

The status of veterinary education in Australia

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Abstract

Objective: Obtain data on the current status of Australia's veterinary education.

Design: Conduct oral history interviews with leaders of veterinary education.

Result: Seventeen academics, from Australia's seven veterinary schools, participated in the research project. Born between the 1930's and 1960's, graduating in the 1950's to the 1980's, they constituted a mature and experienced cohort. Interview questions included assessment of the Frawley Review, the purpose and funding of veterinary education, different curricula, student selection, different degrees and the oversupply of veterinary graduates.

Conclusion: The Frawley Review failed to prevent more veterinary schools being established in Australia, contributing to this country having more veterinary schools *per capita* than comparable western countries.

Abbreviations: BVSc: Bachelor of Veterinary Science; BVetMed: Bachelor of Veterinary Medicine; BSc: Bachelor of Science; BVMS: Bachelor of Veterinary Medicine and Surgery

Introduction

The Frawley Review of 2003, was an examination of a number of aspects of veterinary science in Australia. It focused on veterinary service, veterinary quarantine and veterinary education. It came about because of concerns that had developed during the second half of the 20th century and could be viewed as a watershed for veterinary science in Australia [1].

Since its release, a number of changes have taken place within each of the existing four university veterinary schools and, in addition, three new schools have been established. Today, there are schools in each state, with the exception of Tasmania and in two states there are two schools (Queensland and New South Wales).

Did the changes result from the release of the review? To determine the part played by Frawley, a research project was undertaken to discover if this was the case.

Materials and methods

The study involved interviewing academic personnel at each of the seven veterinary schools in Australia [2,3]. It was conducted under the auspices of Murdoch University.

An oral history interview questionnaire was designed to examine veterinary education at each of Australia's veterinary schools and submitted to the Human Ethics Research Committee of Murdoch University for approval.

Once sanctioned, a number of Australia's leading veterinary academics were invited to participate. Professorial academics, who had acted in the capacity of Dean or Head, were invited, with all being assured of anonymity. These were chosen because of their involvement with teaching, research, curriculum formation and administration in Australia's Veterinary Schools.

Each received an "Introductory letter" outlining the purpose and conditions of the interview and all were required to sign a "Consent Form" to be interviewed.

Each interview was conducted at a time and place suitable to the interviewee. The interview took between one and a half and two hours, followed the validated protocol of questions and was digitally recorded. At the completion of the interview, a copy of the recording was given to the interviewee and if this was not possible, a copy was sent by mail.

The digital records were transcribed and quotes are presented in italics, indented and in a different font.

Results

As with all such projects, not all who were invited were in a position to participate. The response rate of those at the established veterinary schools was 14 out of 17 invited and for the new schools, three out of four invited.

Seventeen leaders of Australia's veterinary schools agreed to participate in the study. They were born during the period 1930's to 1960's, graduating during the period 1950's to 1980's.

Twelve were born in Australia with the balance from overseas. Nine graduated with a BVSc, three with a BVetMed and one with a BScBVMS and all acquired higher degrees, including PhD's.

Five entered academia directly, whilst six began in practice and six began in government service, before entering academia.

All specialised in an aspect of veterinary science. Five were pathologists, four were parasitologists, one microbiologist, one

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epidemiologist, one biochemist, one reproduction specialist, one anaesthetist and three were from clinical practice, two in equine and one in sheep.

The interview asked a series of questions relating to veterinary education and answers to some of these questions will be dealt with in this article; viz., assessment of the Frawley Review upon education and training, the purpose of university veterinary education, funding, student selection, curricula, different qualifications and finally, overproduction of veterinary graduates.

Assessment of the Frawley Review

In 2003, Frawley concluded that the existing veterinary schools were adequate to meet the needs of veterinary education in this country and there was no reason for any new veterinary schools.

Its recommendations were accepted by the Howard Coalition Government, but within a very short time, that government approved the establishment of three new veterinary schools.

The Frawley Review failed completely in restricting the development of other veterinary schools.

The changes made at this school since 2003 have all taken place – and there are a number of them – but none were due to Frawley.

I consider that Frawley brought about significant changes in veterinary education.

