



THE UNIVERSITY *of* EDINBURGH
The Royal (Dick) School
of Veterinary Studies

Self Evaluation Report



9th-13th
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2015

Joint International Visitation by:
The Royal College of Veterinary Surgeons
The American Veterinary Medical Association
The Australasian Veterinary Boards Council
The European Association of Establishments for Veterinary Education
The South African Veterinary Council

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Executive Summary

The Royal (Dick) School of Veterinary Studies (R(D)SVS) at the University of Edinburgh was founded in 1823 and enjoys an international reputation for excellence in teaching, research and clinical service. In the most recent QS world subject rankings (April 2015), it ranked in the top 10 for Veterinary Science. In the most recent Research Excellence Framework (REF 2014) assessment the School was ranked number 1 in the UK for Veterinary Research based on research power. Our success is attributed to the high quality of our staff, our students and our position in one of the world's highest ranked Universities. The University of Edinburgh, founded in 1582, is the sixth-oldest university in the English-speaking world and one of Scotland's ancient universities. The University is deeply embedded in the fabric of the city, with many of the buildings in the historic Old Town belonging to the University. The University of Edinburgh is ranked 17th in the world by the 2013–14 and 2014–15 QS rankings. The Research Excellence Framework, ranked Edinburgh 4th in the UK in 2014. It is ranked the 15th most employable university in the world by the 2013 Global Employability University Rankings. It is a member of both the Russell Group, and the League of European Research Universities, a consortium of 21 research universities in Europe. The School is also strategically embedded within the College of Medicine and Veterinary Medicine, making us ideally placed to tackle problems associated with both human and animal health.

Major Goals and Objectives

The R(D)SVS' major objective is to educate and to advance knowledge through research and clinical service. As such, we see that we have three core pillars:

- Education
- Research
- Clinical Service

We consider these three pillars to be inextricably linked and we are dedicated to providing excellence in all three areas. This involves creating a research-led educational environment that serves to enhance the health and wellness of animals and people, nationally and globally. Our current Strategic Plan <http://edin.ac/1PySm8i> was redeveloped in 2015 following the results of the REF 2014 Exercise. Strategic priorities are shown in the plan as are the mechanisms for achieving each priority. All of these priorities have been developed to support our three pillars.

Methods Used to Evaluate Programme Outcomes, Research and Service

The success of the R(D)SVS in meeting its varied objectives is a result of the talented academic and administrative staff who have a shared commitment to driving excellence. The responsibility for assessment of progress and success is shared amongst the School divisions, School committees, its research institute and Campus administration.

Educational Programmes:

- **BVM&S Degree Programme:** A strong ethos of Quality Assurance permeates all activities relating to the Veterinary degree programme. Mechanisms extend from the level of innovative individual student assessment to regular and robust course and programme review. Details of our approach across all these levels are given in Chapter A11 (Outcomes Assessment) and include a well-developed Quality Assurance (QA) committee, whose reports on course and school level activity are regularly held up as an example of good practice by the College; and involvement in the rolling series of 'Teaching Programme Reviews' (TPRs) which are part of the Scottish approach to Quality Enhancement in Higher Education. Our strong student support structures coordinated by the Veterinary Teaching Organisation (VTO) ensure that struggling students are picked up early and referred on to appropriate supportive or progression committees and are directed to any relevant School or central University support services as appropriate.
- **Postgraduate Clinical Education (Residency Programme):** Residency programmes are monitored through assessment of objective and subjective markers, such as numbers and quality of applicants, and performance on board examinations. Residents are considered postgraduate students and are objectively assessed annually through the standard PG criteria. Each resident will have a small committee that will oversee progress and will flag any issues that may be of concern.

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- **Postgraduate Research (PGR) and Taught (PGT) Programmes:** Students on PGR programmes (Masters and PhD) are monitored through thesis committees that are chaired independently from the student supervisors. The programmes are overseen by the postgraduate Dean who monitors thesis committee reports and chairs the School PG committee. Thesis committees take place at 10 weeks, 9 months, 2 years and 3 years. PhD programmes and supervisors are monitored through completion rates. PGT programmes are assessed through internal QA processes and both PGR and PGT are reviewed by the University PPR (Postgraduate Programme Review), which occurs every 3-5 years.
 - **Continuing Professional Development:** Our CPD programmes seek to complement offerings at local and national meetings. We have moved towards greater on-line delivery of CPD to adapt to a changing environment where practising veterinarians prefer on-line delivery. Registrants in CPD programmes are encouraged to provide evaluative feedback on the quality of the educational experience.

Research Programmes

In the most recent Research Excellence Framework (REF) 2014 UK analysis, the University was ranked 4th in the UK (as a University) and the R(D)SVS was ranked 1st in the UK for Veterinary Research (by research power). Our research excellence is evidenced by our research income, publication output and through our impact on society. In addition, our academic staff contribute to numerous national and international grant awarding panels, editorial boards, research organizations and advisory boards.

Clinical Services

The quality of health care delivery in our clinical programmes is monitored through such indices as the caseload within sections, the number of repeat referrals from practising veterinarians, and formal and informal feedback from clients and referring veterinarians. The demand for traditional hospital services, especially for companion animals, continues to be very high. While the demand for small animal services substantially exceeds the demand for services for horses and food animals, the overall caseload is more than adequate to provide excellent clinical learning experiences for BVM&S students and clinical residents.

Major Strengths of the School

- The School benefits from outstanding staff (academic, administrative and support). We have cultivated a culture that respects and supports the activities of all staff, fostering a positive, collegial working relationship among basic science and clinical staff in teaching and research. Staff morale is high as evidenced by our own staff surveys.
 - The School has created opportunities for academic staff to be promoted on the basis of either Research, Clinical Excellence, Teaching or a combination of these. The School was the first to create a Chair of Veterinary Education.
 - The School has benefitted from significant inward investment into infrastructure since 2008 (£100M), creating an exceptional environment for teaching, research and clinical service. A further £80M investment is planned for the next 5 years. The high quality of the environment supports recruitment and retention of key staff.
 - Academic staff share a commitment to excellence in teaching and are actively committed to the high quality of the learning environment, as evidenced by investment in their own teaching, staff-initiated projects in teaching and learning, local funding of educational initiatives, and dissemination of information through publications, public forums, and the internet.
 - The School benefits from being embedded within the College of Medicine and Veterinary Medicine (CMVM), being well placed to support a "one health agenda" and contributing to both human and animal health. Equally, the School benefits from being part of a world-leading research-led University.
 - The School has a highly successful research programme through the Roslin Institute. The Roslin is a BBSRC institute and we have been able to attract high caliber researchers to our programmes, who also contribute to teaching. We were ranked 1st in the UK for research power in the most recent REF (2014) exercise.
 - The School is well supported by campus infrastructure and resources (e.g., physical plant, environment and Health & Safety).
 - We have a strong educational programme, underpinned by a commitment to an outstanding student experience. We have adopted a personal tutor system that has been well received by our student body. Linked to this we have strong support and welfare mechanisms for students experiencing difficulties.
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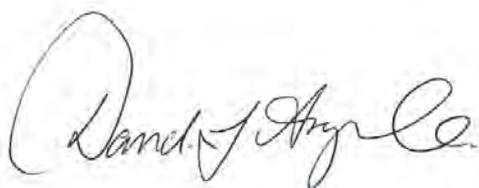
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- We have exceptionally good teaching space, including two clinical skills laboratories with advanced teaching aids.
 - We have a strong clinical infrastructure (first opinion and referral level) that underpins clinical teaching.
 - We attract exceptional students from all over the world and from diverse backgrounds and diverse career goals. Our graduates are considered highly employable.
 - We have a very strong postgraduate programme, recently strengthened with additional funding for ECAT-V (Edinburgh Clinical Academic Track for Veterinarians).

Major Weaknesses of the School

- Student debt is a major consideration for the School. The University has made available significant bursary options for non-full fee students, but increasing student debt amongst fee-paying non-EU students is an escalating problem. The University, through its North America Office, is actively encouraging philanthropic giving for the support of bursaries and scholarships for both USA and Canadian students across the University, and is one of its key funding aims going forward.
- Further escalation of salaries in both the basic and clinical sciences could put a strain on our ability to remain competitive in recruitment and retention of excellent faculty members.
- The success and growth of clinical and research programs results in space being used very intensively.
- Despite a successful REF outcome, the University received a £14M reduction in its grant from Scottish Funding Council (SFC). This reduced the expected increase in QR income (research component of Scottish Funding Council grant) we had anticipated from our REF result. However, the University has worked hard to minimize any immediate impact.

Recommendations

The R(D)SVS has many more opportunities than challenges and enjoys many advantages that few other similar programmes possess. We benefit enormously from being part of Edinburgh University and it is a major strength being embedded within the College of Medicine and Veterinary Medicine. The R(D)SVS continues to grow and we have defined our key strategic priorities that will underpin enhancing excellence in our three core pillars of education, research and clinical service. As highlighted in our strategic plan, we will continue to focus significant efforts on recruiting a diverse and talented pool of veterinary medical students who have indicated a desire to pursue a career among the broad array of opportunities available in the veterinary medical field. Ultimately, the School's key aims are to educate the next generation and to advance knowledge through research. We will continue to do that through recruiting the very best students and recruiting and retaining the very best staff.



