



CVMA Task Force on “education, licensing, and the expanding scope of veterinary practice”

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Background and mandate of the Task Force

Concern has been expressed that the relatively narrow and inflexible education and licensing system limits the development of the veterinary profession. Some think the profession is failing to educate graduates with the competence needed to keep pace with the increasing demand for specialization their clients want. Some also think that by failing to educate veterinarians to recognize and encourage the diversity of the profession, opportunities are being missed for veterinarians to better serve society. Some also think there should be a formal system for internship for new graduates before a full license to practice is granted.

The education system may be waiting for the licensing system to change, and the licensing system may be waiting for the education system to change. There is a sense that an impasse has developed which needs the leadership of the organized profession to break.

To address the possible impasse, the CVMA, for which the “Expanding scope of veterinary practice” is one of the National Issues Committee’s priorities, commissioned a small task force with the **following mandate:**

1. Assist the incoming President in structuring the 2002 Veterinary Summit to best present the arguments for and against expanding the diversity of veterinary graduates.
2. Prepare for Summit participants a succinct background paper summarizing the arguments for and against graduating veterinarians with in-depth training focused on major fields of veterinary medicine (e.g. food animal, companion animal) in addition to the “traditional” graduate.
3. Add a summary of how the veterinary licensing system might respond at a national and provincial level to graduation of veterinarians who have “tracked” or “career streamed” into major fields of veterinary medicine.

1. Introduction

The Task Force first reviewed some key articles relating to the issue (Appendix 1), including the recommendations of the 1989 Pew Report (Appendix 2), as well as the paper by N.O. Nielsen,

which was the catalyst for striking the Task Force. It then proceeded by systematically discussing items through means of a list-server and conference calls. The Task Force agreed on a set of definitions (Appendix 3) to guide its thinking. The Task Force was impressed by the complexity and multi-factorial nature of the issue, as well as by the difficulty of educating and licensing veterinarians for an unpredictable future. The Task Force recognized that it is expanding on some of the ideas and recommendations produced in 1998 by the CVMA Task Force on the Future of the Veterinary Profession, “Veterinary Medicine in Canada: Opportunity for Renewal” (Appendix 4).

2. Defining the problem facing veterinary medical education and licensing

Veterinary medicine has come of age in the last 40 years. The profession has blossomed because of the commitment of veterinarians to their profession; the expansion of university education; the unprecedented development of knowledge and technology; the increased wealth of society, particularly the companion animal owning

public; and because of society’s interests in animals, in safe food, in the health of the environment, and in the threat to species from human dominance of the planet. The profession has the flexibility, diversity, expertise, and confidence to address most issues involving the health and welfare of animals.

The massive increase in knowledge as well as the increasing specialization of the clients served has come at a price in terms of the education of new veterinarians. For example, there is a major dichotomy within the veterinary profession, the distinction between food animal (production) medicine and individual (companion) animal medicine. Agriculture has changed markedly over the last 40 years, with fewer but much larger and more intensive units. The demographics of the veterinary student population has changed equally or more markedly. The urban/rural profile of students entering the veterinary profession is now not unlike that of the general population, in which less than 2% of Canadians have lived or helped make a living on a family

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farm. Not surprisingly, a major trend has been the large proportion of new graduates entering exclusive small animal practice, a decline in the proportion of new veterinarians entering mixed animal practice, and a small proportion entering exclusively farm practice. At the Ontario Veterinary College (OVC), for example, for the graduating years of 1999 and 2000, 56% and 65%, respectively, of new graduates entered exclusive small animal practice; 27% and 28%, respectively, entered mixed animal practice; only 6% and 4% entered exclusively large animal practice; while 9% and 3% entered internships. The majority of student's exit career choices are similar to their expectations when entering the DVM program.

This new graduate employment does not fully reflect the current nature of the practicing profession in Canada, where there is a larger proportion of practitioners in large animal practice. Currently, of 6577 private practitioners, 56% are in exclusively small animal practice, 30% in mixed animal practice, and 14% in exclusively large animal practice.

The predominance of females entering the profession may also affect the type of employment on graduation. Of the 2001 DVM graduating class in the United States, large animal exclusive or predominant practice attracted 4.4% of female and 13.4% of male graduates; mixed animal practice 8.6% and 14.2%; small animal exclusive or predominant 55.8% and 40.1%, respectively; equine 3.3% and 4.0%; and "other" about 5–6%. An astonishing 23.7% and 22.4% of female and male graduates, respectively, opted for advanced study, presumably internships. For example, at the University of Georgia 18% of the 2001 graduating class entered small animal internships. The average graduate was 28 years old with a US\$67 000 debt. Apart from gender differences in career choice, the "dichotomous" nature of the modern veterinary profession is also obvious in these data.

