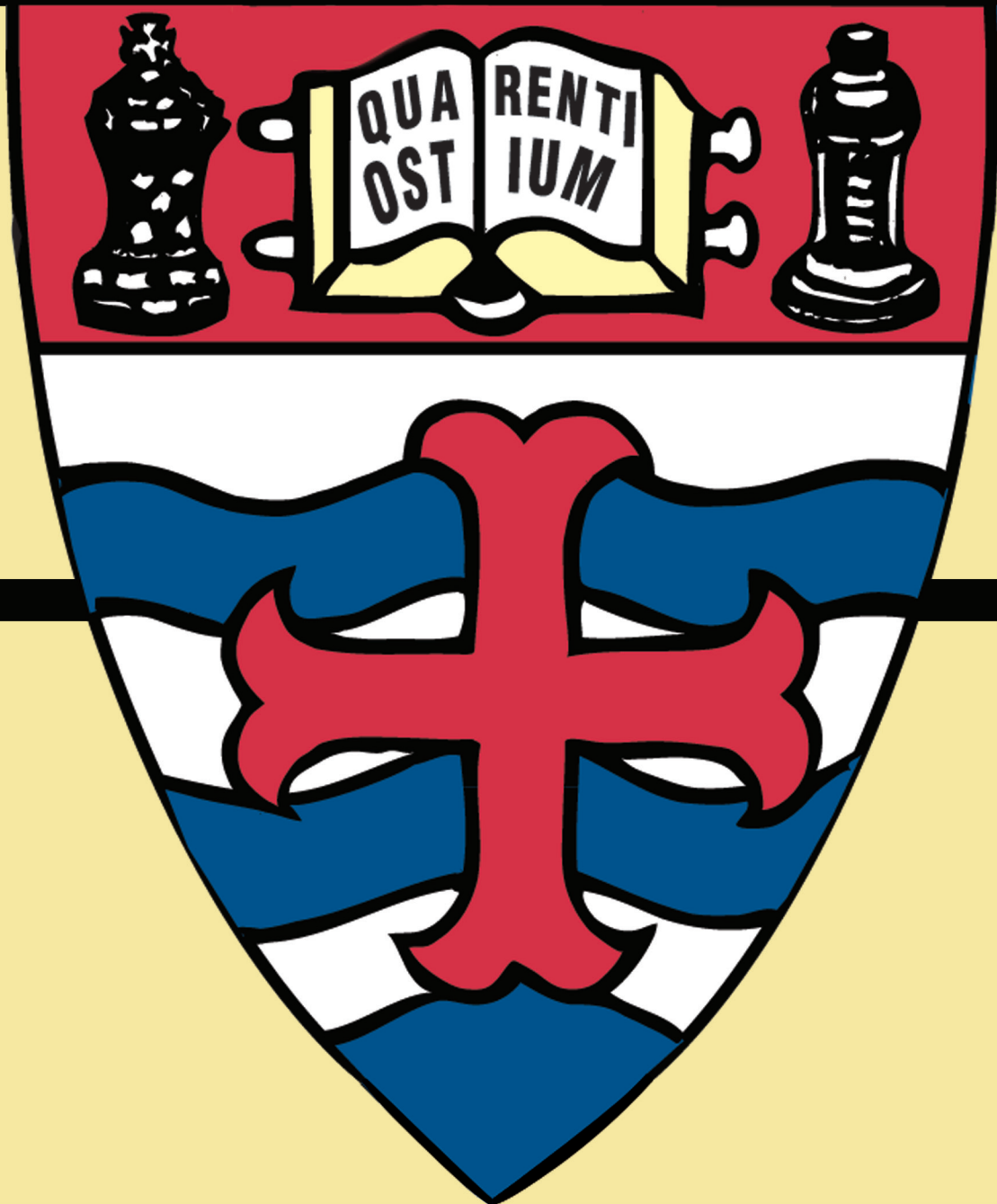


VISITATION TO THE UNIVERSITY OF NOTTINGHAM 2011



NOTTINGHAM

Visitation to the Veterinary School of the University of Nottingham

14 – 18 February 2011

Report to the Council of the Royal College of Veterinary Surgeons (RCVS)
in accordance with Section 5 of the Veterinary Surgeons Act 1966,
and to the European Committee on Veterinary Education (ECOVE), comprising
the European Association of Establishments of Veterinary Education (EAEVE)
and the Federation of Veterinarians of Europe (FVE)
reporting on compliance with European Directive 2005/36/EC

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Para-clinical Studies Visitor
University of Liverpool

Professor Ed HALL MA VetMB PhD DipECVIM-ca MRCVS

Small Animal Clinical Visitor
University of Bristol

Dr Bob MOORE BVM&S, DVM&S(hc) MRCVS

Production Animal Clinical Visitor
Practitioner, Somerset

Dr Jonathan F PYCOCK BVetMed PhD DESM MRCVS

Equine Clinical Visitor
Referral practice, North Yorkshire

Prof. Dr. Joao Manuel de Carvalho Ramalho RIBEIRO MSc PhD

EAEVE appointed Animal Production Visitor
The National Institute of Agrarian Research, Portugal

Miss Giulia RICCIARDI DVM

EAEVE appointed student visitor
University of Bologna

Professor Timothy SKERRY BVetMed PhD CertSAO FRCVS

Basic Sciences Visitor
University of Sheffield

Prof. Dr. med. vet. Roger STEPHAN Dipl ECVPH

EAEVE appointed Veterinary Public Health & Food Hygiene Visitor
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Professor Reuben ROSE DVSc DVA FRCVS was present as an observer on behalf of the Australasian Veterinary Boards Council (Inc)

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Executive summary

Background to the establishment of the new veterinary school

In July 2004, the University of Nottingham announced plans to establish a School of Veterinary Medicine and Science (SVMS), following discussions with the Royal College of Veterinary Surgeons (RCVS), Higher Education Funding Council for England (HEFCE) and East Midlands Development Agency (EMDA). Professor Gary England was appointed as Foundation Dean of School in January 2005, and since this time has led the establishment and development of the School, based at the Sutton Bonington Campus, 10 miles south of Nottingham on the border of Nottinghamshire and Leicestershire.

The Veterinary School is based on a 1,000 acre campus which includes new teaching and research facilities, the James Cameron-Gifford Library, student residences and sports centre, as well as amenities including a restaurant, café, bank and bookshop. In addition the Campus includes a commercial farm with dairy, pig and poultry research units, crop science experimental areas and a licensed abattoir. The School moved into the new Academic Building on August 14th 2006, and the Clinical Teaching Building was handed over on October 9th 2006. A further teaching and research building is under development, and the School has invested in developing and expanding teaching and clinical facilities at its various external Clinical Associates. (More details of the facilities and equipment available are provided elsewhere in this report.)

The School admitted its first cohort of veterinary students on September 25th 2006, and commenced Year 5 clinical rotations on May 24th 2010. The first cohort of students is due to graduate in July 2011.

The School now has 505 undergraduate students, 75 postgraduate students, 16.9 FTE postdoctoral staff, and 107.7 full-time equivalent (FTE) teaching and support staff. Teaching delivery is innovative, maximising the student experience through early hands-on exposure to animals, clinical integration and the use of small group and facilitated learning and underpinned by e-learning and e-assessment.

Since the School has been established it has attracted research funding totalling £12.6m from a variety of sources. Significant research projects include £3.5m from Novartis Animal Health to establish the Centre for Evidence Based Veterinary Medicine, £1.4m from the Biotechnology and Biological Research Council (BBSRC) for mastitis studies and £1.2m from the Wellcome Trust for the DVM DVS programme and £1.0m from EU for wildlife disease surveillance.

The wider veterinary profession is involved in a variety of School activities ranging from admissions, course development and review through to continuing education courses, whilst the wider community is involved through the Schools 'Active Communities' programme delivered by undergraduate students and staff and facilitated by central University resource.

The new veterinary curriculum at Nottingham

In 2005, the Royal College of Veterinary Surgeons (RCVS) and the University agreed that there should be a close dialogue to enable the School to develop its curriculum in line with RCVS and EAEVE guidelines and to ensure that students graduate with core clinical competencies. The RCVS held an interim visit to evaluate the School in February 2009.

The new 5-year veterinary curriculum is underpinned by the principle that the veterinary course should comprise both basic veterinary sciences and clinical subjects, delivered progressively in a clinically integrated programme, using a problem-oriented approach. Students are provided with animal and practical experience from the first day of the course, with the aim that students graduate as research literate and practically-competent veterinary surgeons with in-depth knowledge of relevant veterinary science that underpins the clinical subjects.

Teaching methods are designed to develop problem-solving skills, utilisation of multiple resources and aim to support lifelong learning. The curriculum is structured around body-system based modules covering all the common domestic, wildlife and exotic species. The modules were developed in consultation with veterinary academics, veterinary practitioners and specialist divisions of the profession. Each module is delivered once as a science subject, integrating traditional subjects such as anatomy and physiology with clinical examples (during Year 1 or 2) and again as a clinical subject, integrating basic science concepts (during Year 4). Students gain experience of research through a 12 week project in Year 3. Clinical education and experience is delivered in the lecture-free final year through Clinical Practice (intramural) rotations in which students learn whilst working alongside University academic staff placed in Clinical Associate institutions. Clinical Practice rotation teaching provides students with experience of first, second opinion and referral cases and results in the acquisition of 'Day One' competencies as defined by the RCVS.

Clinical associates

The School has developed relationships with a number of local veterinary establishments (Clinical Associates) to ensure that students have exposure to what the School considers the most appropriate caseload. The teaching model has been developed to meet the outcomes required at day one of graduation - the 'Day One competences' - together with the need for students to experience second and tertiary referral cases. Use of these Clinical Associates avoids the need for an on-site hospital at the Veterinary School. Consequently, both financial and personnel resource is directed into supporting an effective experiential learning environment around a caseload appropriate for teaching Day One competences with some exposure to secondary and tertiary referral material.

The nine Clinical Associates are:

- Defence Animal Centre, Melton Mowbray (Equine, Small Animal)
- Dick White Referrals, Newmarket (Small Animal)
- Dovecote Veterinary Hospital, Castle Donington (Small Animal)
- East Midlands Zoological Society Twycross Zoo (Zoo, Exotics and Wildlife)
- Minster Veterinary Practice, Sutton Bonington (Poultry)
- Oakham Veterinary Hospital, Oakham (Equine, Small Animal)

- PDSA, Lenton (Small Animal)
- Scarsdale Veterinary Hospital, Derby (Large Animal, Equine, Small Animal)
- Veterinary Laboratory Agency, Sutton Bonington (Pathology)

Research

Nottingham is a research-led University and research is central to the activities of the School, covering many key aspects of companion animals and livestock health and production.

Research strategy is being developed initially around five main themes:

- Comparative medicine
- Animal infection and immunity
- Population health and welfare
- Reproductive biology
- Veterinary educational research.

The School of Veterinary Medicine and Science is seeking to establish itself as a centre of excellence in whole animal biology in line with the overall aims of integrating veterinary biological research within the other relevant schools at the University of Nottingham. The School has links to other Schools within the Faculty of Medicine and Health Sciences and Faculty of Science, especially the School of Biosciences which is co-located on the Sutton Bonington Campus.

The Novartis-funded Centre for Evidence-based Veterinary Medicine (CEVM) was established in 2009 to promote the principles of evidence-based veterinary medicine in all aspects of the veterinary profession. The CEVM is being initially focussed on small animal practice but many of the methods being developed are transferable to both farm animal and equine practice.

Nottingham's response to the RCVS visit in 2009

In August 2005 the School provided a document to update the RCVS Advisory Panel on the development of the School and the content of Years 1 to 4 of the curriculum. Details were provided of learning outcomes, module titles, periods of study and chronology. Learning outcomes were mapped to the RCVS Day One Competencies, Quality Assurance Agency (QAA) Subject Benchmark and European Association of Establishments for Veterinary Education (EAEVE) Subject Areas.

The RCVS Education Committee on the 18th October 2005 identified 5 areas of interest and concern, which were addressed ahead of the 2009 RCVS visit.

The 2009 RCVS visit was a preliminary visit to assess whether arrangements made at that time and planned for the last 2 years of the course were likely to be sufficient to enable the RCVS to recommend to Privy Council that the Nottingham veterinary degrees should be recognised for registration purposes. The Visitors made a number of constructive recommendations, comments and suggestions and stated that:

“Should the staff of the Veterinary School give the same attention to the next two years of the development of the course and follow the recommendations made, the Visitors would have no reason to doubt that the substantive visitation in two years time will recommend the Recognition of the Nottingham degree”.

The RCVS recommendations from 2009 are set out below. The University has addressed these as follows:

- **Disciplines and basic science subjects should be embedded in all modules and emphasised adequately**
 - Guidelines have been developed as to the maintenance and revision of basic science components with the Year 4 clinical modules
 - The module review for each clinical module is reviewed by staff responsible for delivering the basic science elements of the course
 - To ensure that the balance between basic science and clinical material is appropriate, all delivery content is reviewed by the embedded module convenors

- **The curriculum should be monitored to ensure that no gaps emerge, and that there is a balance between first opinion and second/tertiary opinion work, with students directed to undertake EMS in identified gaps**
 - The School has recognised a need for a 2 week rotation comprising solely referral caseload and has thus established Dick White Referrals as a rotation
 - Students plan their clinical EMS with their clinical tutor and ensure that particular individual needs are accommodated when organising their EMS
 - A Curriculum Review Working Party of the TLA Committee has been set up to report to the Committee on a yearly basis. A principal focus of this group is challenging the curriculum model, taking feedback on areas covered and student knowledge and skills; this group also undertakes gap analysis to ensure that no significant gaps emerge within the curriculum; students will be directed to undertake EMS in any identified gap.

- **The School should undertake a mapping of the curricular elements of veterinary public health against the most recent criteria from EAEVE, RCVS and European food legislation**
 - The School has challenged and revised its teaching delivery having undertaken a mapping of the curriculum elements of veterinary public health against EAEVE, RCVS and European food legislation.

- **Introduction of hands-on microbiology practicals should be introduced in veterinary public health curriculum**
 - Microbiology practicals have been introduced that cover a variety of areas including for example, common methods and techniques used for the culture and identification of pathogenic bacteria in food

- **Continued development of training to group learning facilitators**
 - The School has appointed a lead facilitator to coordinate and increase consistency across delivery. Yearly facilitator training is in place.

- **Consideration given to providing a dedicated student medical centre at Sutton Bonington**
 - The University continues to evaluate the provision of medical support to students on an ongoing basis within the context of NHS and Primary Care Trust requirements and advice. The University has a strong relationship with the local Doctors surgery and has instigated ongoing review meetings to improve access and service to students.

- **Frequency and reliability of the shuttle bus to and from Nottingham should be monitored and consideration given to transport arrangements to and from Clinical Associates**
 - The frequency of the free shuttle-bus service is considered on the basis of users feedback and usage. The service has been improved to now run to Kegworth and East Midlands Parkway every weekday morning and evening. A number of Clinical Associate practices can be reached through public transport, however all rotation groups are required to have at least one car driver so that the group can car-share to rotations.

- **Availability of overnight accommodation at Clinical Associates should be clarified**
 - Students are not required to undertake overnight duties at Clinical Associates; duties are voluntary. If students choose to undertake these opportunities, sofa beds and bedding is available. The School provides free rental accommodation in Newmarket for all students on the Dick White Referrals rotation.

- **Procedures put in place to ensure safe transport of material between Clinical Associates and the VLA/University PM room. Monitoring of the amount and types of PM material**
 - A local licensed 'knacker' provides a service for transportation of equine carcasses, according to national guidelines, delivered to the post mortem room and final removal of waste material. Other material is transported between Clinical Associate sites and the VLA / School by the School technicians; material is securely stored in clinical waste bags and transported in a School vehicle licensed for transport of this type of material (this vehicle is also licensed to transport human material used in anatomy teaching sessions). The amount and types of post mortem material are monitored by the technical team at the School and in the VLA and reported in this SER

- **Monitoring of students exposure to higher level companion animal work and provision made to provide more where necessary**
 - The School has recognised a need for a 2 week rotation comprising solely referral caseload and has thus established Dick White Referrals as a rotation. In

addition Dovecote Veterinary Hospital, which comprises a 90% referral caseload, delivers 4 weeks of Small Animal rotations

- **Mitigation of any risk with having only one contracted Clinical Associate to cover production animal studies through strengthening relationships with other partners**
 - The Scarsdale Veterinary practice is the main Clinical Associate for production animal studies, however the risk associated with a sole-deliverer is mitigated through a number of means: the School has also contracted Farm Vet Solutions as a Clinical Host, which provides access to farm animal caseload for Herd Health teaching, the Farm Skills rotation is entirely organised and staffed by School appointed staff, a strong relationship has been established with XL Vets to deliver the Farm Animal Specialist Elective and finally farm work can also be delivered at Oakham Veterinary Hospital.

- **Reconsideration of the policy to consider 'A' level grades for graduate applicants with relevant bioscience degrees**
 - The School Admissions Committee has reviewed and reconsidered the academic qualification for graduates. However, due to the disparity in content between degree courses, and some evidence from Medical Schools refuting the link between degree classification and subsequent performance on a medical course, it continues to be required that both Biology and Chemistry are needed at grade B at 'A' level to ensure a thorough grounding in the underpinning sciences.

- **Clarification of the timescales for recruitment of additional clinical staff, ensuring that appointments provided coverage of the major clinical disciplines**
 - The majority of additional clinical staff have now been recruited. A further 9.5 full-time equivalent (FTE) clinical teaching staff that are planned to be employed include 2.0 FTE recruited and due to start in 2011 and 1.0 FTE assigned to current fractional staff who plan to increase hours in 2011. The remaining 6.5 FTE comprise 4.5 FTE Clinical Associate Professor staff and 2.0 FTE Clinical Professors, and a further 1.0 FTE Professor of Pathology. Recruitment is underway and it is expected that a further 2.0 FTE will be assigned to the Scarsdale Small Animal rotation (neurology, imaging or ophthalmology) 1.0 FTE to Scarsdale Equine rotation (equine practice) and 0.5 FTE to the Scarsdale Farm Animal rotation. The Clinical Professor posts will be used to recruit high quality individuals when available in small animal disciplines.

- **Recruitment (or training of a current staff member) to DipECVPH**
 - A further member of staff has been recruited to strengthen veterinary public health delivery in Years 4 and 5. In addition 2 veterinary-qualified members of staff are awaiting approval of a training programme for DipIECVPH.

- **Students should be directed to spend more time in specialist practices during their Clinical EMS to balance the emphasis on Day one skills and competences.**
 - The School has included 6 weeks referral practice in the Year 5 rotations. Students work with their Personal Tutor to plan a variety of experience during their EMS study appropriate to their career and personal interests.

Module refinements

As the course has developed, some refinements have been made to module content, logistics and assessment. The following changes have been made since the School produced its previous self-evaluation report for RCVS in 2008:

- The School has increased emphasis on basic subjects and sciences within all modules, e.g. additional immunology has been incorporated into the Year 2 Gastrointestinal module.
- Year 3 learning objectives associated with anaesthesia, previously within Principles of Veterinary Science, have now been incorporated into Practical Techniques
- Following the 2009 RCVS visit the School has recognised a need for a rotation comprising a solely referral caseload and has thus established Dick White Referrals as a rotation, whilst VetsNow (an emergency and critical care provider) previously planned as a rotation is now a specialist elective.
- Assessment load on both staff and students, together with assessment validity and reliability has been evaluated and there have been some small reductions in load and assessment types following agreement with External Examiners:
 - removal of in-course assessment, with the exception of Personal and Professional Skills and Animal Health and Welfare 2, such that assessment is undertaken in set examination periods rather than throughout the year.
 - introduction of 'must pass' Year 1 and Year 2 OSPEs, comprising stations from across modules, rather than running module-specific OSPEs; this also ensures that students have acquired key skills and competences before entering Year 4.
 - removal of less educationally-robust assessment formats, e.g. structured verbal assessments, essays; these are replaced mostly by increased use of spot tests and short answer questions
 - removal of the separate poster viva for Year 3 project students (this is now incorporated into a combined poster viva and project viva)
- Introduction of January exams for Year 1 students; this allows students to be provided with a summative view of their performance early in the course (and allows the School to better identify and support struggling students)
- The School has undertaken a mapping of the curriculum and refined elements of veterinary public health against EAEVE, RCVS and European food legislation.
- Responding to student requests, a week's holiday has been introduced after Year 4 examinations before Year 5 rotations commence
- Year 4 clinical reasoning assessments for modules undertaken at the end of the Year 3 academic year (after BVMedSci examinations) provide students with a summative assessment of their abilities during the more clinical years of the course.

- In line with the original rotation model, the School has robust plans to move 4 weeks of clinical rotation teaching (including the staff) from Dovecote Veterinary Hospital to Scarsdale Veterinary Hospital on completion of the new facilities in Summer 2011¹

New course development

There are three routes by which students can graduate as veterinary surgeons at Nottingham – the 5 year course (D100), a 6 year course which includes a Preliminary Year (D104) and new for 2011 entry, a 6-year course which includes a Gateway Year (D190)². On both the 5-year and 6-year courses the educational objectives are the same. At the end of the course, students graduate with the **Bachelor of Veterinary Medicine and Bachelor of Veterinary Surgery (BVM BVS) degrees**. In addition all students obtain the Bachelor of Veterinary Medical Sciences (BVMedSci) in Year 3 of the 5-year veterinary course.

Clinical postgraduate programmes have been established with the introduction of the 3- or 4-year Master of Veterinary Medicine and Master of Veterinary Surgery (MVM / MVS) award bearing Senior Clinical Training Scholar programmes. In addition a 1 year Junior Clinical Training Scholar programme, which awards the Postgraduate Certificate in Veterinary Science has been established. The clinical doctorate, DVM DVS programme, is established, with the programme in laboratory animal medicine progressing well with the University of Oxford. Veterinary surgeons have been recruited onto each of these scholarship formats.

Postgraduate PhD and MRes studentships have already been established and are allied to the research interests of each of the Divisions in the School. The majority of these have been funded as interdisciplinary research studentships, but are also related to research grants from internal and external sources (including the Horse Race Betting Levy Board and Biotechnology and Biological Sciences Research Council (BBSRC)) and full fee paying self-funded international students.

¹ Dovecote Veterinary Hospital is a contingency enacted due to a delay in completing the new Scarsdale Small Animal Hospital; learning objectives have remained unchanged.

² The Preliminary Year and Gateway Year share an identical curriculum that provides students with the relevant knowledge of biology, chemistry and animal husbandry required for later years of the course. Years 2 to 6 follow the curriculum of the 5-year course. The Preliminary Year has been designed to increase diversity in Veterinary Medicine and Surgery by conversion and upskilling of able students. The course is specifically developed for students who do not have the required science qualifications for direct entry into Year 1 of the 5-year BVM BVS programme, but have achieved good A-level grades in other subjects, can demonstrate equivalent academic competence or potential in vocational and other qualifications, or possess relevant experience. The Gateway Year is designed to widen participation by recruiting students who would not normally enter the profession and have not yet shown their true potential or achievement due to a range of disadvantaging circumstances and who do not have the required science grades for direct entry into Year 1 of the 5-year BVM BVS programme.

The legal basis of the visitation

1. The Royal College of Veterinary Surgeons has a statutory duty to supervise veterinary degree courses under **Section 5 of the Veterinary Surgeons Act 1966**, *“for the purpose of securing that the courses of study to be followed by students training to be veterinary surgeons and the standard of proficiency required for registration in the register shall be such as sufficiently to guarantee that persons registered in the register will have acquired the knowledge and skill needed for the efficient practice of veterinary surgery”*. The Council of RCVS may appoint persons *“to visit the universities for which recognition orders...are proposed to be made...and to report on the courses of study, staffing, accommodation and equipment available for training in veterinary surgery and the other arrangements and facilities for such training.”*
2. For UK veterinary degrees, it is the UK's Privy Council which grants recognition to a degree enabling it to be recognised for registration purposes. Recognition is based on advice received from RCVS. The Visitors' report is first considered by RCVS's Primary Qualifications Sub-Committee, then by the Education Policy & Specialisation Committee. Finally, the report is considered by RCVS Council which makes its recommendation to Privy Council.
3. RCVS must take account of the minimum training requirements set out in **Article 38 and Annex 5.4.1 of the European Directive on the Recognition of Professional Qualifications (2005/36/EC)**. The evaluation of degree courses is undertaken in accordance with the **criteria defined by the European Association of Establishments of Veterinary Education (EAEVE)**. These criteria have been adopted in full by RCVS and are contained within the RCVS's "Criteria and Guidance for RCVS Approval of Veterinary Degree Courses in the UK and Overseas".
4. The EAEVE evaluation criteria are divided into two stages: Stage One covers the minimum training requirements and Day One Competences, and Stage Two covers the quality assurance arrangements for the course. In addition, RCVS requires UK schools to comply with its requirements for Extra-Mural Studies (EMS). To be approved by RCVS and recommended for a Privy Council Recognition Order, the school must meet all the requirements for Stage One, plus the additional RCVS requirement relating to EMS, plus items 1 – 6 of Stage Two covering the quality assurance arrangements for key aspects of the course.
5. The decision as to whether a school is approved by EAEVE is taken separately. Approval is decided by "ECOVE" - a joint education committee of EAEVE and the Federation of Veterinarians of Europe (FVE). ECOVE will consider Nottingham's compliance with its Stage One criteria, but will not consider accreditation against Stage Two criteria until the school has produced at least two cohorts of graduates. This does not affect RCVS's decision regarding recognition in the UK.

Background to considering the new veterinary school at Nottingham for recognition

6. RCVS conducted its first evaluation visit in February 2009 under the chairmanship of Professor Lanyon to assess the School's progress in meeting RCVS criteria for approval. The first cohort of students was at that time in its third year of study.
7. This latest report covers the Visitors findings from the second visit which took place from the 14th to the 18th February 2011. This was a joint visit between the RCVS and the European Association of Establishments of Veterinary Education (EAEVE).
8. For the 2011 visit, EAEVE nominated three members of the visitation team: two expert Visitors and one student member. The remaining Visitors were appointed by RCVS Council, some having taken part in the 2009 visit, and others coming new to the visit team. An observer from the Australasian Veterinary Boards Council was also in attendance on the 2011 visit, in accordance with the RCVS and AVBC mutual recognition agreement.
9. The Visitors were present at the University from the 14th to the 18th February 2011. The Visitors stayed together for most tours of the facilities at the veterinary school and at the various clinical associate practices, and for the majority of meetings with staff and students. The team separated on day 3, with one group visiting Twycross Zoo and another visiting the abattoir at Chesterfield. The Visitors considered various documents concerning the curriculum and examinations, course materials, external examiners reports including those of the RCVS appointed external examiners (see below), financial papers and contractual agreements with clinical associates, teaching timetables and staff CPD records.

RCVS external examiners

10. As well as undertaking these visits and reporting to the UK Privy Council on the long term recognition of the degree, RCVS also appointed two External Examiners to oversee the summative assessments and examinations taken by final year students. This was to ensure that, whatever the outcome of the visitation and regardless of the time it might take for a Privy Council Recognition Order to be agreed, there was a process in place to protect the interests of those students who were due to graduate, enabling them to register as Members of the RCVS and practise their profession in the UK.

11. A procedure was approved by the Right Honourable Hilary Benn MP, then Secretary of State for the Department for Environment, Food and Rural Affairs (Defra) acting in his capacity as policy Privy Counsellor, who confirmed this in a letter to the RCVS President³. By the appointment of RCVS External Examiners, the final year assessments undertaken by Nottingham's veterinary students serve as joint RCVS/Nottingham examinations, thereby satisfying Section 4 of the Veterinary Surgeons Act. Students passing the final joint examinations in 2011 are entitled to register as Members of the RCVS and practice their profession in the UK.
12. The role of the RCVS External Examiners is to ensure that the standards set for the final year assessments are appropriate and that the examinations cover all the significant areas as defined by the RCVS Day One Competences. The RCVS External Examiners – Professor Philip Duffus and Professor John Innes - have overseen final year summative assessments since the summer of 2010 and have taken a full part in the standard setting and moderation process for final year students. They have approved examination materials, attended examination working group meetings, visited clinical associate practices and sampled students' summative assessment work. They will take part in the final examinations and the examiners' board meetings and will have authority over the final pass list in accordance with terms of reference that were agreed between Nottingham University and the RCVS.
13. The RCVS External Examiners are fulfilling a separate function to that of the RCVS/EAEVE Visitors. Although they have provided a report to the Visitors on their work to date in order to inform the visitation team about examination standards, the RCVS/EAEVE visitation team have a responsibility to report on the course as a whole, including staffing and facilities, with a view to recognition in the longer term. The External Examiners' function is limited to overseeing examinations in order to assure the standards of those graduating until such time as a Privy Council Recognition Order comes into force.

³ *Letter from the Rt Hon Hilary Benn MP, to Professor Sandy Trees, President of RCVS, 27th March 2010:* "Subject to receiving your confirmation that Nottingham University's veterinary degree course and examinations satisfy the requirements of section 3 of the Veterinary Surgeons Act 1966, Defra will prepare a recognition order to be made under that section. Although Defra will progress the order as quickly as possible, there is a risk that it will not be made by the time of graduation of the first set of students on 22 July 2011. In the circumstances, I agree to Nottingham University's proposal that you hold the final year examinations jointly with them. Successful candidates in those examinations will be eligible for registration in the register of veterinary surgeons immediately on graduation. (continued from previous page)...My officials have worked closely with your officers and with representatives of Nottingham University on this issue. Therefore, having consulted you, and on behalf of the Privy Council in accordance with section 4 of the Veterinary Surgeons Act 1966, I direct you to hold final examinations in veterinary surgery in 2011 for students attending at Nottingham University. It is understood that those examinations will be held jointly with the university and that you have already agreed in principle, terms of reference for the management of the joint examination process and the appointment of RCVS appointed external examiners. This direction will cease to have effect on the coming into force of a recognition order."

Chairman's summary

At the time of the visitation the Nottingham School was three months from the final exams of its first cohort of potential graduates and two years after the previous interim RCVS visitation. The Visitors were pleased to learn that the school had responded positively to nearly all of the recommendations that had been made on the previous occasion and that the staff of the school had continued to apply themselves to the development and delivery of their innovative curriculum with the same rigour and enthusiasm that they had displayed previously.

Establishing a new Veterinary School is a major financial undertaking even for a large University and so the Visitors were pleased to note the University's continued financial commitment in addition to the substantial investment they had made up to date. The current budget and approved plans appear to be appropriate for the School's needs. The University has confirmed to the Visitors' satisfaction that the costing model for the School is robust and provides for continuation of the current level of student experience as well as the potential for research growth. The School's projected income from the University is derived from a formula which is roughly equivalent to (HEFCE-derived T + fees + QR) – 20% for central costs. The Visitors considered that this was "adequate to sustain the School's educational programmes, to allow for adequate research and to meet its societal objectives". The Visitors were further reassured that the University had no intention of making any substantial change to the budgeting process that produced this satisfactory outcome.

The Visitors were again struck by the level of commitment staff showed to meeting the objectives of the School and the pride in its achievement displayed by all the staff and students that they met. Achieving such unity of purpose in a university setting is remarkable testament to the high standard of leadership from the Dean and his senior colleagues working within a refreshingly supportive environment of devolved authority provided by the University.

The Visitors recognised that the School is in its early stages of growth and that its first priority is to establish and deliver an undergraduate curriculum of sufficient quality and content to gain recognition by the RCVS. They thus accept that current levels of research activity, provision of specialised postgraduate clinical training and continued professional education are not yet at the levels which they would expect from a School which had been longer established. The Visitors were confident in accepting assurances from the School that higher levels of attainment in these areas will be achieved within the immediate future.

The defining characteristics of the School's curriculum are that it is based around body systems introducing clinical relevance early in the course and that clinical experience is gained in practices that are not owned by the School but by Clinical Associates into which the School places a number of its clinical staff.

One of the major reservations expressed by the Visitors at the preliminary visitation was that such early and continued emphasis on clinical conditions meant that important concepts of basic science would receive insufficient emphasis. This concern has been addressed and the Visitors were pleased to learn of the students' success in the BVMedSci degree which they take in their third year. These positive developments notwithstanding the Visitors urge

the School to capitalise on the scientific resource throughout the University of Nottingham and beyond rather than relying on the inevitably more limited resource within the School.

The Visitors were pleased to note that the School had made efforts to address the reservation previously expressed concerning the teaching of Veterinary Public Health and although they suggest that this aspect of the course still requires attention they accept that it meets the relevant RCVS/EAEVE requirements.

Since the foundation cohort of students' final examinations are scheduled for May 2011 it is not possible for the visitation in February to have oversight of the whole process leading up to conferment of the Nottingham Bachelor of Veterinary Medicine and Bachelor of Veterinary Surgery degrees. However at the time of the February visitation the RCVS had already appointed external examiners to participate in the examination of final year students that occurs throughout the year. Their assessment at the time of the visitation was that, from what they had seen, the examination process was appropriate in form, content and standard. The Visitors have no reason to believe that the final examinations will not be equally appropriate but until these have taken place, and that assurance has been received, RCVS Council will not be in position make a final recommendation to the Privy Council on recognition of the Nottingham BVM BVS degree. It is anticipated that all this information will be available for the meeting of RCVS Council in June 2011.

Conclusion

On the basis of the visitation made in February 2011 the Visitors are pleased to recommend to RCVS Council and to the Privy Council, as required by Section 5 of the Veterinary Surgeons Act 1966, that the course of study and degree of Bachelor of Veterinary Medicine and Bachelor of Veterinary Surgery from the University of Nottingham should be recognised as a qualification suitable for holders to be admitted to the Register of the RCVS and practise as veterinary surgeons in the UK. The Visitors confirm that the degree meets the minimum training requirements set out in Article 38 and Annex 5.4.1 of the European Directive on the Recognition of Professional Qualifications (2005/36/EC), and recommend to ECOVE that the degree should be added to the list of EAEVE approved degrees.

This recommendation is provisional only on receipt by the RCVS of a satisfactory report from the external examiners it has appointed on the final examinations of the foundation cohort of students to take place in May 2011.

Commendations

- The School is to be commended on the quality of its students who will no doubt go on to do the University credit as the foundation graduates of Nottingham's new veterinary degree.
- The Visitors commend the University on its substantial financial undertaking in establishing the veterinary school, its continued commitment and investment made to date, as well as the far-sightedness of its budgetary provision and its commitment to devolved authority of the Dean.
- The Visitors commend the School on creating an innovative new curriculum.
- The introduction of clinically relevant material into the early years of the curriculum is to be applauded, and the early introduction of some diagnostic techniques such as ultrasound examination in the early years and through the Clinical Skills Laboratory is praiseworthy.
- The School is commended for its coverage of Professional Skills which are well integrated across the curriculum and assessed throughout the course.
- The School is commended on having developed a comprehensive set of formal and informal mechanisms for ensuring, as far as possible, the welfare of its students, all of which appear greatly appreciated by the students.
- The School is commended for the service provided by staff in the EMS Placement Office.
- The University and the School is commended for the excellence of its library provision (both main and subsidiary libraries) and for the IT services available both on campus and at most of the clinical associate centres.
- The School is to be commended for establishing a workable "distributed model" in which students gain their clinical experience. Establishing this model has involved developing thorough contractual arrangements with a number of "clinical associates". These contracts have given careful attention to the RCVS's guidelines on the distributive model of clinical education. However, this model, like all other models is far from perfect and will require constant monitoring by the School and by RCVS to ensure that it delivers what the undergraduates require as well as providing opportunities for post-graduate specialist training and career development for clinical academics.

