



## **STAGE 1 VISITATION DRAFT B REPORT**

**University of Cambridge**

**9 – 13 March 2015**

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 of Veterinary Education (ECOVE) in compliance with  
European Directive 2005/36/EC

October 2015



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## List of Visitors

**Professor Susan Rhind BVMS PhD PFHEA FRCPath MRCVS**

Chairman of the Visitors

Deputy Head of School, The Royal (Dick) School of Veterinary Studies, The University of Edinburgh

**Mr David Wadsworth BVMS MRCVS**

Practitioner, UK. Companion Animal Clinical Studies

**Professor Katharina Stärk Spallek Dr.med.vet. PhD DipECVPH MRCVS**

Professor of Veterinary Public Health Policy

**Professor Laszlo Fodor DVM, PhD**

Head of Department of Microbiology and Infectious Diseases, Szent István University

European Association of Establishments for Veterinary Education (EAEVE)

**Professor Pierre Lekeux DVM PhD Dipl ECVPT**

Director of ESEVT (European System of Evaluation of Veterinary Training)

**Professor John Elmerdahl Olsen DVM PhD Dr.Vet.Sci.**

European Association of Establishments for Veterinary Education (EAEVE)

**Dr Vinny Naidoo BVSc, PhD**

South African Veterinary Council (SAVC)

**Professor Norman Williamson MVSc MANZCVS DipACT**

Professor Emeritus of Veterinary Medicine & Cattle Medicine Specialist, Massey University, New

Zealand. Australian Veterinary Boards Council (Inc) (AVBC)

## Also present

**Mrs Clare Tapsfield-Wright BVMS MRCVS**

Observer. Practitioner, UK.

**Mrs Christine Warman**

Head of Education, RCVS

**Mr Jordan Nicholls**

Education Officer, RCVS

## Introduction

1. This report is prepared for the RCVS in accordance with the provisions of Section 5(1) 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”*.
2. The report is also prepared on behalf of the European Association of Establishments for Veterinary Education (EAEVE) for report to the European Committee of Veterinary Education (ECOVE) – a joint committee of EAEVE and the Federation of Veterinarians of Europe.
3. Visitors took account of the Directive of the Council of the European Communities (2005/36/EC, Annex V.4, section 5.4.1) of September 2005 concerning the requirements for the study programme for veterinary surgeons.
4. The evaluation was undertaken in accordance with the evaluation criteria defined by the European Association of Establishments of Veterinary Education (EAEVE) agreed at the EAEVE General Assembly in Copenhagen, 8 May 2008, these criteria having been fully incorporated within the RCVS procedures for visitations. The visit was conducted in accordance with the procedures set out in the RCVS document “Criteria and Guidance for RCVS Approval of Veterinary Degree Courses in the UK and Overseas”, November 2011 edition.
5. The EAEVE Standard Operating Procedures agreed in 2008 comprise two stages, the first covering essential standards for a degree to comply with the requirements of the EU Directive 2005/36, and the second covering standards of ongoing quality assurance. Compliance with the first stage enables the degree to be “approved” by ECOVE. Compliance with both Stages One and Two enables the degree to be “accredited” by ECOVE. For continued recognition by RCVS, a veterinary degree needs to meet the requirements of both stages, covering the quality assurance processes for the degree course. However, EAEVE may undertake a second, separate visit to evaluate stage 2 criteria before considering granting stage 2 accreditation.
6. The Visitors were appointed by RCVS and included three nominations from EAEVE, a student, a visitor from the Australian Veterinary Boards Council (AVBC) with which RCVS has a mutual recognition agreement and an observer from the South African Veterinary Council (SAVC). The Visitors’ remit was 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 in accordance with the EAEVE/RCVS criteria for evaluation.
7. The Visitors were present at the University from 9 – 13 March 2015 inclusive, having attended a briefing session for Visitors on Sunday 8 March. A self-assessment document was prepared by the School and provided to the Visitors two months before the visit. The Visitors were also given access to a well-organised repository of supporting documents including examination papers, external examiners’ reports, committee records, course material, staff CPD records, as well as access to the university intranet.

8. The Visitors toured the facilities in the Department of Veterinary Medicine, including the various pre-clinical departments in the Faculty of Biology and the University Farm, and stayed together as a group for the majority of the meetings with staff and students.
9. The Visitors met with the Vice Chancellor of the University, Professor Sir Leszek Borysiewicz, on the first day of the visit and attended a meeting on the final day of the visit with the Senior Pro-Vice-Chancellor of the University, Professor Steve Young, and gave a summary of their main findings that would be passed to RCVS and ECOVE.
10. The Visitors are grateful to the Head of the Veterinary School, Professor James Wood, and all the staff in the Department of Veterinary Medicine for their help and hospitality during the visit. The Visitors are aware of the considerable amount of work and time that is taken up by these visitations, and thank the staff from the Department and the preclinical Departments who made themselves available. The Visitors would also like to thank the employers and alumni who attended the meetings and the undergraduate and postgraduate students who met with the Visitors each day to talk about the experience of studying at Cambridge.
11. The programme for the visit is attached at Appendix 3.

## Changes since the last full visitation in 2008

12. The last full visit was undertaken in March 2008. The period since 2008 has continued to be one of refinement and improvement in the management, content and delivery of the course. The general organisational structure for veterinary education in the University of Cambridge and the context in which it operates remain unchanged.
13. Significant changes since the last Visitation include:
  - the introduction of a new simplified committee structure.
  - recognition of the Department's initiatives to support female academic and research staff in the form of an Athena SWAN Bronze award (2013) and significant progress in taking forward an action plan arising from this with a view to submission for a Silver Award.
  - introduction of a programme of staff training for learning and teaching purposes.
  - substantial investment in IT facilities and support within the Department since 2013.
  - introduction of a 40-week final year from June 2014.
  - expansion of student skills learning opportunities through provision of a Clinical Skills Centre.
14. Significant changes to the Regulations surrounding the award of the VetMB degree include:
  - introduction of a Medical and Veterinary Student Progress Panel to support students in difficulty and to ensure parity of treatment for students requesting additional attempts at examination.
  - introduction of the (related) Fitness to Practise regulations.
15. There has also been course revision to remain compliant in relation to
  - Extramural studies (see SER 1 Chapter 14).
  - Day One Competencies.
  - The introduction of Fitness to Practise requirements for students.
  - The requirement for disclosure of convictions, cautions or other adverse findings on an annual basis including first joining the Register.
16. The Department is situated on the University's West Cambridge site, where a large-scale development of science and technology research facilities and infrastructure is underway. The main achievements of the Department since 2008 in terms of buildings are:
  - A new Student Resources Centre.
  - Cancer treatment extension: building new bunker for the linear accelerator.
  - Rebuild and refurbishment of Small Animal clinical facilities, including:

- o Marguerite Price Consulting Wing.
  - o new pharmacy.
  - o clinical research laboratory area.
  - o new Senior Clinical Training Scholar office provision.
  - o two new seminar rooms.
- Pauline Brown Clinical Skills Centre, embedded within Small Animal Hospital.
- New build clinical pathology laboratory, integrated within clinical areas.
- Refurbishment of Equine Diagnostic Unit into modern functional facilities (ongoing in 2015).
- New sheep farm and lambing facilities at University Farm at Madingley.
- New dairy farm young stock and dry cow and heifer buildings at University Farm at Madingley.
- Refurbishment of laboratory space for the Reader in Comparative Oncology.
- The main equipment purchases since 2008 are:
  - Digital subtractive angiography equipment.
  - MRI Grande (machine upgrade).
  - Digital imaging for student teaching.
  - Second small animal ultrasound machine.
  - Digitiser in small animal theatre.
  - New laboratory information management system for Clinical Pathology.
  - Theatre autoclave.
  - New Linear Accelerator Facility.
  - Provision of CT facility via Cambridge Radiology Referrals.
  - Operating table in equine theatre.
  - Laser surgical equipment.
  - New endoscopic equipment.
  - Two ultrasound machines in farm animal for rectal examination.
  - Haptic devices for Clinical Skills Centre.
  - AU 400 chemistry analyser in Clinical Pathology.

- Sysmex veterinary haematology analyser in Clinical Pathology.
- Automatic slide stainer in Clinical Pathology.
- Gel scanner in Clinical Pathology.
- Becton Dickinson BD Accuri C6 Flow Cytometer (FACS) in Clinical Pathology.
- Since the last internal Departmental curriculum review in 2012, Cambridge has improved the delivery of teaching in the following areas:
  - microbiology, parasitology through streamlined courses and transfer of material to the systems and species courses (to improve contextualisation).
  - animal husbandry and management through restructuring the Principles of Animal Management course (1<sup>st</sup> year) and co-ordinating it with the new Integrated Animal Management course (4<sup>th</sup> year).
  - the Preparing for the Veterinary Profession course through refocusing the course.
  - repositioning the Clinical Pathology course from 5<sup>th</sup> year to Michaelmas Term of 4<sup>th</sup> year, to aid students on their first clinical EMS placements.
  - moving and refocusing introductory courses in clinical disciplines (e.g. Principles of Surgery, Principles of Anaesthesia) to Michaelmas Term of 4<sup>th</sup> year, with an integrated assessment (Principles of Clinical Practice), to aid students on their first clinical EMS placements.
  - clinical practical skills through the provision of a Clinical Skills Centre.
  - Veterinary Public Health through strategic appointments.
  - final year rotations through the introduction of a 40-week final year with smaller group sizes, increasing the ambulatory equine and farm animal practices and the introduction of a new Emergency and Critical Care rotation.
- Recent major decisions made by the senior management of the Department include:
  - Changes to the committee structure of the Department.
  - Introduction of a rolling Strategic Plan for the Department.
  - Changes to the curriculum, including:
    - o Development of a Professionalism and Clinical Practice strand to run through all six years of the course and with a portfolio-style of assessment.
    - o harnessing current teaching but with improved integration/co-ordination and more formal assessment of generic and practical skills.
    - o restructuring of Final VetMB Examinations Part I modular exams to improve blueprinting the assessment against the lecture/practical content, combining individual examinations on only a few lectures to a consolidated examination.



- Subject course reviews with external members on the review panel.
- Continued concentration on first opinion small animal teaching at the RSPCA clinic.
- Continued concentration and expansion of first opinion equine practice.
- Expansion of first opinion farm animal practice.
- Leasing space for CT imaging facility.
- Election of a research-active Professor of Equine and Farm Animal Science to oversee and champion this area.
- The provision of a Director of Surgery position to provide focused clinical leadership in small animal surgery.
- The appointment into Principal Clinical Veterinarian post in Anaesthesia and Critical Care to provide important clinical and teaching leadership in this area, and advertisement of similar posts in Oncology and Neurology.
- Continued funding of six Clinical Veterinarian posts (Farm Animal, Equine, Neurology, Diagnostic Imaging, Small Animal Surgery, Oncology), in addition to the existing post of Clinical Anaesthetist, to underpin clinical service provision and teaching in the Hospital.
- Succession plan to refocus learning and teaching management responsibilities following retirement of Director of Teaching in 2013, includes introduction of new remits of Deputy Director of Teaching (examinations), Clinical Skills Centre academic lead.
- Appointment of a Teaching Fellow Veterinary Public Health (VPH) in September 2014 to support the Senior Lecturer in VPH.
- Appointment of a Senior Teaching Associate in Curriculum Design and Innovation to support the Department's teaching initiatives.
- Greater emphasis on web communications for internal and external purposes.

## Executive summary

- The report is presented to the RCVS, to ECOVE (through EAEVE), the AVBC and the SAVC which each have separate authority to determine accreditation or approval status within their own jurisdictions. The Visitors worked together as a single team to produce this report.
- The Visitors received a warm welcome from staff and students and are grateful to all those who were responsible for preparing the self evaluation report, arranging the schedule and providing supplementary information when requested. The schedule was busy but the enthusiasm and pride of staff in what they do, and the input from students made it an enjoyable visit.
- The self evaluation report outlines the changes which have taken place since the last visit in 2008 and the Visitors recognise the support the University has provided to the Department of Veterinary Medicine since then. The Visitors were particularly grateful for the time taken by the Vice-Chancellor to meet with them to confirm the University's commitment to, and financial support for, the veterinary degree programme.
- At the West Cambridge site, there have been significant infrastructure developments since 2008, including the new Student resources centre, refurbished small animal clinical facilities, the new clinical pathology centre and the Pauline Brown clinical skills centre. The investment in the University farm facilities at Madingley is also notable. All of these developments exemplify the commitment by the University and the Department to enhancing teaching, clinical work and the overall student experience.
- The quality of the students is impressive and they are excellent ambassadors for the Cambridge programme. They value highly the college system of supervision and the integrated support, frequently citing this as a specific reason for choosing to study at Cambridge. The strong ethos of student support clearly continues when they move to the clinical years.
- The Department has made efforts to simplify its committee structure in response to previous reports and although still complex, the Visitors were reassured that the Veterinary Education Committee has ownership and oversight of the entire curriculum. The recent implementation of the new 40-week final year appears to have been very successful and staff are commended for management and implementation of this significant change. There have also been significant improvements in the key area of veterinary public health since the last visitation.
- The Visitors welcomed these changes and were glad to see the amendments that the Department is putting in place in order to ensure that its' veterinary degree keeps pace with current best practice.
- The Visitors would encourage continued efforts to further develop the curriculum and the associated assessment of both underpinning knowledge and understanding and practical/ clinical skills. They would also encourage early implementation of the new Quality Assurance processes that will now be facilitated by the restructuring and appointments made in recent months.

- Staff development and support in particular for the clinical staff underpinning much of the clinical teaching is also an important consideration to maintain a well-balanced complement of staff able to fulfil the necessary clinical teaching requirements across the species. The creation of an educational career and/or a clinical educator career track should be further considered. This is particularly relevant to support the Department's increased efforts in adopting novel educational approaches. Recruitment processes should be reviewed to allow for timely replacement of staff in order to guarantee continuity of core activities.
- The Visitors would encourage the Department to complete at the earliest opportunity the introduction of a computerised patient record system to facilitate clinical teaching and ensure students are well prepared to enter current veterinary practice. Similarly the Department should maintain an appropriate level of diagnostic equipment commensurate with modern veterinary practice.
- The efforts of the school to enhance the case load are acknowledged, however further increase is necessary in the case of certain food producing animal species.
- Finally, the Visitors thanked Professor Wood and Professor Herrtage and their senior team for their leadership and Judith Drinkwater for her key co-ordinating role both before and during the visit, which they very much appreciated.

## Conclusion

- **The Visitors have identified areas where the degree course at the University of Cambridge complies with the RCVS and EAEVE requirements. These are summarised below and presented to the various accrediting bodies (RCVS, ECOVE, AVBC and SAVC), whose role it is to determine accreditation status in their own territories. In the Visitors' view, the University of Cambridge's Vet MB degree course complies with current requirements.**

## Commendations

- The Visitors commend the University of Cambridge on:
  - a. its commitment to support the Veterinary degree programme.
  - b. forgoing overhead charges to the veterinary teaching hospital which is essential to enable the clinical teaching provided by the department.
  - c. the recent implementation of the new 40-week final year. This appears to have been very successful and staff are commended for management and implementation of this significant change.
  - d. the investment made by the University in the veterinary hospital and on Cambridge University farm to address previous concerns and to support teaching since the last RCVS visitation.

- e. the ongoing development of a clinical skills laboratory.
- f. the research opportunities that are offered to veterinary students.
- g. the changes to the structure of EMS that have occurred since the 2008 visitation.

## Recommendations

- The Visitors recommend that the University addresses the following issues and reports annually on progress towards their implementation. The Department must:
  - a. ensure that administrative staffing levels are adequate to support required essential Quality Assurance (QA) activities which are in the process of being implemented.
  - b. implement mechanisms for greater involvement of key stakeholders in its QA processes, for example by developing graduate and employer surveys.
  - c. develop an updated strategic plan to articulate the ambitious vision the Department has for the future.
  - d. building on the document “Landscape from a student perspective”, produce a complete mapping of curriculum components against learning outcomes and RCVS Day-1 competences to document coverage, avoid gaps and to allow for a strategic approach to the further development of the course.
  - e. ensure that structured animal handling opportunities are available across all years of the curriculum and that students have made sufficient learning progress in animal handling before they commence animal husbandry EMS.
  - f. ensure that assessment methods and formats that align with the skills taught in the professional skills aspect of the course are included as part of the over-all assessment strategy
  - g. ensure that all staff involved in teaching receive instruction in teaching that is appropriate to their teaching role. In particular, all Junior and Senior Clinical Training Scholars involved in teaching must complete minimum induction before providing feedback to undergraduate students that may impact on student progression.
  - h. move to a more robust assessment of practical and clinical competency both to ensure safety prior to entering the clinical course and to provide more objective measures of clinical competency as the clinical course progresses.
  - i. consider mechanisms to improve feedback to students not only in the final year but across the whole curriculum.
  - j. feed data gathered from student evaluations in a structured way into a Quality Assurance process which informs future decisions.

- k. review critically the equipment available for use in the ambulatory services to determine if it is at least equivalent to what is available in private practices and if not, make suitable purchases. In particular, prioritise the purchase of a portable modern digital x-ray unit during the next equipment bidding round in order to enable the achievement of a contemporary standard in the equine ambulatory practice.
- l. address biosecurity and health and safety issues by removing all food and drink storage and preparation activities from working laboratories; in equine isolation, posting isolation protocols external to the entrance; fitting barriers between luggage and passenger compartments and easily cleanable material to the floors of all vehicles used for ambulatory services, checking vehicle safety features and if necessary, making repairs between annually scheduled MOT checks to ensure driver and passenger safety.
- m. make available sufficient numbers and variety of cases for anatomical pathology teaching to assure sustainable quality of teaching in all relevant aspects of the veterinary course.
- n. implement an EPR system as soon as possible in order to provide staff and students with a modern, fast and efficient system to search for clinical information.
- o. review recruitment processes to allow for timely replacement of staff. The Department must be able to make recruitment decisions at least for short-term replacements in order to guarantee continuity in its core activities.

## Suggestions

- The following suggestions are drawn from the chapters of this report and the University will be invited to report on how they are being addressed at the next re-visit.
  - a. The Department is encouraged to communicate a consistent internal and external message regarding ownership of the curriculum and the processes for approving curriculum and course amendments.
  - b. Curriculum development should be continued to further integrate course components into a coherent structure that reflects the strategic vision of the Veterinary Education Committee and the Teaching Strategy Committee. The necessary resources, e.g. for curriculum administration, should receive priority to assure successful completion of the implementation of all changes.
  - c. A strategy should be developed for the implementation of online tools and materials including their role in the curriculum. This should take into account staff development needs, staff time and financial resources.
  - d. Input from the profession and relevant stakeholders should be invited and considered in the regular review and updating of the curriculum. A mechanism should be established to assure such input at regular intervals.
  - e. Behaviour of non-veterinary students that implies a negative value judgment of veterinary-related teaching content should be seen as non-professional conduct and

should, therefore, not be tolerated. The Faculty of Biology should continue its efforts to address this issue.

- f. After completion of the first year of final year rotations, feedback from both staff and students should be used to make adjustments where required.
- g. The population-focused interpretation of clinical data (i.e. clinical epidemiology) should be integrated into the clinical rotations.
- h. The Clinical Skills Centre should be systematically integrated as a learning resource and used throughout the course where appropriate.
- i. Training on the didactic value and technical implementation of CAL should be offered to all teaching staff.
- j. Integration of animal husbandry subjects into a single course component, i.e. Integrated Animal Management (IAM, 4<sup>th</sup> year) should be continued. The term IAM does not currently feature in many relevant documents which gives the impression that integration may be either under-used and/or ill-understood.
- k. Teaching of animal health economics should be expanded to cover components relevant to clinical decision making and herd health management.
- l. Planned developments to provide teaching of food processing in a farm-to-fork context should be implemented.
- m. The 'professional knowledge' part of the course should also cover financial, legal and basic managerial aspects of practice management.
- n. The development and implementation of the component "Preparation for Veterinary Practice" should be continued in the clinical part of the course and include additional components. Content from the early years of the course may need to be reinforced.
- o. The balance of veterinary to medical content should be kept under review and further veterinary relevance developed where possible, particularly in pharmacology.
- p. The Department should continue its efforts to explore with central HR less traditional routes for promotion and career advancement for clinically focused staff.
- q. The peer review process should be audited more closely as part of routine QA monitoring.
- r. With the new position of Deputy Director of Teaching (assessment) and the Senior Teaching Associate (Curriculum and Innovation), the department is encouraged to develop a programme- wide assessment strategy addressing assessment of both theoretical and practical competences.
- s. It could be helpful to provide more formal training to students and IT support to staff in order to ensure that the Moodle platform for supporting clinical education is used effectively as quickly as possible.

- t. Efforts to identify mechanisms to retain clinical staff should be continued.
- u. All staff involved in teaching should be provided with introductory and continuing training on good practice and quality aspects relevant to their teaching. This is particularly relevant for newly recruited staff as well as for nurses and post-graduates.
- v. To assure continuity of teaching, it is recommended to identify possible deputies or cover strategies ahead of time to assure that critical elements of the curriculum (e.g. rotations, EMS) can be delivered in case of unexpected and prolonged staff-absence. Staff workload should be monitored to prevent over-work and burn-out, particularly in services with limited capacity such as farm animal and equine clinics.
- w. A more frequent appraisal system is recommended to ensure that staff are appropriately supported in their efforts of lifelong learning and to increase job satisfaction through non-monetary mechanisms such as formal feedback.
- x. The creation of an educational career and/or a clinical educator career track should be further considered. This is particularly relevant to support the Department's increased efforts in adopting novel educational approaches. It would also offer career progression options to clinical staff.
- y. The Department should continue its efforts to find new funding sources in order to continue the 9-week Summer School.

## Stage 1 Visitation Report

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



## Chapter 1 – Objectives

(NB. Text appearing in the shaded boxes is taken from the EAEVE/RCVS Stage 1 requirements)

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

- 1.1. The mission of the Department of Veterinary Medicine is to improve the prevention and treatment of diseases of animals by defining and applying best clinical practice, by understanding and developing the science underpinning best practice, and by providing an education programme in the veterinary sciences that is second to none and that delivers the best veterinary practitioners, academics and research scientists.
- 1.2. The aims and objectives are under continuous review by the bodies tasked with delivering them i.e. the Faculty Boards of Veterinary Medicine and Biology, through the Veterinary Education Committee, the Teaching Strategy Committee, the Teaching Staff Meeting, the Medical and Veterinary Sciences Tripos Committee (MVST I Committee) and the Biological Sciences Committee of the Faculty of Biology.
- 1.3. The Department aims to produce highly motivated and adaptable veterinary graduates, with a desire for continuing education, who are well equipped to embark on a successful career in veterinary practice, bio-medical industry or public service, or to study for higher degrees and become the academic teachers and researchers of the future.
- 1.4. Specifically the Department aims:
  - To provide a stimulating and challenging learning environment where teaching is informed and enhanced by research to international standards of excellence;
  - To provide training in scientific principles, and experience in the evaluation and practice of research;
  - To continue to attract outstanding students with an interest in veterinary science, from a variety of backgrounds, developing their potential in order to enable them to contribute fully to the cultural and intellectual base of society;

- To give these students an intellectually stimulating and diverse environment, in which they have the opportunity to develop their vocational and scientific enthusiasms and abilities to the best of their potential;
  - To use appropriate and varied methods of teaching (lectures, small-group teaching, laboratory practical work, computer-aided learning (CAL), clinical practice, project work, extra mural study) and assessment (formative and summative);
  - To teach effectively and rigorously, using live animals, the practical skills, techniques and knowledge that are essential to veterinary practice, together with their theoretical framework, and to build vocational instruction intensively on the scientific background provided in the preclinical veterinary course;
  - To provide a range of opportunities within the course to enable students to attain day one competences;
  - To remain responsive to advances in research, clinical practice and scholarship, and to the future needs of the veterinary profession.
- 1.5. Detailed objectives were also provided within the SER for each of the main sections of the six-year veterinary degree course.

### Comments

- 1.6. The Visitors noted that the two lecture theatres in the Department are dated and that management has a strong desire to upgrade these.
- 1.7. The hospital and its activities are central to the clinical teaching programme. There is currently sufficient financial support from the central University to maintain the hospital by protecting it from the central top-slice.
- 1.8. The Quality Assurance (QA) processes currently in place do not allow comprehensive oversight of the programme, its teaching and outcomes. Whilst plans are in place to remedy this, the Department has concerns about the extra administrative burden this will entail.

### Recommendations

- 1.9. The Department must ensure that administrative staffing levels are adequate to support required essential QA activities which are in the process of being implemented.

## 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.**

**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).**

### Findings

- 2.1. The Faculty Board of Veterinary Medicine and Faculty Board of Biology are constituent parts of the School of the Biological Sciences, which is subordinate to the General Board of the Faculties of the University and ultimately to the University Council and Regent House. The Faculty Board of Veterinary Medicine has a specific and authoritative role in educational and related matters, and acts as the interface between the Department and the committees of the General Board (in particular the Education Committee). Resource allocation is the responsibility of the Head of Department through the School of the Biological Sciences.
- 2.2. The Department is run as a single academic unit and is the only Department in the Faculty of Veterinary Medicine. The management of the Department rests with a Strategy and Executive Committee of senior academic staff.
- 2.3. The Strategy and Executive Committee devolves responsibility for defined areas to the Teaching Strategy Committee, Research Strategy Committee and Hospital Strategy Committee.
- 2.4. The veterinary course in its entirety (i.e. preclinical and clinical) is overseen by the Veterinary Education Committee. The teaching programme in the preclinical years is the responsibility of the Faculty Board of Biology, which devolves the day-to-day running of it to the MVST I Committee and the Director of Education in the Faculty of Biology. In the clinical years, the Faculty Board of Veterinary Medicine is responsible for the teaching programme, with day-to-day organisation of it being the remit of the Teaching Strategy Committee and the Director of Teaching in the Department.
- 2.5. The Education Committee of the General Board approves major changes to the veterinary teaching programme and the Regulations pertaining to it.

- 2.6. A number of local practices provide input to the teaching of the course, and Cambridge welcomes this interaction.
- 2.7. There is no direct participation by the general public in the running of the Department. The Hospital sends out client satisfaction questionnaires and the returns are reviewed periodically. Other efforts to gain public involvement are managed through the University of Cambridge Veterinary School Trust, primarily aimed at fund raising.
- 2.8. The Head of Department and Deputy Head of Department are appointed, usually for a period of 5 years, by the University on the recommendation of the Faculty Board. The Dean of the Veterinary School is appointed, without limit of time, by the University on the recommendation of the Faculty Board. Members of the Strategy and Executive Committee are appointed by the Head of Department. All other internal appointments, e.g. committee chairs, are made by the Head of Department after consultation with the Strategy and Executive Committee and the individuals concerned.
- 2.9. The Faculty Board of Biology has overall responsibility for the first three years of veterinary education, and reports to the General Board's Education Committee.
- 2.10. The Faculty Board of Veterinary Medicine has overall responsibility for the three years of clinical veterinary education, and reports to the General Board's Education Committee.