Our school has brought in a number of recent changes – changes in which Frawley had no direct effect, however, they did occur after Frawley, in response to the problems raised by Frawley.

It became clear fairly early on that the government was not going to run with it and from that point on it became a resource you could use to bolster your case when you wanted to do something by stating that this project was consistent with Frawley.

The changes at our institution ...I wouldn't say it was due to Frawley, but it was informed by Frawley.

We don't teach economic livestock anymore and that is what precipitated Frawley.

The Frawley Review was obviously a means of government to be able to go back to the primary industries and say we have assessed the issue of rural veterinarians, we've done it!

The Review was never followed through with either a financial incentive or legislative change or any instruction to change the funding model to vet schools to help achieve an outcome.

The Frawley report and things like this came into existence and was set up for the reason that production animals were not being taught as they were previously. Both Charles Sturt and James Cook came into existence as a response to Frawley.

To some extent the Frawley Report responded to the shortage of vets going into large animal practice...With consolidation of animal production and a shift from fire-brigade there is reduction in the work available in rural Australia and that has reduced the number of people going into that type of work.

Frawley was good because it raised the profile of rural practice... we needed to concentrate on teaching the practical side of farm animal practice and we developed an effective ambulatory practice and students are taken out for two days into the country, but we no longer allow

in-patients farm animals on campus...however I have to say that the majority of our students don't go into food animal practice.

The new spate of veterinary schools in Australia, the UK and Canada have come about because that production animals are no longer relevant in established veterinary schools...Frawley has precipitated this change. I was there at the time Charles Sturt came into existence and it was set up for that very reason.

I could see at that time that there were significant issues politically. I thought we might be able to get something because there were murmuring about rural issues – rural doctors, rural vets, and rural status... it was realised that the finances of the vet school was an impossible equation... The spin on the story was we needed more vets in the bush, and we needed better management of the vet schools. Meat and Livestock Corporation and the Cattle Council took up the cudgel and this was around the time of a Federal election and the Minister of Agriculture at the time promised to find funds which ended up being the Frawley Review.

I think it recommended that no new school be set up, but if you read between the lines, it actually said that there was a shortage; there was a need for veterinarians in rural areas. In addition, abattoirs and public health got a bit more prominence.

The purpose of a veterinary education

Each was asked the purpose of veterinary education.

To produce a graduate who understands the process of diagnosis and therapy, rather than remembering isolated facts. Understanding the process will lead to a better understanding of what can be done to correct it. Understand the process of disease as a principle.

The purpose is to produce veterinary graduates and that has not changed, however now it is to produce veterinary surgeons that are day-one competent in animal species such as dog, cat, horse, cow and sheep.

The real role of university is to provide fundamental training and basic knowledge.

The merit of a veterinary education is to train graduates to solve problems. That's what happened at the beginning; it was the problem-solving capacities that set them apart and that is how the early graduates rose to positions of power.

Veterinary education should be firmly based on science. We should learn to understand how animals work and how they respond to parasites, microbial and otherwise. How these are manifested in a clinical sense and how they are treated. How animals can be managed in such a way as they can be productive as well as the economics of the various animal industries. Inculcate within the student an enquiring mind so that they are prepared and able to question what they are exposed to. Willingness and ability to question the status quo and to ascertain whether it is based on objective scientific data.

We want to produce students that can solve problems and think for themselves. Are we doing that? I suspect we are not.

The thinking of most students that go into a veterinary program want to treat sick animals, but they are thinking about companion animals.

Funding of veterinary schools

Prior to 1970, university education was the responsibility of the individual, who was required to pay a fee. Since then, the Commonwealth Government has controlled university funding.

Today, essentially all schools supplement domestic places with international places in order to adequately fund the program; about one third of the students are international and thus full-fee paying students. The Australia schools have sought international recognition to be able to tap into this market.

There is a great cost associated with the establishment and maintenance of a university veterinary school. In most, if not all, cases the rest of the university has to subsidise the veterinary school. The school receives a number of dollars, but spends much more than they earn, hence the need for subsidisation and this causes resistance within the university.

