veterinary Medicine (UCVM) has been newly founded. This concept is therefore a key component of the UCVM programme, and one that is well highlighted for those studying in the Doctor of Veterinary Medicine (DVM) course and graduate students.

## Keywords

Canada – Curriculum – DVM – Global Health – Innovation – One Health Global Health – One World, One Health – University of Calgary – Veterinary education.

## Introduction

The University of Calgary Faculty of Veterinary Medicine (UCVM) is the fifth Doctor of Veterinary Medicine (DVM) programme in Canada. Development of the UCVM programme was begun in 2005. The UCVM DVM programme received provisional accreditation from the American Veterinary Medical Association Council on Education in 2008, when the first class of DVM students were accepted. Before the launch of UCVM, veterinary human resource needs in Alberta had been met by the Western College of Veterinary Medicine (WCVM, Saskatoon, Saskatchewan) and the other three Canadian veterinary colleges. For several decades, Alberta has supported 20 students a year to attend WCVM. This quota alone has not been sufficient to meet the needs of the province. The Alberta Veterinary Medical Association has been registering approximately 90 to 110 new veterinarians each year for the last several years, with the additional veterinarians coming from other provinces or

from international institutions. As in most jurisdictions worldwide, Alberta appears to be facing a shortage of veterinarians working in rural areas, in food supply veterinary medicine and in other areas of veterinary medicine. Although it is difficult to establish accurate numbers for veterinary demand, the Provincial Government recognised in 2003 that increases in the veterinary workforce were needed, especially to serve:

- rural Alberta
- the food-animal industries
- ecosystem and public health
- biomedical research.

This decision was based on the unique situation of the province. The economy of Alberta is supported by a major agri-food industry, environmentally intense oil and gas industries, an environmentally dependent tourism industry and two major research-intensive universities. The food- and fibre-producing industries rely extensively on exports and require a receptive export market to prosper. Alberta is

the major beef producer in Canada and has extensive dairy, hog and poultry industries. It has the highest horse-owning population in Canada. Alberta is home to a number of national and provincial parks. Domestic animals and wildlife frequently share the same land. Bison in northern Alberta are infected with tuberculosis and brucellosis, and these diseases, as well as others, have spilled into wildlife populations. The largest industrial development currently in Canada – the oil sands – has a major impact on the northern environment in Alberta, and oil and gas wells are distributed across farms and ranches throughout the province. In addition, Canada has experienced four important emerging infectious diseases in recent years: severe acute respiratory syndrome, bovine spongiform encephalopathy, avian influenza and, most recently, H1N1, resulting in billions of dollars of loss across the country. Other diseases introduced recently to Alberta have had a significant impact on human and animal health, such as West Nile virus and chronic wasting disease.

These factors convinced the Province that it needed to increase the number of veterinarians trained to serve its needs and willing to work in rural areas. Moreover, Alberta recognised the need to have veterinarians conversant with animal-human health interactions, public health and ecosystem health (or eco-health): areas that are now included under the 'One World, One Health' concept. The advantages of having an active, research-intensive veterinary college located within its borders, that could address issues of importance in Alberta, were also recognised.

The right to develop the programme was awarded to the University of Calgary when it proposed a close alliance with the Faculty of Medicine, which would enhance interactions between veterinary and human medicine and health. From the beginning, there has been significant collaboration among the institutes, departments and Faculties of Medicine and Veterinary Medicine, leading to unique cross-training, collaborative research and education and curriculum development opportunities, since the two faculties are partially co-located in the same physical complex.

This essay will provide a general overview of the DVM programme and focus on how perspectives on global health and 'One World, One Health' are being embedded in the programme and culture at UCVM. In 1997, the US Institute of Medicine defined global health as: 'health problems, issues and concerns that transcend national boundaries, may be influenced by circumstances or experiences in other countries, and are best addressed by cooperative actions and solutions' (4). The World Organisation for Animal Health (OIE) has promoted the 'One World, One Health' approach as a global health framework through which all stakeholders can integrate competent animal and human health systems to improve

health outcomes throughout the world. 'One World, One Health' comprises: 'the collaborative efforts of multiple disciplines working locally, nationally, and globally, to attain optimal health for people, animals, and our environment' (1). 'One World, One Health' involves a cultural shift in veterinary and human medicine from disease care to health promotion and protection. For the purposes of the UCVM curriculum, One Health and Global Health are inexorably linked, and this discussion shall address how the UCVM curriculum reinforces the cultural shift needed to produce competent veterinarians to meet current and future challenges to animal, human and ecosystem health.