Suggestions

From Chapter 2 - Organisation

- The current organisation of the School into three divisions for reasons of staff management seems sensible but naming these “Veterinary Medicine”, “Veterinary Surgery” and “Animal Health and Welfare” when this bears little relationship to their composition or function seems anomalous. To the outsider it is confusing and to potential applicants to the School possibly off-putting. The Visitors suggest that the School reconsiders the use of these titles.

From Chapter 4 – Curriculum - Veterinary Food Hygiene and Public Health

- Various aspects of VPH are distributed throughout the whole curriculum. This is perfectly acceptable but somewhere the totality of the subject should be highlighted to further stimulate student interest in the whole topic and ensure they see “the whole picture”.
- It is suggested that the module in Year 4 and Year 5 should be renamed, since it only covers some of the aspects of the very broad veterinary public health field. The present use of the VPH title gives the impression that these modules represent the totality of VPH provision.
- The School should consider the option of consolidating the half-day sub-modules in Year 4 into a block module.
- The School should review the high number of lectures in the Year 4 module provided by external presenters.
- The School should continue its efforts to secure a Diplomat in VPH on the staff

From Chapter 5 – Teaching, quality and evaluation (monitoring and assessment of students)

- Although the overall assessment regime is commendable, the School should keep the quantity of assessment under review to ensure that there isn’t over-assessment in places, as well as keeping the examination philosophy under review to encourage and reward excellence.

From Chapter 7 – Animals and teaching material of animal origin

- The suitability of complete reliance on the distributed model to provide all the School’s needs for clinical case material needs to be kept under review particularly in relation to post-graduate clinical training and career progression for clinical academics.
- The School should develop contingency plans for the supply of live teaching companion animals, which currently relies on staff owned pets.

From Chapter 9 – Admission and enrolment

- The Visitors note that the School has chosen not to accept their previous recommendation that the suitability of graduates for entry to the veterinary programme be judged on their A level performance rather than their subsequent degree. The Visitors are still of the view that this conflicts with the School's stated widening participation agenda. For instance a student who for reasons of disadvantageous circumstances gets poor A levels in the required subjects and cannot get entry to a veterinary school but when removed from their disadvantageous environment blossoms and gets a first class degree in (say) Biochemistry will, when applying to Nottingham, be judged on their A levels and not their performance at degree level. The Visitors suggest that the School revisit their decision.
- Noting that the School intends to track the careers of its graduates as part of a joint research study with RVC, the Visitors suggest that the results should be monitored in order to evaluate the effect and appropriateness of its admissions policy and procedures.
- The Visitors noted that UCAS application forms are scrutinised initially by only one member of academic staff in order to shortlist candidates for interview. All forms are then reviewed again when results are input into a database by the Admissions Team. Results are statistically compared to identify those for interview. The School considers that these methods reduce assessor bias. All rejects are reviewed before formal rejection letters are sent by the Admissions team. The Visitors suggest that the crucial judgemental process that leads to interview should involve at least two academic scrutineers at least one of which should preferably be a veterinarian.

From Chapter 12 – Postgraduate education

- It may be that the opportunity to provide postgraduate clinical training to European Diploma Level in Small Animals risks being limited by the lack of a university referral hospital providing the appropriate environment and case load required by European Colleges for approval of Residency programmes. The involvement of a number of Clinical Associates (Dick White Referrals, Scarsdale Veterinary Hospital, Oakham Veterinary Hospital and Dovecote Veterinary Hospital) may help to mitigate that risk. The School should ensure that it continues to monitor the involvement of Diplomates at these Clinical Associates and works with them to ensure that they are able to meet European College requirements for Diplomate training, as would be the norm for a traditionally structured school.

From Chapter 13 – Research

- It is suggested that as the staff of the School expands they continue to ensure that they involve some 15-20 research active academics from outside the School to deliver a small number of lectures/seminars within an appropriate part of the 1st or 2nd year. The purpose of this would be to widen the exposure of the students to such role models and potentially inspire them to undertake research careers.
- The School and University provide incentives for veterinary school staff to develop research projects with Nottingham campus scientists, and facilitate students'

choice and involvement with such projects. The School encourages pump priming research in the same subject areas and encourages joint publication to bring groups together across the University. Funded initiatives such as "sandpit activities" have been undertaken to bring people together in the first instance. The Visitors encourage the School to continue to develop such collaborative work.

- The Centre for Evidence Based Veterinary Medicine should collaborate with other clinical centres in the UK and overseas, including the other UK veterinary schools to adopt a single Clinical Coding system and undertake multi-centre studies of caseload. The "not invented here" approach should be avoided at all costs.

Stage 1

Findings and comments from the visitors in relation to RCVS and EAEVE essential requirements

Chapter 1 – Objectives

The objectives of veterinary training institutions are to provide adequate, ethical, research-based veterinary training that enables the new graduate to perform as a veterinary surgeon capable of entering all commonly recognised branches of the veterinary profession immediately on graduation or of being capable of performing adequately after a generally accepted period of practical experience. The training must cover the broad requirements for veterinary graduates and comply with EU Directive 2005/36/EC. Veterinary education should be based on scientific grounds and proven experience and provide students with adequate learning opportunities thus laying the basis for life-long learning. Considering that more than 50% of active veterinarians in Europe are engaged in clinical practice, a clinical focus is expected to be maintained during the basic training in veterinary medicine.

In addition the institutions should conduct research, provide postgraduate and specialist training and play a role in continuing veterinary education (see also Stage two).

They should, furthermore, provide services to members of the veterinary profession and the community as a whole.

Findings

1. The School's core strategic mission is to deliver high quality veterinary teaching and research, with a vision to establish a national and international reputation for the School of Veterinary Medicine and Science (SVMS).
2. The School has two primary overarching strategic objectives:
 - to attract, educate and train veterinary students, providing them with the knowledge, intellectual, practical and professional skills to fulfil the demands required of them to succeed and develop as accomplished veterinary professionals
 - to develop and integrate the research strengths of the School, establishing excellence in research within the School's major strategic research themes and also to link with external Clinical Associates so that research is relevant not only to the larger veterinary, biomedical and bioscientific community but also to local consumers of biotechnology, attracting growing sustainable margin-bearing research income to the School.
3. To meet these objectives the School aims to:
 - provide an excellent student experience which delivers research-informed training enabling veterinary students to examine, diagnose and treat animals, and contribute to animal production whilst maintaining the animal's health and welfare, protect humans from zoonoses and ensure high-quality food products of animal origin for human consumption, in compliance with RCVS and EAEVE requirements
 - undertake high quality research, provide postgraduate and specialist training and play a role in continuing veterinary education

- provide services to members of the veterinary profession and the community as a whole

Comments

4. Recognising that the School is in its early stages of growth, and that therefore its activity in research, specialist training and provision of CPD will develop further the Visitors are confident that the School meets the essential objectives.

Chapter 2 – Organisation

Veterinary training must take place within institutions of higher education (university, a higher institute providing training recognised as being of an equivalent level, or under the supervision of an university, Directive 2005/36/EC), formally recognised as such in the respective country, and should be undertaken preferably by a free-standing unit, specifically established for that purpose. If it is undertaken by one or more departments of a parent institution, some of which also have other teaching commitments, the veterinary curriculum must be properly integrated, with effective central veterinary control. The number of veterinarians provided as educators (usually a minimum of 80 individuals working full time in the Faculty) must be high enough to ensure co-coordinated delivery of the teaching programme. Such a programme must be afforded the same recognition, status and autonomy as other professional training programmes in the institution and/or the state.

The organisational structure should make possible an objective evaluation of the quality of the training provided and the skills of the graduates. The training of the graduates should be monitored for quality at the subject and institutional levels, laying the basis for a confident system of quality assurance (see Stage two).

In order to ensure that the veterinary training meets the objectives and requirements of EU Directive 2005/36/EU, the organisational structure should allow input not only from educators and students but also from stakeholders (e.g. members of the profession and from the public) (see also Stage two).

Findings

5. The School of Veterinary Medicine and Science (SVMS) is part of the University of Nottingham which was first awarded university status in 1948. The University as a whole employs over 7,000 staff and had a turnover of £510m in 2009/10 of which £150m came from research awards. The University scored highly across all major disciplines in the most recent UK Research Assessment Exercise.
6. The University's chief officer is the Vice Chancellor, who chairs the University's highest academic body, the Senate. He is supported by six Pro-Vice Chancellors who in turn line manage Deans/Heads of Schools and Faculties. The University Council is the governing body and is the principal financial and business authority of the University. The Council includes lay representation, including 14 independent external members and two students.
7. The Senate and the Council operate through a network of committees, including Management Board, Strategy & Planning Committee, Finance, Audit, Research & Knowledge Transfer committees, and Teaching and Learning Board.
8. The University is organised along traditional civic university lines with five Faculties (Arts, Social Sciences, Science, Engineering, Medicine and Health Sciences) containing 29 academic Schools. Each Faculty has a Dean whose main role is to represent the Faculty at University level in all matters and to ensure that information

and concerns from Faculties are transmitted to senior University managers and vice versa.

9. The Faculty of Medicine and Health Sciences has a Dean and a permanent secretariat. The Faculty is managed by monthly Faculty Management Board meetings of Heads / Deans of Schools and Heads of relevant Research Institutes. The School of Veterinary Medicine and Science is a member of both the Faculty of Medicine and Health Sciences and the Faculty of Science, however any management decisions or representation is taken through the lead Faculty, the Faculty of Medicine and Health Sciences, as there are stronger contextual affiliations at both the educational and professional level.
10. Other significant Faculty Committees include:
 - Academic Board, meeting once per term and chaired by the Undergraduate Vice-Dean; it has two main roles: firstly, to assure the quality of academic provision in its Schools and secondly, to assist the University's Learning and Teaching Committee in its quality assurance activities for the University.
 - Faculty Fitness to Practise Committee. Students may be required to appear before the Faculty of Medicine and Health Sciences Fitness to Practice Committee, if their conduct falls below expectations.

Management of the School of Veterinary Medicine and Science

11. The main academic and budgetary units within the University are the academic Schools. The University provides the legal, financial and organisational framework in which the Schools operate. Guidance is provided to the School by the University through a number of mechanisms:
 - University's Quality Manual (www.nottingham.ac.uk/quality-manual) which sets out the University's policies and procedures for teaching and supervision of undergraduate and postgraduate students. It identifies the quality systems in place and provides a central source of information for policies and procedures.
 - advisory support to the Dean of School through the Pro-Vice-Chancellor and Dean of Medical and Health Sciences Faculty
 - relevant Faculty and University committees
 - allocated Human Resources Advisor and Management Accountant as well as access on demand to a range of other central support services (Estates, Marketing, Staff Development, Student Support, Information Services etc)
12. SVMS is one of 29 Schools in the University, and is led by the Dean of the School (Professor Gary England), supported by a Management Team comprising the Heads of the four Divisions, the Teaching, Learning and Assessment Sub-Dean and the Research and Business Sub-Dean. Further assistance is provided by additional Sub-Deans responsible for Admissions, Student Placement, Clinical Year 5 (2 Sub-Deans) Clinical and non-Clinical Postgraduate Students, and three Senior Tutors.

13. The Dean of School is appointed by the University⁴. The Deputy Head of School⁵, Heads of Divisions and Sub-Deans are appointed by the Dean of School, normally in consultation with the Dean of the Faculty of Medicine and Health Sciences and the Faculty Pro-Vice Chancellor.

14. The School is organised into three Academic Divisions and an Administrative Division (See Figures 1 and 2 for outline of School's committee and divisional structure). The Divisions of Veterinary Medicine, Veterinary Surgery and Animal Health and Welfare contribute teaching and clinical input throughout all years of the course, and provide coherency to research groups. The Academic Support and Administration Division undertakes a number of administrative functions traditionally fulfilled by academics and is organised into functional roles (Admissions, Teaching, Learning and Assessment, Student Placement, Student Support, Finance and Research).

15. The veterinary profession and wider public are involved in the running of the School on a number of levels:
 - members of the veterinary profession and public are members of the Admissions Committee
 - veterinary professionals undertake admissions assessments for undergraduate students
 - appropriately qualified and briefed veterinary professionals and other individuals deliver elements of teaching in the undergraduate programme
 - members of the veterinary profession act as External Examiners
 - members of the veterinary profession and other appropriately qualified individuals act as Module Reviewers
 - members of the veterinary profession (and farming and other animal-related industries) supervise students on EMS placements and provide feedback about the School's processes and individual students
 - the School's nine Clinical Associates are invited to relevant committees and to all staff meetings. Formal contracts are in place and stipulate the formal communication routes and frequency of review meetings between the School and Clinical Associates.

⁴ Heads of School are normally appointed for 3 years, through consultation between the School, Dean of Faculty and the Faculty Pro-Vice Chancellor. The Dean of the School of Veterinary Medicine and Science does not have a fixed term appointment.

⁵ Deputy Head of School is a Head of Division

Figure 1 – School, Site and Faculty Committees

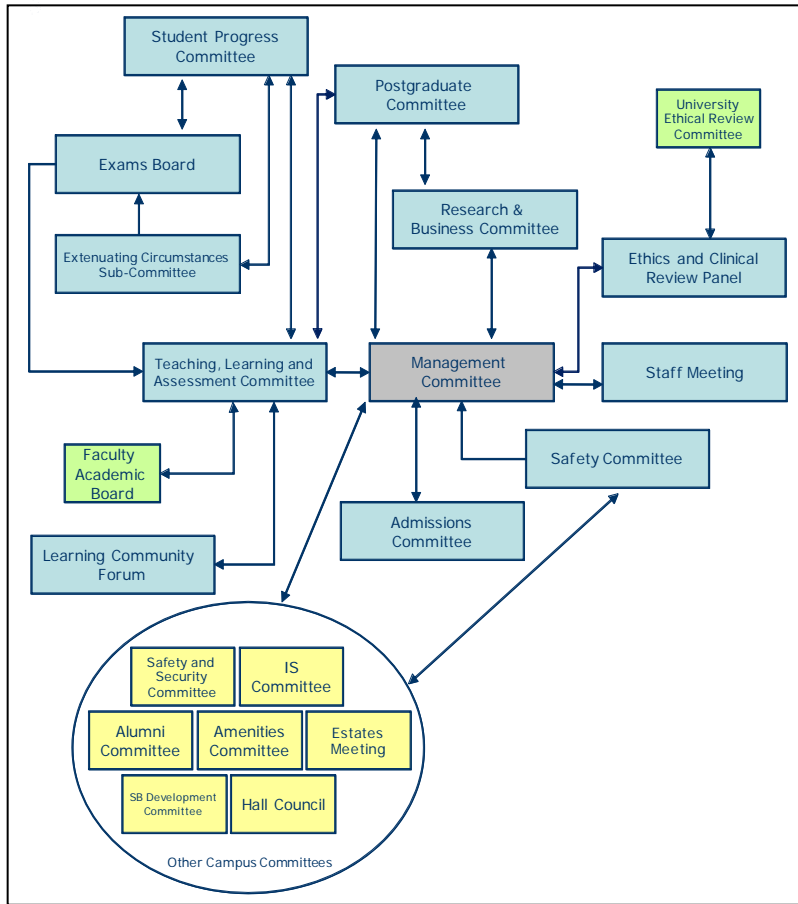
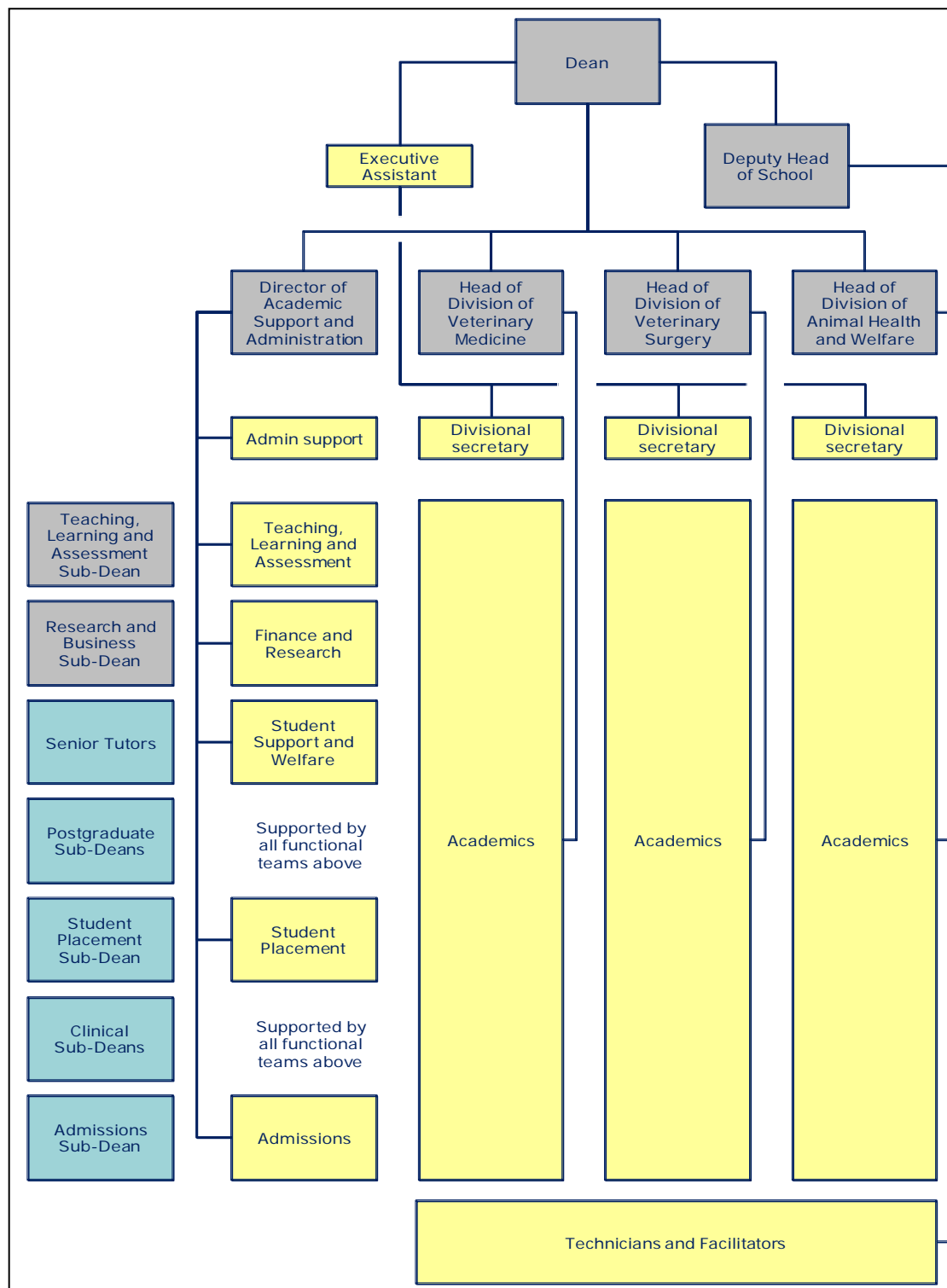


Figure 2 – Organisational structure of the school



Comments and suggestions

16. The visitors were pleased to see that students are represented on all relevant SVMS committees including Sutton Bonington site-based committees.
17. Notwithstanding the Faculty structure, there is a clear management line directly from the Dean of SVMS to the University's senior management team via the Pro Vice Chancellor. The SER suggests that this communication channel has in the past not always been as transparent or bidirectional as it could have been, but the Visitors were pleased to hear that this situation has improved markedly recently.
18. The current organisation of the School into three divisions for reasons of staff management seems sensible but naming these "Veterinary Medicine", "Veterinary Surgery" and "Animal Health and Welfare" when this bears little relationship to their composition or function seems anomalous, to the outsider - confusing, and to potential applicants perhaps off-putting. The Visitors suggest that the School reconsiders the use of these titles.
19. The Visitors noted that there was no fixed term contract for the post of Head of School. Whilst it is in no way suggested that the current Head of School needs to be replaced, they considered that it would be prudent to consider introducing a review period and renewal process for the longer term succession.

Chapter 3 – Finances

Finances must be adequate to sustain the educational programmes, to allow for adequate research and to meet societal objectives of the Faculty. Universities and national ministries must recognise that veterinary education is more expensive than training in other science-based disciplines, since it includes clinical instruction based on public services (e.g. patient care). It must also be considered that veterinary education has to take place in a research environment and that salaries should be sufficiently high so as to attract and retain highly qualified staff.

The budget must allow the Faculty to:

- Perform adequate research based teaching
- Attract and retain highly qualified academic and support staff to reach, or exceed satisfactory teaching staff/student and teaching staff/support staff ratios.
- Ensure provision and renewal of up to date teaching (including IT) facilities, laboratory and clinical equipment (including vehicles for the ambulatory clinics).
- Ensure teaching and clinical training in premises with adequate hygienic and safety standards,
- Ensure adequate intramural clinical training by securing an adequate caseload, including emergencies, across animal species and adequate provision of stationary and ambulatory (mobile) clinical services, according to the most recent advances in veterinary medicine.

Bearing in mind the increasing demand for specialist training, funds should be made available for places for both clinical and research postgraduate students in areas in which the Faculty has expertise.

Findings

20. In 2005, the School Management Team constructed a detailed 7-year financial model that was built on an activity basis from a detailed bottom-up perspective and benchmarked wherever possible. This model was reviewed extensively by the Pro Vice Chancellor, Chief Financial Officer and Project Group (chaired by Professor Sir Peter Rubin) and has since underpinned all future School planning rounds. The School submits a School Plan annually to meet its operational and strategic requirements. The Plan provides the basis of budget allocation. In addition to income and expenditure as planned by the School, SVMS is assigned a share of central support costs (Estates, Finance, Registry, Human Resources, Marketing, Staff Development, Student Support, Information Services etc.) related to staff and student headcount and the amount and type of space occupied.
21. All income earned by the School is attributable to the School. The School is thus targeted to meet the budgeted operating surplus (or deficit) both before and after central charges. For SVMS it is accepted that during the medium term the School will make an operating loss, but over the longer term is expected to provide an operating surplus.

Income

22. Funding from the Higher Education Funding Council for England (HEFCE) is sub-divided into teaching and research related grants:
 - a. For teaching, grants are provided at the highest national rate available, per home and EU student (£15,788 in 2010/11). The School is allocated 90 HEFCE funded places for the 5 year course and 24 places for the Preliminary Year course.
 - b. Research related funding, relative to the performance of the University/School in the 2008 Research Assessment Exercise.
23. Tuition fees are charged to all undergraduate and postgraduate students. All home and EU students on the undergraduate course are charged £3,290 (2010-11 national capped rate). International students are charged £19,450 per year (2010/11 entry). International postgraduates' fees vary depending on the type of research project undertaken.
24. The University provides bursaries to economically disadvantaged students and to fund widening participation initiatives. In 2009/10 the University spent an equivalent to 20.1% of the tuition fee on bursaries (up to a maximum of £1,100); 39% of veterinary students receive some level of means tested bursary (compared to a cross-University average of 34%)
25. The other main revenue source for the School is research revenue. Since the School has been established it has attracted research funding of £12.6m (Research Councils £3.0m, Charities £3.0m, Commercial organisations £4.7m, EU £1.3m and other sources £600k). Significant research projects include £3.5m from Novartis Animal Health to establish the Centre for Evidence Based Veterinary Medicine, £1.4m from BBSRC for mastitis studies, £1.2m from the Wellcome Trust for the DVM DVS programme, £1.0m from EU for wildlife disease surveillance. The annual level of research revenue is currently increasing and the relatively modest current level reflects the initial focus by staff on developing the undergraduate teaching programme. All grants are costed (subject to funding body rules) on a full economic cost basis, in order that indirect / overhead costs are recovered from funders. Commercial work is costed at market rates.
26. The School receives modest levels of revenue from diagnostic activities associated with NUVetNA⁶, the sale of merchandise, DIY livery provision, post mortem examinations conducted on small animals and horses at the VLA, vending machine sales and donations.

⁶ Nottingham University Veterinary Nutritional Analysis: diagnostic services (trace element and metabolite, energy monitoring and urine analysis) aimed at extending veterinary services to aid client herd health and performance

Expenditure

27. Budget for all aspects of the School's operations (except for research grants) is administered centrally in the School and allocated to individual project budgets on the basis of the 2005 financial model, modified for any known changes. It is not possible, with the exception of funds associated with some research grants or services rendered projects, to retain any income or budget between years.

Funding of major equipment and capital expenditure

28. The School has had access to a £20m capital expenditure project budget. This has been pre-assigned into budgets for building works, equipment procurement and other items. All major building work (i.e. that which is not repair and maintenance), whether associated with the establishment of the veterinary school, or as part of normal business for any other School is required to be requested through the submission of a business case to the University Space Management Committee.
29. Significant equipment expenditure (e.g. >£50k per item) that is capitalised as part of the project budget is discussed as required, with the Estates Directorate. As part of normal business, any capitalised equipment requests are made after consultation with the Schools Finance Adviser prior to any major capital purchase. The School has assigned a proportion of ongoing operational budget to replacement expenditure.
30. Discussions on building maintenance are raised with the Estates Directorate as they arise if they immediately affect School operations, otherwise they are considered as part of ongoing quarterly meetings with the Estates Directorate or potentially through Campus Committees. All budget associated with normal building maintenance is held by the Estates Directorate, albeit the School can use operation budget if necessary for new initiatives or for requests over and above normal maintenance schedules and budgets.
31. The University has developed a Sutton Bonington Masterplan with the intention of providing a longer term broad framework for further estates development at the Campus.
32. The Schools direct expenditure in 2009/10 financial year was £8,641k. In addition, the School also incurred central charges of £2,082k to support Information Services, Estates, Finance, Central Academic Support Services, general central costs, scholarships and strategic funds etc; these costs will therefore include some costs which support teaching and research activities in the School. However, these central charges are allocated to the School as part of the University budgeting process and the School has no control on the level of costs assigned; they would be difficult to disaggregate and to assign to categories without disproportionate cost and factual inaccuracy.

33. The School has a capital expenditure budget of £20.0m to ensure support for building developments and equipment purchases at both the School and Clinical Associates, in addition to access to other normal capital funding arrangements within the University; this is now fully assigned, with provision made for all developments still outstanding at Scarsdale Veterinary Hospital and Dick White Referrals.

Table 1 Income/Revenue

<i>£k</i>	State (government)				Income from services provided		
<i>Year</i>	To University administered outside the Faculty				Income from services provided	Research	Total
	HEFCE T	HEFCE RDP	HEFCE QR	Tuition fees			
2009/10	4,892	124	956	1,900	173	1,620	9,665
2008/9	3,906	82	25	1,391	176	842	6,422
2007/8	2,684	22	5	838	149	449	4,146

Note:

- Tuition fees include fees from both undergraduate and postgraduate students (£1,586k and £314k respectively in 2009/10)
- Income from services provided comprises revenue from continuing education (including the provision of facilities and staff effort for outside providers), NuVetNA, sale of merchandise, DIY livery provision, vending machine sales, and grants to support teaching
- Clinical income remains with the Clinical Associates as part of the contractual relationship.
- In addition to these figures the School has a donation fund of £106k.

Table 2 Expenditure

<i>£k</i>	Pay	Non pay					
<i>Year</i>	Salaries	Teaching support	Research support	Clinical support	Other	Central charges	Total
2009/10	5,284	1,334	1,112	0	911	2,082	10,723
2008/9	3,987	834	992	0	695	1,916	8,424
2007/8	2,942	663	410	0	412	1,609	6,035

Note:

- Salaries comprise all permanent and fixed term staff, including Postdoctoral Research Assistants
- 'Teaching support' comprises costs associated with both the 5 year and 6 year courses and relates to all aspects of the student experience and includes consumables, equipment and other items associated with teaching, learning and assessment and student support, including access to animals.

- 'Research support' includes not only expenditure on research grants, general research operations and equipment but also funding that the School has allocated to 'pump prime' research. The School is appointing staff that, in the most part, have not brought research funding with them such that pump priming is essential and also is an important recruitment incentive. The School has therefore made available funding for every academic staff member to have a pump-prime fund.
- Costs associated with postgraduate students are shown under 'Research support'.
- 'Other' includes general costs such as recruitment costs, stationary, general equipment, and costs associated with services provided (e.g. continuing education NuVetNA, sale of merchandise, DIY livery provision, vending machine sales)
- The relationship of the School to Clinical Associates is predominantly one to deliver the educational experience required on the course. Both the School and University accept that it is not a profit-based association, and that some payment in kind may be made e.g. provision of staff to offset decreased utilisation or provision of clinical services.

Comments

34. The Visitors commend the University on its substantial financial undertaking in establishing the veterinary school, its continued commitment and investment made to date, as well as the farsightedness of its budgetary provision.
35. Devolved budgets to the School and good financial control within the School have undoubtedly been important for the successful development of the physical infrastructure and curriculum.
36. The costing model appears to the Visitors to be robust and provides for continuation of the current level of student experience as well as the potential for research growth. The Visitors were further reassured that the University has no intention of making any substantial changes to the budgeting process that produced this satisfactory outcome.

Chapter 4 – Curriculum

General aspects

Veterinary training must comprise at least five years' full-time theoretical and practical study in a University or equivalent higher education establishment. Longer veterinary basic training is a legal decision for the country.

It is imperative to acquire basic knowledge in all fields of veterinary science, particularly in clinical instruction, thus enabling veterinary surgeons to perform all their duties, as stated in Directive 2005/36/EC, Annex V. It is desirable that the students are allowed more advanced training (tracking) in one given field. This can be up to 20% if students meet the day1-competences.

Provided that the curriculum maintains an adequate level of training, faculties can follow the Bologna Declaration by offering a Bachelor's degree prior to finishing the 5-year full-time minimum undergraduate veterinary education, leading to the award of the professional title of Veterinary Surgeon (or equivalent professional title) as regulated by the Directive 2005/36/EC. Graduation after completing this veterinary education is equivalent to a Master's level and, depending on national regulations, this degree may be assigned to the Veterinary Surgeon (or equivalent professional denomination). The title of Veterinary Surgeon is the only professional title provided (Directive 2005/36/EC) after having completed these full-time studies lasting for at least 5 years.

Acquisition of generic competences such as skills in written and oral communication, problem-solving and professional attitudes at all stages of the curriculum are an important adjunct to practical and clinical skills.

The curriculum (e.g. the distribution of the theoretical and practical training among the various groups of subjects listed in Directive 2005/36/EC) must be acquired in such a manner that the educational aims are met. Curriculum development is the responsibility of the institution as a whole, and should not be left to individual departments (see also Stage two). The aims of the curriculum and the learning objectives/outcomes must be clearly explained to both staff and students (see also Stage two).

These aims must reflect the needs of the profession and of society, and mechanisms must be introduced to ensure this (see also Stage two). Methods must be established to monitor and, where necessary, amend the curriculum. Faculties should aim towards the quality assurance mechanisms prescribed for Stage two.

The instruction provided must include basic clinical training across all common domestic species, e.g., companion animals (dog, cat), equine and the food-producing animals of the bovine, ovine, caprine, porcine, avian and farmed fish species. In cases where the Faculty cannot give adequate hands-on teaching in a species, arrangements should be made for students to learn this at another Faculty (freedom of learning – European Credit Transfer System principle).

The breakdown of the theoretical and practical courses between the various groups of subjects must be balanced and co-ordinated so that the students may acquire the knowledge, skills and experience mentioned in these guidelines. Practical training (particularly clinical training) requires the active participation of students under appropriate staff supervision in adequate ratios.

Extra-mural practical training may form part of a full-time veterinary course as long as it is supervised by the institution concerned and does not exceed six months of the total academic five-year training period (Directive 2005/36/EC). Extra-mural training is complementary, and can not be used to replace training by the Faculty, but can be used to supplement the basic intramural training provided by the institution.

All students must have acquired “day-one” competences by the time they graduate including general academic and professional attributes and attitudes towards professional development as well as pertinent practical -generic and clinical- skills.

Provisions should be made for those undergraduate students who want to gain specific experience in research.

Findings

37. The veterinary curriculum at Nottingham has been designed to meet the RCVS Day One competences, QAA Subject Benchmark for Veterinary Science and EAEVE Subject Areas, as well as the need for students to have a grounding in basic science, to be research literate and to develop as professionals. An outcomes based approach has been used to design the new curriculum to ensure that all the essential competences are covered, and that the content of the curriculum is properly matched to teaching methods, delivery, pedagogical approaches and assessment.
38. The 5-year veterinary curriculum at Nottingham guides the undergraduate student through veterinary science, veterinary medicine and veterinary surgery programmes leading the successful student to graduate with the following degrees:
 - Bachelor of Veterinary Medical Sciences (BVMedSci) at the end of Year 3
 - Bachelor of Veterinary Medicine (BVM) and Bachelor of Veterinary Surgery (BVS) at the end of Year 5 (awarded jointly)
39. In summary, the curriculum is delivered in the following manner:
 - a vertically (clinically) and horizontally (subject) integrated programme within a basic science systems-based modular approach; this emphasises both the clinical relevance of basic veterinary sciences, and the scientific basis for clinical decision making
 - the first 4 years cover body systems modules (e.g. Cardiorespiratory System, Reproduction System etc), reflecting the experience that common diseases frequently present with clinical signs that are system specific. The teaching allows students to gain an overall picture of the body system by integrating traditional subjects such as anatomy, physiology and biochemistry. The systems-based approach provides the basis for species comparative veterinary science but is integrated into the whole animal within Clinical Practice in Year 5. Each body system module is delivered once as a clinical science subject (during Year 1 or 2) and again as a clinical subject (during Year 3 or 4)
 - a combination of didactic, practical, case-based and directed learning

- problem-oriented learning based around clinical case scenarios from day 1 of the course, developing problem-solving skills, utilisation of multiple resources and ensuring lifelong rather than superficial learning
 - practical hands-on animal experience from day 1 of the course
 - key theme 'long' modules (including for example Personal and Professional Skills delivered over 4 years) which are delivered parallel to the systems-based modules
 - an integrated Year 3 research programme leading to the degree of Bachelor of Veterinary Medical Sciences (this follows the model developed in the Medical School at Nottingham)
 - clinical experience provided within a lecture-free Year 5 delivered according to species through a teaching model which involves a number of Clinical Associate institutions with placed University academics. This approach provides students with experience of first and second opinion and referral cases in all domestic species, livestock production systems, wildlife conservation and exotic animal medicine and results in the acquisition of 'Day One' competencies.
40. The curriculum has been developed from the outset in consultation with external members of the veterinary profession, and modules are subject to appropriate processes of development and ongoing evaluation and review. The list of modules that make up the programme are attached at Annex 1.

Course content

41. The curriculum is taught using a modular system over the first 4 Years with a lecture free clinical final year. Details of the content of all the modules were provided to the Visitors and are summarised in the Self Evaluation Report. More information is also provided under subject headings later in this report. Annex 1 provides list of module credits, and tables showing curriculum hours by course year and by subject, as well as the calculation of EAEVE ratios.

Modular teaching (Years 1-4)

42. **Block modules:** Each major body system is delivered as a separate module. In Years 1 and 2, the systems-based clinical science modules cover structure and function in the normal animal (Musculoskeletal 1, Cardiorespiratory 1, etc.). Each of these systems-based modules is repeated in Year 4, when the clinical aspects of disease, diagnostics and treatment are delivered (Musculoskeletal 2, Cardiorespiratory 2 etc). Individual clinical science modules are delivered within the same month of the year as the relevant clinical module to ensure vertical integration of the curriculum. The modular teaching uses a problem-orientated programme and is delivered using a mixture of teaching methods. Core 'signposting' didactic lectures and practical classes are delivered within each week of the course whilst other areas are delivered using problem-orientated and problem-based learning. Further teaching methods include small group work in directed learning classes, seminars, demonstrations, computer-assisted learning, and self directed learning.