From the perspective of the future of the veterinary profession, companion animal medical practice has come to dominate veterinary medicine at the expense of other important veterinary needs. There is a shortage of veterinarians entering non-companion animal practice fields that used to be well served by veterinarians (food animal practice, veterinary public health) and important areas of potential growth including biomedical research and ecosystem health. However, to view the veterinary profession only as a dichotomy does an injustice to the broad range of veterinary practice in different animal species and non-practice areas of the profession, all of which have become and will continue to become increasingly specialized and complex.

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There is no reason to think that the major trends observed over the last 40 years will not continue into the future. Has the time come to recognize this and to move in a formal way to a new stage in the evolution of the veterinary profession in Canada?

3. Strengths and weaknesses of the current education and licensing system

A. Veterinary education system

The **strengths** of the current education system are that:

- It attracts intelligent, well educated and highly motivated students to the profession and provides a broad ranging education which exposes students to a wide range of topics.
- There is a strong comparative medicine base, so that students can extrapolate across species.
- The faculty are dedicated, highly qualified and work in publically funded institutions with strong academic bases.

- There is the opportunity to learn entry level clinical skills in many areas.
- Graduates have the flexibility to practice in diverse areas, and to change practice areas without restriction by the licensing system. In addition, there is a common standard, since graduates must pass the common North American Veterinary Licensing Examination (NAVLE).

The **weakness of, or problems facing**, the current veterinary education system are:

- The vast amounts of material to be covered, which is largely aimed at the generalist veterinarian, with great breadth but perhaps little true depth. Mastering this increasing volume of material is very hard on students, and is getting harder every year.
- The generalist paradigm of veterinary education may waste clinical resources as well as student's intellectual capacity and potential. It is difficult to add anything extra to a packed curriculum, so that new topics or understanding are undeveloped.
- Many new graduates are under-confident and tend to go into small animal practice, perhaps partly because this is the option they most readily understand, but also because the majority of students intended anyway to practice small animal medicine when they entered veterinary Colleges.
- There is a distinct lack of interest by many students in certain areas, notably food animals. The current system serves agriculture poorly: there may be an inadequate caseload in food animals, partly because of biosecurity issues, most students have no background in agriculture, and students who do may not be encouraged as much as they could be.
- A packed curriculum aimed at the generalist veterinarian does not encourage developing the existing or potential diversity of the profession. The packed curriculum may also result in students

having a narrow conception of what a veterinarian is or could become, since many students operate at the managing-to-survive level.

- Other problems are that veterinary teaching hospitals are focused on tertiary care and externship programs are relatively short. In addition, evaluation of clinical performance of students in their final year is difficult and unreliable.
- There is no required formal internship after graduation. High student debt load and high starting salaries in practice in fact may discourage further education, although statistics on recent graduates in the United States suggests that entry level competence concern may in fact exceed concern about high debt load. High student debt load discourages adding an extra year to the program. A fifth year has in fact recently been added to the program at the Faculté de Médecine Vétérinaire in St Hyacinthe, although this reflects unique features of the pre-university CEGEP system in Québec.

In summary, the explosion of knowledge, the increasing complexity and standards of the different groups served by veterinary medicine, the changing nature of employment opportunities for veterinarians, and the increasingly high costs of education for students make education of the universal or generalist veterinarian for existing needs extremely difficult. In addition, the very wide but low (in terms of depth) door through which all graduates now enter may inhibit the profession from taking advantage of the expanding opportunities for the profession to better serve society in fields such as public and ecosystem health.

B. Veterinary licensing system

The **strengths** of the current veterinary licensing system include:

- The integration of Canadian and United States systems through the NAVLE.
- There is flexibility for veterinarians to practice in diverse areas, and to change practice areas without restriction by a licensing system.

A **weakness** of the current veterinary licensing system is that:

- Licensing bodies lack the resources to conduct evidence-based evaluation of the competence of new graduates or for competency-assurance. They have devolved the responsibilities for assuring entry-level competence to the Colleges. The DVM degree is a general license to practice in which competency issues are addressed through the complaints process and which relies on practitioners to confine their practice activities to the areas in which they are competent.
- The licensing system is largely run provincially by practitioners, which inevitably maintains the *status quo*.
- There is no on-going re-certification program and the current licensing system does not recognize special training or skills unless an individual is Board certified.

4. Is career tracking a solution to the problems identified?

How do we ensure that we educate and license veterinarians with the knowledge and skills required to address the need for entry level competence into the profession, while recognizing and expanding the diversity of the profession?

Solutions to these questions that have been proposed over the years include:

- Recognition that the veterinary profession is a collective in which each veterinarian is not a microcosm of the whole, and therefore that veterinarians should focus their studies on gaining entry-level competence in areas of career interest (Pew Report recommendations, Appendix 2), for example, some form of “career streaming” or “career tracking”.
- Lengthening the undergraduate veterinary program.
- Successful completion of an internship program before granting a full license to practice.
- A formal system of post-graduate certification in areas of career interest.

