

Curriculum Development International Reference Trip October 2008

A total of seven veterinary schools with an international reputation for innovation, best educational practice and excellent facilities were selected for a visit in October 2008 by University of Adelaide Head of School, Professor Gail Anderson, and curriculum development specialist, Professor David Newble.

The trip provided the opportunity for the South Australian team to assess veterinary curricula, admission processes and physical facilities to inform both the development of the new curriculum and the building of the new school at Roseworthy Campus.

The Schools visited:

Faculty of Veterinary Medicine, University of Utrecht, The Netherlands
The Royal (Dick) School of Veterinary Studies, University of Edinburgh, UK
School of Veterinary Medicine and Science, University of Nottingham, UK
The Royal Veterinary College, London, UK
The College of Veterinary Medicine, Cornell University, New York, USA
Faculty of Veterinary Medicine, University of Calgary, Alberta, Canada
The College of Veterinary Medicine, Western University, California. USA

Aims:

- Investigate best educational practice in veterinary science.
- Examine new veterinary teaching and hospital facilities.
- Explore possible partnerships for both teaching and student/staff exchanges between schools.
- Investigate the development of a consortium of new veterinary schools to support best educational practice and share resources.
- Introduce the University of Adelaide and the Roseworthy Campus to the veterinary educational world as a 'new player' on the international scene.

Achievements:

- Held in-depth discussions and shared information about curricula and the latest educational developments with educational leaders in each of the Schools.
- Obtained valuable examples of instructional materials and curriculum documents
- Gained first-hand information on the latest designs of teaching facilities and veterinary hospitals including gathered a large number of photographic images for use as reference materials for architects and designers in planning the new Adelaide Veterinary School buildings.
- Initiated collaborative relationships with Calgary, Western and Utrecht schools for the possible future exchange of case-based learning and assessment materials.
- Explored the potential for the exchange of senior students for clinical rotations; and faculty members for academic development and collaborative research opportunities.
- Started discussions about the need for a new journal with a major focus on education

Curriculum

Adelaide's vision for the curriculum aims for a hybrid model incorporating a high degree of integration between the underpinning veterinary sciences and the development of the clinical competencies required of a veterinary practitioner. This will be achieved through a range of 'integrated learning activities' (including problem-based and clinical case-based learning) as well as more conventional teaching methods. This program will be designed to ensure that it achieves the standards required for accreditation by both national and international agencies. The overseas trip allowed the Adelaide curriculum to be successfully referenced to, and benchmarked against, highly regarded overseas curricula.

Subsequent to the benchmarking trip, the new veterinary curriculum of the School of Veterinary Science at the University of Adelaide was specifically commended by the visiting Australian Universities Quality Assessment team for innovation and best teaching practices.

Curriculum Framework:

The School has developed a Vision for the curriculum which envisaged a 6 year program which is outcome-focussed; provides clinical experiences throughout the course involving a wide range of species and settings; ensures a high degree of integration between the underpinning veterinary sciences and the professional and practical components of the curriculum; employs a wide range of instructional methods; and uses an assessment system which closely matches the defined outcome objectives.

(Full details of the Curriculum Vision Statements are available on the School's website under Curriculum Development)

Veterinary students undertake a 6 year program which is undertaken as a 3 year Bachelor of Veterinary Science (BVS) followed by a 3 year Doctor of Veterinary Medicine (DVM). The first year of the program is currently undertaken alongside students undertaking the Bachelor of Animal Science degree. In the second year some veterinary specific subjects are introduced. The remainder of the program is entirely specific to veterinary science and medicine.

(It should be noted that the curriculum is still under development and changes to the present structure are anticipated as a result of an ongoing process of review and from information obtained from activities such as the visit described in this report)

BVS (Pre-Veterinary) 3 years

Year 1 allows students to gain the required basics in Science subjects:

- Physics (3 units*)
- Chemistry (6 units*)
- Statistics (3 units*)
- Biology (6 units*)
- Principles of Animal Science (3 units*)
- Animal Welfare, Ethics and Behaviour (3 units*)

(Denotes subjects taught in common with Animal Science students.)*

Year 2 introduces students to veterinary specific subjects:

- Structure and Function I – includes anatomy, embryology, physiology, clinical examination and introduction to imaging. (2 x 6 units)
- Animal Breeding & Genetics*
- Animal Nutrition & Metabolism*
- Biochemistry*
- Veterinary Skills – includes practice management, communications and physical examination skills. (3 units)

(* Denotes subjects taught in common with Animal Science students.)