Government funding for veterinary programs is insufficient and has gotten worse for two reasons – the funding hasn't kept up proportionally to the cost, but of more importance is the greater emphasis placed on companion animals rather than production animals and the costs consequently associated with servicing these species. Schools now have to have a clinical teaching hospital that has all the modern accoutrements as is required with modern technology and these facilities compete directly with general clinical practice and specialist practice.

Funding to veterinary science was being dramatically reduced so their effort was to raise this issue and this led to Frawley. In 1996 with a change in government all higher education had a 6% funding cut with no supplementation for salary increases. This was going to produce a 25% funding cut by 2001. We were required to charge students fees because prior to this you couldn't. However, from 1997 on you could have 25% of Australian students as full-fee paying students. In 1998, we embarked on a new curriculum – we had to do something that was different from the other schools.

The fundamental problem is that the universities don't understand the need for clinical teaching or its cost. There are other areas where there is clinical teaching, such as dentistry and medicine and these are heavily funded by the government. Diagnostic facilities and hospital are funded by the government, but with veterinary clinical teaching funds have to be generated and these have to be provided by the veterinary school. The people with the money do not have a clear understanding of the cost of clinical teaching.

The first thing you have to know is that all vet schools lose money. There is no such thing as an Australian veterinary school that doesn't lose money. It would vary from school to school, but it would be in the vicinity of 90% of the income to a school to run it is generated by student loans – it comes from Commonwealth government for students plus HECS plus international student fees; overseas students are essentially subsidising Australian students.

Money is the big problem of vet schools and has been since the beginning. First of all, we all know that without Medicare underpinning veterinary services, we don't have the benefit of government subsidised teaching hospitals and this is one of the biggest killer blows.

The assessment process dictates what you can do and by continuing to meet these requirements leads to the development of non-sustainable veterinary education. This process has had its day and is not sustainable any longer.

Student selection

There is diversity between schools regarding student selection.

The reason we use a high ATAR score is because we can and although I don't agree with the system, I don't have an alternative system.

We select students based on their ATAR score and a statement explaining why they want to be a veterinarian and they need to show experience and exposure to animal industries.

All decisions about veterinary education should be based on objective facts and so I prefer to use the high ATAR academic score.

I don't think the interview process makes a lot of difference; they can give answers that they think you want to hear. Anyone can say they love animals, but what does it mean, it doesn't prove that they have the intellectual capacity to succeed in the program.

Academic excellence seems to be a necessary basic requirement... We have considered an interview, but haven't actually gone there yet. We attempt to select those students who will make excellent graduates.

Universities have tried a variety of means to select candidates, for example, by interviews, but students can learn to say what the interviewer wants to hear. One of the curious things is that if you ask a veterinary student why they want to be a vet they almost always say because they love animals. If you ask a medical student, why they want to be a doctor, they never answer because they love humans.

No one claims that you need 98% academic score to do vet science... The course is much less difficult than it used to be. In the olden days, it was much more knowledge intensive course than today. Then you had to learn and be able to regurgitate information... there are probably 50 per cent less lectures than in times past. You don't have to be extraordinarily intelligent to pass the course today. We have looked at a range of selection options, but couldn't convince ourselves that there was a better option than academic score.

Curricula

Each veterinary school operates independently of the others. Course curriculum, length of course, numbers of students and allocation of teaching time varies between schools. Yet, all expect to be treated as equivalent when it comes to graduate registration.

Accreditation by the Australian Veterinary Boards Council is considered to ensure quality control. However, all agreed each school operated independently of the others. All agreed that the schools are competing, and fierce competition at that, to attract prospective students, both domestic and international. All agreed there were diverse curricula, yet all were supposedly producing the same standard of graduate.

I believe there should be a national veterinary curriculum, if not a national veterinary school, of which all existing veterinary schools are all part of it. We don't have enough specialists across all the disciplines across the board in all the vet schools in Australia to be running multiple speciality units.

At present, each school chases the other schools' staff. The vet schools don't get on with one another and they are all in competition with one another.

There is no justification not to have collaboration and a national curriculum to reduce the overall costs of the schools.

We are in the electronic-age and the travel-age so not only is information readily accessible, specialists could travel from one school to another.