A. Definition of career tracking

“Career tracking” was understood by the Task Force as designating the completion of core courses in biomedical sciences in 1 (or 2) years, with the last 3 (possibly 2) years being designated “career tracks” with widely diverging core courses for each track.

Tracking would be closely akin to the engineering degree or the equivalent of “majoring” in other undergraduate degrees. The Task Force struggled with terms other than “career tracking” to encapsulate its mandate. These included “specialization” and “major”, both terms in general use and well understood in various non-veterinary undergraduate degree programs. “Specialization” was discarded as likely to be misunderstood and, for the time being, “major” was also discarded since “career tracking” is more commonly currently used in veterinary education. The Task Force chose the term “career tracking” as defined, with the understanding that this would be the most radical response to the problems identified. As such, it might be called “radical tracking”.

About one-third of North American veterinary Colleges have forms of career streaming, with the University of California’s School of Veterinary Medicine at Davis having the curriculum closest to, but not as radical as, what we defined as career tracking.

B. Advantages of career tracking

The advantages of career tracking would be:

- The considerably increased competence and confidence of new graduates.
- The enhancement of the overall competence and diversity of the profession, by providing opportunities for growth not currently allowed for in the existing educational system.

- That admission to the DVM program could have alternative selection criteria, and could selectively enhance admission of target groups (for example, students with strong interest and background in agriculture). Admission criteria could have differences in the pre-veterinary undergraduate requirements for students admitted to different tracks. This should also increase the competence of new graduates.
- That Colleges could focus on the tracks that matched their resources, could share resources or tracks across Canada, and could have the incentive to develop “minor” tracks to meet niche demands. Tracking could also allow a more unified approach and definition of the common core of basic comparative medicine.
- That there would be space in a curriculum to meet track-specific needs for depth in disciplines including nutrition, economics, behaviour, grief counselling, epidemiology, and many other areas, thereby enhancing the competence of new graduates and of the profession.
- Career tracking could deliberately address areas of the profession, such as food animal medicine, where there is recognized to be a shortage of new veterinarians by enhancing enrollment in these areas.
- Career tracking would better allow the profession to address critical current areas of societal need that are currently largely under-served or almost totally ignored (such as, ecosystem health, public health, food safety). Tracking could also allow the profession to be able to respond flexibly and more quickly to changing societal needs.
- That the competence of new graduates could be validly evaluated, something not currently possible in a general program.
- That satisfaction of graduates from their career choice would be amplified. Graduates would be invigorated by a sense of control, direction, and focus in their career choice, instead of being overwhelmed by the undergraduate experience. Faculty in the Colleges would be invigorated by interacting with students who want to learn their discipline.

C. Disadvantages of career tracking

The disadvantages of career tracking include:

- The disrupting effect on the education and potentially on the licensing systems and the possible narrowing of career options for new graduates.
- The unique geographic needs of Canada means that individual practitioners may provide service to diverse clients over an area which would support only a generalist veterinarian rather than different types of a “tracked” veterinarian.
- The problematic definition of the major and minor tracks. For example, 2 major career paths would be “food animal” and “companion animal,” but that there would clearly be additional major (and minor tracks). Retention of a “mixed animal track” argues against tracking

since it implies a lower standard of competence. Task Force members thought that its retention might lead to a longer program for students taking this track, since an essential feature of tracking was the ability to pass examinations for probable designated licensing in a particular practice area.

- Unless admission to a career track was defined on admission to veterinary college, could students learn to beat the admissions system by implying interest in a track which was regarded as the easiest to gain admission, only to later “change their minds?”
- That career tracking as a method to enhance the diversity of the profession could actually backfire, by blinkering students in a particular career track to other potential non-traditional and even as yet unidentified opportunities for veterinarians.
- The problem of retraining if a veterinarian who graduated in 1 track wished to change track later in their career. This could be for personal reasons, such as health issues, or because there were major shifts in societal need for different types of veterinarians.

5. Impact of career tracking on veterinary education

- The introduction of career tracking would have a disruptive effect on veterinary education and be associated with significant anxiety, uncertainty, and excitement. Curricula would have to be extensively revised, with the design and content of the limited common core being most problematic, because it would require definition of the universal attributes of a veterinarian.
- Resources to implement tracking could be a huge issue, although it might be partially offset by easing the need to teach “everything,” especially in the clinical sciences, to each student. Additional instructional resources would be required to produce tracks that truly meet existing and emerging needs and the legitimate aspiration of candidates willing to commit to a particular track. For example, a food animal major would require greater instruction and practice with nutrition than (most) current programs provide. Colleges would have to upgrade the skills of existing faculty or hire new faculty with different skill sets. There would be pressure (but no additional resources) for Colleges to shoulder the burden of retraining veterinarians who wish to refocus their careers.
- Career tracking would lead to considerable complexity of time-tabling and other management issues for veterinary colleges. There may be challenging (or devastating) funding implications if colleges didn’t offer an all-embracing veterinary program.
- The licensing bodies might have greater control in assessment of the competence of graduating veterinarians. Faculty would also have to resist the temptation to produce a curricula that attempts to produce “undergraduate specialists.” Colleges might have to accept the reality of a new relationship with licensing bodies.