Professor David J. Argyle BVMS PhD DECVIM-CA (Oncology) MRCVS

RCVS and European Recognized Specialist in Veterinary Oncology
William Dick Chair of Veterinary Clinical Studies
Dean of Veterinary Medicine and Head of School

Glossary

A-FAVP	A-Foundations in Advanced Veterinary Practice
A(SP)A	Animals (Scientific Procedures) Act
AVMA	American Veterinary Medical Association
AMEE	Association for Medical Education in Europe
AWERB	Animal Welfare and Ethical Review Body
BBSRC	British Biological Sciences Research Council
BVM&S	Bachelor of Veterinary Medicine and Surgery
CE	Continuing Education
Cert AVP	Certificate of Advanced Veterinary Practice
CMVM	College of Medicine and Veterinary Medicine
CPD	Continuing Professional Development
CQAC	College Quality Assurance Committee
CSG	College Strategy Group
CT	Computed Tomography
DEFRA	Department for Environment, Food and Rural Affairs
DEU	Digital Education Unit
DHHPS	Dairy Herd Health and Productivity Service
DOPs	Directly Observed Procedures
EAWS	Exotic Animal and Wildlife Service
ECAT	Edinburgh Clinical Academic Track
ECAT – V	Edinburgh Clinical Academic Track for Veterinarians
EDCH	Edinburgh Dog and Cat Home
EEVeC	Edinburgh Electronic Veterinary Curriculum
EMS	Extra Mural Studies
EU	European Union
EUSA	Edinburgh University Students' Association
FAP	Farm Animal Practice
FSA	Financial Services Authority
FSG	Fee Strategy Group
GEP	Graduate Entry Programme
HEA	Higher Education Authority
HfSA	Hospital for Small Animals
HSE	Health and Safety Executive
IAD	Institute for Academic Development
IB	International Baccalaureate
ISDN	Integrated Services Digital Network
IVSA	International Veterinary Student Association
JANET	National academic computer network
JMICAWE	Jeanne Marchig International Centre for Animal Welfare Education
LEAPS	Lothian Equal Access Programme for Schools
LGBT Network	Lesbian Gay Bisexual and Transgender Network
LSoKVL	Lady Smith of Kelvin Veterinary Library
LTC	Learning and Teaching Committee
MCQ	Multiple Choice Questions
MMI	Multiple Mini Interviews
MOOC	Massive Open Online Course

MRC	Medical Research Council
MRCVS	Member of the Royal College of Veterinary Surgeons
NAVLE	North American Veterinary Licensing Examination
NOVICE Network	Network of Veterinarians in Continuing Education
NSS	National Student Survey
OSCE	Objective Structured Clinical Examination
OSPRE	Objective Structured Practical Examination
OV	Official Veterinarian
PACS	Picture Archiving and Communication System
PAS	Production Animal Science
PAL	Peer Assisted Learning
PDSA	People's Dispensary for Sick Animals
PGR	Postgraduate Research
PGT	Postgraduate Taught
PI	Principal Investigator
PMS	Practice Management System
PPD	Postgraduate Professional Development
QAA	Quality Assurance Agency
QR Codes	Quick Response Codes
R(D)SVS	The Royal (Dick) School of Veterinary Studies
RASG	Recruitment and Admissions Strategy Group
RCVS	Royal College of Veterinary Surgeons
REF	Research Excellence Framework
RPL	Recognition of Prior Learning
RUK	Rest of United Kingdom
SCQF	Scottish Credit and Qualifications Framework
SEU	Scottish and European Union
SFC	Scottish Funding Council
SMG	Senior Management Group
SQA	Scottish Qualifications Authority
SQAEC	Senatus Quality Assurance and Enhancement Committee
SRUC	Scotland's Rural College
SSAG	Student Support and Advisory Group
SSLC	Staff Student Liaison Committee
SSPCA	Scottish Society for Prevention of Cruelty to Animals
TPR	Teaching Programme Review
UCAS	Universities and College Admissions Service
UoE	University of Edinburgh
VDS	Veterinary Defence Society
VERC	Veterinary Ethical Review Committee
ViEW	Veterinary Education Worldwide
VLE	Virtual Learning Environment
VMCAS	Veterinary Medical College Application Service
VMED	Veterinary Medical Education
VMQAC	Veterinary Medicine Quality Assurance Committee
VSC	Veterinary Student Council
VTO	Veterinary Teaching Organisation

AVMA Standard 1, Organisation



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Buy yourself a tablet

AVMA Standard 1, Organisation

1. Organisation

Royal (Dick) School of Veterinary Studies' Mission Statement

We aim to provide world-class education, research and clinical service to improve the health of animals and human beings alike.

Our mission is to benefit society and the environment by educating veterinary surgeons to become members of world-wide public and professional health care teams; and to advance veterinary and comparative medicine through research into disease and disease processes, with the goal of improving the health and welfare of both animals and human beings.

Using outstanding Educational, Research and Clinical facilities, we:

- Ensure a stimulating educational environment to equip our students for the profession and life-long learning, underpinned by an excellent curriculum.
- Undertake veterinary clinical and biomedical research to improve animal health and welfare.
- Provide a veterinary service of the highest quality to our clients, and in doing so provide clinical opportunities for our students in a wide variety of domestic species.
- Protect society through safe food production and control of emerging and zoonotic diseases.

Through our activities, we support the aims of the University of Edinburgh in its fundamental mission to advance and disseminate knowledge and understanding.

1.2. Identify the body that accredits the university and the current status of accreditation.

The University of Edinburgh is a degree-awarding institution as recognised by the Secretary of State and by Royal Charter. The Institution is recognised as a University by the Privy Council. In terms of Quality Assurance, the University undergoes an Enhancement-Led Institutional Review (ELIR) every four years. ELIR is the method by which the Quality Assurance Agency (Scotland) reviews universities and other higher education institutions in Scotland. The main focus of ELIR is to consider an institution's strategic approach to enhancement, placing a particular emphasis on the arrangements for improving the student learning experience. ELIR also examines the institution's ability to secure the academic standards of its awards. The University's next review takes place in October and November 2015. The previous review took place in 2011. In the 2011 ELIR, the University received the highest possible outcome, that of "confidence" in the University's current, and likely future, management of the academic standards of its awards and the quality of the student learning experience it provides. As a result, the University is entitled to display the QAA 'Quality Assured' award on its website.

1.3. Provide a flow chart indicating the position of the college of veterinary medicine in the university structure and show lines of authority and responsibility, and give the names and titles of principal university administrative officers related to the college.

See **Appendix 1.3** for a flow chart indicating the position of the School of Veterinary Medicine within the University. In 2002, The University of Edinburgh was restructured into three colleges:

- College of Science and Engineering
- College of Humanities and Social Sciences
- College of Medicine and Veterinary Medicine

The College of Medicine and Veterinary Medicine is composed of two schools:

- The Royal (Dick) School of Veterinary Studies (R(D)SVS)
- The School of Medicine

The Head of College and Vice Principal for Medicine and Veterinary Medicine (CMVM) is Professor Sir John Savill who reports directly to the Principal and Vice Chancellor Sir Timothy O'Shea. The Head of School for the R(D)SVS and Dean of Veterinary Medicine is Professor David Argyle. The Head of Medical School and Dean of Clinical Medicine is Professor John Iredale. Professor Argyle reports directly to Sir John Savill and is also the Deputy Head of CMVM. Within the CMVM, research is organised into specific centres and institutes representing critical mass of excellence in specific areas. In 2008, the University incorporated the Roslin Institute into the R(D)SVS and the majority of the School's research faculty are based within this institute. The Institute Director and Associate Dean for Research within R(D)SVS is Professor David Hume. The management group of CMVM is the College Strategy Group (CSG), chaired by Sir John Savill and includes the Heads of Schools and appropriate research and administrative units. The CSG is responsible collectively for College policy and management, and deals with: College academic and resource strategy; budgetary allocations and financial planning; staffing policy including Chair programmes; proposals for investment in accommodation and in new technologies, whether funded from College resources, University programmes or funding raised from external sources; policy for the management of the academic affairs of the College and for management of its resources; representation of the College in University governance machinery and in relation to external partners and other agencies.

1.4. Provide a flow chart of the organizational design of the college listing names, titles (deans, associate/assistant deans, directors, department heads, etc.), academic credentials, and assignments of the college administrators.

School Organization

The Royal (Dick) School of Veterinary Studies is located on the Easter Bush Campus of the University of Edinburgh and comprises the School teaching building (including teaching labs), the associated hospitals and clinics. The Roslin Institute building and accompanying University farms. The School is structured to include eight Academic Divisions, The Veterinary Teaching Organization (VTO, the administrative teaching structure) and the Roslin Institute (The School Research Organisation). The eight core divisions are:

- Preclinical Veterinary Sciences
- Pathology
- Production Animal, Food Security and Public Health
- Equine Sciences
- Companion Animal Sciences
- Anaesthesiology
- Veterinary Medical Education
- Animal Welfare and Conservation Medicine

In 2008, the School incorporated the Roslin Institute, which is reflected in the flow diagram in **Appendix 1.4a**. The vast majority of the School's research is now based within the Institute. The Director of the Institute is Associate Dean for Research and the Institute comprises five research divisions:

- Genetics and Genomics
- Infection and Immunity
- Developmental Biology
- Neurobiology
- Translational Veterinary Sciences

This structure is reflective of the BBSRC core funding to the Institute and the strategic research themes. Research active clinicians have "Clinical Research Associate" status in the Institute and have access to all core facilities, space and support. Faculty are mapped to one of the five research divisions according to their research interests. As an example, an individual could be a faculty member in the companion animal sciences division but, for research, could also be assigned to one of the research divisions such as developmental biology. Line management and appraisal, however would be with companion animal sciences.

Please refer to **Appendix 1.4** for a flow diagram of the School Committee Structure.

Please refer to **Appendix 1.4a** for a flow diagram of the School Senior Management Structure.

Please refer to **Appendix 1.4b** and **1.4c** for the list of the School Leadership Team and the Administrative Support Team.

1.5. Describe the role of faculty, staff, and students in the governance of the college and list the major committees of the college, and their appointment authority.

Professor David Argyle is the Head of School and the Dean of Veterinary Medicine. He chairs both the School Operations Executive and the Senior Management Group. The School has the following major committees.

- School Operations Executive
- Senior Management Group
- Learning and Teaching Committee
- BVM&S Board of Studies
- Admissions Executive
- Quality Assurance Committee
- Finance and Contracts Committee
- Business Operations Committee
- Health and Safety Committee
- Genetic Modification and Biological Safety Committee
- Radiation Protection Committee
- Estates and Buildings Services Committee
- IT Strategy Group
- Veterinary Ethical Review Committee
- R(D)SVS Career Support Committee

Appendix 1.4 describes how these committees function in the governance of the School and for details of the committees' remits and memberships please refer to <http://edin.ac/1E4IMsv>

Governance of the Roslin Institute

In accordance with BBSRC core funding, the Institute has an internal governance structure that includes the following:

- Institute Executive, chaired by the Director
- Science Management Group, chaired by the Director
- Business and Finance group that is focused on Research Income and Infrastructure
- Operations Committee
- Research Quality Committee
- Animal Ethical and Welfare Committee (Research requiring Home Office License)
- Institute Negotiation and Consultative Committee

1.6. If the college plans to change its current organization, provide a summary of those plans.

There are no immediate plans to change the School structure.

AVMA Standard 2, Finances



AVMA Standard 2, Finances

2.1. Complete Tables A and B for the past five years and analyse the trends for each category.

Please refer to **Appendix 2.1** for Tables A and B

Income - In line with the overall strategic plan there has been a steady growth in total income for the School over the last five years rising 20% from £38.39M to £47.87M. This growth in income has been supported by all the activities of the School. The State Appropriations have increased by over 12% during this period despite the student numbers funded by the state remaining static over the same period. The income from tuition fees has grown considerably and is a reflection of some increase in numbers in both our fee paying undergraduate and postgraduate programmes.