I am fundamentally opposed to the idea. Even though we have gotten in a mess, the whole story of central planning is marked with failure... which stops innovation and we need universities to innovate a range

of different things that are going to work. We now operate in a market place...I have observed vitality in a de-regulated society.

The one thing all schools are highly protective of is its curriculum. These are good questions and there are elements in which you are correct in your assertions, but you have got to put it in a bigger picture and that is agriculture has changed and we look at one bit of it, the animal side, but a lot of people on the land concentrate on a variety of commodities... your questions are good but your assumptions are black and white when they should be grey.

To a large extent as long as we are producing veterinarians that are registrable the veterinary schools are limited in what they can do to alter the curriculum.

The various schools produce comparable course, but are we producing vets of equal abilities? I don't know the answer to that question.

Degree awarded

For most of the 20th century the qualification of a graduating veterinarian in Australia was the BVSc. Murdoch was the first to introduce a change, but now the trend is to scrap the BVSc and replace it with the DVM.

We introduced the DVM qualification as a post-graduate degree. This helped to increase the market for students. The degree DVM is simple a brand!

Emphasis in teaching and thus curriculum has shifted from a balanced approach to a gross increase in focus on urban small animal practice.

Today the graduating veterinarian see themselves as the equivalent to a specialist in a human hospital and this change is a big one for educationalists. The tendency has been completely toward clinical management of the individual animal.

All current veterinary schools are concentrating on problem-solving skills, but there is a tension between that and the enormous volume of information the students receive and I don't think any of us do that as well as we could.

Up until the 1990's there was an emphasis on developing veterinary scientists first, so each student received an awful amount of anatomy, biochemistry, pathology, before they were exposed to clinical material, that is almost universally not the case today. This means that the foundation sciences are now being reduced. This is being promoted as the reason for DVM. Gain an understanding of the scientific subjects by doing an initial science degree and then specialise in veterinary science which is heavily directed to clinical material and this can be accomplished in a post-graduate DVM.

Overproduction of veterinary graduates

Until the 1970's, Australia produced fewer veterinary graduates than were needed; a chronic undersupply existed. However, in the 1970's, that changed with the advent of the new school in Perth, so for the last 30 years more students have been produced than the markets place can utilise, so, we now have a chronic oversupply situation.

This has been in position for a long time and I think there are too many schools now; overproduction had been present for a long time. Only about half the vet graduates end up in practice and it is not exactly economic to train vets to fill other than vet positions.

I don't think we have enough data on that; anecdotally people talk about us producing too many vets. I think the AVA's attempt to determine

this is flawed, because it doesn't appear that the data it is capturing is what happening to veterinarians who aren't members of the AVA.

Yes, there is an oversupply. When we had just the four veterinary schools there was a lot of discussion then that we should cut down three. Three would be ideal, and seven is ridiculous and if you consider Massey then having eight schools within a population of 25 million or so is way oversupply.

We are producing too many graduates and I think that is partly associated with the low salaries of practitioners with new graduates receiving \$40 thousand dollar incomes.

Many deny there is a problem. The starting income of graduates is evidence of oversupply - \$40 to \$50 thousand dollars is not much money for the requirements of a veterinary career - we all understand supply and demand. How are graduates going to pay their HECS?

The girls, because they weren't full-time equivalents, tended to mask oversupply. If we continue to supply more than the market demands, then the unit price will reduce. This is a tricky area - my personal view is that we are producing too many vets. I'm very concerned that Melbourne is now going from 120 graduates to 180. I just think it is madness; it was madness to open James Cook, as it was in opening Adelaide, and I am not entirely convinced there is a case for Wagga Wagga either; all are just a waste of money.

I think it is as plain as the nose on your face that we have too many graduates. Basically, the veterinary schools at the moment, the model doesn't work, funding doesn't work. Most vets school lose money, so they will do more of the same.

There is an oversupply. The females mask the oversupply because they are working part-time There is absolutely no doubt in my mind that James Cook and the University of Adelaide were set up for political reasons. Charles Sturt is a five and a half-year degree - it's too much training.

All veterinary schools are competing. Although the profession is changing demographically, poor salary is an issue and I'm convinced that there is an oversupply!

The biggest problem facing the profession will be oversupply, if it hasn't arrived it soon will. The AVA is pushing this however, the data the AVA has used has been questionable; in fact, how do you measure this?