43. **Long modules:** In addition to these 'short' system based modules, there are also long modules running throughout the year. These long modules cover some of the key skills and knowledge required across the veterinary field (for example in Years 1 and 2; Animal Health and Welfare, and Personal and Professional Skills).
44. **Integrated teaching:** Each of the systems-based modules is integrated horizontally and thus covers anatomy, physiology, histology, cell biology, adaptation and repair, pathology, examination and diagnostic techniques and normal clinical findings for each of the body systems. Long modules are delivered throughout the year, and provide a progression of knowledge, and vertical integration of essential key skills and knowledge into the systems based block modules. Module 1 (clinical science) and Module 2 (clinical) of each body system will generally occur within the same month during the academic year, enabling the clinical students to review any relevant Module 1 material (basic biology and science, anatomy dissections, histology etc.) during the Module 2 teaching. This helps students to activate their previous knowledge and also to appreciate how clinical aspects inter-link with normal structure and function. Year 4 students are also involved in delivering learning to earlier years (e.g. in the Reproduction Body Systems modules) to ensure they are cognisant of all the relevant basic science relating to that module.
45. **“Embedded modules”:** In a typical problem-orientated curriculum, matrices of subject and topic are mapped into the individual cases that are delivered throughout the course. When doing this there is the potential for particular topics to become 'hidden' to casual observation of the curriculum. To avoid overlooking these areas staff have identified the learning outcomes (including for example in Years 1 and 2; development and tissue differentiation, metabolism and physiology, structure and function of excitable tissues, clinical laboratory sciences, diagnostic imaging, various '-ologies', and other species) and mapped them into the long and block Modules. These topics are termed 'Embedded Modules' and are tracked by dedicated Module convenors.
46. **Research project (Year 3):** All students undertake a research project during Year 3 which forms part of the requirements for the Year 3 Bachelor of Veterinary Medical Sciences degree.
47. **Clinical practice (Year 5):** Students undertake a series of intramural Clinical Practice rotations that comprise small-group clinical teaching in the hospital / practice / laboratory situation. Teaching and learning is based upon observation, discussion and practical experience; at each institution students are under the supervision of University academic staff placed at, and working within, the institution. The rotations are delivered over a period of 50 weeks, the rotations themselves occupy a total time period of 26 weeks. During the 50 weeks, students also undertake a 4 week elective in Specialist Practice, a 2 week compulsory Veterinary Public Health rotation and undertake up to 18 weeks⁷ of Clinical Extramural Studies and study / vacation.

⁷ It is normal that a number of weeks CEMS will have been undertaken prior to Year 5

48. **Extra-mural studies:** Animal Husbandry and Clinical Extra-Mural Studies (EMS) is organised in accordance with RCVS policy. Animal Husbandry EMS (AHEMS) is scheduled in Years 1, 2 and 3, and a total minimum of 12 weeks is required. Clinical EMS (CEMS) is scheduled from the end of Summer of Year 2⁸, and a total of 26 weeks is required.
49. **Portfolio and skills diary:** Students are required to maintain a portfolio and skills diary. These are submitted for assessment annually as a “must pass” element of the PPS module. In Years 3 and 5 students must also attend a portfolio viva. The portfolio is a student-centred method for the development of life-long learning skills namely the identification of strengths and weaknesses in learning, reflection on these abilities and creation of action plans to fill gaps that may emerge. It is used both in AHEMS and CEMS placements. Action plans are created prior to placements and these are shared with Personal Tutors and placement providers. This also helps to prepare students for the RCVS’ Professional Development Phase after graduation.

Comments

50. The Visitors commend the School on creating an innovative new curriculum which they confirm meets the objectives set by RCVS and EAEVE. Like all curricula it must be continually adapted for improvement and to meet changing circumstances. The visitors had little doubt that the School would ensure that such adaptation and renewal took place.

⁸ Subject to prior completion of Animal Husbandry EMS

Curriculum – Basic subjects & sciences

The Instruction in basic subjects, (physics, chemistry, animal biology, plant biology, biomathematics) may be given as part of, or in association with, other disciplines of the veterinary course. They could also advantageously be taken prior to entry to the veterinary course. These subjects should provide a solid background in chemical, physical and biological sciences, with the objective of preparing students for the subjects to be taught later in the veterinary curriculum.

Instruction in basic sciences must provide students with an understanding of the fundamental biological principles and mechanisms underlying animal health, disease and therapy, from the molecular and cellular level to the level of the organ, the whole animal and animal populations. This includes an understanding of the biological basis of normal structure and function, the mechanisms governing homeostasis, the physiopathology of organ systems and the biological and pharmacological evidence-based mechanisms, by which disordered states may be returned to normal.

The teaching must also cover the biology of agents that cause and transmit diseases from animal to animal and from animal to man, the transmission mechanisms and the mechanisms by which animals defend themselves against infectious agents and how these mechanisms can be induced.

The basic sciences must include:

- Anatomy (including histology and embryology),
- Physiology,
- Biochemistry,
- Genetics,
- Pharmacology, and pharmacy,
- Toxicology (including environmental pollution),
- Microbiology (including virology, bacteriology and mycology),
- Immunology,
- Epidemiology (including scientific and technical information and documentation methods),
- Professional ethics.

Findings

51. An introduction to the fundamental concepts and terminology of the basic subjects and biomedical sciences is provided in the first two weeks of Year 1. This provides the basis for subsequent incremental development of understanding in a range of basic science subjects including anatomy, physiology, biochemistry, embryology, immunology, genetics, molecular biology and microbiology within the systems based modules undertaken in Years 1 and 2. Subjects which traditionally have been considered as 'paraclinical' such as pathology, microbiology, parasitology and immunology are also taught within the system based modules in Years 1 and 2 and are complemented and reinforced by additional teaching in a Year 3 Principles of Clinical Veterinary Science Module. Each of the basic subjects and sciences is considered as an embedded module within the curriculum and tracked to ensure elimination of any omissions or duplications across the modules. It is expected that when the students

progress to the clinical modules in Year 4 they are conversant with all the material taught in the clinical science system-based modules and the long modules delivered in Years 1 and 2.

52. The School has increased emphasis on basic subjects and sciences within all modules across the course⁹:
- Guidelines have been developed as to the maintenance and revision of basic science components with the year 4 clinical modules
 - The module review for each clinical module is reviewed by staff responsible for delivering the basic science elements of the course
 - To ensure that the balance between basic science and clinical material is appropriate, all delivery content is reviewed by the embedded module convenors

Comments

53. The core basic and paraclinical sciences, which in the first two years of the course are embedded in clinically oriented systems modules, are consolidated in the Principles of Veterinary Clinical Science module in year three. This together with the research projects, not only ensures that traditional 'ologies' are covered, but in many cases appears to inspire the students to a greater interest in the basic sciences underpinning clinical veterinary science.
54. A potential danger of an integrated course is that assessment of embedded subjects might allow students to pass examinations overall, while never achieving adequate levels of understanding or knowledge in embedded areas. SVMS has therefore established systems to ensure that all areas traditionally examined are covered, and the School is introducing a new software system that should ensure direct linkage between learning objectives and assessment. In addition, the review of basic science embedded in the curriculum includes a review of assessment and achievement. A more formal audit of assessment by traditional subject area is planned.

⁹ The Curriculum Working Group also reviews the basic science and subject content as part of its remit.

Curriculum – Clinical Sciences

The course of instruction in the basic sciences (pre- and para-clinical subjects) should have laid the necessary groundwork on which to build clinical knowledge and skills.

Propaedeutic training, as listed in the Annex V.4 of Directive 2005/36/EC, must provide the skills required to examine the patient or analyse the case, collect the clinical and laboratory data as the fundamental basis for a diagnostic and therapeutic plan for the case.

Intramural clinical training must be provided so all students receive a common clinical grounding, encompassing all species and disciplines, in accordance with the Directive 2005/36/EC, Annex V, and adequately enable veterinary surgeons to perform basic clinical duties in all species, if required (see the list of essential competences required at graduation, the so-called “day-one skills”). The time allotted for training in clinical sciences should account for at least 40% of the entire curriculum. This does not preclude the acquisition of additional knowledge in selected areas for which there is less demand as considered in the Directive 2005/36/EC.

Extramural clinical training and exposure to patient-driven clinical services are, albeit encouraged, only to be considered supplementary to the intramural clinical instruction provided by the Faculty, with equal consideration to teaching hospital (stationary) clinics or ambulatory (mobile) clinical services, which should remain the core of the intramural clinical instruction.

The clinical sciences must include:

- Obstetrics,
- Pathology (including pathological anatomy),
- Parasitology,
- Clinical medicine and surgery (including anaesthetics);
- Clinical lectures on the various domestic animals, poultry and other animal species;
- Preventive medicine,
- Radiology, (diagnostic imaging)
- Reproduction and reproduction disorders,
- Veterinary state medicine and public health,
- Veterinary legislation and forensic medicine,
- Therapeutics,
- Propaedeutics.

The above subjects are general subjects. Faculties should ensure that students are exposed to all major areas of clinical specialisation.

Findings

55. Clinical sciences are vertically integrated throughout the course to allow effective embedding of clinical concepts and skills alongside basic sciences from Year 1. In Years 1 to 3 clinical material is used to reinforce and contextualise the basic subjects and sciences, and practical skills which are core to later development of clinical competence are taught, practised and assessed. In Year 4 of the course, the emphasis

is primarily clinical, utilising and building upon earlier concepts and knowledge. The development of clinical knowledge is also supported by the process of EMS. The lecture-free Year 5 is based at the Clinical Associates in which structured, quality assured clinical teaching is delivered in the context of a large, varied caseload, relevant to the 'Day One' veterinary graduate.

Comments and suggestions

56. The introduction of clinically relevant material into the early years of the curriculum is to be applauded, and the early introduction of some diagnostic techniques such as ultrasound examination in the early years and through the Clinical Skills Laboratory is praiseworthy. It has resulted in students who are well equipped to undertake tasks at the start of their clinical EMS.
57. The Clinical Skills laboratory offers an excellent environment for the initial development of practical skills, and makes maximum use of clinical material available through the Dissection Room, e.g. for cadaver surgery, and live animals. The absence of hospitalised patients and the consequent reliance on staff and client owned pets for the provision of live animals is a potential threat, although at present a small one. Plans for alternative provision should be considered (See also Chapter 7). The laboratory is currently well equipped and staffed and a recurrent budget has been designated to ensure the equipment remains modern and relevant to contemporaneous clinical practice.
58. Parasitology and pathology are consolidated in the Principles of Clinical Science module, in food hygiene (if appropriate) and in the year five pathology rotation.
59. The pathology case load is more than adequate, and includes an appropriate range of species. The integration of the pathology facility with the VLA unit at Sutton Bonington ensures that students have a thorough grounding in personal safety and biosecurity (including waste issues). Despite the inevitable cuts in VLA capability, the Sutton Bonington unit appears well placed to maintain, and perhaps even increase, its case load.

Curriculum – Animal Production

Animal Production is the broad term used to describe the entire discipline of breeding, rearing and disposal of food-producing animals and their products by sale, slaughter for food or as waste. Tuition must cover the major food-producing species (cattle, sheep and/or goat, pigs, poultry, rabbits, and equine) and one example of a farmed fish species. Knowledge of animal production in its broad sense is essential for the veterinarian in order that changes in normal behaviour and management can be detected, animals can be handled safely, treatment can be given in an appropriate manner and appropriate recommendations can be made for prophylactics and care.

The training must be oriented towards the application of prophylactics and clinical treatment on individual and herd basis, preventive veterinary medicine (e.g. herd health) and management of epidemic diseases, reproductive management, housing of animals and feeding regimes. The training provided should allow veterinarians to derive proper data for food chain information and possible risks to human health.

Training must familiarise students with the normal methods for the disposal or recycling of animal waste and the common requirements for ethical, environmentally-sound and hygienic disposal of the bodies of companion animals and the carcasses of food-producing animals.

Training must provide adequate knowledge on animal welfare issues, covering rearing and holding on-farm until slaughter.

Knowledge of the economics of animal rearing enterprises and their place in the rural economy is required to make informed decisions about disease control and euthanasia.

The importance of genetics in animal breeding and trade as well as for disease resistance should be understood.

Theoretical and practical training must cover the broad requirements of the individual member states.

Theoretical instruction should be accompanied by practicals which provide the confidence to handle major domestic animal species safely and the ability to carry out basic tasks in animal management, breeding and rearing.

The animal production subjects must include:

- Animal production (the domestic food-producing animal species in society and the economy)
- Animal nutrition (nutrition and feeding of food-producing species)
- Agronomy (cropping, grazing and land use in relation to food-producing animal species)
- Rural economics (animals as a business and their importance in the countryside)
- Animal husbandry (housing, management and reproductive management systems, including artificial reproduction techniques, e.g. artificial insemination, multiple ovulation and embryo transfer).
- Veterinary hygiene (farm layout, drainage, cleaning, disinfection and bio-security)
- Animal ethology and protection (behaviour, social organisation in animal populations and common welfare issues, including behavioural disorders and their remediation)

Relevant and appropriate consideration of the principles above should also be applied to the major non food producing animals like the dog and cat.

Findings

60. Animal Production is a key subject area in the early years of the course. The fundamentals of animal production are taught in the Animal Health and Welfare modules in Years 1 and 2. Three of the guiding aims of these modules are to provide:
- An introduction to the health and husbandry of the common species on which to build throughout the remainder of the course.
 - A basic understanding of animal industries and the role of the different species in society
 - The key animal handling and practical skills to enable students to effectively and efficiently learn during preclinical farm based Extra Mural Studies (EMS) and clinical EMS
61. The subject is taught via a combination of lectures, practicals, self directed learning, seminars and small group teaching using both internal and external lecturers with appropriate subject area expertise. The material in these modules provides a foundation which underpins teaching in all other modules as the course progresses.

Comments

62. The Animal Production curriculum covers the main subjects, although in some cases (for example Nutrition and Genetics) the subjects are contained within embedded modules which may make it difficult to follow. However both theoretical and practical classes are well designed to teach the main areas, moving through from molecular biology into population genetics and clinical nutrition.
63. Reproduction is in a specific module which is developed in a comprehensive way leading to a sound understanding for the student of the reproductive cycle and related problems.

Curriculum – Veterinary Food Hygiene and Public Health

The training must ensure that each student understands the fundamentals of veterinary public health, food science and modern food technology, the scientific basis of the relationship between food and human health, and the factors underlying the quality of hygiene (of food and the environment).

Directive 2005/36/EC, Annex V.4, 5.4.1, requires therefore adequate knowledge of the hygiene and technology involved in the production, manufacture and putting into production of animal foodstuffs or foodstuffs of animal origin. It further requires adequate knowledge of the laws, regulations and administrative provisions relating to the production of such foodstuffs. Veterinary public health/Food hygiene education for veterinarians must therefore ensure that, on graduation, they can be trained by the Competent Authority (CA) to carry out the audits described in the appropriate food hygiene regulations.

Study programmes should therefore build on a sound knowledge in the field of veterinary public health/food hygiene so that students:

- know how to carry out ante-mortem inspection on farm or in the abattoir and assess the welfare of the animals concerned.
- be familiar with veterinary public health and the respective legal regulations.
- understand post-mortem inspection and possess basic practical skills within the food production business and inspection requirements.
- understand the importance of risk-based monitoring of the processes (HACCP concept). These tasks require a sound knowledge of the pathology, microbiology, parasitology, pharmacology and toxicology of food animals, of epidemiology and of the legal requirements, allowing them to ensure public health and report back along the food chain to the farmer and to the Competent Authority.
- interpret the information returned by the Food Business Operator to the farm so as to benefit production, animal welfare and public health.
- acquire an acceptable knowledge of the principles of Food Hygiene Legislation at EU-level and in the individual state.

The veterinary food hygiene/public health subjects must include:

- Inspection and control of animal foodstuffs or foodstuffs of animal origin and of the respective feed-stuff production units,
- Food hygiene and technology,
- Food science including legislation,
- Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place).

The course of instruction must cover subjects necessary to prepare the graduate to perform effectively not only in the traditional veterinary practice, but also in other common professional roles.

Undergraduates must receive broad information on the different opportunities of post-graduate training and specialisation.

Findings

64. The School has developed and revised its delivery of food hygiene and public health having undertaken a mapping of the curriculum for Veterinary Public Health against EAEVE and RCVS requirements and European food legislation.
65. Students undertake a year-long module on Food Hygiene, Food Safety and other aspects of Veterinary Public Health in Year 4 and in a two week rotation block in Year 5, which forms 2 weeks of their Clinical EMS requirement. The 4th/5th year module covers mainly the food production line (meat, milk), and is an extension of different other VPH issues in Years 1 to 3.
66. The module in Year 4 and 5 includes practicals and assignments in food microbiology, ante-mortem and post mortem meat inspection, aspects of humane slaughter, as well as case studies on topics such as Salmonella, *E. coli* 0157, risk profiling, small animal and equine cases (horse passports etc.). All students undertake visits in small groups supervised by the School to an animal market, food processing plants, high throughput poultry and red meat abattoir, as well as the University's own abattoir. There are also a number of bee-hives on site and each rotation group of students spends a day learning about bee-keeping, bee-diseases and possible implications for the veterinary public health field.
67. The principles of the food chain of animal derived food, epidemiology, microbiology, pathology, state veterinary medicine aspects are delivered through a variety of teaching formats (including lectures, practical classes and clinical relevance sessions) in Years 1 to 5. Students are expected to develop an understanding of the public health issues relating to the farm to food chain.

Comments and suggestions

68. The school has implemented the main knowledge requirements of an official veterinarian listed in chapter IV of the directive EG 854/2004 in a modern and innovative curriculum. The integrated ("feed to food") approach of monitoring and controlling of animal health and food safety through the food chain approach, which is an important veterinary responsibility under European laws, is reflected in the undergraduate training.
69. Various aspects of VPH are distributed throughout the whole curriculum. This is perfectly acceptable but somewhere the totality of the subject should be highlighted to further stimulate student interest in the whole topic and ensure that they see "the whole picture".
70. It is suggested that the module in Year 4 and Year 5 should be renamed, since it only covers some of the aspects of the very broad veterinary public health field. The present use of the VPH title gives the impression that these modules represent the totality of VPH provision.

71. The School should consider the option of consolidating the half-day submodules in Year 4 into a block module.
72. The School should review the high number of lectures in the Year 4 module provided by external presenters.
73. The School should continue its efforts to secure a Diplomat in VPH on the staff.

Curriculum – Professional knowledge

Professional knowledge subjects must include:

- Practice management
- Veterinary certification and report writing
- Career planning and opportunities

Findings

74. Professional knowledge and skills are emphasised throughout the curriculum. The material is taught in two ways: firstly, the stand-alone module Personal and Professional Skills (PPS) runs longitudinally throughout Years 1 to 4, and secondly, learning outcomes from PPS are integrated at multiple relevant points within other system based modules (including, for example clinical relevance sessions). Within the PPS module, teaching is often experiential or discussion based and uses techniques such as the use of medical actors for communication skills sessions. Inter-professional learning in Year 5 aims to emphasise the importance of teamwork and communication in a practice setting working alongside veterinary nurses. Professionalism is a separate and specific assessment for each Year 5 rotation. Professional knowledge is also assessed both within PPS and other modules.

Comments

75. The Visitors spoke with a number of students and with EMS placement providers, who confirmed that Nottingham's students are very well aware of current ethical issues and debates, and the need for professional behaviour at all times.
76. The School is to be commended on its coverage of Professional Skills which is well integrated across the curriculum and assessed throughout.

Chapter 5 - Teaching, quality and evaluation

The teaching of basic sciences

One of the major objectives is the acquisition of problem-solving skills. To this end, instruction must cover the methods of acquiring, documenting and analysing scientific and technical data.

Practical training must serve to familiarise students with subjects studied in theoretical courses and to give them some insight into how scientific knowledge might be acquired. Practical training does not mean simply observing the teacher during demonstrations. Acquisition of generic problem-solving skills is required.

Findings

77. As outlined in Chapter 4, the curriculum is vertically integrated and organised into modules based around body systems. Each major body system is delivered as a separate module. In Years 1 and 2, the systems-based clinical science modules cover structure and function in the normal animal (Musculoskeletal 1, Cardiorespiratory 1, etc.). Each of these systems-based modules is repeated in Year 4, when the clinical aspects of disease, diagnostics and treatment are delivered (Musculoskeletal 2, Cardiorespiratory 2 etc).
78. Module 1 (clinical science) and Module 2 (clinical) of each body system will generally occur within the same month during the academic year, enabling the clinical students to review any relevant Module 1 material (basic biology and science, anatomy dissections, histology etc.) during the Module 2 teaching. This helps students to activate their previous knowledge and also to appreciate how clinical aspects inter-link with normal structure and function.
79. The modular teaching uses a problem-oriented programme and is delivered using a mixture of teaching methods. Core 'signposting' didactic lectures and practical classes are delivered within each week of the course whilst other areas are delivered using problem-based learning. Further teaching methods include small group work in directed learning classes, seminars, demonstrations, computer-assisted learning, and self directed learning.
80. Each of the systems-based modules is integrated horizontally and thus covers anatomy, physiology, histology, cell biology, adaptation and repair, pathology, examination and diagnostic techniques and normal clinical findings for each of the body systems. Long modules are delivered throughout the year, and provide a progression of knowledge, and vertical integration of essential key skills and knowledge into the systems based block modules.
81. All students undertake a research project during Year 3 of the course.

82. The curriculum is delivered in several different formats in Years 1 to 4. A variety of methods have been chosen because each provides distinct advantages as well as facilitating different learning experiences:
- Lectures are normally delivered to the entire year by one or two academic staff. Lectures are clinically informed and where possible include interactive participation, for example by using online voting software
 - Practical classes are delivered to a proportion of the year or sometimes the whole year class. Frequently there are a number of stations or events that groups will rotate through during an entire morning or afternoon session; in addition for some modules such as Animal Health and Welfare, students may rotate through practical classes over a number of weeks, some of which are delivered off site. Practical classes may include live animal examinations, anatomical dissection, histology classes, investigative and diagnostic techniques, laboratory classes etc
 - Directed (structured) study sessions include Directed Self Learning (DSL) and Directed Group Learning (DGL) and follow on from lectures that deliver key concepts or students are given specific learning objectives which develop the knowledge given during lectures and practical classes
 - Clinical Relevance sessions are organised within small groups and are commonly facilitated. Clinical relevance study includes interactive discussions, clinical scenarios, question and case-based learning. These usually take the format of a clinical case which is developed during the course of the week. Cases have been developed based on common clinical conditions and diseases identified through survey of veterinary stakeholders

Comments

83. Much of the curriculum explicitly requires the students to develop and use problem-solving skills in order to discover for themselves scientific and clinical concepts, knowledge and skills. The teaching and research laboratories contain some excellent material for active, hands-on learning.

The teaching of Clinical Sciences

Clinical instruction must take place in groups that are small enough to ensure hands-on experience for all.

Students' problem solving and clinical skills should be developed through their full involvement in case management under suitable supervision. The mere observation of others practising veterinary medicine and surgery is not acceptable. The instruction provided must include basic clinical training across the common domestic species. Effective monitoring systems are to be provided in cases where the Faculty cannot give hands-on teaching in a species and the student must learn this at another institution.

Time-tabled lectures should be excluded from a substantial proportion of the clinical course as they may clash with students' case management activities.

Those responsible for theoretical clinical training must also be involved in the practical side dealt with in the institution's clinics.

The advancement of knowledge is a task involving all members of the profession. Therefore, interaction between students and clinical researchers working in the clinical field should be arranged in order to stimulate students' interest in research.

Findings

84. Following on from the modular, system-based integrated modules in years 1 – 4, students in Year 5 undertake a series of intramural ¹⁰Clinical Practice rotations that comprise small-group clinical teaching in the hospital / practice / laboratory situation. Teaching and learning is based upon observation, discussion and practical experience; at each institution students are under the supervision of University academic staff placed at, and working within, the institution. The rotations are delivered over a period of 50 weeks, the rotations themselves occupy a total time period of 26 weeks. During the 50 weeks, students also undertake a 4 week elective in Specialist Practice, a 2 week compulsory Veterinary Public Health rotation and undertake up to 18 weeks¹¹ of Clinical Extramural Studies and study / vacation.
85. Clinical rotations take place at each of the Clinical Associate organisations, details of which are provided below.
86. Year 5 is competency-based, and allows students to develop further their clinical skills, reasoning, knowledge and professionalism in the context of the workplace. Although the primary role of the clinical rotations is to facilitate intensive hands-on teaching around clinical cases in a practice environment, a number of additional teaching formats are used:
 - Seminars are normally delivered to the entire rotation group and are scheduled so that they occur at fixed times within the rotation.

¹⁰ The term "intramural" is used here to distinguish such placements from clinical EMS, although they take place "outside the walls" of the University campus.

¹¹ It is normal that a number of weeks CEMS will have been undertaken prior to Year 5

- Case rounds, occurring at the start and end of the day. Students have case responsibility and are expected to be informed about, and present material relating to their cases, in terms of their status, their plan for the day, and any other issues related to their management.
- Occasionally, directed self-learning is used for short periods of time on some of the clinical rotations. This provides the students with the opportunity to consolidate their learning by a review of case material and an ability to access the range of resources such as the on-site library, and online journals.
- Practical classes are scheduled as part of some clinical rotations to ensure the delivery of training around specific practical skills under the guidance of SVMS placed academic clinicians.

Small Animal Clinical Practice (Referral): Dick White Referrals (Year 5)

87. The objective of the 2 week rotation is to give students an insight into what can be achieved in a referral practice, and the importance of appropriate communication to and from the referring veterinary surgeon as well as with the client. Students attend for 10-12 days and undertake evening work. This rotation exposes the students to the caseload of a busy second/third opinion small animal veterinary practice with a particular focus on:
- Small animal internal medicine and cardiology
 - Clinical pathology
 - Small animal referral orthopaedic surgery
 - Small animal referral soft tissue surgery
 - Small animal neurology
 - Small animal anaesthesia.

Small Animal Clinical Practice: Dovecote Veterinary Hospital (Year 5)¹²

88. This 4 week rotation covers the evaluation and treatment of common diseases of small animal practice with a particular focus on:
- Diagnosis and management of small animal species with cardiovascular and respiratory disease
 - Diagnosis and management of small animal species with musculoskeletal disease
 - Diagnosis and management of small animal species with disorders of the skin
 - Diagnosis and management of small animal species with neurological disease
 - Preventative health care including feline shelter medicine
 - Communication skills and ethical considerations of small animal practice.

Small Animal Clinical Practice: Oakham Veterinary Hospital (Year 5)

89. Groups of 4 students attend for a 2 week rotation at Oakham Veterinary Hospital (OVH). This rotation provides experience across a wide spectrum of first opinion companion animal cases in a high quality general practice environment. The rotation covers all aspects of practice, in particular consulting skills, (assessment and pre-operative preparation, diagnostic imaging, catheter placement, anaesthesia, surgery including routine neutering, mass removal and dentistry, post-operative analgesic protocol development and case discharge; inpatient care and case management;

¹² Staff and students will move to the new Scarsdale Veterinary Hospital in Summer 2011 and Dovecote Veterinary Hospital will become a Specialist Elective rotation

preventative medicine and therapeutics. A geriatric clinic provides students with the opportunity of extended consultations and examination of patients.

Small Animal Clinical Practice: Peoples Dispensary for Sick Animals (Year 5)

90. This 2 week rotation covers the development of skills, knowledge and professionalism related to first opinion, small animal practice. Students receive formal teaching from SVMS staff in the form of clinical case assessment, case presentations and formal seminars as well as direct supervision by clinical associate staff on a case by case basis. Students are expected to prepare and present case reports during the rotation. While working in the clinic, students are exposed to small companion animals kept in the home (predominantly dogs and cats), being investigated on a first opinion basis by SVMS or clinical associate staff.

Small Animal Clinical Practice: Scarsdale Veterinary Hospital (Year 5)

91. This 4 week rotation (and associated learning objectives) will be transferred from Dovecote Veterinary Hospital in Summer 2011, with relocation of staff (and recruitment of additional staff).

Equine Clinical Practice (Surgery and Medicine): Oakham Veterinary Hospital (Year 5)

92. This rotation dealing with first and second opinion equine cases covers the evaluation and treatment of a range of working, racing and pleasure horses. Students undertake a 4 day per week rotation for 4 weeks; there are no out of hours responsibilities on this rotation.
93. Students are assigned to a member of staff from Oakham Veterinary Hospital (OVH) or SVMS and shadow their activities. There is an opportunity to partake in both hospital work-ups and ambulatory calls. In addition students spend up to one full day at the Defence Animal Centre working with SVMS staff. Whilst working in the hospital students are exposed predominantly to:
- Horses with orthopaedic disease or investigation of poor performance which may require surgical intervention
 - Horses with medical problems, predominantly cardiovascular, gastrointestinal, or neurological being evaluated predominantly on a second opinion basis by SVMS staff.
 - Use of both standard and advanced imaging techniques including radiography, ultrasonography, MRI and scintigraphy
94. Whilst working on the ambulatory service students are exposed to:
- Horses undergoing routine preventive health care including vaccination and dental examinations
 - Horses presented for preliminary assessment of common equine conditions
 - Whilst spending time with members of OVH staff who typically assess ambulatory cases students have a good opportunity to interact directly with clients. Furthermore routine procedures such intra-muscular and intravenous injections are performed under the guidance of OVH staff.
95. At the Defence Animal Centre students are primarily involved in examination and investigation of horses with musculoskeletal injuries. The nature of the cases and the

lack of restrictions imposed by client expectation at the DAC means that students are able to have a much greater practical role in the work-up of cases; this includes performing nerve blocks and diagnostic imaging.

Equine Clinical Practice: Scarsdale Veterinary Hospital (Year 5)

96. This 2 week rotation covers the evaluation and treatment of common diseases of equine practice. Students undertake a full-time 5 day per week rotation for 2 weeks, either working within the clinic (1 week) or undertaking learning as part of the mobile clinic (1 week). Out-of-hours care of in-patients and evaluation of horses presenting for emergency evaluation out-of-hours is undertaken as required on a rotating basis between all students within this rotation. Students receive formal teaching from SVMS staff in the form of case-rounds, clinical case assessment and formal seminars as well as direct supervision by clinical associate staff on a case by case basis. Students are expected to complete a critique of a scientific journal and present this to staff at the end of the rotation.

Farm Animal Clinical Practice (Medicine and Skills): SVMS (Year 5)

97. The 2 week Farm Animal Medicine and Skills rotation is based at the SVMS with visits to a range of local farms. It combines a wide range of clinical and para-clinical farm animal skills; it is designed to complement and integrate with the Farm Animal Practice and Herd Health Rotations (detailed below). The students are timetabled for 9½ days during this 2 week rotation.

Farm Animal Clinical Practice (Farm Animal Practice): Scarsdale Veterinary Hospital (Year 5)

98. The Farm Animal Practice rotation combines a broad range of first opinion farm animal medicine and surgery; it is designed to complement and integrate with the Farm Animal Medicine and Skills and Herd Health Rotations. The rotation is based at the farm department of Scarsdale Veterinary Group. The students are timetabled for 9 days during this two week rotation (each week, Thursday afternoon is allocated to free study time); students can assist with out of hours cover during the week and weekends. On a day to day basis students are overseen by the University's Farm Animal Senior Clinical Training Scholars (based at the practice) and by a senior partner and Diplomate at the practice.
99. Whilst at the practice, students work with practitioners on first opinion ambulatory farm animal practice. The practice work load is composed of a wide range of first opinion farm animal work, predominantly scheduled routine health visits (including routine fertility work), general surgery (e.g. caesarean operation, correction of left and right displacement of the abomasum, rumenotomy), herd and flock disease investigations, routine farm animal procedures (e.g. castration and disbudding), individual farm animal medicine and tuberculosis testing. A smaller component of the practice case load involves the hospitalisation of individual farm animals in the practice's hospital facilities. Of note was the policy of hospitalisation of calves for which the farmer only pays if the calf survives and is returned, thus providing students with the opportunity to practise their bovine clinical and nursing skills.

100. Students assist with all aspects of this case load and are expected to develop key first opinion skills such as examination, construction of differential lists, injection technique, examination of the reproductive tract per rectum, basic surgery, therapeutic planning and client communication. Additionally, students are expected to research cases, assist with investigations and produce reports, as directed and at the discretion of the clinicians with whom they work.
101. For the majority of the rotation, students work one-on-one with a clinician. Occasionally multiple students or even the whole group work together to see interesting cases or to assist with large tasks (e.g. castration and disbudding of large groups).

Farm Animal Clinical Practice (Herd Health): SVMS (Year 5)

102. The herd health rotation comprises 2 detailed dairy herd evaluations, each one taking one week. Twelve farms participate in the rotation, each one being visited every 12 weeks and the service is provided on a commercial basis, the farms paying a fee to be involved. Eight farms in the Herd Health rotation are linked to Farm Vet Solutions (Rutland) and 4 are from Scarsdale Veterinary Practice. Students spend 10 days immersed in relatively complicated farm situations and work through solving a problem alongside an experienced, specialist farm animal clinician. An holistic approach is taken and thus students consider all aspects of preventive medicine, including animal husbandry, farm economics and social factors. Communication skills and client interaction is important in this rotation and the students have to make their case in front of each farmer, who is paying for the advice. On the last day of this rotation, the Herd Health students also present one of their herd problems to all students on farm rotations and to farm clinical staff.

Pathology Clinical Practice: Veterinary Laboratories Agency and Minster Veterinary Practice (Year 5)

103. This rotation covers aspects of gross and microscopic pathology of various species including farm animals, companion animals and commercial poultry and game birds. Students undertake the rotation for 2 weeks. Students are given introductory instruction in health and safety issues as they relate to performance of a post-mortem examination. Students review medical histories, in some instances interact with producers (predominantly poultry clients), undertake supervised necropsy examinations, including appropriate sample collection and submission, and produce appropriate written necropsy reports. Report writing for each student is a minimum of one mammal and one avian case in which they were involved.
104. Students receive formal teaching from SVMS staff as well as instruction from veterinary staff working for the Veterinary Laboratories Agency and The Minster Veterinary Group.

Zoo and Exotics Clinical Practice: Twycross Zoo Practice (Year 5)

105. Students undertake a full-time 5 day per week rotation for 2 weeks, working in the zoo clinic, in an exotic pet practice, on an avian clinical techniques day and undertaking learning as part of the zoo animal management team (gaining experience working with keepers and with the full time animal trainer). For the majority of the rotation the

students work in pairs or as a whole group of four with some periods of self directed learning and case review.

106. While working in the clinic students are exposed predominantly to:
 - rabbits, rodents, reptiles and birds, which are investigated on a 'first' or 'second' opinion basis by clinical associate staff
 - Zoo species (mainly primate, bird, reptile, hoofstock, felid, canid, rodent and others) being evaluated for routine health checks, pre/post export checks, investigation of disease, investigation or management of reproductive issues.