## An overview of the Doctor of Veterinary Medicine programme: an integrated core-elective curriculum

The four-year curricular model employed by UCVM is best described as an 'integrated core-elective curriculum' (Boxes 1 and 2), where students have foundational core general veterinary practice education with ample elective opportunities, including international and/or global health rotations. In a core-elective curriculum, all students take a required core programme and then choose a range of distinctive elective options that comprise a significant portion of the programme.

'Integrated' refers to the integration of basic and applied sciences across the curriculum, particularly through the employment of weekly clinical presentations, where students are exposed to a variety of clinical cases and professional problems that veterinarians face. The cases and the approach gradually become more complex as students progress from year one to year three. Integration also refers to the incorporation of hands-on, practical education with theoretical education throughout the curriculum, predominantly through clinical and professional skills courses.

The fourth year of the programme follows a distributed model, with *practicum* rotations occurring in sites distributed across Alberta, across Canada and internationally. This Distributed Veterinary Learning Community (DVLC) is composed of partners who are representative of the broad range of veterinary medicine (see details below). Extensive practical exposure in the first three years of the programme is designed, in part, to prepare the students for their fourth-year *practicum* rotations in community partner practices. A four-year curricular model was chosen to ensure exposure to the full

**Box 1****The University of Calgary Faculty of Veterinary Medicine curriculum digest, years one to three**

Courses with an asterisk are dedicated to, or may include, Ecosystem and Public/Global Health/'One World, One Health'-related issues.

A semester is 12 to 14 weeks

<b>Programme sequence</b>	
<b>First year</b>	
<b>Autumn</b>	<b>Winter</b>
VETM 300: Clinical presentations I	VETM 300: Clinical presentations I*
VETM 305: Clinical skills I	VETM 305: Clinical skills I
VETM 307: Professional skills I	VETM 307: Professional skills I
VETM 320: Anatomy & histology	VETM 320: Anatomy & histology
VETM 321: Physiology	VETM 321: Physiology
VETM 322: Behaviour	VETM 342: Pathologic basis of disease
VETM 323: Animals, health & society*	VETM 343: Immunology
VETM 324: Genetics & molecular biology	VETM 344: Principles of epidemiology*
VETM 360: Introduction to veterinary medicine	VETM 345: Introduction to nutrition
	VETM 361: Animal industries
<b>Second year</b>	
<b>Autumn</b>	<b>Winter</b>
VETM 400: Clinical presentations II	VETM 400: Clinical presentations II
VETM 405: Clinical skills II	VETM 405: Clinical skills II
VETM 407: Professional skills II	VETM 407: Professional skills II
VETM 420: Health management*	VETM 440: Public health & risk analysis*
VETM 421: Systemic pathology	VETM 421: Systemic pathology
VETM 422: Virology	VETM 442: Clinical pathology
VETM 423: Bacteriology	VETM 443: Clinical pharmacology & toxicology
VETM 424: Parasitology	VETM 444: Diagnostic imaging
VETM 460: Applied nutrition	VETM 450: Selected topics in Areas of Emphasis I*
VETM 461: Outbreak investigation*	VETM 451: Selected topics in Areas of Emphasis II*
	VETM 462: Foreign animal disease*
	VETM 463: Field experiences in Areas of Emphasis*
<b>Third year</b>	
<b>Autumn</b>	<b>Winter</b>
VETM 500: Clinical presentations III	VETM 500: Clinical presentations III
VETM 505: Clinical skills III	VETM 505: Clinical skills III
VETM 507: Professional skills III	VETM 507: Professional skills III*
VETM 520: Advanced health management*	VETM 520: Advanced health management*
VETM 521: Equine medicine & surgery	VETM 521: Equine medicine & surgery
VETM 522: Small animal medicine & surgery	VETM 522: Small animal medicine & surgery
VETM 523: Anaesthesiology & therapeutics	VETM 540: Food animal medicine & surgery
VETM 530: Selected topics in veterinary medicine I*	VETM 541: Theriogenology
VETM 531: Selected topics in veterinary medicine II*	VETM 542: Emergency & critical care
VETM 560: Introduction to veterinary field procedures*	VETM 550: Selected topics in veterinary medicine III*
VETM 561: Ecosystem & public health field course*	VETM 551: Selected topics in veterinary medicine IV*
	VETM 560: Introduction to veterinary field procedures*
	VETM 562: Field projects in practice management

seasonal range of veterinary practice and to encourage participation in veterinary and animal health activities during summer periods. The fourth year of the programme is distributed over 12 months, with students following a 40-week curriculum.