Although the interest received from endowments has been disappointing this is a reflection of the current economic climate (whereby we have not attained the reinvestment of capital rates expected), rather than the number of actual donations that have increased due to several separate campaigns over the years. The Sponsor programme income generated from small project grants and donations appears to have fallen over this period but some of these funds are now directed to the Roslin Institute and appear in the Research income.

Research income has continued to grow over the five years largely as a result of greater numbers and success in competitive grant applications. Our research activity has a success rate of 35-40% per annum compared to the national average of 25% for research council and charitable activity. The teaching hospitals have continued to grow despite the recession having a significant impact on the equine services during this period. The diagnostic laboratory income has grown, not just as a result of increased numbers of cases going through the clinics but also, as a result of transfer of some pathology services from the Roslin Institute into the Easter Bush Pathology service. Other income, generated from our farm, has grown steadily.

Expenditure – Overall the expenditure of the School has risen by 17% over the last five years. The expenditure has generally grown modestly across all areas in line with the activity. The increased expenditure in Instruction and Academic support, which is well in excess of inflation, is a reflection of the investment in staff and equipment to improve the quality of teaching and to support increased student numbers.

The exceptionally high cost in academic support in 2011/12 was largely as a result of a central University overcharge that was rectified in 2012/13. There was a slight increase in real costs across these two years due to a significant investment in equipment and some increased costs relating to restructuring which resulted in savings in subsequent years.

In 2012/13 we invested significantly in the student experience; the costs of this investment can be seen in the increased student services costs and student aid expenditure from this period onwards. This spend will continue at this higher level as the School is committed to the provision of student support systems.

The rise in expenditure in the teaching hospitals has been driven by the growth of the business but is well controlled and in line with increases in income. The expenditure in the diagnostic laboratories has fluctuated as a result of investment in equipment and transfer of some staff from the Roslin Institute, but is well controlled and demonstrates a reduction over the five years. Expenditure from other sources comes from our farm and these costs have risen considerably due to significant increases in the world prices of the major inputs of feed, fertiliser and power and the transfer of staff from Agricultural Wages Board employment terms to University terms.

There has been increased investment in all research resources as the Roslin Institute has grown in size. This investment has been with a view to future requirements and is currently slightly ahead of income. The other sponsored activity expenditure shows a significant cost increase in 2012/13 which was due to a capital repayment to the central University. External and public services expenditure has risen in line with activity which is mainly providing courses for an external body.

2.2. Comment on the strengths and weaknesses in revenues over the past five years.

R(D)SVS has improved its financial performance over the past five years with growth in all major areas of revenue. The growth in income has been necessary to support the growth in all areas; student numbers, clinical activity and research. This growth has been achieved while largely keeping costs under control, allowing the School to demonstrate a small surplus.

In certain specific areas the growth in revenue has not kept pace with costs. This is notable for research where currently the expenditure is ahead of revenue, which reflects a planned investment in staff and equipment for the future. Farm revenue has recently failed to cover costs but is governed by world prices in commodities, which have fluctuated widely in recent years. The farms are a key resource and the School plans to support them during this period of price fluctuation. The diagnostic laboratories income fails to cover all their costs but this is largely as a result of a failure to identify and attribute true costs of the teaching effort within the commercial service and a limited ability to compete for outside work due to scale.

The Sponsor Program Income/cost recovery apparently shows a reduction in revenue although this has been re-assigned to Roslin in recent years.

The forecast for the foreseeable future is a sustained surplus, providing the School with the flexibility to strategically invest its reserves into initiatives which will enhance the School's capabilities.

2.3. Provide a comprehensive trend analysis of revenue sources that have supported the professional teaching program over the past five years (graphs or other visual presentations would be helpful).

In line with the overall strategic plan there has been increased growth in income, particularly in the UK/EU tuition fees (included in state appropriations) and other tuition fees. Our other tuition fees include all MSc and Cert AVP courses, as well as the net overseas fees received from the University. The integration of an active research institute, has allowed the School to strengthen and consolidate its research, allowing the School to secure a research income of £25M per annum. The increase in research income is due to both greater success in competitive grant applications and success in the 2008 Research Excellence Assessment exercise, which led to higher state funding.

Endowments, gifts and donations have remained stable over the five year period with a peak in 2010/11 when activity spiked in line with fundraising for the new Vet School teaching building. There is good growth from clinical activities and income generated from these has allowed the School to invest in equipment and staff across all of the School's activities. Although the Sponsored Program income has appeared to drop this is due to some projects now being assigned to the Roslin Institute.

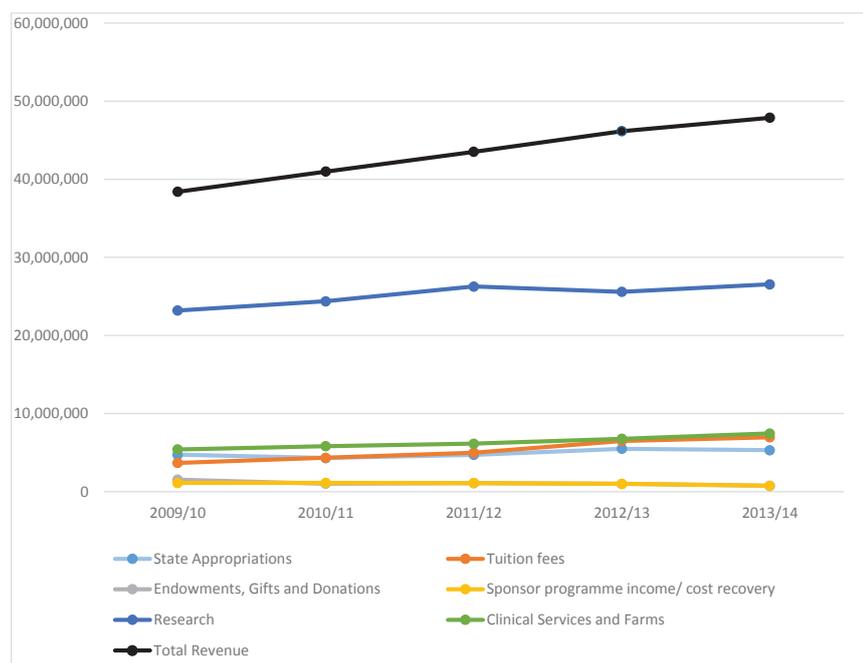


Fig 2.1 Veterinary School Income Trend Analysis

2.4. Describe how revenues over the past five years have impacted the college's ability to provide a contemporary professional teaching program and ancillary support services.

With a steady growth in income and control of costs the School has been able to invest in facilities, equipment and staff. The surplus now being generated and predicted to continue has allowed long term commitment to improved facilities. The growth in income has given the School the flexibility to commit significant funds to student support through our personal tutor scheme. In addition we have now committed to building a new Equine Diagnostic, Surgical and Critical Care unit at total cost of £3.7M. This will be partly funded by the University and partly by the School. We also intend to purchase a replacement CT scanner and a MRI scanner in the Hospital for Small Animals (HfSA).

2.5. Compare the percentage of hospital income to total hospital operational costs.

Veterinary Clinical Services - Comparison of Income to Expenditure

	Income	Expenditure	% of income
2013/14	6,537,358	6,281,330	96
2012/13	5,986,334	6,185,643	103
2011/12	5,314,382	5,580,101	105
2010/11	5,080,838	4,968,691	98
2009/10	4,697,632	4,666,349	99
Total	27,616,543	27,682,115	100

All educational service activities (Teaching Hospital, Diagnostic Laboratory & Farm) have continued to grow their business and improve their income recovery. The teaching hospitals in particular have seen overall income growth of 40% during the past 5 years. While there has been 2 years when costs exceeded income the introduction of devolved budget responsibility and restructuring of the management has brought the hospitals back into a surplus. Over the five years the clinical services have been cost neutral while still managing to invest significantly in equipment and staff. The business plan for the future is to manage the clinical services with a view to generating annual surpluses.

2.6. Describe anticipated trends in future revenues and expenditures.

It is expected that income growth will remain positive but will slow over the next 5 years. The slowing is mainly as a result of a change in government policy on state research funding where, despite excellent results and being ranked top in veterinary research in the most recent Research Excellence Framework exercise (2014), our funding will not be increased. It is expected that State Appropriations for teaching will increase in line with inflation.

Tuition fees will also increase with inflation and although there is no intention of increasing the number of undergraduate students, we are currently planning to increase the number of our post graduate courses and income will rise as a result.

The income from our veterinary hospitals continues to show excellent growth and it is expected that this will continue as a result of recent recruitment to specialist areas and continued investment in equipment. Diagnostic services do not impact hugely on the overall income of the School but we expect these to cover their costs going forward. Currently the farms are suffering from a downturn in income as a result of world commodity prices without a similar drop in costs and it is expected that this downturn will continue for at least two years.

With new developments planned for an equine diagnostic, surgical and critical care facility, there will be a focused effort to raise significant funds from donations and gifts to support the purchase of new equipment within the facility.

AVMA Standard 3, Physical Facilities and Equipment



AVMA Standard 3, Physical Facilities and Equipment

3.1. Provide a brief description of the major functions of, or activities that take place in the facilities used by the college in fulfilling its mission.

Introduction

Following the completion of the new Veterinary Teaching building in 2011 and the Roslin Institute building in the same year the relocation of all activities previously carried out at our Summerhall Campus in Edinburgh and at the old Roslin Institute building in Roslin are now located on a single site at the Easter Bush Campus. The Easter Bush Campus now accommodates the following facilities:

- The Veterinary Teaching building, provides the majority of the formal teaching facilities, student support facilities and administration offices capable of accommodating the needs of our undergraduates. The ground floor has a large atrium and reception area, a cafeteria, two large lecture theatres each with a capacity of 202, two digital group teaching suites each capable of seating 48 students in groups with access to computers, a 100 seat seminar room, an anatomy dissection room, a post mortem room with a bio-secure viewing gallery and associated diagnostic laboratories, a multi-head microscope teaching room, two large teaching laboratories, a student common room, student locker room, showers and a student gym. On the first floor there is a large library with journals, textbooks and capacity for 95 study places and six open access computers. There are five tutorial/meeting rooms and a quiet study room leading directly off the library and five other larger tutorial/meeting rooms on the same floor. All these tutorial rooms can be used for private study when not in timetabled use. For more practically based study there is a large 'study landscape' with teaching aids, specimens and group study areas with computer access and a small animal clinical skills laboratory which houses further specimens and clinical equipment. In addition, on this floor there is the BVM&S student hub which houses student support services, teaching administration and the admissions team. The top floor of the building consists of academic and administration staff offices, meeting rooms, a second multi-head microscope room for teaching and a staff breakout area.
- The Hospital for Small Animals (HfSA) accommodates our first opinion (primary) dog and cat small animal practice, first opinion (primary) exotic animal practice and referral services. The Hospital houses diagnostic and therapeutic facilities that include consulting rooms, treatment rooms, imaging facilities, a pharmacy, a range of surgical theatres with preparation areas and recovery suites, emergency and critical care facilities, laboratory facilities, kennelling and isolation facilities for both pathogen control and radiation protection. The Hospital has overnight accommodation for staff and students on emergency and critical care rotations. There is office accommodation for the academic clinical staff and administrative staff. There is a range of tutorial rooms and an extension to the building completed in 2009, the Riddell-Swan Veterinary Cancer Centre, includes a therapeutic linear accelerator, CT scanning and Positron Emission Tomography capability.
- The Equine Hospital services both the first opinion equine practice (ambulatory) and referral services. The Hospital has three large diagnostic and treatment rooms, which are designed to accommodate student teaching with adequate space for large groups and various teaching aids such as whiteboards, posters and anatomic specimens. A range of up-to-date diagnostic equipment (e.g. ultrasound, endoscopy) is available to use in these areas; this equipment has been chosen to ensure clinical excellence as well as to provide a good student learning experience. There is stabling for 36 horses, a pharmacy, clinical laboratory, student break out areas, and staff facilities within the hospital. There are indoor and outdoor trotting areas used for demonstration/tutorials and diagnosis of clinical cases. Adjoining the main hospital is a surgical unit, which has two theatres and a radiography facility with support services and tutorial space. Isolation facilities, (two dedicated boxes with adjoining personnel changing and preparation areas), a scintigraphy unit and a standing MRI unit are all separate, but close to, the main hospital. Computed Tomography (CT) services are accessed in a shared facility in the Hospital for Small Animals.
- The Farm Animal Hospital accommodates our farm animal teaching facility. The facility has a range of animal accommodation capable of housing all the main agricultural species. Included in this building are student changing facilities, tutorial rooms, teaching laboratories, procedure rooms and animal handling facilities. This

facility is dedicated to teaching using donated clinical cases. There are isolation facilities close to, but separate from the Hospital, allowing the treatment of referred cases.

- Easter Bush Middle Wing accommodates our first opinion Farm Animal Practice (ambulatory). Facilities include reception area, student break-out area, tutorial room, pharmacy, and diagnostic laboratory. This wing also accommodates the farm and equine clinical staff.
- F block – includes the large animal clinical skills teaching facility, tutorial rooms, the exotic animal teaching facility, an equine scintigraphy unit and farm animal isolation facilities.
- Langhill Farm – The School manages a 250 hectare livestock farm in the land that surrounds the Campus. The main farm steading is two miles from the Campus and houses the cattle facilities. These facilities include housing capable of accommodating the 230 cow dairy herd and all of the young stock. It has a modern milking facility and associated handling facilities. Although all of the farm facilities are used for demonstration and teaching, to provide a safe and unhindered access to cattle for teaching there is a dedicated building with specially designed stocks used for certain classes. There are tutorial rooms and student changing facilities on site.
- The sheep enterprise is located adjacent to the main Campus within walking distance of the teaching building and has a sheep shed used to demonstrate both husbandry and veterinary care. There are dedicated changing facilities.
- The Roslin Institute building houses the majority of the R(D)SVS research staff. This building provides office and laboratory accommodation for over 500 staff. The ground floor and basement provides some office space, cafeteria, a 300 seat auditorium, seminar rooms, cell-sorting and imaging facilities, laboratory support services and a 980m² Specific Pathogen Free (SPF) rodent facility. The two upper floors consist of 1980m² of Cat 2 containment laboratory space (as defined by the Advisory Committee on Dangerous Pathogens (ACDP)), office accommodation, meeting rooms and breakout areas. Cat 3 (ACDP) containment laboratories are available on the upper floors.
- Animal Research Facilities- To service the research requirements for farm animals there are three main facilities. Dryden farm, located three miles from the Campus has accommodation for all the key farm species and specialist facilities including embryo manipulation, surgery and critical-care. The Greenwood building, on Easter Bush Campus, offers poultry accommodation and specialist facilities for a range of studies. The Bumstead building, opened in 2014, contains in-bred lines of poultry under SPF conditions to service the national requirement for this resource.

3.2. Provide an area map that indicates the principal facilities of the college and describe distance and travel time to off-campus facilities.

A map of the Campus is available in **Appendix 3.1** or by following this link <http://edin.ac/1PyUmOf>

All of our teaching and clinical facilities are now located on the one campus. All facilities are within walking distance with the exception of the Langhill Farm Steading, which is located two miles from the Campus and reached within five minutes. A core clinical rotation and a selected rotation in small animal first opinion practice takes place at Inglis Veterinary Practice in Cowdenbeath, Fife. All students are required to complete the core rotation. This practice is 25 miles away and is 45 minutes away by car. There are regular trains and buses that serve Cowdenbeath from Edinburgh.

3.3. Describe the college's safety plan and facilities management plan including mechanisms documenting compliance.

Health and Safety Management

The responsibility for Health and Safety across the School lies with the Dean. The Dean manages this through the Campus Operating Officer and a Health and Safety team consisting of 2.5 FTE staff. The Health and Safety Manager reports directly to the Campus Operating Officer and, as required, directly to the Dean. The Campus hosts a Health and Safety Committee, which has a student representative as part of the Committee membership. This Committee promotes a positive, safety conscious attitude to health and safety amongst staff and students throughout the School, and facilitates both formal and informal exchange of information to and from staff and the student body. In addition, this Committee receives formal reports from the Genetic Modification & Biological Safety Committee, and the Radiation Protection Committee. These Committees report and provide Minutes directly to the Senior Management Groups of the R(D)SVS and Roslin Institute. The Health and Safety Manager liaises directly with the

University Director of Health and Safety and relevant officers in the University Health and Safety Department. The Health and Safety policy is described in the School Health and Safety Policy Document, <http://edin.ac/1E4J3f5> which complies with and is guided by the University Health and Safety Policy, <http://edin.ac/1PyUHjG> School Health and Safety policies and procedures are available to all staff and students from the online Health and Safety pages on the staff intranet or from the EEVeC. Where required, Health and Safety notices and information are clearly displayed across the Campus.

All staff and students receive a general health and safety induction as part of their formal induction process at the beginning of their employment or studies. Additional and specific Health and Safety information, instruction and supervision takes place local to the specific hazard or higher risk procedure. Staff that are responsible for supervision of students during lectures, practical classes and clinics are invited to attend Health and Safety Awareness training for those with Supervisory responsibilities.

The Campus has a Biological Safety Officer who provides advice on the safe use and handling of biological agents, including pathogens. This officer is closely supported by the University Biosafety Unit which provides expert advice. This unit acts as a conduit between external risk control agencies, eg the Health & Safety Executive, and the School, providing updates on policies, procedures and legislative changes, and providing biological safety training for staff. The Campus has a Genetic Modification and Biological Safety Committee which reviews and provides advice on all risk assessments for work relating to infectious and pathogenic biological agents, including those which are genetically modified. This Committee reports to the Campus Health and Safety Committee.

The School has Radiation Protection Supervisors (RPSs) in key areas of the School who are responsible for ensuring compliance with the University policy on the safe use of radiation and other relevant legislation. The RPSs are supported by the University Radiation Protection Unit and the University Radiation Protection Advisor who provides expert advice and updates on policies, procedures and legislative responsibilities. The Campus has a Radiation Protection Committee which reports to the Campus Health and Safety Committee. At the beginning of any rotation or procedure where ionising radiation will be present or used, students receive information, instruction and supervision relating to safe use and behaviour relating to each procedure. This can include radiography, CT scanning and scintigraphy.

Fire safety arrangements are based on fire risk assessments that are conducted by the University Fire Safety Officer. Firefighting equipment is provided at Fire Points across the Campus and is inspected and maintained on an annual basis by the University Fire Safety Unit. Trained Fire Stewards, who carry out monthly checks of fire equipment and exits and assist during any building evacuation, are located in all Campus buildings. Training and fire safety awareness for fire stewards, staff and students is provided by the University Health and Safety Department.

First Aid Equipment, including defibrillators are available across the Campus. There are trained First Aiders and three dedicated First Aid Rooms available at the Campus. First Aider training and retraining is provided by the University Health and Safety Department.

Proactive systems to monitor the effectiveness of the School's Health & Safety arrangements includes both locally arranged audits and external risk control agencies inspections and audits. These help to ensure that hazards and risks are being adequately recognised and controlled, and that remedial action can be supported and pursued where relevant. The online Accident and Incident Reporting system (AIR), managed by the University of Edinburgh Health & Safety Department, is used to report any accident, incident or near-miss which occurs at the School.

Facilities Management

Facilities management is controlled locally by a Campus Facilities Management team who report to the Campus Operating Officer. This team is responsible for ensuring buildings, equipment and teaching technical support services are maintained with appropriate records. This team is the first point of contact for any reports of faults, service and accommodation requests. They are responsible for monitoring and managing all freezers on site, managing all the waste collection and disposal, and preparing, sterilising and supplying glassware and media to laboratories. They provide basic technical laboratory support and maintain all laboratory equipment. The local team are supported by the University Estates and Buildings (E&B) department who carry out all of the building maintenance on the estate. Central E&B have a permanent coordinator on site who liaises closely with the local

facilities management team and project manages the maintenance tasks and have a team of skilled tradesmen based locally to respond to emergencies and conduct routine maintenance. Central E&B provide a 24hr, 365 day emergency service with specialist trades available to respond to critical failures in equipment and plant. They also provide and manage, security, cleaning, car parking and porter services on site. They also provide expert advice in all relevant areas and have planning and project management services available for any significant sized project. All critical services are remotely monitored and alarmed with local response teams in place to react and assist with Estates and Buildings engineers. All critical power has generator back-up in the event of any failure in supply. Access to the Veterinary Teaching Building, Hospital for Small Animals, the Roslin Institute, Equine Hospital and Farm Animal practice is via a reception desk during working hours and limited by swipe card or digital keypad out of hours. Animal research facilities are only accessible by authorised swipe card access. Other areas such as the equine surgery, equine pharmacy and F block are controlled by a digital lock. Security is on site 24hrs and monitors the site with CCTV cameras and regular foot patrols.

The IT/IS support is described in Chapter A5; Information Resources.

3.4. Describe the adequacy (pertains to all facilities used by the college whether on-campus or off-campus).

As a result of the major investment in the Campus over the last five years we are fortunate in having modern, fit for purpose facilities. The facilities have been designed specifically for the current student numbers and have incorporated modern digital technology throughout.