Discussion

The participants of the oral history interviews were a mature cohort, experienced in teaching, research, curriculum formation and administration. Their responses could be considered authoritative.

A focus of the interview was to establish if the release of the Frawley Review had effected veterinary education in Australia. Frawley made two things clear, firstly, there was no case for increasing the number of veterinary schools and secondly, veterinary education and training was biased in favour of companion animals.¹

The Howard Government accepted Frawley's recommendations [4]. However, almost immediately, it approved the establishment of three new veterinary schools. Thus, Frawley failed to contain the number of veterinary schools in Australia. Australia has more veterinary schools per head of human population than comparable Western nations [5].

Interviewees agreed that Frawley failed because it lacked resources, government support and sponsorship. It offered no inducement to adopt its recommendations.

Opinions differed regarding the impact of Frawley. Some stated that Frawley produced nothing, whilst others concluded that it affected

everything. Comments ranged from changes made at our school were not due to Frawley, to changes made were in response to the problems raised by Frawley. One thought Frawley brought about significant change in veterinary education, whilst another considered that Frawley precipitated the spate of new schools that developed in Australia, the UK and Canada.

There was consensus regarding the lack of economic or production animal education, with one stating that this was the reason for Frawley in the first place. Others considered that Frawley brought attention back onto economic animal production and large animal practice.

One stated that Frawley enabled the government to demonstrate, to primary producers, that something was being done, whilst another considered that, "if you read between the lines", Frawley revealed a shortage of rural veterinary services.

Frawley considered that there was a likelihood of a shortage of economic livestock specialist within 10 years of its publication. An examination of the Annual Register of the West Australian Veterinary Surgeons' Board confirms this. In 2009, of a total of 30 registered specialists, there were three sheep and one pig specialists. In 2016, of a total of 56 registered specialists, there were two sheep specialists listed, but both had retired [6,7].

The Australian and New Zealand College of Veterinary Scientists also supports this position. A communication from the College advised that only two livestock fellowships had been awarded since the release of Frawley. However, during this same time there has been rapid growth in veterinarians specialising in dog and cat medicine and surgery (personal communication).

The purpose of veterinary education and training is to graduate veterinarians capable of being registered in Australia's eight State and Territory jurisdictions. This was the issue faced by graduates of Kendall's Melbourne Veterinary College in the 19th century and it is still the case today [8-10].

Although interviewees stated the purpose of veterinary education was the same as it has always been, [11] today, for a graduate to be registered, the veterinary school must be accredited. Veterinary school accreditation has become the arbiter of veterinary education.

For a school to produce registerable graduates, it must meet the accreditation standards of the Australasian Veterinary Boards Council. (personal communication). Participants of the survey considered that accreditation ensured quality control of the graduate and for practical purposes this may be correct. However, this is a circular argument – for a school's graduates to be registered, the school must be accredited; if a school is accredited, its graduates are registered.

Funding has been an issue since veterinary schools began and it is still an issue today [5,12]. Initially, the payment of a fee for a student's enrolment was required, but that changed when the Commonwealth Government became the paymaster of tertiary education [13,14].

Government's attempt to balance how they allocated funds gathered from taxpayers and in recent times, funds for education, either school or tertiary institutions, has contracted. It was conjectured that with Government control and a reduction in funding, either a lowering in academic standard or the failure of a veterinary school could take place. Some educators expressed concern that the need for constant attention to raising money, might have a detrimental effect on the core issues of a veterinary education.

Frawley highlighted the ongoing problem of veterinary school funding and the need for admitting full-fee paying international

students and educators admitted that this had led to their increase at all schools in this country.

Interviewees emphasised the need for a scientific understanding of the process of disease, diagnosis and therapy, problem-solving skills, and one introduced the concept of day-one competency. This latter was proposed at the same time as a continuing education provider was presenting a seminar designed for "newly graduated veterinarians (up to 3 years out) to learn how to cope in practice" [15].

Course content was raised as a concern by Frawley, because two things had become apparent – there was no common curriculum and there was concern with the decline in the teaching of production animal species in favour of companion animals.