107. During the zoo and pet exotic clinics, students are involved in all aspects of case management including assessment, sampling, routine treatments, and diagnostic imaging. Most of the zoo cases and many of the pet cases involve anaesthesia which the students assist with. Students are also required to devise a suitable diet for a zoo species using appropriate software; their recommendations are presented to zoo staff. Most cases provide opportunities for students to obtain a history and be involved in the clinical evaluation. Students are expected to obtain and interpret ultrasound images and radiographs under the direct supervision of clinical associate staff on these cases. When cases undergo surgical management students 'scrub-up' and assist with surgical procedures, undertaking surgical procedures under direct supervision. Students also perform post mortem examinations in some zoo species (bird, reptile, mammal) as arise during the rotation.

Comments

108. The range of species seen during the 'Zoo and Exotics' rotations is highly commendable. This rotation not only provides hands-on clinical exposure to a range of species commonly kept as pets, but encourages a comparative and 'first principles' approach to clinical practice. Furthermore, work at the zoo re-emphasises biosecurity and safety issues.

109. The small animal clinical teaching takes place in Clinical Associate premises. The students praised the enthusiasm and willingness to teach of not only the embedded School staff but also the practitioners. They particularly enjoyed and valued their placement at the PDSA.

110. It is important that the goodwill of Clinical Associate staff is maintained. The provision of training in teaching methodology for them is a good thing, and their lack of involvement in formal assessment an appropriate measure. However, going forward, consideration should be given to the provision of continuing education to these staff by the School in order to develop more clinically excellent staff. Compared to farm animal clinical teaching, which is led by a world class group of academics, much small animal and equine teaching is not delivered by staff or associates who would be considered leaders in their field. Whilst this may make the teaching more relevant and accessible for developing Day One Skills, it does not provide the clinical leaders who can act as role models to inspire the next generation and to advance their subjects.

111. Small Animal clinical teaching is undertaken in a number of Associate practices, and all were visited except Dick White Referrals. Small Animal teaching at Scarsdale is not yet on stream. Students are clearly exposed to first opinion cases relevant to the development of their Day One Competences, and the School has addressed the lack of exposure to high quality referral practice through the Specialist Elective EMS placements.
112. There were concerns expressed by some students that repeated exposure to new clinicians almost every day at each new Clinical Associate placement led to increased levels of stress as some felt unable to build a rapport with clinicians, very few of whom they had met in earlier years in the course. This concern also has a potential impact on the amount of responsibility and autonomy students are given by clinicians who need to evaluate competency and build up trust before allowing students opportunities to practice practical skills.
113. There was some evidence from the students that, with the exception of the PDSA placement, they are not allowed to undertake large numbers of consults nor perform many surgeries, and that their experience was not greatly different from that gained on EMS placements. However there was no evidence that the deficiencies in these areas are any worse than at other UK veterinary schools. Conversely there was no evidence that the experiences were any better.
114. The Equine Clinical Associate programme offers Nottingham undergraduates exposure to a wide range of equine cases, typical of those that will be seen on graduation. The rationale behind selection of the two equine clinical associates was explained in terms of high standard of clinical practice and a strong desire to engage with the process of teaching the students. The Visitors' initial concern about the teaching ability of the non-SVMS staff at the associates was allayed by the fact that training in this area is provided to all members of staff and uptake is very good.
115. Unlike the clinical associates in other species, there may be more reluctance for equine practice clients to allow students to lead the consultations. During extensive discussion with several final year students, they all felt that this was not the case and that they were allowed to undertake a considerable number of 'hands on' skills. Obviously this applied more to the hospitalised patients which were removed from the owner and did not have time constraints. The staff at Scarsdale confirmed this finding.
116. The Visitors wondered whether there was a possibility that the 26 weeks of 'traditional' EMS appeared somewhat lacking in 'hands on' experience and be resented by Nottingham students. It was explained that this point was addressed by SVMS staff and generally understood and accepted by the students. During the equine rotation weeks, the students often accompany a different clinician each day. Understandably, this puts the student under a degree of pressure to get to know the particular clinician and build up a rapport with them. They had to go through this process each and every day which could be difficult for some, although most students the Visitors spoke with felt they could cope with this.

117. The students are exposed to a large population of horses at the Defence Animal Centre and are able to carry out a number of clinical procedures without the pressure of owners being there. The equine facilities at Oakham are impressive although there was some feedback from the students that they could not lead consultations. This is to be expected when one considers the location and clientele of Oakham equine. In the Visitors' opinion, it is more than compensated for by the wide range of cases seen. As at all the Clinical Associates, there are excellent IT facilities which allow the students to remain occupied during the inevitable quieter periods that occur in any practice situation. The Oakham centre is some distance away from the veterinary school.

The teaching of Animal Production

Those teaching the theory of animal production subjects should also be involved in practical training with the major domestic animal species. Teaching should reflect the species balance and management systems of the country. For food producing animals, practical work should be farm- case-based as much as possible.

Practical extramural courses should be encouraged as long as adequate supervision is in force.

Findings

118. For information about the teaching of animal production, see pages 45 and 55 above.

Comments and suggestions

119. The teaching of production animal medicine is undertaken by an enthusiastic and able group of young university staff, supported by veterinary surgeons at the clinical associates (CA). The teaching takes place at the university farm and at two CAs with farm departments. The university farm is modern and utilises high tech equipment and has facilities for trial work, particularly with regard to dairy cow nutrition.
120. The course material puts heavy emphasis on preventative, herd health and population medicine, but also includes individual case management. Teaching is delivered using a variety of methods including lectures, group work and practical tuition. The students are encouraged to comment on the course content and their views are heard and addressed by the staff.
121. The Nottingham Dairy Herd Health Group includes practitioners from around the UK who are recognised as leaders in their various fields and contribute to the course material.
122. The CAs provide ambulatory experience and students accompany the veterinary surgeons in very small groups. Elective Specialist Practice EMS gives students with a particular wish to pursue a special interest an excellent opportunity to see high level practice first hand.
123. The overall impression of the provision of Production Animal Medicine is that it is of a high standard and is delivered by a capable and enthusiastic team.
124. It is obvious that all members of SVMS staff have the same enthusiasm and dedication to making the delivery of the whole course as interesting and complete as possible. The visitation team admire their commitment. A concern would be that this degree of enthusiasm is going to be difficult to maintain over the next five year period. To maintain the freshness of approach and commitment to delivering an interesting course will require dedication from all members of staff.

The teaching of Veterinary Food Hygiene and Public Health

Practical training must familiarise students with the concepts of Food Business audit especially with regard to food of animal origin at various stages in the food chain, particularly in slaughterhouses. Students should develop Day-1 competences in the interpretation of food chain information, ante-mortem inspection and post-mortem inspection and be capable of being trained as official veterinarians by the Competent Authority.

The training must take place in groups that are small enough to ensure that all students are able to gain hands-on experience.

It should also give students the opportunity to monitor units involved in the production, processing, distribution and consumption of foodstuffs.

Extramural instruction in the training in veterinary public health and food hygiene may be used so long as it is properly supervised.

Findings

125. Students gain practical teaching in food hygiene, inspection and technology in Year 4 during the Veterinary Public Health module and on Year 5 Veterinary Public Health rotation. Students gain experience in a variety of situations including in the on-site abattoir, where they will be shown the complete process of slaughter from ante mortem inspection to post mortem and carcass examination. They also visit a number of local abattoirs (red and white meat). Each group of rotation students experiences approximately 100 animals and over 15,000 birds being slaughtered at external abattoir visits in Year 5. Further information of the overall veterinary public health teaching is in Chapter 4.
126. Practical work in Year 4 includes post mortem examination of fresh materials from ruminants, pigs and poultry collected from abattoirs, demonstrations and hands-on training on aspects of food production and processing in the food science laboratory of the School of Biosciences. In addition Year 4 students undertake practical sessions in food microbiology to augment their lectures and small group learning in zoonoses and notifiable diseases.
127. In Year 5, students spend 2 full days in the on-site abattoir, where the whole process of slaughter from ante-mortem inspection to butchering is reinforced. The School ensures that at least 2 pigs are procured for teaching purpose at slaughter every rotation; in addition Year 5 students are exposed to a variety of live animals at Melton Market and other abattoirs, and to bees at the School. The opportunities reinforce their learning in veterinary public health including animal welfare, disease control and surveillance and residues control. Year 5 students also gain experience with raw meat, meat products, eggs, honey, fish, shellfish and dairy products sourced from the School smallholding, University Farm, slaughterhouses, farms or food shops.

Comments

128. The Visitors confirm that the teaching of veterinary food hygiene and public health meets the requirements of RCVS and EAEVE.

Essential competences at graduation – the RCVS Day One Competences

Students must be provided with clear learning objectives for each of the essential competences at graduation (day one skills).

Findings

129. The School collects a variety of data to ensure and measure that students are equipped with Day One skills as defined by the assessment strategy. The assessment strategy is described in full in the SER, and summarised below. It ensures that only students who have the requisite knowledge and personal, professional and practical skill base are able to graduate and acquire the title of veterinary surgeon as recognised by the RCVS.
130. All staff and students are provided with a booklet detailing the RVC Day One Skills – which have been mapped to the RCVS Day One Competences - all the Day One Skills are assessed as part of students' final examinations.

Comments and suggestions

131. Although students diligently keep a skills diary which is reviewed with their tutor, there was no evidence forthcoming from students that perceived deficiencies were addressed through informing Clinical Associates of specific student learning needs. The School should ensure that this important feedback takes place.

The teaching and learning environment

The academic environment must be conducive to learning of the students and the didactic and pedagogic development of the teaching staff (see also Stage two).

Findings

132. The SVMS is housed in new purpose-built accommodation, with lecture theatres, seminar and teaching rooms designed to match the pedagogical aims of the course. The University has also invested in modern technological infrastructure to support e-learning across the whole programme. More details of facilities are provided in Chapter 6, Facilities and Equipment.

Comments and suggestions

133. SVMS has invested in a commendable infrastructure of academic support for students when in clinical associate practices. One area not yet completed, but important for closing the clinical loop, is the inclusion of the PM room video-conferencing facilities. The distributed model makes it difficult for students to follow through their own cases to post mortem examination, but the ability of pathology and other rotation students to share information through the means of IT, perhaps during evening rounds will largely overcome this issue.

Monitoring and assessment of students

Student performance must be assessed regularly.

Written, project and practical work, generic competences such as professional attitudes, communication skills, problem-solving abilities must all be evaluated with equal emphasis to practical and clinical skills. Evidence must be produced that students meet day one competences.

Evaluation methods must be known and understood by the students.

Whenever possible, the use of external examiners/observers should be made.

Results of assessment must be documented properly.

Findings

134. The School has developed a comprehensive assessment strategy that is designed to support the pedagogical philosophy of the course. Assessment objectives are aligned with RCVS Day One Competences. Students are able to take formative tests to familiarise themselves with the assessment process before they take the summative tests. A variety of assessment techniques – both formative and summative - are used throughout the course to measure student achievement and thus to facilitate student learning. These include:

- Coursework (e.g. individual essays or group projects)
- Presentations to academic staff and peer groups
- Clinical reasoning written and verbal assessments
- Short answer clinical reasoning examinations
- Short answer spot test examinations
- OSPEs (Objective Structured Practical Examinations)
- OSCEs (Objective Structured Clinical Examinations)
- OSLERS (Objective Structured Long Examination Record)
- DOPS (Directly Observed Procedural Skills)
- Individual research projects for in-depth subject knowledge understanding, dissertation, presentation, etc.
- Reflective Portfolios for professional behaviour and attitudes
- Structured Portfolio viva assessments
- Completion of a Skills Diary

135. In year 5, **Knowledge** is principally assessed in on-line examinations. **Core practical skills** are tested through 48 “DOPS” – Directly Observed Procedural Skills; 10 DOPS (1 from each of 10 skill sets) are assessed by staff and must be passed at first attempt during rotations. The remainder in the skill set are self-assessed. If a student fails a DOP, they must repeat it and must then pass another one successfully. All must be passed before the student enters the Final examinations. Students have access to the DOPS assessment forms and are made aware of the required skill set through descriptors in their portfolio.

136. **Professionalism** is a component of many assessments. Professional skills and behaviours are also assessed during each clinical rotation with reference to the RCVS Ten Guiding Principles of the Guide to Professional Conduct. The final examinations include a viva “defence of the Portfolio” during which aspects of professionalism are assessed.
137. High level learning outcomes covering **clinical competence** are assessed in final year by means of “OSLERS” – objective structured long examination records, which is either an observed consultation or presentation of a case in rounds format. The OSLER is performed in the clinical rotations on cases presented as part of the normal caseload. In addition students will be tested by a ‘script concordance’ examination where their attempts at investigating and managing a virtual case are mapped against ‘best practice’ as determined by practitioner survey. At the time of the visitation the full format of the examination had not been disclosed to the students who were understandably nervous. As part of the students final assessment, this examination will be scrutinised by the External Examiners.
138. Full details of the various assessment techniques, coverage of skills tested, and explanation of standardisation methodology is provided in the SER.
139. As per all UK universities, the University uses External Examiners to oversee the standard of the degree, including examinations. There are 2 or 3 External Examiners for each year of the course. Their reports are considered by the Teaching Learning & Assessment Committee. For 2011, RCVS has also appointed 2 External Examiners who have overseen the standards of assessment for the 5th year of the course. The RCVS External Examiners’ remit includes having a deciding role in the final pass list for the final year examinations, such that all students passing those examinations will be entitled to register with RCVS. This arrangement has been made with agreement of the Privy Council.
140. The University has in place a set of rules concerning student progression such that students must pass degree examinations in any given year before progressing to the subsequent year. All modules must be passed, and resit opportunities are available. Full details of the progression and re-assessment policy are contained in the SER.
141. The School has a Student Progress Committee which reviews cases of students who are not progressing academically as expected. There is also a Faculty Fitness to Practice Panel which can consider cases of concern relating to students’ professional behaviour. All staff are able to submit an ‘Expression of concern’ that is then investigated by tutors and if necessary referred to the panel.
142. The School complies with the University’s Quality Manual guidelines and procedures, which are in turn set in the context of external quality assurance frameworks defined by the Quality Assurance Agency.

Comments and suggestions

143. The Visitors were impressed by the quality and level of the assessments. There was some suggestion of over-assessment in some areas, but this is being addressed as a result of ongoing review and evaluation. Particularly commendable is that the school has clearly put as much effort into the development of assessment regimens as it has into the curriculum overall, and that this development of assessment in SVMS continues to be a dynamic process: the Visitors saw, clear evidence of revision of assessment from year to year based on feedback from staff, students and examiners, and careful analysis of assessment outcomes.
144. Students complained of a significant assessment burden at the end of year 4, with a total of 22 assessments taken during a two week period. Whilst many of these were of comparatively short duration (7 minute long reasoning vivas or 30 minute online MCQs), consideration should be given to whether the number and/or timing of all of these assessments is appropriate.
145. The Visitors accept that the rigorous system of student assessment ensures that only students with the requisite knowledge, personal and professional skills will graduate BVM BVS, but they note there is little means to recognise excellence. Paradoxically the very high proportion of students achieving first class honours in the third year BVMedSci degree also mitigates against any gradation of excellence. The Visitors suggest that the School address this issue.
146. It was the view of some of the Visitors that overemphasis on examining only that which could be presented in an “objective” format was reducing the scope of the whole examinations format, and that while an academic “floor” can probably be achieved by such means the potential height of an academic “ceiling” cannot. While final vivas are preserved in the School’s examination system these are primarily a defence of the students’ portfolio rather than a tour d’horizon of their knowledge. The School’s examination philosophy should be kept under review.
147. Although the overall assessment regime is commendable, the School should keep the quantity of assessment under review to ensure that there isn’t over-assessment in places, as well as keeping the examination philosophy under review to encourage and reward excellence.

Monitoring and assessment of teachers and instruction

A system must be available to allow students to evaluate teacher performance and teaching.
Students must be able to participate in the development of the curriculum in general.

Findings

148. Students are involved in providing feedback on the quality of teaching and their learning experience by the following methods:
- Student Evaluation of Module questionnaires (SEM)
 - Student Evaluation of Teaching questionnaires (SET)
 - Student Evaluation of Course questionnaires (SEC)
 - Rotation feedback questionnaires
 - Student module review focus groups
 - Learning Community Forum meetings
 - TLA Committee meetings
 - Yearly student survey conducted by the University
 - Student membership of other relevant Committees and Sub-Committees at Faculty, Campus and University level
149. Academic staff are required to gather student evaluations on their teaching (SET) initiated and coordinated by the School; analysis of the results is used for appraisal and promotion procedures and is confidential. Students are requested to complete a standard questionnaire. Evidence from SET is required for all Professors, Readers, Associate Professors, Lecturers, University Teachers and other University of Nottingham staff with responsibilities for teaching who have either a full-time or part-time (50% or more) contract with the University. Each year the Teaching, Learning and Assessment Sub-Dean draws up a programme identifying which teachers and modules are to be evaluated that year.
150. SEM is completed to gather feedback from students on modules for curriculum development. An analysis of module evaluations is detailed in the module review presented to TLA Committee; likewise rotation reviews presented to TLA Committee will consider rotation feedback questionnaire results.
151. SEC is completed to gather feedback from students on the programme. An analysis of evaluations is made by the Quality Assurance Officer and is presented to TLA Committee.
152. Year 5 students complete feedback on each rotation. This information is collated via a School specific standard questionnaire hosted on the Competency Assessment Record system, approved by the TLA Committee and is made available online to students. An analysis of rotation feedback is made by the Rotation Leader and is

detailed in the rotation review presented to TLA Committee, and is provided to students via their year notice board.

153. Students are invited to attend focus groups run for modules. Focus groups consider issues relevant to each specific module and are run to a standard format. Information from these focus groups is incorporated into the module review.
154. The Learning Community Forum (LCF) meets on a termly basis. Its role is to discuss any matters (academic, welfare or social) that are raised by either students or staff and to deal with any concerns raised by students and staff and refer matters to an appropriate committee if the LCF feels that a referral is necessary. In practice the majority of operational issues raised at this meeting are resolved at the meeting, with other and policy or strategic issues raised to the TLA Committee, which also has representation from students within each year of the course.

Comments

155. The Visitors saw ample evidence that students take a full part through the various systems to feedback on the performance of teachers, on the quality of teaching and in the development of the curriculum.

Student welfare

Adequate measures should be taken to minimize the risk of zoonotic diseases as much as possible (e.g. vaccination against rabies)

The establishment must provide or have a right of access to a system of routine and special guidance for students, especially those with social problems or those having difficulties with their studies.

The guidance programme should also cover future career development and/or job selection.

Findings

Health & safety

156. All students are required to have undertaken a course of vaccinations (or prove immunity) prior to joining the School (Tuberculosis, Hepatitis B and tetanus), and in addition are required to declare any medical conditions that may require special support or potentially may present a risk.
157. Personal protective equipment is required to be worn for all practicals, and is washed within the School, thereby limiting any potential spread of zoonotic disease. The School undertakes a number of briefings and practical sessions during introductory weeks in year 1 to embed the importance of personal hygiene, PPE, biosecurity and health and safety; this is supported by the Student Handbook. All students undertake a safety induction and are required to undertake risk assessments before and whilst on EMS. These procedures have been reviewed by University staff and the Health and Safety Executive and found to be fit for purpose.

Student facilities

158. There is a frequent free shuttle bus service running between the Sutton Bonington Campus and the main University Park campus and into Nottingham city centre. A number of clinical associate practices can be reached by public transport, but all rotation groups are required to have at least one car driver to that the group can car-share to rotations.
159. The SB campus is equipped with a new sports centre, restaurant, café, social facilities, shop, bank and bookshop. There are various student clubs run by the University and students have access to all social and sporting activities and facilities at all the University's campuses.
160. The SB campus has its own student halls of residence, with all Year 1 students guaranteed a place. Students on rotations are provided with free-of-charge overnight accommodation if they wish to cover overnight duties. However, students are not required to cover out-of-hours, except on Saturdays at Dick White Referrals. Free self-catering accommodation is provided for students undertaking the 2 week rotation at Dick White Referrals.

Student support

161. The School, the University centrally and other students provide both conventional and specialist academic and pastoral support to the undergraduates. Student support is provided immediately from pre-acceptance and throughout the course. The School employs a number of measures to ensure that students experiencing difficulties with their studies or with any non-academic problems are identified and supported. In addition students are directed to establish and maintain individual Portfolios and Skills Diaries for self-support both during and after their studies.
162. The School has recently instigated an 'Expression of Concern Form' process. Any student or member of staff may raise a concern relating to a student's academic abilities, including performance on a clinical rotation, or for any other matter. The Concern Form is then reviewed by Senior Tutors and is acted on as appropriate to the circumstances (e.g. pastoral support, disciplinary proceedings etc).
163. The wider support network for students comprises:
- Personal Tutor with a primary role to review academic progress and provide pastoral support for any issues affecting progression
 - The Veterinary Family Scheme (Students and Personal Tutors)
 - In-School Support (e.g. Disability Liaison Officer, Year Administrators, Student Welfare Administrator, Student Placement Team)
 - Senior Tutors
 - Student Progress Committee
 - Vet Soc 'Big Vet, Little Vet' scheme¹³
 - University Agencies, including Counselling and Study Support
 - Other services such as the International Office, the Chaplaincy, the Multi-Faith Centre and the Students Union, Nightline
 - Outside agencies, e.g. local GP, Samaritans

Comments and suggestions

164. The School is commended on having developed a comprehensive set of formal and informal mechanisms for ensuring, as far as possible, the welfare of its students, all of which appears greatly appreciated by the students.
165. Due to the complexities of the timetable, some students found it difficult to arrange doctor's appointments at suitable times. Whilst acknowledging the interim measures that have been introduced since their last visit, the Visitors reiterate their support the School's desire for the University to deliver improved access to healthcare provision on the Sutton Bonington campus.

¹³ This student initiated, Vet Soc scheme pairs a Year 1 student with a student in a later year of the course

Chapter 6 - Facilities and equipment

The site, buildings and its equipment should be conducive to teaching and adequate for the number of students enrolled.

Buildings, for both basic and specialist facilities must be adequate and suited to the teaching programme.

Health and safety standards must be conscientiously observed, as should the requirements of acceptable laboratory practice.

The practical side of animal production must be taught on the institution's own farms or on farms to which it has access, to sufficiently small groups of students, thereby allowing hands-on experience for all.

Adequate and hygienic facilities for the humane treatment of animals must be available, including provisions for hospitalisation, for operative surgery and recovery from anaesthesia, for exercise and the isolation of infectious cases.

The clinical and hospital buildings must be up-to-date, clean and well maintained, and should be at least as adequate as those available in the private sector in the individual states.

The diagnostic, medical and surgical equipment provided must promote state-of-the-art practice of veterinary medicine and surgery.

Institutions must have a mobile/ambulatory clinic for farm animals or equivalent facilities so that students can practise field veterinary medicine under expert supervision.

Where practical training involves the use by the institution of material obtained from slaughterhouses and unfit for human consumption, vehicles and facilities must be properly adapted, maintained and operated to ensure the safety of students and staff and to prevent the spread of infectious agents.

Findings

166. The SVMS is based at the University's 1,000 acre Sutton Bonington campus, which comprises the School of Biosciences, teaching and research facilities, library, student residences and facilities, a commercial farm with dairy, pig and poultry research units, crop science experimental areas and a licensed abattoir. Two new buildings are allocated to the SVMS: the Academic Building and the Clinical Building. Other developments include animal accommodation, post mortem facilities and pathology. A third building is under development, due for occupation from June 2011 to accommodate expanding SVMS staff numbers.
167. The Academic Building has a 400 seat lecture theatre, numerous seminar rooms of various sizes, small group teaching rooms, computer room, and laboratories. The Clinical Building comprises teaching laboratories for practicals, dissection room, cadaver surgery suite, seminar and small group teaching rooms, Clinical Skills Centre,

simulated radiography suite, museum of anatomical specimens, models and skeletons, dog and cat kennels, locker and changing rooms, laundry and 3 bedrooms and kitchen for visiting staff.

168. A new three storey joint SVMS and Biosciences teaching and research building (due to open June 2011) will include large seminar room, large computer room, location for the Centre for Evidence Based Veterinary Medicine, the Centre for Veterinary Visual Learning, offices, and further lab space.

Clinical associates

Defence Animal Centre

169. The Defence Animal centre is based at Melton Mowbray in Leicestershire specialises in military equine and canine specific veterinary medicine and surgery. Up to 140 horses can be stabled at the DAC, whilst a further 260 can be at grass. The equine training facility includes an extensive cross-country course, an all weather canter track, an outdoor manege, jumping lanes and indoor riding school. The Army School of Farriery is a purpose built facility for both students and instructors and has 7 forges. The Canine Division has facilities for kennelling over 200 dogs, training barns and training houses. The Veterinary Division facility houses fully equipped hospitalisation, imaging, operating and treatment facilities for both canine and equine care. Facilities include an equine surgery suite and canine surgery suite, hospitalisation and isolation kennels and stables, canine post mortem facilities and a horse walker.

Dick White Referrals

170. Dick White Referrals is a state-of-the-art veterinary referral centre that offers specialist care for small animals, based in Six Mile Bottom, near Newmarket, Cambridgeshire. The centre opened in 2003 and combines modern clinical facilities with intensive care facilities, 3 state-of-the-art operating suites, dedicated internal medicine investigation room, spacious climate-controlled accommodation for over 50 patients, diagnostic imaging including radiography and fluoroscopy and a high quality clinical pathology laboratory. A separate building houses ultrasound and MRI units. Facilities also include a clinical pathology laboratory and a dedicated physiotherapy unit. Student accommodation is under construction.

Dovecote Veterinary Hospital

171. The Dovecote Veterinary Hospital, opened in 2009, is a new RCVS tier 3 Hospital in Castle Donington, approximately 5 miles from Sutton Bonington. A large reception area gives access to 4 consulting rooms (one with adjacent hydrotherapy room). There is a large preparation area with 4 anaesthetic stations, minor operations room, imaging suite with digital X-ray, MRI and CT facilities, surgical suite comprising changing rooms, scrub sinks and 3 operating theatres, separate cat and dog wards, and an isolation facility. There is a practice laboratory. On the first floor there is a conference room used by the students as a library and base room and for seminars and research. There is a secure covered exercise yard for canine in-patients. (The Dovecote rotation will transfer to the new Scarsdale Small Animal Hospital in Summer 2011.)

Minster Veterinary Practice

172. The Minster Practice is housed within the VLA buildings and operates from 2 administrative offices; it utilises the VLA facilities to support the provision of their clinical service locally (see below for details of VLA facilities)

Oakham Veterinary Hospital

173. The Oakham Veterinary Hospital, opened in April 2005, is a RCVS tier 3 Hospital and is set in a 9 acre site which includes equine and small animal departments. Within the equine hospital, facilities include 3 consulting rooms, 2 operating theatres, 2 examination facilities with stocks, scintigraphy room, standing MRI facility, digital radiography room, post-mortem room, 23 horse boxes including isolation facilities, reproduction facilities including a dummy mare, farriery unit, manege, 2 trot-up areas, and a student room. The site has 1.5 acres of grassland in small turnout paddocks and stabling for 22 horses, including mare and foal facilities. An additional 6 acres of grass provide extra turnout during busy periods.
174. The small animal facilities include 4 consulting rooms, 2 operating theatres, digital radiography rooms, isolation facility, kennels, separate cattery, teaching and seminar room. A dog walking paddock is situated at the rear of the kennels.
175. In addition the shared facilities include 2 onsite flats for staff accommodation, a fully equipped laboratory and a laundry room. The student room comprises locker and changing facilities, kitchenette, electronic whiteboard, 2 computers, soft seating and workspace areas.

PDSA

176. The PDSA PetAid hospital is one of 47 charitable clinics throughout the UK, delivering first opinion, small animal veterinary service. The Nottingham PDSA PetAid hospital occupies a 0.75 acre site adjacent to the Nottingham Ring Road and close to the University Park campus. The site consists of 2 buildings – a main hospital building with waiting room, 5 consulting rooms, 2 operating theatres, operating preparation area, radiography suite, kennelling for 30 animals, staff area and 2 bedrooms. An adjacent annex building, which has been recently refurbished by the University, consists of a waiting area, consulting room, office, operating and recovery room. The consult room in the annex also doubles as a teaching room. Students at the PDSA share study and amenity facilities with staff.

Scarsdale Veterinary Group (Farm and Equine)

177. Currently the two main Scarsdale sites are located at separate locations in Derby (large animal and equine at Markeaton and small animal at Kedleston Road). The small animal hospital will be relocating into bespoke premises at Pride Park in 2011. Scarsdale is RCVS accredited as an Equine and Farm Animal General Practice and Small Animal Hospital.
178. The dedicated Farm and Equine unit has hospital and operating facilities for all species of farm animals. There is a single hospital pen for admission of adult cattle, numerous

'calf' pens for admission of, and housing/isolation of sheep or calves for intravenous fluids. The hospital facilities are supported by a large internal laboratory.

179. The equine facilities include 16 stables, including isolation facilities, boxes for critical care patients and foaling boxes, an operating theatre and induction suite, stocks, JMB pad, trot up and hard lunge areas, and indoor school. In addition the facilities include a full range of digital ultrasound equipment, digital and computerised radiography, video endoscopy and dynamic endoscopy and a full range of dental equipment including power work and an equine perio system together with shockwave therapy. The equine unit is a BEVA approved Artificial Insemination (AI) centre and also provides post and rail paddocks for AI mares and recovering horses and an equine shop for clients.
180. The student room comprises locker and changing facilities, kitchen, 3 computers, LCD screen, soft seating and workspace areas.

Scarsdale Veterinary Group new Small Animal Hospital

181. Scarsdale Small Animal Hospital at Pride Park, Derby will open in Summer 2011 with the move of the first and second opinion Kedleston Road Hospital and the development of a referral centre serving the East Midlands region. Building works are currently advanced and on schedule, and the completed initial phase of the building will include substantial client waiting areas divided into species-related zones, 8 consultation rooms, multiple diagnostic rooms including advanced imaging and four operating theatres. There will also be a substantial pharmacy, client retail, hydrotherapy and animal boarding facilities. For clinicians and students the hospital will be well-served with work spaces, meeting rooms, library, internet access to the University of Nottingham, and out-of-hours bedrooms.

East Midland Zoological Society - Twycross Zoo

182. Twycross Zoo was established in 1963 and contains over 1,000 animals of 200 species. It occupies over 40 acres. Twycross Zoo has the largest collection of primate species in any zoo in the world. There is a dedicated library facility containing veterinary, wild and zoo animal information.
183. The veterinary facilities at the Zoo are being developed and upgraded. Working out of a dedicated veterinary unit most work is carried out in animal enclosures and the necessary anaesthesia and other equipment such as ultrasound scanners and sampling equipment is taken to the patient. State of the art anaesthetic monitoring equipment is on permanent loan from SVMS to the Zoo and is used in the majority of cases anaesthetised in the field. In the veterinary unit, there are facilities for anaesthetising smaller patients and digital radiography. There is a post mortem room, access to library and computers and basic laboratory facilities, with microscopes, a conference room and a seminar room, together with a dedicated student room. The student room comprises locker facilities, 2 computers, electronic whiteboard, soft seating and workspace areas.

Veterinary Laboratories Agency

184. The VLA is based on the Sutton Bonington campus, adjacent to the University Sports Centre on a 0.5 acre site. The facility comprises post-mortem rooms, several laboratories including those for histology and serology, cold storage and freezer storage rooms. The University has invested in upgrading and expanding facilities to include a larger post-mortem hall, changing facilities, new lairage, large walk-in cold room, staff offices, a student 'common room' and a teaching lab in which pathological specimens can be demonstrated. The development now provides the facility for handling an increased range of domestic animals including farm species, cats, dogs and horses. Integrated within the expanded post mortem room is a separate facility for poultry necropsies provided by the Minster Veterinary Group.

Chine House Veterinary Hospital

185. Chine House Veterinary Hospital, is an RCVS tier 3 Equine and Small Animal Hospital, located in the village of Sileby, Leicestershire, approximately 25 miles from Sutton Bonington. It undertakes first opinion and referral work on small animals, farm animals, equines and exotics¹⁴. The exotic animal department has been established for 5 years and receives a variety of exotic pets on a first and second opinion basis. Currently the facility comprises a dedicated consulting room and a dedicated exotics ward with various enclosures many with temperature and humidity control, UV lighting, and the facility to provide oxygen/nebulised medications. Additional areas are available to hospitalise larger animals and provide isolation facilities if required, including a large walk-in enclosure with controllable heating and lighting. There is a dedicated preparation area and separate operating theatre with multi-parameter anaesthetic monitoring equipment. The in-house laboratory includes haematology, wet and dry biochemistry, cytology and bacteriology. There is up to date ultrasonography equipment, with advanced surgical and dental equipment, with a dedicated preparation area and surgical suite and advanced anaesthetic monitoring equipment. Students visit the practice for 1 day during the Exotics rotation and there are no dedicated student facilities.

Meadow Lane Veterinary Centre

186. Meadow Lane Veterinary Centre (MLVC) is based in Loughborough, Leicestershire and was founded in 1877 as a farm and equine practice, although now is a small animal, avian and exotic practice¹⁵. MLVC is a single 2 storey building and consists of a waiting room, 3 consulting rooms, operating theatre and associated ancillary rooms, digital x-ray room, kennels and recovery cages. On the first floor is a laboratory, clerical area and an avian/exotic hospitalisation ward. The Practice also has a small collection of pet birds housed on this floor.

¹⁴ Students attend Chine House as part of the core curriculum for exotic work only and as such details in this Chapter and Chapter 7 refer only to the exotic work of the practice.

¹⁵ Students attend Meadow Lane as part of the core curriculum for exotic work only and as such details in this Chapter and Chapter 7 refer only to the exotic work of the practice.

Diagnostic laboratories and clinical support services

187. Across the School and its Clinical Associates facilities are available for:

- Necropsy
- Histopathology
- Histology
- Microbiology
- Haematology
- Cytology
- Immunohistochemistry
- Parasitology
- Serology
- Endocrinology

Necropsy

188. An expansion and refurbishment of the pathology building at the Sutton Bonington VLA is complete; the VLA is a Clinical Associate and administrative and teaching support is also provided by them. The development provides increased floor space to accommodate students and pathologists and is capable of handling an increased range of domestic animals including farm species, cats, dogs and horses. Integrated within the expanded post mortem room is a separate facility for poultry necropsies provided by the Minster Veterinary Group.

189. The refurbished post mortem room building includes 2 hydraulic tables and a large walk-in cold room. Gross teaching material is stored in Klotz solution in the cold room, and general cadaver disposal is via skips that are removed by a commercial service provider. A local 'knacker' provides a service for collection of equine carcasses, delivered to the post mortem room and final removal of waste material. Other material is transported between Clinical Associate sites and the VLA / School by the School technicians; material is securely stored in clinical waste bags and transported in a School vehicle licensed for transport of this type of material (this vehicle is also licensed to transport human material used in anatomy teaching sessions). The amount and types of post mortem material are monitored by the technical team at the School and in the VLA.

Histopathological examination

190. Recovery of tissue from necropsy cases is carried out within the post mortem room. Histological processing is carried out by the VLA Laboratories Services Division or the SVMS's own laboratories. Specialised histochemical and immunocytochemical staining techniques are available through VLA or third parties as necessary. Stained microscope slides are returned for examination by pathologists. Supervised reports are generated based on gross findings by rotation students. Histopathology results are added to reports by university pathologists for cases submitted through the university service and are then sent to the submitting clinician through VLA administration. Reports are in compliance with standard operating procedures currently in place with the VLA.