Lecture theatre, tutorial rooms, laboratories and clinical skill facilities: There are two large lecture theatres both with capacity of 202 and a smaller seminar room with a capacity of 100 which fulfil our requirement for formal lectures. There are two formal group study teaching rooms with a capacity of 48 students which can be subdivided when smaller class sizes are required. In addition there is a range of tutorial rooms with five larger rooms, seating 20, and five smaller, seating 10, in the teaching building with other tutorial rooms associated with the clinical facilities with three in the farm animal and equine areas and four in the small animal clinical areas all with capacity sufficient for the group sizes of students on these rotations. Three large laboratories/dissection rooms with capacities of 120, 90, and 60 students for large class formal instruction and four smaller rooms have capacities of 50, 20, 20 and 20 suitable for clinical skills training and dissections. These facilities are adequate for our current student numbers and we have no plans to increase intake.

Anatomic Pathology: The School has a large necropsy suite capable of accommodating most species. It is fully serviced with hoists and a hydraulic table to allow safe handling and examination of carcasses. A smaller necropsy room contains a Class I safety cabinet, suitable for higher risk necropsies (e.g. psittacines). There are dedicated changing facilities to allow safe access to the facility but there is also a bio-secure viewing gallery, permitting the demonstration of necropsy material to students without the need to enter the suite. The viewing gallery is serviced with intercom and cameras to allow close viewing of such material and discussion with the pathologist. Anatomic pathology also incorporates the veterinary histopathology laboratory, run by the equivalent of four full-time technical staff. This laboratory is responsible for the surgical biopsy service and diagnostic cytology service and encompasses a neuromuscular laboratory. It processes necropsy, biopsy and research histopathology and cytology, offers a wide range of immunohistochemistry tests and produces material for undergraduate teaching and student projects.

Clinical Pathology: The School has a comprehensive range of clinical laboratory facilities, allowing provision of various services to the School's internal hospitals, referring veterinary practices and research workers from across the University. These services include microbiology, clinical chemistry, haematology, coagulation assays, immunoassays, as well as fluid, faecal and urine analysis. The clinical pathology and microbiology laboratories employ the equivalent of five full-time technical staff and shares some of their space, technical staff and equipment with the School's Dairy Herd Health and Productivity Laboratory.

Clinical Facilities: On Campus there are first opinion and referral practices for small animal, equine and farm animal clients. The Hospital for Small Animals has capacity for hospitalising 110 dogs, 26 cats and 36 exotic/wildlife patients. The Equine Hospital can accommodate 36 horses and the Farm Animal Hospital can house seven cattle in individual pens, more if housed in groups, two bull pens and has 15 pens for small ruminants or pigs. The hospitals have a comprehensive range of facilities and equipment detailed in the following documents;

<http://edin.ac/1E4KcmN> and <http://edin.ac/1PyVG39> Each hospital has dedicated facilities for the isolation of animals when required. The clinical facilities all have small group tutorial spaces within them. The clinical facilities are of sufficient size to accommodate the current clinical demand and this demand provides adequate material for student tuition.

Farm Facilities – In addition to the Farm Animal Hospital facilities the School has two farms. Langhill farm, detailed in section 3.1, is of sufficient size to supply adequate numbers of animals for practical classes. It has tutorial rooms with capacity for 50 and 20 students and a dedicated practical teaching shed with capacity for groups of 20-50 students. Dryden farm houses the research animals and has a range of accommodation suitable for all ages and types of cattle, sheep and pigs. Dryden farm also has a specialist unit containing surgical facilities and laboratories for research purposes.

Study Areas: Students have access to a variety of study areas both in the teaching building and in the HfSA. All tutorial rooms are also available for study when not booked for formal classes and their availability is displayed electronically next to the room's entry door.

Leisure Areas: The Campus has two cafeteria areas accessible for all staff and students, offering a range of catering from snacks to hot meals. Students can also bring their own food to eat in these areas and micro-wave ovens are provided. The undergraduate vet students also have a dedicated common room with table games and soft seating. There is a gymnasium, which is managed and run by the student body. Between the teaching building and the HfSA there is a large garden, "The Dick Vet Garden" designed to allow quiet walks in pleasant surroundings for relaxation and contemplation.

3.5. For safety and educational purposes, protocols must be posted in the isolation facilities and the facilities must be used for instruction in isolation procedures (biocontainment).

Standard Operating Procedures for the isolation facilities available in equine, farm animal and small animal hospitals are clearly displayed for staff and students.

3.6. Describe current plans for improvement.

The Equine Diagnostic, Surgical and Critical Care Unit - The oldest part of the current estate still in use is the equine surgical unit. This has been identified as needing replacement and we have recently secured £3.7M from the University to build a new unit. We are taking the opportunity to not only replace but also improve the current facility which has reached the end of its useful life. The new unit will now include a triage area, standing surgical room, an imaging facility and a critical care unit. The building work will commence in January 2016. In addition we have secured further funding from the University to improve and upgrade the current equine hospital to allow for improved student facilities including new changing facilities, a study area and tutorial rooms.

Easter Bush Innovation Centre - An Innovation Centre is currently being built in the centre of our Campus. In addition to the offices and laboratories that make up the two upper levels of this building there are student facilities in the shape of a gymnasium, a multi-faith room for reflection, cyclist changing facilities and a Campus shop. There is also an outreach centre aimed at bringing our science to the public. These facilities will enhance the student experience on the Campus.

The Hospital for Small Animals business has expanded significantly in the last two years following key recruitments. If this expansion continues the clinical facilities may need to be expanded. We have commissioned a formal feasibility enquiry to look in detail at the potential for extending the current building.

The Campus infrastructure is being upgraded in response to the recent expansion and a new perimeter access road will be constructed. In addition an energy centre, which will provide power, heating and cooling, to the Campus is also fully funded and building is about to commence. This unit will not only save running costs it will also give added security of supply.

We are continuing to monitor our facilities to anticipate future investment requirement.

AVMA Standard 4, Clinical Resources



AVMA Standard 4, Clinical Resources

4.1. Complete Tables A, B, and C for the past five years and analyze trends for each species (category).

Please refer to **Appendix 4.1** for Tables A, B and C

Bovine and Ovine: Patient visits and hospitalised cases have been steady for most of this period but have declined markedly in year 5 resulting in an overall decrease of -16% for bovine and -72% for ovine. This is being addressed by active recruitment of cases, funded by the School. Numbers available through our ambulatory service remain strong.

Canine: Patient visits and hospitalised cases have shown strong growth (50% and 48%, respectively). The appointment of new Heads of Service (internal medicine, cardiopulmonary medicine and oncology) and additional clinical services (radiotherapy, neurology, interventional radiology) have contributed to this increased caseload.

Caprine and Porcine: Numbers presented to the hospital have been historically low, and that has remained the case reflecting the size of the industry in the catchment area. We do not expect any change.

Equine: Hospital patient visits and hospitalisations both declined by 17%. The financial climate had an adverse effect on horse ownership and client spend. Our ambulatory service also experienced a decline during this period. The appointment of a Director of the Equine Hospital, new appointments in our ambulatory service, acquisition of a neighbouring equine practice and availability of advanced imaging modalities have increased demand for our services. In addition, an improving financial climate is resulting in a noticeably positive effect on the hospital and practice caseload in the current year.

Feline: Patient visits have increased by 46% and hospitalised cases by 62%, increases attributed to the same reasons as canine caseload. A developing iodine 131 service has contributed to increasing hospitalisation of feline patients.

Exotic species and Wildlife: Caged bird appointments and hospitalisations have remained essentially static over the period but overall numbers remain good due to a dedicated Exotic Animal and Wildlife Service. Strong growth has been seen in small mammal patient visits (69%) and hospitalised cases (69%). This is due to the desire to develop this clinical service along with enhanced marketing and client awareness. We have also developed relationships with several charitable organisations resulting in increased numbers of small mammals presented for neutering.

Off-Campus Facilities

Please refer to **Appendix 4.1** for Tables D and E

First Opinion Small Animal Practice: Inglis Veterinary Centre

Core Final Year rotation – 1 week per student. Attending this practice is also available as an additional selected rotation option. The practice is entirely student-led between 9am and 5pm so that all staff are involved in providing support to the students. Clients are fully aware of this arrangement and actively opt to attend during these times, to take advantage of discounted rates.

The students are rotated through consultations, surgery and in-patient care. They are required to gather histories, carry out physical examinations, develop treatment plans, prescribe and dispense. Findings are discussed with the supervising clinician who typically does not meet the client. For surgical procedures, the students are expected to do as much as possible with guidance from the clinician who is also scrubbed-in. There is constant feedback with each case and an off-site round up with the team at the end of the rotation. Assessment is carried out in accordance with the normal Final Year system.

4.2. Describe and analyze the adequacy of normal and clinically diseased animals (hospitalized, out-patient, field service/ambulatory and production medicine) and how they are used for the DVM teaching program.

Access for our students to normal and clinically diseased animals is achieved through a wide range of resources and are more than adequate for our programme needs. **Appendix 4.1** shows numbers in detail.

1. Normal animals in a clinical setting: (Final Year)

Access to normal animals uses our first opinion hospital based in the Hospital for Small Animals and our ambulatory practices (farm, equine, dog and cat and exotic species) who provide preventative health care services. We also have access to normal animals at the Edinburgh Dog and Cat Home (EDCH), Five Sisters Zoo, the Scottish Society for the Prevention of Cruelty to Animals (SSPCA) and the Inglis Veterinary Centre. Activities are integrated fully into the teaching programme with complete student involvement.

2. Normal animals in a non-clinical setting: (Years 1 to 4)

We have our own dairy farm and sheep flock and have direct involvement with Scotland's Rural College beef and sheep farms locally, which have over 3,000 beef cattle and sheep. We have an on-site Exotic Animal Teaching Facility, which houses a range of small mammals, reptiles and birds and access to the EDCH. We have a group of teaching horses (10), which are used for a number of formal classes and student volunteering (stable management and routine care) which is of particular benefit for students with limited horse care experience. Students also can access healthy horses through the Edinburgh University Exmoor Pony Trekking Section and be involved in their routine care. Activities are integrated as needed into our teaching program.

3. Clinically diseased animals: (Years 3, 4 & Final Year)

Companion Animal (Hospital for Small Animals), Primary, Secondary and Tertiary Cases; (Final Year)

We have a robust and expanding clinical case load at all levels of care for companion animals, including dog, cat, rabbit, other small mammals, reptiles and birds, which are more than adequate for our teaching needs. The HfSA admits cases for all the major specialisms except for ophthalmology, which is taught in our primary care clinic.

We provide opportunities for all Final Year students to perform neutering procedures in the HfSA. Our undergraduates also have increased access to the small animal neutering caseload (and other surgical caseload) through the core rotation at the Inglis Practice. We also provide rabbit neutering experience through our partnership with the SSPCA.