The curriculum was not based on a single, existing, theoretical framework, but rather used different models to

create challenging and practical learning experiences; where students are taught in a combination of:

- didactic lectures
- group- and problem-based learning sessions
- clinical case presentations
- hands-on animal learning sessions
- field experiences

**Box 2****An overview of the structure of the fourth-year syllabus**

Students will follow a 40-week *practicum* rotation programme spread over 52 weeks. The fourth year will start immediately upon completion of the third year. Students will have a combination of compulsory and elective courses within the Area of Emphasis (AoE). Students will have the opportunity to focus their training heavily within the AoE or to prepare themselves for a multi-species, general practice environment by expanding their experiences through electives

**Fourth year**

Students take 4 courses in the 4th year. The year is scheduled over a total of 40 weeks across the entire calendar year. All 4 courses are comprised of *practicum* rotations that are also scheduled across the entire calendar year.

All academic year (May to April)

VETM 570: Laboratory diagnostics (4 weeks)

VETM 580: General veterinary practice  
(16 weeks: all major domestic species)

One of the following (14 weeks):

VETM 582: Production animal health

VETM 583: Ecosystem and public health

VETM 584: Equine health

VETM 585: Investigative medicine

One of the following elective courses (6 weeks):

VETM 592: Production animal health: clinical enrichment

VETM 593: Ecosystem and public health: clinical enrichment

VETM 594: Equine health: clinical enrichment

VETM 595: Investigative medicine: clinical enrichment

- practical laboratory sessions
- communication exercises with trained simulated clients.

The UCVM students receive a foundational core of general veterinary education spread over the four years. They have the opportunity to pursue electives in years two and three and, during the fourth year, will follow an enriched programme in one of the following Areas of Emphasis (AoE):

- production animal health
- ecosystem and public health
- equine health
- investigative medicine.

To assist them with their final selection of an AoE, students are given elective opportunities in all four AoE during the first three years. These electives provide experience in a particular area for students who are unfamiliar with that field, or prepare students to pursue an AoE programme in the fourth year. Students will be required to choose their preferred AoE in the third year. Each AoE programme in the fourth year is composed of required *practicum* rotations and a series of electives. Students are able to use the

electives to either increase their depth of understanding and skill within a particular AoE or they may choose to broaden their experience to provide a suitable foundation for a general, multi-species veterinary practice.

**Production animal health**

Production animal health covers the individual and population animal health of all food- and fibre-producing animal species. The intent is to educate veterinarians to meet the needs of the livestock industry and rural Alberta.

**Ecosystem and public health**

Ecosystem and public health examines the interface of domestic animal, wildlife, human and environmental health. Its aim is to educate veterinarians to meet the needs of society through public and private practice in areas related to:

- public health
- food safety
- environmental and agricultural interfaces
- wildlife conservation and zoological medicine and health.

**Equine health**

This course covers the population and individual animal health of horses. The objective is to educate veterinarians to meet the needs of the equine industry, horse-owners and rural Alberta.

**Investigative medicine**

Investigative medicine covers comparative medicine, biomedical research and laboratory-animal medicine. It also includes opportunities for research training in other areas of veterinary medicine. The intent is to encourage students to consider research careers in academia, industry or government, to advance animal and human health.

**Distributed Veterinary Learning Community**

Another key feature of the programme is the Distributed Veterinary Learning Community (DVLC). The DVLC is composed of veterinarians and other appropriate educators who provide professional *practicum* rotations during the fourth year of the DVM programme in a variety of settings. Thus, DVLC partners include public and private practices, non-governmental organisations (NGO) and corporate practice, as well as research and government laboratories.

The subset of this DVLC that encompasses clinical practice, and will serve as the UCVM academic teaching hospital, is referred to as the Distributed Veterinary Teaching Hospital (DVTH). The DVTH has a diverse stable of practices and veterinarians that will participate in the teaching of *practicum* rotations in the fourth year. Many primary-appointment faculty staff in UCVM are embedded in the DVTH. Through the development of the DVTH, UCVM is engaging a range of practice partners to provide practical learning experiences.