191. Transmission and scanning electron microscopy, microCT and MRI are available on an ad hoc basis as required, on the Sutton Bonington Campus or at University Park. Extensive facilities for processing histology, histochemical and immunohistochemical stains also exist within the School. In addition, Scarsdale has a small cytology facility, and Dovecote Veterinary Hospital employs a qualified pathologist who analyses prepared slides.
192. Through a relationship with the Queens Medical Centre, Nottingham there is access to a microscope slide scanning service. Histology from typical cases, as well as interesting, unusual or difficult cases are stored in digital format (Digital Slidebox) and reviewed remotely. This provides an easily accessible archive for undergraduate, and in the future, resident training and CPD.

Microbiology Diagnosis

193. Within SVMS there are Category 2 microbiology teaching facilities, including associated equipment. Diagnostic microbiology laboratories exist at Scarsdale Veterinary Group, Chine House, and Minster with facilities including bacteriology, microscopy, microbial culture, etc. Diagnostic bacteriology, mycology and parasitological investigations arising from post mortem examinations are carried out using existing VLA Laboratory Service facilities. Virology investigations for companion animal diseases are not provided by VLA and pathologists use appropriate third party specialist centres.

Clinical Pathology

194. A clinical chemistry laboratory exists within SVMS; it is primarily used for the assessment of the nutritional status of farm animals. It has links with the Clinical Pathology Laboratory at Scarsdale Veterinary Group and with Division of Environmental Sciences at University Park. Clinical pathology is included as part of the clinical rotations at locations which possess clinical pathology laboratories, Dovecote, Oakham, Scarsdale and Dick White Referrals. Specific teaching in clinical pathology occurs at Dick White Referrals; here the facilities comprise an Olympus A400 wet chemistry analyzer, an Advia AD200 haematology analyzer and an Immulyte for endocrine testing plus coagulation testing, blood gas analyzer, various snap-ELISAs, blood typing etc. There are 3 qualified lab technicians plus a Clinical Pathologist Diplomate and a resident staffing the lab. All students undertake formal clinical pathology training whilst at the Dick White Referrals rotation.
195. Further details of the equipment held at each of the clinical associates are included in the SER.

Slaughterhouse facilities

196. The School has access to the on-site fully licensed abattoir, and this is used for teaching students in Year 4 Veterinary Public Health module and during the final year VPH rotation. Students experience the full slaughter and inspection process, as well as the butchering of carcasses. The abattoir has all the facilities which one would expect to find in a commercial slaughterhouse. There is a small lairage with a number of pens for

holding animals from different units. There is a stunning facility for sheep and pigs and a stunning pen for cattle, a scalding tank, an overhead line, slaughter floor and gut room. There are two large cold rooms, and a substantial cutting room and cold store. The facility has always been upgraded as necessary to be compliant with the changing regulations which govern slaughterhouse structure and function and is licensed to produce meat for human consumption. Equipment in the abattoir also includes guns and stunners for humane slaughter, hoists, winches, butchery equipment, and various other equipment (saws, mincers, grinders etc).

197. In the final year VPH rotation, students also have day-long visits to a commercial local red meat abattoir and a poultry processing plant. These are complementary to the low throughput facility based at the School. The School also currently uses a number of local slaughterhouses (with 15-80 miles) to provide various cadavers and animal material for teaching in the VPH and other modules. In the final year veterinary public health rotation, students spend a day at Melton Mowbray Animal market – concentrating on transport and responsibilities relating to animal inspection and welfare within the market.

Foodstuff processing unit

198. The Sutton Bonington Campus has a 336 m² Food Processing Hall containing pilot scale operations relevant to the food industry, this unit is run by the Food Science Division of the School of Biosciences. Veterinary students undertake practical classes in this unit as part of the year 4 Veterinary Public Health course, during which they review a number of different food processing and production processes such as canning and sausage-making. During the final year veterinary public health rotation students spend a day visiting a small food producer – either a dairy farm that pasteurises and bottles their own milk, a dairy farm that makes cheese, or a small local slaughterhouse that makes pies. The focus of this visit is the monitoring and inspection of these businesses and Hazard Analysis Critical Control Points (HACCP) analysis.

Comments

199. The Visitors confirm that the facilities and equipment used in the training of Nottingham veterinary students is of high quality and meets all the essential requirements. This applies to both facilities and equipment at Sutton Bonington on the University campus, and also at Clinical Associate practices and facilities.
200. The Visitors noted in particular that each rotation begins with an induction session that explicitly emphasises particular health and safety and biosecurity regimen operating in that facility.

Chapter 7 - Animals and teaching material of animal origin

The farm/s where veterinary field training is performed should contain the major animal species relevant to veterinary practice in the individual state. Farm facilities and equipment should be up-to-date, and at least as good as those available in the private sector of the countries concerned. The farm should be a model of animal welfare for the profession and the students.

Adequate clinical material including all of the major species relevant to veterinary practice in the state concerned must be made available to the students.

The clinical material should be varied, providing experience in routine and complex cases.

The clinical services must have access to appropriate diagnostic support.

Clinical and hospital facilities should operate day and night for most of the year, i.e. like a normal practice.

The clinical department(s) must maintain close links with the pathology and other diagnostic services so that students can follow cases where animals die of natural causes or are euthanized, and conduct post-mortem examinations. If necessary, pathology material should also be obtained from outside the institution to enhance the learning experience.

An adequate data retrieval system must be available so that case studies can be undertaken.

The Faculty must ensure that the students are exposed to an adequate supply of teaching material in the veterinary public health (including food hygiene) areas.

Findings

Basic Subjects - Anatomy Material

201. Fresh and preserved complete and part cadavers of the major domestic species are used for practical teaching of anatomy in Years 1 and 2. Students work in groups of 3 or 4 to dissect the body regions of the dog relevant to the systems studied in specific modules throughout Years 1 and 2. Good audio-visual facilities allow illustration of prosections to the class via numerous large monitors. These prosections are supplemented with material from other species as required, including human. Further use of animal cadavers is made in the teaching of surgical techniques in Years 3, 4 and 5. Entire skeletons of each domestic species and a variety of high quality plastinated specimens, illustrative models and other learning materials are available in the museum, clinical building and dissection room. Each small group teaching room holds a skeleton of a dog and / or a cat, and various models. The museum also holds skeletons of less common and exotic species.
202. Live animals are normally used during anatomical classes and comprise dogs, cats, horses, rodents and exotic animals owned by the School, staff and students, together

with cattle, sheep, pigs and chickens which form the Schools smallholding and also cattle from the Sutton Bonington Dairy Unit. Further access is provided to live dogs (approximately 250) and horses (approximately 250) at the Defence Animal Centre (DAC), allowing students to practice live anatomy. Students also gain access to equine cadaver material from the DAC and exotic cadaver material from Twycross Zoo.

203. Live animal anatomy classes take place in the Clinical Skills Laboratory and Clinical Skills Centre, in the ménage, at the smallholding, Dairy Unit and also at DAC.

Companion Animals

204. Access to live companion animals is via the various clinical associates, details of which are provided elsewhere in this report. The Table below details the number of cases received for consultations/hospitalisation in the past 3 years, by species, across the clinical associates:

Number of cases a) received for consultations, b) hospitalised in the Faculty clinics

	Species	2009/10		2008/9		2007/8		Average
		a	b	A	b	a	b	
Food producing animals	Bovine	6	0	9	0	8	0	86
	Ovine, caprine	105	0	56	0	50	0	
	Porcine	10	0	10	0	4	0	
	Other farm animals							
Poultry								
Rabbits								
Equine		6416	718	6119	663	5913	630	6820
Companion animals / exotics	Canine	26017	6441	24747	5601	22228	4322	45828
	Feline	10428	2134	9661	1772	8810	1230	
	Other	4695	887	3716	669	3478	649	

Note:

- Other includes rabbits, rodents, ferrets, reptiles, primates, birds, amphibians, fish, other zoo mammals and invertebrates

These figures do not include animals seen through the mobile clinic as detailed in the next table.

Number of cases seen by the Ambulatory (mobile clinics) at Scarsdale, Oakham and Minster

	Species	2009/10	2008/9	2007/8	Average
Food producing animals	Cattle	22000	21200	21000	21400
	Small ruminants				
	Pigs				
	Other farm animals				
Poultry (no. of flocks)		>500	>500	>500	>500
Rabbits (no. of production units)					
Equine		12952	12500	12520	12657
Other					

Note:

- Individual number of poultry cases on mobile visits are not documented in full.

Necropsy Material

Number of necropsies over the past 3 years

	Species	2009/10	2008/9	2007/8	Average
Food producing animals	Cattle	291	185	124	200
	Small ruminants	255	134	149	179
	Pigs	66	49	76	64
	Other farm animals				
Equine		16	25	19	20
Poultry		2337	2135	2643	2372
Rabbits		Included in Other	Included in Other	Included in Other	
Companion animals / exotics	Dogs	59	59	59	59
	Cats	3	3	6	4
	Other	327	197	149	224

Note:

- Other companion animals/exotics includes rabbits, rodents, ferrets, reptiles, birds, amphibians, fish, zoo animals, wildlife and camelids

205. The figures shown in the above table are compiled from Clinical Associates¹⁶, where post mortems are undertaken by pathologists (VLA) or occasionally veterinary clinicians. Students are therefore able to gain access to a wide variety of necropsies across the Clinical Associates during Year 5 Clinical Practice.

206. There is exposure to necropsy material throughout the Year 4 modules in which pathology teaching is embedded; here materials are harvested and presented to

¹⁶ Scarsdale Veterinary Group Animal Hospital figures are not included in the table but would contribute a further average 17 companion animal necropsies, resulting in a net increase in numbers after relocation of rotations.

students rather than being full necropsy examinations. This additional necropsy material derives from the formal necropsies as well as local abattoirs and slaughterhouses particularly in relation to the teaching of public health and food hygiene.

207. The School recognises that the Veterinary Laboratory Agency's caseload is entirely farm animal based. Part of the contractual relationship with the VLA has involved changing the case profile and building facilities to accommodate an appropriate small animal and equine caseload at this clinical rotation.
208. As at 1 December 2010 (i.e. half year figures), students on the Veterinary Laboratories Agency/Minster rotation have had access to additional non farm animal caseload comprising:
- 11 equine
 - 31 Companion animals
 - 3 Other small animals
209. The School is taking action to address and increase necropsy caseload, including the promotion of a pathology service to local veterinary practices and is accepting pathology cases on a *pro bono* basis from Clinical Associates to ensure students can gain access to a variety of pathological cases.

Production animals

210. All the major farmed species are available for teaching animal health and welfare on the Sutton Bonington site; cows, sheep, pigs and chickens, supplemented by local farms as required. Poultry are also available at Anslow Park Broiler Unit for Husbandry and management. Students visit local farms (eg. Coton Hall Farm) for bovine rectal palpation.
211. The School has a dedicated smallholding on site. All Year 1 students (in groups of 4-5) are required to care for the animals for 1 week each.
212. The small holding comprises:
- 4 cows (3 Friesian/Holsteins, 1 Ayreshire)
 - 12 ewes (various breeds including Suffolks, mules, Charolais)
 - 4 pigs (various breeds including commercial breeds, Gloucester Old Spot, Tamworths etc)
 - 10 chickens (various breeds)
 - 5 colonies of bees.
213. The commercial Dairy Unit is part of the 1,000 acre University Farm and comprises 210 Holstein/Friesian cows and 140 followers. The Dairy Unit is a state-of-the-art £2million dairy unit with a rolling average yield of 9700 L/cow milked through a robotic system. The farm has excellent teaching facilities including race, crushes, observation area and classroom. The farm has 790 acres of arable crops including cereals, oilseed rape and

sugar beet and 50 acres of organic land. There are also facilities for sheep, pig and poultry. Sheep and pigs units are also included on site.

214. The School has access to a range of animals for training purposes including the client bases of all Clinical Associates, which students visit as part of their Year 5 Clinical Practice, together with the client base of the hosts for the Elective Specialised Practice. In addition students will also have access to Coton Hall Farm, near Uttoxeter, a commercial dairy unit milking 350 Holstein Friesian cows for teaching rectal palpation.
215. The Scarsdale Veterinary practice is the main Clinical Associate for production animal studies, however the risk associated with a sole-deliverer is mitigated through a number of means. Farm work can also be delivered at Oakham Veterinary Hospital. The School has also contracted Farm Vet Solutions as a Clinical Host, which provides access to farm animal caseload for Herd Health teaching. In addition a strong relationship has been established with XL Vets to deliver the Farm Animal Specialist Elective. Furthermore the Farm Skills rotation is entirely organised and staffed by School appointed staff.
216. Students gain exposure to patients during consultations on farm animal rotations at the Clinical Associates.
217. On farm animal ambulatory clinics; students work one-on-one with a clinician. The practice work load is composed of a wide range of first opinion farm animal work, predominantly scheduled routine health visits (including routine fertility work), general surgery (e.g. caesarean section, correction of left and right displacement of the abomasum, rumenotomy), herd and flock disease investigations, routine farm animal procedures (e.g. castration and disbudding), individual farm animal medicine and tuberculosis testing. Occasionally, multiple students, or even the whole group, work together to see interesting cases or to assist with large tasks (e.g. castration and disbudding of large groups).
218. Students gain experience in Fish in Year 1 anatomy classes and during Year 4 and Year 5 veterinary public health teaching. Year 5 students also gain experience with raw meat, meat products, eggs, honey, fish, shellfish and dairy products sourced from the School smallholding, University Farm, slaughterhouses, farms or food shops.
219. In addition to the ambulatory clinic, the Year 5 Herd Health rotation will visit 12 farms over a year (a total of 96 visits). The Farm Animal Medicine and Skills rotation spend a day at the University Dairy Centre and visit local farms for disbudding and individual farm and case work ups.
220. The students on the Scarsdale Equine Practice rotation visit one of 10 racing yards allocated on a cyclical basis in order to provide the opportunity to perform cardiorespiratory and other evaluations on racehorses in training and to give an insight into this area of equine practice. In addition the students are exposed to poor performance examinations on approximately 120 cases per annum, in addition to the Scarsdale caseload.

221. All of these visits are with School clinical staff.

Number of visits by the Ambulatory (mobile clinics) in a year

	Species	Visits	No of flocks/herd overseen
Food producing animals	Cattle	4383	190
	Small ruminants		150
	Pigs		1
	Other farm animals	7	n/a
Poultry (no. of flocks)		700	>500
Rabbits (no. of production units)			
Equine		9496	n/a
Other			

Food hygiene/public health materials

222. Students gain practical teaching in food hygiene, inspection and technology in Year 4 during the Veterinary Public Health module and on Year 5 Veterinary Public Health rotation. Students gain experience in a variety of situations including in the on-site abattoir, where they will be shown the complete process of slaughter from ante mortem inspection to post mortem and carcass examination. They also visit a number of local abattoirs (red and white meat). Each group of rotation students experiences approximately 100 animals and over 15,000 birds being slaughtered at external abattoir visits in Year 5.

223. Practical work in Year 4 includes post mortem examination of fresh materials from ruminants, pigs and poultry collected from abattoirs, demonstrations and hands-on training on aspects of food production and processing in the food science laboratory of the School of Biosciences. In addition Year 4 students undertake practical sessions in food microbiology to augment their lectures and small group learning in zoonoses and notifiable diseases.

224. In Year 5, students spend 2 full days in the on-site abattoir, where the whole process of slaughter from ante-mortem inspection to butchering is reinforced. The School ensures that at least 2 pigs are procured for teaching purpose at slaughter every rotation; in addition Year 5 students are exposed to a variety of live animals at Melton Market and other abattoirs, and to bees at the School. Year 5 students also gain experience with raw meat, meat products, eggs, honey, fish, shellfish and dairy products sourced from the School smallholding, University Farm, slaughterhouses, farms or food shops.

Primary / referral service mix

Rotation	Location	Mix	Policy
Small Animal	Dick White Referrals	100% referral	Maintain
	Dovecote	90% referral	Develop referral caseload
	Scarsdale (current)	20% referral	Develop referral caseload
	Oakham	97% first opinion	Develop referral caseload
	PDSA	100% first opinion	No policy
Farm Animal	Scarsdale (current)	99% first opinion	Develop referral caseload
Equine	Oakham	25% referrals	Develop referral caseload
	Scarsdale	95% first opinion	Develop referral caseload
Poultry	Minster	95% first opinion	No policy

Ratios associated with live animal caseload

		Denominator
R11	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} = \frac{87}{86} = 1 / 1.01$ <p>No. of food producing animals seen at the Faculty</p>	0.99
R12	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} = \frac{87}{21400} = 1 / 0.004$ <p>No. of individual food animals consultations outside the Faculty</p>	246
R13	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} = \frac{87}{96} = 1 / 0.91$ <p>No. of herd health visits</p>	1.10
R14	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} = \frac{87}{6820} = 1 / 0.01$ <p>No. of equine cases</p>	78
R15	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} =$ <p>No. of poultry/rabbit cases</p>	Data not available – poultry seen on mobile clinic; rabbits seen as companion animals
R16	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} = \frac{87}{45828} = 1 / 0.002$ <p>No. of companion animals seen at Faculty</p>	527
R17	<p>No. of students graduating annually</p> $\frac{\quad}{\quad} = \frac{87}{500} = 1 / 0.17$ <p>Poultry (flocks)/ rabbits (production units) seen</p>	5.74

- Ratios R11 and R15 are affected by the fact that the majority of cases associated with food producing animals are seen and treated out of necessity by the mobile clinic rather than at the Clinical Associates premises.
- Small animal related ratios will improve on transfer of the Dovecote rotation to Scarsdale Veterinary Hospital.

Ratios associated with live animal caseload (continued)

		Denominator
R18	No. of students graduating annually $\frac{\quad}{\quad} = \frac{87}{463} = 1 / 0.19$ No. of necropsies food producing animals + equines	5.32
R19	No. of students graduating annually $\frac{\quad}{\quad} = \frac{87}{2372} = 1 / 0.04$ No. of poultry / rabbits	27
R20	No. of students graduating annually $\frac{\quad}{\quad} = \frac{87}{287} = 1 / 0.30$ Necropsies companion animals	3.29

Notes:

- Number of students graduating annually is set as the number of students in the highest year

Comments and suggestions

225. The Visitors confirm that the School meets all the requirements regarding provision of animal related material for veterinary undergraduate teaching. The use of clinical associate practices provides undergraduate students with a wide and varied caseload which is appropriate to their level of training. Inevitably use of this distributed model does not provide the same exposure to referral material as that seen in intra-mural referral hospitals. This may prove a problem for clinical specialist training and career development of academic staff.
226. The suitability of complete reliance on the distributed model to provide all the School's needs for clinical case material needs to be kept under review particularly in relation to post-graduate clinical training and career progression for clinical academics.
227. The School should also develop contingency plans for the supply of live teaching companion animals, which currently relies on School staff and student-owned pets.

Chapter 8 - Library and learning resources

The Library and related services must help to meet the institution's objectives and lend support to basic training, research and postgraduate studies.

To this end, the Library must offer a comprehensive and up-to-date range of books and journals. Its opening hours, regulations and loan arrangements must facilitate self-learning. The institution must provide an adequate number of places for private study in the library or elsewhere on site. The Library must be professionally managed, have good working relationships with other libraries in the area, and provide modern on-line communication facilities for use by staff, students and researchers. In institutions where departmental libraries are available, the main library should have documentation on the material held in the other libraries.

The Faculty must provide audio-visual and information technology facilities meeting the needs of establishment.

Findings

228. Veterinary students have access to all library facilities, but use mostly the facilities at the James Cameron-Gifford Library at the Sutton Bonington campus. The 11 UK based University of Nottingham libraries are:
- The James Cameron-Gifford Library (Sutton Bonington Campus) covering all aspects of Veterinary Medicine and Surgery, Animal Science, Biosciences, Agriculture and Food Sciences
 - The Hallward Library (University Park), covering the Arts, Humanities, Social Sciences and Law
 - George Green Library (University Park) covering Science and Engineering
 - Greenfield Medical Library (Medical School) covering Medicine, Nursing and Health Sciences
 - Denis Arnold Music Library (University Park)
 - Djanogly Learning Resource Centre (Jubilee Campus) covering Education and Computing
 - Business School Library (Jubilee Campus)
 - School of Nursing, Midwifery and Physiotherapy Library, Derby (London Road Community Hospital) covering nursing and midwifery
 - School of Nursing Library (Mansfield Education Centre) covering nursing and midwifery
 - Derby Medical School Library (Royal Derby Hospital)
 - Manuscripts and Special Collections (Kings Meadow Campus) holding local estate, literary and institutional archives, together with special collections of rare books
 - Shakespeare Street Learning Resource Centre (Nottingham) covering resources for Adult Education courses
229. Through their online student portal, students are able to access an extensive range of library facilities including University of Nottingham Library Online Catalogue that allows

students to search for books, reports and journals that are held across library services. It is also possible to reserve items and make inter-library loan requests for items not held by library services. In addition students have access to the eLibrary Gateway which is a single interface via which all members of the University of Nottingham can access electronic resources relevant to their subjects.

230. The James Cameron Gifford (JCG) Library at Sutton Bonington is shared with the School of Biosciences, and as such holds a wide range of resources associated with animal biology, animal welfare and care, veterinary sciences and allied subjects such as food production and agriculture etc. The library is open 24 hours a day during exam periods.

Subsidiary libraries

231. Students have 24 hour access to a range of learning resources in their small group teaching room mini-libraries. The resources include all course textbooks, all British Small Animal Veterinary Association (BSAVA) Manuals, various other specialist and reference textbooks, skeletons, models and posters. Students share these resources with other members of their group (up to a total of 11 students) and one other year group of 11 students that share the room, such that a maximum of 22 students share these resources. None of these resources may be borrowed and must remain in the room. Students are able to work in these rooms at any time and in other open access rooms in the School such as the Museum and Resource Room.
232. Mini-libraries have been set up at each of the Clinical Associates used for placement in Year 5, together with the Year 5 seminar room and small group teaching room. These comprise the same learning resources as detailed above that are provided for earlier years of the course, together with books specific to the theme of the rotation(s) as necessary.
233. Staff have access to a further mini-library kept in the Management Team Suite, which comprises a set of most teaching resources.
234. In addition to hard copy material, the virtual learning environment, (WebCT), hosts a range of learning resources including embedded image and video resource hyperlinks to other sites and reusable resources such as access to VetStream, WinPro, BIV radiology atlas and relevant CLIVE material. These resources are available online 24 hours a day to all staff and students.

Information technology services

235. The University has outsourced centralised audio visual services to provide a more cost effective and responsive service. There is, however, a photography unit retained in the School of Biosciences – the School contracts their services as required. Internet and intranet developments are supported by the IS Department and operationally in the School by an administrative member of staff. A content management system is used which allows links between the School website and relevant content held elsewhere on the University internet.

236. There is support available for film production through the television and production team (part of the IS Learning Team), who are based at Kings Meadow Campus (the former Carlton Television Studios). They provide support ranging from complete programme production through to in-house training for video capture and editing. Their role is to support development of teaching resources across the University.
237. Further support is associated with the web and e-learning and e-assessment from the University IS Department and also in the School. The IS Learning team comprises 20 FTE staff. The team are responsible for development and implementation of a number of high profile institutional e-learning projects, including:
- the University's Open courseware initiative (U-Now), one of the first in the UK
 - VLE consolidation and migration
 - e-assessment strategic review
 - e-learning support and community support projects
 - University podcasting service
238. Due to the nature of the course, the School has a strategy to develop and embed imaging and video within the teaching materials. This process has culminated in the establishment of the **Centre for Visual Veterinary Learning**, a resource supported by funding directly from the School (staff time, cameras and video editing hardware); the University (PAC server and connections to associates for upload of diagnostic imaging); the Visual Learning Laboratory (University of Nottingham CETL); as well as from external sponsorship. The Centre houses:
- Numerous digital stills cameras, including a number that are permanently based at Clinical Associates
 - 3 video cameras including broadcast quality high definition format
 - Support equipment such as lighting and sound recording
 - A video editing suite with capacity for High-definition video editing and output to most media formats from PDA to Blu-Ray, running a range of professional quality editing and animation software packages.
 - A PAC Server linked to and storing digital diagnostic imaging from the Oakham Equine hospital (data links currently being installed).
 - Access to the Codian® MCU 4200 server for editing and output of media obtained from the video conferencing facilities
 - A relational database of over 6,000 teaching images searchable through a web browser for all staff and Clinical Associates
239. The resource enables staff to produce images, video and animations (with in-house and outsourced training where needed) to enrich their teaching materials and enhance the learning experience rather than replace other forms of delivery. The CVVL is coordinated by a University Teacher, with support from a team of 7 administrative and technical staff who are trained in film techniques, 5 of whom have undertaken Apple® approved training in editing and media publishing. The Centre has also formed the focus of a number of external collaborative initiatives with such parties as the Royal Veterinary College, University of London, aimed at the sharing of both resources for media creation as well as sharing of output for teaching and learning to undergraduates in the wider veterinary community. The University IS Service Charter

also supports the ongoing development of these forms of teaching tools. The use of visual learning within the undergraduate veterinary curriculum now forms the basis of a fully funded PhD project collaboration between the Schools of Education and SVMS as well as a number of smaller PGCHE-based research projects.

240. All multimedia films developed in the School, together with other resources such as CLIVE are delivered to students online via WebCT. These are available 24 hours a day.
241. The lecture theatres across campus are fully equipped with usual audio visual facilities including data, video, DVD and slide projection, electronic visualisers, lecture capture¹⁷ facilities and audio capture for podcasting etc. The Learning Hub in the James Cameron Gifford Library also has 9 electronic whiteboards for use by students.
242. Investment in state-of-the-art audio-visual facilities has been made throughout the teaching rooms, seminar rooms, lecture theatres and laboratories. Each small group teaching room is also equipped with digital video equipment allowing students to film, for example, client communication sessions. Students are able to borrow digital video and photography equipment in relation to course activities. Teaching rooms at Clinical Associates include computing facilities and in some cases electronic whiteboards or LCD screens for presentations.
243. The School has invested in a dedicated high-speed data network between the School and Clinical Associates¹⁸. This is a dark-fibre system of SDSL running at either 10Mbps or 100Mbps and with quality of service agreement established. This system is seen as critical for mirroring the learning environment of the School to the associates, such that students (and staff) have access to the same support and resources offered when on the campus. The network facilitates communication between students and clinicians across the Clinical Associates.
244. Communication strategies include high-definition video conferencing which has been installed at a number of Clinical Associates. Supported through the VLL CETL at an investment of over £65K, this true High Definition (1280 x 720 pixels at 30 frames per second) video resolution system also allows the use of visualisers installed in the School dissection suite, and the Oakham operating theatre, to deliver high quality real time video of procedures between sites. Projection in the dissection suite is through high definition data projection and multiple plasma screens, although the systems are flexible and mobile within the School should needs evolve. This is a true multipoint system which would support all Clinical Associates in conference at any one time and also allows recording of material for offline editing and later use. All systems and infrastructure are supported by service and maintenance contracts in line with the School policy on ensuring quality.
245. All students on the 5 year course are provided with a laptop computer from the School for their own use at any time. All these laptops are pre-loaded with University software packages including Microsoft Office, Adobe etc and are less than three years old. All

¹⁷ Lecture capture involves audio, video and digital capture of projected material concurrently for vodcasting

¹⁸ Note that students are individually provided with mobile wi-fi dongles for use on the rotation at Dick White Referrals, whilst at all other rotations students are able to access wi-fi directly.

staff and postgraduate students are provided with a desktop pc, unless a business case is made to provide a laptop computer. The School replaces staff and facilities computers on a rolling 4 year cycle.

246. The School has wireless networks throughout the buildings. The School also has a Computer Room for 54 students, including additional laptop plug in points for up to 6 students. Access to these facilities is available 24 hours a day outside teaching and examination sessions. All these computers are less than 3 years old and will be replaced on a rolling 4 year cycle. This room also contains printing facilities.
247. In addition all small group teaching rooms are provided with 1 desktop computer and laptop plug-in points for up to 8 students.

Comments

248. The main Sutton Bonington campus library has good facilities for students to study on site, and an adequate supply of reference and text books for their studies. While most students prefer to work in the smaller library spaces or in the small group teaching rooms at the School, which are each provided with a small selection of common text books, they tend to use the main Library when preparing their research project.
249. Working hours are convenient and the Library staff are readily available and helpful. The IT services are well developed and the students can use them either in the School or even at most of the Clinical Associate centres. The overall service provided by the Library appeared to the Visitors to be of a high standard.

Chapter 9 - Admission and enrolment

The veterinary course is a rigorous one, and students admitted must have proven capabilities.

Although admission and enrolment are the legal responsibility of the individual countries, the selection should be competitive, based upon academic achievements and on other criteria.

Admissions must also be compatible with facilities and staff numbers, bearing in mind the need for low student/staff ratios, particularly in the clinical side of the course, and the amount of clinical and pathological material available.

Findings

250. The total number of undergraduate students in the School is 505 (including the Preliminary Year students and 3-year BVMedSci students) or 485 (excluding Preliminary Year and 3-year BVMedSci students). Maximum Number of Years (MNY) allowed to successfully complete the undergraduate curriculum is 7 Years.

Student numbers

Undergraduate student numbers

	2010/11			2009/10		
	5 Year only	Prelim Year	3 Year only	5 Year only	Prelim Year	3 Year only
Total number of undergraduate students	485	17	3	381	20	2
Male students	117	2	2	86	3	0
Female students	368	15	1	395	17	2
Nationals	435	17	3	352	17	2
Foreign students						
From EU countries	13	0	0	10	1	0
From non-EU countries	36	0	0	19	2	0
0 Year students	0	17	0	0	20	0
1 st Year students	112	0	0	99	0	0
2 nd Year students	96	0	0	96	0	1
3 rd Year students	93	0	3	94	0	1
4 th Year students	97	0	0	92	0	0
5 th Year students	87	0	0	0	0	0
Students not in any specific Year	3	0	0	2	0	0

Note:

- The 2009/10 position shows the start of year position
- Students not in any specific year are those students that have temporarily suspended their studies

Postgraduate student numbers

	2010/11					2009/10				
	MRes	PhD	PGcert	MVM / MVS	DVM / DVS	MRes	PhD	PGcert	MVM / MVS	DVM / DVS
Total number of postgraduate students	4	60	1	5	5	4	53	0	2	3
Male students	1	29	1	3	2	1	24	0	1	1
Female students	3	31	0	2	3	3	29	0	1	2
Nationals	4	41	1	3	4	4	36	0	2	3
Foreign students	0	19	0	2	1	0	17	0	0	0
From EU countries	0	4	0	0	1	0	6	0	0	0
From non-EU countries	0	15	0	2	0	0	11	0	0	0
1 st Year students	4	18	1	5	2	4	12	0	2	2
2 nd Year students	0	10	0	0	3	0	16	0	0	1
3 rd Year students	0	16	0	0	0	0	13	0	0	0
4 th Year students	0	16	0	0	0	0	12	0	0	0

Undergraduate admissions

251. The Admissions process for undergraduate students is overseen by the Admissions Sub-Dean and reviewed annually by the Admissions Committee, which comprises School and University staff, external veterinary professionals and local secondary school teachers.

Minimum entrance requirements for the 5 year course

252. To be admitted, students must meet the academic requirements, have undertaken a minimum of 6 weeks relevant work experience and attended an assessment workshop (Home/EU students) or telephone interview (International students). Applicants must have a good grounding in appropriate science subjects and a broad education in more general areas. As the course is intellectually demanding, only the most able students are admitted to ensure that they can both meet the demands of the course, and also have the necessary capabilities to practice on qualification.

253. The admissions process is divided into 4 phases and tests for academic achievements and potential, and personal attributes that demonstrate candidates' aptitude and motivation for veterinary medicine and surgery.

254. **Phase I:** On-line questionnaire: all students apply through the Universities and Colleges Admissions Service (UCAS). After application, students are requested to complete an on-line questionnaire. This provides an opportunity to provide further evidence that the applicant has the motivation, ability, attitudes and attributes for a career in the veterinary profession.

255. **Phase II:** Academic review: UCAS forms are reviewed to determine whether the applicant has the academic attributes necessary for a veterinary career. The School does not consider predicted grades.
256. **Phase III:** Non-academic personal qualities review: Personal and referees statements on the UCAS form and further information provided by applicants are assessed to determine personal attitudes and attributes, personal and communication skills. A further requirement at this stage is that the applicants must have completed 6 weeks work experience.
257. **Phase IV: Assessment centre:** No student is admitted without interview/assessment. All staff attend training in each application cycle and are provided with written guidelines enabling an effective and robust assessment process to be undertaken. Interviews are normally conducted by 2 members of staff, one of whom will be a veterinary surgeon (either School staff or from the wider professional community). The interview involves live animals and uses a scoring scheme to evaluate the depth of: motivation, insight into a veterinary career and interest in veterinary topics together with communication skills, animal orientation and personal attitudes and attributes. A practical aptitude assessment is undertaken by all applicants. During the assessment, applicants deal with animal material and clinical information and are scored using a scheme that assesses enthusiasm and aptitude including observational and analytical skills and animal-orientation. A team working assessment is conducted in a group situation and assesses the individuals' ability to work with a peer group.

Widening participation

258. The School aims to encourage a diverse range of people to study veterinary medicine and surgery and there are a range of events held to promote widening access to the profession, including running Sutton Trust workshops, hosting workshops and visits from local Schools and involvement in the Gateways to the Profession initiative, led by the RCVS. Students who are identified during the Admissions process as having disadvantaging circumstances are still required to attain grades AAB at 'A' level (A2), although it is possible to attain a B rather than an A grade in one of Chemistry and Biology.
259. The School has established the Preliminary Year¹⁹ course to increase diversity in the profession. A Certificate course at the University of Lincoln is specifically aimed at high quality learners from under-represented groups, to encourage their progression into the veterinary profession (from 2011 the School will admit students directly to a new Gateway Year run by the School instead).

¹⁹ Up to 17 Home or EU students are admitted to the Preliminary Year course.

Intake of undergraduate veterinary students in the past 5 years

Entry in year	No. applying for admission	No. admitted			
		Standard intake	Other entry mode		
			International / CHI fees	Lincoln	Preliminary Yr
2010	1751	72	17	4	16
2009	1460	67	9	4	18
2008	1225	65	5	7	20
2007	1007	95	5	0	0
2006	816	93	2	0	0

Note:

- This includes applications for the 5-year course and for the 6-year course which progress to become the intake for the 5-year course in the subsequent year
- 1 international student in 2010 progressed from the Preliminary Year
- 2 international students in 2009 progressed from the Preliminary Year
- Numbers do not include those resitting the year or re-entering the year

Comments and suggestions

260. Whilst the Visitors note that the School intends to track the employment outcomes for its graduating students, we recommend that a robust system is put in place to ensure that the graduates' careers are tracked in order to determine whether the School's somewhat unusual admissions policy and procedures are actually selecting the right students, or whether the perceived tendency to select for conformity inevitably limits the horizon of their future achievements.
261. The Visitors were not fully satisfied that the claims about widening participation and diversity actually meet the spirit of HEFCE's expectations, and consider the decision to ignore first degree classifications for graduate applicants as a selection criterion and to rely on A level results as being contrary to widening participation principles. The School offers a "Year 0" Preliminary course which is a 'conversion course' for the best students that did not sit the right A levels, as well as a "Gateway" course that takes students who performed badly at A level but have proven their potential through a degree. It was indicated that the School's policy was based on evidence from the University of Nottingham's Medical School, but the Visitors caution over-reliance on such evidence as clearly veterinary graduates are not the same as doctors.
262. The Visitors noted that UCAS application forms are scrutinised initially by only one member of academic staff in order to shortlist candidates for interview. All forms are then reviewed again when results are input into a database by the Admissions Team. Results are statistically compared to identify those for interview. The School considers that these methods reduce assessor bias. All rejects are reviewed before formal rejection letters are sent by the Admissions team. The Visitors suggest that the crucial

judgemental process that leads to interview should involve at least two academic scrutineers at least one of whom should preferably be a veterinarian.