Farm (Farm Animal Practice; FAP) and Equine Ambulatory Services (Years 3, 4 & Final Year);

These operate as separate units within our Production Animal Services and our Equine Veterinary Services. We are seeing recovery in primary care equine case numbers adequate for our teaching requirements, and have recently taken on an equine first opinion case-load from a local practice of approximately 600 clients and 1000 horses. The FAP has a strong caseload, operates herd health schemes (Scottish Government initiative), services three pig farms with quarterly herd-health visits and will be providing veterinary services for a 100 herd deer farm. We actively recruit farm animal cases to maintain adequate numbers for our educational needs.

Equine Referral and Hospitalised Equine Cases; (Years 3, 4 and Final Year)

We have a robust equine referral case load, adequate for our needs, that has stabilized since the recession and is now recovering, and have a large and increasing emergency equine case load. The Equine Hospital admits cases covering all disciplines. Activities are integrated fully into the BVM&S teaching programme with complete student involvement (Final Year).

Hospitalised equine cases are also used for Year 3 and 4 practical classes, centered on normal clinical examination with clinician and peer-to-peer instruction (Year 3), and diseased animals clinical syndromes (Year 4).

Clinical Support Services; (Final Year)

The Hospitals have the full range of support services, including diagnostic imaging, anaesthesia and pathology incorporated into our clinical activities and with students fully involved in their delivery.

4.3. Describe unique clinical educational resources or programs that enhance the educational mission.

1. The embedding of our first opinion practices within our teaching hospitals is a unique and long-standing feature of our programme, that allows our students to appreciate the connections and links between primary, secondary and tertiary clinical practice. The location of these facilities on one large integrated animal bioscience campus is a clear major strength of our School.
2. Our clinical capacity to cover virtually all species at all levels of care is a major strength of this School, and is due to a combination of location coupled with strategic initiatives over many years. For example, we were the first UK school to have a dedicated exotics, zoo and wildlife service and one of only a few worldwide, and the only school to have a dedicated rabbit clinical service (the 1/3rd most popular pet in the UK).
3. The incorporation of the Roslin Institute (RI) into the University, the creation of a Clinical Division within the RI and the alignment of the activities of all research active staff as Clinical Research Associates in the RI is a powerful and unique educational resource. This allows RI staff to contribute to UG teaching, students to meet with world-class researchers and to involve themselves in fundamental animal bioscience research and enter our Intercalated Honours Degree programme, and for veterinary school clinical staff to bring the latest innovative ideas to the curriculum and clinical setting.
4. For those students who wish to expand their knowledge of and exposure to poultry and game birds we host the Edinburgh division of St David's Poultry Team <http://edin.ac/1E4KrhG> the premier provider of poultry veterinary services across the UK.
5. Equality, Diversity and Widening Participation; we expose our students to a range of animal ownership in different socioeconomic groups, from financially secure owners in our teaching hospitals through to those on restricted incomes (Inglis Veterinary Centre rotation) or requiring charitable animal care (PDSA Pet Aid Hospital in Edinburgh), homeless pet owners (currently limited student involvement) and shelter medicine (Edinburgh Dog and Cat Home). We host a range of events and opportunities for those who are under-represented in veterinary medicine (an issue for lower socio-economic groups in Scotland rather than ethnicity), including provision of Scottish Modern Apprenticeships for reception staff, stable-hands and we programme events for High School pupils, such as Pathway to the Professions, LEAPS, KickStart and National Pathology Week. There are also apprenticeship style nurse training posts offered.
6. The School incorporates the Jeanne Marchig International Centre for Animal Welfare Education (JMICAWE), a unique resource that informs all areas of animal welfare teaching and animal use in clinical instruction and provides opportunities for students to engage in welfare research and international welfare activities.
7. In addition, we endeavour to provide the best supplementary resources for our programme and the educational needs of our students. For example;
 - Audio-visual technologies to maximise educational use of clinical material.
 - Clinical skills training facilities using a range of models and hi-tech manikins (recent £40,000 investment), including bovine, canine, feline and equine training models, covering skills in rectal palpation, coccygeal vein blood sampling, calving techniques, canine jugular blood sampling, intravenous injection, endotracheal intubation, equine colic and reproductive examination simulator (the first in the UK) and peritoneal tap.
 - CCTV recording of surgical procedures with video relay in real time to large theatre monitors.

4.4. If off-campus clinical instruction sites are used regularly by multiple students, complete Table D and describe the planning, supervision, and monitoring of students; and contracting arrangements for non-institutional based faculty.

See **Appendix 4.4** for table D and E.

We have one off-campus clinical site (Inglis Practice) approximately 45 minutes from the campus where students (seven per group) get extensive hands-on primary care experience. Their clinical activities are supervised by an employee of that practice and their educational progress including quality assurance is managed by a School staff member (Dr Carolyn Morton).

In common with other UK colleges, our students are required to undertake a minimum of 26 weeks of Clinical Extra-Mural Studies (EMS) with practising veterinarians (or equivalent placements) during the three clinical years of the programme.

4.5. Describe the involvement and responsibilities of professional students in the healthcare management of patients (and clients) in clinical programs of the college.

Patient acquisition; clinical year students are completely involved in patient care and client interaction, with final decision making by the attending clinician. Students will take the clinical history and conduct a full relevant clinical examination, structure, prioritise, and record their findings on the Hospital management system, take contemporaneous written notes if required, report their findings to the supervising clinician, develop and justify diagnostic and treatment plans and consider cost implications for the clients.

In-hospital patient management; clinical year students are responsible for patient monitoring, medication administration, carrying out minor permitted procedures (eg blood sampling), provision of out-of-hours care when on night duty, reporting the patient's progress to clinicians, their peer group, and clients if directed by the primary care clinician, preparing discharge instructions and attending patient discharge appointments with the duty clinician. Students liaise closely with our veterinary nursing team when managing in-hospital patients, which involves a mix of supervision and training.

4.6. Describe how subject-matter experts and clinical resources are integrated into clinical instruction.

All clinical cases, irrespective of the specialist level of the attending clinician, are available and used for teaching and clinical instruction. The Hospitals cover the majority of the clinical specialisms with six full Professors and 45 American/European/RCVS Board certified clinicians in attendance, many of which are world-leaders in their field, and students are fully integrated in the provision of those services, without exception. For some tertiary level procedures, where direct involvement would be of doubtful educational value or might increase health and safety risks, the students are not required to be present, but will have contributed to case management and decision making; an example of this being Amplatzer septal occlusion for Patent Ductus Arteriosus (PDA).

External specialists are contracted to provide instruction in Poultry Health (St David's Poultry) and Aquaculture (Institute of Aquaculture, University of Stirling).

4.7. Describe the adequacy of the medical records system used for the hospital(s), including field service and/or ambulatory and population medicine. Records must be comprehensive and maintained in an effective retrieval system to efficiently support the teaching, research, and service programs of the college.

Our current Practice Management System (PMS; Tristan) was introduced in 2007 and now covers all areas of clinical and diagnostic services activity including billing, and complies with both legal and professional requirements. The ambulatory services record details in the field and transfer to the computer system on return to the workplace.

The students have full access to the system through password-protection, can contribute to small animal case records and have their case notes reviewed and approved or rejected by their attending clinician. Database searching is used for teaching and clinical research, including student research projects. Diagnostic images are accessed using PACS linked to the PMS and images are always available to students.

Note: We are currently working on a replacement Practice Management System which can deliver greater business, research and teaching support. Of particular interest is a system which can provide mobile functionality for our ambulatory practices and direct integration with PACS.

4.8. Describe how the college has responded to increasing/decreasing clinical resources.

The major challenges to our clinical case-load have been the recent economic down-turn and increased local competition. While we have an adequate caseload for teaching, our strategy is to grow our clinical services to ensure long-term viability, thereby reducing our exposure to future risk and support our clinical research.

The School introduced a new management structure in 2013, which created Academic Directors and Hospital Directors for each of the three major clinical areas. The Hospital Directors have budgetary responsibility and are tasked with maintaining and then expanding caseload and income, while maximising the students' learning experience.

Equine Hospital and Equine Practice; caseload decline was a result of the economic climate. Our strategic focus is on consolidating and expanding our referral and emergency services and growing our first opinion service, using a combination of staff recruitment, enhanced marketing, acquisition of neighbouring practices, investment in imaging facilities (now the leading equine imaging facility in Scotland) and building a new Equine Diagnostic, Surgical and Critical Care Unit (building to start January 2016). To date we have increased first opinion and referral caseload, acquired a 600 client (1000 horse) neighbouring practice and increased interest from the racehorse community, now providing services for Scotland's leading racehorse trainer.

Farm Animal Practice; caseload has remained stable with new farm clients acquired over a larger area. The seasonality of farm animal practice in the south-east of Scotland (winter and spring dominated) informs our approach to teaching, with greater involvement of students in the ambulatory service, herd health (DHHPS Extension Service), Langhill farm and the Large Animal Clinical Skills laboratory.

The Hospital for Small Animals; has been least affected by the economic climate due to the wide up-take of pet insurance in the UK. There has been a consistently expanding caseload year on year with strong growth noted following the recruitment of new Heads of Services and introduction of additional clinical services. Caseload and associated income growth strategically informs our staff recruitment planning for both veterinarians and veterinary nurses. A feasibility study is now looking at better use of existing space and additional building requirements.

4.9. Describe the means used to maximize the teaching value of each case across the curriculum.

Clinical Year Rotations; full student involvement as outlined earlier with sharing of cases between rotation group members thus maximising teaching value of each case for largest number of students. Learning of day one competencies, including, client interaction and communication, venipuncture, broncho-alveolar lavage, thoracocentesis, abdominocentesis, synovial fluid collection, fine needle aspiration, swab collection, cystocentesis, prostatic wash sampling, basic surgical skills, necropsy procedures etc.

Non-Clinical Years; clinical material is made available to students in earlier years in the form of practical classes using live animals, hospitalised cases and case records including digitised images, sampling techniques (where appropriate), and sample analysis and interpretation (haematology, biochemistry and cytology) using current and archived material.

There is extensive clinician involvement in Year 1-4 teaching, allowing incorporation of current or historical clinical cases (paper cases) into lecture series and tutorial groups. Peer-to-peer teaching is also undertaken in a number of areas of the curriculum including Equine medicine and surgery, and Pathology.

The 'Virtual Veterinary Practice' is maintained for all years teaching and includes audio and video podcasts of core clinical techniques, heart and lung sounds and interesting cases within the Virtual Clinic, Virtual Post Mortem Room and Virtual Slidebox. Data from the Langhill dairy herds and the Easter Bush sheep flock are fed into the Virtual Farm and students can access information at a herd or flock level or individually on their own adopted animals in real time.