The DVLC model allows the creation of sufficient learning opportunities at key times of the year to meet teaching requirements. The four-year programme also enhances opportunities for the students to have summer work experiences between years one and three. To gain the full benefit from a four-year curriculum, UCVM is committed to creating opportunities for its students to take part in veterinary-related activities over the summer months and is seeking ways to support such activities.

## Administrative departments

The administrative structure of UCVM has been established to reflect its educational and research missions, and to create an environment in which the concept of 'One World, One Health' can thrive. The UCVM has four departments assigned responsibility for education and research in an AoE. The departments are:

- Production Animal Health
- Ecosystem and Public Health
- Veterinary Clinical and Diagnostic Sciences
- Comparative Biology and Experimental Medicine.

These departments are all multi-disciplinary, including faculty members from the relevant basic, applied, population and clinical sciences. In addition, there is an Assistant Dean of Government and International Relations, who assists with overall direction and development in governmental, NGO and international initiatives and relationships that would be expected specifically to support education in global health.

## Integrating 'One World, One Health' into the curriculum

The principles and knowledge required to develop a professional culture embracing 'One World, One Health' are integrated throughout the curriculum. Students will gain practical, life and international experience by being

exposed to many professional partners in the DVLC, learning from an international faculty, and being introduced to jointly appointed professors with the Faculty of Medicine. This faculty has a 'global health initiative' encompassing the One Health approach in which the UCVM is a partner, providing rich international opportunities for graduate and DVM students to work and conduct research in multi-disciplinary teams.

The terminology employed throughout UCVM documents, such as 'distributed veterinary learning community', '*practicum* rotations', 'clinical and professional skills', 'professional practice and health' (as opposed to 'medicine' or 'disease'), has been carefully chosen to reflect the focus of this new veterinary programme (i.e. preventive medicine and health protection and promotion), and the breadth of the veterinary profession, as well as to ensure that all career choices within the profession are considered equally valid and respected. In this way, students will graduate with a firm understanding of the determinants of health, their roles in promoting animal, human and ecosystem health, and the ways in which veterinarians are crucial contributors to local, national and global health.

The UCVM curriculum integrates basic health disciplines, clinical cases, clinical and professional skills, and the AoE in a manner that routinely exposes students to issues that arise at the interface of animals, people and the environment. Students obtain broad professional expertise through experiencing a complete range of health, social and ecosystem concerns, taught by an international faculty. Students at UCVM are developing the ability to understand what global health and One Health mean, throughout courses that are delivered during the first three years (see Box 1). The veterinary students will matriculate from a unique educational experience with a professional culture of preventive medicine and health promotion and protection, as well as understanding the importance of competent veterinary and public health systems working collaboratively in the world of today. Continued evolution of the integrated curriculum will occur as feedback from students and faculty members guides changes.

One course that explores the interface between animals, people and the social and physical environment is the Animals, Health and Society (VM323) course in the first year. This course explores the role of the veterinarian in promoting animal and human health through animal health management. It is organised around an ecological framework that explores the interaction of ecological, medical, environmental and social factors that influence health and welfare in animals, as well as the contribution of these determinants to human health. The focus of the class is how to think about health in the practice of veterinary medicine and to discover ways that diseases can be prevented and health promoted. It introduces first-year

veterinary students to ways in which healthy relationships between humans and animals can be supported by studying the factors that determine health and how these affect people and animals in their shared environment.

The UCVM and the Faculty of Medicine have co-developed a course suitable for pre-medical and pre-veterinary students in the Bachelor of Health Sciences programme that is entitled One Health/Global Health (HSOC 591). This course delves into global health issues and gives students an appreciation of the complexity of health research in the context of a developing country, where ecosystem, animal and human health are inextricably related.

### **Ecosystem and Public Health**

The area of emphasis and department most focused on the 'One World, One Health' agenda is Ecosystem and Public Health. Those students who select Ecosystem and Public Health as their fourth-year AoE will take an integrated and interdisciplinary, population and public health approach to achieving and maintaining healthy communities and environments, locally and globally. The programme focuses on understanding the interactions among people, domestic animals, wildlife and the environment, and develops strategies to prevent or minimise negative health consequences. It also emphasises leadership and communication skills required to work as a member of a multi-disciplinary team and to develop solutions to complex human, animal and ecosystem health issues. Those DVM students enrolled in this AoE will have priority for electives and other programmes in the same field. Graduate DVM students may pursue careers in:

- private or public practice
- public health
- wildlife health
- zoological conservation and management
- international veterinary medicine
- defence
- research.