- Faculty would have to develop better tools for assessment of clinical skills. Colleges would have to support this in a variety of ways but it (both developing and doing) must be accepted and recognized as a valid academic activity.

6. Impact of career tracking on the licensing system

- One response to career tracking is not to alter the licensing system by providing designated licensure, but rather to rely on ethics, review by provincial complaints committees when complaints arise, and the prospect of litigation to ensure that veterinarians limit their professional activities to areas within their competence. This self-regulation is what happens now. The Task Force was divided over whether, in order for career tracking to emerge in a truly meaningful and progressive way, there must be recognition by and through the licensure process. The Task Force thought that designated licensure for veterinarians graduating from a tracking program would be helpful for protection of the public.

- The introduction of designated licensure might have a disruptive impact on veterinary licensing and be associated with significant anxiety. If it was introduced licensing bodies would have to prioritize existing programs to direct resources and energy to an area that has traditionally received little attention. Provincial regulations but not veterinary legislation would have to change. The licensing bodies would have to defend these changes on the basis of their mandate to protect the public.

Any changes involving designated licensure would have to recognize and accommodate existing licenses, and be agreed to by all provinces. It should not however be necessary to change provincial Legislative Acts to accommodate such changes. Licensing bodies would require a new set of entry level assessment instruments. Resources and instruments would have to be found to evaluate veterinarians that wish (and have retrained or not) to refocus their careers.

- Licensing bodies would have to recognize the special needs of re-licensing veterinarians who are not entry level candidates. Licensing bodies would have to develop strategies that recognize and deal with a transition period, which could be essentially until today's veterinarians retire. Education of the public about who is allowed to do what might require major efforts over a long period of time. Licensing bodies would have to develop the resources and the resolve to effect a new relationship with the Colleges.
- If a "mixed animal" track was not acceptable to the profession, rural practitioners and possibly rural communities would not accept this easily. Over time, as the profession divided itself into

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career tracks, the mixed animal practitioner might eventually disappear. The current model in which every community has a mixed practice might not survive for reasons of public protection and assurance of competency and level of service.

- We live in the context of a North American and increasingly a global market place. The Canadian and United States accreditation system and the licensing exam have developed with a commonality and evolved to produce a remarkable degree of reciprocity, so that the licensing examination is common to both countries. The National Board of Veterinary Medical Examiners (NBVME, formerly NBEC), who set the North American Veterinary Licensing Examination (NAVLE), appears to have little interest in producing species or practice-type specific exams, although this should not be a difficult task. Because new questions are added each year, the "bank" of questions available to NAVLE will become large enough over time for species or practice-type specific examinations to be produced at relatively low

cost. Since the NBVME appears to have no desire at the North American level to address the issue of designated licensure and/or of species or practice-type specific examinations, the Canadian veterinary profession would have to either persuade the NBVME of the rightness of its position and change NAVLE, or "go it alone" and develop its own practice-type specific examinations. The recent Canadian Mutual Recognition Agreement between Canadian provincial licensing bodies supports the notion that designated licensure might be recognized across the provinces, and has a mechanism to re-examine its terms on an annual basis.

Thus, it could examine designated licensing.

- Could Canada afford the option of developing its own made-in-Canada exam(s)? The NAVLE, by itself, costs in excess of three-quarters of a million US dollars per year. Examinations which led to designated licensure could be developed through NAVLE, but this might be expensive. Since provincial licensing bodies are guided primarily by practitioners, the prospects of shepherding fee increases will be seen as a major concern. The Canadian veterinary profession would also need to consider how either designated licensure or examination only in species or practice-type specific areas but without designated licensure (for example, *de facto* practice restriction) would hamper movement of veterinarians across the border.

7. Is streaming a solution to the problems identified?

A. Definition of career streaming

The Task Force understood career streaming as the basic training that will allow the student to meet the current threshold competence for licensure, for example, NAVLE. If it can be done in 3 years,

that leaves the 4th year for undergraduate streaming in one or more career streams.

At the University of California, the first 3 years of the DVM program consist of a “core-elective” (75:25) program of general veterinary education (75%) with career interest electives (25%), and the last full year of core-elective clinical training focussed on 8 species or career tracks: Food Animal, Food/Small Animal, Equine, Small Animal/Equine, Mixed Animal, Small Animal, Zoological Animals, Individual. Various forms of “career streaming” are in place in a number of North American veterinary schools, and usually involve elective choice of clinical rotations in the final year of a 4 year DVM program with some electives earlier in the program. The most advanced form of career streaming seems to be that at the University of California. In Canada, the Atlantic Veterinary College has a completely elective final year, and the other 3 Colleges currently have about half the final year as elective. The proposed 4th year of the new 5 year program at St. Hyacinthe has extensive elective courses, in addition to a small number of elective courses in the 2nd and 3rd years.