#### **Decision-making in the Department**

- 2.11 The decision-making and Committee structure was last reviewed and agreed by the Strategy and Executive Committee in 2014. The Head of Department has ultimate responsibility for decision-making in the Department. In most cases, the Head of Department makes decisions following discussion with the relevant committee or group.
- 2.12 Decisions regarding policy, objectives and overall strategy are discussed, and decisions made, by the Strategy and Executive Committee, which also plays a role in day-to-day implementation of policy of the Department. The Strategy and Executive Committee is informed by individuals, by the Communication and Engagement Committee and by other committees.
- 2.13 Where possible, decision-making is devolved to the Chairs of the different Departmental committees, including Research Strategy, Teaching Strategy, and Hospital Management/Strategy, within parameters set by the Strategy & Executive Committee, and with its oversight. The overall structure and interaction of the Department's committees is summarised in figure 2.1 below.

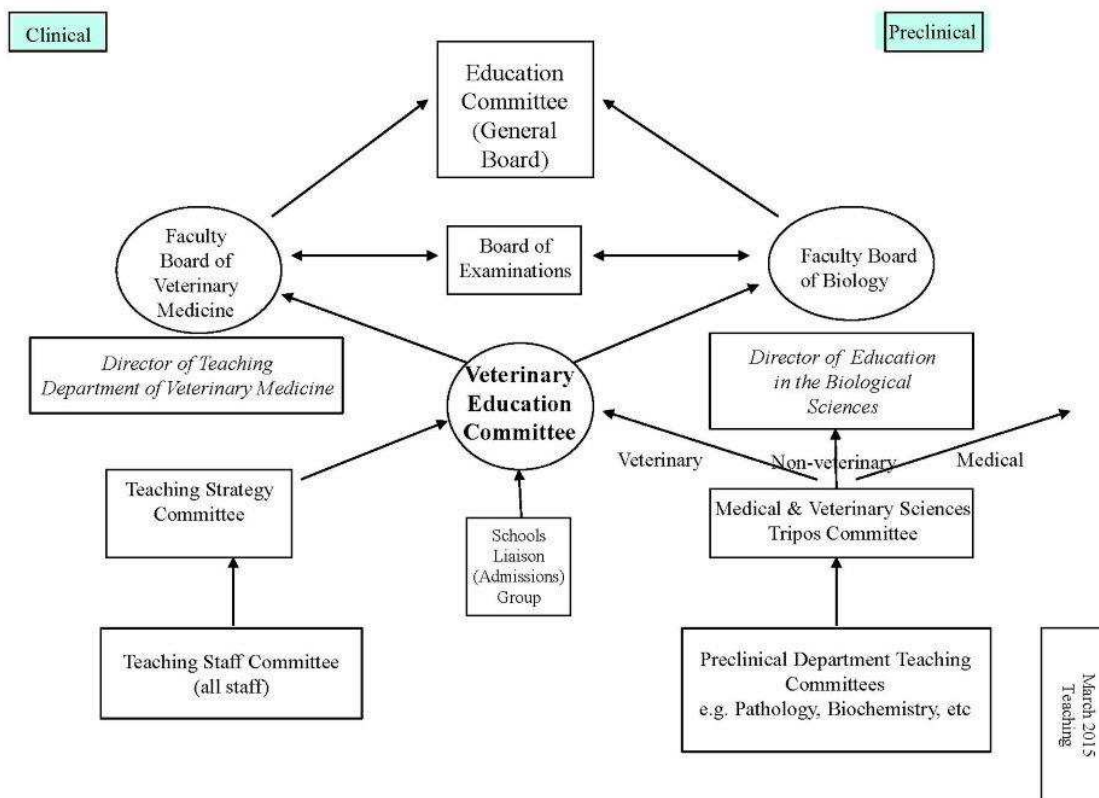


Figure 2.1

### Department of Veterinary Medicine - Strategic Plan

- 12.14. The Department has a policy of maintaining a Strategic Plan to inform its development in research, clinical service, teaching and overall administrative support. The Department's current strategic plan was developed by the Strategy and Executive Committee in 2009 and laid out a strategy for 2010-2015. This strategy was approved and adopted by the Faculty Board of Veterinary Medicine.
- 2.15. The Department's policy is for the Strategy and Executive Committee to review progress on implementing the strategic plan at its biannual away days. A further policy is to develop a new (rolling) Strategic Plan for 2016-2020 during the course of 2015, and the new five year strategic plan is currently being developed.

### Recommendations

- 2.16. The Department must implement mechanisms for greater involvement of key stakeholders in its QA processes, for example by developing graduate and employer surveys.

- 2.17 The Department must develop an updated strategic plan to articulate the ambitious vision the Department has for the future.

### **Suggestions**

- 2.18. The Department is encouraged to communicate a consistent internal and external message regarding ownership of the curriculum and the processes for approving curriculum and course amendments.

## 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

- 3.1. The funding streams within the University are varied and complex. Table 3.a attempts to show some of the primary income streams and how they flow through the various governance structures: it can be seen that a proportion of funding – including public (HEFCE<sup>1</sup>) funding for teaching, research and related activities (the ‘block grant’) – is made over to the University centrally, whilst other sources of funding are directed to, and managed by, the Faculty/Department of Veterinary Medicine.
- 3.2. Other funding received / managed by the University centrally includes the University’s own general endowment income (separate from individual endowments managed by Departments) and elements of “overheads” recovered from various sources (including some funding managed directly by Departments – see diagram: “Chest share of non-direct costs”).
- 3.3. Infrastructure services (buildings, planned maintenance, utilities and central services (e.g. insurance, payroll and pensions administration, human resources, central computing, central libraries) are provided as a core service across the University and are funded via a top slice from the income received by the University centrally. Remaining income is distributed to the Schools / Departments as Chest Allocation.

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<sup>1</sup> Higher Education Funding Council for England

- 3.4. At Departmental level, the budgets for running costs, equipment and student EMS support are managed at the discretion of the Head of Department through the Strategy and Executive Committee and the Finance Committee.
- 3.5. Departmental income from other sources, i.e. from clinical and diagnostic services, and any other income (e.g. donations for student prizes or Hospital purposes) is managed at the discretion of the Head of Department, through the Strategy and Executive Committee or the Hospital Management Committee.
- 3.6. The Strategy and Executive Committee delegates responsibility to the Research Strategy Committee for prioritising and putting forward bids to central funds for major research equipment. It delegates responsibility to the Hospital Management Committee for prioritising and putting forward bids for Hospital equipment if bids to central funds permit inclusion of clinical equipment. The Strategy and Executive top slices the annual £55K equipment allocation for purposes such as computing and health and safety needs, then requests bids from across the Department for items of small equipment. In practice, the funds are mainly used for teaching-related purposes. The Veterinary School Trust provides a regular stream of donation funding for the purchase of equipment for use in the clinics and items for use in the Clinical Skills Centre. The disbursement of these funds is managed by the Strategy and Executive Committee and Hospital Management Committee.
- 3.7. The Department retains in full all trading income from the Veterinary Hospital.
- 3.8. The University's policy is that research grant funding is initially directed to cover the full direct costs of the research project / programme for which the funding is intended. Only where funding is recovered from research sponsors towards the non-direct costs of the research project / programme is there any requirement to give a portion to other bodies.
- 3.9. All Home/ EU students pay a £9,000 per annum tuition fee. The University tuition fee levels are set by the Planning and Resources Committee subject to the agreement (Grace) of the Regent House (the University's governing body and principal electoral constituency).
- 3.10. In terms of distribution, fees form part of the University Chest (central) Income and are distributed to Schools in the Resource Allocation Model (RAM) based on student numbers. Of the £9,000 fees, 50% is distributed to the Colleges (a central charge in the RAM) for their contribution to student (pastoral) support and small group teaching.
- 3.11. Please see table 3.e. for the Department budget over the last two academic years (in £000).



Table 3.a: Financial flows within the University of Cambridge

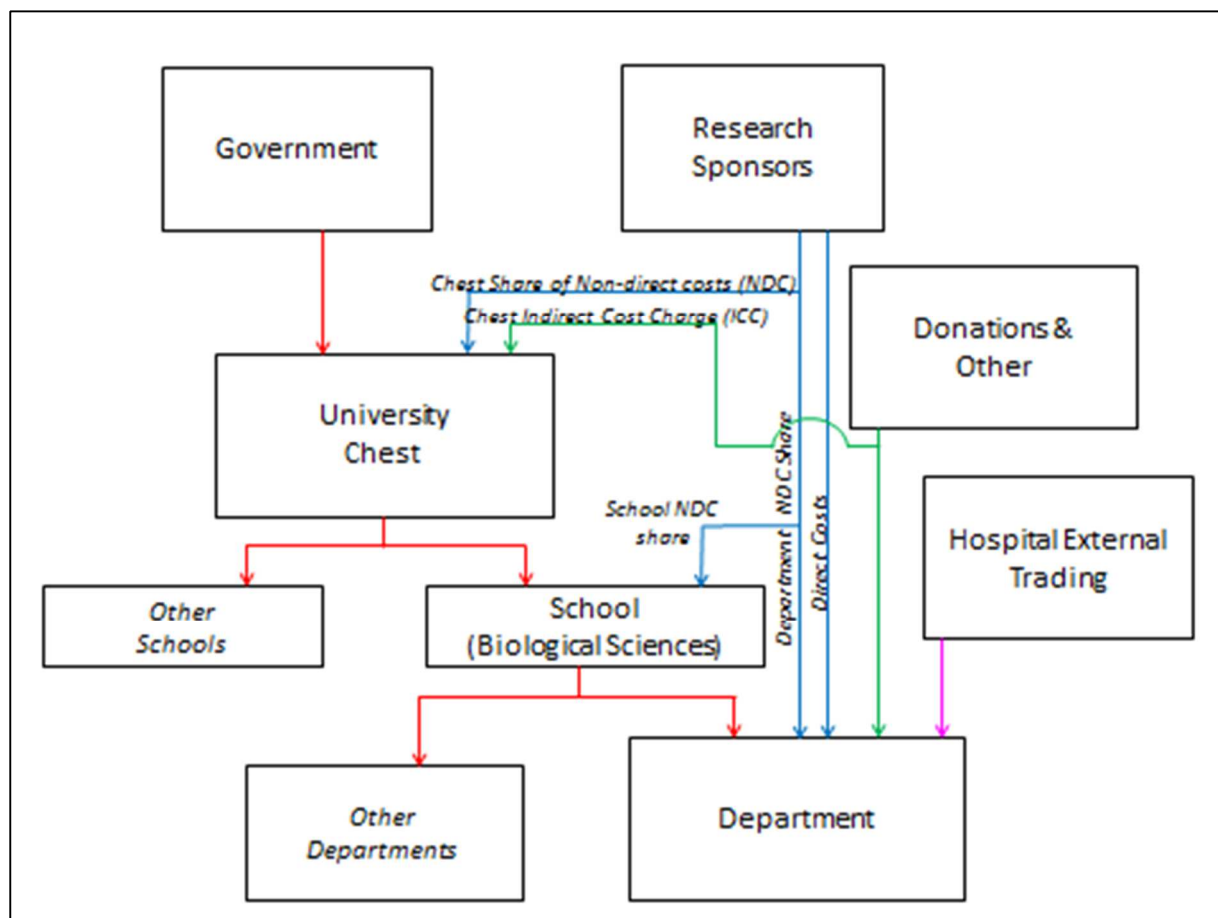


Table 3.b: Annual Income to the Department (£000)

| Year    | State (government) |                   | Income generated by Faculty |          | TOTAL |
|---------|--------------------|-------------------|-----------------------------|----------|-------|
|         | Non faculty        | Direct to Faculty | Services provided           | Research |       |
| 2013-14 | 3996               | 4750              | 3188                        | 5099     | 17033 |
| 2012-13 | 2654               | 4650              | 2908                        | 5470     | 15682 |
| 2011-12 | 2097               | 4848              | 2735                        | 4930     | 14611 |

Table 3.c: Annual Expenditure in the Department (£000)

| Year    | Pay      | Non Pay  |          |          |       | TOTAL |
|---------|----------|----------|----------|----------|-------|-------|
|         | Salaries | Teaching | Research | Clinical | Other |       |
| 2013-14 | 8714     |          | 2940     | 2148     | 1694  | 15496 |
| 2012-13 | 8797     |          | 3237     | 1786     | 1070  | 14889 |
| 2011-12 | 8711     |          | 2920     | 1620     | 1281  | 14532 |

Notes

- Salaries = Staff Costs on grants + all Pay costs.
- Research Non Pay includes only non-pay costs funded directly by grants.
- Clinical Non Pay costs includes only non-pay costs running through the Vet Hospital.
- All other non-pay costs – which include some elements of research support and clinical support (as well as teaching) are included in the Other non-pay category.
- No costs are included for infrastructure costs (rates, utilities etc.), nor central University costs.
  - o Space / infrastructure costs for Vet Med only = c £1.5m in RAM – a portion of this relates to teaching support and would be deductible from the state funding. Costs for other Departments would also apply.
  - o Central University Costs for Vet Med = c £1.5m in RAM – a portion of this relates to teaching support and would be deductible from the state funding. Costs for other Departments would also apply.
  - o College fee for Vet Med only = £881k in RAM for 2013-14 (fully deductible from state funding).

Table 3.d: Standard Unit of Resource for home undergraduates

| Band | UoR (£ p.a. per FTE) |
|------|----------------------|
| A    | £10,000              |
| B    | £1,500               |
| C    | £250                 |
| D    | £0                   |

Table 3.e: Department budget for the last two academic years (in £000)

|                 | 2013-14        |                |                | 2014-15        |                |                |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                 | Dept           | Hosp           | Total          | Dept           | Hosp           | Total          |
| <b>Stipends</b> | 2,528.3        | 577.5          | 3,105.8        | 2,544.9        | 657.2          | 3,202.1        |
| <b>Wages</b>    | 779.0          | 567.1          | 1,346.1        | 800.2          | 590.8          | 1,391.0        |
| <b>Non Pay</b>  | 434.7          | -              | 434.7          | 496.0          | -              | 496.0          |
| <b>Total</b>    | <b>3,742.0</b> | <b>1,144.6</b> | <b>4,886.6</b> | <b>3,841.1</b> | <b>1,248.0</b> | <b>5,089.1</b> |

## Comments

- 3.1. The financial information provided to the visiting team was difficult to interpret, as the income figures in Table 3b relate to the income generated by the Department's undergraduate teaching programme of which some is retained by the University's administration as top-sliced funding. The expenditures shown in Table 3c represent the monies actually spent by the Department. No financial information was provided relating to the expenses of teaching in the first 3 year degree programme of the veterinary course but only relating to the final 3 clinical years.
- 3.2 A comparison of the income detailed in table 3.2 with the expenditure in table 3.3 shows an apparent surplus but this information does not provide a true picture because the tables record the University income generated by the Department on the one hand versus the Department's expenditure on the other.
- 3.4 The Visitors were informed by the School of the Biological Sciences's finance manager that the annual deficit of the Department of Veterinary Medicine was approximately £1.3 million per annum which was covered by a subsidy from the University.
- 3.5 The Vice-Chancellor, Professor Sir Lezcek Borysiewicz, assured the Visitors that the University valued and supported the veterinary degree programme and would continue to do so as it was productive in research, attracted excellent students and was a desirable programme to have within a leading university. He stated that the programme would continue to be supported and that the University is in a financial position to do so.
- 3.6 The Department of Veterinary Medicine has control over the funding that is provided to it by the University and can decide how, and on what, to expend its funds.
- 3.7 The Department expressed concern that the veterinary teaching hospital was not recognised as a core teaching facility by the University. However this lack of recognition was currently financially neutral, since the University currently does not charge overheads to the veterinary hospital.

- 3.8 The Visitors gained the impression that the distribution of income for the veterinary programme was solely on the basis of the contribution to teaching activities by the departments contributing to the programme. This is unusual, since in most veterinary schools the funding is weighted to provide increased funds for the Departments that provide clinical teaching, which is known to be more expensive because of the need to run an unsubsidised veterinary hospital (in contrast to the NHS subsidised hospitals available for the education of human medical doctors), and the need to provide clinical teaching to small groups of students.
- 3.9 The situation described above in 3.8 is made more unusual by the fact that the educational support provided to students by the Colleges at Cambridge University is concentrated in the first 3 years during which the primary BA degree is undertaken and is less intense in the final 3 clinical years of the programme.
- 3.10. Despite the above, the finances provided for both the pre-clinical and clinical components of the veterinary educational programme appear to be adequate to sustain it to operate at a level that allows it to meet RCVS and EAEVE standards.

### Commendations

- 3.11 The University is commended for its commitment to supporting the Veterinary degree programme.
- 3.12 The University is commended for forgoing overhead charges to the veterinary teaching hospital which is essential to enable the clinical teaching provided by the department.

### Recommendations

- 3.13 None.

### Suggestions

- 3.14 None.

## Chapter 4 – Curriculum

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 Day One 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 (free of learning – European Credit Transfer System principle).

The breakdown of the theoretical and practice 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

- 4.1. The six-year curriculum at Cambridge broadly follows a linear model with strong foundations in the scientific knowledge underpinning veterinary work preceding a clinical course. The additional year compared with other UK veterinary schools is the third year of the Cambridge course where students have the opportunity to explore an area of scientific interest in greater depth.
- 4.2. The concept of several vertically-integrated themes is being implemented throughout the curriculum. The themes include animal management, veterinary public health, professionalism, communication and consultation skills, evidence-based medicine. The degree of implementation varies between the themes and between the years of the course.
- 4.3. The curriculum is designed to meet the RCVS Day One Competences, the EAEVE requirements and the QAA Subject Benchmark for Veterinary Science. Within the above constraints and the requirement to provide a degree course registrable with the RCVS, the Department is free to change and adapt the clinical curriculum as it believes appropriate.
- 4.4. Veterinary education in Cambridge is divided into preclinical study, concentrating on the biological sciences, during the first three years of the course and the study of clinical veterinary medicine during the final three years of the course. The ultimate responsibility for the organisation and delivery of teaching in Cambridge lies with the General Board and its Education Committee.
- 4.5. In practice, responsibility for teaching programmes is devolved to Faculty Boards of the relevant departments. For veterinary education, these are the Faculty Board of Biology, which is mainly responsible for the first three years of the course, and the Faculty Board of Veterinary Medicine, which is responsible for students during the clinical years. Operational decisions are taken by the Veterinary Education Committee chaired by senior management of the Department of Veterinary Medicine.
- 4.6. Decisions on the curriculum and course content in the first two years are the responsibility of the Medical and Veterinary Sciences Tripos Part I (MVST I) Committee (and the Biological Sciences Committee within the Faculty of Biology), which reports to the Faculty Board of Biology (and to the Veterinary Education Committee). Course management committees submit detailed proposals for their course curriculum to the MVST I Committee. The MVST I Committee monitors the success of individual courses on a yearly basis, and has a mechanism for carrying out reviews of each course on a rolling two-year programme.

- 4.7. In the clinical course the Teaching Strategy Committee, chaired by the Director of Teaching, makes decisions on the allocation of hours between subjects, and between theoretical and practical teaching. The most recent internal Departmental curriculum review took place in 2012. A number of changes were suggested as part of the General Board Learning and Teaching Review 2013, and these either have been or are currently in the process of being implemented. Other changes and modifications have been made to the curriculum since then; any significant addition or subtraction of material is approved by the Teaching Strategy Committee. The Director of Teaching in the Department of Veterinary Medicine has the overall day-to-day responsibility for the (clinical) curriculum and a particular role of the Director of Teaching is to keep the overall balance of the course under review, to foster integration and co-ordination between different elements of the curriculum and to raise issues with the Teaching Strategy Committee. Small changes to the curriculum can be approved by the Director of Teaching, who is responsible for taking forward larger issues to the Teaching Strategy Committee and to other committees for discussion.
- 4.8. Much weight is put on reports of the External Examiners and their comments are considered by the Teaching Strategy Committee which also drafts responses. These responses are then considered by the Strategy and Executive Committee, the Veterinary Education Committee and the Faculty Board of Veterinary Medicine, which make recommendations to the Teaching Strategy Committee for implementation.
- 4.9. Recent innovations to the curriculum have been:
- Introduction of a 40-week final year (6<sup>th</sup> year) with modified assessment criteria.
  - Revision of the induction programme to final year (now 2 weeks and using the Clinical Skills Centre).
  - Increased structure to, and modification of, the electives (6<sup>th</sup> year).
  - Introduction of Clinical Skills Centre (focus is intended to be mainly 4<sup>th</sup> and 5<sup>th</sup> year but applies to all years of the course). Integration in the current course is yet to be implemented.
  - Restructuring of Principles of Animal Management course (1<sup>st</sup> year).
  - Restructuring of Preparing for the Veterinary Profession course (2<sup>nd</sup> year).
  - Restructuring of infectious disease teaching into a Principles of Infectious Diseases course (4<sup>th</sup> year) and migration of some information into systems and species courses, to aid integration of knowledge across subject disciplines.
  - Integration of basic clinical information into a Principles of Clinical Practice exam (4<sup>th</sup> year).
  - Revision of the Veterinary Public Health course with increased exposure to food processing premises.
  - Expansion of first opinion equine and farm animal teaching and first opinion case load (6<sup>th</sup> year).

4.10. The livestock operation of the University Farm has been relocated to Park Farm, Madingley, consolidating the cattle and sheep enterprises onto a single site. A number of new buildings and refurbishment accompanied the relocation, to the benefit of student education. These include:

- New, purpose-built lambing shed.
- New calf housing.
- New robotic milking parlour.
- Computerised herd health records.
- Rotating cattle crush.
- Student rest room (when lambing the flock).
- Refurbished seminar room.

4.11 Summaries of curriculum hours per year and per subject are given in the following tables. They are based on the 2013-14 academic year.

**Table 4.a** General Table of curriculum hours taken by all students

| Year     | Hours of training    |          |                        |                                |                          |               |       |       |
|----------|----------------------|----------|------------------------|--------------------------------|--------------------------|---------------|-------|-------|
|          | Theoretical training |          | Self-directed learning | Supervised practical training  |                          |               | Other | Total |
|          | Lectures             | Seminars |                        | Laboratory and desk-based work | Non-clinical animal work | Clinical work |       |       |
| First    | 194                  |          | 6 (CAL)                | 173                            | 18                       |               | 66*   | 457   |
| Second   | 184                  | 13       | 3                      | 171                            |                          |               | 82*   | 453   |
| Third**  |                      |          |                        |                                |                          |               |       |       |
| Fourth   | 325                  | 29       | 6                      | 142                            | 28                       | 20            | 2     | 552   |
| Fifth*** | 215                  | 31       |                        | 42                             |                          | 104           |       | 392   |
| Sixth    |                      |          | 320                    |                                |                          | 800           |       | 1120  |
| Total    | 918                  | 73       | 335                    | 528                            | 46                       | 924           | 150   | 2974  |

\* In Years 1 & 2, 'other' represents College small group supervision.

\*\* Year 3 does not form part of the core veterinary course, but is the equivalent of an intercalated degree; for information, 3<sup>rd</sup> year students receive 100-120 hours of lectures, and 160 hours of practical work, and approximately 200 hours of independent study.

\*\*\* Excluding the 2-week "Induction to Final Year" – seminar and practical based.



Table 4.b      Yearly curriculum studies

First Year

| Subject  | Hours of training |                |                                 |                          |           |            |
|--|-------------------|----------------|---------------------------------|--------------------------|-----------|------------|
|  | Lectures          | Practical work | Supervised work (PBL/ seminars) | Non-clinical animal work | Other*    | Total      |
| Histology  |                   | 20             |                                 |                          |           | 20         |
| Introduction to the Scientific Basis of Medicine | 10                |                |                                 |                          |           | 10         |
| Homeostasis                                      | 54                | 23             |                                 |                          | 20        | 97         |
| Molecules in Medical Science                     | 52                | 18             | 10                              |                          | 20        | 100        |
| Veterinary Anatomy & Physiology                  | 41                | 85             |                                 | 13                       | 20        | 159        |
| Principles of Animal Management                  | 37                |                | 10                              | 18                       | 6         | 71         |
| <b>Total</b>                                     | <b>194</b>        | <b>146</b>     | <b>20</b>                       | <b>31</b>                | <b>66</b> | <b>457</b> |

\* College supervisions / tutorials

Second Year

| Subject                         | Hours of training |                |                            |                          |        |       |
|---------------------------------|-------------------|----------------|----------------------------|--------------------------|--------|-------|
|                                 | Lectures          | Practical work | Supervised work (seminars) | Non-clinical animal work | Other* | Total |
| Biology of Disease              | 42                | 50             |                            |                          | 20     | 112   |
| Mechanisms of Drug Action       | 35                | 51             |                            |                          | 20     | 106   |
| Neurobiology & Animal Behaviour | 49                | 26             |                            |                          | 20     | 95    |
| Veterinary Reproductive Biology | 24                | 16             |                            |                          | 16     | 56    |
| Comparative Veterinary Biology  | 22                | 30             |                            |                          | 4      | 56    |

**FINAL REPORT AS ISSUED BY ECOVE ON 19 NOVEMBER 2015**

|  |            |            |           |          |           |            |
|--|------------|------------|-----------|----------|-----------|------------|
| Preparing for the<br>Veterinary Profession | 12         |            | 11        | 3        | 2         | 28         |
| <b>Total</b>                               | <b>184</b> | <b>173</b> | <b>11</b> | <b>3</b> | <b>82</b> | <b>453</b> |

\* College supervisions / tutorials

Fourth Year (2013-14)

| Subject                                    | Hours of training |                |                 |               |       |       |
|--|-------------------|----------------|-----------------|---------------|-------|-------|
|  | Lectures          | Practical work | Supervised work | Clinical work | Other | Total |
| Alimentary                                 | 25                | 15             |                 |               |       | 40    |
| Anaesthesia                                | 14                |                | 6<br>(seminars) |               |       | 20    |
| Animal Breeding *                          | 20                | 4              |                 |               |       | 24    |
| Animal Housing                             | 8                 |                |                 |               |       | 8     |
| Animal Welfare                             | 12                |                |                 |               |       | 12    |
| Cattle                                     | 22                |                |                 |               |       | 22    |
| Clinical Pathology                         | 16                | 12             |                 |               |       | 28    |
| Clinical Pharmacology and therapeutics     | 11                |                |                 |               |       | 11    |
| Dentistry                                  | 4                 |                |                 |               |       | 4     |
| Equine Husbandry                           | 7                 |                |                 |               | 2     | 9     |
| Evidence Based Medicine                    | 6                 |                |                 |               |       | 6     |
| Exotic, wildlife and conservation medicine | 19                |                |                 |               |       | 19    |
| Principles of Infectious Diseases          | 32                | 6              | 9               |               |       | 47    |
| Nutrition                                  | 16                |                |                 |               |       | 16    |
| Principles of Oncology                     | 8                 |                |                 |               |       | 8     |
| Ophthalmology                              | 10                |                |                 |               |       | 10    |
| Orthopaedic Pathology                      | 6                 | 3              |                 |               |       | 9     |
| Poultry                                    | 10                |                |                 |               |       | 10    |
| Radiography and Radiology                  | 9                 |                |                 |               |       | 9     |
| Respiratory                                | 11                | 3              |                 |               |       | 14    |

| <b>Subject</b>                        | <b>Hours of training</b> |                       |                        |                      |              |              |
|---------------------------------------|--------------------------|-----------------------|------------------------|----------------------|--------------|--------------|
|                                       | <b>Lectures</b>          | <b>Practical work</b> | <b>Supervised work</b> | <b>Clinical work</b> | <b>Other</b> | <b>Total</b> |
| Small Ruminant Husbandry and Medicine | 19                       | 6                     |                        |                      |              | 25           |
| Principles of Surgery                 | 5                        | 2                     |                        |                      |              | 7            |
| Veterinary Public Health (VPH)        | 35                       | 30                    | 9                      |                      |              | 74           |
| Gross Pathology                       |                          | 14                    |                        |                      |              | 14           |
| Pathology Seminars                    |                          |                       | 4 seminars             |                      |              | 4            |
| <b>Clinical Rotations</b>             |                          |                       |                        |                      |              |              |
| Equine Clinical                       |                          | 12                    |                        |                      |              | 12           |
| Exotic Animal Management              |                          | 4                     |                        |                      |              | 4            |
| Farm Animal                           |                          | 7                     |                        |                      |              | 7            |
| Post Mortem                           |                          | 20                    | 1 seminar              | 1                    |              | 22           |
| Radiography                           |                          | 4                     |                        |                      |              | 4            |
| Small Animal Clinical                 |                          | 7                     |                        |                      |              | 7            |
| RSPCA Clinic                          |                          |                       |                        | 12                   |              | 12           |
| Consultation Skills                   |                          | 7                     |                        |                      |              | 7            |
| Laboratory Animal Management          |                          | 3                     |                        |                      |              | 3            |
| Lambing                               |                          |                       |                        | 24*                  |              | 24           |
| <b>Total</b>                          | <b>325</b>               | <b>159</b>            | <b>29</b>              | <b>37</b>            | <b>2</b>     | <b>552</b>   |