AVMA Standard 5, Information Resources



AVMA Standard 5, Information Resources

This section includes information on services provided by the R(D)SVS Digital Education Unit and Information Services Group (ISG) User Services Division (USD).

5.1. Describe and comment on the adequacy of information retrieval and learning resources.

The Lady Smith of Kelvin Veterinary Library

The Lady Smith of Kelvin Veterinary Library (LSoKVL) is the library for Easter Bush campus and is part of the University of Edinburgh Library (EUL), one of the largest university libraries in the UK. R(D)SVS staff and students have access to a large range of veterinary, medical and life sciences print and e-resources. EUL has over 3.4 million print books, over 360,000 e-books, over 48,000 e-journals and over 200 bibliographic databases. EUL's e-resources include CAB Abstracts, VetMed Resource and Veterinary Record Case Reports (see <http://edin.ac/1PyVVve> for detailed list). EUL recently purchased a new Library Management Platform. The new DiscoverEd search combines the functionality of the former library catalogue and discovery tool as a single search tool helping staff and students search quickly and easily across most of our collections (both in print and online). EUL uses Talis Aspire to provide a flexible and dynamic way for Course Organisers to give students easy access to a wide range of resources. List structure is flexible and statistics on Resource List usage are provided.

LSoKVL has c20,000 volumes of books and journals. In addition to veterinary material, the library holds a selection of titles in the biological and medical sciences. LSoKVL also lends bone boxes to students across all years. Students can borrow items from any EUL site, items can be delivered to the LSoKVL or scanned and emailed (within copyright allowances). Library users can log in to their library account and renew and request books remotely. Items which are not held can be recommended for purchase using the student Recommend a Book (RAB) service or requested on inter-library loan.

The Reserve Section holds well-used short loan textbooks to support the curriculum. Veterinary textbooks are also purchased for the High Use Book (HUB) collection in the Main Library in Edinburgh.

EUL has an e-reserve facility. This electronic reserve collection provides scans of book chapters, journal articles etc. for inclusion in password protected virtual learning environments (VLEs). This allows students to access some required reading without competing over limited numbers of textbooks. This is becoming less well used as we purchase more e-books.

The Library aims to make as many resources as possible available electronically and to actively manage the collection to provide the best use of the financial resources which are allocated to the Library.

During semester the LSoKVL is staffed 45 hours per week, with all students having access for an additional 53 hours using swipe access. Fourth and Final Year students, and clinical staff, have 24 hour swipe access. The LSoKVL has 95 study spaces and five seminar rooms which may be used for group study, six open access PCs and a cloud enabled printer/copier/scanner. The Study Landscape and Vet School cafeteria provide 33 public-access PCs with two cloud enabled printers. Public-access PCs and printers are replaced on a 4 year cycle and are supported by Information Services Group (ISG) staff.

Students can use the resources and study spaces in any EUL site <http://edin.ac/1E4KEkT>

Infrastructure

The computer infrastructure supporting the School's activities is outstanding. ISG runs Britain's largest campus computing network, with infrastructure equipment pro-actively monitored, supported and upgraded by qualified ISG experts.

The Easter Bush campus is connected to the central university network by two resilient fast (10 Gbps) fibre links. Campus IT equipment is maintained by ISG staff.

Students benefit from access to first-class computing services <http://edin.ac/1PyWiWt> providing ready access to library and School resources. Wireless (WiFi) access is available in all Halls of Residence, Libraries and on Campus within all main buildings.

CMVM provide disk space and email for students. Initial quotas are 160Mb for undergraduates and 240Mb for postgraduates. Quota increases are considered on request.

Lecture theatres

Two fully equipped lecture theatres support learning and teaching at Easter Bush. Both have modern data projection, capture and streaming facilities with a high-bandwidth video conferencing (VC) capability, linked to the JANET computer network. This can be routed to most VC suites throughout the world including those using lower bandwidth technologies such as ISDN.

Budget

The library is given an adequate budget to fulfil the requirements of the School. (See **Appendix 5.1**)

5.2. Briefly describe the availability of learning and information technology resources support for faculty and students, including personnel and their qualifications.

The Digital Education Unit

The Digital Education Unit (DEU) was established within the School to develop novel online learning materials; advise on the development of learning materials for courses; advise on the quality assurance of online learning materials; and provide training in various software/approaches to online learning. Based in the Veterinary Teaching Building, the DEU maintains close links to the Easter Bush ISG USD team, and with the ISG teams who manage various centrally provided online systems.

The DEU is a focus for the School's strategic principle to repurpose resources for re-use across undergraduate, postgraduate and continuing professional development programmes, providing students with flexibility at different stages of their careers.

The DEU is staffed by full-time professional staff (see **Appendix 5.2** for staff list).

Resources and training

Access to eLearning/IT teaching and learning resources

The School uses the centrally supported Blackboard Learn VLE (Learn) to support its programmes, as well as its bespoke Edinburgh Electronic Veterinary Curriculum (EEVeC) VLE. This allows the development of resources within the School, as well as the incorporation of innovative use of these systems from across the University, all supported by ISG.

Collaborations

DEU and ISG collaborate with other vet schools and companies.

DEU collaborations:

- Producing a series of ultrasound training videos with BCF Technology (manufacturer and distributor of imaging equipment).
- Re-developing three 'EMS Driving Licence' resources with the University of Bristol's School of Veterinary Science and the Royal Veterinary College (RVC).
- Discussing issues with the heads of eLearning units at other vet schools, through the NOVICE network (Network of Veterinarians in Continuing Education).
- Developing an Equine Nutrition app with Waltham® and Glasgow University.

Library collaborations:

- EUL is a member of SCONUL Access (Society of College, National and University Libraries), a co-operative scheme enabling staff, research students, full time postgraduates and part-time, distance learning and placement students to borrow material from 175 participating higher education institutions in the UK and Ireland.
- The Academic Support Librarian (ASL) is in contact with international libraries through the European Veterinary Libraries Group and vetlib-I, an international mailing list.
- The ASL is participating in a project, led by librarians in Texas A&M University and Ohio State University, to produce a 'Basic Book List for Clinical Veterinary Medicine'.
- The ASL is a member of the RCVS-funded Global Resource in Online EBVM Learning (GROEL) project to produce a global online EBVM (Evidence Based Veterinary Medicine) tool.

Teaching and learning resources

Teaching and learning resources include the following:

- Continued creation of instructive video resources, to support blended teaching in our Clinical Skills Labs and via YouTube as open access resources for public engagement and education.
- Use of QR codes and other technologies to facilitate ease of access for students.
- Development of the virtual environments used in our programmes, such as tutorial spaces and training resources for postgraduates in Easter Bush Farm and the Virtual Pharmacy for undergraduates in Second Life.
- Purchase of a 3D printer to create physical objects for student learning to complement our traditional bone boxes. The development of 3D computer models also feeds into our research to produce other types of 3D resource to help students develop their spatial awareness.
- Massive Open Online Courses (MOOCs) – serving a dual role in facilitating wider public engagement and helping faculty develop new modes of teaching.
- Supporting student-generated resources to encourage peer learning.
- In addition to software licensed by the University and CMVM, the School licenses a number of software packages for its students, such as the Glass Horse (see <http://edin.ac/1PyVVve> for list).
- The School also has bought twenty licenses for the Articulate Storyline software, which is being used by lecturers and students to create interactive learning resources.

Library staff

The Academic Support Librarian (ASL), a professional librarian, is full time and has responsibility for collection development, managing the library materials budget, for liaising with staff and students of the School and for the provision of information skills, etc. The ASL reports to the Head of Library Academic Support.

The LSoKVL Helpdesk is managed by the Help Services section of USD. Help Services has been awarded the Customer Service Excellence (CSE) Standard. CSE is a national standard used to benchmark public services. The LSoKVL Helpdesk is staffed by Helpdesk Assistants, who are able to help students with any problems they may have in finding information. (see **Appendix 5.2** for full staff list).

IT Support staff

Front-line support for students is provided across the University by a mix of ISG Helpdesk (Library) and Helpline (User support staff). User support staff are backed by an on-site campus ISG team (see **Appendix 5.2**). The on-site IS team provide campus specific IT expertise and a presence for resolving IT issues of a physical nature.

5.3. Describe the methods of access to library information resources for faculty and students when they are on and off campus.

Staff and students can access e-resources on and off campus using MyEd, VLEs, or the Library website. The Library uses Shibboleth authentication allowing users to access many of our e-resources using their EASE username and password. The University also has a Virtual Private Network (VPN) Service ensuring a secure method of accessing the University network remotely. The University's Remote Applications service allows users to access a range of centrally hosted software (e.g. vet-focused, and statistical software) when off campus, ensuring consistency of resource provision independent of location.

5.4. Describe the resources (training, support) available to students for improving their skills in accessing and evaluating information relevant to veterinary medicine for sources in any media.

First year students on the 4 and 5 year programmes attend a series of sessions and workshops which include: Learn, EEEVeC and library inductions, workshops on literature searching using CAB Abstracts and VetMed Resource, lecture and hands-on workshops on academic writing, literature searching and referencing. The materials and sessions are designed and delivered by ISG and School staff. Support material is made available on Learn. Links are placed on Learn to library resources such as 'Cite them Right'.

There are refresher sessions in semester 1 for Year 3 and 4 students where any relevant new resources are also highlighted. All students can request ad hoc one-to-one or group sessions with the Academic Support Librarian.

Additional subject specific guides and generic resources are available on the Library website.

5.5. Describe current plans for improvement.

- The School is piloting the use of a new e-assessment system to improve question data-banking, assessment delivery, analysis and reporting.
- The University has purchased a new electronic voting system to replace previous 'clickers' allowing students to use their own devices in interactive teaching sessions.
- The University is currently procuring a new media service to streamline media storage and retrieval. This is expected to increase our use of images and video in teaching resources and facilitate student co-creation and re-purposing.
- The School is piloting new systems to help students document and reflect on their experiences on EMS placement.
- The Library is piloting a new Course Collections project, to streamline textbook provision.
- The Library and DEU will begin lending iPad minis from the Library helpdesk in summer 2015.
- ISG is aligning infrastructure related IT Strategy and development with governance from the University. A copy of the CMVM Information Strategy is provided for reference. <http://edin.ac/1PyWBAB>
- From the start of academic year 2015/16 ISG will promote Microsoft OneDrive as the primary disk space for students. This provides 1TB of space, soon to be increased to unlimited space.
- The School is working with CMVM and ISG to implement a rolling five year equipment replacement programme for the AV equipment used for teaching and learning. This commenced with the replacement of 96 student PCs in key School areas in July 2015.
- A member of faculty is pursuing a PhD investigating more innovative use of 3D resources in undergraduate teaching and is receiving support from the DEU.