B. Advantages of career streaming

The advantages of career streaming to some extent include those of tracking but are a less radical approach to addressing the critical issues noted:

- Streaming is relatively easily done and safest, involves little risk, and maintains options for students.
- Graduates would be more competent, more confident and more comfortable on day 1 in practice.
- Graduates would be invigorated by a sense of control, direction and focus of their career choice, instead of being overwhelmed by the undergraduate experience.
- Faculty would be (re)invigorated by interacting with student who want to learn (their discipline).
- There would be a more unified approach and definition of the common core of basic comparative medicine.
- Streaming would create space in a curriculum to meet stream specific needs.
- The profession would be better able to address current areas of societal needs that, at present, are largely under-served or almost totally ignored. The profession would be able to respond flexibly and more quickly to changing societal needs.
- Veterinarians might be able to retrain by going back through a career stream.
- There would be no need for designated licensure since graduates would pass a common NAVLE.

C. Disadvantages of career streaming

The disadvantages of career streaming were seen to include:

- That career streaming is an ugly compromise that does not adequately or truly address the crit-

ical issues now facing the veterinary profession. It is a half-way house which may make change easier for veterinary educators and licensing bodies to accept, but it is not the radical change needed if the profession is to embrace and develop its potential.

- Career streaming could not deliberately address areas of the profession, such as food animal medicine, where there is recognized to be a shortage of new veterinarians by enhancing enrollment in these areas.
- The possible narrowing of career options for new graduates.
- The blinkering of students in a particular career stream to other potential non-traditional and even as yet unidentified opportunities for veterinarians.
- The complexity of time-tabling and other management issues for veterinary colleges.
- Streaming does not have a pre-determined number of career choice places available, unlike tracking which could have.

8. Impact of career streaming on veterinary education

- The introduction of career streaming would have a less disruptive impact on veterinary education than would tracking, and be received with less anxiety. There is already successful experience with streaming. Streaming may be the first steps in an evolutionary process towards tracking, that could to some extent address current needs but would not cause the radical disruption of tracking.
- Streaming would also be more palatable to the Colleges because there would probably be fewer funding challenges. Additional instructional resources might, however, be required to produce streams that truly met emerging needs and the legitimate aspiration of candidates required to commit to a particular stream. Curricula would have to be revised, with the design and content of a common core being most problematic because it would require a definition of the universal attributes of a veterinarian. Faculty might not have to develop better tools for assessment of clinical skills. Colleges might more easily share resources.
- There would be less pressure for Colleges to shoulder the burden of retraining veterinarians who wish to refocus their careers.
- The use of NAVLE to assess the competence of graduating veterinarians would continue unchanged.

9. Impact of career streaming on the licensing system

- Career streaming would not result in designated licensure, but rather would continue to rely on ethics, on review by complaints committees, and on the prospect of litigation to ensure that veterinarians limit their professional activities to areas within their competence. This self-regulation is what happens now. Provincial regulations would not have to change.

- The greatest problem might become the competence of veterinarians streaming in the “mixed animal” stream. This has been identified as an issue in California where there is discussion as to whether veterinarians graduating with clinical training in more than 1 species grouping should take an additional year of study.

10. Alternatives to career tracking and career streaming

- Adding a 5th year to the traditional 4 year DVM program might be an alternative, as might be making much or all of the DVM program full-time.
- A system of mandatory internship(s) to hone entry level skills might be an alternative or an addition to career tracking or streaming, and might in fact be the easiest change to make in veterinary education but perhaps the hardest to do in a rigorous manner. The increasing number of new graduates seeking internships and residencies suggests that new graduates recognize their need for a structured entry into the profession; we suspect that this informal trend to internship will increase.

In the United Kingdom, the Royal Colleges of Veterinary Surgeons (RCVS) is consulting the profession over a framework for veterinary licensing for 2010. This envisages a 5 year, broadly based, veterinary degree to equip graduates with core “day 1 competencies.” After graduation, a new graduate would have a “provisional license” and would work for 1 or more years under supervision in a broad, named area of veterinary practice within a registered practice in a “professional training phase” until “year 1 competence” had been achieved. The professional training phase would be in areas such as production animal practice, companion animal practice, mixed practice, food safety and public health, and others. After achieving “year 1 competence” in any one of these broad areas, a veterinarian would gain full license to practice in one of these areas. Responsibility for assessment of the professional training phase would lie with the registered practice. In the RCVS proposal, later career moves into other areas of practice would require veterinarians to repeat the “professional training phase” in a registered practice. There would be periodic renewal of licensing to practice.

The RCVS also envisages fully licensed veterinarians working over 2 to 10 years in practice obtaining modular Certificates leading to full qualification in a broadly named area (Companion Animals, Equine, Production Animals, Mixed Practice). A similar post-graduate study program for Canadian veterinarians leading to certification has recently been proposed, with the suggestion that this would remove the need for “limited licensure.”