\* The 4<sup>th</sup> year cohort is responsible for lambing the University Farm flock. The year group is divided into teams and provide 24-hour cover over a 5 week period. The number of hours given here is a reasonable average

Fifth Year (2013-14)

| Subject                       | Hours of training |                |                 |               |       |       |
|-------------------------------|-------------------|----------------|-----------------|---------------|-------|-------|
|                               | Lectures          | Practical work | Supervised work | Clinical work | Other | Total |
| Cardiology                    | 14                | 2              |                 |               |       | 16    |
| Cattle medicine               | 4                 | 4              |                 |               |       | 8     |
| Clinical pathology            | 3                 | 3              |                 |               | 4     | 10    |
| Dentistry                     | 4                 | 6              |                 |               |       | 10    |
| Dermatology                   | 13                | 3              |                 |               |       | 16    |
| Emergency and Critical Care   | 8                 |                |                 |               |       | 8     |
| Endocrinology                 | 12                | 3              |                 |               |       | 15    |
| Equine medicine               | 18                |                |                 |               |       | 18    |
| Equine Orthopaedic            | 12                |                |                 |               |       | 12    |
| Equine Surgery                | 10                |                |                 |               | 1     | 11    |
| Infertility & Obstetrics      | 22                |                |                 |               |       | 22    |
| Neurology                     | 12                | 9              |                 |               |       | 21    |
| Pig Medicine                  | 13                |                |                 |               |       | 13    |
| Practice Management           | 6                 |                | 5 seminars      |               |       | 11    |
| Reproductive system pathology | 4                 | 2              |                 |               |       | 6     |
| Small Animal Medicine         | 16                |                |                 |               |       | 16    |
| Small Animal Orthopaedics     | 15                | 2              |                 |               |       | 17    |
| Soft Tissue Surgery           | 20                |                |                 |               |       | 20    |
| Urology                       | 9                 | 3              |                 |               |       | 12    |
| <b>Rotations</b>              |                   |                |                 |               |       |       |
| Equine Studies                |                   | 16             |                 |               |       | 16    |
| Farm Animal                   |                   | 15             |                 |               |       | 15    |
| Gynaecology                   |                   | 8              |                 |               |       | 8     |

|                         | Hours of training |                |                           |               |          |             |
|-------------------------|-------------------|----------------|---------------------------|---------------|----------|-------------|
| Subject                 | Lectures          | Practical work | Supervised work           | Clinical work | Other    | Total       |
| Neurology               |                   | 4              |                           |               |          | 4           |
| Radiography / Radiology |                   | 28             |                           |               |          | 28          |
| RSPCA                   |                   |                |                           | 28            |          | 28          |
| Path seminars           |                   |                | 6 seminars<br>(2 hr each) |               |          | 12          |
| VPH                     |                   | 2              | 14                        |               |          | 16          |
| Communication skills    |                   | 3              |                           |               |          | 3           |
| <b>Total</b>            | <b>215</b>        | <b>113</b>     | <b>31</b>                 | <b>28</b>     | <b>5</b> | <b>392*</b> |

\* Plus a 2-week seminar and practical-based module providing induction for the lecture-free final year

#### Sixth Year Rotations

|                         | Hours of training |                |                 |               |       |              |
|-------------------------|-------------------|----------------|-----------------|---------------|-------|--------------|
| Subject                 | Lectures          | Practical work | Supervised work | Clinical work | Other | Total        |
| Small Animal Surgery    |                   |                |                 | 160           |       | 160          |
| Small Animal Medicine   |                   |                |                 | 160           |       | 160          |
| Farm Animal Medicine ** |                   |                |                 | 160           |       | 160          |
| Equine studies          |                   |                |                 | 160           |       | 160          |
| Anaesthesia             |                   |                |                 | 80            |       | 80           |
| Radiology               |                   |                |                 | 80            |       | 80           |
| Electives               |                   |                | 320             |               |       | 320          |
| <b>Total</b>            |                   |                | <b>320</b>      | <b>800</b>    |       | <b>1120*</b> |

\* An "Emergency and Critical Care" rotation was introduced for the 2014-15 academic year (not included in the table) and is an additional 80 hours clinical work. This was previously part of Extra-Mural Studies.

\*\* The Farm Animal Medicine rotation includes a 2-hour seminar specifically on VPH.

Table 4.c. Curriculum hours in EU-listed subjects taken by each student

| Subject   | Hours in course |                |                 |               |       |       |
|---|-----------------|----------------|-----------------|---------------|-------|-------|
|   | Lectures        | Practical work | Supervised work | Clinical work | Other | Total |
| <b>A. Basic subjects</b>  |                 |                |                 |               |       |       |
| Anatomy (incl. histology and embryology)  | 68              | 136            |                 |               | 44    | 248   |
| Biochemistry and molecular biology  | 52              | 28             |                 |               | 30    | 110   |
| Biology (incl. cell biology) - pre entry requirements                             |                 |                |                 |               |       |       |
| Biophysics - part of biochemistry and molecular biology)                          |                 |                |                 |               |       |       |
| Biostatistics   | 10              | 4              |                 |               |       | 14    |
| Chemistry - pre entry requirements  |                 |                |                 |               |       |       |
| Epidemiology  | 10              |                |                 |               |       | 10    |
| Genetics - part of biochemistry and molecular biology                             |                 |                |                 |               |       |       |
| Immunology  | 8               | 6              |                 |               |       | 14    |
| Microbiology  | 43              | 10             | 3               |               |       | 56    |
| Parasitology  | 33              | 72             |                 |               |       | 105   |
| Pathological anatomy (macroscopic & microscopic)                                  | 66              | 100            | 11              |               | 20    | 197   |
| Pharmacy  | 3               |                |                 |               |       | 3     |
| Pharmacology  | 45              | 39             |                 |               | 20    | 104   |
| Physiology  | 54              | 23             |                 |               | 25    | 102   |
| Physiopathology<br>Scientific and technical information and documentation methods | 6               | 14             |                 |               |       | 20    |
| Toxicology (incl. environmental pollution) - part of pharmacology                 |                 |                |                 |               |       |       |



|   |    |    |  |  |    |    |
|---|----|----|--|--|----|----|
| <b>B. Animal Production</b>   |    |    |  |  |    |    |
| Agronomy  | 4  | 2  |  |  |    | 6  |
| Animal behaviour (incl. behavioural disorders)                      | 7  | 6  |  |  |    | 13 |
| Animal husbandry (incl. livestock production systems)               | 48 | 22 |  |  |    | 70 |
| Animal nutrition and feeding  | 22 | 4  |  |  |    | 26 |
| Animal protection and welfare                                       | 8  | 3  |  |  |    | 11 |
| Environmental protection  | 1  |    |  |  |    | 1  |
| Preventive veterinary medicine (incl. health monitoring programmes) | 3  |    |  |  | 10 | 13 |
| Reproduction (incl. artificial breeding methods)                    | 46 | 24 |  |  | 16 | 86 |
| Rural economics   |    |    |  |  | 10 | 10 |

Table 4.d Curriculum hours in EU-listed subjects taken by each student

| Subject  | Hours in course |                |                 |               |       |       |
|--|-----------------|----------------|-----------------|---------------|-------|-------|
|  | Lectures        | Practical work | Supervised work | Clinical work | Other | Total |
| <b>C. Clinical Subjects</b>  |                 |                |                 |               |       |       |
| Anaesthetics   | 16              | 4              |                 | 80            |       | 100   |
| Clinical examination and diagnosis and laboratory diagnostic methods     |                 | 14             |                 |               |       | 14    |
| Clinical medicine  | 169             | 17             |                 | 495           |       | 681   |
| Diagnostic imaging   | 9               | 35             |                 | 80            |       | 124   |
| Obstetrics   | 21              | 5              |                 |               |       | 26    |
| Reproductive disorders   |                 |                |                 |               |       |       |
| State veterinary medicine, zoonoses, public health and forensic medicine | 30              |                |                 |               |       | 30    |

|  |                 |    |   |     |  |     |
|--|-----------------|----|---|-----|--|-----|
| Surgery  | 64              | 6  |   | 252 |  | 322 |
| Therapeutics   | 9               |    |   |     |  | 9   |
| <b>D. Food Hygiene - for details see section 4.1.3</b> |                 |    |   |     |  |     |
| Certification of food production units                 | 1               | 2  | 1 |     |  | 4   |
| Food certification                                     | 1               | 2  | 1 |     |  | 4   |
| Food hygiene and food quality (incl. legislation)      | 11              | 8  | 2 |     |  | 21  |
| Food inspection, particularly food of animal origin    | 11              | 18 |   |     |  | 29  |
| Food science and technology                            | 3               | 2  |   |     |  | 5   |
| <b>E. Professional Knowledge</b>                       |                 |    |   |     |  |     |
| Practice management                                    | 7               |    | 5 |     |  | 12* |
| Professional ethics                                    | 14              |    |   |     |  | 14  |
| Veterinary certification and report writing            | see notes below |    |   |     |  |     |
| Veterinary legislation                                 | 8               |    |   |     |  | 8   |

## Notes

This is an integrated course and it is therefore difficult to allocate time in the manner required in these tables. The following should be noted:

- Teaching of practice management is introduced in the 5<sup>th</sup> year through a series of seminars; these build on the practical experiences that have been gained by students during their consultation sessions at the RSPCA clinic in 4<sup>th</sup> and 5<sup>th</sup> year and their EMS experiences (EMS has not been included in the above figures);
- State Veterinary Medicine, zoonoses public health and forensic medicine is taken to include roles of the Official Veterinarian, report writing, etc. They are taught in lectures that specifically address those aspects (some of these lectures are provided by RCVS and DEFRA, e.g. in PfVP and VPH courses) and in lectures that include such considerations in a species/systems context. These latter include lectures within the Poultry Husbandry and Medicine course;
- Professional knowledge is taught throughout the course, beginning in the PfVP course in Year 2, and extending through into the 6<sup>th</sup> Year when students are beginning to take responsibility for individual cases;
- Veterinary certification and report writing are mainly dealt with in the 4<sup>th</sup> year VPH course (and subsequent VPH teaching in the following years) and in 6<sup>th</sup> Year when students are beginning to take responsibility for individual cases (completing horse passports is introduced in 4<sup>th</sup> year);
- Some microbiology is also taught in the systems courses in 4<sup>th</sup> year, and in 2<sup>nd</sup> year Biology of Disease (i.e. not just Principles of Infectious Diseases course in 4<sup>th</sup> year);

- Some immunology is taught in the systems courses in 4<sup>th</sup> year, and in the 2<sup>nd</sup> year Biology of Disease course;
- Pharmacy (as distinct from pharmacology and therapeutics), following a short introductory course, is distributed throughout the systems, discipline and species courses and is an integral part of 6<sup>th</sup> year;
- Cell Biology is taught in Years 1 and 2 in Homeostasis, Molecules in Medical Science, Biology of Disease, and Mechanisms of Drug Action, as an integral part of these courses;
- Scientific and technical information and documentation methods are integrated throughout the course, but there is a short introductory course, Introduction to the Scientific Basis of Medicine, in Year 1. This is also a particular feature of the Part II Tripos courses in Year 3. This is continued with the Evidence Based Medicine course in 4<sup>th</sup> year and the 6<sup>th</sup> year elective project;
- Physiopathology has no separate course but is an integral part of many others particularly Biology of Disease in Year 2, and the systems courses;
- Agronomy is dealt with in a lecture in the Principles of Animal Management course in Year 1 and also in Year 4 Integrated Animal Management. It is also part of the understanding to be gained from the preclinical EMS experience;
- Environmental protection is covered in the Principles of Animal Management (1<sup>st</sup> year) and Integrated Animal Management (4<sup>th</sup> year) courses and in the Veterinary Public Health course (4<sup>th</sup> year), and as part of other courses where toxicology and pharmacology are considered;
- Rural economics is not taught as separate lectures but is integrated into teaching in farm animal species. It is introduced in the Year 1 Principles of Animal Management course and then dealt with in many courses dealing with farm animal issues where experiences in preclinical EMS are discussed. Rural economics is further considered in the 6<sup>th</sup> year Farm Animal rotation;
- Obstetrics and reproductive disorders are taught as a single course (5<sup>th</sup> year), preceded by courses in Veterinary Reproductive Biology (2<sup>nd</sup> year), Animal Breeding (4<sup>th</sup> year) and Pathology of the Reproductive System (5<sup>th</sup> year);
- Therapeutics is integrated into all relevant teaching, so appears in systems courses, discipline courses and species courses, following the Mechanisms of Drug Action (2<sup>nd</sup> year) and Principles of Clinical Pharmacology (4<sup>th</sup> year) courses;
- Veterinary legislation is mainly covered in the parts of the course where it applies and can be discussed in context; three other sessions are delivered by the RCVS Registrar during the 4<sup>th</sup> and 5<sup>th</sup> years;
- Veterinary certification is mainly covered in the Integrated Animal Management course (equine certification), the Veterinary Public Health course and in final year rotations.
- Toxicology is considered within a number of courses including species and systems with additional seminars in 5<sup>th</sup> year; aspects of toxicology are also considered in the Mechanisms of Drug Action course (2<sup>nd</sup> year).

**Table 4.e. Curriculum hours in EU-listed subjects offered and to be taken as electives**

| <b>Elective Topic</b>                        | <b>Hours in course</b> |                       |                        |                      |              |              |
|--|------------------------|-----------------------|------------------------|----------------------|--------------|--------------|
|  | <b>Seminars</b>        | <b>Practical work</b> | <b>Supervised work</b> | <b>Clinical work</b> | <b>Other</b> | <b>Total</b> |
| Anaesthesia                                  | 4                      |                       | 120                    | 196                  |              | 320          |
| Small animal medicine / oncology / neurology | 10                     | 90                    | 120                    | 100                  |              | 320          |
| Small animal orthopaedics                    | 2                      | 5                     | 120                    | 193                  |              | 320          |

|                                 |    |     |     |     |    |     |
|---------------------------------|----|-----|-----|-----|----|-----|
| Soft tissue surgery             | 9  | 12  | 120 | 179 |    | 320 |
| Diagnostic pathology            |    | 200 | 120 |     |    | 320 |
| Clinical pathology              |    | 200 | 120 |     |    | 320 |
| Farm animal population medicine | 30 | 25  | 160 | 75  | 30 | 320 |
| Equine studies                  | 20 |     | 120 | 180 |    | 320 |
| Ophthalmology                   |    | 50  | 120 | 150 |    | 320 |
| Exotic Animals                  | 12 | 188 | 120 |     |    | 320 |
| Individual electives*           |    |     |     |     |    |     |

\* Individual electives vary but will include the elements above but normally without lectures, although some students join the seminars from other electives. This category will include those students undertaking a research-based elective.

Details of student-selected studies such as the Part II (3<sup>rd</sup> year) and final year elective are given below. A summary of curriculum hours for the final year elective is given in Table 4.f.

**Table 4.f Curriculum hours in other subjects taken by every student**

| Subject            | Hours in course |                |                 |               |       |       |
|--------------------|-----------------|----------------|-----------------|---------------|-------|-------|
|                    | Lectures        | Practical work | Supervised work | Clinical work | Other | Total |
| 6th Year electives |                 |                | 320             |               |       | 320   |

### **Elective subjects**

- 4.12 Year 3 (or Tripos Part II) is effectively an intercalated degree year. Students can elect to study a single subject chosen from the Natural Sciences, or from another Tripos. There are many subjects available and a “Part II Fair” is held in Lent Term of 2<sup>nd</sup> year to advertise the range of courses available. Students are then asked to list their top three preferences in ranked order. Normally, the student is accepted on their first or second choice.
- 4.13 Alternatively, students may opt to take Part II Biological and Biomedical Sciences. This involves selecting major and minor subjects from a prescribed list, and also producing a dissertation. In both cases, successful completion of the relevant examinations results in the award of the BA (Hons.) degree.

- 4.14 During Year 6, eight weeks are devoted to an elective study. This enables students to study a subject of their choice in greater depth than is possible during the core course. A variety of subjects is offered by members of staff within the Department (see list below) but students are also free to arrange their own programme of elective study, provided that it is approved by the Director of Teaching.
- 4.15 The format of individual electives varies, and usually includes a mixture of formal tuition/seminars, practical clinical work, private study and project work. All electives require a written dissertation of 3,000 words, which is assessed together with a 15-minute oral presentation of the elective topic. A certificate of diligent attendance is also required from the elective supervisor. EAEVE indicators of types of training are given at Annex 1: Main indicators of the European System of Evaluation of Veterinary Training<sup>1</sup>.

### Comments

- 4.16. The strategy of integration of course material into more substantial components and the use of themes running throughout the course has been started but is not yet fully implemented.
- 4.17. The document “Landscape from a student perspective”, an initiative funded by the Faculty of Biology to produce a student-generated document, was widely known and appreciated as an important reference regarding the content and timing of educational offerings in the pre-clinical course for both staff and students.
- 4.18. Decisions on curriculum development and change are taken at Department level, but need higher-level approval. Veterinary leadership in this process was demonstrated.
- 4.19. Revisions and updates of teaching material are regularly conducted, resulting in the current course content. Robust mechanisms are in place to collect staff and student feedback on specific components of the curriculum using formal and informal communication.
- 4.20. Learning material is made available largely online. The development of course handouts similar to the ones used in the 1<sup>st</sup> and 2<sup>nd</sup> year is being considered after student requests. There is a risk that this will not encourage the development of independent learning skills.
- 4.21. Alternatives to didactic teaching formats are starting to be developed. The online learning platform is currently mainly used as a repository for documents, including some audiovisual material. The migration to an alternative learning platform (Moodle) is imminent.

### Recommendations

- 4.22. Building on the document “Landscape from a student perspective”, a complete mapping of curriculum components against learning outcomes and RCVS Day-1 competences must be undertaken to document coverage, avoid gaps and to allow for a strategic approach to the further development of the course.

### Suggestions

- 4.23. Curriculum development should be continued to further integrate course components into a coherent structure that reflects the strategic vision of the Veterinary Education Committee and

the Teaching Strategy Committee. The necessary resources, e.g. for curriculum administration, should receive priority to assure successful completion of the implementation of all changes.

- 4.24. A strategy should be developed for the implementation of online tools and materials including their role in the curriculum. This should take into account staff development needs, staff time and financial resources.
- 4.25. Input from the profession and relevant stakeholders should be invited and considered in the regular review and updating of the curriculum. A mechanism should be established to assure such input at regular intervals.

## Curriculum – basic subjects and 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, Physiology, Biochemistry, Genetics, Pharmacology & Pharmacy, Toxicology (including environmental pollution), Microbiology (including virology, bacteriology and mycology), Immunology, Epidemiology (including scientific and technical information and documentation methods), Professional ethics.

## Findings

- 4.26 Formal instruction in the subjects in Years 1-3 is supported by supervisions organised by a Director of Studies at each student's college. The supervision system comprises small group teaching given weekly during term time in each main subject that the student is currently studying; these sessions require students to discuss and think about course material and to write essays, which permits them to reflect on and to synthesise information from the formal courses.
- 4.27 Study skills and IT skills develop through lectures and practicals, and also through the College supervision system, in which the students are encouraged to develop their own study methods, and through the use of the web for accessing libraries and other sources of information. Communication and verbal skills are also acquired through College supervisions. They are further developed in small group teaching in 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year courses. Many of these courses now have requirements for students to make presentations to their peers on subjects in which they have been engaged, in problem-based learning (PBL) sessions, journal sessions, research projects, etc.
- 4.28 Team working skills are developed in PBL sessions in 1<sup>st</sup> and 2<sup>nd</sup> year, in dissection groups in anatomy and in other small group teaching sessions (including College supervisions).

- 4.29 The curriculum also includes themes intended to be vertically-integrated across the pre-clinical and clinical years, for example animal management, reproduction, breeding and infertility, professionalism, communication and consultation skills.
- 4.30 In the first two preclinical years, theoretical training is delivered through a lecture-practical format. In some subject areas, veterinary students are taught alongside medical students and/or students undertaking the Natural Sciences Tripos (NST). This reflects the cross-species and interdisciplinary nature of much basic (mammalian) biological science. In all those courses, however, there are specific elements that are veterinary-related and undertaken only by the veterinary students. This Tripos system establishes solid foundations in veterinary-related sciences and encourages the concept of One Health.
- 4.31 See table 4.b. for the number of hours given to the teaching of basic sciences.

### Comments

- 4.32. The course content includes both veterinary-specific components and components taught to both veterinary and medical students. In the latter, some effort is made to balance contents to demonstrate relevance to veterinary students. In some parts of the curriculum, the veterinary students are taught separately as a cohort to allow for more veterinary content. Teaching staff with a veterinary background are involved to a significant degree in the delivery of this part of the course. At times, some medical students show a lack of tolerance for veterinary-relevant material.
- 4.33. Veterinary students appreciate greatly their learning experience in the first part of the course, particularly the support provided in their respective colleges. They do, however, wish to focus more on their core interest in animal-related topics.
- 4.34. The quality of the teaching and the study material provided in advance for both lectures and practicals is generally very high. Lecture notes are detailed and may be seen as too directive to encourage independent learning.

### Recommendations

- 4.35. None.

### Suggestions

- 4.36. Behaviour of non-veterinary students that implies a negative value judgment of veterinary-related teaching content should be seen as non-professional conduct and should, therefore, not be tolerated. The Faculty of Biological Sciences should continue its efforts to address this issue.



## 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

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.

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” in Annex 4. 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.
- Preventative 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

- 4.37 Clinical work with live animals is conducted in all three years of the clinical course through clinical rotations (4<sup>th</sup> and 5<sup>th</sup> years) and the case-based lecture-free final year. Training in practical clinical skills commences in 4<sup>th</sup> year. Thus the practical clinical training is centred on the clinical rotations in 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> years, which all students are required to complete. The number of lectures in the 4<sup>th</sup> year is substantial.
- 4.38 From June 2014, an Emergency and Critical Care rotation has been introduced and is now co-ordinated with the anaesthesia rotation. The rotations are constructed in such a way that basic clinical training in 4<sup>th</sup> year is built on in subsequent years. Practical classes in 4<sup>th</sup> and 5<sup>th</sup> year introduce students to clinical examination, history taking in all species (communication skills), post mortem examination and biopsy taking, radiography, basic gynaecological examination, neurological examination and the eye. Practical classes also introduce clinical pathology as an integral part of case management.
- 4.39 In 6<sup>th</sup> year rotations, students take individual responsibility for case management under supervision. This involves making diagnostic and treatment plans, involvement in carrying out treatment, and communication with the owner, referring veterinary surgeon and clinician responsible for the case. The graduated, closely supervised approach builds confidence and introduces responsibility closely matched to student ability. In the 6<sup>th</sup> year there is a considerable inbuilt element of continuous assessment in the rotations. Up to June 2014 group sizes in the rotations were usually 6 or 7 although some activities took place in groups of different sizes. Since June 2014, group sizes on the small animal rotations have been 3-4 whereas group sizes on the equine and farm animal rotations remain at 6-7.
- 4.40 In addition to the clinical rotations there are clinical practical classes in bovine reproduction, including rectal pregnancy diagnosis. Classes in bovine rectal examination (4<sup>th</sup> year onwards) are compulsory and are optional for equine rectal examination (5<sup>th</sup> year onwards). All students are starting to receive training on a haptic cow/horse in the Clinical Skills Centre before conducting rectal examinations of the live animal.
- 4.41 Students are also involved in the out-of-hours emergency activities of the QVSH through a specific rotation. Every student during their final year spends a minimum of 14 days as part of a group of 3-4 students providing night and weekend 24-hour nursing cover in the QVSH.
- 4.42 Students are fully involved in the work of the farm animal and equine ambulatory (first opinion) clinics as part of the farm animal and equine rotations.
- 4.43 Students in 6<sup>th</sup> year participate in first opinion small animal clinics at the Cambridge RSPCA clinic, which provides access to, and practical training in, routine procedures such as neutering and dentistry. Weekly visits to the Blue Cross centre in Cambridge are also included and provide small animal population experience.
- 4.44 See table 4.b. for the number of hours given to the teaching of clinical sciences.

## Comments

- 4.45. Adequate information is provided to students about health-and-safety issues when working with animals on clinics and rotations.
- 4.46. The introduction of the 40-week clinical rotations is a major achievement and both staff and students are enthusiastic about the new learning opportunities created. Students have access to a new building to provide them with space for resting and learning during rotations. This space is self-managed by the students.
- 4.47. Significant progress has been made to expand the client base for farm animal teaching. The farm animal rotation provides a complementary element to the teaching in veterinary public health. Access to commercial poultry farms is difficult due to the biosecurity requirements within the industry.
- 4.48. Adoption of new teaching methods such as CAL have been relatively slow but are planned to be used more widely.
- 4.49. The Clinical Skills Centre and its staff provide an exciting new learning resource.
- 4.50. Sign-off of successfully completed rotations needs to be assured at the time of observation to avoid unnecessary repetition of procedure assessment. Sufficient time is required at the end of the rotations to allow re-takes of the final component if required. More flexibility to allow exceptional, justified absences of students from rotations should be considered.

## Commendations

- 4.51 The recent implementation of the new 40-week final year appears to have been very successful and staff are commended for management and implementation of this significant change.

## Recommendations

- 4.52. None.

## Suggestions

- 4.53. After completion of the first year of final year rotations, feedback from both staff and students should be used to make adjustments where required.
- 4.54. The population-focused interpretation of clinical data (i.e. clinical epidemiology) should be integrated into the clinical rotations.
- 4.55. The Clinical Skills Centre should be systematically integrated as a learning resource and used throughout the course where appropriate.
- 4.56. Training on the didactic value and technical implementation of CAL should be offered to all teaching staff.