263. The Visitors note that the School has chosen not to accept their previous recommendation that the suitability of graduates for entry to the veterinary programme be judged on their A level performance rather than their subsequent degree. The Visitors are still of the view that this conflicts with the School's stated widening participation agenda. For instance a student who for reasons of disadvantageous circumstances gets poor A levels in the required subjects and cannot get entry to a veterinary school but when removed from their disadvantageous environment blossoms and gets a first class degree in (say) Biochemistry will, when applying to Nottingham be judged on their A levels and not their performance at degree level. The Visitors suggest that the School revisit their decision.
264. Noting that the School intends to track the careers of its graduates as part of a joint research study with RVC, the Visitors suggest that the results should be monitored in order to evaluate the effect and appropriateness of its admissions policy and procedures.

Chapter 10 - Academic and support staff

The competence of the full-time academic staff must enable coverage of all the subject areas of the curriculum, allowing research based teaching except where alternative arrangements are made for outside teachers. The number of full-time academic staff (FTE) must allow teaching of small groups, thus maximising the learning opportunities for the students. A minimum percentage of 70% of the academic teaching staff should have veterinary training. Teachers of clinical veterinary subjects must be veterinarians, as should be those carrying out para-clinical services reporting to the public.

Part-time staff, residents and graduate students may lend support to full-time academic staff if they are appropriately integrated into the instructional programme. The Faculty should define which academic level is required.

Overall, the workload of the academic staff should be organised in such a way that apart from teaching and clinical duties, they should be able to perform research and other non-teaching-related academic activities within working hours.

Appropriate teacher supervision requires satisfactory teaching staff/student and teaching staff/support staff ratios.

Findings

265. Total current staff in the School is 128.6 FTE (including 2.0 FTE Dick White Referral staff with honorary contracts and 2.0 FTE Senior Clinical Teaching Scholars) with a further 20.1 FTE University staff providing support to the School. Total planned staff in 2010/11 for the School is 150.8 FTE (including 2.0 FTE honorary staff and 2.0 FTE Senior Clinical Teaching Scholars).
266. Staff numbers are shown at Annex 2, together with EAEVE ratios. Staff names and qualifications are shown at Annex 3.

Staff located at Clinical Associates

267. The School ensures that staff at Clinical Associates undertake a full role in the School's activities and are part of the collegiate community:
- Monthly clinician meetings take place at SVMS
 - Staff are expected to attend monthly staff meetings
 - Staff are paired with a non clinician who forms a veterinary family with their tutees
 - A member of management team visits each Clinical Associate on a fortnightly basis
 - Staff have access to the University and School's systems, including intranet and receive minutes and notes of meetings
 - Clinical staff are fully involved and included in normal School operations and activities such as TLA Committee etc

Percentage of veterinarians in the academic staff

268. As at 1 December 2010, there were 42.8 FTE staff within the School with veterinary qualifications (47% of academics). All ratios are either better than (R1-4), or within (R5) the range of established denominators, and would be further improved if the School were to include further clinical and support staff based at Clinical Associates.

Comments

269. The Visitors were satisfied that the level of staffing at the School and its various Clinical Associates meets the RCVS and EAEVE requirements.

Chapter 11 - Continuing education

(See also Stage Two)

The institution must co-operate with other professional organisations and competent authorities in the design, implementation and quality control of continuing education programmes.

Findings

270. The School has focussed in the short-term on developing the undergraduate programme and thus has only run a limited number of continuing education courses itself, although there has been strong demand from the veterinary professional and allied industries to hold courses in the new facilities at Nottingham. The School encourages staff to be involved in continuing education organised by outside organisations and held at the School.
271. The School has also gained funding from governmental organisations to provide CPD opportunities at a national and international level. This includes funding of £30k from DairyCo (the National Dairy Farm Levy Board) for the National Mastitis scheme (which includes CPD and a monitoring programme). In addition the **Centre for Evidence Based Veterinary Medicine** runs various workshops to facilitate its research educating the profession in the principles of evidence-based veterinary medicine.
272. Veterinary staff deliver and participate in courses organised at the School and also nationally and internationally by other associations and commercial organisations (for example: BSAVA Congress, BEVA Congress, BVA Regional Meetings, AMEE, National Mastitis Council USA, Improve International, CPD Solutions). In addition, several other meetings are held at the School in relation to veterinary professional development, these include, for example, a monthly meeting of local vets with an interest in cardiology and internal medicine, many of whom are registered for their RCVS Certificates. Several staff are also involved in the BVA Young Graduate Network.

Comments

273. As the School has been concentrating on establishing the undergraduate course, the range of continuing education courses and CPD provision has not yet been fully developed. There are plans, however, to expand the provision, including plans to offer a range of courses and assessment for the modular RCVS Certificate in Advanced Veterinary Practice. The facilities at Sutton Bonington are already in demand from outside organisations for CPD and other ad hoc meetings, and the Visitors fully anticipate that this will be a growth area for the School. It is notable that a number of the Clinical Associates run a range of courses for vets, farmers and other groups.

Chapter 12 - Postgraduate education

Towards a qualification in a specific area

The institution must co-operate with other professional organisations and competent authorities in the design, implementation and quality control of continuing education programmes leading to qualifications in the clinical and paraclinical fields, including the achievement of national specialist recognition.

Where appropriate, institutions should aim their programmes to meet the standards and regulations of the respective European specialist colleges and of the European Board of Veterinary Specialisation or equivalent bodies.

Research training

The institution must offer post-graduate training programmes by research (PhD or equivalent) based on an international-level programme in biomedical and veterinary research.

The programmes must be well designed and cover theoretical as well as practical training, leading to a certificate/degree within a period of three to four years.

The institution must provide an adequate number of places for research students

Findings

274. The School of Veterinary Medicine and Science offers postgraduate opportunities leading to various postgraduate qualifications: PGCert, MRes, PhD, MVM / MVS, DVM / DVS degrees, in a wide range of veterinary, biomedical, biological and statistical research fields. The MVM / MVS and DVM / DVS degrees are commonly combined with a clinical Certificate or Diploma. Postgraduate students are recruited from a range of clinical and scientific disciplines including veterinary science, equine science, pathology, molecular biology, biochemistry, immunology, microbiology, physiology, statistics and bioinformatics. Each postgraduate research student is allied to one of the Schools five research themes.
275. The School's procedures and processes associated with selection, management and progression of postgraduate students fully align with the procedures set out in the University's Quality Manual and guidance provided by the University's Graduate School. The Sub-Dean for Clinical Postgraduates and Sub-Dean for non-Clinical Postgraduates provide strategic and academic input to the postgraduate process and work closely with the Sub-Dean for Admissions. The three Sub-Deans are supported on an operational basis by a 0.7 FTE Postgraduate Administrator.

Postgraduate clinical training courses at 1.12.2010

Clinical discipline	Number enrolled			Diploma or title anticipated for Senior Clinical Training Scholars and DVM DVS students
	Junior Clinical Training Scholars (Interns)	Senior Clinical Training Scholars (Residents)	DVM DVS	
Cattle Health and Production	0	2	0	Dip. ECBHM and DCHP
Anaesthesia and analgesia	0	1	0	Dip. ECVAA
Small animal surgery	0	1	0	Dip. ECVS
Diagnostic imaging	0	1	0	Dip. ECVDI
Laboratory animal medicine	0	0	4	Dip. ECLAM
Equine science	1	0	0	
Nutritional studies	0	0	1	None

Postgraduate research programmes at 1.12.2010

(a) Masters level Indicate discipline and/or department	Duration of training	Number enrolled	
		Full time	Part time
MRes (Veterinary Science)	1 year	2	1
MRes (Veterinary Business and Management)	1 year	1	0
MRes (Veterinary Education)	1 year	0	0
(b) PhD level Indicate discipline and/or department	Duration of training	Number enrolled	
		Full time	Part time
Animal Infection and Immunity	3 years	26	1
Animal Population Health and Welfare	3 years	7	2
Comparative Medicine	3 years	16	0
Reproductive Biology	3 years	3	1
Veterinary Educational Research	3 years	2	2

Comments and suggestions

276. It may be that the opportunity to provide postgraduate clinical training to European Diploma Level in Small Animals risks being limited by the lack of a university referral hospital providing the appropriate environment and case load required by European Colleges for approval of Residency programmes. The involvement of a number of Clinical Associates (Dick White Referrals, Scarsdale Veterinary Hospital, Oakham Veterinary Hospital and Dovecote Veterinary Hospital) may help to mitigate that risk. The School should ensure that it continues to monitor the involvement of Diplomates at these Clinical Associates and works with them to ensure that they are able to meet European College requirements for Diplomate training, as would be the norm for a traditionally structured school.

Chapter 13 - Research

(See also Stage two)

It is desirable for undergraduate students to gain experience of research by undertaking a research project and writing a report on it.

The Faculty should provide an appropriate balance for these opportunities between basic, applied and clinical research.

The Faculty should assign an appropriate number of academic and technical posts specifically to research.

The Faculty should also allocate adequate facilities, equipment and operating funds to research.

Findings

277. The School's research is based around five research themes: comparative medicine; population health and welfare; animal infection and immunity; reproductive biology, and veterinary educational research. The research themes are not exclusive and many members of staff work across a number of themes. The reason for this structure is to promote a collaborative approach to research within the School and to encourage clinicians to work closely with more research-orientated staff members.
278. The School aims to give undergraduate students knowledge, understanding and skills in research in order to develop problem solving abilities and develop a penchant for lifelong learning. The School has incorporated a significant 50 credit Research Project module into Year 3 for all students. A fundamental grounding in research methods has been identified as a pre-requisite for the research projects module and the School has timetabled the Veterinary Research Methods module delivery prior to the commencement of projects.
279. The aim of the Research Project is to provide students with:
- An appreciation of the value of research in modern veterinary medicine and science – particularly how research contributes to furthering veterinary knowledge
 - An understanding of the possibilities for a career in research whether this be pure research, governmental or commercial or other forms of applied research
 - Skills in discovery and hypothesis-driven veterinary medicine that will be of value in practice
 - Acquisition of new technical skills
 - Skills relating to planning, analysis, evaluation and writing of a research project from the point of inception to publication and to illustrate to students that this is something that that could be achieved from practice
 - Development of lifelong learning skills.

280. During October of Year 2 students are introduced to the process and aims of the research project over 3 sessions run as part of the Personal and Professional Skills module. They are given detailed project guidelines to provide information on the aims and scope of the module and advice on its conduct, including preparation of written and poster presentations. Postgraduate and Year 4 and 5 students are invited to give research presentations to Year 2 students to provide a flavour of the research that has been undertaken by students at the School. The final session provides an opportunity for students to learn about different types of research with presentations by academic staff and external experts including research-active veterinary surgeons (e.g. lab research in veterinary science, vet research in practice and in industry). This session is followed by a 'Research Fair' which allows students to meet staff who represent research topics and themes available for Research Projects.
281. Students conduct their research projects at a variety of locations, dependant on the choice of project:
- Placement in a research group at the SVMS, working in collaboration with existing academic, post-doctoral and post-graduate scientists
 - Placement in a research group at the SVMS in a joint project with a second school e.g. Biosciences, Biomedical Sciences, Biology, Mathematics, Pharmacy or another relevant School. This will be either as a result of existing collaborations or a new collaboration set up for a specific project.
 - Placement at one of the Clinical Associate Institutions
 - Placement with other institutions in the UK or abroad, including, for example, Novartis Animal Health and Animal Health Trust
 - Other options (by discussion with Project Supervisor).
282. Students are provided with a detailed guide, letters of introduction, confidentiality agreements, health and safety inductions, health and safety evaluation forms and other materials as appropriate to their project. Students are required to log activities and as a good quality assurance practice for record keeping, are provided with a laboratory book (which is examined and scored by the supervisor).
283. Assessment of the Research Project comprises (1) a 8,000 word dissertation (2) a supervisor assessment of experimental work (including a laboratory notebook), (3) poster presentation and (4) 20 - 30 minutes *viva voce*.
284. Each student will have at least one internal SVMS staff supervisor. For students undertaking their project with Clinical Associates or other collaborating institutions, both a local and an internal SVMS supervisor will normally be appointed. Supervisory guidelines are made available to all supervisors. All projects are assessed internally on feasibility, ethical and financial guidelines prior to formal approval by the School.

Comments and suggestions

285. The clinical focus of the course does not emphasise the highest levels of basic science and curiosity driven research. This could be addressed by inviting some of the University's top researchers to provide guest lectures in relevant parts of the course.
286. Following the comments made at the previous visit, the SVMS has introduced an additional link between basic and clinical subjects, in which 3rd and 4th year activities that are primarily clinical in nature refer back to basic subjects, both as concepts and in practical settings. Questioning of students reveals that this has been highly effective in consolidating knowledge and making clear some apparently more esoteric elements. Additional benefits of this process include opportunities for 3rd and 4th year students to become involved in demonstration activities to earlier students.
287. However there is still a perception that less opportunity is made than could be to involve staff from the many excellent departments in the Nottingham campus in teaching to the veterinary students. In the early years following setup of the school, because of limited staff numbers, such involvement was in fact greater than it is at present, and several students commented on the inspirational quality of such experts teaching in areas of their specific expertise and enthusiasm. About 12 academics and a smaller number of technical and non-academic staff not from the veterinary school are currently involved in course delivery to the veterinary students, but the majority of them are in Biosciences on the Sutton Bonington campus. This is a missed opportunity. The involvement of guest lecturers would strengthen the value of the basic sciences in the course and open the way for joint student projects to be held in Nottingham, that could lead to full blown research collaborations.
288. Evidence-based medicine is an important strand of the school's activities, and the Centre for Evidence Based Medicine is an asset. However, the ability of the SVMS to perform highly powered studies depends upon interaction with other centres. It is essential therefore to avoid the creation of another new coding system for clinical cases that is different from any of the current systems. Which of the current systems is adopted is of course for the SVMS to decide, but they should use one that is widely used and that thus facilitates multi-centre collaboration.
289. Because the recruitment strategy has focused on the attraction of staff to develop the teaching curriculum, there is a danger that if a strong push towards research capacity building is not instituted without delay those staff will not be credible to attract significant research funding in the future. New appointments of staff protected from teaching, and the provision of incentives to develop more research by current (predominantly teaching active) staff (such as sabbaticals, research leave or funding for significant working visits to other places) have been instituted to increase the push towards research capacity.
290. Five new recruits have been appointed and are due to start in 2011. A lecturer in Dairy Herd Health and four clinical associate professor positions are also planned and budgeted for, as are three further professorial posts. Given the current focus on teaching, it would be preferable to appoint to the three professorial posts academics

with a high level of research experience and excellence, in order to boost the School's activity in this area. Such appointments may need additional support for setup if they are to achieve rapid results

291. It is suggested that as the staff of the School expands they continue to ensure that they involve some 15-20 research active academics from outside the School to deliver a small number of lectures/seminars within an appropriate part of the 1st or 2nd year. The purpose of this would be to widen the exposure of the students to such role models and potentially inspire them to undertake research careers.
292. The School and University provide incentives for veterinary school staff to develop research projects with Nottingham campus scientists, and facilitate students' choice and involvement with such projects. The School encourages pump priming research in the same subject areas and encourages joint publication to bring groups together across the University. Funded initiatives such as "sandpit activities" have been undertaken to bring people together in the first instance. The Visitors encourage the School to continue to develop such collaborative work.
293. The Centre for EBVM should collaborate with other clinical centres in the UK and overseas, including the other UK veterinary schools to adopt a single Clinical Coding system and undertake multi-centre studies of caseload. The "not invented here" approach should be avoided at all costs.

Chapter 14 – Extra-mural studies (EMS)

EMS must be an integral and structured part of the education and training of veterinary students. Veterinary schools will need to be able to demonstrate how it is built into the overall curriculum.

Students must undertake a total of 38 weeks of EMS before they graduate:

Twelve weeks should normally be devoted to animal-husbandry related EMS so that students gain experience of the behaviour of normal animals in their own environments.

Clinical EMS must comprise at least 26 weeks across a broad range of areas.

EMS must include the equivalent of at least one week devoted to veterinary public health, during which time visits to meat plants are essential.

Students must keep a log of their learning and experience throughout their EMS.

There must be a system in place to enable EMS providers to report back to the school on their assessment of the performance of students during EMS.

The student's experience log and the feedback from EMS providers must form a part of the student's formative assessment against the RCVS's 'Day One' competences

There must be a member of the academic, or academically-related staff, responsible for the overall supervision of all types of EMS, including liaison with EMS providers.

There must be a mechanism to enable students to formally report on the quality of the instruction and experience of EMS placements.

Students must have access to a suitable database of EMS placements, and must be able to seek and obtain advice and guidance on the suitability of EMS placements

Findings

294. EMS is supported by a team of 3 full time equivalent staff, with academic and strategic input from the Student Placement Sub-Dean. This team aids students in selecting suitable EMS placements from a database if required, and provides administrative support around booking of placements, guidance for hosts and assessment of and feedback from, and about, students.
295. The School has invested in a new Microsoft Sharepoint database system which allows students to identify appropriate placements. Feedback and completion of EMS can be tracked through the system and it links to a mailmerge facility for all related paperwork.

296. Students are provided with a handbook which details specific learning objectives for each type of EMS Placement and provides sources of further information. Students discuss their holistic and specific plans for the 12 weeks of EMS with their Personal Tutor at each tutorial.

Animal Husbandry EMS

297. Twelve weeks of animal husbandry EMS are undertaken in Years 1 and 2 in order to meet the requirements of the BVMedSci degree. Students are required to undertake 2-week consecutive placements in 4 specific species. Students are given guidance around suggested numbers of animals at the farm or unit to ensure that they are able to meet their learning objectives.

Obligatory AHEMS placements		
Nature of work	Minimum period	Minimum number of animals on farm/unit
Lambing	2 weeks	200
Pig	2 weeks	60
Equine	2 weeks	Commercial Establishment
Dairy	2 weeks	75

298. Students have 4 weeks that they can spend associated with Animal Husbandry systems of their own choice (e.g. vet nursing, dog/cat kennels, zoos etc), which can be undertaken as 1 week placements and can include up to another 2 weeks at any of the above (a maximum of 4 weeks can be done working with any one species). Up to 4 weeks of the total 12 weeks AHEMS can be spent abroad. A maximum of 4 weeks can be spent at any one host.

Clinical EMS

299. Students are required to undertake 26 weeks of Clinical EMS (CEMS) in order to graduate with the BVM and BVS degrees. They can only undertake CEMS once AHEMS is completed, and are only able to complete up to 6 weeks before the end of Easter vacation of Year 3 of the course. A CEMS placement must be a minimum of 2 weeks duration. Up to 10 weeks of CEMS can be undertaken overseas. A maximum of 6 weeks can be spent at a close relative's practice.

Structure of clinical EMS

Nature of work	Type	Minimum period
Elective Specialist Practice	Formalised – the type of experience is chosen by student but organised by School and attended by all students	4 weeks
Public Health and Food Hygiene	Formalised – organised by School and attended by all students. From 2011 1 week of Veterinary Public Health teaching will become part of the core year 5 curriculum	2 weeks
Other	Free choice - student selected based on learning needs, likely career choice and discussion with Personal Tutor	20 weeks

300. The majority of CEMS will be carried out at a first opinion practice. Students are encouraged to experience as many clinical situations as possible and to attend a range of practices, including specialist practices. This allows students to practice a wide variety of clinical, personal and professional skills, whilst experiencing a range of management systems and processes.

301. Clinical EMS comprises two phases:

- 'Preparatory phase' – 6 weeks on completion of AHEMS. During this period students are encouraged to undertake a variety of different placements to experience a range of veterinary work, as defined by RCVS guidelines
- 'Practical EMS' – the remainder of student selected CEMS

302. CEMS Placement assessment is provided by:

- Host feedback on the student
- Review of outcomes of the Action Plan with the
- Portfolio pieces reviewed by the Personal Tutor Professional Skills module assessment)
- Review of Skills Diary by the Personal Tutor

Comments

303. SMVS provides a Student Placement Office to assist students with arranging both AHEMS and CEMS. There is an extensive database of practices willing to take students, which includes details of accommodation available and travel and sustenance provided (or otherwise). The staff who run this office are exceptionally helpful and friendly and the visitation team were given every help and assistance in viewing their work. Students also spoke very highly of the placement office staff. They are to be congratulated for their accomplishments.

304. Handbooks are available covering all aspects of both types of EMS which include information for the student and the provider. Learning objectives are clearly listed for each stage of the process. Feedback reports for both student and provider are

supplied and monitored for successes and possible problems. Emergency telephone contacts available 24 hours for students are provided in the handbooks.

305. Meetings with the students and separately with EMS providers produced only positive responses. All providers enjoyed having Nottingham students and the students reported positively on the EMS placements they had undertaken to date.

Stage 2

Evaluation of internal quality assurance systems

Veterinary schools must pass Stage 2 of the EAEVE Evaluation procedure in order to be deemed “accredited” by EAEVE. Schools that only pass Stage 1 will be deemed to be “approved” by EAEVE.

For RCVS purposes, Schools must pass both Stage 1 and Stage 2 to be recognised for registration purposes in the UK.

EAEVE normally requires a veterinary school to have had at least two cohorts of graduates go through the course before it can be considered EAEVE accreditation.

RCVS Visitors have considered Nottingham against the EAEVE Stage 2 indicators on the basis of the quality assurance procedures that have been put in place and which have already been observed to be operating.

1. Policy statement

Bearing in mind, that postgraduate education and research are the basis for the advancement of veterinary science and hence have a great impact on undergraduate education, as laid down in the principles of the Evaluation of Veterinary Education in Europe, the Faculty must provide a clear policy and set of procedures for internal quality control and quality assurance of its teaching and research programme. The policy should have a formal status and be publicly available. It should also include a role for students and other stakeholders. The policy statement is expected to include the:

- relationship between teaching and research so that an established definition of research education and research quality is evidence
- Faculty's strategy for quality and standards
- Organisation of the quality assurance system
- Responsibilities of organisational units and individuals for the assurance of quality
- Involvement of students in quality assurance
- Ways in which the policy is implemented, monitored and revised.

Comments

As part of the University of Nottingham which reports to the UK's Quality Assurance Agency at national level, the new School of Veterinary Medicine and Science has been established from the outset in compliance with the University's comprehensive quality assurance policies and procedures. The University's Quality Manual sets out the University's policies and procedures for teaching and supervision of undergraduate and postgraduate students. The quality of research is governed by the University's Code of Research Conduct and Ethics. The School's procedures and processes align with the procedures set out in the University's Quality Manual. In addition the School has put in place additional mechanisms for quality assurance associated with various aspects of the School's operations.

The School has established a number of Committees for quality assurance. All Committees ultimately report into the School Management Team which comprises the Dean of School, Heads of Divisions, Research and Business Sub-Dean and Teaching, Learning and Assessment (TLA) Sub-Dean, and also to any Campus, Faculty or University Committees for review, monitoring or audit purposes. Formal feedback to students is via Committees they attend, including the Learning Community Forum, through elected student year representatives. Students and stakeholders (eg. veterinary practitioners, EMS providers, external clinical associates) play a role in evaluating the curriculum, through feedback channels such as the Teaching Learning and Assessment committee.

The quality of research is governed by the University's Code of Research Conduct and Ethics. As for all UK Universities, the University of Nottingham is subject to periodic assessment of the quality of its research (formerly known as the "Research Assessment Exercise", and from 2012 the "Research Excellence Framework" run by the Higher Education Funding Council for England. The University's quality manual is publicly available on the internet at www.nottingham.ac.uk/quality-manual

Conclusion

The Visitors confirm that the School's quality policy complies with requirements.

2. Assessment of students, postgraduate education and student welfare

Undergraduate education - admission of national and foreign students:

Enrolled students must be assessed regularly using published criteria, regulations and procedures which are applied consistently. Student assessment procedures are expected to:

- be designed to measure the achievement of the intended learning outcomes and other programme objectives, e.g. day 1 competences
- have clear and published criteria;
- where appropriate, not rely on the judgements of single examiners;
- results of assessment must be documented properly;
- be subject to administrative verification checks to ensure the accuracy of the procedures.
- in addition, students should be clearly informed about the assessment strategy being used for their programme, what examinations or other assessment methods they will be subject to, what will be expected of them, and the criteria that will be applied to the assessment of their performance.

Post-graduate student education: academic track

Information on the following topics is required:

- admission of national and foreign students
- underlying study programmes, requirements and programme-assessment
- student assessment procedures and results

Post-graduate student education: professional track

Information of the following topics is required:

- Types of programmes offered and admission procedures for national and foreign students
- Cooperation with other institutions
- Student assessment procedures and results

Student welfare

Information on the following is required:

- Measures taken to prevent zoonoses
- General and specific student counselling

Comments

The University's policies and procedures for student admissions, assessment and examinations and student welfare are described in relevant chapters of Stage 1 of this report. All these policies and procedures are subject to regular monitoring and review.

Conclusion

The Visitors confirm that the policies for the assessment of students, postgraduate education and student welfare meet the requirements for Chapter 2, Stage 2 of the EAEVE evaluation criteria.

3. Assessment of teaching staff

Institutions should ensure that their teaching staff recruitment and appointment procedures include a means of ensuring that all new staff have at least the minimum necessary level of competence.

Teaching staff should be given opportunities to develop and extend their teaching capacity and should be encouraged to improve their skills. Opportunities for didactic and pedagogic training and specialisation should be available. The institution should describe any systems of reward for teaching excellence in operation.

A system for assessment of teaching staff must be in operation and should include student participation.

Comments

The University uses rigorous appointment procedures to ensure that staff of the appropriate calibre are recruited. All staff are regularly evaluated, using feedback from students, peer review, and annual staff appraisal.

All new lecturers are expected to take the Postgraduate Certificate of Higher Education. Clinical Associate staff involved in teaching take the Associate Teachers Programme. The School organises a number of in-house courses for staff on all aspects of teaching, learning and assessment. Some staff are funded to take Masters and PhD courses in Education together with further clinical qualifications. The University has an Activity/Performance Review process for staff which takes into account teaching and assessment achievements, research grants awarded, publications, supervisory and administrative duties. Promotion recognises high achievement in three broad areas: research and scholarship, teaching and learning, and academic service (eg. leadership, knowledge transfer or pastoral care)

Students are very involved in providing feedback on the quality of teaching (see Chapter 5, Stage 1 for details). The Visitors were given access to comprehensive feedback reports from students on individual modules and their teachers.

Conclusion

The Visitors confirm that the University's policies for the assessment of teaching staff meet the requirements for Chapter 3, Stage 2 of the EAEVE evaluation criteria

4. Assessment of learning opportunities

The Faculty must provide proof of a quality assurance system that promotes and monitors the presence of an academic environment highly conducive to learning including self-learning. Type, provision and updating of appropriate learning opportunities for the students should be clearly described as well as the involvement of students. The institution should also describe how it manages the promotion of up to date facilities for supervised and self-studies and the promotion of lifelong-learning.

Comments

Chapter 5 (Teaching Quality and Evaluation), Chapter 6 (Facilities and Equipment) and Chapter 8 (Library and Learning Resources) in the Stage 1 report above give details of the facilities provided for learning. Chapter 2 (Organisation) describes the organisation in place to manage these facilities and keep them up to date. The Visitors were given satisfactory assurances about the finances and budgetary arrangements to ensure maintenance of learning facilities. The curriculum has been designed to promote lifelong learning and emphasises the acquisition of Personal and Professional Skills as a theme which runs throughout the course.

Conclusion

The Visitors confirm that the University's policies for the assessment of learning opportunities meet the requirements for Chapter 4, Stage 2 of the EAEVE evaluation criteria.

5. Assessment of training programme and the award of the title of veterinary surgeon

Assessment is expected to include:

- development and publication of explicit intended learning outcomes, including a description of essential competences required at graduation (the so-called “day one-skills”)
- procedures for formal curriculum and teaching programme approval and regular reviews
- procedures monitoring delivery of the curriculum and teaching programme
- assurance concerning the participation of students in quality assessment activities
- parameters assessed and procedures to monitor regular feedback from stakeholders and graduates
- provision of a structure that promotes life-long learning

Comments

See above and elsewhere in the Stage 1 report for description of quality assurance procedures, which ensure that the curriculum and teaching programme are subject to regular review at both a detailed and an overall level. The learning outcomes for Nottingham's BVM, BVS degree are aligned with the RCVS Day One Competences. All staff and students are provided with a booklet detailing the RVC Day One Skills – which have been mapped to the RCVS Day One Competences - all the Day One Skills are assessed as part of students' final examinations. The new curriculum has been specifically designed to promote lifelong learning through the provision of directed self-learning sessions and promotion of e-learning. This is also facilitated by the use of a portfolio system for critical review and reflection of personal development which is obligatory for all students and prepares them for transition to the RCVS Professional Development Phase upon graduation

Conclusion

The Visitors confirm that the University's policies for the assessment of the training programme and the award of the title of veterinary surgeon meet the requirements for Chapter 5, Stage 2 of the EAEVE evaluation criteria.

6. Assessment of quality assurance systems for clinics, laboratories and farm

The Faculty should describe the system(s) of quality assurance it possesses to monitor and assure clinical, laboratory and farm services.

Comments

The University has a contractual arrangement with the Clinical Associates which assures the health and safety of students studying on their premises. At each of the Clinical Associates there are published and widely disseminated policies, standard operating procedures (SOP), training against those procedures, monitoring and recording of performance against standards and an audit process for reporting and investigation of incidents. All small animal and equine Clinical Associate Practices (with the exception of Dick White Referrals) have been accredited under the RCVS Practice Standards Scheme at either Tier 2 or Tier 3 (Hospital standard), and are therefore compliant with the Quality Assurance processes of that scheme. All farm Clinical Associate Practices are accredited to RCVS Core Standards.

In addition to these standards, there are additional local quality assurance processes and accreditations specific to each individual Associate. These include:

- HBLB approved laboratory status and therefore part of the HBLB Quality Control Scheme for testing CEMO - Oakham
- DEFRA approved centre status for collection, storage and distribution of fresh, chilled and frozen semen – Oakham
- BEVA approved practice status for Artificial insemination – Oakham.
- Daily internal controls and RIQAS external quality assurance scheme – Dick White Referrals
- Compliance with the Secretary of State's Standards of Modern Zoo Practice – Twycross
- EU Zoos Directive – Twycross
- Zoo Licensing Act (UK) – Twycross
- British and Irish Association of Zoos and Aquaria (full membership) – Twycross
- European Association of Zoos and Aquaria (full membership) – Twycross
- Accreditation to ISO17025 by UKAS – Veterinary Laboratories Agency
- Individual practice laboratories have external quality assurance for all biochemistry analysis systems (for example RIQAS external quality assurance scheme)– All

Laboratory diagnostic services

The clinical diagnostic service (NUVetNA) and the School's research laboratories operate to the principles of Good Laboratory Practice (GLP) SI 994, 2004. The research facilities are maintained by the University Estates Directorate to the appropriate standard. Defects are reported and allocated a unique number by the Estates Directorate. The School maintains equipment with the laboratories. All equipment within the research laboratories is monitored and validated using appropriate controls where applicable. Validation of an instrument is

carried out using either trained University personnel, or by external contractors, using either commercial controls or standard operating procedures (SOPs) that are peer-reviewed methods from papers or manufacturer's instructions. All equipment is serviced either by the manufacturer, or a suitable company, to ensure correct outputs within manufactures tolerances are consistently achieved. Servicing is carried out annually, however checks on instrument status are carried out by trained technical staff as appropriate. SOPs are used to ensure the end-user can generate the correct data from the instrument. To record these instructions the School uses an electronic system to record all equipment SOPs which is compliant to GLP. A specimen and sample management system is also available to principal investigators to aid retrieval of archived material. It is the responsibility of all staff, and in particular research team leaders and Chief/Principal Investigators to:

- Report any instrument that is damaged or seems to be malfunctioning to the technical staff to allow controls to be put into place
- Manage all research data in accordance with the Data Protection Act 1998 and any other legal provisions, conditions and guidelines that may apply to the handling of personal information
- Ensure that personal records of research progress, including authorised laboratory books, are maintained to the recommended or required standards, and that no falsification of results occurs. Laboratory books must be signed and dated by the researcher, and signed off by the supervisor
- Maintain records of sample and specimen provenance and storage. This material should be available for a minimum of 7 years as per research handbook guidelines

The Senior Research Technician is a member of the Research Directorate and as such issues relevant to laboratory quality assurance are raised to the Research Directorate, and hence, if necessary to the Research Business Committee and Management Team.

Farm facilities

The farm facilities have arrangements for both internal and external quality assurance. The University farm is part of the National Dairy Farm Assurance Scheme.

The farm services team work in accordance with the University of Nottingham policies and report regularly and directly to a Farm Management Committee that comprises members of both Schools, including senior clinical academic members of staff from the School of Veterinary Medicine and Science. The management team assure quality as well as continuously revising and monitoring practices to further improve quality.

Conclusion

The Visitors confirm that the University's policies for the assessment of quality assurance for clinics, laboratories and farm meet the requirements for Chapter 6, Stage 2 of the EAEVE evaluation criteria.

7. Assessment of continuing education

The Faculty should describe its system for quality assurance to monitor and promote the design, implementation and quality control of its own, or joint Continuing Professional Development (CPD) programmes in specific areas of practical veterinary medicine.

Comments

The School does not currently offer any award-bearing CPD, except through postgraduate programmes detailed elsewhere in this report. A full list of non award bearing CPD talks and events is shown in Chapter 11 in SER volume 1.

The School provides non award bearing CPD on an informal and free basis during short evening sessions to the local veterinary profession. In the medium term it is planned that a series of formalised and structured CPD sessions will be developed as an additional income stream to the School, embedded in an award bearing qualification and under the direction of a Sub-Dean for Continued Professional Development (to be appointed). Quality assurance for these courses would then be fully parallel that of other taught postgraduate courses (i.e. via the Postgraduate Committee to the TLA Committee).

The current informal programme is initiated by individual clinicians in discussion with the School Management Team, with review of proposed format and learning outcomes by an appropriate Head of Division. The delivery of an individual session is monitored by the Postgraduate Committee. Quality assurance processes include:

- Consideration of feedback from participants
- Consideration of feedback from session leader (encompassing consideration as to delivery format, whether delivery matched published learning objectives, what may be improved, what worked well etc.)
- Evaluation of any improvements or changes for future sessions.

Conclusion

The Visitors confirm that the University's policies for the assessment of continuing education meet the requirements for Chapter 7, Stage 2 of the EAEVE evaluation criteria.

8. Assessment of research

The institution should describe its quality assurance systems to develop, maintain and audit research programmes. Of particular interest is how research provides opportunities for student training, staff promotion, and how research methods and results are conveyed into basic veterinary training.

Comments

Research outcomes and outputs are assessed by the bi-monthly Research and Business Committee, a variety of information is evaluated including grant submissions, conversion rates, income demographics, at School level and by individual. In addition the Research and Business Sub-Dean produces an annual report on research activity including information on:

- Research strategy
- Research income
- Grant submissions and success rates
- Publications
- Postgraduate studentships
- Post doctoral Research Assistants
- Key challenges for the year ahead

The major external audit for the quality of research is the UK-wide Research Assessment Exercise (to be titled the Research Excellence Framework from 2011) In the 2008 Research Assessment Exercise, the School of Veterinary Medicine and Science made a joint submission with the School of Biosciences and scored highly with 95% of its activities classified as being of an international standard in the Agriculture, Veterinary and Food Science Unit of Assessment.