Year 3 provides students with exposure to veterinary subjects:

- Structure and Function II (2 x 6 units)
- Veterinary Skills (3 units)
- Paraclinical Sciences – includes immunology, parasitology, microbiology, virology and pathobiology
- Students then progress to a DVM degree or occasionally, leave the Programme with a BSc (Pre-Vet) degree if they are not doing well academically.

Doctor of Veterinary Medicine (DVM) – 3 years

Years 4 and 5 are made up of all veterinary-focused subjects:

- Paraclinical Sciences – continued
- Clinical therapeutics and surgery, anaesthesia, internal medicine
- Clinical Skills – surgery practicals, anaesthesia, etc.
- Research project – full-year course in Year 4
- Veterinary Skills

Year 6 is an internship year for students:

Intramural Core Rotations:

- Small Animal medicine and imaging at new Roseworthy Vet Hospital
- Small Animal surgery and anaesthesia at new Roseworthy Vet hospital
- Equine at the Morphettville Equine Clinic
- Pathology at Roseworthy in new Pathology diagnostic suite
- Ambulatory practice based from the Roseworthy Campus
- Herd Health and Epidemiology in partnerships and at Roseworthy

Extramural Core Rotations:

- Dairy is partnership practice based
- Herd Health is herd-based medicine in Willunga
- Extramural Electives
- Equine Reproduction at Lindsay Park Stud
- Aquaculture at the South Australian Research and Development Institute
- Zoos SA at Adelaide and Monarto
- Other external rotations such as local or overseas
- Shelter Medicine with the RSPCA and Animal Welfare League

Highlights and background notes of visits to individual schools:

1. Utrecht Faculty of Veterinary Medicine

The Utrecht Veterinary School is the only veterinary school in the Netherlands. It is American Veterinary Medical Association accredited, is a Bologna-compliant model and features a 3+3 year BSc+MSc structure.

The School has a large veterinary teaching hospital for all species. Students are allowed to “track” for specific species or types of practices from early in the course – something not currently allowed in Australia.

Utrecht has an outcomes-based and integrated curriculum that is very well documented.

Admissions process includes:

- Structured interview, multiple mini-exam stations
- Aspirational essay
- GPA plus a lottery
- A systems-based curriculum
- External partners who participate in interviews as well
- Payment for external partners where the students see practice as part of their core rotations

2. Royal (Dick) School of Veterinary Studies, Edinburgh:

The School has a five-year BVSc programme split between urban and rural campuses with new facilities located at the rural centre.

The School’s Teaching Hospital offers referral services for both small animals and equine cases.

- The curriculum is body systems based with an on-line emphasis that is still requires further developed.
- Extramural Studies (EMS) make up 26 weeks of the final year as per RCVS regulations with no payment for the EMS partner practices. However, partner practitioners do get continuing education opportunities through the University.
- EMS partners have expressed a desire for more training on student outcomes.

(It is important to note for the Adelaide Vet School experience that practitioners want to participate but will also need training to feel they are doing the best job for the students)

3. Nottingham School of Veterinary Medicine and Science,:

The School is the first new vet school in the UK in 50 years with no graduates yet. It has a rural setting with brand new accommodation run by an external partner.

It uses a distributive model with no central campus-based hospital facilities and so is very different from all other European schools.

The School is having some difficulties with the accreditation process because there have been no new vet schools in the UK since 1950 and therefore no recent experience in implementing the accreditation standards for a new

school with an innovative curriculum. This situation is providing some problems for their new Dean who must manage the process.

The course has a 3 plus 3 year structure with 90 students a year so far.

Some programme highlights include:

- Small group, problem-based learning (Eight per group)
- 4.5 days per week
- Body systems based modules
- Vertical and horizontal integration is encouraged
- Curriculum dictates the teaching spaces
- Every module has an Objective Structured Clinical Examination (OSCE)
- 20% of assessment is within the module and 80% assessment is at the end of module
- Student must achieve 50% to progress
- Online assessment can be done anywhere and is not supervised by staff
- Student can exit after Year 3 with a BSc in Veterinary Biology

The admission process includes:

- An on-line screening questionnaire
- Identifying the student's knowledge of the profession and their participation in outside activities
- A multi-station test of aptitude, reasoning, numeracy
- 'A' level marks
- A structured interview conducted by staff and students (with an animal present in the room)
- Myers Briggs personality testing performed after admission

4. The Royal Veterinary College:

The College has a split campus between Camden Town, in the inner city of London, and Hawkshead, in the country north of London, where a large new small animal hospital is nearing completion.

The course offers a five-year Bachelor of Veterinary Medicine plus a foundation transition year, if the student is coming from a non-science background.