## 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 behavior 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, preventative 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 familiarize 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 (animal 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 organization 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

- 4.57. The teaching of animal production is delivered in the Principles of Animal Management (PAM) course in 1<sup>st</sup> year and is being integrated in the Integrated Animal Management (IAM) course in 4<sup>th</sup> year, together with further teaching in species courses in 4<sup>th</sup> and 5<sup>th</sup> year.
- 4.58 Agronomy: grassland management is introduced in the PAM course (1 lecture, 1 practical) and continued in the 4<sup>th</sup> year Integrated Animal Management course. This teaching is developed further in the farm animal and equine 6<sup>th</sup> year rotations.
- 4.59 Animal husbandry (including livestock production systems): an integrated PAM course is now part of the 1<sup>st</sup> year course (28 lectures, 8 animal handling practicals, 5 computer-assisted learning (CAL) units). The theoretical instruction is complemented by visits to the College of West Anglia for practical instruction in animal handling. These subjects are taken up again in the Integrated Animal Management course in 4<sup>th</sup> year and other general and species-specific teaching in the 4<sup>th</sup> and 5<sup>th</sup> year courses, when a variety of species is considered, including poultry and exotics in addition to the domestic species. Preclinical EMS is intended to consolidate students' understanding and practical skills in animal husbandry, as is their supervision of the lambing flock at the University Farm in 4<sup>th</sup> year.
- 4.60 Animal nutrition and feeding: an introductory course in nutrition is part of the PAM course (4 lectures, college supervisions, 1 practical and a series of CAL programmes on nutrition). Further nutrition teaching is given in the 4<sup>th</sup> year (16 lectures). From 2014-15, this has been incorporated into an Integrated Animal Management course.
- 4.61 Animal behaviour: the PAM (1<sup>st</sup> year) course introduces evolutionary development of behavioural patterns and the expressions of behaviour by a range of domesticated species. The scientific/neurobiological basis of behaviour is delivered as part of the 2<sup>nd</sup> year course Neurobiology and Animal Behaviour, and includes information on behavioural disorders and therapeutics – linking with teaching on the MODA course (2<sup>nd</sup> year) and forming foundations for clinical teaching in 4<sup>th</sup> year.
- 4.62 Animal protection and welfare: animal welfare is central to all our veterinary teaching and is considered part of almost every course. Specific teaching includes lectures in the 1<sup>st</sup> year PAM course, and in the 4<sup>th</sup> year Integrated Animal Management course (9 lectures, and 3 seminars).
- 4.63 Environmental protection: teaching covering environmental protection is given in parts of lectures in the 1<sup>st</sup> year PAM course, and where appropriate in the Integrated Animal Management and Veterinary Public Health (VPH) courses in the 4<sup>th</sup> year. Legal aspects are also covered in the Veterinary Public Health course.
- 4.64 Preventive veterinary medicine (including health monitoring programmes): preventive medicine is taught as part of the species-specific medicine courses (2 specific cattle lectures, 1 specific sheep lecture, and parts of numerous others), farm animal rotations, the evidence-based

medicine course, and in the 6<sup>th</sup> Year rotations (5 hours of seminar teaching, various online materials on CamTools, on-farm herd health investigations and reporting).

- 4.65 Reproduction (including artificial breeding methods): reproduction is introduced in the 1<sup>st</sup> year PAM course and in the 2<sup>nd</sup> year VRB course (24 lectures, 16 hours of practicals). Clinical teaching continues in the 4<sup>th</sup> year (Animal Breeding course: 19 lectures and 8 practicals, including rectalling classes) and 5<sup>th</sup> year in the Infertility and Obstetrics course (21 lectures; rotations, including rectalling classes), and forms a substantial part of the equine and farm animal final year rotations with 9 seminars and clinical work.
- 4.66 Rural economics: agricultural economics is covered in two lectures given in the PAM course. Economic considerations are also introduced into the IAM course and the farm animal final year rotation.

### Comments

- 4.67. Access to live animals in the early years of the course is provided in collaboration with the College of West Anglia, Merton Hall Farm within the Department of Veterinary Medicine, and the University Farm, Park Farm, located in Madingley. All important farm animal and pet species are covered.
- 4.68. There are no systematically collated course notes but individual lecturers provide material and literature recommendations as needed. An overview of this part of the curriculum is provided to the students in a specific document.

### Recommendations

- 4.69. Sufficient learning progress in animal handling must be assured before students commence animal husbandry EMS (see also recommendation in Chapter 5 – Teaching, quality and evaluation).

### Suggestions

- 4.70. Integration of animal husbandry subjects into a single course component, i.e. Integrated Animal Management (IAM, 4<sup>th</sup> year) should be continued. The term IAM does not currently feature in many relevant documents which gives the impression that integration may be either under-used and/or ill-understood.
- 4.71. Teaching of animal health economics should be expanded to cover components relevant to clinical decision making and herd health management.

## Curriculum – food hygiene and technology and veterinary 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.
- to 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 principals 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



- 4.72. The Veterinary Public Health (VPH) course at the Department of Veterinary Medicine, University of Cambridge aims to provide a functional understanding of the ways in which veterinary skills, knowledge, and resources contribute to the protection and improvement of human health. Emphasis is also placed on bringing together the teaching from other relevant disciplines including animal health and husbandry, medicine, pathology, microbiology, parasitology, and epidemiology. VPH teaching is therefore integrated within many other subjects leading to achievement of the required RCVS Day One Competences. The Final VetMB Part III Examinations include a specific section on VPH that must be passed for the student to be allowed to graduate.
- 4.73 Within the overall curriculum, identifiable VPH teaching starts in a year one with further teaching in year 2 with the core course delivered in 4<sup>th</sup> year. The core teaching includes a compulsory 1-day visit to red and white meat abattoirs, a cutting plant and a meat preparation and meat product premises during the Lent term followed by a 1-week compulsory red meat abattoir placement at the end of Easter term. Further smaller group seminars with interactive teaching are carried out during the 5<sup>th</sup> and 6<sup>th</sup> year and include further meat inspection/hygiene practicals.
- 4.74 The VPH course is taught mainly by two University full-time staff, supported by a number of visiting lecturers from the UK Central Competent Authorities and an Associate Lecturer. During the visits to external plants (above), Official Veterinarians and Meat Hygiene Inspectors also provide local teaching support. Full-time VPH lecturers at Langford, Bristol, carry out the compulsory 1-week abattoir training.
- 4.75 Cambridge students, in small groups (up to 5 students), spend a 1-week compulsory placement at Langford premises. This arrangement was developed in 2011 following difficulties encountered by students in obtaining abattoir and resulted in a change in practical teaching of abattoir practice.
- 4.76 Langford abattoir is approved to slaughter all red meat species (cattle/sheep/pigs/ sometimes goats). During the week's placement the students are actively involved in relevant theoretical and practical veterinary tasks. This includes ante/post mortem inspection tasks, auditing, Animal-by-Products (ABP) (identification, separation, categorisation, staining), health marking, slaughter processing hygiene and structure assessments. Uniquely, each student is given an opportunity to use the captive bolt pistol on bovine heads detached (or exceptionally on pig heads). Some groups may also be involved/observe making meat preparations, e.g.: sausage making.
- 4.77 The Department has also strong links with local abattoirs in East Anglia, to mutual benefit. For example the Department undertakes ad hoc provision of investigative pathology and advice in response to abattoir requests, and this has raised our standing and value to them. In return, we receive teaching access, fresh teaching and research material and material for case studies (hygiene, meat quality, pathology, welfare issues).
- 4.78 EAEVE indicators relating to food hygiene/public health are given in Annex 1: Main indicators of the European System of Evaluation of Veterinary Training<sup>1</sup>. Due to the commercial realities in the recent years there have been some difficulties in finding local abattoirs and food processing facilities that are willing to take relatively large numbers of students on visits. Nevertheless, arrangements have been made for 4<sup>th</sup> year students to visit the following approved food premises during their core VPH teaching, starting 2014-15:



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- C&K Meats, Eye (70 miles): approved red meat slaughterhouse, cutting plant, meat preparation and meat product premises.
- 2 Sisters, Flixton (90 miles): approved poultry slaughterhouse and cutting plant.

Arrangements have also been made to conduct small group “Integrated farm to fork” teaching, planned for 2015/16 for 6<sup>th</sup> year students. The following place is willing to take students and provides such an opportunity:

- C Humphreys & Sons, Chelmsford (50 miles): a family-owned farm, red meat abattoir (cattle/sheep/pigs), cutting plant with a retail unit selling all Products of Animal Origin (POAO) e.g. cheese, honey etc. The butcher shop also makes meat preparations and meat products. The abattoir has become a regular pathology specimen supplier.

A summary of the VPH teaching for each student (in hours) is given in the following table.

| <b>Year of study</b>   | <b>Lectures</b>   | <b>Supervised / self-directed work</b>  | <b>Practicals</b>  |
|--|---|---|--|
| 1 <sup>st</sup> year   | 1 (in PAM course)   | 0   | 0  |
| 2 <sup>nd</sup> year   | 5 (PfVP course):<br>3 from Dept. staff<br>2 from external (APHA) lecturers    | Supervised (PfVP course)<br><b>2 hr</b> – “Meet the client session”<br>e.g. either slaughterhouse operator, policy or some other VPHA clients | 3 (PfVP course)<br>Post mortem room  |
| 3 <sup>rd</sup> year   | 0   | 0   | 0  |
| 4 <sup>th</sup> year   | 35:<br>Majority delivered by Dept. staff. Some provided by external lecturers | Supervised – 4 group discussions at Langford placement<br>Self-directed – 5   | 30<br>3x7 – Langford<br>1x3 – Cambridge<br>1x6 – Commercial plant (red& white) |
| 5 <sup>th</sup> year   | 0   | Supervised – 4<br>Small group rotation<br>Self-directed – 10  | 2  |
| 6 <sup>th</sup> year   | 0   | 0   | <b>2</b> (interactive practical seminar )                                      |
| <b>TOTALS</b>  | <b>41</b>   | <b>25 – SUPERVISED</b> (seminars) and <b>SELF DIRECTED</b> (preparing essays/ post mortem reports)  | <b>37 – PRACTICALS</b>   |
| <b>TOTAL VPH (TITLED) TEACHING HOURS = 103</b><br>Excludes other aspects of relevant VPH teaching carried out during specific farm/companion animal lectures and rotations (not titled as VPH), e.g. on zoonoses (food producing/small animal), epidemiology, pathology, microbiology etc. |   |   |  |

## Comments

- 4.79. The progress made in the design and delivery of this part of the course is substantial. The curriculum addresses the relevant species and aspects satisfactorily.
- 4.80. Appropriate use is being made of external experts and lecturers to cover specialist areas.
- 4.81. A series of key partnerships have been developed to provide teaching of food safety and processing across species and in settings supportive to student learning.
- 4.82. Meat inspection training is provided in collaboration with Langford Abattoir and Bristol University. This provides complete and high-quality education to the students who are very enthusiastic about this part of the course.
- 4.83. The recruitment of additional staff has complemented the competencies of the team in the area of food safety and veterinary public health. The enthusiasm of the teaching team for the topic was noted.
- 4.84. The on-line course notes provided are complete and of high quality.

## Recommendations

- 4.85. None.

## Suggestions

- 4.86. Planned developments to provide teaching of food processing in a farm-to-fork context should be implemented.

## Curriculum – professional knowledge

**Professional knowledge subjects must include:**

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

### Findings

- 4.87. Although the first part of the course at Cambridge has a strong scientific emphasis, in the first two years it is considered important that students understand that they are preparing for a vocational career.
- 4.88 A course for veterinary students called Preparing for the Veterinary Profession is an integral part of the pre-clinical curriculum. This course is delivered in the 2<sup>nd</sup> year (MVST Part IB) but strands such as communication skills and professional ethics run through to the 4<sup>th</sup> and 5<sup>th</sup> year to provide continuity between preclinical and clinical years. The course aims to enable veterinary students to understand the wider role of the veterinary profession in society, to have an introduction to the alternatives to veterinary practice as a career and to discuss the ethical, professional and social responsibilities of the profession. Active discussion and debate are encouraged and the course covers such areas as: veterinary history; alternatives to practice (research, Government agencies and the pharmaceutical industries); veterinary ethics, regulation and compensation; the human-animal bond (building on consideration of animal ethics and welfare that have been introduced in the Principles of Animal Management course in 1<sup>st</sup> year (MVST Part IA)); public health, food safety, zoonoses and government agencies, and communication and management skills. Professional ethics are further considered at the end of 5<sup>th</sup> year in seminars provided by RCVS, as students begin to prepare for their lecture-free final year.
- 4.89 On entry to the clinical course students are given advice about their professional responsibilities in a two-day induction programme. Professional knowledge is then an integral part of the course: it is a particular feature of EMS preparation, of the course introducing 5<sup>th</sup> year students to the lecture-free final year, and of student experience in working in the clinics of the QVSH.
- 4.90 Gaining insight into practice management is a stated objective of EMS. It is addressed during specific Practice Management Seminars' in 5<sup>th</sup> year and when students visit the RSPCA clinic during their rotations. Students are encouraged to attend the SPVS conference for final year veterinary students on practice issues.
- 4.91 As with many other topics, veterinary certification and report writing are integrated into the rest of the curriculum. For example, equine passports and certification of horses for soundness is dealt with in the equine courses, and food certification in the Food Hygiene course. Report writing permeates the whole of the clinical course from post-mortem reports in the 4<sup>th</sup> year to written discharge instructions for owners and letters to practitioners regarding referred cases in the 6<sup>th</sup> year. These reports are monitored by academic staff, and advice and tuition is given individually.

- 4.92 Veterinary legislation is generally taught as part of the subject to which it applies, as legislation means little to veterinary students unless presented in context. It features largely in the VPH course and also in Clinical Pharmacology teaching.

### Comments

- 4.93. The component “Preparation for Veterinary Practice” is an existing course and is at present implemented in the second year.
- 4.94. Veterinary legislation and state veterinary medicine is taught using an integrated approach to demonstrate relevance for clinical work. Oversight of the different components rests with the VPH teaching team.

### Recommendations

- 4.95. Assessment methods and formats that align with the skills taught in this part of the course must be assured as part of the over-all assessment strategy (see also Chapter 5 – Teaching, quality and evaluation).

### Suggestions

- 4.96. This part of the course should also cover financial, legal and basic managerial aspects of practice management.
- 4.97. The development and implementation of the component “Preparation for Veterinary Practice” should be continued in the clinical part of the course and include additional components. Content from the early years of the course may need to be reinforced.

## 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 analyzing scientific and technical data.**

**Practical training must serve to familiarize 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

- 5.1. The preclinical course occupies the first three years. Years 1 and 2 (Parts IA and IB) largely comprise core teaching while Year 3 (Part II) is the equivalent of an intercalated degree year and is taken by all veterinary students except those with a previous degree in a biological science (affiliated students).
- 5.2. The coordination of the activities of the individual Departments involved in the first three years of the course is the responsibility of the Director of Education in the School of Biological Sciences. Within the Faculty of Biology, each Department has a Teaching Committee (normally chaired by that Department's Deputy Head of Department for Teaching, or equivalent) whose membership includes staff involved in the day-to-day running of the course. Departmental committees report to the MVST I Committee that exercises, through its inter-departmental course panels, a management function in reviewing the curriculum and assessment for the entire course
- 5.3. There is a strong commitment to providing veterinary students with a firm basis of scientific knowledge for their future clinical studies.
- 5.4. In Years 1-3 (MVST / Second VetMB in years 1 & 2, and usually a Natural Sciences Tripos Part II subject in year 3), a variety of teaching methods are employed, including conventional lecture and practical formats, computer packages, elements of problem-based learning, and small group teaching (typically a seminar followed by a reporting session). Year 3 places particular emphasis on self-directed learning through research projects and/or dissertations.
- 5.5. Throughout the first two years, the College supervision arrangement operates as a small group teaching system, which is highly effective in reinforcing and complementing the formal lecture and practical teaching provided by the Departments. Students learn to participate in supervisions and to develop their verbal skills (through discussion), written skills (by writing essays) and analytical skills (calculations, data handling and interpretation) relevant to practical-based work.
- 5.7. During the course of the 3<sup>rd</sup> year, students carry out either a laboratory-based research project or a research dissertation, both of which require them to develop practical skills, organisational skills, and independent study skills, together with skills such as journal review, data analysis and presentation.

- 5.9 The PAM and PfVP in Years 1 and 2 are the beginning of the vocational teaching and learning in the curriculum. PfVP addresses specific vocational issues for veterinary students, including communication in a veterinary professional context. Communication skills training continues in the clinical course in rotations in Years 4, 5 and 6. The small group College supervision system that is dominant in Years 1 and 2 requires students to develop the skills of oral and written communication under close supervision.

### Comments

- 5.10 Students value highly the college system of supervision and the integrated support, frequently citing this as a specific reason for choosing to study at Cambridge.

### Recommendations

- 5.11. None.

### Suggestions

- 5.12 The balance of veterinary to medical content should be kept under review and further veterinary relevance developed where possible, particularly in pharmacology.

## 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

- 5.13 In the clinical course students learn through a range of activities including lectures, practical laboratory work, assignments, practical and clinical work in rotations, small-group teaching, seminars, experiential learning, electives and EMS, supplemented by self-learning and CAL.
- 5.14 Lectures are extensively illustrated and supported by handouts indicating aims and objectives, core material and material for further study. PowerPoint presentation is now the accepted way of delivering formal lectures, with illustrative material forming an integral part of the presentation. There is a Departmental policy of making all didactic and illustrative material available to students on CamTools (this will move to Moodle in summer 2015) for further study and revision.
- 5.15 Laboratory practicals have a variety of formats including demonstrations, problem solving exercises and report writing, and involve both paraclinical and clinical teaching staff where appropriate.
- 5.16 Communication skills are taught in a specific veterinary context in the clinical course where presentations to peer groups of varying size is common, and communication with owners and other veterinary professionals is an integral part of the final year clinical work which builds on the experience gained at the local RSPCA clinic in the 4<sup>th</sup> and 5<sup>th</sup> year.
- 5.17 The 4<sup>th</sup> year rotations provide a wide variety of learning experiences: observation of veterinary practice, animal handling, basic clinical examination, communication skills, laboratory animal medicine, radiography and necropsy work, and work at the local RSPCA clinic. Fourth year students are responsible for lambing the University's flock.

- 5.18 In the 5<sup>th</sup> year, experience is expanded to include further work at the RSPCA clinic, practical gynaecology and obstetrics, clinical pathology and laboratory animal work. There are classes on clinical examination, cattle foot-care, rectal examination, pregnancy diagnosis of cattle and horses, neurology, equine surgery, radiography, and further communication skills. Lectures and seminars on practice management and business skills are delivered to 5<sup>th</sup> year students by an external partner.
- 5.19 The 6<sup>th</sup> year rotations involve practical clinical work in a number of disciplines in the QVSH and in the equine and farm animal first opinion practice with students taking personal responsibility for individual cases. These rotations provide an opportunity for students to discuss issues with members of staff in small groups and individually. Continuous assessment of students occurs during all final year rotations. Marks generated during continuous assessment contribute to the marks for the Final Vet MB examination Part III. Any student failing continuous assessment of a rotation is required to retake and pass the rotation assessment before proceeding to the Final Vet MB examination Part III.
- 5.20 EMS exposes students to the practical, ethical, financial, managerial and inter-personal aspects of professional practice. Students, in consultation with their VSCS, are encouraged to study in a variety of practices, and to spend up to six weeks in EMS placements of their choosing (e.g. Animal and Plant Health Agency, pharmaceutical companies), in addition to clinical practice. There are stipulated durations of EMS placements to ensure appropriate levels of EMS experience in particular animal species. These stipulations are indicated in the Guide to Extra-Mural Studies provided to all students in hard copy and also available online through the Current Student Information pages on the Department's intranet site. Many students spend time abroad, or in research or other specialist institutions. In all these environments, teaching is by extra-mural teachers engaged in their usual professional activities.

### Comments

- 5.21. The new 40 week final year provides enhanced small group clinical teaching which is valued by staff and students.
- 5.22 Whilst the provision of clinical teaching appears adequate currently, the Visitors have concerns about future sustainability given the lack of career structure for clinically focused teaching staff. These staff appear to be essential for the delivery of much of the clinical teaching.
- 5.23 The quality of teaching in some areas is being affected by a lack of clinical equipment commensurate with provision of a basic level of veterinary care, e.g. portable x-ray equipment in the equine practice.
- 5.24 The opportunity for 4<sup>th</sup> year students to take responsibility for lambing the University's flock provides a valuable practical learning experience

### Commendations

- 5.25 Department staff are to be commended for the management and implementation of the new 40-week final year, which represents a significant change.



## Recommendations

5.26 None.

## Suggestions

5.27. The Department should continue its efforts to explore with central HR less traditional routes for promotion and career advancement for clinically focused staff.

## 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

- 5.28. The teaching of animal production is delivered in the Principles of Animal Management (PAM) course in 1<sup>st</sup> year and the Integrated Animal Management (IAM) course in 4<sup>th</sup> year, together with further teaching in species courses in 4<sup>th</sup> and 5<sup>th</sup> year. The 6<sup>th</sup> year rotations involve practical clinical work in a number of disciplines, including the equine and farm animal first opinion practices; students take personal responsibility for individual cases. See also information provided in the relevant section of Chapter 4, Curriculum.

### Comments

- 5.29. The opportunity for hands on practical experience in year one is valued by the students
- 5.30. Embedding the proposed future 'vertical' professional and clinical skills course across the entire curriculum would be desirable.

### Recommendations

- 5.31. The department must ensure that structured animal handling opportunities are available across all years of the curriculum (see also recommendation in Chapter 4 – Curriculum).

### Suggestions

- 5.32. None.

## The teaching of food hygiene/public health

Practical training must familiarise students with the concepts of Food Business audit especially with regards to food animal origin at various stages in the food chain, particularly in slaughterhouses. Students should develop Day One 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, distributing 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

5.33. A short description of the delivery of VPH teaching is as follows:

**Year 1** (delivered and counted in PAM): Introductory lecture on VPH (national and global players) including zoonoses and Health and Safety.

**Year 2** (delivered and counted in PfVP):

- **Lectures:** Further lectures on VPH, food hygiene, State Veterinary Medicine, relevant Competent Authorities including Veterinary Agencies, surveillance. International control
- **Practical:** ½ day practical in the post-mortem room, introducing abattoir pathology (wet specimens), group work and problem solving.
- **Supervised:** “meet the clients” seminar, e.g.: slaughterhouse worker, policy maker.

**Year 4** (core VPH course of 35 Lectures):

- **Lectures:** Non-comprehensive list of the examples are: human-animal- environment interactions, global, national and international VPH players, all type of zoonoses, e.g.: occupational, food borne, small, large animal etc., veterinary legislation on public health (including food safety), animal health and welfare (farm, transport, slaughter), notifiable diseases, emerging diseases, surveillance, residues, certification, slaughterhouse / food production hygiene, food technology, spoilage, OV Tasks (Inspection & Auditing), Other Products of Animal Origin (OPOAO) e.g.: eggs, cheese, honey, fish, etc.
- **Supervised/self-directed work:** Seminar discussions and reports writing as part of the Langford Abattoir Practical Course
- Practical teaching:
  - o **In-abattoir practical teaching: large group** introductory 1 day (red & white meat slaughterhouse, cutting plant, meat preparation and meat product premises) during VPH core course followed by:
  - o **In-abattoir practical teaching; small group** 1 week arranged with Bristol Veterinary School Langford Abattoir. Alternatively, in special circumstances 3 weeks practice with a veterinarian who provides OV duties and regularly attends an abattoir will be accepted with adequate documentation. Students are required to

produce written reports (3,000 words) on this practical experience (an essay and a report pathology specimen). See below for further details.

- o **Post mortem room:** Meat hygiene and inspection practical: ½ day, group-based exposure to abattoir pathology (wet specimens), inspection, problem solving and presentation

**Year 5**

- **Supervised/Self-directed learning:** preparation of material for VPH rotation (problem based learning and group presentation). Includes complex VPH scenarios to work individually (and in groups) in Michaelmas Term and individual work on a specific complex issue in Lent and Easter Terms. Students are assessed on written and verbal skills.
- **Practical teaching:** Abattoir pathology (wet specimens) in the post mortem room, meat hygiene and inspection.

**Year 6**

- **Supervised:** Problem-based real-life interactive seminars delivered as part of Farm Animal Studies rotations. Focusing on problem solving, judgements, decision-making and the impact and justifications for animal, public health and welfare. Communication skills.

**Comments**

- 5.34. Significant positive developments have been made in this area since the last visitation (see also comments in Chapter 4).

**Recommendations**

- 5.35. None.

**Suggestions**

- 5.36. None.

## Essential competence 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

- 5.37. Overall, the curriculum is designed to meet the RCVS Day One Competences, the EAEVE requirements and the QAA Subject Benchmark for Veterinary Science.
- 5.38. Each component course of the curriculum, including preclinical courses run by different Departments and those run by the Department of Veterinary Medicine have learning objectives specific to each course. All Departments have a strong commitment to delivering scientific education in biomedical and veterinary sciences at the highest level, together with equipping students with the generic, transferable, practical and professional skills required of modern veterinary graduates. The overarching learning objectives and educational aims of the VetMB course are detailed in SER 2, Chapter 1. The learning outcomes of the course are designed to address the Day One Competences specified by the RCVS and Appendix 8 of the SER 2 provides a map of pre-clinical and clinical training to the revised version of the Competences produced in 2014.

### Comments

- 5.39. None.

### Recommendations

- 5.40. As part of the overall review of individual courses that the Department has planned for 2015, a curriculum mapping approach is recommended to ensure an holistic oversight of curriculum content and to facilitate future planning and development.

### Suggestions

- 5.41. None.

## 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

- 5.42. The University's Professional and Personal Development unit organises a comprehensive programme of courses for academic staff on aspects of teaching, research and administration that are common to several disciplines. Teaching staff are encouraged to attend sessions provided by the University's Academic Staff Development programme, some of which are designed to meet the specific needs of newly appointed staff, whilst others aim to assist current staff to develop their full potential in teaching. They include courses in teaching, assessment and management skills, and are aimed at helping new staff to build up their expertise and teaching portfolio.
- 5.43. Each Department contributing to the MVST / Second VetMB programme, and the Department, appoints a University Staff Development Liaison Officer as a local source of information on the programmes. Within the Department of Veterinary Medicine, annual Staff Training Days have been implemented since 2010 and consider topics of particular/current interest. Further details of these are provided in SER 2, Chapter 4.
- 5.44. The University has a Senior Academic Promotions scheme. Promotion to University Senior Lecturer level requires an excellence in teaching as well as in research and general contribution. Recent changes to the promotion scheme reduced emphasis on research contribution in favour of teaching and general contribution. Supporting evidence in this scheme includes peer review, student questionnaires and examples of teaching innovation and good practice. Promotion to University Reader or University Professor also requires excellence in teaching although there is greater overall emphasis on research for progression to these offices. The promotion schemes, together with the staff development programme, constitute a substantial incentive for individuals to strive for excellence. Further details are provided in SER2, Chapter 3.
- 5.45. Teaching staff at Lecturer or Senior Lecturer level are appraised under a University programme every two years.
- 5.46. Students learn through a range of activities including lectures, practical laboratory work, assignments, practical work in rotations, small-group teaching, seminars, experiential learning, electives and EMS, supplemented by self-learning and CAL, and presentations that are posted on CamTools. Lectures are normally extensively illustrated and supported by handouts indicating aims and objectives, core material and material for further study. Laboratory practicals have a variety of formats including demonstrations, problem-solving exercises and report writing, and involve both paraclinical and clinical teaching staff where appropriate. An interactive teaching approach is encouraged.
- 5.47. Online resources are used as a support for veterinary teaching. Examples of these include:

- WikiVet, an innovative on-line encyclopaedia of veterinary subjects, modelled on the Wikipedia concept and initially based on pathology, which is available to all students. (<http://www.wikivet.net/>):
  - The online veterinary anatomy museum (OVAM; [www.onlineveterinaryanatomy.net](http://www.onlineveterinaryanatomy.net)), a collection of anatomy resources based at RVC and organised into categories according to the species, system and region covered; original high resolution images of the museum's assets and source files for audio-visual are available to partner organisations;
- 5.48. The pre-clinical course materials at Cambridge also remain available to clinical students via the student-created Landscape document, available via CamTools and Moodle.