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The American College of Veterinary Practitioners accreditation process is the nearest equivalent to Certificate program envisaged by the RCVS. Its rigorous and demanding credentialing process leads to certification after demonstration of mastery of the field. The CVMA might design ways to encourage Canadian veterinarians to obtain ACVP certification.

11. Expanding the diversity of veterinary graduates

Enhancing the diversity of the profession may not involve expanding into new areas but rather involve getting students to participate in the diversity that is already available within veterinary medicine. The lack of interest and participation of veterinary students and recent graduates in non-companion animal activities in veterinary medicine may not only be depriving them of potentially lucrative and stimulating career opportunities in non-traditional, non-private practice fields but also may be resulting in a lack of veterinarians in areas critical to society. The Task Force believes that career tracking or career streaming is an essential way to get students to participate in the existing diversity of the profession and also a prerequisite to expanding the involvement of veterinary graduates in neglected existing or in novel areas. Career tracking could, more readily than career streaming, deliberately address areas of the profession, such as food animal medicine, where there is recognized to be a shortage of new veterinarians by enhancing enrollment in these areas. The concept of admission quotas warrants further study as a more powerful method of attracting and admitting students with career goals that reflect society’s current and projected needs.

The profession, together with educational institutions, can take as a common task the promotion of diversity through a combination of attracting diverse applicants and their development through promotion, nurture, selection, and education.

A. Attracting diverse applicants

Attraction to the veterinary profession starts early. For example, 50% of Atlantic Veterinary College students report that they decided to become a veterinarian by age 10. In an Australian study published in 1996, 30% of students had made their decision to become a veterinarian by age 12 and most while they were still in school; only 9% decided after they were 18 years old. Interestingly, in both studies, women reported making a veterinary career choice earlier than men.

To promote diversity in the applicant pool, the profession needs to portray itself to young children as doing more than ministering to the needs of companion animals (pets). This can be done through school visits by veterinarians, through mentoring of kids in 4H, by putting on VetCamps (for school-age children but being careful to portray the diversity of the profession at such camps). Interestingly the

male:female ratio at the Atlantic Veterinary College VetCamp (for kids in grades 6, 7, and 8) is 20:80, the same ratio as for our applicant, interviewed, and admitted pools of DVM students. The profession is simply not capturing the interest of males. In a longitudinal Australian study men and women were asked to rank the factors most important in their decision to study veterinary medicine. Men listed a desire to be independent of bosses and the financial attractiveness of veterinary practice (they can find these attributes in other, often more lucrative, careers). Women listed a “love” of animals, the image of veterinarians as portrayed in TV programs, an interest as a child in living things, and an interest in the scientific study of disease.

An admissions committee member from the Western College of Veterinary Medicine reported that the majority of applicants interviewed recently complained about the inactivity of the pre-veterinary student clubs at their universities and the complete lack of speakers available to elaborate on career opportunities in veterinary medicine. In his 2001 Iverson Bell Symposium address, Dr. Michael Blackwell, Dean of Tennessee, stated that, at a minimum, our profession needs to develop courses to be presented to pre-veterinary medicine students, with the intent of providing comprehensive knowledge about the various career paths available to veterinarians. For example, a really good pre-vet course that elaborates on career opportunities in the veterinary profession would be a logical first step to career streaming or tracking).

If students of diverse and targeted backgrounds are admitted, this will influence the scope of the profession particularly if the diversity is carefully nurtured and encouraged to grow through the nature of the educational program. There is no barrier to positively evaluating potential students at the admissions process who have career interests or backgrounds perceived to increase the likelihood that they will seek employment in under-serviced traditional practice fields or non-traditional, non-practice fields. The difficulty may lie in getting students with diverse backgrounds to apply.

B. Development of diversity through selection, education, promotion, and nurture

A survey, conducted in 1998 to determine the influence of swine experience upon career choice following graduation, matched members of the Ontario Association of Swine Practitioners by year of graduation to either a small or large animal veterinarian, and determined and compared their experiences working with swine prior to and during veterinary school. The study demonstrated that swine veterinarians were 2.35 times more likely to have worked with pigs prior to veterinary school compared to their non-swine veterinarian counterparts ($P = 0.08$). In addition,

swine veterinarians were 3.22 times more likely to have acquired experience with pigs during veterinary school, either through summer jobs, volunteer work, or extracurricular involvements compared to non-swine veterinarians ($P = 0.009$). It was also found that experience with pigs prior to veterinary school was not correlated with employment or volunteer experience with pigs during veterinary school ($r = 0.48$, $p = 0.49$). This study highlights the importance of veterinary school experiences on career choice following graduation.