Further information about Research at SVMS is detailed in Chapter 13, Research, of Stage 1 of this report, including information about how undergraduate students are involved in research.

Conclusion

The Visitors confirm that the University's policies for the assessment of research meet the requirements for Chapter 8, Stage 2 of the EAEVE evaluation criteria.

9. Assessment of internationalisation of education and research

The institution should describe how it promotes and assesses the development of international post-graduate education and of collaborative research projects with other countries, including developing countries.

Of particular importance is a description of the measures of encouragement applied to engage veterinary students and new graduates in international mobility of training (e.g. EU programmes such as Erasmus, Socrates, Tempus, Marie Curie etc) as well as the effectiveness of the activities.

Comments

The University has two international campuses in China and Malaysia. The University is committed to increasing study-abroad opportunities for all students. There is a network of over 350 institutions worldwide involved in the field of student and staff exchange, including the Universitas 21 network and a number of other internationally-renowned universities on a university-wide basis. The University promotes the European Erasmus Exchange Programme for staff or students. The University 'Developing Horizons' scheme is a student exchange programme that allows students at Nottingham to exchange with students from African partner educational institutions.

The International Office provides a wide ranging support service for key aspects of the University's internationalisation strategy. Based in International House on the Jubilee Campus, and with out-posted offices in Brazil, China, Mexico and Malaysia, the International Office is made up of 40 FTE staff. The remit of the International Office covers student exchanges and study abroad, non-UK student recruitment, international scholarship administration, specialist support services for students, staff and academic visitors from overseas, relationships with overseas partners and sponsors, transnational education initiatives and support for the University's overseas campuses.

Veterinary students are able to spend time on EMS placements in non-UK countries. Students have spent time in countries as diverse as the India, Peru, and Zimbabwe gaining animal husbandry and clinical EMS experience, and have attended an exotics summer School in the Czech Republic and also undertaken internships at:

- Cornell University, USA
- the Randwick Equine Hospital, Australia
- VCA Bay Area Veterinary Hospital, USA

As part of the Year 3 research project, students have conducted research at a variety of establishments including leading research laboratories, as examples:

- The Novartis Research Centre in St Aubin, Switzerland hosted a student to conduct a parasitology project
- 3 students have spent time at the Animal Health Centre, Morrinsville, New Zealand
- Calgary Veterinary School hosted a student to undertake a bovine and equine stem cell project

The School does not participate in the student ERASMUS scheme, as it is not possible to generally accommodate or finance visiting students. The School however considers individual visiting students on a case by case basis. Staff have taken advantage of the scheme, including short trips to potential research collaborators in Europe.

Students, as part of the International Association of Veterinary Students (IVSA), have undertaken a number of exchanges with other European and wider institutions (e.g. Faculty of Veterinary Medicine in Ljubljana, Slovenia and the Faculty of Veterinary Science, Complutense University of Madrid, Spain); each year the School hosts visiting students for a week.

Clinical and non clinical postgraduate students are able to conduct research abroad, within the remit of their study programme and project outline. All postgraduate students are able to attend international conferences within the financial constraints of their projects. The School considers individual visiting international postgraduate students requests on a case by case basis.

There are a range of scholarships at School and University level for places at both undergraduate and postgraduate level. These are awarded on a competitive basis and students have been very successful in obtaining these scholarships.

There are currently 2 major EU-funded projects in the School:

- Novel Technologies for surveillance of Emerging and Re-emerging Infections of Wildlife (WildTech) is developing a state-of-the-art pan-European surveillance system to monitor existing, emerging and re-emerging infections in wildlife. The project has funding of six million Euros, 13 partners and a network of over 22 wildlife specialists in European and neighbouring countries. Partner countries benefit by obtaining an increased understanding of the prevalence of selected diseases in their own country but also have access to the developing technology through a training programme during the course of the project. The UK partners include Twycross Zoo, East Midlands Zoological Society
- Reproductive Effects of Environmental Chemicals in Females (REEF) is investigating how potentially-toxic substances could be affecting fertility. The project has funding of 2.9 million Euros, and 6 partners

Staff have developed a number of other international research collaborations, including participation in research programmes in developing countries, for example:

- A research project funded by the BBSRC and DFID is aiming to develop a vaccine strategy for the control of Malignant Catarrhal Fever, and involves field trials in Tanzania
- The School has hosted 2 BBSRC China Partnership Awards and 1 BBSRC India Partnership Award in which collaborations with selected Chinese/Indian academic institutions are initiated or strengthened through joint research projects. That these have been fruitful is demonstrated by the subsequent success of EU and UK funded research projects involving the Chinese partners.
- Currently the School is working with the Royal Veterinary College within a consortium partly funded by Pfizer Animal Health that aims to introduce new

approaches and technologies to the livestock sector in China, including through the establishment of post-graduate training programmes in Veterinary Public Health.

The School has an international mix of staff, including staff from 20 non UK countries, of whom 9 staff are from EU countries other than the UK and 11 staff are from outside the EU. Staff including postdoctoral research assistants and postgraduates are encouraged by the School, Graduate School and University to consider various funding options for mobility including the Marie Curie Scheme.

Conclusion

The Visitors confirm that the University's policies for internationalisation meet the requirements for Chapter 9, Stage 2 of the EAEVE evaluation criteria.

10. Assessment of co-operation with stakeholders and society

The institution should provide proof that it regularly publishes up to date, objective and accurate information, both quantitative and qualitative, about the study programme. Published information might also include the views and employment destinations of past students and the profile of the current student population. This information should be readily accessible and should not be used simply as a marketing opportunity. The institution should describe to what extent it meets its own expectations.

Comments

The University produces various publications which are available on its website, including its Annual Report, and its Prospectus which provides details about the course and the University for applicants. The University is subject to the Freedom of Information Act and all its data and documents are available to the public on request. It also makes detailed data available to other external agencies, such as the Higher Education Statistics Agency, and the “Unistats” website (www.unistats.com) which publishes in a readily understandable format information on percentages in graduate employment, percentage breakdowns of the student population, student satisfaction ratings (from the National Student Survey), etc. The external audit reports published by the QAA about the University are also freely available to the public via the QAA website (www.qaa.ac.uk).

At the time of writing, the SVMS has not yet produced a cohort of graduates, so employment statistics are not yet available. However, these will eventually be available publicly via the HESA annual statistics returns.

Conclusion

The Visitors confirm that the University’s policies for the assessment of cooperation with stakeholders and society meet the requirements for Chapter 10, Stage 2 of the EAEVE evaluation criteria.

Annex 1 – List of modules, curriculum hours & EAEVE ratios

Table 1 – List of Module Credits

<i>Degree</i>	<i>Year</i>	<i>Module title</i>	<i>Module type</i>	<i>Credits</i>
BVMedSci (Part I)	Year 1	D11MSK Veterinary Musculoskeletal System 1	Block	30
		D11LCB Lymphoreticular Cell Biology 1	Block	10
		D11CRS Veterinary Cardiorespiratory System 1	Block	30
		D11NEU Veterinary Neuroscience 1	Block	30
		D11PPS Personal and Professional Skills 1	Long	5
		D11AHW Animal Health and Welfare 1	Long	15
BVMedSci (Part I)	Year 2	D12ECN Veterinary Endocrine System 1	Block	15
		D12SHH Veterinary Skin, Hoof and Horn 1	Block	10
		D12GIL Veterinary Gastrointestinal System 1	Block	40
		D12REP Veterinary Reproduction System 1	Block	20
		D12URI Veterinary Urinary System 1	Block	15
		D12PPS Personal and Professional Skills 2	Long	5
		D12AHW Animal Health and Welfare 2	Long	15
BVMedSci (Part II)	Year 3	D13RMM Veterinary Research Methods	Block	10
		D13PRO Veterinary Research Project	Block	50
		D13PVS Principles of Clinical Veterinary Science	Block	35
		D13PRT Veterinary Practical Techniques	Block	20
		D13PPS Personal and Professional Skills 3	Long	5
BVM BVS (Part I)	Year 4	D14NEU Veterinary Neuroscience 2	Block	15
		D14LCB Lymphoreticular Cell Biology 2	Block	10
		D14URI Veterinary Urinary System 2	Block	10
		D14ECN Veterinary Endocrine System 2	Block	10
		D14SHH Veterinary Skin, Hoof and Horn 2	Block	10
		D14MSK Veterinary Musculoskeletal System 2	Block	25
		D14GIL Veterinary Gastrointestinal System 2	Block	25
		D14CRS Veterinary Cardiorespiratory System 2	Block	25
		D14REP Veterinary Reproduction System 2	Block	25
		D14PPS Personal and Professional Skills 4	Long	5
		D14AHW Veterinary Public Health	Long	20
BVM BVS (Part II)	Year 5	Clinical Practice: Equine	6 weeks	180
		Clinical Practice: Farm Animal	6 weeks	
		Clinical Practice: Pathology	2 weeks	
		Clinical Practice: Small Animal	10 weeks	
		Clinical Practice: Zoo, Wildlife and Exotic	2 weeks	

Table 2 General table of curriculum hours taken by all students

	Hours of training							
	Theoretical training			Supervised practical training			Other	Total
	Lectures	Seminars	Self-directed learning	Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
First Year	229	65	157	101	125	87	12	777
Second Year	250	90	151	80	80	80	10	740
Third Year	103	43	58	39	33	33	390	700
Fourth Year	302	62	181	29	17	111	10	711
Fifth Year	0	0	0	0	0	896	3	899
Total	884	261	547	250	254	1207	425	3828

Table 3 Yearly curriculum studies

Year of course: First

	Hours of training							
	Theoretical training			Supervised practical training			Other	Total
	Lectures	Seminars	Self-directed learning	Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
D11MSK Veterinary Musculoskeletal System 1	37	16	34	18	18	18	0	140
D11LCB Lymphoreticular Cell Biology 1	16	5	12	14	0	0	0	47
D11CRS Veterinary Cardiorespiratory System 1	51	21	44	18	18	18	0	169
D11NEU Veterinary Neuroscience 1	59	19	41	39	39	39	0	235
D11PPS Personal and Professional Skills 1	39	5	21	13	13	13	12	116
D11AHW Animal Health and Welfare 1	27	0	5	0	38	0	0	70
TOTAL	229	65	157	101	125	87	12	777

Year of course: Second

	Hours of training							
	Theoretical training			Supervised practical training			Other	Total
	Lectures	Seminars	Self-directed learning	Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
D12ECN Veterinary Endocrine System 1	28	8	32	9	9	9	0	94
D12SHH Veterinary Skin, Hoof and Horn 1	16	2	10	4	4	4	0	40
D12GIL Veterinary Gastrointestinal System 1	71	31	56	28	28	28	0	241
D12REP Veterinary Reproduction System 1	32	31	0	14	14	14	0	105
D12URI Veterinary Urinary System 1	28	7	21	5	5	5	0	70
D12PPS Personal and Professional Skills 2	39	0	14	4	4	4	10	77
D12AHW Animal Health and Welfare 2	37	12	18	16	16	16	0	113
TOTAL	250	90	151	80	80	80	10	740

Year of course: Third

	Hours of training							
	Theoretical training			Supervised practical training			Other	Total
	Lectures	Seminars	Self-directed learning	Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
D13RMM Veterinary Research Methods	34	20	14	6	0	0	0	74
D13PRO Veterinary Research Project	0	0	0	0	0	0	384	384
D13PVS Principles of Clinical Veterinary Science	39	11	33	21	21	21	0	146
D13PRT Veterinary Practical Techniques	21	0	11	12	12	12	0	68
D13PPS Personal and Professional Skills 3	9	13	0	0	0	0	6	28
TOTAL	103	43	58	39	33	33	390	700

Year of course: Fourth

	Hours of training							
	Theoretical training			Supervised practical training			Other	Total
	Lectures	Seminars	Self-directed learning	Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
D14NEU Veterinary Neuroscience 2	31	3	20	1	1	4	0	59
D14LCB Lymphoreticular Cell Biology 2	12	1	2	2	0	0	0	18
D14URI Veterinary Urinary System 2	12	2	28	1	1	5	0	49
D14ECN Veterinary Endocrine System 2	16	8	12	1	1	4	0	41
D14SHH Veterinary Skin, Hoof and Horn 2	21	2	7	1	1	9	0	41
D14MSK Veterinary Musculoskeletal System 2	27	8	28	3	3	17	0	85
D14GIL Veterinary Gastrointestinal System 2	52	8	20	4	4	27	0	116
D14CRS Veterinary Cardiorespiratory System 2	37	7	28	3	3	17	0	94
D14REP Veterinary Reproduction System 2	41	6	19	3	3	17	0	89
D14PPS Personal and Professional Skills 4	21	16	2	0	0	2	10	50
D14VP Veterinary Public Health	33	0	16	10	0	10	0	69
TOTAL	302	62	181	29	17	111	10	711

Year of course: Fifth

	Hours of training							
	Theoretical training			Supervised practical training			Other	Total
	Lectures	Seminars	Self-directed learning	Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
Clinical Practice: Equine	0	0	0	0	0	192	0	192
Clinical Practice: Farm Animal	0	0	0	0	0	192	0	192
Clinical Practice: Pathology	0	0	0	0	0	64	0	64
Clinical Practice: Small Animal	0	0	0	0	0	320	0	320
Clinical Practice: Zoo and Wildlife	0	0	0	0	0	64	0	64
Veterinary Public Health	0	0	0	0	0	64	0	64
Personal and Professional Skills (tutorials)	0	0	0	0	0	0	3	3
TOTAL	0	0	0	0	0	896	3	899

Table 4 Curriculum hours in EU-listed subjects taken by every student

	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other	Total
	Lectures	Seminars		Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
1. Basic subjects								
a) Physics	4	1	2	0	0	0	0	8
b) Chemistry	4	0	2	1	1	1	0	8
c) Animal biology	21	2	8	0	0	0	0	31
d) Plant biology	1	0	0	0	0	0	0	1
e) Biomathematics	9	7	8	4	0	0	0	28
Total number of hours	38	10	20	5	1	1	0	75
2. Basic sciences								
a) Anatomy (incl. histology and embryology)	95	18	54	63	58	61	0	349
b) Physiology	66	13	34	6	6	7	0	132
c) Biochemistry, cellular and molecular biology	21	4	11	1	1	2	0	40
d) Genetics (including molecular genetics)	14	0	3	0	0	0	0	19
e) Pharmacology and pharmacy	22	5	13	2	2	9	0	53
f) Toxicology (incl. environmental pollution)	6	0	2	1	1	2	0	13
g) Microbiology (including virology, bacteriology and mycology)	24	3	15	8	5	11	0	66
h) Immunology	20	2	15	6	3	3	0	48
i) Epidemiology (including scientific and technical information and documentation methods)	35	15	28	2	1	47	0	128
j) Professional ethics	20	2	6	0	0	0	0	28
Total number of hours	323	62	181	89	77	142	0	874

	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other	Total
	Lectures	Seminars		Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
3. Clinical Sciences								
a) Obstetrics	3	1	0	1	1	1	0	5
b) Pathology (including pathological anatomy)	50	19	35	13	12	66	0	195
c) Parasitology	20	4	17	6	6	7	0	60
d) Clinical medicine and surgery (including anaesthetics)	97	23	80	24	25	299	0	547
e) Clinical lectures on various domestic animal, poultry and other animal species	2	0	0	0	0	0	0	2
f) Field veterinary medicine (ambulatory)	1	0	0	0	0	138	0	140
g) Preventive medicine	9	2	5	1	0	18	0	36
h) Diagnostic imaging (including radiology)	27	9	16	14	13	87	0	166
i) Reproduction and reproductive disorders	34	20	8	6	8	37	0	113
j) Veterinary state medicine and public health	11	0	12	2	0	8	0	33
k) Veterinary legislation and forensic medicine	11	4	6	0	1	3	0	25
l) Therapeutics	31	9	24	4	5	70	0	142
m) Propaedeutics (including laboratory diagnostic methods)	59	28	59	44	39	187	0	417
Total number of hours	355	119	262	115	110	921	0	1882
4. Animal Production								
a) Animal production	8	1	2	0	0	0	0	11
b) Animal nutrition	9	6	6	3	3	23	0	50
c) Agronomy	1	0	0	0	0	0	0	2
d) Rural economics	5	1	1	0	0	0	0	8
e) Animal husbandry	29	10	7	7	25	13	0	91
f) Veterinary hygiene	0	0	0	0	0	1	0	1
g) Animal ethology and protection	31	6	6	1	4	8	0	57
Total number of hours	83	24	22	11	32	45	0	220

	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other	Total
	Lectures	Seminars		Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
5. Food hygiene/Public Health								
a) Inspection-, and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	4	0	1	2	0	27	0	34
b) Food hygiene and technology	2	0	1	1	0	4	0	8
c) Food science and legislation	2	0	1	1	0	4	0	8
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	3	0	0	0	0	29	0	32
Total number of hours	11	0	3	4	0	64	0	82
6. Professional knowledge								
a) Practice management	17	10	2	0	0	0	0	30
b) Veterinary certification and report writing	2	0	1	2	1	5	0	10
c) Career planning and opportunities	3	4	0	0	0	0	0	7
Total number of hours	22	14	3	2	1	5	0	47
TOTAL	833	229	491	226	221	1180	0	3180

Table 5 Curriculum hours in other non EU-listed subjects taken by every student

	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other	Total
	Lectures	Seminars		Lab and desk based work	Non-clinical animal work	Clinical work		
A	B	C	D	E	F	G		
Research Project	0	0	0	0	0	0	384	384
Clinical Reasoning	1	1	3	0	0	0	0	6
Communication Skills	13	4	6	3	2	4	0	31
Tutorials	0	0	0	0	0	0	41	41
Learning, Group Working and Interpersonal Development	37	27	47	21	31	23	0	186
TOTAL	51	32	56	24	33	27	425	648

Notes for all Tables 2 – 5:

- Data is completed for all teaching delivered for Years 1, to 4 in the academic year 2009/10, and for rotations in Year 5, and rounded to the nearest hour
- Practical classes in Years 1 to 4 include clinical work, based on a proportion of classes a valid assumption has been made that 1/3 of the time of any practical class (except Animal Health and Welfare 1, Research Methods, Lymphoreticular Cell Biology, Veterinary Public Health) is spent on clinical work in Years 1 to 3, and 3/4 of the time of any practical class is spent on clinical work in Year 4. Veterinary Public Health is assumed to be 50% clinical work.
- Practical classes in Years 1 to 4 include non-clinical animal work, based on a proportion of classes a valid assumption has been made that 1/3 of the time of any practical class (except Animal Health and Welfare 1, Lymphoreticular Cell Biology, Veterinary Public Health) is spent on non-clinical animal work in Years 1 to 3, and 12.5% in Year 4. All practical work associated with Animal Health and Welfare 1 is assumed to be non-clinical animal work.
- Practical classes in Years 1 to 4 include lab and desk based work, based on a proportion of classes a valid assumption has been made that 1/3 of the time of any practical class (except Animal Health and Welfare 1 and 2, Lymphoreticular Cell Biology, Research Methods, Veterinary Public Health) is spent lab and desk based work in Years 1 to 3, and 12.5% in Year 4. All practical work associated with Lymphoreticular Cell Biology and Research Methods is assumed to be lab and desk based work. Veterinary Public Health is assumed to be 50% lab and desk based work.
- The 'Other' category of delivery type includes Personal Tutorials and Research Project
- The 'Seminars' category of delivery type includes Clinical Relevance sessions and Directed Group Learning
- Year 5 veterinary public health is included as this is part of a curriculum followed by all students (and assessed).
- 'Learning, Group Working and Interpersonal Development' represents generic objectives associated with the majority of delivery sessions
- Curriculum hours have been assigned as accurately as possible using a bespoke database.

Elective subjects

All modules are compulsory within the Years 1 to 4 of the course; however there are significant opportunities for elective study to allow veterinary students to pursue and develop along specific species or discipline pathways throughout the course:

- Students are able to indicate a species interest in Year 1 and 2 so that they may be involved in clinical activities when particular opportunities arise (e.g. routine management of horses at the Defence Animal Centre)
- A significant component of the course is a research based project in Year 3; further details are in Chapter 13. The research project accounts for 12 weeks of the 5-year programme. The student is able to select a project of their choice or design a project in collaboration with a supervisor
- All students are able to undertake 24 weeks of Clinical EMS in any areas or species of clinical veterinary medicine and surgery of their choice
- Students are given the opportunity, by open competition, to elect which weeks of the year that they undertake their clinical EMS, thus enabling them to maximise clinical learning opportunities in the species of choice (e.g. by undertaking equine stud medicine practice in the spring time)
- A Year 5 elective allows students to select from 3 main areas of Specialist Clinical Practice (Small Animal, Equine or Farm Animal) of 4 weeks duration, to receive additional clinical training and experience. Choices are made in the Summer term of Year 4, students are asked to rank the choices and are able to make a special case for their first choice. Students are not guaranteed their first choice of elective. The elective counts as 4 weeks of CEMS
- Year 5 Directly Observed Procedural Skills (DOPS) assessments (see section 5.1.3) and Objective Structured Long Examination Records (OSLERS) are typically generic, for example, OSLERS test a student's clinical reasoning and communication skills, thus there is the opportunity for a student to elect to be tested using this format in species of their choice.

The School has taken the view that it should engender in students the ability to take responsibility for their own learning; this is done principally through the Portfolio system. Combining Portfolio recording and Action Plans with a flexible approach to EMS requirements enable students to have a significant choice (within RCVS guidelines) on the EMS that they undertake. Personal Tutors play a key role in discussing choices with their tutees.

Optional subjects

The School currently offers no optional credit weighted subjects or courses. The normal expectation is that registered students of the University enrol for modules in accordance with their programme specification. Exceptionally, however, a student may be allowed to register for a maximum of 20 credits of additional credit-bearing modules in any one academic year.

Table 6 Clinical practice modules

Rotation	Location	Weeks
Small Animal	Dick White Referrals	2
	Dovecote Veterinary Hospital/ Scarsdale Veterinary Group (from Summer 2011)	4
	Oakham Veterinary Hospital	2
	PDSA	2
Farm Animal	Scarsdale Veterinary Group	2
	SVMS Farm Animal Medicine and Skills	2
	SVMS Herd Health	2
Equine	Oakham Veterinary Hospital	4
	Scarsdale Veterinary Group	2
Pathology	Veterinary Laboratories Agency	2
	Minster Veterinary Practice	
Zoo / wildlife	Twycross Zoo	2

Table 7 Obligatory extra-mural work students must undertake as part of the course

Nature of work		Status	Length	Year
Animal Husbandry EMS	Lambing	Free choice	2 weeks	Years 1 to 3
	Pig	Free choice	2 weeks	
	Equine	Free choice	2 weeks	
	Dairy	Free choice	2 weeks	
	Other	Free choice - student selected based on reflection, experience and ability, likely career choice and discussion with Personal Tutor	4 weeks	
Clinical EMS	Elective Specialist Practice	Formalised – chosen by student but organised by School and attended by all students	4 weeks	Year 5
	Public Health and Food Hygiene	Formalised – organised by School and attended by all students	2 weeks	
	Other	Free choice - student selected based on reflection, likely career choice and discussion with Personal Tutor	20 weeks	Years 2 to 5 (after AHEMs is completed)

Table 8 Elective specialised clinical practice

Rotation	Location	Weeks	Practical work
Small Animal	Scarsdale Veterinary Hospital / Dovecote Veterinary Hospital (from Summer 2011)	2	Advanced Small Animal Practice
	Vets Now	2	Emergency Small Animal Medicine and Surgery
Farm Animal	An XL Vets practice	4	Advanced Farm Animal Practice
Equine	Chine House	2	Emergency Equine Medicine and Surgery and Intensive Care
	Bell Equine	2	Advanced Equine Medicine and Surgery

Table 9 EAEVE ratios for curriculum hours

		Denominator
R6	<p>Theoretical training (A+B+C)</p> $\frac{\quad}{\quad} = \frac{1692}{1711} = 1 / 0.99$ <p>Supervised practical training (D+E+F) 1711</p>	1.01
R7	<p>Clinical work (F)</p> $\frac{\quad}{\quad} = \frac{1207}{504} = 1 / 2.39$ <p>Laboratory and desk based work + non-clinical animal work (D+E) 504</p>	0.42
R8	<p>Self directed learning (C)</p> $\frac{\quad}{\quad} = \frac{547}{3828} = 1 / 0.14$ <p>Teaching load (A+B+C+D+E+F+G) 3828</p>	7.00
R9	<p>Total no. curriculum hours Food Hygiene / Public Health</p> $\frac{\quad}{\quad} = \frac{115}{3828} = 1 / 0.03$ <p>Total no. hours in the vet curriculum 3828</p>	33.27
R10	<p>Total no. curriculum hours Food Hygiene / Public Health</p> $\frac{\quad}{\quad} = \frac{115}{64} = 1 / 1.80$ <p>Hours obligatory extramural work in veterinary inspection 64</p>	0.56

Notes:

- Total hours for A to G taken from Tables 2-5
- Total hours for food hygiene/public health combined from 3j (Veterinary state medicine and public health) and all subject 5 totals in Table 4
- Total hours for obligatory extramural work is taken from Table 7

Annex 2 – Staffing numbers and ratios

Table 10 - Personnel in the establishment (at 1.12.2010)

	Budgeted posts (FTE)		Non-budgeted posts (FTE)		Total (FTE)		Vacant Budgeted posts (FTE)		Vacant non-budgeted posts FTE)	
	VS	NVS	VS	NVS	VS	NVS	VS	NVS	VS	NVS
1. Academic staff										
Teaching staff	38.8	31.1	2.0	0.0	40.8	31.1	9.5	4.7	0.0	0.0
Research staff	0.0	4.0	4.0	11.9	4.0	15.9	0.0	0.0	0.0	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total FTE	38.8	35.1	6.0	11.9	44.8	47.0	9.5	4.7	0.0	0.0
Total FTE (VS + NVS)	73.9		17.9		91.8		14.2		0.0	
FTE providing 2009/10 teaching	65.9		2.0		67.9		0.0		0.0	
2. Support staff										
a	Responsible for the care and treatment of animals	0.7	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0
b	Responsible for the preparation of practical and clinical teaching	7.9	0.0	0.0	7.9	0.8	0.8	0.0	0.0	0.0
c	Responsible for the administration, general services, maintenance etc	42.1	0.0	0.0	42.1	4.2	4.2	2.0	2.0	0.0
d	Engaged in research work	6.2	0.0	0.0	6.2	1.0	1.0	0.0	0.0	0.0
e	Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total support staff	56.9	0.0	0.0	0.0	56.9	6.0	6.0	2.0	2.0	0.0
3. Total staff	130.8		17.9		148.7		20.2		2.0	

Note:

- Numbers do not include budgeted external teaching deliverers paid on a daily basis, nor Clinical Associate staff, except for 2.0 FTE at Dick White Referrals.
- Two Senior Clinical Training Scholars who provide regular teaching are included in the teaching staff numbers
- The 14.2 FTE vacant budgeted Academic staff include 2.0 FTE recruited and due to start in 2011 and 1.0 FTE assigned to current fractional staff who plan to increase hours in 2011.
- Support staff numbers include 20.1 FTE resource provided centrally
- The School 6.0 FTE research technicians 'engaged in research' work devote approximate 25% of their time to supporting teaching activities (particularly relating to Year 3 research project support)
- The School 7.8 FTE teaching technicians 'responsible for the preparation of practical and clinical teaching' devote approximate 10% of their time to the care of animals

Table 11 - Ratios associated with staff and student numbers

	2009/10 Denominator		Comparison 2010/11 Denominator
R1	No. total academic FTE in veterinary training <hr style="width: 20%; margin: 0 auto;"/> = 67.9/381 = 1 / 0.18 No. undergraduate veterinary students	5.61	5.63
R2	No. of total FTE at Faculty <hr style="width: 20%; margin: 0 auto;"/> = 67.9/402 = 1 / 0.17 No. of undergraduate students at Faculty	5.92	5.87
R3	No. of total VS FTE in veterinary training <hr style="width: 20%; margin: 0 auto;"/> = 39.8/381 = 1 / 0.10 No. undergraduate veterinary students	9.57	9.64
R4	No. of total VS FTE in veterinary training <hr style="width: 20%; margin: 0 auto;"/> = 39.8/87 = 1 / 0.46 No. students graduating annually	2.19	1.73
R5	No. total academic FTE in veterinary training <hr style="width: 20%; margin: 0 auto;"/> = 67.9/56.9 = 1 / 1.19 No. total FTE support staff in veterinary training	0.84	0.75

Note:

- Academic FTE and VS FTE do not include budgeted external teaching deliverers paid on a daily basis, nor Clinical Associate staff, except for 2.0 FTE at Dick White Referrals.
- Two Senior Clinical Training Scholars who provide regular teaching are included in the teaching staff numbers
- Support staff numbers include the 20.1 FTE University staff providing support to the School
- Denominators have been calculated for FTE providing last year teaching (67.9 FTE including 39.8 FTE veterinary qualified staff) and the corresponding student numbers
- Undergraduate students at the Faculty include students who are on the Preliminary Year and BVMedSci only.
- Number of students graduating annually is set as the number of students in the highest year
- A comparison has been calculated with current student numbers and full planned complement of staff (Academic staff = 86.1 FTE, VS = 50.3 FTE, support staff = 64.9 FTE)

Annex 3 – Staff list

Staff list in each division

Note:

- Information correct at 1 December 2010.
- Staff are graded with the following designation:
 - P: Professor
 - R: Reader
 - AP: Associate Professor
 - L: Lecturer
 - TA: Teaching Associate
 - APM: Administrator
 - T: Technician
 - PD: Postdoctoral Research Assistant
- Qualifications are shown after the name
- The date is the date of first appointment to the University
- Teaching responsibilities reflect major module or subject involvement to date
- RCVS registered veterinarians are shown in bold
- Honorary Appointments are Associate Professors who have been appointed with formal contracts with the University, but who are employed by a separate organisation. These staff deliver substantially into the curriculum and their contracts relate to their teaching activities and responsibilities
- Special Appointments are Special Professors, Associate Professors and Lecturers who support the School in a variety of ways, including the provision of teaching and research support

School staff list

Foundation Dean and Head of School

P **England, G C W** BvetMed PhD DVetMed 2005
CertVA DVR DipVRep DipECAR,
DipACT FHEA FRCVS

Deputy Head of School

P **Cobb, M A** MA VetMB DVC PhD MBA 2005
FHEA MRCVS

Executive Assistant to the Foundation Dean and Head of School

APM **Holland, C J** 1999

Teaching Support Technicians:

TS **Bollard, N J** 2007
TS **Brind, P A** 2007
TS **Glebocki, R** BSc 2008
TS **Clifford, S P** 1999
TS **Gummery, E** 2006
TS **Hammond, P K** 2010
TS **Squire, J E** 2007
TS **Watson, N** 2009

Research Support Technicians

TS **Allen, C** BSc 2009
TS **Blanchard, A** BSc 2009
TS **Hulme, S** 2006
TS **Lovell, M A** 2006
TS **Simons, C** 2009
TS **Wang, B** 2008

Division of Veterinary Medicine

Head of Division:

P **Cobb, M A** MA VetMB DVC PhD MBA, 2005
FHEA MRCVS

Academic Staff

P **Chang, K C** BVSc MSc PhD FRVCS 2008
P **Hannant, D** BSc MSc PhD CBiol MSB 2006
R **Loughna, P T** BSc PhD 2005
R **Mobasher, A** BSc ARCS MSc DPhil 2006
AP **Bowen, I M** BVetMed PhD CertVA, 2006
CertEM(IntMed) MRCVS
AP **Dunham, S** BVSc PhD CertSAC MRCVS 2008
AP **Frank, N** BSc DVM PhD MRCVS 2007
AP **Gardner, D S** BSc PhD 2002

AP	James, R A	MA VetMB Cert SAM DVC MRCVS	2009
AP	Khan, N	BSc MSc PhD	2008
L	Belshaw, Z	MA VetMB CertSAM MRCVS	2010
L	Blunt, R	BSc MSc PhD	2009
L	Elsheika, H	BVetMed PhD	2006
L	Flynn, R	BSc PhD	2009
L	Foster, N	BSc PhD, MA, FHEA	2006
L	Gough, K C	BSc PhD	2007
L	Habershon-Butcher, J	BVetMed CertEM(IntMed) MRCVS	2010
L	Hallowell, G D	MA, VetMB DipACVIM CertVA MRCVS	2007
L	Kuchipudi, S	BVSc&AH MVSc, PhD	2009
L	Mossop, E H	BVM&S MMedSci(Clin Ed) MAcadMEd MRCVS	2006
L	Shipman, E	BVetMed MSc DipACVIM CertVA MRCVS	2009
TA	Ambler, S	BVetMed CertVD MRCVS	2006
TA	Burton, K	BSc PhD	2010
TA	Dobbs, H	MChem, PGCE	2010
TA	Douglas, J E	MA VetMB, PhD, MRCVS	2010
TA	Farrell, J	BVetMed CertSAS MRCVS	2010
TA	Griffiths, K	BVSc CertVD MRCVS	2006
TA	Harper, J M M	MA PhD	2010
TA	Hellebek, R	MRCVS	2010
TA	Hunter, M	BSc	2010
TA	Leicester, L	BVetMed MRCVS	2009
TA	Meisl, G	CertSAS MRCVS	2010
TA	Nova Chavez, R J	DVM MSc PhD	2009
TA	Smith, J	BSc DipAVN (Surgical) RVN	2009
TA	Stockdale, B C	BVM&S MRCVS	2010
TA	Quarmby, C	BVMS MRCVS	2006
TA	Wood, E	BSc PhD	2007
PD	Tonge, D	BSc PhD	2010
PD	White, G	BSc MSc, PhD	2008
PD	Papp, E	MSc PhD	2009
PD	Baker, C	BSc	2010
PD	Bishop, K	BSc MPhil	2010
PD	Maddison, B	BSc PhD	2010
PD	Owen, J	BSc MSc	2010
PD	Patel, S	BSc	2010
PD	Rees, H	BSc PhD	2010

Teaching staff with honorary titles:

AP	Cerundolo, R	DVM Cert VD Dipl ECVD MRCVS	2010
AP	Foale, R D	BSc BVetMed DSAM DipECVIM-CA MRCVS	2010
AP	Tappin, S W	MA VetMB CertGP(SAP)	2010

		CertSAM DipECVIM-CA MRCVS	
AP	Villiers, E J	BVSc DipRCPath DipECVCP	2010
		CertVR CertSAM MRCVS	
AP	Wray, J D	BVSc DSAM Cert VC MRCVS	2010
Divisional Secretary:			
APM	Wakefield, L J		2006
Special appointments:			
P	Dean, S P	BVetMed CertVR MRCVS	2006
P	Jarroll, E	B.A M.S. Ph.D	2009
P	Morris, T H	BVetMed PhD DipACLAM	2005
		DipECLAM CBiol FIBiol, CertLAS MRCVS	
P	Sampson, J	BSc DPhil	2008
AP	Foster, A P	BVSc BSc PhD DipACVD	2007
		CertSAD MRCVS	
L	Cauvin, A	BVMS, DipECVIM-ca, CertVR	2006
		CertSAM MRCVS	
L	Grant, D I	BVetMed CertSAD MRCVS	2006
L	Honess, P E	BSc PhD	2010
L	Lambert, A M	BVSc MRCVS	2010
L	Littlewood, J	BVSc MA PhD DVD DVR MRCVS	2010
L	O'Rourke, D	MVB MBA FRCVS	2010
L	Sands, P	BSc BVetMed CertVD MRCVS	2008
L	Wolfensohn, S	BSc MA VetMB CertLAS CBiol FIBiol DipECLAM MRCVS	2008