## Comments

- 5.49. Efforts have been made to enhance the staff development opportunities relating to teaching, and staff are encouraged by senior management to attend.

## Recommendations

- 5.50. All staff involved in teaching must receive instruction in teaching that is appropriate to their teaching role.

## Suggestions

- 5.51. The peer review process should be audited more closely as part of routine QA monitoring

## 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 the 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

- 5.52. The University's overall assessment policy is determined by the Education Committee of the General Board, and local arrangements are the responsibility of the Faculty Boards. The University's policy is that the systems of assessment used should be appropriate to the subject material, should test not only factual knowledge but also understanding, should be comprehensive and transparent, and should be capable of being monitored for effectiveness.
- 5.53. During their first three years, students are exposed to a variety of assessment protocols. The first two years of the course have substantial examination components, which involve the use of multiple-choice questions (MCQs), and short-answer questions. Data-handling and interpretive questions are used for practical examinations. Workbooks and dissertations are also used in the assessment of the 2<sup>nd</sup> Vet MB qualification. These measures also determine about 50 % of a student's Tripos mark, the remainder being made up by essay-type questions, which are designed to test students' ability to integrate their knowledge and to synthesise concepts and arguments.
- 5.54. In the 3<sup>rd</sup> year, students doing a single subject Part II will generally carry out a literature project or a laboratory project which together may account for 20-30 % of their total mark, depending on the subject. Students doing the Natural Sciences Tripos (BBS) Part II are required to produce a dissertation/laboratory project report on an approved subject.
- 5.55. Assessment criteria are published on the Faculty Board of Biology website. Grade boundaries are established by the Senior Examiners (essentially the Chairs of Examination Boards for each subject), following University guidelines, using linear scaling and Hofstee methods. External Examiners validate the results of examinations throughout the first three years.
- 5.56. The Final Vet MB Part II and Part III examinations assess total knowledge acquisition and understanding at those particular stages of the course. The Final Veterinary Examination Part I consists of a series of 13 course examinations, consisting of short MCQ papers following the end of each course. They are spread throughout Years 4 and 5, and constitute the Final Vet MB Part I. The examined courses are systems- or discipline-based. Their aim is to ensure assimilation of knowledge in an on-going manner in support of the systems-based courses and practical, case-



based scenarios. The number of individual modular examinations in the final VetMB Examination Part I is currently being modified, with improved blueprinting against the curriculum and by combining small exams into a single assessment. Students must have passed all the components of the Part I examinations to allow them to sit the Part II examination.

- 5.57. The Final Vet MB Examination Part II is taken at the end of the third term of 5<sup>th</sup> year. It consists of 2 written papers, each of 2 hours duration with compulsory essay and short-answer questions, and a practical paper of 2 hours of short-answer questions based on specific specimens, histopathology slides, clinical pathology data or radiographs. The aim of this examination is to allow students to demonstrate in-depth and integrated knowledge. This is seen as a 'gateway' examination to ensure that students are ready and prepared to enter the 6<sup>th</sup> year. Students are allowed two attempts at each component of the Part II examination after which they must apply to the Faculty Board for any further attempt.
- 5.58. The Final Vet MB Examination Part III is taken at the beginning of the third term of 6<sup>th</sup> year. Continuous assessment during the 6<sup>th</sup> year rotations contributes 1/3 of the overall Part III examination mark. The 'black book', which includes several practical skills, must be completed and signed by appropriate staff before a student can sit the Part III exams. The written examination consists of 3 written examinations of 3 hours each (small animal medicine, equine medicine, farm animal medicine) and one 2 hour examination (Veterinary Public Health). Oral examinations are held in all 4 areas. Candidates must pass all four components; there is no virement of marks between the four examined subjects. A pass in the 6<sup>th</sup> year elective is a prerequisite for the award of the VetMB degree. Subsequent assessment of the elective component is by submission of a 3,000 word dissertation of research projects or 2,000 words for case-based projects (these dissertations are blind double marked; marking/grading criteria are published to staff and students), a 15 minute oral presentation (marked by two staff members, with published descriptors and marking criteria), and presentation of a certificate of diligent attendance.
- 5.59. Several assessment formats are used throughout the clinical course, including written papers, multiple choice questions, short answer questions, practical examinations, oral examinations, continuous clinical assessment (including demonstration of a wide range of practical and interpretive skills), submitted written work, and oral presentations related to 4<sup>th</sup> Year assignments and 6<sup>th</sup> Year electives.

## Comments

- 5.60. A range of assessment formats are used to assess knowledge, understanding and application of knowledge across the curriculum. Assessment of practical skills is less rigorous.
- 5.61. Many courses rely on end-weighted summative final examinations with little opportunity for formative feedback. NSS results are consistent with students receiving little feedback in some courses.

## Recommendations

- 5.62. The Department must move to a more robust assessment of practical and clinical competency both to ensure safety prior to entering the clinical course and to provide more objective measures of clinical competency as the clinical course progresses.

- 5.63. The Department must consider mechanisms to improve feedback to students not only in the final year but across the whole curriculum.

### **Suggestions**

- 5.64. With the new position of Deputy Director of Teaching (assessment) and the Senior Teaching Associate (Curriculum and Innovation), the department is encouraged to develop a programme-wide assessment strategy addressing assessment of both theoretical and practical competences (see also comments in Chapter 4 – Curriculum).

## 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

#### Pre-clinical

- 5.65. Arrangements for soliciting feedback and course review are partly Departmental and partly Institutional. Individual courses solicit feedback from the students, but there is an overall review process, which is the responsibility of bodies such as the MVST I Committee and the Veterinary Education Committee (VEC).
- 5.66. Student feedback is obtained through questionnaires and directly from student representatives on course management committees. Feedback is also obtained from students indirectly through College supervisors and Directors of Studies. Feedback is also obtained from College Directors of Studies and College Supervisors directly.
- 5.67. Lecturers and course organisers provide a self-assessment of the impact of their teaching.
- 5.68. Results of the feedback are used in the review and revision of course components. The reports are considered by the Director of Teaching, course management groups and the MVST I Committee, and used to inform the process of reviewing and refining the individual courses and the curriculum in general.

#### Clinical

- 5.69. The Student Consultative Committee meets twice each term, and its membership consists of representatives from each student year and members of teaching staff. The meeting is chaired by the Deputy Head of Department (who is currently Dean of the Veterinary School). There is a student representative for each of 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> year. A further two students, elected by their fellow students as the student representative on the Faculty Board and Veterinary Education Committee, and the President of the Cambridge University Veterinary Society, also attend. Open meetings for each year's students from the clinical course are held periodically by the Director of Teaching, who also receives comments on the course from students at any time. Students who wish to remain anonymous may use a Student Concern Policy. The Director of Teaching may take any issues raised by students to the Teaching Strategy Committee or the Teaching Staff Meeting for further discussion or implementation.
- 5.70. Student questionnaires are circulated electronically by the Academic Support Officer in order to gather information on the performance of each lecturer and the overall impact of each course. Completed questionnaires are returned at the end of each course to the Academic Support Officer, who forwards copies to the course organiser and to the Director of Teaching (who raises with the Teaching Group or Teaching Strategy Committee any generic issues requiring action). The results of the questionnaires and the action taken are transmitted to students through their representatives on the Student Consultative Committee.

- 5.71. Student reports on EMS placements are seen by the EMS Coordinator, the Director of Teaching, and VSCSs. The EMS Coordinator or Director of Teaching contacts the placement provider if necessary and may review and discuss the feedback with the individual student, to identify any remedial measures that may be required.

### Comments

- 5.72. A comprehensive system is in place to gather student feedback on teacher performance.

### Recommendations

- 5.73. Data gathered from student evaluations must be fed into a Quality Assurance process in a structured way which informs future decisions.

### Suggestions

- 5.74. None.

## 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 difficulty with their studies.**

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

## Findings

- 5.75. The University, preclinical Departments, Department of Veterinary Medicine and the Colleges offer a wide range of resources to support and guide students. This pastoral network may be accessed at different points depending on the nature of the student's requirements. All veterinary students, whether preclinical or clinical, belong to a College and have a Director of Studies and a Tutor within their College, available for academic and pastoral support respectively, plus other support such as the College Nurse. The overall responsibility for student welfare within a College lies with the Senior Tutor.
- 5.76. Several members of staff in the Veterinary School act as College Directors of Studies and/or College Tutors. All students may approach their individual College Tutor for advice on financial support, which may be available from a College's own resources or a variety of other funds. Colleges also provide and co-ordinate housing of students and, although a proportion of students live in other accommodation, the majority are housed in their College or in College-owned accommodation at least during the first three years. The Colleges provide catering services and communal kitchens, which students can use to self-cater.
- 5.77. The University and Colleges offer a wide range of opportunities for cultural and social interaction and recreation, through College and University societies, and the intermixing of students in all disciplines. Both the University and the Colleges provide sports and cultural facilities, and the diverse and vibrant extra-curricular activities of the University are organised largely through College and University societies.
- 5.78. Veterinary students are entitled to use the wide variety of specialist support services provided by the University's central authorities, such as the Accommodation Service, Occupational Health Service and Expedition Medical Support Service, Disability Resource Centre, Language Laboratory, University Information Services, University Library, Counselling Service, University Careers Service, and College Student Unions. Cambridge University Students Union and the Graduate Union offer a variety of services, and students in the clinical years are eligible for membership of the University Centre.
- 5.79. However, since clinical veterinary students work mainly within the Department during the clinical course, support here is of prime importance. The Department delivers introductory lectures to students on the subject of creating a personal support structure as a preparation for their entry to veterinary practice. While pastoral support is primarily a role of College, the Department has a nominated Pastoral Support Officer who can also act as a conduit for advice and support,

together with a student's Veterinary School Clinical Supervisor (see below). Notwithstanding all the University and College support systems, some students choose to access support via their VSCS or the Department's Pastoral Support Officer.

- 5.80. In pre-clinical years, support is based in Departments, and on the College supervision and tutorial system. This gives a high degree of close contact with individual students, and is geared to provide formative assessment of progress and to detect at an early stage those students who are having difficulties either academically or in their personal life, and to provide help and guidance for such students to overcome their difficulties. Colleges can arrange extra tuition targeted to meet the specific needs of the individual student, and have access to University support services, such as the Student Counselling Service.
- 5.81. In clinical years, each clinical student, on entry into the Department, is assigned a Veterinary School Clinical Supervisor VSCS, who is responsible for guiding and monitoring their progress. This VSCS is usually the same staff member who has provided advice and overview of the student's pre-clinical EMS. The VSCS is a MRCVS and a member of staff in the Department. Each student meets with their VSCS each term in a timetabled slot and their 'black book' is signed to confirm that the meeting has taken place.

#### **Other Available Assistance**

- 5.82. The Departmental librarian and support staff concerned with teaching often provide first-line advice and help to students on matters within their competence.
- 5.83. The Department has three active veterinary student societies, the Cambridge University Veterinary Society, the Cambridge University Veterinary Zoological Society and the Cambridge Farm Animal Veterinary Society, which provide supplementary learning experiences and social support.
- 5.84. Catering facilities are available within the Department through vending machines and a mobile catering van, near the Department at the West Café, in the University Computer Laboratory and through further catering vans, and a full range of catering facilities is also available in the adjacent Department of Physics. A new University Sports Centre on the West Cambridge site opened in 2014 and includes a further catering facility. Nevertheless, catering provision on the West Cambridge site needs to be at a price students can afford on a daily basis. Students have access to kettles, fridges and microwave ovens in their Student Resources Centre.

#### **Careers guidance**

- 5.85. Students are encouraged to attend an annual three-day seminar of the Society of Practising Veterinary Surgeons. Several students have attended the Leadership Programme at Cornell University. Advertisements for research training opportunities, junior clinical training posts in Veterinary Schools, and assistantships in practice within the UK and abroad, are circulated to students via email and are posted on the website. Many first jobs are identified through advertisements in the Veterinary Record. Students may seek specific advice, usually on an initial entry into practice, from their VSCS and advice on specialised interests and opportunities from the academic staff member most closely allied to that area. Many clinical veterinary students thus

have little need of advice from the University Careers Service, but this is available to provide information for any career path. The University Careers Service also provides advice to students on preparing their Curriculum Vitae and on interview techniques. Students will also be able to attend the joint careers fair at the Royal Veterinary College (2015).

### Comments

- 5.86. There is a detailed and multifaceted network of student support from the College system through to the Department itself. Students value this highly.
- 5.87. The students have expressed their appreciation for the fact that the Department of Veterinary Medicine contributes to the costs of EMS placements. Additional funding is also available through some individual Colleges.

### Recommendations

- 5.88. None.

### Suggestions

- 5.89. None.

## 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 hospitalization, 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 practice 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

- 6.1. The physical and human resources that underpin the veterinary course reflect its division into preclinical and clinical education. The preclinical course is delivered in well-equipped lecture theatres and laboratories in the Departments responsible for preclinical teaching; these are located within the University's New Museums, Sidgwick and Downing Sites in the centre of Cambridge.
- 6.2. The resources available to students also reflect the University's collegiate structure: for example, the Colleges provide their own student computing and library facilities. The University provides facilities over and above those provided by Departments and Colleges, such as access to the University Library, which as a copyright library receives a copy of every text published in the UK.
- 6.3. The Department is based on a single site in West Cambridge, around two miles from the preclinical Departments, and comprises 16 buildings. All of these have been modified and refurbished over the years to meet the changing educational and scientific needs of the Department. The facilities are constantly upgraded, under a systematic rolling programme of maintenance funded by the University. Refurbishment of Lecture Theatre 1 was identified as a priority in the 2013 Learning and Teaching Review and Lecture Theatre 2 is regarded by the



Department as being very tatty. The majority of facilities are in excellent condition e.g. the Department funded a £3.2M expansion of hospital facilities and the development of a Clinical Skills Centre in 2014.

- 6.4. The main building of the Department incorporates the Queen's Veterinary School Hospital. Research laboratories are housed within the main building and in separate, recently renovated laboratory buildings around the site. Most of the teaching facilities necessary for the education of veterinary students are located on site, with the exception of Cambridge University Farm which is located approximately 3 miles from the Department; the College of West Anglia at Milton, 4 miles from the Department; the RSPCA first opinion clinic and Blue Cross, which are located respectively 4 miles and 3 miles from the Department; and abattoir and food hygiene facilities, which are provided through commercial companies on a number of sites and the University of Bristol.
- 6.5. The post-mortem facilities provide dedicated large and small animal necropsy rooms with viewing facilities, perfusion room, photography room, sterilisation room and laundry. There is an adjacent pathology cut up room with safety cabinets and specimen storage facilities. The post-mortem suite is accessed through changing and shower facilities, and has a technician's office with separate changing facilities. The building has computer links to the Departmental pathology database, with equipment for digital photograph capture and storage.
- 6.6. Over the last seven years, the Department has continued the programme of extensive building and refurbishment that was initiated in the early 1990s, in order to provide and house specialist research, hospital and teaching facilities and equipment. Since the 2008 RCVS/EAEVE Visitation, the then ongoing building programme – an extension to the Cancer Therapy Unit to house a new linear accelerator and CT machine (the latter providing a clinical service in partnership with Cambridge Radiology Referrals) and provision of a Category III containment facility for a research group (facilities that have subsequently been extended through purchase of a Beckman FACSARIA) have both been completed. The building and refurbishment programme has continued with: a Student Resources Centre (2011); a Clinical Skills Centre, new clinical pathology laboratories, new consulting rooms, pharmacy, clinical research laboratory (all 2014); refurbishment of the Equine Diagnostic Unit and Hickman Equine Surgery Building (due for completion 2015); further upgrading of a Category 3 research laboratory to include a FACS facility (2013-2015); refurbishment of existing underused buildings to provide further facilities for orthopaedic research (currently being planned and due for completion 2015); refurbishment and consolidation of administration offices to better support the Department's activities (2012-2015) and creation of new meeting/seminar rooms (2014-2015).
- 6.7. In response to the recommendation of the RCVS Visitation in 2008, the University funded a £1.5M project to build a Student Resources Centre. This was completed in 2011 and provides clean and dirty changing areas with individual lockers, toilet and shower facilities on the ground floor, and a social area, kitchen facilities, a quiet work area and further toilet facilities on the first floor.
- 6.8. The small animal facilities of the QVSH provide custom-built wards for dogs and cats with associated examination, preparation and teaching areas, and a fully equipped intensive care unit

for critically ill and injured animals. A new small animal theatre suite provides five theatres, anaesthetic induction bays, a radiology suite and two minor procedures rooms. A recent major refurbishment provided 9 new consulting rooms and a new pharmacy.

- 6.9. The Cancer Therapy Unit, extended in 2008, accommodates a new linear accelerator to provide radiation therapy for small animals and horses.
- 6.10. Diagnostic facilities include recently refurbished X-ray suites and colour-flow Doppler ultrasound machines, small animal MRI, nuclear medicine unit, video endoscopy, thermography and fluoroscopy. A commercial partnership with Cambridge Radiology Referrals, developed in 2011, provides CT facilities within the Department.
- 6.11. The newly built clinical pathology laboratory offers all routine chemistries, haematology, cytology and flow cytometry, and includes a microbiology and parasitology laboratory and a PCR room. In the histology laboratory, facilities are available for routine histology, immunocytochemistry and the production of frozen sections.
- 6.12. The large animal facilities include a surgical suite and a recently refurbished equine diagnostic unit with three examination halls. A new equine intensive care unit is currently being provided. The farm animal facilities were upgraded into purpose built accommodation.
- 6.13. Most of the equipment in the small animal clinical facilities is funded directly from income generated from clinical services or otherwise financed by the Veterinary School Trust. However, the relatively small equine operation is unable to generate sufficient income to fund state of the art diagnostic and surgical equipment.

**Table 6.a: Places available for hospitalization**

|   |    |
|---|----|
| Adult Cattle  | 6  |
| Horses  | 17 |
| Pigs, calves and small ruminants (accommodation adaptable for both) | 10 |
| Dogs  | 63 |
| Cats  | 33 |
| Small animal intensive care   | 9  |
| Isolation facilities for small animals                              | 7  |
| Isolation facilities for farm animals and horses                    | 3  |

- 6.14. The Department owns 11 horses and 3 cows used for teaching purposes, which are housed in a purpose-built facility with adjacent grazing. There are 2 greyhounds maintained for the teaching of topographical anatomy and housed on site. The Cambridge University Farm incorporates a dairy unit and sheep facilities, with purpose-built teaching facilities and is 3 miles from the Department and Hospital. It provides access to normal cattle and a breeding sheep flock.
- 6.15. Teaching of animal husbandry, production animal health and handling of production animals is taught on-site at the Department, on the University Farm, and at the College of West Anglia at Milton.

**Premises used for theoretical, practical and supervised teaching**

Table 6.b: Premises used for clinical work and student training

|   |    |
|---|----|
| Number of laboratories for clinical pathology work by students                                      | 1  |
| Post-Mortem facilities (one building with two separate areas for teaching)                          | 1  |
| Teaching laboratory   | 1  |
| Clinical Skills Centre (with 2 rooms for teaching plus consultation room for communications skills) | 1  |
| Total number of places in teaching laboratory   | 65 |

Table 6.c: Premises for lecturing

|                               |     |
|-------------------------------|-----|
| Number of rooms for lecturing | 2   |
| Number of places per room     |     |
| Lecture Theatre 1             | 116 |
| Lecture Theatre 2             | 85  |

Table 6.d: Premises for group work

|   |    |
|---|----|
| Number of rooms for group work by students* | 7  |
| Number of places per room:                  |    |
| Senior Common Room                          | 23 |
| Seminar Room 2                              | 25 |
| Seminar Room 3                              | 25 |
| Video Conference Room                       | 20 |
| Dr Lee Multimedia Teaching Laboratory       | 35 |
| Peter Jackson Building seminar room         | 16 |
| Equine Diagnostic Unit seminar room         | 16 |
| Hammond Building Seminar Room               | 15 |

\* The Small Animal Wing will provide two large rooms that will be used for small group teaching of final year students

Table 6.e: Premises for practical work

|   |    |
|---|----|
| Number of laboratories for practical work by students | 1  |
| Number of places per laboratory:                      |    |
| Total number of places in laboratories                | 65 |
| Post-Mortem facilities and viewing areas              | 2  |
| Clinical Skills Centre                                | 1  |
| Number of places per room in Clinical Skills Centre   |    |
| Main laboratory                                       | 40 |
| Radiography/Haptic Device room                        | 10 |
| Teaching Consultation Room                            | 10 |

- 6.16. A well-equipped clinical pathology laboratory provides a full range of routine haematological and biochemical tests, urine analysis, flow cytometry, parasitological, microbiological and cytological services during work hours. This laboratory was relocated in December 2014. The new facilities include a PCR lab and an out-of-hours laboratory for use by Final Year students during their out-of-hours rotation duties.
- 6.17. The histopathology laboratory provides routine histopathology, immunohistochemistry and the production of frozen sections for routine staining and specialised staining.
- 6.18. The Department does not maintain its own slaughterhouse facilities. Students attend the abattoir at the Department of Veterinary Science, University of Bristol as a compulsory component of their Veterinary Public Health course. Students also visit conveniently located slaughterhouse and processing premises in East Anglia as part of the Veterinary Public Health course.
- 6.19. The Department does not maintain a foodstuff processing unit. Students visit such premises, which are co-located to slaughterhouses, as a compulsory component of their Veterinary Public Health course.
- 6.20. Licensed external waste contractors collect clinical, biological and pharmaceutical waste twice weekly and cadavers requiring individual cremation once weekly. General mixed waste (cadavers not requiring individual cremation, materials from Veterinary Public Health practicals, etc.) are collected by arrangement when necessary.
- 6.21. The Department's clinical and anatomical pathology services provide diagnostic services for animals held by the University's Biological Services facilities. A proposal for the Department's diagnostic facilities to provide laboratory animal health screening services for the University is currently under discussion.
- 6.22. In the longer term, the Large Animal Unit will be decommissioned and that area of the veterinary school site redeveloped.

## Comments

- 6.1. Most of the facilities available for the School and Department are modern, safe and fit for purpose. There are some aged facilities such as Lecture theatres 1 and 2 at the Veterinary Hospital site and the Anatomy dissection area in Cambridge, but these appear to be adequate for their purposes, if not state of the art.
- 6.2. The investment by the University in a student centre with appropriate facilities for biosecurity, food preparation and relaxation has addressed concerns raised at the previous visit.
- 6.3. Warning signs, First Aid kits and other safety features such as eye washes were evident throughout the facilities. These were generally in good condition and visible, although on the Cambridge University Farm, the absence of eyewash was noted. Stocks in First Aid kits were also noted to be free of use by dates making evaluation of their currency not possible.

- 6.4 The equipment available in the visited facilities appeared to be appropriate for a modern veterinary teaching hospital and in some cases, leading, such as the availability of a linear accelerator.
- 6.5 It was reported that there was no portable x-ray machine available for use in the equine ambulatory clinic, despite such equipment being available to surrounding equine practices.
- 6.6 A new clinical pathology laboratory had a microscope room in which a food refrigerator and tea/coffee making facilities were noted.
- 6.7 Ambulatory clinic staff in farm animal and equine areas reported difficulty in acquiring equipment that would be expected in contemporary private practice clinics. This has the potential to cause the teaching that is provided to be below that applying generally in the profession.
- 6.8 Inspection of the ambulatory service vehicles showed the farm service vehicles to be old but reportedly well maintained so that they were mechanically sound. A tyre on one of the vehicles had a worn tread on the outside edge. The floor surfaces were of a material that could not be easily cleaned, resulting in faecal contamination of the floors which may provide a biosecurity risk. The farm service vehicles had no mesh barrier between the luggage compartment and the passenger compartment.
- 6.9 The equine isolation stalls had no signage and no isolation protocols posted outside the entrance.

### Commendations

- 6.10 A commendable investment has been made by the university in the veterinary hospital and on Cambridge University farm to address previous concerns and to support teaching since the last RCVS visitation.
- 6.11 The Department is commended on the ongoing development of a clinical skills laboratory.

### Recommendations

- 6.12. The equipment available for use in the ambulatory services must be reviewed critically to determine if it is at least equivalent to what is available in current private practices and if not, suitable purchases must be made, for example, a portable modern digital x-ray unit for the equine ambulatory practice.
- 6.13. All food and drink storage and preparation activities must be removed from working laboratories.
- 6.14. Barriers must be fitted between luggage and passenger compartments of all vehicles used for ambulatory services.
- 6.15. The floors of ambulatory service vehicles must be fitted with an easily cleanable material and maintained in a clean condition.

- 6.16. Vehicle safety features must be regularly checked and if necessary remedied between annually scheduled MOT checks to ensure driver and passenger safety.
- 6.17. In equine isolation, isolation protocols must be posted external to the entrance.

### **Suggestions**

- 6.18. None.

## 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 the 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

#### Anatomy

- 7.1. Each year, approximately 25 embalmed dogs are acquired; students dissect these during Years 1 and 2. Freshly euthanized animals for immediate autopsy each year include: 1 pig, 4 horses, 10 ruminants, 20 rabbits, 40 domestic fowl, 40 trout. Students dissect most other species in groups of 4; sheep are dissected in groups of 8, and ponies in groups of approximately 18.
- 7.2. In addition, fresh abattoir, market and knacker material is obtained at intervals and includes: fresh tongues, simple stomachs, ruminant stomachs, intestines, hearts, lungs, kidneys, horse distal limbs, horse heads, male and female reproductive organs, thymus, mammary glands, and placentas, according to availability.
- 7.3. Three classes that involve living animals are provided for all students. The species provided include: (1) lizards, snakes and chelonians, (2) various domestic bird species, and (3) rodents, lagomorphs and ferrets.
- 7.4. In addition, students visit the Department of Veterinary Medicine in small groups on four occasions to palpate Department-owned horses, cattle and dogs for surface anatomy classes.
- 7.5. The veterinary anatomy museum is well stocked with a wide range of preserved specimens and labelled bone. Students may hire and take back to their College a bone set (dog bones) at the start of Year 1, and a dog skull at the start of Year 2. Eighteen sets of limb bones are used in two

formal classes; similar numbers of dog and horse skulls in skull and teeth classes; vertebrae for demonstrations in a spine class. Various other museum materials including dried specimens and museum pots are used to complement the remaining classes.