The reasons for recent veterinary graduates not entering under-serviced practice fields and non-traditional, non-practice fields are probably as multifactorial as are the solutions. There are numerous ways to develop diversity in the veterinary profession though the stages of selection, undergraduate education, and post-graduate career selection; some examples follow:

Admissions

- Incentives (scholarships) to enter certain career tracks.
- Bonus points or quota systems for students who profess/have demonstrated an interest in under-serviced practice and non-practice fields. A more subjective admissions process. See the swine study above which shows that prior experience with a certain species is not the only factor in future career choice.
- With tracking, admit quotas of students and with different prerequisites.

Education

- The importance of role models cannot be underestimated.
- Financial incentives to encourage debt-burdened students to seek summer experiences in under-serviced practice fields early in the educational program. For example, the American Association of Bovine Practitioners assists students with scholarships in the earlier years of the DVM program to spend time in bovine practice. At Michigan State University, scholarships support 2 1st- or 2nd-year students to spend 10 weeks in the summer working in the swine industry.

Post-graduate incentive

- Debt/loan forgiveness programs for graduates to enter under-serviced practice and non-practice fields.

12. Questions for, and response by, the veterinary summit

The Task Force consulted the Veterinary Summit at the July 2002 CVMA convention in Halifax. The Summit represents the leadership of the organized veterinary profession in Canada (for example, Provincial VMA Presidents, Registrars, the Deans

of the Colleges, the CVMA Council, Federal government veterinarians, and other invited guests, and included about 65 people who participate in an all day session discussing various issues of national veterinary interest. After a 30 minute presentation of key findings of the report by Dr. Otto Radostits, 2 hours were set aside, over lunch, to discuss to answer 3 key questions posed by the Task Force.

Summit participants were divided into tables (groups) of 8 or 9 participants, usually on a province basis. An appointed person at each table led the short discussion in response to three questions posed to the table, and reported back verbally to the Summit as well as providing a written summary of the major points agreed at the particular table.

1. Is there a problem with the competency of new graduates to address the existing and future needs of the varied groups we serve? What is it?

Groups were divided on this question. Six groups thought that there was a problem, whereas 3 groups thought that the problem was a lack of confidence rather than of competence, 2 of the groups who identified competence as a problem also noted the lack of confidence of new graduates.

Among the many verbal and written comments made were that confidence and competence were inter-related. The importance of externships and external electives in building both was noted. Other issues raised are addressed in the report, although 1 group asked how we could actually assess the future needs of the groups served by veterinarians. The lack of training in business, communication, interpersonal, and team skills was noted. Groups were largely reticent on what the exact competence problem was, although 1 group itemised a long list.

2. In addressing the problems identified by the Task Force, choose your preferred solution from among the options provided in the report (tracking, streaming, internship, or your own alternative option), and provide the major arguments for and against this choice.

Groups were also divided on this question. Five groups chose streaming, 3 tracking, and 1 group a mix of streaming and tracking. Importantly, and perhaps unexpectedly given the focus of the report, all except 1 of the groups who chose streaming (or the tracking/streaming choice) also added internship, to complement streaming, whereas the 3 groups who chose tracking did not add internship. This may reflect the sense that the groups choosing streaming were not convinced that this alone would address the competence and/or confidence problems identified in Question 1.

Arguments provided for and against the choices made were essentially those of the report. Comments about internship included that this should be possible within a veterinary practice (rather than a university), although it was questioned whether practices would

welcome this, whether students would accept another year of education, what the financial implications for practices and graduates would be, and what the licencing implications of internship would be. For example, should an internship involve a graduated licencing process.

3. For the option you have chosen, what are the next steps?

For groups that suggested the need for internship in addition to streaming, the next step included serious study of and development of the internship (graduated licensing) choice. For groups that chose tracking, the next steps included definition of tracks by the colleges, discussions of tracking between the colleges and licencing bodies, including NAVLE, obtaining North American-wide consensus of the idea, and tailoring student selection for particular tracks. Other suggestions included further detailed discussions between the educational and licencing arms of the profession, establishing the current and future needs of the profession, obtaining North American consensus on changes needed, consideration for internships in food animal production medicine, establishing quotas for different streams or tracks, development of a full licence after 1 year of internship, publishing the Task Force report, defining the reasons for career choices by veterinarians, communicating with the profession the need for change, a national summit of college admissions committees, academic deans and groups familiar with outcomes assessments, acceleration of streaming options, and exposing junior students to the options of careers within veterinary medicine.