It is anticipated that students who pursue this programme may also work in rural veterinary practice, serving a broader community and perhaps partly supported through government programmes. There has been considerable discussion on such programmes in Alberta, and they are referred to as a 'rural community veterinary practice model' (2).

Students taking the Ecosystem and Public Health AoE will be expected to develop the following core competencies and be able to:

- discuss the ecological, biological and social determinants of health and disease that influence, or are influenced by, humans, wildlife and domestic animals
- use evidence-based medicine to develop disease detection and control strategies for current and emerging health problems at the individual and population level, and know how data gathered from animal health surveillance activities can be used to forecast risks to animal, human and, in broader terms, ecosystem health
- identify the critical health issues facing the ecosystem, humans and animals in Alberta, Canada and globally, and consider how veterinarians contribute to the development of solutions for health issues at the animal-human-environment interface
- critically examine the roles and responsibilities of veterinarians in animal welfare and animal, public and ecosystem health, locally and globally
- examine the role of veterinarians in the development, implementation and communication of animal and public health policy.

The AoE course called, 'VETM 583 Ecosystem and Public Health,' will be 14 weeks long and combine required and elective rotations specifically related to this area. In addition to a 20-week core programme in general veterinary practice, students will spend an additional six weeks in electives of their own choice (the 'Clinical Enrichment course').

The VETM 583 Ecosystem and Public Health required rotations will focus on public, animal (domestic and wildlife), ecosystem and environmental health, using field work and case studies. The elective rotations will include a suite of options, such as:

- advanced public health
- advanced ecosystem and environmental health
- wildlife health and conservation medicine
- public practice
- international rotation(s) in global health issues
- research project(s) focusing on the interface of ecosystem, animal and public health
- further options to be developed.

In the Ecosystem and Public Health AoE course (VETM 583) and its Clinical Enrichment electives (VETM 593), students will have the opportunity to take additional relevant rotations, such as production animal herd health and advanced diagnostic pathology, that serve their career interests (see Box 3).

**Box 3**

**Example of a *practicum* rotation programme in Ecosystem and Public Health**

The final *practicum* rotation programme in Ecosystem and Public Health has not been finalised at the time of writing, but the following provides a working template

**Ecosystem and Public Health course rotations**

**VM 583: Ecosystem and Public Health**

Required rotations (examples, 6 weeks)	Elective rotations (examples, 10 weeks)
Public health and food safety	Public health (advanced)
Ecosystem and environmental health	Ecosystem and environmental health (advanced)
Wildlife health	Wildlife health and conservation medicine
	Public practice: provincial and national
	Global health: international assignment
	Research project in ecosystem and public health (4 to 8 weeks)

**VM 593: Ecosystem and Public Health clinical enrichment electives (6 weeks)**

*The following are examples of possible rotations that Ecosystem and Public Health students might be offered:*

Production animal herd health	Wildlife field medicine practice
Advanced diagnostic pathology for production animal health	Zoological medicine
Equine/Small animal medicine and surgery (advanced)	Animal services: population medicine and programmes
Laboratory animal medicine	General rural veterinary practice
<i>Additional electives will be available</i>	Large animal medicine and surgery (advanced)

Note: these rotation titles are presented as examples. Final rotation offerings, outcomes, titles and durations are under development at the time of writing

Students who select the Ecosystem and Public Health AoE will also be able to pursue an international rotation focusing on global health, where they will gain further experience in the contribution of veterinarians and Veterinary Services to global health. Opportunities will be provided for students to work in multi-disciplinary teams with social scientists, biologists, physicians, ecologists, environmental scientists, medical geographers, epidemiologists and veterinarians with diverse expertise.

Students throughout the DVM programme will understand the value of robust, well-trained animal and public health veterinarians who know how to build partnerships across many disciplines and organisations to deliver the best animal and public health services. Students are taught the importance of international organisations in promoting global health: however, Ecosystem and Public Health rotations would, for example, delve more deeply into how the OIE tool for performance evaluation of Veterinary Services (5) is used, and how it can also identify gaps and weaknesses in the ability of these Services to comply with OIE international standards and promote global health. Discussions on the minimum veterinary training and education needed to ensure a competent Veterinary Services system will assist students to appreciate their important public service role as licensed, certified or accredited veterinarians in ensuring exported and

imported products and animals meet national regulations and internationally established guidelines.