**Table 7.a: Material used in practical anatomical training**

|                             | Dog                |           | Ruminant  |           | Equine    |           | Other     |           |
|-----------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                             | 2013-2014          | 2012-2013 | 2013-2014 | 2012-2013 | 2013-2014 | 2012-2013 | 2013-2014 | 2012-2013 |
| Live animals                | 2                  | 2         | 2         | 2         | 10        | 9         | 30*       | 30*       |
| Cadavers                    | 25                 | 25        | 10        | 10        | 4         | 4         | 101       | 101       |
| Specimens                   | see notes to table |           |           |           |           |           |           |           |
| Other: bones<br>radiographs | see notes to table |           |           |           |           |           |           |           |
| Computer assisted learning  |                    |           |           |           |           |           |           |           |

#### Notes

- See above (7.1.1) regarding use of additional fresh specimens.
- Live animals (others): the numbers of animals available are 5-10 birds per year, 5-10 reptiles per year and 10-20 rodents per year. These pet animals are provided by staff and colleagues. Aspects of surface anatomy may be covered in animal handling sessions in the Principles of Animal Management course and animal handling rotations also.
- The Veterinary Anatomy museum/library has a complete skeleton for every major domestic species, including chickens, plus a mounted half-skeleton. It has a further mounted whole skeleton of dog and goat. The museum/library has at least one fore- and hind-limb for each species (and approx. 20 for dogs) plus more than two disarticulated bone sets for each major species and more than 10 skulls for each species. In addition there are skeletons of fish, frogs, lizards, chelonians and some waterfowl plus many miscellaneous bone specimens, especially skulls, of a wide variety of vertebrates, especially mammals (including rodents, insectivores, cetaceans, pinnipeds and primates). The nearby zoology museum in the Department of Zoology also provides access to an enormous collection of further specimens. Further skeletons and bone specimens are available in the Department of Veterinary Medicine.
- The Veterinary Anatomy museum also houses approximately 100 preserved, encased specimens ("pots"), 100 prosected specimens and 50 ligament preparations. It also maintains a catalogue of over 330 radiographs or MRI plates.



## Pathology

- 7.6. The Department has a modern, secure post-mortem room with two halls, walk-in cold rooms and freezers, hoist, bandsaws, safety hood and a full range of equipment and instruments. There are also separate rooms for specimen preparation. The post-mortem building also houses the trimming room for histopathology and storage areas for preserved specimens (for use in teaching), together with changing and showering facilities.
- 7.7. The histopathology laboratories – processing room, cutting room and storage areas – are housed in a separate building and are fully equipped with modern equipment for processing, embedding, cutting and staining (H&E and immunohistochemistry) tissues and sections. A multi-headed microscope linked to a monitor aids discussion of individual slides. There are two other single-headed microscopes linked to 3-chip cameras and monitors for teaching purposes.
- 7.8. The new (2014) clinical pathology laboratories are located close to the small animal consulting rooms and wards and provide automated clinical biochemistry and haematology, together with cytology, immunocytology and flow cytometry facilities, diagnostic parasitology and microbiology and a PCR room. There is a separate out-of-hours laboratory. A multi-headed microscope aids case discussions.

**Table 7.b: Number of necropsies over the past 3 years**

| Species   | Number of necropsies |      |      | Average |
|---|----------------------|------|------|---------|
|   | 2014                 | 2013 | 2012 |         |
| Food producing animals: cattle<br>small ruminants<br>pigs<br>other farm animals | 19                   | 19   | 21   | } 45    |
|   | 27                   | 22   | 23   |         |
|   | 3                    | 1    | 0    |         |
|   | 0                    | 1    | 0    |         |
| Equine  | 11                   | 21   | 2    | 11      |
| Poultry   | 0                    | 1    | 2    | } 1     |
| Rabbits   | 31                   | 25   | 30   |         |
| Companion animals/exotic dogs<br>cats<br>other*                                 | 79                   | 84   | 81   | } 158   |
|   | 32                   | 32   | 39   |         |
|   | 36                   | 48   | 43   |         |

\* other = pet rabbits, pet avian species, pet reptiles, animals from local zoological collections

**Additional post-mortem material for teaching:**

- 7.9. Abattoir material including porcine, bovine and ovine visceral material, is collected several times a year for use in practical pathology and Veterinary Public Health teaching in the 4<sup>th</sup> and 5<sup>th</sup> years. Uteri from farm species are collected from abattoirs and are used in gynaecology rotation practical classes. Equine heads, legs and bovine feet are bought in and used in dentistry, nerve blocking and foot trimming classes respectively.
- 7.10. Animal cadavers are also provided/donated for teaching. These are not subjected to a full necropsy but are used in a number of different ways for surgical dissections and other clinical exercises (dentistry, cadaver surgery, obstetrics, soft tissue surgery, symposia). As examples, in 2012-13 the numbers used were: Horses: 20 + 4 used for equine anatomy teaching (preclinical students); Bovines: 13; Dogs: 37 + 30 heads only for the canine dentistry practical; Cats: 13; Others: 1. In 2013-14, animals used for these purposes were: Horses 9 + 20 heads used for dental practicals; Bovines: 10; Dogs: 45 + 30 heads only for the canine dentistry practical; Cats: 1; rabbits: 20; Others 50).

**Animal Production**

- 7.11. Production animals available for teaching purposes are predominantly located on the University Farm, where there are the following animals available for teaching:
- Dairy Cows: 200
  - Dairy young stock: 150
  - Breeding Ewes: 205 with followers
  - Breeding Rams: 7
  - Vasectomised Rams: 7
- 7.12. Recent restructuring of the University Farm has enabled all cattle and sheep specifically maintained for the provision of teaching for the Department of Veterinary Medicine to be located on one site at Park Farm, Madingley.

In addition, the following livestock located on client farms were utilised for final year rotations (2013-14):

- Dairy cows: 240
- Dairy young stock: 100
- Beef cattle: 2500 (suckler cows and finishers plus 35 bulls)
- Sheep: 2640 ewes and 35 rams
- Goats: 65
- Pigs: 56 (including 5 boars)
- Poultry: 200 (ducks, geese, chickens and turkeys)

- 7.13. During the course of 2013-early 2014, the number of clients served by the Farm Animal Ambulatory practice increased to 55 clients and numbers of clients has increased further in autumn 2014 to over 80 clients, including one with a 300+ poultry flock.
- 7.14. The College of West Anglia, located at the northern boundary of Cambridge, also provides access to animals utilised for teaching purposes in 1<sup>st</sup> year (Principles of Animal Management course) and 4<sup>th</sup> year (rotation in exotic animals) as follows:
- Breeding pigs: 7 sows and 1 boar
  - Growing pigs: c. 50
  - Poultry: c. 30 chickens; 35 turkeys; 15 ducks
  - Camelids: 3 llamas and 2 alpacas
  - Goats: 7
  - Rabbits: 32
  - Cats: 7
  - Dogs: c. 15-20
  - Birds: 22 budgies; 30 finches; 9 cockatiels; 11 quail; 3 canaries; 3 kakariki parrots; 2 lovebirds
  - Small mammals: 22 guinea pigs; 16 chinchillas; 8 hamsters; 10 degus; 16 gerbils; 18 mice; 16 rats; 16 ferrets
  - Reptiles: 9 snakes; 19 lizards; 15 tortoises, terrapins and turtles
  - Amphibia: c. 8 frogs and salamanders
  - Fish: c. 50 tropical and coldwater aquarium fish
  - Invertebrates: c. 130 cockroaches, land snails and millipedes
- 7.15. All farm animals available for clinical teaching are also available for the practical teaching of students in veterinary public health.
- 7.16. The clinics of the Queen's Veterinary School Hospital are open 52 weeks of the year. Routine consultations are held Mon-Fri, 08.45-17.15, and emergency consultations are taken outside these hours during week days and at weekends.
- 7.17. The Small Animal Hospital offers a comprehensive referral service for cats and dogs with expertise in all areas of soft tissue surgery, oncological surgery, orthopaedics, ophthalmology, cardiology, gastroenterology, endocrinology, dermatology, haematology, neurology, cancer chemotherapy and radiotherapy.
- 7.18. It seeks to provide the highest quality of clinical care and service to clients and to the veterinary profession and offers referral and advice in:

- Anaesthesia and intensive care
  - Orthopaedics
  - Soft Tissue Surgery
  - Internal Medicine
  - Diagnostic imaging, radiography, ultrasound, CT, MRI, scintigraphy
  - Dermatology
  - Oncology
  - Neurology
  - Ophthalmology
  - Behaviour
  - BVA/KC Hip/elbow and eye schemes
  - Laboratory services – clinical and anatomic pathology including microbiology and parasitology
- 7.19. Details of the equine (equine medicine, surgery including first opinion and referral services, and reproduction and perinatal medicine) and farm animal services (farm animal medicine, surgery, fertility and herd health) are given below, and at [www.qvsh.co.uk](http://www.qvsh.co.uk).
- 7.20. The Department also provides veterinary services to the RSPCA clinic (first opinion clinic for clients that meet certain means-tested qualifying criteria) in Cambridge. The opening hours for the RSPCA clinic are 09.00-10.30 on Tuesday, Wednesday, Thursday and Saturday. A 24/7 emergency service is also available for registered clients.
- 7.21. The Department also provides 24/7 veterinary services for the Blue Cross re-homing centre (for cats and rabbits) in Cambridge. They are open from 10.00-16.00 seven days a week.
- 7.22. Veterinary surgeons providing the clinical services, including farm animal and equine clinical services, and their Diplomate status (at 1<sup>st</sup> December 2014) are given in Annex 2: .
- 7.23. Both Senior and Junior Clinical Training Scholars also support provision of clinical services. Currently there are 14 SCTSs (all in small animal hospital) and 11 JCTSs (9 small animal, 2 equine and 2 farm animal). The small animal and equine hospitals, farm animal practice, and the anatomic and clinical pathology laboratories, also employ qualified veterinary nurses and specialist technicians.
- 7.24. The Department owns two minibuses, each of which is fitted with a tow bar, and one trailer for livestock. It has a further 2-seater can for use in the ambulatory service. Animals transferred from the RSPCA clinic to QVSH for referral are normally brought to the veterinary school by the owners. Animals transported from the University Farm to the Department's farm animal clinical facilities are brought to the veterinary school using the Farm's vehicles.

- 7.25. The small animal, equine and farm animal services all provide a 24/7 on-call emergency service (as per RCVS Accreditation). The small animal services also provide an emergency/out-of-hours service for RSPCA clients and a 24/7 emergency service for the Blue Cross clinic.
- 7.26. The University Farm Dairy Unit has purpose-built teaching facilities. It currently milks 230 cows, and all calves are reared (replacements or fattening). A total of 660 cattle are currently managed by the farm, and there is also a sheep flock of 220 ewes. Other farm animal experience is provided by the Farm Animal ambulatory clinic (part of Cambridge Farm Animal Veterinary Services, the Department's farm animal clinical services). CFAVS performs approx. 350 visits annually attending to about 500 cases (and 2,300 fertility cases) per year, with a growing client base. On occasion, farm animals are transported to the veterinary school for specialist treatment/care. These numbers are included in table 7.c.
- 7.27. There is a mobile clinic for both farm animal and equines. The hours of operation for both are 08.45-17.15 Mon-Fri, and 24/7 out of hours.

#### **Farm Animal Practice**

- 7.28. One minibus, with a seating capacity of 17, and two multi-purpose vehicles (MPVs), one with a capacity of 7 and the other with a capacity of 8, are available for transporting students on visits to the various farm premises, both to the University Farm and to external clients. These vehicles are used to transport staff and students to visit animals on a consultancy basis for second opinion work on occasions. Emergency visits are made, as required, by the veterinary surgeon on the on-call rota. The Department provides first opinion ambulatory veterinary services for equines and farm animal species.
- 7.29. The Cambridge Equine Hospital (CEH) comprises a first opinion practice and equine referral hospital, offering a complete veterinary service. Two veterinary surgeons are dedicated to working in the first opinion practice, in conjunction with interns and hospital-based specialists and provide full ambulatory services to clients whose horses are stabled within a 40 mile radius of the hospital. The first opinion practice offers a comprehensive and diverse range of services including routine healthcare, vaccination, annual health checks, worming, passports and micro-chipping, pre-purchase examination, lameness evaluation, dental care and many more treatments, including surgery and reproductive services; it also provides 'vet on call' services for local shows or pony club events. All students spend at least 2 weeks with the first opinion equine practice in their 6<sup>th</sup> year equine rotation.
- 7.30. The Equine Referral Hospital is an RCVS-accredited Equine Veterinary Hospital, fully equipped with surgical facilities. It offers innovative treatments for horses referred from vets all over the UK for advanced internal medicine, orthopaedic or elective surgical investigations and a 24-hour emergency referral service for cases requiring immediate specialist medical or surgical care. Many cases are internal referrals from the ambulatory first opinion practice. The equine hospital has 24 stables, dedicated isolation facilities, five treatment rooms with stocks and two surgical suites. All students spend at least 2 weeks in the equine hospital in their 6<sup>th</sup> year equine rotation.
- 7.31. The Department's Cambridge Farm Animal Veterinary Services (CFAVS) delivers veterinary services to farms throughout Cambridgeshire and neighbouring counties through a team of dedicated farm animal vets. This ambulatory service is supported by a range of specialist

expertise based at the Queen's Veterinary School Hospital and Cambridge Equine Hospital, providing a greater range of diagnostic, surgical and medical care. There is also a farm animal clinic based at the West Cambridge site which is available to CFAVS's ambulatory clients.

- 7.32. The service is delivered by a dedicated team of three Farm Animal Clinicians based within CFAVS, two Junior Clinical Training Scholars (interns) and a dedicated Farm Animal Technician who is a Diploma holder in cattle footcare and is experienced with handling, movement and restraint of all species. Services offered by CFVAS include: emergency care provision, advice on management of small scale farming operations and pet farm animal care and management, advice on strategic use of vaccines and wormers. Students spend two weeks with the ambulatory practice.
- 7.33. The students also spend a further 2 weeks on herd health/disease prevention aspects of farm animal practice, including: routine herd fertility visits using ultrasound scanners, routine flock health visits including flock preparation for lambing, bull and ram fertility testing, mastitis, milk quality and cell count advice and investigations, lameness prevention and investigation, provision of herd health plans for farms to comply with the requirements of Farm Assurance Schemes, advice on preventive medicine and disease control programmes and participation in recognised, accredited Health Schemes, metabolic profiling, young stock and heifer rearing programmes, and use of Interherd software to provide comprehensive analysis of health and fertility data and integration of information with NMR milk recording data. Students visit client's farms to conduct herd health assessments.
- 7.34. Notable additional outside sources of material for clinical training purposes include the RSPCA clinic and the Blue Cross re-homing centre in Cambridge, and the College of West Anglia (CoWA) centre in Milton, Cambridge. The Department provides veterinary services to the RSPCA and Blue Cross, as outlined above.
- 7.35. All cases presented to QVSH are referral cases. First opinion cases are seen by the equine and farm animal ambulatory clinics and at the RSPCA and Blue Cross. The Department employs a veterinary surgeon to manage the RSPCA clinics; this individual is supported by all other staff in the small animal medicine team plus SCTSs.
- 7.36. The Department does not provide services relating to farmed fish or food producing species other than ruminants and pigs. Specialist poultry veterinary practices and fish experts in the Cambridge area act as external lecturers and provide EMS opportunities for Cambridge students.

Table 7.c: Number of cases: a) received for consultation, and b) hospitalised in the Faculty clinics, in the past 3 years

| Species                   | Number of cases             |      |      |      |                  |      | Average cases seen    |
|---------------------------|-----------------------------|------|------|------|------------------|------|-----------------------|
|                           | 2014                        |      | 2013 |      | 2012             |      |                       |
|                           | a                           | b    | a    | b    | a                | b    |                       |
| Food producing animals    |                             |      |      |      |                  |      |                       |
| Bovine                    |                             | 26   |      | 23   |                  |      | } 105 <sup>\$\$</sup> |
| Ovine, caprine            |                             |      |      |      |                  |      |                       |
| Porcine                   |                             | 64   |      | 79   | 42 <sup>\$</sup> |      |                       |
| Other farm animals*       |                             | 7    |      | 3    | 0                | 0    |                       |
|                           |                             | 7    |      | 1    | 0                | 0    |                       |
| Poultry                   | 14                          | 7    | 2    | 0    | 0                | 0    | } 69                  |
| Rabbits                   | 65                          |      | 69   |      | 50               |      |                       |
| Equine                    | 2350                        | 153  | 1740 | 90   | 1805             | 62   | 2067                  |
| Companion animals/exotics | Canine<br>Feline<br>Other** | 4439 | }    | 4442 | }                | 4638 | }                     |
|                           |                             | 2610 | 2328 | 2493 | 2396             | 2707 | 2412                  |
|                           |                             | 123  | }    | 160  | }                | 156  | }                     |

\* Other farm animals: alpaca

\*\* Other companion animals/exotics: rabbits (majority), rodents, reptiles

<sup>\$</sup> Excludes animals seen by ambulatory practice; data not available (new accounting systems introduced for 2013)

<sup>\$\$</sup> Average of 2013 and 2014

#### Notes

- Defined as number of animals hospitalised as opposed to number of days.
- Hospitalisation in the small animal ward is recorded by patient not species, the approximate ratio of dogs:cats is 90% dogs: 10 % cats, occasionally other pets, e.g. rabbits or rats may be accommodated in the small animal ward.

**Table 7.d: Number of cases seen by the Ambulatory (mobile) clinics in the past 3 years**

| Species                          | Number of patients |      |        | Average   |
|----------------------------------|--------------------|------|--------|-----------|
|                                  | 2014               | 2013 | 2012** |           |
| Food producing animals           | 5704               | 5713 |        | 5709      |
| Poultry (no of flocks)           | 10                 | 7    |        | )8.5<br>) |
| Rabbits (no of production units) | 0                  | 0    | 0      |           |
| Equine                           | 2267               | 1702 | 1770   | 1913      |
| Other (cattle fertility)         | 2684               | 2400 |        | 2542      |

\*\* Incomplete data for 2012

- 7.37 EAEVE ratios on animals available for clinical training and for necropsy are provided in Annex 1: Main indicators of the European System of Evaluation of Veterinary Training<sup>1</sup>

## Comments

- 7.38. There is adequate material available to teach anatomy. Dogs used for dissection are embalmed in a propylene glycol / ethanol preparation which poses no health and safety risks to students or staff.
- 7.39. The Clinical Pathology laboratories are new (2014).
- 7.40. There are concerns about the numbers of food producing animals/equines, poultry and rabbits available for necropsy. Numbers are below the accepted ratio range.
- 7.41. Specimens required for VPH teaching are collected through contacts with regional abattoirs.
- 7.42. The University farm has been restructured and the University is to be commended for investing in this facility which provides important learning resource for the students.
- 7.43. The RSPCA Clinic provides students with hands-on first opinion consultations with minimal supervision, commencing in the fourth year with vaccination clinics and proceeding to clinical cases in subsequent years. In the final year, the students conduct consultations without supervision on a one-to- one basis. Their findings are then discussed with the supervising clinician before the consultation is completed. This enables students to experience the kind of consultations that they will undertake when qualified, with the security of help and advice at hand.
- 7.44. The Blue Cross Facility provides an excellent example of shelter medicine and disease control measures within such a facility.
- 7.45. The Equine Hospital sees an adequate number of horses either as first opinion cases seen by the ambulatory clinic or as referral cases at the hospital.
- 7.46. Few large animals are seen in the Large Animal hospital, the majority being seen by the ambulatory service which provides teaching material during the clinical rotations. However, the visitors were glad that the number of animals seen by students has been gradually increasing and would like to see this trend continuing.



- 7.47. Students also gain practical experience in herd health planning where they conduct independent farm visits and write reports suggesting changes to clients. These reports are checked and edited before being sent out to clients. The number of clients using the Department for herd health planning is increasing. Access to pig and poultry farms is more limited due to biosecurity requirements set by the owners.
- 7.48. The hospital small animal case numbers are robust. However, although the electronic record system for the small animal clinics is available, it is not yet widely used as some functionalities are not perceived as satisfactory by clinical staff. The veterinary hospital (LA, SA and Equine) still operates on a paper-based system for clinical histories.

### Commendations

- 7.49. The investment in the University farm is commended.

### Recommendations

- 7.50. A sufficient number and variety of cases must be available for anatomical pathology teaching to continue to assure sustainable quality of teaching in all relevant aspects of the veterinary course.

### Suggestions

- 7.51. None.

## 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 the 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 other libraries.**

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

### Findings

- 8.1. The veterinary library is situated in the main building of the Department and is the primary source of veterinary information within Cambridge. Veterinary students have access to the main University Library, which holds a limited source of veterinary information. Access to College libraries is restricted, and only members of a given College can gain access to that College's library. Students also have access to other University libraries, e.g. the Central Science Library, University Library (UL) and the Library at the School of Clinical Medicine.
- 8.2. The Departmental library is run by a full-time Librarian with Chartered Librarian status, who makes decisions about its day-to-day running. Any decisions requiring discussions are taken in consultation with the Academic Library Advisor, and longer-term issues of policy and resources are referred to the Library Committee, which meets twice a year.
- 8.3. The library has 85 reading places. Members of the Department have access 24 hours a day, 7 days a week. Loans out-of-hours are possible 24/7. Non-members are admitted only by prior arrangement with the Librarian and Head of Department.
- 8.4. The library subscribes annually to 29 periodical titles, but many more titles are available electronically via the University Library's electronic journals database, towards which the Department contributes £39,000 per annum. These are available free of charge to students.
- 8.5. Student expectations on being able to access data is high on their list of priorities and they have a complete understanding of modern technology. Most of them will either have a smart phone, iPad or Kindle to enable them instant access and the University is moving to provide comprehensive access along these lines.
- 8.6. With this in mind, much of the electronic information required is collected and disseminated centrally by the University library. The Departmental library is part of the libraries@cambridge network and shares the centralised catalogue holding information on electronic journals and book availability. There is now greater numbers of both books and journals available as electronic downloads. This has an effect on the number of titles the Departmental library holds and on

library loans. The Departmental library still purchases books that are not as yet available as e-books.

- 8.7. The departmental website is also a source of information as all day-to-day information is posted under the “Current Student Information” tab. Information on timetables, electives, policies etc. is also available to students through that route.
- 8.8. There are four computerised literature-searching systems that are available to members of the University. These are located via the library link at: <http://www.vet.cam.ac.uk>. The systems available are:
- Web of Science at ISI
  - PubMed at NIH
  - ZETOC – electronic table of contents
  - Scopus
  - Google Scholar
- 8.9. The Colleges are circulated annually with a list of books essential to veterinary students at both the preclinical and clinical stage. Most Colleges provide excellent support in providing copies of veterinary texts for the use of veterinary students.

|  |        |        |
|--|--------|--------|
| Departmental library:  |        |        |
| - is this specific to the veterinary training establishment?           | Yes    |        |
| - is this common to two or more establishments?                        | No     |        |
|  |        |        |
| State the library's annual operating budget over the past three years: | GBP    | EURO   |
| 2013-14  | 52,036 | 76,493 |
| 2012-13  | 52,036 | 76,493 |
| 2011-12  | 52,036 | 76,493 |
| Number of full-time employees  | 1      |        |
| Full time equivalents of part time employees                           | 0      |        |
| Number of journals received each year (in addition to books)           | 29*    |        |
| Number of student reading places                                       | 85     |        |

|   |          |          |
|---|----------|----------|
| Library opening hours:                        | weekdays | weekdays |
| during term-time                              | 24hrs    | 24hrs    |
| during vacations                              | 24hrs    | 24hrs    |
| Number of loans to students per academic year | 1,235    |          |

\* This number is lower than in previous years (down from 95), reflecting the change in the way journals are provided. The policy is to eventually provide electronic access to all titles. When the title becomes available electronically the paper copy is cancelled. While this results in fewer paper copies on the library shelves the overall benefit is that we have greater access to more titles via the catalogue provided from the University's journal coordination scheme. The e-journals are heavily used.

- 8.10. The University policy is to encourage self-learning throughout the course, and it has developed IT resources to support this. Members of staff are encouraged to develop CAL, and support is available from IT staff.
- 8.11. The Departmental IT provision for students is managed by the University Information Services. The provision of 37 seats in the computer room meets current need. A wireless facility throughout the Department, including the Student Resources Centre ensures that access to the University network from personal IT devices is almost universally available.
- 8.12. The Departmental website carries information for students and staff and email is used for day-to-day staff-student communication.

|  |                 |      |
|--|-----------------|------|
| Is the computer service/department:                                |                 |      |
| - specific to the veterinary training establishment?               |                 | no   |
| - common to two or more establishments?                            | *See note below | yes  |
| Number of full-time employees                                      |                 | 3    |
| Full time equivalents of part time employees                       |                 | 0.20 |
| Number of computers available in the service:                      |                 |      |
| - less than three years old  |                 | 37   |
| - more than three years old  |                 | 0    |
| Do students have free access to these computers for their own use? |                 | yes  |

|   |                           |                  |
|---|---------------------------|------------------|
| Is there a computer room for self-use by students?                    | Computer room and Library | yes              |
| If there is, please indicate:   |                           |                  |
| - the number of places  |                           | 37               |
| - the opening hours:  | weekdays                  | weekends         |
| during term-time  | all                       | all              |
| during vacations  | all                       | all              |
| Does the service/department provide teaching in the use of computers? |                           | support provided |
| Does the establishment use interactive CD-ROM for teaching?           |                           | (Yes)*           |
| If so, how many programmes are available?                             |                           | 160              |

\* The Departmental library holds a stock of interactive CDs for teaching. In the past these were borrowed as a teaching aid.

However, advances in computer technology means that these resources are now available on line and so the CDs themselves are now rarely used.

- 8.13. Students in their clinical years have access to a web based University learning management system (LMS), CamTools, where staff can post lecture notes and tutorials, and the student administrators place notices.
- 8.14. Improving the University's Virtual Learning Environment (VLE) became a pressing issue in 2012 as the SAKAI platform for the existing VLE, CamTools, was to be no longer supported. As a result, the University's Centre for Applied Research in Educational Technologies (CARET) conducted a review of options for VLE provision. The decision was made to replace CamTools with Moodle as the University's VLE platform. This transfer was piloted across a limited number of Departments/Triposes within the University, including the School of Biology and its Natural Sciences Tripos (NST) and Medical and Veterinary Sciences Tripos (MVST). Moodle offers not just an access function for lecture slides/handouts and other supplementary material, such as CAL packages, but other functions that will be developed in the coming years. The pilot started for the 2013-14 academic year and so Moodle is the VLE for 1<sup>st</sup> and 2<sup>nd</sup> year veterinary students; thus the Department currently uses Moodle for the PAM and PfVP courses only. CamTools will be replaced across the whole of the University by Moodle in summer 2015 at which point it will become the VLE used by 4<sup>th</sup>-6<sup>th</sup> years also.

## Comments

- 8.15. The services provided by the veterinary library are much appreciated by staff and students. Since most students use their own portable PC and/or tablet, easily accessible wireless

connection (WiFi) on site and VPN connection outside the university are essential to give them access to the e-learning resources, e.g. e-journals, e-books, e-databases and intranet information. Very few buildings used by students do not currently provide a WiFi connection and full coverage should be achieved in mid-2015.

- 8.16. The veterinary department is in a transition period pending the full implementation across the curriculum of Moodle, the new e-learning platform of Cambridge University. It is therefore expected that the huge potential of this system will be used by staff to support and enhance the clinical education of both undergraduate and graduate students and CPD. It is also expected that both staff and students will take advantage of ad-hoc IT training and support to help them to use this tool efficiently.
- 8.17. Currently, the veterinary department has no electronic patient record (EPR) system that allows data to be captured securely and in a readily searchable way and to be made available to relevant people both internally and abroad. This is a pity since an EPR system allows quick and accurate searches and retrospective studies, which are essential both for staff and students. However, there are plans to implement CRIS (Clinical Records Information System) which is currently used in other veterinary teaching hospitals (e.g. the Royal Veterinary College). It is a bespoke EPR system that allows clinical data associated with each patient to be captured on an 'individual episode of care' basis.

## Recommendations

- 8.18. An EPR system must be implemented as soon as possible in order to provide staff and students with a modern, fast and efficient system to search for clinical information.

## Suggestions

- 8.19. It could be helpful to provide more formal training to students and IT support to staff in order to ensure that the Moodle platform for supporting clinical education is used effectively as quickly as possible.