Division of Veterinary Surgery

Head of Division

AP	Hammond, R	BSc BVetMed PhD DipECVAA DVA MRCVS	2006
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Academic staff

P	England, G C W	BVetMed PhD DVetMed	2005
		CertVA DVR DipVRRep DipECAR DipACT FHEA FRCVS	
R	Corr, S	BVMS CertSAS DipECVS	2010
		FHEA PhD MRCVS	
AP	Brower, A I	BSc DVM DACVP MRCVS	2010
AP	Brown, P J	BVMS PhD MRCPPath DipECVPath MRCVS	2006
AP	Davies, M	BVetMed CertVR CertSAO FRVCS	2010
AP	Ewers, R S	BSc BVSc CertVR DMS MRCVS	2010
AP	Freeman, S L	BVetMed PhD DipECVS CertVA CertVR CertES(Soft Tissue) MRCVS	2006

AP	Lea, R G	BSc PhD	2006
AP	Mongan, N	BSc PhD	2010
AP	Targett, M P	MA VetMB PhD DipECVN MRCVS	2006
AP	White, K L	MA VetMB DVA DipECVAA MRCVS	2009
AP	Voigt, J P	BSc PhD DSc	2007
L	Allegrucci, C	PharmD PhD	2009
L	Burford, J	MA VetMB PhD, CertVA CertES MRCVS	2010
L	Cobb, K	BVetMed PGCE MRCVS	2006
L	Chakrabarti, L	BSc D.Phil	2010
L	Klisch, K	BVetMed PhD	2007
L	Mostyn, A	BSc PhD PGCHE FHEA	2009
L	Rauch, C	BSc MSc DEA PhD, HEA Fellow HDR	2007
L	Robinson, R S	BSc PhD	2002
L	Rutland, C	BSc MSc PhD	2004
TA	Booth N	BSc BVSc MRCVS 2008	
TA	Roshier, A L	BSc PhD, PGCHE PGCert MA PGDip FHEA	2002
PD	Asplin, K	BSc PhD	2009
PD	Fainberg, H P	BSc PhD	2010

Teaching Staff with Honorary Titles:

AP	Caine, A R	MA VetMB Cert VDI DipECVDI MRCVS	2010
AP	Cherubini, G	DVM DipECVN MRCVS	2010
AP	Corletto, F	DVM CertVA DipECVAA MRCVS	2010
AP	Jakovljevic, S	DMV MSc DVR DipECVDI MRCVS	2010
AP	Owen, M R	BVSc BSc PhD DSAS (Ortho) MRCVS	2010

Divisional Secretary:

APM	Edwards, M		1995
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Special Appointments:

P	Allen, W R	BVSc PhD DESM ScD, Hon FRAGE CBiol FSB FRCVS CBE Hon DSc	
P	Antczak, D	BA VMD, PhD	2008
P	Hogg, D	BVMS PhD DHLitt MRCVS	2008
P	Mulling, C	DVetMed	2008
P	Noakes, D E	BVetMed PhD DipECAR, DSc DVRRep MRCVS	2005
P	Renard, J P	BSc PhD MRCVS	2006
P	Riggs, C	BVSc BSc PhD DipECVS MRCVS	2006

P	White, R A S	BVetMed PhD DipACVS DVR DSAS(Soft Tissue) FRCVS	2006
P	White, R N	BSc BVetMed CertVA DSAS(Soft Tissue) DipECVS MRCVS	2006
L	Barrett, E L	MA VetMB DVDI DipECVDI MRCVS	2010
L	Clark, L	BVMS CertVA DipIECVAA MRCVS	2006
L	Clarke, M	MA VetMB MRCVS2008	
L	Featherstone, H	BVetMed Dip ECVO DVOptal MRCVS	2007
L	Jones, G	BVSc MRCVS	2007
L	Lhermette, P	BSc BVetMed, CBiol, MIBiol MRCVS	2006
L	Russo, M	DVetMed PhD	2009
L	Smith, M R W	BVetMed CertES(Orth) MRCVS	2007
L	Wells, P	BVMS PhD MRCVS	2008

Division of Animal Health and Welfare

Head of Division

P	Green, M J	BVSc PhD DipECBHM DCHP MRCVS	2006
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Academic staff

P	Barrow P A	BSc PhD MRCPATH DSc	2006
P	Haig, D M	BSc MSc PhD	2008
P	Leigh, J.A	BSc PhD	2007
R	Bradley, A	MA VetMB DCHP DipECBHM PhD MRCVS	2009
R	McOrist, S	BVSc PhD MVSc DipECVP DipECPHM MRCVS	2006
AP	Coffey, T J	BSc PhD	2010
AP	Dean, R	BVMS CertSAM DSAM (Feline) MRCVS	2009
AP	Emes, R D	BSc PhD	2009
AP	Huxley, J N	BVetMed PhD DipECBHM DCHP MRCVS	2006
AP	Pulestone, R	MBChB DCH MRCP MRCP MBA MFP FFPH	2008
AP	Redrobe, S P	BSc BVetMed, CertLAS DZooMed MRCVS	2010
L	Atterbury, R J	BSc PhD CBiol MSB	2009
L	Breen, J E	BVSc PhD DCHP MRCVS	2009
L	Brennan, M L	BSc(VB), BVMS, PhD MRCVS	2009
L	Daly, J M	BSc, PhD	2009
L	Hobson-West, P	MA, PhD	2009

L	Hudson, C D	BVSc DCHP MRCVS	2009
L	Jones, M A	BSc PhD MSc PGCHE MA	2006
L	Kaler, J	BVSc & AH MSc PhD	2010
L	Kendall, N R	BSc PhD	2003
L	Kydd, J H	BSc MSc PhD	2006
L	Tarlinton, R E	BVSc PhD MRCVS	2007
L	Töttemeyer S	DiplBiol PhD MA HE	2006
L	Wapenaar, W	DVM PhD DipABVP-Dairy MRCVS	2007
L	Yon, L	BSc PhD DVM MRCVS	2007
L	Asher, L	BSc MSc PhD	2010
PD	Abu-Median, A A K	BVSc MSc PhD	2010
PD	Egan, S A	BSc PhD	2007
PD	Madouasse, A	DVM PhD	2010
PD	Parameswaran, N	BSc BVMS PhD	2009
PD	Redshaw, Z	BSc PhD	2008
PD	Stavisky, J H	BVM&S PhD MRCVS	2010
PD	Wright, N	BSc MSc PhD	2010

Divisional Secretary:

APM	Davies, S P		2010
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Special Appointments:

P	Binns, M	BSc PhD	2010
P	Brown, I	PhD	2009
P	Dougan, G	BSc DPhil	2006
P	Green, L E	BVSc MScEpid PhD MRCVS	2008
P	Ogilvie-Graham, T S	BVMS MSc DVMS CBiol FIBiol MRCVS MBE QHVS	2005
P	Sandøe, P	MA DPhil	2009
P	Wells, P W	BVM&S PhD MRCVS	2009
AP	Wale, M	BMedSci BM BS DpBact FRCPath RD	2007
L	Boardman, S	BVMS MRCVS	2006
L	Dagleish, M P	BVM&S PhD MRCVS	2010
L	Hollands, T	BSc PhD R.Nutr	2006
L	Husband, J,	BA VetMB DCHP MRCVS	2006
L	Orpin, P	BVSc MRCVS	2007
L	Pizzi, R	BVSc MSc FRES MACVSc DZooMed(Avian) MRCVS	2007

Division of Academic Support and Administration

Director of Academic Support and Administration:

APM Braithwaite, K BSc PhD MBA 2005

Admissions Team:

APM Coutts, D A 2004

APM Readyhoof, R A 2001

Finance Team:

APM Clay, L 2009

APM Sharpe, K 2007

APM Taylor, F 1991

Postgraduate Admissions and Support:

APM Percival, H 1998

Student Placement Team:

APM Dickson, M BMus 2006

APM Hill, D 2006

APM Rayner, H BA 2008

Student Support Team:

APM Ackling, J BSc 2006

APM Arnold, R 2008

APM Woodhams, S 2005

Teaching Learning and Assessment Team:

APM Allen, Y 2007

APM Cooke, R 2009

APM Flewitt, J 2006

APM Millward, K A 2006

APM Richmond, E A Sc 2004

General Support:

APM Oldham, P 2010

APM Palfreyman, E BSc 2008

Key veterinary staff at clinical associates

Defence Animal Centre

Commandant:

Colonel MacDonald, D A

BVMS MSc MRCVS

Veterinary Surgeons:

Major Rose, I R

BVMS GPCert(SAM) MRCVS

Major Houlsby, N J

BVetMed MRCVS

Major Bithell, S L

BVetMed MRCVS

Website: <http://www.defenceanimalcentre.com/>

Dick White Referrals

There are 107 staff including 12 Board certified specialists, 11 residents and 8 interns.

Chief Executive:

White, R A S

BVetMed PhD DSAS DVR FRCVS

Veterinary Surgeons:

Caine, A R

MA VetMB CertVDI DipECVDI MRCVS

Cerundolo, R

DVM Cert VD DipECVD, MRCVS

Cherubini, G B

DVM DECVN MRCVS

Corletto, F

DVM Cert VA DipECVAA MRCVS

Foale, R D

BSc BVetMed DSAM DipECVIM-CA MRCVS

Jakovljevic, S

DMV MSc DVR DECVDI MRCVS

Owen, M R

BVSc BSc PhD DSAS(Ortho) MRCVS

Tappin, S W

MA VetMB CertGP(SAP) CertSAM DipECVIM-CA
MRCVS

Vettorato, E

PhD CertVA MRCVS

Villiers, E J

BVSc DipRCPPath DipECVCP CertVR CertSAM
MRCVS

Wray, J D

BVSc DSAM CertVC MRCVS

Website: <http://www.dickwhitereferrals.com/>

Dovecoate Veterinary Hospital

Directors

Robinson, A

BVSc CertVR CertVA CertSAO DipECVS FRCVS

Robinson, A J

MA VetMB MBA FRCPATH MRCVS

Veterinary Surgeons:

Campbell, K

BVM&S Cert SAS MRCVS

Website: <http://www.dovecoteveterinaryhospital.co.uk>

Minster Veterinary Practice

Partners:

Clark, M I

MA VetMB MRCVS

Collins, M C

BVSc CertESM CertEP CertES(Soft Tissue) MRCVS

Goodman, M M

BVMS MRCVS

Johnston, A

BVMS CertVA MRCVS

Malone, J	BVMS MRCVS
McMillan, D	BVMS MRCVS
Perez, S	DVM MSc CertPMP MRCVS
Rishworth, J P	BVetMed MRCVS
Schofield, R A	BVSc MRCVS
Shearman, T	BVMS BSc CertVC MRCVS

Sutton Bonington based Veterinary Surgeons:

Clark, M I	MA VetMB MRCVS
McVicar, C M	BVMS MSc MRCVS

website: <http://www.minstervets.co.uk>

Oakham Veterinary Hospital

There is a total of 36 staff including 8 clinicians.

Partners:

Ashton, N M	BVetMed CertEP CertES(Soft Tissue) MRCVS
Bevin, J W E	BVetMed MRCVS
Knott, A J P	MA, VetMB MRCVS

Veterinary surgeons:

Anghileri, B J	BVetMed MRCVS
Booth, C J	BVSc BSc MRCVS
Bowen, R E	BVetMed MRCVS
Darlington, V J	BVM&S MRCVS
Hawkins, F L	BVetMed MRCVS
Hoermann, T-C A	DrMedVet MRCVS
Knowles, L	BVSc BSc MRCVS
Laird, C A A	BVM&S MRCVS

Website: <http://www.oakhamvethospital.co.uk>

PDSA

Main contact:

Hooker, R	BVMS(Hons) MRCVS
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Senior veterinary surgeon:

Symes, R E	BVSc MBA MRCVS
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Veterinary surgeons:

Fryer, H	BVSc CertVD MRCVS
Meisl, G	CertSAS MRCVS
Kellow, J D	BVM&S MRCVS
Brogden, S J	BVSc MRCVS
Bold, R L	BA VetMB BSc MRCVS
McClelland, J	BVMS MRCVS

Website: www.pdsa.org.uk

Scarsdale Veterinary Group

There is a total of 134 staff including 36 clinicians.

Partners:

Boyer, F P J	MA VetMB CertSAM MRCVS
Davis, K J	BVetMed DipCABT COAPE MRCVS
Furness, W A	MA VetMB CertEP MRCVS
Jamieson, A M	BVMS MRCVS
Parker, C S	BVMS DBR MRCVS
Sands, P D	BVetMed BSc CertVD MRCVS
Turkington, J D	BVetMed MRCVS

East Midlands Zoological Society - Twycross Zoo

There is a total of 200 staff.

Zoo Director:

Boardman, S I BVMS MRCVS

Veterinary Surgeon:

Longley, L BVM&S MA DZooMed (Mammalian) MRCVS

Website: <http://www.twycrosszoo.org/>

Veterinary Laboratory Agency

The surveillance team at Sutton Bonington comprises 20 staff, of whom 3 are clinicians.

Regional Manager:

Griffiths, I B BVetMed MSc FRCPATH MRCVS

Veterinary Surgeons:

Deuchande, R DVM MRCVS

Murphy, A BVMS DBR MRCVS

Payne, J H BVSc MSc PhD MRCVS

Website: <http://www.defra.gov.uk/vla/>

Annex 4 – Visitation timetable

Sunday 13 February 2011

16.00	Visitors arrive at Kegworth House (the Hotel)
16.30	Meeting of the RCVS / EAEVE visiting team at the Hotel
19.00	Visitors private dinner at the Hotel

Monday 14 February 2011

08:15	Depart Hotel by taxi to School of Veterinary Medicine and Science
08:30	Welcome and introductions
08:45	Overview of School Objectives, Organisation and Finance
09:45	Curriculum and Assessment: Philosophy and Approach
10:15	Tea break
10:30	Curriculum and Assessment: Years 1 to 3
11.30	School Building and Campus tour
13.30	Lunch with Year 1, Year 2 and Year 3 Students
14:30	Curriculum and Assessment: Year 4
15.15	Tea break
15.30	Curriculum and Assessment: Year 5 and Clinical Associates
16.30	Post Graduate Education and Continuing Professional Development
17:00	Confidential meetings with students and staff as required; Visitation Team to follow up issues and revisit certain areas as required; Report writing
18.00	Travel by taxi to Hotel for private meeting
20.00	Visitors private dinner at hotel

Tuesday 15 February 2011

08:15	Depart Hotel by taxi
08:30	Briefing with Dean of the School of Veterinary Medicine and Science
08:45	Teaching Quality, Quality Assurance and Evaluation
09:45	Student Support
10:15	Admissions
10.35	Tea break
10.45	Extra Mural Studies
11:15	Research
11.45	Depart School by Landrover
11.50	Pathology rotation: Veterinary Laboratory Agency (Sutton Bonington)
12:20	Pathology rotation: Minster Veterinary Practice (Sutton Bonington)
12.40	Leave Minster Veterinary Practice
12:45	Lunch with Year 4, Year 5 and Post Graduate Students
13.50	Depart School by Landrover
13.55	Veterinary Public Health rotation (University Abattoir, Sutton Bonington)
14.55	Leave Abattoir
15.00	Farm Animal rotations: Herd Health and Farm Skills (University Farm, Sutton Bonington)
16.15	Leave Farm
16.20	Tea break
16.30	Confidential meetings with students and staff as required; Visitation Team to follow up issues and revisit certain areas as required; Report writing
18.00	Travel by mini-coach to Hotel for private meeting
20.00	Visitors dinner in private

Wednesday 16 February 2011

Team split into two smaller groups, one to visit Twycross zoo, one to visit Elliot's abattoir in Chesterfield. Team joined up for the visit to Dovecote Veterinary Hospital.

Group 1		Group 2	
	(L Lanyon, E Hall, J Pycock, F Andrews, G Ricciardi, R Rose, M Bennett)		(T Skerry, B Moore, R Stephen, J Ribeiro)
08:00	Depart Hotel by mini-coach to Clinical Associates	07:15	Depart Hotel by Landrover for abattoir visit
09:00	Exotics rotation: Twycross Zoo (Atherstone, Warwickshire)	08:00	Arrive at Elliot's abattoir in Chesterfield
09.45	Leave Twycross Zoo	09.30	Leave Elliot's to travel to Dovecote
10:25	Small Animal rotations: Dovecote Veterinary Hospital (Castle Donington, Leics)		
11.45	Leave Dovecote Veterinary Hospital		
12:30	Lunch with EMS hosts and potential employers at University Club, University Park		
13.40	Leave University Club		
13:45	Small Animal rotation: PDSA (Pet Aid Hospital, Nottingham)		
14.45	Leave PDSA		
15:20	Farm Animal and Equine rotations and Small Animal rotation discussion: Scarsdale Veterinary Group (Derby)		
17.30	Travel by mini-coach to Hotel		
19.15	Depart by mini-coach for Sutton Bonington Hall		
19:30	Evening meal at Sutton Bonington Hall with University staff		
22:30	Travel by mini-coach to Hotel		

Thursday 17 February 2011

08:15	Depart Hotel by mini-coach to Clinical Associates
09:00	Small Animal and Equine rotations: Defence Animal Centre (Melton Mowbray, Leics)
09:50	Leave Defence Animal Centre
10:20	Small Animal and Equine rotations: Oakham Veterinary Hospital (Oakham, Rutland)
12:00	Leave Oakham Veterinary Hospital to travel back to School
13:00	Lunch with all School Staff
13:45	Small Animal rotation: Dick White Referrals* (nb this meeting was held at Sutton Bonington)
14.45	Confidential meetings with students and staff as required; Visitation Team to follow up issues and revisit certain areas as required; Report writing Meeting with Prof. Gary England
18.00	Travel by mini-coach to Hotel for private meeting and dinner

Friday 18 February 2011

10:00	Depart Hotel to travel to University Park by mini-coach
11:00	Meeting with Prof David Greenaway (Vice-Chancellor), Prof Sir Peter Rubin (Project Director), Prof Saul Tendler (School Pro-Vice-Chancellor) and Prof Gary England (Dean)
12:00	Depart by mini-coach for Hotel

Annex 5 – Response from the University of Nottingham

DG/SFH



The University of
Nottingham

Mrs Freda Andrews
Head of Education
Royal College of Veterinary Surgeons
Belgravia House
62-64 Horseferry Road
London
SW1P 2AF

Vice-Chancellor
Professor David Greenaway

University Park
Nottingham
NG7 2RD

Tel +44 (0)115 951 3001

Fax +44 (0)115 951 3005

Email david.greenaway@nottingham.ac.uk
www.nottingham.ac.uk

15 April 2011

Dear Freda

Report of the Visit to the University of Nottingham, February 2011

Thank you for your email dated 12 April 2011 and for the RCVS/EAEVE Visitation Report.

We would like to especially thank the Visitation Team for their thorough and open-minded scrutiny and analysis of our veterinary course, and the approach taken during the Visit. The visit was a very positive experience for the School's staff, students and Clinical Associates. The suggestions of the Visitors will be carefully considered and will be very helpful in ensuring we continue to deliver an exceptional student experience whilst also meeting the needs of the RCVS and the wider profession, as well as taking opportunities for growth.

We are, of course, delighted that the Visitors have made no formal recommendations for improvement and are able to recommend full recognition for the BVM BVS degrees, subject to RCVS External Examiners reports. The School continues to work closely with both RCVS and University External Examiners and anticipates a positive conclusion from them. We understand that it is usual process for a further Visitation after three years for newly recognised veterinary schools and we look forward to being able to demonstrate additional enhancements and innovations at the School at this time.

The School is seen as a model of best practice in a number of areas of its development and operations within the University. It offers an exceptional student experience delivered by dedicated, enthusiastic staff and supportive engaged Clinical Associates. The University has made substantial investment in the development of the School, and will continue to support it in the future.



The University of
Nottingham

The School's detailed responses to the comments and suggestions in the Visitation Report are attached.

We are very grateful for the support and assistance of the RCVS, and most specifically your personal aid, in progressing and advising on the processes associated with Recognition of the Nottingham degrees, and ensuring that the School's first cohort of graduates are able to graduate with a degree recognised by the Privy Council.

Yours sincerely

Professor David Greenaway
Vice-Chancellor

Enc.

Response to the RCVS / EAEVE Visitation to the University of Nottingham School of Veterinary Medicine and Sciences – February 2011

The School greatly appreciates the professional, helpful and open manner in which the Visit was conducted. In addition, we feel that the Visit was very meticulous and wide-ranging covering all aspects of the School and our Clinical Associates, including our future plans. We would like to thank the Visitors both for their review and input during the Visit and the subsequent speedy production of a constructive report.

The School's comments on the Visitors report are recorded (in bold italics) below to each point of the Chairman's Summary and Summary of Suggestions.

CHAIRMAN'S SUMMARY

At the time of the visitation the Nottingham School was three months from the final exams of its first cohort of potential graduates and two years after the previous interim RCVS visitation. The Visitors were pleased to learn that the school had responded positively to nearly all of the recommendations that had been made on the previous occasion and that the staff of the school had continued to apply themselves to the development and delivery of their innovative curriculum with the same rigour and enthusiasm that they had displayed previously.

The School values the experience and knowledge of the RCVS Visitors and has taken on board the recommendations and suggestions made in the prior Visit, and will carefully consider suggestions made associated with the 2011 Visit. The School is pleased that the Visitors recognised the continued terrific efforts of all our staff and those of Clinical Associates in addressing the challenge of establishing a new Veterinary School and having the opportunity to herald in a new era of veterinary education.

Establishing a new Veterinary School is a major financial undertaking even for a large University and so the Visitors were pleased to note the University's continued financial commitment in addition to the substantial investment they had made up to date. The current budget and approved plans appear to be appropriate for the School's needs. The University has confirmed to the Visitors' satisfaction that the costing model for the School is robust and provides for continuation of the current level of student experience as well as the potential for research growth. The School's projected income from the University is derived from a formula which is roughly equivalent to (HEFCE-derived T + fees + QR) – 20% for central costs. The Visitors considered that this was "adequate to sustain the School's educational programmes, to allow for adequate research and to meet

its societal objectives". The Visitors were further reassured that the University had no intention of making any substantial change to the budgeting process that produced this satisfactory outcome.

The School is pleased that the University as a whole is recognised for the financial resources attributed to establish, maintain and grow the School. The School is a key part of the ongoing strategy of the University and will be supported with ongoing investment to support and stimulate growth and an operational budget that is appropriate to deliver the continued excellence that the School currently delivers.

The Visitors were again struck by the level of commitment staff showed to meeting the objectives of the School and the pride in its achievement displayed by all the staff and students that they met. Achieving such unity of purpose in a university setting is remarkable testament to the high standard of leadership from the Dean and his senior colleagues working within a refreshingly supportive environment of devolved authority provided by the University.

The School is pleased that the Visitors recognised the vitality of the School which has resulted from careful selection and recruitment of staff that meet not only the academic, administrative and technical competency requirements of their specific roles but also fit the culture and ethos of the School. The School's Management Team is fortunate in being able to make nimble and appropriate devolved decisions within the context of a defined budget envelope and University quality policies, albeit with the ability to be advised and supported by the University's central Professional Services team.

The Visitors recognised that the School is in its early stages of growth and that its first priority is to establish and deliver an undergraduate curriculum of sufficient quality and content to gain recognition by the RCVS. They thus accept that current levels of research activity, provision of specialised postgraduate clinical training and continued professional education are not yet at the levels which they would expect from a School which had been longer established. The Visitors were confident in accepting assurances from the School that higher levels of attainment in these areas will be achieved within the immediate future.

We are pleased that the Visitors are able to recognise and accept that our focus and resource has, of necessity, been mostly directed at establishing the undergraduate course. The School has put in place investment and policy instruments to ensure growth of research capability and activity. There are funds and plans in place to develop specialised postgraduate clinical training and continued professional education programmes in the immediate future.

The defining characteristics of the School's curriculum are that it is based around body systems introducing clinical relevance early in the course and that clinical experience is gained in practices that are not owned by the School but by Clinical Associates into which the School places a number of its clinical staff.

It should be noted that Final Year student teaching and learning is based upon observation, discussion and practical experience; at each Clinical Associate students are under the supervision of university academic staff placed at, and working within, the Clinical Associate. Clinical Associates are fully engaged in supporting and developing the educational programme, the transfer of best practice and clinical development of their staff.

One of the major reservations expressed by the Visitors at the preliminary visitation was that such early and continued emphasis on clinical conditions meant that important concepts of basic science would receive insufficient emphasis. This concern has been addressed and the Visitors were pleased to learn of the students' success in the BVMedSci degree which they take in their third year. These positive developments notwithstanding the Visitors urge the School to capitalise on the scientific resource throughout the University of Nottingham and beyond rather than relying on the inevitably more limited resource within the School.

The School aims to ensure that students gain their learning from the most appropriate deliverers, internal or external to the University as appropriate.

The Visitors were pleased to note that the School had made efforts to address the reservation previously expressed concerning the teaching of Veterinary Public Health and although they suggest that this aspect of the course still requires attention they accept that it meets the relevant RCVS/EAEVE requirements.

Since the foundation cohort of students' final examinations are scheduled for May 2011 it is not possible for the visitation in February to have oversight of the whole process leading up to conferment of the Nottingham Bachelor of Veterinary Medicine and Bachelor of Veterinary Surgery degrees. However at the time of the February visitation the RCVS had already appointed external examiners to participate in the examination of final year students that occurs throughout the year. Their assessment at the time of the visitation was that, from what they had seen, the examination process was appropriate in form, content and standard. The Visitors have no reason to believe that the final examinations will not be equally appropriate but until these have taken place, and that assurance has been received, RCVS Council will not be in position make a final recommendation to the Privy Council on recognition of the Nottingham BVM BVS degree. It is anticipated that all this information will be available for the meeting of RCVS Council in June 2011.

The School is working closely with the RCVS and University External Examiners to ensure that all examinations are at an appropriate standard to ensure that a final recommendation can be made to the Privy Council on recognition of the Nottingham BVM BVS degree

CONCLUSION

On the basis of the visitation made in February 2011 the Visitors are pleased to recommend to RCVS Council and to the Privy Council, as required by Section 5 of the Veterinary Surgeons Act 1966, that the course of study and degree of Bachelor of Veterinary Medicine and Bachelor of Veterinary Surgery from the University of Nottingham should be recognised as a qualification suitable for holders to be admitted to the Register of the RCVS and practise as veterinary surgeons in the UK. The Visitors confirm that the degree meets the minimum training requirements set out in Article 38 and Annex 5.4.1 of the European Directive on the Recognition of Professional Qualifications (2005/36/EC), and recommend to ECOVE that the degree should be added to the list of EAEVE approved degrees.

This recommendation is provisional only on receipt by the RCVS of a satisfactory report from the external examiners it has appointed on the final examinations of the foundation cohort of students to take place in May 2011.

We are exceptionally delighted that the Visitors are able to recommend full recognition of the BVM BVS degrees, subject to RCVS External Examiners reports.

The School is also pleased to note that the Visitors stated that all elements of stage 2, Evaluation of Internal Quality Systems are confirmed as meeting the EAEVE evaluation criteria.

COMMENDATIONS

- The School is to be commended on the quality of its students who will no doubt go on to do the University credit as the foundation graduates of Nottingham's new veterinary degree.
- The Visitors commend the University on its substantial financial undertaking in establishing the veterinary school, its continued commitment and investment made to date, as well as the far-sightedness of its budgetary provision and its commitment to devolved authority of the Dean.
- The Visitors commend the School on creating an innovative new curriculum.
- The introduction of clinically relevant material into the early years of the curriculum is to be applauded, and the early introduction of some diagnostic techniques such as ultrasound examination in the early years and through the Clinical Skills Laboratory is praiseworthy.
- The School is commended for its coverage of Professional Skills which are well integrated across the curriculum and assessed throughout the course.
- The School is commended on having developed a comprehensive set of formal and informal mechanisms for ensuring, as far as possible, the welfare of its students, all of which appear greatly appreciated by the students.
- The School is commended for the service provided by staff in the EMS Placement Office.
- The University and the School is commended for the excellence of its library provision (both main and subsidiary libraries) and for the IT services available both on campus and at most of the clinical associate centres.
- The School is to be commended for establishing a workable "distributed model" in which students gain their clinical experience. Establishing this model has involved developing thorough contractual arrangements with a number of "clinical associates". These contracts have given careful attention to the RCVS's guidelines on the distributive model of clinical education. However, this model, like all other models is far from perfect and will require constant monitoring by the School and by RCVS to ensure that it delivers what the undergraduates require as well as providing opportunities for post-graduate specialist training and career development for clinical academics.

The School is pleased that a number of areas of School and University activity, its staff and students are commended. The School however will not rest on its laurels and will constantly strive for continual improvement.

SUGGESTIONS

From Chapter 2 - Organisation

- The current organisation of the School into three divisions for reasons of staff management seems sensible but naming these “Veterinary Medicine”, “Veterinary Surgery” and “Animal Health and Welfare” when this bears little relationship to their composition or function seems anomalous. To the outsider it is confusing and to potential applicants to the School possibly off-putting. The Visitors suggest that the School reconsiders the use of these titles.

We will consider the titles of Divisions; however the Divisions in the School are purely for line management, are non-budget holding and have no other purpose. Staff are loosely aligned to Division based on their skill base as appropriate. There are no specific allegiances to Division, and this structure is not confusing to staff or recruits. All staff are a member of one or more research themes which cross-cut Divisions; in addition all staff, irrespective of Division or research theme teach across the course.

From Chapter 4 – Curriculum - Veterinary Food Hygiene and Public Health

- Various aspects of VPH are distributed throughout the whole curriculum. This is perfectly acceptable but somewhere the totality of the subject should be highlighted to further stimulate student interest in the whole topic and ensure they see “the whole picture”.
- It is suggested that the module in Year 4 and Year 5 should be renamed, since it only covers some of the aspects of the very broad veterinary public health field. The present use of the VPH title gives the impression that these modules represent the totality of VPH provision.
- The School should consider the option of consolidating the half-day sub-modules in Year 4 into a block module.
- The School should review the high number of lectures in the Year 4 module provided by external presenters.

The School will consider all these suggestions.

- The School should continue its efforts to secure a Diplomate in VPH on the staff

The School is endeavouring to recruit a Diplomate in VPH, however as with all UK universities recruitment at this level in this discipline is

constrained. Two academic staff in the School are however working towards DipECVPH.

From Chapter 5 – Teaching, Quality and Evaluation (Monitoring and Assessment of Students)

- Although the overall assessment regime is commendable, the School should keep the quantity of assessment under review to ensure that there isn't over-assessment in places, as well as keeping the examination philosophy under review to encourage and reward excellence.

The School has a number of quality processes in place to ensure ongoing review of the Assessment Strategy and its enactment, including an Assessment Working Group, which reports to the Teaching, Learning and Assessment Committee. The School will consider how excellence in attainment in assessment can be further encouraged, recognised and rewarded.

From Chapter 7 – Animals and Teaching Material of Animal Origin

- The suitability of complete reliance on the distributed model to provide all the School's needs for clinical case material needs to be kept under review particularly in relation to post-graduate clinical training and career progression for clinical academics.

We will continue to review the effectiveness of the distributed model in meeting the educational and staff development needs of the School.

- The School should develop contingency plans for the supply of live teaching companion animals, which currently relies on staff owned pets.

The School resources live teaching companion animals from a variety of sources, including the School's own animals (through the small holding and exotics/children's pets unit), the University Farm, staff and student animals and those of local clients and residents. The School holds a very extensive database of animals (healthy and those with clinical problems) that can be used in teaching.

From Chapter 9 – Admission and Enrolment

- The Visitors note that the School has chosen not to accept their previous recommendation that the suitability of graduates for entry to the veterinary programme be judged on their A level performance rather than their subsequent degree. The Visitors are still of the view that this conflicts with the School's stated widening participation agenda. For instance a student who for reasons of disadvantageous circumstances gets poor A levels in the required subjects and cannot get entry to a veterinary school but when removed from their disadvantageous environment blossoms and gets a first class degree in (say) Biochemistry will, when applying to

Nottingham, be judged on their A levels and not their performance at degree level. The Visitors suggest that the School revisit their decision.

The School will consider this suggestion, however it is important to note that the lower A'level requirement for graduates is the same as students admitted to the School's Gateway course, and as such there is equality in the treatment of all widening participation applicants. The School has a large number of graduate applicants from a wide variety of universities. This policy ensures that students have undertaken a necessary base level of Chemistry and Biology, which will be analogous to that of School leavers.

- Noting that the School intends to track the careers of its graduates as part of a joint research study with RVC, the Visitors suggest that the results should be monitored in order to evaluate the effect and appropriateness of its admissions policy and procedures.

The School intends to do this.

- The Visitors noted that UCAS application forms are scrutinised initially by only one member of academic staff in order to shortlist candidates for interview. All forms are then reviewed again when results are input into a database by the Admissions Team. Results are statistically compared to identify those for interview. The School considers that these methods reduce assessor bias. All rejects are reviewed before formal rejection letters are sent by the Admissions team. The Visitors suggest that the crucial judgemental process that leads to interview should involve at least two academic scrutineers at least one of which should preferably be a veterinarian.

The School will consider this suggestion for double marking by staff in terms of feasibility for the large volume of 1,800 applications. It is important to note that all rejected students are further checked by the Admissions Sub-Dean and Team prior to formal rejection from the admissions process (thus a rejected application will have undergone up to 4 individual reviews, as well as statistical correction for any marking bias).

From Chapter 12 – Postgraduate Education

- It may be that the opportunity to provide postgraduate clinical training to European Diploma Level in Small Animals risks being limited by the lack of a university referral hospital providing the appropriate environment and case load required by European Colleges for approval of Residency programmes. The involvement of a number of Clinical Associates (Dick White Referrals, Scarsdale Veterinary Hospital, Oakham Veterinary

Hospital and Dovecote Veterinary Hospital) may help to mitigate that risk. The School should ensure that it continues to monitor the involvement of Diplomates at these Clinical Associates and works with them to ensure that they are able to meet European College requirements for Diplomat training, as would be the norm for a traditionally structured school.

The School will continue to do this.

From Chapter 13 – Research

- It is suggested that as the staff of the School expands they continue to ensure that they involve some 15-20 research active academics from outside the School to deliver a small number of lectures/seminars within an appropriate part of the 1st or 2nd year. The purpose of this would be to widen the exposure of the students to such role models and potentially inspire them to undertake research careers.

The School will consider this, and we aim to ensure that students gain their learning from the most appropriate deliverers, internal or external to the University as appropriate.

- The School and University provide incentives for veterinary school staff to develop research projects with Nottingham campus scientists, and facilitate students' choice and involvement with such projects. The School encourages pump priming research in the same subject areas and encourages joint publication to bring groups together across the University. Funded initiatives such as "sandpit activities" have been undertaken to bring people together in the first instance. The Visitors encourage the School to continue to develop such collaborative work.

The School will continue to do this, and a number of cross-University collaborative events are planned for this academic year.

- The Centre for Evidence Based Veterinary Medicine should collaborate with other clinical centres in the UK and overseas, including the other UK veterinary schools to adopt a single Clinical Coding system and undertake multi-centre studies of caseload. The "not invented here" approach should be avoided at all costs.

The School has asked the Director of the Centre for Evidence Based Veterinary Medicine to take account of this suggestion.