It is important to reiterate that all students in the DVM programme will be exposed to the concepts of ‘One World, One Health’, beginning in the first year of the curriculum. It is recognised that the international dependency of the agri-food, tourism and oil and gas industries in Alberta makes it essential that veterinarians working in all areas appreciate and are able to apply these principles in their professional practice, regardless of the nature of that practice.

## Graduate education

This article has focused on the DVM programme. However, it is important to recognise that graduate education in disciplines serving or related to the concept of global health in the context of ‘One World, One Health’ will also be essential in the overall success of the veterinary profession in this area. Graduate education will drive advancement in the area as a whole, but it will also influence the DVM programme. Professional DVM students will see graduate students, interns, residents and post-doctoral fellows pursuing interesting and exciting

research and career opportunities within the field. This will serve to encourage the students but also to validate this option as a career choice. Involving graduate students in the professional education programme will help to reinforce this. An active graduate programme in this area will also help to expose graduate students pursuing other career pathways.

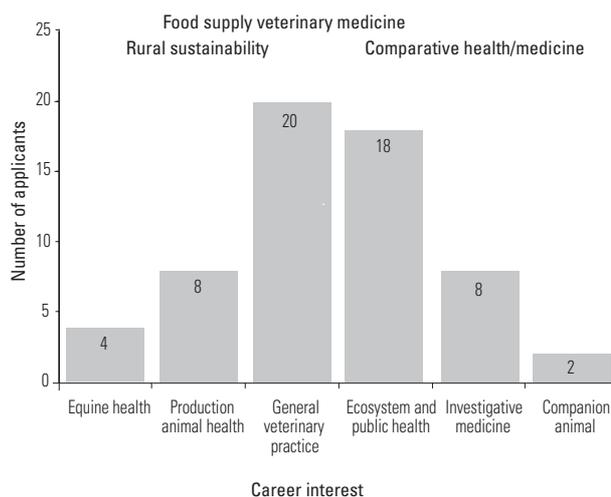
At present, the faculty has six graduate students pursuing programmes specifically related to 'One World, One Health' and ecosystem and public health. Many aspects of these programmes are in collaboration with the Faculties of Medicine (Department of Community Health Sciences), Environmental Design and Biology. Thus, the UCVM graduate programme has been established, providing ample opportunity for Canadian and international students to research areas of improving local and global health in a 'One World, One Health' contextual framework.

## Impact to date

It is too early to make any assessment of the impact of the UCVM DVM programme on the attitudes or competencies of its students. At the time of writing, the students had been in the programme for approximately one year. They appeared very receptive and responsive to the concepts of 'One World, One Health', presented through seminar events, International Student Club activities, and through courses such as Animals, Health and Society (VETM 323) that explore the role of veterinarians in supporting the United Nations Millennium Goals (3). They have had structured opportunities for exposure to the 'One World, One Health' concept within the curriculum, as well as extracurricular activities, such as invited speakers and a World Rabies Day function. One point emphasised to the students is that 'One World, One Health', while it has become an imperative as the world has developed and expanded, is not a new concept for veterinary medicine. The philosophy that veterinary medicine exists to serve society through the maintenance of animal and human health has not changed, nor has the concept that veterinarians must consider factors beyond the individual animal or herd.

While the authors cannot offer an assessment of curricular effectiveness, they can provide some interesting numbers and anecdotes on admissions to the programme. Conversations with students revealed that several students relocated within Canada to gain eligibility for admission because of the specific offerings in Ecosystem and Public Health and the perceived broad and inclusive approach to veterinary education. Admission to the programme was based on academic performance and an interview/essay process that attempted to assess attributes that were considered desirable, such as problem-solving skills, moral and ethical reasoning, empathy, communications skills and the ability to work in a team.

The DVM programme normally accepts 30 students a year (34 were accepted for the first year, and 30 for the class of 2013) and students must be Alberta residents. This number of admissions will be reviewed in three years. The faculty received nearly 200 applicants and interviewed 122. Of these 122, 60 were short-listed for entry into the programme. The interests of these 60 students are shown in Figure 1. It is clear that the interest of students was captured by the concepts and programme offered in Ecosystem and Public Health. Although this information was not used in the selection process, all students were asked to identify their primary and secondary career interests on the application form, and a majority selected Ecosystem and Public Health. Such information on an application must be interpreted carefully; however, it does provide a 'window' on the class. The students have also formed an active International Student Club and Ecosystem and Public Health Club, indicating a sincere interest in exploring opportunities in global health. In future days, UCVM will monitor and evaluate the career choices of the graduates as the programme develops.