There isn't a national veterinary school or a national curriculum and as a result, each school pursues its own agenda and produces different graduates, yet all expect that their graduates will be registered [16]. Each of the seven schools have differing curricula, length of course and even differing qualifications [12].

Although leaders from these schools agreed that the purpose was to produce registerable veterinary graduates, it is difficult to see how this can be achieved with such diversity between schools. How can the animal-owning public be assured of the competence of graduates from such a diverse range of courses?

Interviewees fell neatly into two categories regarding selection of domestic students – those who advocate an academic entrance requirement only and those who prefer additional information from the potential student.

As domestic student selection is based on achieving a high academic score, this favours students who demonstrate skill at passing exams. Adhering to a system of determining who shall become veterinary students, based on academic score, ensures a uniform cohort of student intake – they have demonstrated skill in the academic process – thus, they are likely to manage the academic information they will face during a structured university course. None claimed that the system was ideal. As one indicated, the academic level is set high, because of the number of applicants for positions in veterinary courses; in fact, "with so many applicants, it can be as high as we like".

There is an element of objectivity regarding academic score, but does this ensure the production of veterinary capability in the "real world"? Of course, not! However, at present there is seen to be no better system available. Personal Interviews of prospective students could help, but is considered capable of being manipulated by either the student or the academic conducting the interview. This means that many potentially capable students are being denied entry.

The veterinary qualification at Australia's first three schools (Melbourne, Sydney and Queensland) was the BVSc. It was not until the fourth veterinary school (Murdoch) came into existence, that a new qualification was introduced, the BSc BVMS.

Currently, there is a drive to change to the DVM. The argument for the establishment of the DVM in Australia, based on globalisation, is not convincing. However, the financial argument for securing full-fee paying international students is. The change of qualification is expedient and, as one stated, "It's just a brand".

There was general discomfort regarding the change from a balance of teaching economic livestock as well as companion animals to a heavy bias of the latter species. The academics interviewed were old enough to remember the central position once held by economic livestock.

However, in the future, there will be those who are not familiar with veterinary history in Australia and will not be disturbed by the underrepresentation of economic livestock.

Oversupply of veterinarians in Australia did not become an issue until the 1970's, which coincided with the establishment of the fourth veterinary school at Murdoch. Articles appeared in the AVJ [17-20], and there was also an editorial [21]. Murdoch was obliged to include a caveat, stating that overproduction was possible, in its prospectus [22].

Since the release of the Frawley Review, articles have again appeared reporting the continuation of the oversupply [23-25].

The responses to the question of oversupply varied – from acceptance, as inevitable, to rebuttal. However, as it has been present for the last 40 years, there is little weight to the argument that, “We don't know that this is the case yet”.

There are two conflicting forces at play – the need for university veterinary schools to take on more students as a financial necessity and overproduction of domestic graduates, which is leading to some new graduates experiencing difficulty finding full-time employment. A recent article highlighting this since the three new schools came on-stream [26].

The conditions that led to Frawley have persisted. Overproduction of veterinary graduates has continued and many practices in rural Australia rely for their viability on companion animal services [5,27].

The series of changes that have taken place in veterinary education since the release of the Frawley Review in 2003, which, in turn, resulted from changes that took place in the latter part of the 20th century, have greatly impacted veterinary education and training in this country. All four existing schools have undergone significant change since the release of the Frawley Review, and three new schools have come into existence. To suggest that this has occurred independently of Frawley, or the conditions that lead to it, is not credible.

Conclusion

Although recommending no more veterinary schools in Australia at the time, the release of Frawley was followed by the establishment of three new veterinary schools. So, Frawley failed. It could even be claimed that Frawley precipitated the establishment of these new schools, that began, ostensibly, to correct the bias against economic livestock.

Opinion among veterinary educators varied from Frawley made no impact, to it was instrumental in causing change, however, as the recommendations lacked implementation powers, little direct action was taken. This does not mean that the issue raised by Frawley were not valid or that significant changes have taken place in all universities since its release.

The university veterinary schools are producing graduates far in excess of Australia's domestic need. Graduates from the new schools, are targeted to serve in rural service, but as yet, it is too early to judge if this “experiment” is succeeding.

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