Some highlights include:

- 240 students a year plus 25 internationals.
- A team of 90 clinical staff.
- A maximum 10 lectures a week.
- Integrated Problem Based Learning (PBL) exists in the early years of the programme but clinicians have "disintegrated" it into a more conventional discipline-based course in the later years.
- Each faculty member mentors eight students from different years so there is inter-year student interaction.
- The mentor tracks pastoral and academic issues as well as Extramural Studies (EMS) progress with mentors meeting students a minimum of twice per year.
- Individual and group meetings have a social component as well.

- The School has the only government funded Centre for Excellence in Teaching which includes a state-of-the-art Clinical Skills Centre containing both high and low tech simulations.

5. Cornell University College of Veterinary Medicine:

The College is a 100 year-old school with modified its curriculum after a review in mid-1980s.

- Offers a four-year post-graduate program after a BSc or BA.
- The first years are conducted as Problem Based Learning (PBL) but the clinical years are not, due to a reversion in recent years to a more traditional disciplinary-based and didactic format (up to 5-6 lectures per day).
- The programme is systems based with decreasing integration.
- Years 3 and 4 have 100 'distributive' courses offered as electives – some to only four students and some run an entire year such as clinical pathology and fluid therapy.
- There seems to have been a decrease in involvement of educational experts in the ongoing developments within the program.

6. Calgary Faculty of Veterinary Medicine,:

Calgary is the newest vet school visited with its first students admitted in September 2008. There were 40 staff members in place one year prior to admissions with curriculum development starting in 2005 for a 2008 intake. The school offers a four-year post graduate program after a BSc or BA degree.

The School is fully state-funded by the provincial government because it is regarded as essential to the future of Alberta due to their extensive agricultural industries.

The School has worked closely with the medical school and benefited by access to its medical education staff and teaching facilities. It is currently co-located with the medical school on the University's health campus but has almost completed its semi-rural facility for the animal-based teaching.

A new skills centre is being built. It is a 10,000 square metre building with no animal hospital. However, there will be clinical units for species and discipline areas including small animal skills, equine, pathology, ruminant, RSPCA welfare clinic, referral of patients to the University only for imaging such as MRI or CT scans.

The admissions process includes:

- 122 people applying for 40 places
- 64 candidates per day are assessed utilising several modalities including:
Written assignment about what makes a good veterinarian
Multiple mini-exams with 8-minute stations
Local practitioners participating in selection (which had led to a very positive reaction)

Curriculum so far:

- Integrated with two coordinators for each course -one clinician and one basic scientist which has resulted in good communication between basic scientists and clinicians
- A communications skills focus in all subjects (supported by communication skills facilities using simulated clients)
- Objective Structured Clinical Examinations (OSCEs) being developed for each module
- Students are downtown three-days a week

7. Western University College of Veterinary Medicine:

The College is part of a private health sciences university started within the former downtown shopping precinct in Pomona, California.

The students pay \$35,000 USD per year for a four-year post-graduate course after BSc or BA. The school shares some farm and animal facilities with the California Institute of Technology.

Curriculum highlights:

- The course is entirely Problem Based Learning (PBL) with all faculty members participating.
- There is only one lecture theatre, so the school is committed to the PBL programme.
- Groups of eight students meet three times a week for 1.5 hours.
- There is a maximum of 10 lectures a week.
- Students get very early exposure in year one to clinical case material.
- The School's clinic serves only staff and students' animals and ASPCA.
- The School pays local practices for student rotations – \$1635 for two final year students for four weeks or \$1635 for three third year students for two weeks
- Case log software – every case seen by a student is logged online, checked by faculty by spot visits to every practice at least once while the students are in the practice on their rotations. This log forms a critical part of their quality assurance process to document that all species and case types are covered for accreditation purposes.
- Every module has an Objective Structured Clinical Examination (OSCE) at its end. Vital skills are assessed at end of the second year. Students cannot progress to Year 3 until they have passed this assessment.
- Clinical preceptors in core practices do the Year 3 and 4 assessments.

Buildings and Facilities:

The tour to the seven international schools was also extremely helpful in providing 'best practice' information for use in the development of the new Roseworthy Campus vet facilities.

Currently, upgrades to teaching spaces both in the labs and the large animal facilities are underway while plans for the new building are nearing completion.

Construction of the 5000 square metre veterinary school facility has been designed by Hassell and will be constructed by Hansen Yuncken. Work is scheduled to begin in March 2009.

The new facility will house preclinical and clinical skills labs, a pathology suite, e-learning suite and a companion animal teaching hospital.

The expected completion date is early 2010 for the preclinical teaching labs and mid-2010 for the hospital and clinical facilities.