## 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

- 9.1. All students undertaking the veterinary course (VetMB) are enrolled for a Bachelor of Arts (BA) degree (University of Cambridge does not offer a Bachelor of Science degree). The BA (Hons) degree is awarded after three years of study except for students who already have an honours degree in a relevant subject from another university (“affiliated students”), in which case they are awarded a BA (Ordinary) after two years of study.

**Table 9.a: Undergraduate student composition in the year prior to visitation (2013-14)**

| Year of course | Number of students |        |       |
|----------------|--------------------|--------|-------|
|                | male               | female | total |
| 1              | 18                 | 57     | 75    |
| 2              | 19                 | 43     | 62    |
| 3              | 15                 | 48     | 63    |
| 4              | 17                 | 49     | 66    |
| 5              | 18                 | 49     | 67    |
| 6              | 14                 | 58     | 72    |

- 9.2. Admission to any undergraduate course at University of Cambridge is via the Cambridge Colleges. Currently 22 of the 31 Colleges admit veterinary students.
- 9.3. Details of other school qualification (IGCEs, Pre-U, International Baccalaureate, Scottish qualifications, etc. are given at <http://www.study.cam.ac.uk/undergraduate/courses/vetmed/> but the current criteria for AS and A2 levels are that applicants must have AS or A Level passes in Chemistry and two of Biology/Human Biology, Physics, Mathematics. At least one pass must be at A Level. Most applicants for Veterinary Medicine at Cambridge have at least three science/mathematics A Levels and some Colleges require this and/or ask for particular A Level subject(s).
- 9.4. The standard offer, for 2015 entry, was set at A\*A\*A in Chemistry, Physics, Biology/Human Biology or Mathematics. For candidates taking 2 science or mathematics subjects at Advanced GCE with one or more non-science subject(s), the typical offer is likely to be 2 A\* grades in the

Advanced GCE science/mathematics subjects plus an additional A grade in one other Advanced GCE subject. In addition, such candidates would be expected to achieve an A grade in a third science or mathematics subject at Advanced Subsidiary GCE.

- 9.5. The selection process is handled by the Colleges, which are responsible for admitting students to all undergraduate courses. All Colleges involve veterinary-qualified personnel in their admissions interviews. The selection process takes into account: the candidate's school examination record; their school or sixth-form college reference; their UCAS personal statement; the results of a common Biomedical Admission Test (BMAT); and one or more interviews (usually two interviews each with two interviewers). All applicants to Cambridge with good examination results and a favourable school report are normally offered an interview. Applications are submitted in October, for entry into the course in the following October or a year later for deferred entry. The BMAT is conducted during November and interviews are held in December and, rarely, January. Conditional and unconditional offers are normally made during January. The rigorous school examination requirements, BMAT and interview ensure that all candidates have a sound foundation in the basic sciences and mathematics before admission to the course.
- 9.6. The target number of students admitted per year is calculated to result in 65-70 students entering the 6<sup>th</sup> year of the course. The target number of offers is adjusted to take account of the (relatively low) rate of withdrawals by those holding offers and wastage during the course. Thus, for example, for applications in October 2015, the maximum number of possible offers was 81, with a view to admitting 72 first year students, and eventually seeing 65-70 start the fourth year clinical course. No changes to the number of students admitted annually are currently expected. The target number is achieved by application of a suitable cover ratio for the total number of conditional offers. Currently, 22 colleges admit veterinary students and the number of offers each college may make is determined by the Director of Admissions for the Cambridge colleges, in agreement with college Admissions Tutors.
- 9.7. All students starting the course have excellent academic qualifications and have demonstrated at interview appropriate motivation and professional suitability for the veterinary course. The admissions quotas set out by the Veterinary Quota Committee aim to result in the admission of a maximum of 81 Veterinary Medicine students a year, notionally divided as follows: 75 admissions of standard age, 2 mature students and 4 affiliated students. Affiliated students are graduates who normally already have a good science degree (normally a 1<sup>st</sup> or 2i classification), who then complete the Vet MB course in 5 years (omitting Year 3 of the preclinical course).
- 9.8. The existing facilities are adequate to train the current annual target class of 65-72 students entering the 4<sup>th</sup> year of the course.
- 9.9. All Colleges now have a Widening Access Officer (or equivalent, e.g. Widening Participation Officer) and the University has a clear Widening Access policy. The University runs Sutton Trust Summer Schools in veterinary medicine and both the University and Colleges run many other many general events for teachers and prospective applicants. All Colleges provide funds to support students; there are various sources of such support, e.g. the Cambridge Bursary Scheme and additional hardship / travel / EMS funding. They also provide subsidised accommodation for at least three years for all students. Uniquely among UK veterinary school, the Department provides some funding to clinical students to support their clinical EMS and the compulsory week at the teaching abattoir at Langford, Bristol.



- 9.10. The Department of Veterinary Medicine organizes an annual VetCam event for up to 150 Year 12 students. This 2-day residential course provides up to 10 full bursaries. The feedback we have received from past bursary applicants shows that without the award, they may not have been encouraged to attend the VetCam course. The bursary scheme will be continued to generate more applicants from this small group.
- 9.11. The Department recognises that it needs to increase its profile to school pupils and has redesigned its own admissions webpages in recent years. It is committed to attracting applications from school pupils from diverse backgrounds, together with attracting applications from mature and graduate students. The Department will continue to liaise with Colleges' widening access teams in promoting the veterinary course.

**Table 9b Intake of veterinary students in the past 5 years**

| Year | Number applying for admission | Number admitted    |                    |
|------|-------------------------------|--------------------|--------------------|
|      |                               | 'standard intake'* | other entry mode** |
| 2014 | 249                           | not yet known      |                    |
| 2013 | 347                           | 67                 | 2                  |
| 2012 | 414                           | 66                 | 7                  |
| 2011 | 432                           | 64                 | 2                  |
| 2010 | 417                           | 70                 | 3                  |
| 2009 | 438                           | 69                 | 6                  |
| 2008 | 412                           | 70                 | 3                  |

\* 'standard intake' = students applying in Year 13 of their school career or older applicants who are studying AS/A2 courses (or equivalent) after leaving school ("Mature applicants", some of whom may have a Bachelors or other degree in a subject that does not include a biological science; mature applicants undertake the full 6-year course)

\*\* 'other entry mode' = Affiliated students. These students already have an Honours degree in a relevant subject and do not take the Part II year (and are therefore on a 5-year course). There are no transfers of students onto the VetMB course from other subjects apart from starting the course in 1<sup>st</sup> year.

**Table 9c Student flow and total number of undergraduate veterinary students**

| Number of students present after admitted year 1 |    | Number of additionally admitted students |
|--|----|--|
| 1 <sup>st</sup> year (2009-10)                   | 73 | 0  |
| 2 <sup>nd</sup> year (2010-11)                   | 71 | 0  |
| 3 <sup>rd</sup> year (2011-12)*                  | 63 | 0  |
| 4 <sup>th</sup> year (2012-13)**                 | 66 | 0  |
| 5 <sup>th</sup> year (2013-14)                   | 65 | 0  |

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|   |          |           |
|---|----------|-----------|
| 6 <sup>th</sup> year (2014-15)                    | 65       | 0         |
| >6 <sup>th</sup> year (matriculated pre 2009) *** | 3        | 0         |
| Total number of students lost/gained              | lost - 8 | gained- 0 |

\* Less 6 affiliated students

\*\* Includes 6 affiliated students who matriculated in 2010

\*\*\*Two of these three are included in numbers for 4<sup>th</sup> and 5<sup>th</sup> years

### Notes

- Affiliate Students do not take the Part II in year 3 and move directly from year 2 to year 4. This is a confounding factor in the above figures. Within the Tripos system, students requiring additional attempts in year 1 or year 2 2<sup>nd</sup> VetMB examinations are able to do so in years 2 and 3.
- Students not completing the 2<sup>nd</sup> VetMB exams nevertheless generally complete a Tripos leading to the award of the degree of BA (Hons) after 3 years. Occasionally a student transfers from the Medical and Veterinary Sciences Tripos to the Natural Sciences (or other) Tripos after year 1.
- It is rare for a student to transfer in to the veterinary course after year 1 of the course. Transfer students are normally required to start at the beginning of year 1 of the veterinary course.

**Table 9d Number of students graduating annually over the past 5 years**

| Year | Number of students graduating |           |       |
|------|-------------------------------|-----------|-------|
|      | June                          | September | Total |
| 2014 | 69                            | 2         | 71    |
| 2013 | 56                            | 4         | 60    |
| 2012 | 53                            | 5         | 58    |
| 2011 | 57                            | 4         | 61    |
| 2010 | 53                            | 3         | 56    |

**Table 9e Average duration of studies (distribution of students in years)**

| Year | Number of students graduating |                 |                  | Average duration of studies |
|------|-------------------------------|-----------------|------------------|-----------------------------|
|      | After 5 years*                | After 6 years** | After 7 years*** |                             |
| 2014 | 5                             | 64              | 2                | 5.96                        |
| 2013 | 5                             | 53              | 3                | 5.97                        |
| 2012 | 2                             | 53              | 2                | 6.00                        |
| 2011 | 3                             | 52              | 4                | 6.02                        |
| 2010 | 6                             | 51              | 2                | 5.93                        |

\* Affiliated students (have previous honours degree at 1<sup>st</sup> or 2<sup>nd</sup> level in a relevant biological subject; do not undertake MVST Part II

\*\* Standard length course

\*\*\* Usually students who have intermitted for one year; mostly for reasons related to health issues

The academic reason why students leave the course is because they have not passed VetMB examinations within the permitted number of attempts. These students can still obtain a BA (Tripos) degree. Other students choose to leave the course, either because their academic interests lie elsewhere and/or because they wish to undertake a research career rather than a veterinary career. There are very few students who leave, or fail to complete, the clinical course once they have started it.

### Comments

- 9.12. The success of the applicants and the low drop-out rate confirm the efficacy of the admissions system. Admission is based mainly on the secondary school achievements and capabilities of the applicants; previous work experience or aptitude have less influence. The admission system is fair and the central moderation procedure (the 'pool') helps to overcome situations where some Colleges receive higher numbers of excellent applicants than they are able to accept.
- 9.14. The Colleges are actively engaged in a number of initiatives to widen the social diversity of the students.

### Recommendations

- 9.15. None.

### Suggestions

- 9.16. None.

## 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 maximizing 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

- 10.1. Table 10a shows current personnel in Department of Veterinary Medicine and Table 10b how these are split between different disciplines of veterinary medicine. Figures provided are as at 1 October 2014, and known staff changes at that date have been included. Further changes may occur before the Visitation. EAEVE ratios are presented in Annex 1: Main indicators of the European System of Evaluation of Veterinary Training<sup>1</sup>

Table 10.a: Personnel in the Department

|   | Budgeted posts (FTE) |      | Non-budgeted posts (FTE) |      | Total (FTE) |
|---|----------------------|------|--------------------------|------|-------------|
| 1. Academic staff                                   | VS                   | NVS  | VS                       | NVS  |             |
| A Teaching staff                                    | 23.35                |      | 2                        |      | 25.35       |
| B Research staff                                    | 6                    | 12.8 |                          | 41.1 | 59.9        |
| c Associate Lecturers                               |                      |      | 5*                       |      | 5           |
| c Principal Clinicians                              |                      |      | 1                        |      | 1           |
| c Clinical veterinarians                            | 7                    |      | 2.5                      |      | 9.5         |
| c First opinion veterinarians                       | 1                    |      | 2                        |      | 3           |
| d Total academic staff                              | 37.35                | 12.8 | 12.5                     | 41.1 | 89.7        |
| 2. Support staff                                    |                      |      |                          |      |             |
| e responsible for the care and treatment of animals | 20.68                |      | 14.7                     |      | 35.38       |

|                        |   |       |      |  |        |
|------------------------|---|-------|------|--|--------|
| f                      | responsible for the preparation of practical and clinical teaching  | 0.5** |      |  | 0.5    |
| g                      | responsible for administration, general services, maintenance, etc. | 22.74 | 6.6  |  | 29.34  |
| h                      | engaged in research work  |       | 14   |  | 14     |
| i                      | others (please specify)   |       |      |  |        |
| j                      | Total support staff   | 43.92 | 35.3 |  | 79.22  |
| 3. Total staff (d + j) |   |       |      |  | 168.92 |

\* non-salaried      \*\* this refers to the staff member supporting the Teaching Laboratory; other support for clinical teaching is drawn from categories e and g.

**Table 10.b: Allocation of personnel to the various units of the Department**

| Name of                    | Academic staff |   |                    |                | Others | Support staff           |          |                   |
|----------------------------|----------------|---|--------------------|----------------|--------|-------------------------|----------|-------------------|
| Department                 | Full Prof      | Assoc.                                    | Assist.            | Assis-<br>tant |        | Technical/animal carers |          | Admin/<br>general |
|                            |                | Prof.,<br>Reader<br>or Senior<br>Lecturer | Prof.,<br>Lecturer |                |        | Teaching                | Research |                   |
| Pathology                  | 2VS            | 2VS                                       | 1VS                |                |        | 5.93                    |          | 1                 |
| Small animal               | 1.5VS          | 5.5VS                                     | 0.6VS              |                |        | 16.09                   |          |                   |
| Farm animal                | 0.5VS          | 1VS                                       |                    | 1.5VS          |        | 1                       |          |                   |
| Equine                     | 0.5VS          | 3VS                                       |                    | 1VS            | 3VS    | 6.36                    |          |                   |
| Anaesthesia                |                | 1VS                                       |                    | 3VS            |        | 1                       |          |                   |
| Diagnostic imaging         | 0.5VS          |   |                    | 1VS            |        | 4                       |          |                   |
| Parasitology               |                | 1VS                                       |                    |                |        | 0.25                    |          |                   |
| Public Health              |                | 1VS                                       |                    | 1VS            |        |                         |          |                   |
| Animal Production          |                | 1VS<br>1NVS                               | 1VS                |                |        |                         |          |                   |
| Microbiology               | 1NVS           | 3NVS                                      |                    |                |        |                         | 1        |                   |
| Epidemiology               |                | 0.8NVS                                    | 1NVS               |                |        |                         |          |                   |
| Hospital admin             |                |   |                    |                |        |                         |          | 9.36              |
| General admin and services |                |   |                    |                |        | 0.25                    | 7.5      | 21.92             |

## **Notes**

These figures are for the clinical course in Years 4 – 6.

### **Allocation of staff to the Faculty**

- 10.2. The allocation of staff to the Department and pre-clinical Departments is determined by negotiation with the School of the Biological Sciences in line with the general allocation of public funds described in Chapter 3 above. Additional staff can be employed, with the agreement of the University, from Hospital or other funds available to the Department.

### **Allocation of the staff to the units within the Faculty**

- 10.3. Allocation of academic staff within the Department is based on teaching, research and clinical service, and is decided by the Head of Department in consultation with the Strategy & Executive Committee. The allocation of support staff in a non-hospital context is similarly decided. In the case of clinical and support staff appointments in the Hospital, decision-making is devolved to the Hospital Management Committee, taking into account the need to support teaching and clinical service work.

### **Difficulties in recruiting or retaining staff**

- 10.4. It is difficult to recruit and retain veterinary surgeons in many clinical disciplines, including equine surgery, farm animal studies, small animal surgery, neurology, oncology and clinical pathology. The reasons are, firstly, the shortage of available specialists in certain areas such as clinical pathology and, secondly, the higher salaries that can be commanded in specialist referral practice and industry. In addition to this, some other UK veterinary schools offer financial incentives in the form of market supplements or salary enhancements, which Cambridge does not currently do.

### **Trends or changes in staff levels or the ability to fill vacancies over the past decade**

- 10.5. The Department has had difficulty in filling posts in all the areas mentioned in the paragraph above over the past decade. This can be addressed by an expansion of clinical training posts in these specialties, but this in itself is limited by the need to have enough specialists to supervise the training, and the majority of trainees choose to move into private practice upon completion of training rather than remain in the employment of the University.

### **Employment of additional staff from service income**

- 10.6. The University permits the funding of additional posts from service income, but this is contingent on being able to service the commitment from regular clinical or other income. The pressure on academic staff to perform to a high level across teaching, clinical service, research and administration is a challenge. The Department has addressed this to some degree by the establishment of a number of service / teaching posts in the Hospital funded from service income, with the aim of relieving some of the pressure on research-active staff.

**Regulations governing outside work, including consultation and private practice, by staff working at the establishment**

- 10.7. Academic freedom does allow academic staff to undertake consultancies and some private practice as long as this does not impinge on their Departmental duties. In the case of Hospital clinical appointments there is a contractual restriction that requires privately generated clinical income to be paid into a Departmental account and used to support Departmental work or research. Non-academic staff are contractually debarred from undertaking paid work during Departmental work time.

**Scientific meetings and sabbatical leave**

- 10.8. Every effort is made to enable staff to attend scientific meetings and a variety of funds are available to subsidise attendance, particularly from research grants, but not always to pay the full costs. Academic staff are required during term time to apply to the Head of Department for leave of absence for any period exceeding 48 hours.
- 10.9. The central University Travel Fund to support attendance at conferences and meetings was discontinued in 2012. Non-clinical academic staff can apply to a small fund in the School of the Biological Sciences to defray any costs.
- 10.10. In the case of Hospital academic clinicians and other clinical staff, there is an entitlement to up to £1000 per year payable from the Hospital's income.
- 10.11. Entitlement to sabbatical leave is restricted to Professors, Readers, Senior Lecturers and Lecturers. Eligible staff earn an entitlement to one term's sabbatical leave for every six terms worked and the leave may be taken for periods of up to a maximum of three terms. Sabbatical leave is normally granted on full stipend and may not unreasonably be refused. Permission must be sought from the University and the staff member concerned is required to discuss with the Director of Teaching and to make suitable alternative arrangements for the performance of his/her teaching duties. The University normally grants limited additional funds to cover the hourly costs of substitute didactic (lecture-based) teaching.

**Comments**

- 10.12. The figures in tables 10a and b only relate to the Department and do not include staff in other departments involved in pre-clinical teaching.
- 10.13. All teaching staff are exceptionally motivated and dedicated to teaching. Staff recruitment and retention is challenging as it is for other similar institutions. Residents and post-graduate students are contributing to the practical elements in teaching and are appropriately supervised.
- 10.14. Targetted minimum staff numbers have been reached, in some areas for the first time in several years. A strategic appointment has been made to support curriculum development. Despite this, the limited number of teaching staff may still lead to cancellations and re-scheduling of affected elements of the course, for example, in the event of accidents or illness. This happens occasionally and is communicated to students as soon as possible, but not always in time to re-arrange their schedule. Staff numbers may become critical again due to impending retirements in several core disciplines.

- 10.15. Some parts of the clinical operations are sustained by Junior Clinical Training Scholars. Increasing patient numbers will also increase workload and capacity to sustain it with existing staff may not be sufficient.
- 10.16. Some staff have critical roles in the delivery of specific elements of the course, for example the organization of EMS, the support of students on EMS and the delivery of specific components of the rotation.
- 10.17. Absences due to maternity or sabbatical leave are challenging to accommodate and require a team effort. Recruitment of temporary or permanent replacement staff can be slow due to administrative ineffectiveness at University level. In some instances, this impacted on the quality of student learning.
- 10.18. Career plans are not systematically used as part of the line management duties. Staff appraisals are conducted every 2 years by the University which is considered to be too infrequent to plan and monitor staff priorities, development and satisfaction.
- 10.19. An educational career track is not currently provided. There is also no clinical career track.

### Recommendations

- 10.20. Recruitment processes must be reviewed to allow for timely replacement of staff. The Department must be able to make recruitment decisions at least for short-term replacements in order to guarantee continuity in its core activities.
- 10.21. All Junior and Senior Clinical Training Scholars involved in teaching must complete minimum induction before providing feedback to undergraduate students that may impact on student progression.

### Suggestions

- 10.22. Efforts to identify mechanisms to retain clinical staff should be continued.
- 10.23. All staff involved in teaching should be provided with introductory and continuing training on good practice and quality aspects relevant to their teaching. This is particularly relevant for newly recruited staff as well as for nurses and post-graduates.
- 10.24. To assure continuity of teaching, it is recommended to identify possible deputies or cover strategies ahead of time to assure that critical elements of the curriculum (e.g. rotations, EMS) can be delivered in case of unexpected and prolonged staff-absence. Staff workload should be monitored to prevent over-work and burn-out, particularly in services with limited capacity such as farm animal and equine clinics.
- 10.25. A more frequent appraisal system is recommended to assure staff are appropriately supported in their efforts of lifelong learning and to increase job satisfaction through non-monetary mechanisms such as formal feedback.
- 10.26. The creation of an educational career and/or a clinical educator career track should be further considered. This is particularly relevant to support the Department's increased efforts in adopting novel educational approaches. It would also offer career progression options to clinical staff.



## 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.**

**It should strive to provide well-designed continuing education programmes in specific areas of practical veterinary medicine.**

### Findings

- 11.1. Members of the clinical department are actively involved in CPD provision for other course providers. This includes contributing to modular courses such as those provided by the BSAVA and Improve International for Postgraduate Certificates, participating in webinars such as for WebinarVet, and providing lectures for regional meetings as well as national and international conferences.
- 11.2. The Department runs a limited number of Continuing Professional Development (CPD) courses for veterinary practitioners, which focus on areas not covered by other CPD providers. These include courses such as the Clinical Research Outreach Programme as well as those with a more practical component such as the Advanced Small Animal Medicine Course and the Radiology Film Reading, which have been running for over 30 years. The courses organised in the Department during the last year are listed in Table 11.a.
- 11.3. The Department also hosts between 40 – 50 visiting veterinary surgeons each year. Each veterinary surgeon either makes an arrangement with or is assigned to a host member of staff to attend a particular service for a specified length of time. Each application is reviewed and approved by the Hospital Management Committee before arrival. External applicants include residents gaining additional or specialist experience as well as veterinary surgeons from practice gaining an intensive period of practical training in a specific area. Each visitor joins one of the clinical disciplines for a period of usually one to three weeks. These Visitors are always very grateful for the opportunity we provide and appreciate the excellent opportunity for gaining intensive clinical experience at tertiary referral level.

### Journal Clubs

- 11.4. Most disciplines in the Hospital run their own Journal clubs on a regular basis. These Journal clubs are open to all and form an important part of the residency-training programmes. They also provide professional development for the senior members of staff and helps them keep abreast of the latest scientific papers as well as ensuring that a systematic and balanced critique of the papers under scrutiny is performed.
- 11.5. A new innovation has been the establishment of a Veterinary Education Journal Club. This has proved very popular with clinical staff and the attendance has grown quickly to around 20 per session. Topics covered have included clinical reasoning, giving feedback and the flipped classroom. The papers are posted on CamTools for those attending as well as for reference for those who are unable to attend the session.

**Academic Staff Development**

- 11.6. The University organizes a comprehensive programme of courses for Academic Staff Development on many aspects of teaching, research and administration that are common to several disciplines. Teaching staff are encouraged to attend these sessions, some of which are designed to meet the specific needs of newly appointed staff, whilst others aim to assist staff to develop their full potential in teaching and leadership.
- 11.7. The Department introduced Staff Training Days in 2010 and these occur at least annually. Each of these training days focuses on an aspect of current interest/concern. A summary of these sessions is made available to all staff via CamTools and/or the Teaching Guide. The subject areas covered to date have been:
- 2009-10: principles of assessment, essay questions, multiple choice questions
  - 2010-11: short answer questions, continuous assessment
  - 2011-12: lectures and presentations, handouts and other teaching material, peer review
  - 2012-13: final year rotation assessment, communication skills teaching
  - 2013-14: communication skills teaching and assessment
  - 2014-15: multiple choice questions, writing good questions with effective distractors, item analysis and evaluation discriminatory power of questions
- 11.8. The University organizes a series of seminars on effective teaching delivery and assessment methods. New lecturers are strongly recommended to attend these sessions during their probationary period.
- 11.9. There are a considerable number of seminar series organised by other cognate Departments that are regularly attended by members of the preclinical and clinical staff at the University.

**Table 11.a: Courses organised by the establishment in 2014**

| Title of course                                       | Number of participants  | Total number of hours of the course |
|---|-------------------------|-------------------------------------|
| Advanced Course in Small Animal Medicine (July 2014)* | 30                      | 35                                  |
| Radiology Film Reading, 2013-2014                     | 10-15                   | 40                                  |
| Small Animal Medicine and Surgery CPD Marathon*       | 50                      | 10                                  |
| Small Animal Medicine CPD Fiesta*                     | 80 - 90                 | 8                                   |
| Fundamentals of Veterinary Science Summer School      | 12 - 15                 | 450 contact hours / student         |
| Tea Club Talks  | 30 - 60                 | Fortnightly during term             |
| Research Seminar (Friday morning seminar)             | 30                      | Weekly during term                  |
| Animal Welfare Seminars                               | 8 -16                   | Weekly during term                  |
| Cambridge University Veterinary Society Talks         | 50 (students and staff) | Weekly during term                  |
| Clinical Research Outreach Programme (CROP)           | 25                      | 100 hrs / student                   |
| Joint BEVA meeting in Equine Lameness                 | 20-40                   | 16                                  |
| Farm Practice Meeting                                 | 30 - 40                 | Quarterly                           |
| Animal Welfare Course                                 | 24                      | 72                                  |

\* Courses organised by East of England CPD (Dr Mark Reading)

## Comments

- 11.1. The Department is engaged in continuing education of the profession, as required by the RCVS and EAEVE standards. Due to the close proximity to London, Newmarket and the Animal Health Trust, there is significant competition between other course providers and thus no specific need for the Department to engage in CPD on large scale.

- 11.2 The Department runs internal seminars every week, which are well-received and are beginning to lead to increased collaboration across different disciplines within the Department and a culture where all relevant disciplines can contribute to the outcome of research projects, for example a closer link between epidemiology and clinical sciences.

### Recommendations

- 11.3 None.

### Suggestions

- 11.4 None.

## Chapter 12 – Postgraduate education

(see also Stage two)

### **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

### **Clinical speciality training**

- 12.1. The Department runs programmes for Junior Clinical Training Scholars (1-year positions; “internships”) and Senior Clinical Training Scholars (3-year training position; “residencies”). Table 3a shows current clinical training scholars in the establishment.
- 12.2. All these training posts are funded by Scholarships. Published handbooks outline the SCTS and JCTS programmes. The SCTS programme includes a short research project for which a defined budget is given.

**Table 12.a: Clinical Speciality training**

| Clinical Discipline<br><br>(Note) | Duration of training | Number enrolled                          |   | Diploma or title anticipated |
|-----------------------------------|----------------------|--|---|------------------------------|
|                                   |                      | Senior Clinical Training Scholar (SCTS)* | Junior Clinical Training Scholar (JCTS) |                              |
| 1. SA Surgery                     | 3 years              | 3  |   | Dip ECVS                     |
| 2. SA Internal Medicine           | 3 years              | 3  |   | Dip ECVIM                    |
| 3. Anaesthesia                    | 3 years              | 3  |   | Dip ECVA                     |
| 4. Diagnostic Imaging             | 3 years              | 2  |   | Dip ECDVI                    |
| 5. Anatomic Pathology             | 3 years              | 2  |   | Dip ECVCP, FRCPath           |
| 6. Neurology                      | 3 years              | 1  |   | Dip ECVN                     |
| 7. Pig Health Management          | 3 years              | 1  |   | Dip PHM                      |
| 8. Clinical Pathology             | 3 years              | 2  |   | Dip ECVCP, FRCPath           |
| 9. Oncology                       | 3 years              | 1 (plus one part-time)                   |   | Dip ECVIM-Oncol              |
| 10. Cross species / Disciplines   | 1 year               |  | 11**                                    |                              |

\* All those studying for a European Diploma are on training programmes approved by the relevant European Specialty College.