**Fig. 1**  
The self-identified primary career interests of the top 60 applicants to the University of Calgary Faculty of Veterinary Medicine Doctor of Veterinary Medicine programme in 2008

## Acknowledgements

The authors would like to acknowledge the contribution of all faculty members at the University of Calgary Faculty of Veterinary Medicine who have contributed to the development of this curriculum. They would particularly like to acknowledge the role of Dr Carl Ribble in designing the overall curricular format and approach. The authors would also like to thank the many individuals outside the faculty who have unselfishly contributed their time, expertise and comments to help develop this programme.

## Les innovations dans l'enseignement vétérinaire : l'importance du concept « Un monde, une seule santé » dans le programme d'enseignement de la Faculté de médecine vétérinaire de l'Université de Calgary

A. Cribb & B. Buntain

### Résumé

« Un monde, une seule santé » est un concept fondamental de la médecine vétérinaire, au même titre que la médecine comparée. Toutefois, les enseignants négligent souvent d'identifier cet aspect ou de faire percevoir son importance au sein du programme d'enseignement. Le regain d'intérêt suscité par le concept « Un monde, une seule santé » s'accorde bien avec les principes qui ont servi de fondement à la création de la Faculté de médecine vétérinaire de l'Université de Calgary (UCVM). Ce concept est donc un élément clé du programme de l'UCVM, particulièrement mis en avant auprès des étudiants préparant le doctorat de médecine vétérinaire ou suivant une formation postdoctorale.

### Mots-clés

Canada – Doctorat de médecine vétérinaire – Enseignement vétérinaire – Innovation – Programme d'enseignement – Un monde, une seule santé – Université de Calgary.



## Innovaciones en la formación veterinaria: incorporación del concepto “Un mundo, una salud” en el plan de estudios de la Facultad de Medicina Veterinaria de la Universidad de Calgary

A. Cribb & B. Buntain

### Resumen

Al igual que la medicina comparada, el concepto “Un mundo, una salud” es uno de los cimientos de las ciencias veterinarias. Pero los planes de estudios no suelen incluir su presentación, ni la demostración de su importancia. El renovado interés por el concepto “Un mundo, una salud” coincide plenamente con los principios que condujeron a la reciente fundación de la Facultad de Medicina Veterinaria de la Universidad de Calgary. Esa iniciativa, que constituye una de las componentes clave de su programa, es objeto de una especial atención en las materias que cursan los futuros doctores en medicina veterinaria y los estudiantes de posgrado.

### Palabras clave

Canadá – Doctorado en medicina veterinaria – Formación veterinaria – Innovación – Plan de estudios – Un mundo, una salud – Universidad de Calgary.



## References

1. American Veterinary Medical Association (AVMA) (2008). – One health: a new professional imperative. One Health Initiative Task Force: final report. AVMA, Schaumburg, Illinois. Available at: [www.avma.org/onehealth/](http://www.avma.org/onehealth/) (accessed on 13 August 2009).
  2. Nielsen O. (ed.) (2008). – Alberta Veterinary Medical Steering Committee final report. Alberta Advanced Education and Technology, Edmonton, Alberta, Canada.
  3. United Nations (UN) Millennium Goals (2008). – UN Millennium Project. Available at: [www.unmillenniumproject.org/index.htm](http://www.unmillenniumproject.org/index.htm) (accessed on 4 October 2008).
  4. United States Institute of Medicine (1997). – America's vital interest in global health: protecting our people, enhancing our economy, and advancing our international interests. National Academy Press, Washington, DC.
  5. World Organisation for Animal Health (OIE) (2008). – The new tool for the evaluation of performance of Veterinary Services (PVS tool) using OIE international standards of quality and evaluation. OIE, Paris. Available at: [www.oie.int/eng/oie/organisation/en\\_vet\\_eval\\_tool.htm?eld2](http://www.oie.int/eng/oie/organisation/en_vet_eval_tool.htm?eld2) (accessed on 12 September 2008).
-