This report appears unabridged

Appendix 1: Key references reviewed by the Task Force

- Blackwell MJ. The 2001 Iverson Bell Symposium Keynote Address. Beyond Philosophical Differences: The Future Training of Veterinarians. *J Vet Med Ed* 28;2001:148–152.
- Eyre P. Professing Change. *J Vet Med Ed* 28;2001:3–9.
- Harasen GLG, Hagele WC. An alternative to undergraduate streaming and limited licensure. *Can Vet J* 2002;43:191–192.
- Howl JC, Walters BK. Preparing today's veterinarians for a non-traditional future. *J Am Vet Med Assoc* 2001;218:199–201.
- Karg M. Designated licensure — the case for specialization within the veterinary degree. *J Am Vet Med Assoc* 2000;217:1792–1796.
- Lewis H. Tidings from the Field. *J Vet Med Ed* 28;2001:94–97.
- Nielsen, NO. Is the veterinary profession losing its way? *Can Vet J* 2001;42:439–445.
- Pritchard WR. Future Directions in Veterinary Medicine. Pew Charitable Foundation, 1989.
- Radostits O. The Requirements of the New Veterinary Graduate: Are we getting it right? Address to Royal College of Veterinary Surgeons.
- Radostits O, Prescott JF. Further thoughts on whether the veterinary profession is losing its way. *Can Vet J* 2001;42:701–702.
- Royal College of Veterinary Surgeons: Postgraduate Professional Training Phase of one year followed by registration for licensure, and then encouragement into a Certified Speciality of the RCVS. Go to www.rcvs.org.UK and then click on The Future of Veterinary Education and Training — RCVS Consultation Document.
- Walsh DA, Osburn BI, Christopher MM. Defining the attributes expected of graduating veterinary medical students. *J Am Vet Med Assoc* 2001;219:1358–1363.

Appendix 2: Summary of recommendations from Future Directions for Veterinary Medicine: Pew Report, 1989

1. Change the focus of the veterinary medical profession from animal disease to animal health in all its dimensions.
2. Abandon the unrealistic concept of the universal veterinarian who can minister to the health needs of all creatures great and small.
3. Restructure veterinary practice to better serve the needs of society and the veterinary profession in the future.
4. Make research a higher priority for individual veterinarians, the veterinary medical profession, and for veterinary medical colleges.
5. Establish a more rational system of funding for veterinary medical research.
6. Improve the quality of veterinary services delivered to all species of animals in response to the escalating expectations of the public as to the health of all animals important to people.
7. Strengthen the general education of veterinarians.
8. Focus the education process and the practice of veterinary medicine on the ability to find and use information rather than on the accumulation of facts.
9. Strengthen the basic biological science of the veterinary medical curriculum.
10. Make the achievement of educational, experiential, and cultural, racial and ethnic diversity among veterinarians a goal of veterinary education.
11. Reorient clinical veterinary education to enable a student to elect in-depth instruction and clinical experience with a practice theme (class of animals or a single species), rather than require all students to obtain clinical experience with numerous species.
12. Change the emphasis in the veterinary curriculum from almost total concentration on clinical practice to include important public sector needs for veterinarians.
13. Move towards a national perspective or strategy of veterinary medical education.

Appendix 3: Definitions

Streaming — The basic training will allow the student to meet threshold competence for licensure e.g. NAVLE. If it can be done in 3 years, that leaves the 4th year for undergraduate streaming in one or more career tracks. If 4 years are needed to get to that point, postgraduate streaming e.g. compulsory internship will be applied.

Various forms of “career streaming” are in place in a number of North American veterinary schools, and usually involve elective choice of clinical rotations in the final year of a four year DVM program with some electives earlier in the program.

Tracking — Completion of core courses in biomedical sciences in one (or two) years, followed by three (or two) years of designated tracks with widely diverging core courses for each track.

Career track — Specific subset of the entire scope of veterinary medicine that satisfies a set of defining criteria.

Core curriculum — Courses in basic biomedical science that are common to all streams or tracks that must be completed regardless of stream or track chosen.

Specialist — A veterinarian holding diplomat status in an AVMA recognized Board or Colleges.

Internship — Postgraduate training in one or more career track that does not leading to a post-graduate degree.

Externship — A period of formal undergraduate training conducted outside the school.

Designated license — Each license must be endorsed for a specific career track. The practitioner must demonstrate the required completion of the designated courses for that career track. Changing to another career track must be accompanied by demonstrating completion of requirements defined by the licensing body.

Threshold competence — The minimum or “entry” level of skill and knowledge that is needed for licensing.

Appendix 4: CVMA Task Force on the Future of the Veterinary Profession: “Veterinary medicine in Canada: Opportunity for Renewal” (1998)

Relevant recommendations

6. To ensure that veterinary curricula keep pace with societal change, the Task Force recommends that external Advisory Boards at each veterinary Colleges participate in a curricular review every 5 years, and that they annually monitor the implementation of the recommended changes.
7. To facilitate greater breadth of curricular material, without creating duplicate programs, the Task Force recommends that the Canadian veterinary Colleges expand curricular opportunities provided to students by sharing resources and embracing the concept of streaming in 4th year. The four veterinary Colleges should develop a mechanism to share experience and resources.
8. To enable students to acquire increased practical experience, the task Force recommends that the core of the veterinary curriculum be confined to the first 3 years. The final 12 months of veterinary education should consist of Colleges rotations, paid practice externships, and approved electives of the student’s choice, which may include exposure to research, industry, government, and other non-practice environments.

Appendix 5: Membership of the Task Force

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