\*\* Junior Clinical Training Scholars (JCTSs) are not registered on an external training programme, but undertake a rotational training devised by the Department and under the direction of the JCTS Co-ordinator. Many JCTSs will subsequently go on to join an SCTS programme in the Department or elsewhere. Of the 11 JCTSs, 7 are in small animal studies, 2 in equine studies and 2 in farm animal studies.

### **Research Education programmes**

12.3. The Department does not provide taught postgraduate degree courses. The graduate degrees available in the Department are Master of Philosophy (MPhil), Doctor of Philosophy (PhD) and Doctor of Veterinary Medicine (PhD). The number of postgraduate students in these degree programmes is given in Table 12.b.

12.4. One to two Cambridge VetMB graduates enter programme (b) per year. Roughly similar numbers take up postgraduate research training elsewhere (total is <10% of student cohorts). Cambridge VetMB graduates do not usually enter programme (a). Most four-year PhD students are part of programmes of a 1 year + 3 year format where the PhD project itself lasts 3 years.

## **Funding**

- 12.5. The majority of graduate research students are funded externally through Doctoral partnership programmes with the BBSRC and the MRC (each supplemented by some University Trust funding), specialised Doctoral Programmes of the Wellcome Trust, through an exchange programme with the National Institutes of Health, or internally through the Gates Scholarship Foundation, the Cambridge University Overseas Trust and the Cambridge Home and EU Scholarships. Individual students are also funded from a variety of UK and overseas sources. Funding for travel, conferences etc. comes both from grants and from University and college sources.
- 12.6. Student management has several components that are specified in a Code of Practice for Postgraduate Degrees at the University of Cambridge. All students have an appointed primary supervisor and either a single further advisor in a research Department or a supervisory team.
- 12.7. The student is expected to have formal meetings with their supervisor on a regular basis and with the advisor or team at least twice per term. The supervisor reports on progress to the Department and college once per term through a web based reporting tool, and these reports are also available to the student. Graduate educational matters, problematic student cases, ranking of students for scholarships and the like are dealt with through a Departmental Graduate Committee, chaired by the Director of Graduate Education, who also acts as an independent ear for student problems.
- 12.8. In addition, all postgraduate students on a degree programme are required to be a member of a College; that College provides further pastoral support through the student's College Tutor and seminars that their College might provide. Thus the student is also supported by a College graduate Tutor, whose role is to deal with welfare problems, and to act as an advocate for the student in any dispute with University or course managers.
- 12.9. All the research postgraduate students are required to undergo transferable skills training, which is provided partly at Departmental level and partly centrally through the Graduate School of Life Sciences.
- 12.10. A number of short courses or projects providing research education are open to those studying at different levels. These include:
- Summer research projects for undergraduate students (mainly vets but including others in the life sciences);
  - Research projects for SCTSs, often combining clinical and laboratory work;
  - Research lab rotation projects for Master of Research (MRes) students taking part in a BBSRC Doctoral Training Partnership in 1 year + 3 year format. The MRes degrees are awarded by the School of Biological Sciences. Some of these students then take PhD Degrees registered through the Department of Veterinary Medicine.
  - The Clinical Research Outreach Programme ("CROP course"). This provides a foundation in clinical research methods and is open both to veterinarians in practice, but also to those

undertaking postgraduate clinical training and postgraduate research students who need to look at clinical research methodology and project design.

**Table 12.b: Number of research students enrolled in different programmes**

| a). Masters Level   | Duration of Training   | Number enrolled     |                   |
|---|------------------------|---------------------|-------------------|
|   |                        | Full time           | Part time         |
| MPhil (Vet Sci) in the Department of Veterinary Medicine    | 12 months              | 2                   | Nil               |
| b) PhD Level  | Duration of Training   | Number enrolled     |                   |
|   |                        | Full time           | Part time         |
| PhD (Vet Sci) in the Department of Veterinary Medicine      | 36 months or 48 months | 34 (19F, 15M)       | Nil               |
| Percentage of PhD students holding a veterinary degree: 47% |                        |                     |                   |
| c) Other doctoral level<br><br>Degree and discipline        | Duration of Training   | Number enrolled = 3 |                   |
|   |                        | Full time           | Part time         |
| Vet MD  | Up to 6 years          | see note 3, below   | see note 3, below |

**Notes**

1. For both (a) and (b) students must be grant supported.
2. For (c) students are self-funded.
3. Programme (c) is designed for Cambridge graduates who are veterinarians in clinical practice. There are currently 3 students enrolled on this programme.

**Comments**

- 12.11. Junior and Senior Clinical Training Scholars form a valuable part of the complement of qualified veterinary surgeons at Department of Veterinary Medicine. They are especially crucial to the running of the hospital and the first opinion ambulatory clinics. They are often engaged in teaching practical skills (clinical supervision) for which they receive some formal guidance and instruction by senior members of staff (but see recommendation in Chapter 10 – Academic and support staff). Senior trainees are expected to participate in teaching courses.
- 12.12. The number of postgraduates training at PhD level is high. They form a core part of the research team of the Department. Recruitment of PhD students is a priority but is dependent on continued efforts to attract external funding. There are, however, some opportunities to obtain stipends from the University.



## Recommendations

12.13. None.

## Suggestions

12.14. None.

## Chapter 13 – Research

**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

- 13.1. Student opportunities to perform research (defined as laboratory, clinic or field-based experimental work, or novel analysis of data supplied by others, or novel retrospective meta-analysis) are tabulated below.

| Year of Course | Name of Course Component  | Research Hours  | % Students involved   | Outcome required  |
|----------------|---|---|---|---|
| 3              | Natural Science Tripos (NST) Part II  | 300-400 timetabled, plus own time (subject dependent) | Approx. 65% of students take a year 3 option with a research project; the remainder undertake a research dissertation | Project Presentation 15-20 mins and Project Report: 15-25% of NST Part II Year mark, subject dependent  |
| 4              | Final Vet MB Assignments: VPH assignment (Bristol abattoir placement) – one essay relevant to the role of OV and two reports relating to abattoir specimens | Own time during placement                             | 100%  | Assessed by written work. Pass required to proceed to Final Vet MB Part II exam                         |
| 6              | Final Vet MB Part III elective  | 8 weeks full time                                     | 100%  | Dissertation: Presentation: Certificate of diligent attendance<br><br>Pass required for award of Vet MB |

- 13.2. The University of Cambridge is the leading research university in Europe, according to most published studies, and this is reflected in its strong research ethos. Students at Cambridge therefore have significant and excellent opportunities to perform research, and are strongly

encouraged to do so. All students have some substantial periods of the timetable specifically allocated to research and therefore receive a minimum level of research exposure and training.

- 13.3. This will be strengthened by the introduction of a short research-based assessment in 4<sup>th</sup> Year, linked to the Integrated Animal Management course and examined by written and oral presentations. This assignment has been allotted 10 hours of timetabled time, plus self-directed study in the students' own time. Students must pass the assignment (assessment criteria and descriptors have been finalised) before then can take the Final VetMB Examinations Part II. This has been agreed by the Teaching Strategy Committee, for introduction by the 2016-17 academic year.

#### **1<sup>st</sup> and 2<sup>nd</sup> Year research opportunities**

- 13.4. Students have many opportunities to develop elements of the research skills base, including analytical, synthetic and presentational skills. This starts with the use of problem-based learning approaches in the Medical and Veterinary Sciences Tripos (MVST) Parts IA and 1B (Years 1 and 2 of the course) in which students learn library and web skills in researching a component of the course, which they then present to their peers. This type of synthetic and presentational work occurs in all subsequent years of the course.

#### **3<sup>rd</sup> Year research opportunities**

- 13.5. In Year 3, about 65% of students take the opportunity to study single-subject basic science at Honours level by joining the Natural Science Tripos (NST) courses. These courses have a laboratory-based research project as a major component. Veterinary, medical, and basic science students undertake projects in the Department as part of these Tripos subjects. Similarly, some veterinary students undertake project work in basic science or (human) clinical medicine departments. All are supervised by academic staff with significant research experience and expertise, including, in most instances, individuals who are at the international forefront of their fields. Most of the students who do not do a single subject laboratory-based project in Year 3 undertake broader science-based courses (the NST Biological and Biomedical Sciences Part II option) to compile a dissertation, which usually involves novel analysis.

#### **6<sup>th</sup> Year research opportunities**

- 13.6. All students are required to undertake a clinical-based project as part of their elective in Year 6. The project is assessed by written and oral presentations and a statement from the supervisor on the manner in which the project was conducted. This assessment contributes to the overall marks in the VetMB Final Examination Part III. The electives in Year 6 can involve laboratory or clinic based research projects, but can also involve the production of a novel teaching CD-ROM, or a similar synthetic review. The majority (>90%) of projects are practical, clinically-based investigations. The outputs of elective research projects often contribute to presentations at BSAVA or similar meetings.

#### **Summer Vacation Studentships**

- 13.7. Summer Vacation Studentships provided by Biotechnology and Biological Sciences Research Council (BBSRC) are advertised to Departmental staff and students. Wellcome Trust-funded

studentships are also available and applications from students who express a desire to undertake a summer research project are supported by their potential supervisor in the application process. Up to 6 weeks of the research project may be counted as EMS. However, students in 4<sup>th</sup>-6<sup>th</sup> years tend to focus on obtaining clinical EMS in practice; as a result most students undertaking summer vacation projects do so at the end of their 3<sup>rd</sup> year (after their MVST Part II). Students in their clinical years that express a desire to undertake a summer research project have, in recent years, been directed to the Summer School.

#### **Summer School for prospective veterinary-qualified research students**

- 13.8. Up to 2013, Cambridge hosted the 9-week Summer School, 'Fundamentals of Veterinary Science', funded by the Wellcome Trust. This had the express objective of allowing veterinary students to consider research careers. It placed veterinary students from clinical years in a world-class laboratory to perform a research project. It also ran career discussions and analyses of important veterinary problems such as TSEs or bovine TB, introducing the student to internationally renowned academic staff who specialise in these problems. Students were recruited from the UK, the USA and all parts of Europe. For UK students, up to 6 weeks of the Summer School may be counted as EMS. The Wellcome Trust funding ceased at the end of 2013.

#### **Cornell Leadership Programme**

- 13.9. In the last few years an increasing number of our students have chosen to spend a part of their vacation attending the Leadership Programme for Veterinary Students at Cornell University in the USA. We actively encourage application to this prestigious, selective programme, which is designed to prepare young veterinarians for academic and research careers. An average of 1 student per year has attended this course since the last Visitation. These students normally attend at the end of their 4<sup>th</sup> year. In addition to this, increasing numbers of students are now spending part of their EMS time in research laboratories both in the UK and overseas.

#### **Comments**

- 13.10. The Department offers a research-based education to the students and provides excellent research opportunities for them. Research being undertaken at different Faculties of the University of Cambridge gives valuable opportunities to veterinary students and is to be commended.
- 13.11. Research activity in the undergraduate curriculum not only widens the professional horizon of the students and can attract students to research, but helps the students in critical reading and understanding research papers.
- 13.12. The opportunity to study single-subject basic science at Honours level together with veterinary medicine is a particular advantage of the veterinary programme at the University of Cambridge.
- 13.13. Summer vacation studentships provide students with an insight in research programmes and research activity in the 6<sup>th</sup> year maintains students' interest in research especially in clinical and veterinary- oriented subjects.

### Commendations

13.14. The research opportunities that are offered to veterinary students.

### Recommendations

13.15. None.

### Suggestions

13.16. The Department should continue its efforts to find new funding sources in order to continue the 9-week Summer School.

## 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 behavior 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

#### Preclinical EMS

- 14.1. The objective of pre-clinical EMS is to provide students with practical experience of working with farm animals, horses, and other commercial enterprises involving the husbandry of animals. On completion of preclinical EMS, students should be able to perform a range of husbandry tasks with a basic competency, with due regard to their own safety, the safety of colleagues, and the welfare of animals in their care.
- 14.2. In order to complete the preclinical EMS requirements, students must complete a minimum of 12 weeks work, 8 of them on farms in the UK, to include:
  - At least 2 weeks working with cattle (dairy, beef or calf rearing);
  - At least 2 weeks working with sheep (preferably to include lambing);
  - At least 2 weeks working with pigs (preferably with at least 50 breeding sows);

- At least 2 weeks working with horses;
  - At least 2 weeks working with dogs/cats in a boarding kennels/cattery or similar establishment;
  - At least 2 other weeks working with either the above or other animals (e.g. poultry farms, laboratory animals, wildlife sanctuary, zoological collections in UK, farms abroad, etc.)
- 14.3. These 12 weeks of work on farms or other animal management-related establishments must be approved by the Tutorial Office, Veterinary School Clinical Supervisor (VSCS) and pre-clinical EMS Coordinator. These elements ensure that pre-clinical EMS achieves its goals of providing students with practical experience of animal management, husbandry and handling of farm animals while retaining a reasonable degree of flexibility for gaining experience with the practical management of other non-farm species.
- 14.4. Students have an introductory lecture on pre-clinical EMS as part of the Principles of Animal Management course and are supplied with a booklet 'A guide to Extramural Studies for Preclinical Veterinary Students' that stipulates the requirements and gives suggestions for what students should seek to achieve on their placements.
- 14.5. The Tutorial Office maintains a database of around 350 preclinical EMS placements that have been approved and which fulfill our required health and safety and insurance conditions. Any new placement suggested by the students is contacted prior to the placement and sent paperwork explaining these conditions and the aims and objectives of preclinical EMS. The placement then sends back their details and signed agreement that such conditions are in place, and if they have given their permission for their contact information to be given to all students, they are then added to the preclinical EMS database.
- 14.6. Students are required to complete a risk assessment form for any preclinical EMS placements abroad or any placements in zoos or safari parks within the UK. This is discussed with their VSCS who provides feedback and approval before submission to the Tutorial Office.
- 14.7. Students and their preclinical VSCS meet termly to discuss placements, placement reports and progress with preclinical EMS. Attendance at these meetings is required to be certified and students are required to show evidence of attendance at these meetings before progression to the fourth year.
- 14.8. Preclinical EMS is only valid if conducted from the Christmas vacation of the 1<sup>st</sup> Year (i.e. after the student is matriculated) and must be completed before entry to the 4<sup>th</sup> Year of the course. In exceptional circumstances, allowances may be made for preclinical EMS completed before starting the course but only at the discretion of the Faculty Board of Veterinary Medicine. The minimum period advised for placements at preclinical EMS establishment is 2 consecutive weeks and attendance at each period of preclinical EMS must be certified either by the manager of the establishment, or the student's supervisor. Attendance certificates require confirmation of diligent attendance and satisfactory performance. A specific member of staff acts as EMS Coordinator for the preclinical EMS.

- 14.9. Students must attend a compulsory Health and Safety lecture (related to farm and animal hazards) and complete a Pre-Clinical EMS “driving licence” before embarking on allowable pre-clinical EMS.
- 14.10. Students are required to submit a brief report (approx. 500 words) on each of their preclinical EMS placements; a template report form is provided to the students. The report is submitted to, assessed and approved (unless inappropriate to approve) by the student's VSCS and is then forwarded to the Tutorial Office that maintains a record for each student. The EMS Coordinator for preclinical EMS monitors these reports. The student cohorts that will graduate in 2019 and 2020 are trialling the new RCVS on-line student experience log.

### **Clinical EMS**

- 14.11. Resources to support students in undertaking Clinical EMS:  
The EMS Coordinator, with administrative help from the Academic Support Officer and Senior Secretary (Academic Support), maintains an electronic database of around 930 veterinary practices (including charity clinics) that accept Cambridge students. All practices entered on the database are sent a set of guidance notes on the Cambridge EMS scheme. Databases of meat plants and Animal and Plant Health Agency (formerly Animal Health Veterinary Laboratory Agency) Laboratories, drawn from official sources, are also available. Students also have access to the RCVS Directory of Practices. Uniquely among UK veterinary schools, the Department provides travel and maintenance grants to assist students in EMS. All students are issued with a clinical EMS guidance booklet, which contains the necessary regulations and forms. They are also provided with a Clinical Skills Checklist ('black book') which contains forms to record the compulsory experience required, and a clinical skills checklist to enable them to monitor their acquisition of day one competences, thereby acting as the basis of a personal development portfolio. Students entering the clinical course from October 2013 onwards have been enrolled on the RCVS Student Experience Log in which they can record placements, Aims and Objectives, clinical experiences/skills undertaken, etc.
- 14.12. Twenty-six weeks of clinical EMS are required and the Department offers students support in arranging and undertaking a programme of placements in a variety of practice and other veterinary environments suited to their own developmental needs and interests. Clinical EMS may not begin before the Michaelmas Term of the 4<sup>th</sup> year and the minimum of 26 weeks clinical EMS requirement must be completed before entry to the Final Veterinary Exam Part III. Clinical EMS requirements have been revised since the last Visitation in 2008 to take into account the recommendations of the RCVS Policy and Guidance issued in 2009. The aim is to make EMS as flexible as possible while still ensuring that students gain sufficient experience of the main veterinary species and UK practice.
- 14.13. The Department's EMS requirements are that the first 6 weeks of clinical EMS should be in 3 blocks of 2 weeks each of first opinion UK practice in a variety of species ('preparatory EMS'), classified as small animal, farm animal and equine practice. It is hoped that at least one of these practices may become a 'base practice' to which students return during the clinical course.
- 14.14. The remaining 20 weeks can be spent in a variety of veterinary practices and activities in the UK and abroad. In order to ensure RCVS Day 1 Competences, students are required to spend at



least 4 weeks in predominantly farm animal practice (including 2 weeks of cattle); 4 weeks in predominantly small animal practice and 4 weeks in equine practice.

- 14.15. Students can include one week at an APHA (formerly AHVLA) regional laboratory (or counterpart in Scotland or Northern Ireland). This is no longer compulsory due to a national shortage of placement opportunities but it is strongly recommended particularly for students interested in a career in large animal practice.
- 14.16. Abattoir work is no longer part of obligatory EMS because a week at the University of Bristol's abattoir facility is now part of intramural teaching. However, students are encouraged to consider further weeks at an abattoir or with the State Veterinary Service as part of EMS.
- 14.17. Conference attendance at certain stipulated conferences can count for up to 5 days of EMS, provided the student can provide evidence of attending lectures. It is stipulated that students include no more than 4 weeks EMS at this veterinary school (which includes elective work). It is also stipulated that students include no more than 6 weeks abroad in the minimum 26 weeks' requirement.
- 14.18. An introductory presentation by the EMS Coordinator on clinical EMS is given at the beginning of the Michaelmas Term of 4<sup>th</sup> Year. This is expanded in meetings with individual VSCSs and their students. 4<sup>th</sup> and 5<sup>th</sup> Year students progress through rotations that provide an introduction to practical clinical work, which helps to prepare the students for their EMS.
- 14.19. The individual student's VSCS is responsible for advising on EMS, for instance on reputational requirements, suitable placements, placements abroad, and for suggesting funding opportunities. Students are encouraged to discuss their progress in EMS, the balance of experience obtained, and their future plans for EMS with their VSCS at a compulsory termly individual meeting. Records of each individual student's EMS are retained by the Academic Support Officer and the student concerned and are reviewed by the Veterinary School Clinical Supervisors (VSCS) at their termly meeting with each student. Individual students record their practical experiences in their 'black book' and this is then used as a guide to planning further EMS and reviewing their progress in relation to attaining day one competences.
- 14.20. The School has introduced an EMS planning form, which encourages students to consider their aims and objectives for each period of EMS, and also helps discussion with their VSCS. The cohorts due to graduate in 2016 and of 2017 are trialling the new RCVS on-line student experience log.
- 14.21. Assessment of EMS is by means of certificates of attendance and by feedback forms (a) from the EMS placement provider reporting upon the student and (b) from the student reporting on each EMS experience.
- 14.22. The VSCS and EMS coordinator are informed of any negative feedback from practices of students and take appropriate action, which usually involves discussion the problems encountered with the student. The EMS coordinator will usually also contact the practice.

- 14.23. Records of each individual student's EMS are retained by the Academic Support Officer and the student concerned and are reviewed by the Veterinary School Clinical Supervisors (VSCS) at their termly meeting with each student. Individual students record their practical experiences in their 'black book' and this is then used as a guide to planning further EMS and reviewing their progress in relation to attaining day one competences. The cohort due to graduate in 2016 also trialled the new RCVS on-line student experience log alongside their black books.
- 14.24. Satisfactory completion of 26 weeks of EMS is a requirement before sitting the Final Vet MB Part III. Certain practical skills have to be certified by members of staff as having been satisfactorily completed (the clinical checklist or "Black Book" system). A record of attendance at compulsory classes is also required in the 'black book'.
- 14.25. Assessment of EMS is via feedback questionnaires from both the student and the extra-mural teacher following each period of EMS. Student reports on EMS are seen by the VSCS and EMS Coordinator, who convey any significant problems that are identified to the Director of Teaching. There is also an annual questionnaire survey of final year students to assess the overall effectiveness of the EMS programme.

## Comments

- 14.1 Both pre-clinical and clinical EMS is well-structured with booklets to advise the students and up-to-date databases of suitable placements provided by the Department.
- 14.2 Placements are supervised by dedicated staff members (VSCS). Students' progress is monitored by the both the provider of the EMS placement and the student who report to the Department after each placement. The provision of a VSCS who works with and monitors the student's progress every term throughout the whole course is noteworthy.
- 14.3 Insurance cover is provided for students on EMS placements and students have to attend a compulsory Health and Safety lecture before any pre-clinical EMS is undertaken.
- 14.4 The Visitors noted that some students seem to be experiencing difficulties finding EMS placements, especially on pig farms. In order to be sure to have an EMS placement, some students have to make arrangements over one year ahead.
- 14.5 Grants are available to help students during EMS – from College or Faculty sources and, whilst not substantial, are very helpful in reducing costs to students

## Commendations

- 14.6 The Department is to be commended for the changes to the structure of EMS that have occurred since the 2008 visitation.

## Recommendations

- 14.7 None.

## Suggestions

14.8 None.

## Annex 1: Main indicators of the European System of Evaluation of Veterinary Training<sup>1</sup>

|     |  | Cambridge              |                   | Recommended value                                 |
|-----|--|------------------------|-------------------|---|
| R1  | <u>no. undergraduate veterinary students</u><br>no. total academic FTE in veterinary training  | <u>405</u><br>103.75   | 3.90 <sup>3</sup> | maximum<br>8.381<br><b>below</b>                  |
| R2  | <u>no. undergraduate students at Faculty</u><br>no. FTE total Faculty  | <u>405</u><br>182.97   | 2.21 <sup>3</sup> | Maximum<br>9.377<br><b>below</b>                  |
| R3  | <u>no. undergraduate veterinary students</u><br>no. VS FTE in veterinary training  | <u>405</u><br>49.85    | 8.12 <sup>3</sup> | Maximum<br>11.057<br><b>below</b>                 |
| R4  | <u>no. of students graduating annually</u><br>no. VS FTE in veterinary training  | <u>63</u><br>49.85     | 1.26 <sup>3</sup> | Maximum<br>2.070<br><b>below</b>                  |
| R5  | <u>no. total FTE support staff in veterinary training</u><br>no. total FTE academic staff in veterinary training                       | <u>79.22</u><br>103.75 | 0.76 <sup>3</sup> | Recommended range<br>0.505-1.907<br><b>within</b> |
| R6  | <u>Supervised practical training</u><br>Theoretical training   | 1498<br>1326           | 1.13              | Minimum<br>0.602<br><b>above</b>                  |
| R7  | Laboratory and desk based work +<br>non clinical <u>animal work</u><br>Clinical Work   | <u>574</u><br>924      | 0.62              | Maximum<br>1.809<br><b>below</b>                  |
| R8  | <u>Teaching load</u><br>Self directed learning   | <u>2974</u><br>335     | 8.88              | Recommended range<br>2.59-46.60<br><b>within</b>  |
| R9  | <u>Total no. hours vet. curriculum</u><br>Total no. curriculum-hours Food Hygiene/Public Health  | <u>2974</u><br>103     | 28.87             | Recommended range<br>8.86-31.77<br><b>within</b>  |
| R10 | Hours obligatory extramural work in veterinary <u>inspection</u> <sup>2</sup><br>Total no. curriculum-hours Food Hygiene/Public Health | <u>21</u><br>103       | 0.20              | Recommended range<br>0.074-0.556<br><b>within</b> |

|     |  |                   |                   |  |
|-----|--|-------------------|-------------------|--|
| R11 | <u>no. of food-producing animals seen at Faculty</u><br>no. of students graduating annually                    | $\frac{105}{63}$  | 1.67              | Minimum<br>0.758<br><b>above</b>       |
| R12 | no. of individual food-animals consultations <u>outside the Faculty</u><br>no. of students graduating annually | $\frac{5709}{63}$ | 90.62             | Minimum<br>8.325<br><b>above</b>       |
| R13 | <u>no. of herd health visits</u><br>no. of students graduating annually  | $\frac{50}{63}$   | 0.79              | Minimum<br>0.326<br><b>above</b>       |
| R14 | <u>no. of equine cases</u><br>no. of students graduating annually  | $\frac{2067}{63}$ | 32.81             | Minimum<br>2.700<br><b>above</b>       |
| R15 | <u>no. of poultry/rabbit cases</u><br>no. of students graduating annually                                      | $\frac{69}{63}$   | 1.10 <sup>4</sup> | Minimum<br>0.407<br><b>above</b>       |
| R16 | <u>no. of companion animals seen at Faculty</u><br>no. of students graduating annually                         | $\frac{7256}{63}$ | 115.17            | Minimum<br>48.061<br><b>above</b>      |
| R17 | <u>Poultry (flocks)/rabbits (production units) seen</u><br>no. of students graduating annually                 | $\frac{9}{63}$    | 0.14              | Minimum<br>0.035<br><b>above</b>       |
| R18 | no. necropsies food producing animals + <u>equines</u><br>no. of students graduating annually                  | $\frac{56}{63}$   | 0.89              | Minimum<br>1.036<br><b>Below (86%)</b> |
| R19 | <u>no. poultry/rabbits necropsies</u><br>no. of students graduating annually                                   | $\frac{30}{63}$   | 0.48              | Minimum<br>0.601<br><b>Below (80%)</b> |
| R20 | <u>Necropsies companion animals</u><br>no. of students graduating annually                                     | $\frac{158}{63}$  | 2.51              | Minimum<br>1.589<br><b>above</b>       |

<sup>1</sup>: Based on Annex One. Supplement A – Ratios ([www.eaeave.org](http://www.eaeave.org) 03.04.2014)

<sup>2</sup>: Veterinary inspection regarding veterinary public health is intramural.

<sup>3</sup>: Staff data include staff of the Department of Veterinary Medicine only, adding staff members of the Department of Biology involved in teaching preclinical subjects would further improve the figures. Teachers from the 3<sup>rd</sup> year cannot be calculated because of the differences in the programs of the different students.

<sup>4</sup>: not calculating small poultry flocks seen in the case of the ambulatory farm animal practice

## **Annex 2: Decision of ECOVE**

No Major Deficiencies had been found.

The Department of Veterinary Medicine, University of Cambridge is classified after Stage 1 Evaluation as holding the status of: **APPROVAL**.