AVMA Standard 6, Students



AVMA Standard 6, Students

6.1. Complete Tables A, B, C, and D, and analyse trends.

Please refer to **Appendix 6.1** for Tables A, B, C and D.

Numbers on the BVM&S programme are relatively stable with a slight rebalancing of numbers of students coming into the 5 year programme and the 4 year programme (hence the change in first year GEP numbers in session 2013/14). We have no plans to increase our intake. Note – First-Year is the first year of the five year programme; First-year GEP is first year of the 4 year programme. Cohorts merge for the last 3 years of both programmes. Over the past 5 years we have seen an increase in the number of postgraduate students registered in the School, in particular PhD students. This reflects the research ethos of the School and the support both financial and in terms of opportunity and environment provided by the School and the Roslin Institute for training postgraduate students.

With reference to Table C, we calculate participation from under-represented groups in a different manner than expressed in the template for Table C. Our main focus is on initiatives to support widening participation (WP), which is a strategic priority for the UK and Scottish governments, the higher education sector in general and the University of Edinburgh in particular. WP aims to address the discrepancies in the take-up of higher education opportunities between different social groups. Our mechanisms include engagement with the Lothian Equal Access Programme for Schools (LEAPS), Pathways and Reach programmes.

LEAPS: promotes higher education amongst young people within the Edinburgh and Lothians regions whose school careers have been affected by adverse economic or social circumstances, or who come from communities with little or no experience of higher education.

Reach: Edinburgh provides advice and guidance to students interested in applying for Medicine, Law, Veterinary Medicine or Architecture, who attend selected state schools in the Scottish Borders and Forth Valley.

Pathways to the Professions: provides advice and guidance to local state school students interested in applying for Medicine, Law, Veterinary Medicine or Architecture.

The number of WP applicants and entrants has been reasonably stable in recent years.

6.2. Provide a listing of student services. These services must include, but are not limited to, registration, testing, mentoring (advising), counselling, tutoring, peer assistance, and clubs and organizations.

Registration

<http://edin.ac/1r7MAPv>

Matriculation is the process by which students are formally admitted to the University of Edinburgh. All students must matriculate with the University at the beginning of their studies, and then matriculate for each new academic session thereafter. Matriculation carries with it the agreement to abide by University rules. This includes payment of tuition fees and other related costs, and allows access to the services and facilities offered by the University. Registering at the University is done by completing an online Registration form via the MyEd portal and making arrangements for the payment of tuition fees.

Testing

<http://edin.ac/1d1uDtk>

The University Student Administration coordinates centrally held exams – they provide timetabling, rooms, invigilators, regulation guidance and provide the adjustments for students with special requirements.

Counselling

<http://edin.ac/1PyWSUq>

The University provides a number of support services for students across its campuses – the Student Counselling Service, the Student Disability Service and The Advice Place. Student counselling is provided both centrally and on Campus. We have counsellors attending the Campus for sessions two days a week. A member of the counselling team regularly attends the School Student Support Management Group.

Tutoring, Mentoring & Advising

<http://edin.ac/1E4Lz4R>

The School operates a house system. There are ten houses headed up by a Senior House Tutor, each including 5-6 Personal Tutors and approximately seventy students. Every student has a Personal Tutor, a member of the teaching faculty who provides academic and pastoral support and guidance. Additional support comes from our network of Year Administrators/Student Support Officers, the School Student Experience Officer, the Student Support Team and the Student Peer Supporters. We recognise that students come with a whole range of experiences and backgrounds and more importantly all are individual in their needs. Therefore, we have a team of staff available to help students. We offer dedicated study skills advice, through drop-in and individual bookable sessions. Typically during these sessions, current methods will be reviewed and alternative strategies are suggested. Often students find just small changes can make a big difference to their enjoyment and success at University. We also offer workshops and other events where students can try out various techniques and talk to fellow students about what methods they use.

Peer Assistance

<http://edin.ac/184ndFu>

VetPALs is based on successful peer assisted learning models in operation throughout a number of schools in the University and elsewhere. These are student-to-student support systems where more senior students facilitate discussion on specific topics with junior students. Feedback has shown that this has been highly beneficial to all taking part and the VETPALs team were awarded a EUSA impact award for their work in session 2014-15. We also run a successful non-academic peer support scheme.

Clubs & Organisations

The School has a vibrant clubs and societies offering and faculty are supportive of new initiatives suggested by students. In addition to the School clubs and societies, the University of Edinburgh offers more than 240 societies to students. The R(D)SVS Clubs and Societies are shown in **Appendix 6.2**.

6.3. Provide a summary of college activities in support of placement of graduates.

The University Careers Service assists with career planning, information on employers, job applications and CVs (résumés), preparing for job interviews and developing employability skills. The Careers Service has a named Careers Advisor for the School who visits the campus throughout the year to provide this guidance. Within the School we run our own careers events and talks including the annual “Vet Choice” event showcasing a range of career opportunities to the students. The development of the student CV is an annual requirement within the personal portfolio and Final Year students are offered individual drop in sessions to help prepare their CV for job applications by members our professional skills team.

6.4. Provide academic catalogue(s) (or an electronic address for this resource) and freshman/upper-class orientation materials.

- 5 year BVM&S Programme <http://edin.ac/1PyX8me>
- 4 year Graduate Entry BVM&S Programme <http://edin.ac/1E4LMVD>

Please note the two links above require an “EASE” login and password which have been sent separately.

Freshman/Upperclass Orientation Materials

Applying for Veterinary Studies: <http://edin.ac/1PyXgCj>

All years of the programme are provided with a student handbook and further specific orientation materials are provided to students relating to key times or subjects including the Fitness to Practice RCVS Guide, Health & Safety Record, Learning Contract, EMS Preparation and Preparing for Final Year.

Student handbook: <http://edin.ac/1E4LPRw>

6.5. Describe the system used on an ongoing basis to collect student suggestions, comments, and complaints related to the standards for accreditation.

The School continually seeks input from the students with regards to their experience whilst studying at the R(D)SVS. We offer many opportunities for the students to engage with us (as detailed below) and these are at as many different times of the year and in as many different formats as possible – tailored questionnaires/surveys, open ‘Town-Hall’ meetings with the Dean, written comments that can be posted (anonymously) in the comments box, input into formal decision making committee meetings and staff attendance at student meetings.

Most importantly we show the students what we do with their feedback by creating a “You said... we did...” response which we post electronically to them, reproduce on cards and place on the tables in the cafeteria, hand out in welfare week and include as pages within their handbook.



6.6. Describe current plans for improvement in resources for students.

Work is already underway on the new Easter Bush Innovation Centre, which will provide additional student facilities in addition to being a focal point for the Campus. This centre will provide new gym facilities, more catering outlets, a mini supermarket and an outreach laboratory where students will interact with local junior and high schools. The Campus is also developing a series of jogging tracks and walkways to promote exercise and relaxation of staff and students. The School also maintains a large garden located behind the hospital which is popular for short strolls and contemplation.

AVMA Standard 7, Admission



AVMA Standard 7, Admission

7.1. State the minimum requirements for admission.

The minimum entry requirements are summarised in **Appendix 7.1** and details are available in our admissions booklet which can be downloaded at <http://edin.ac/1PyXgCj>

7.2. Describe the student selection process, including measures to enhance diversity.

Funded students: This category comprises Scottish Funding Council (SFC) sponsored Scottish and European Union students (SEU) and Rest of UK students (RUK) (England, Wales and Northern Ireland).

Applications from prospective students are received through the University and Colleges Admissions Service (UCAS). In 2013-14 we received 391 SEU and 579 RUK applications (for entry year 2014/15) for the 72 available funded places (36 SEU and 36 RUK). 122 SEU and 211 RUK applicants were interviewed resulting in 58 and 57 offers, respectively.

All UCAS applications are screened for eligibility by the admissions team. Applications are then scored on a number of criteria which are: Academic ability and record, work experience, academic reference from the head teacher and motivation and extracurricular activities as detailed in the applicant's personal statement. Scoring is carried out using written scoring guidelines approved by the Admissions Committee (see <http://edin.ac/1PyXmd7>)

Based on application scores, applicants are selected and invited for interview. In 2013-14 our interview process changed from a panel interview to a multiple mini interview format (MMI). Each interview comprises seven interview stations. Applicants spend 10 minutes at each station and following a two-minute interval move through the circuit until all seven stations have been completed. An interviewer is present at five of the stations. Two of the stations are unstaffed where applicants follow instructions to complete either a numeracy test or a practical task. The majority of interviewers are members of the academic staff with contribution from external practitioners. All interviewers undergo general and station-specific training. Scores are allocated at each station on specific attributes. (see <http://edin.ac/1E4M2UE>). An overall score can then be calculated for each applicant and this is then used to make decisions on offers. The Admissions Committee then reviews the cycle process from applicant scoring through to and including interview of candidates. Subsequently interviewed applicants are placed into four categories as follows:

Applicants may be rejected, made a conditional offer (dependent on examination results), an unconditional offer, or may be placed on a waiting list.

Self-funded students (full-fee students): Applications from full-fee prospective students are received through UCAS or VMCAS (Veterinary Medical College Application Service). Each year 80-100 international and UK students are accepted onto the 5-year or Graduate Entry (GEP) programmes. In 2013-14, 48 and 46 students entered the 5- year and GEP programmes respectively. The GEP programme is specifically designed for those applicants who already have a first degree in an appropriate subject area and after completion of an initial bespoke year, progress directly to the third year of the BVM&S 5-year programme.

Each applicant is evaluated on an individual basis taking into account their academic ability and record, references, personal statements, work experience and evidence of motivation. From this current year (for admission in 2015) all full fee eligible applicants are also invited for interview. Interview venues include Edinburgh, North America and Asia. The interview format is identical to that used for funded student applicants and the same scoring criteria apply.

Subsequent to interview and following review of the process by the Admissions Committee, applicants may be rejected, given a conditional (based on examination or degree results) or unconditional offer, or placed on a waiting list.

Measures to enhance diversity

Equality and Diversity forms one of the cornerstones of the University of Edinburgh's strategic plan 2012-2016. The University's aims and objectives for equality and widening participation can be found on pages 34-35 of the document accessible through the following link. (<http://edin.ac/1IC2HEW>)

This is highlighted in the recent 2014-2017 Outcome Agreement signed with the Scottish Funding Council. Please refer to pages 5-9 of the agreement which can be accessed at <http://edin.ac/1Pz1n13>

The R(D)SVS is fully engaged with the University of Edinburgh's policy for Widening Participation. Strategies to enhance participation occur at a number of levels.

At the level of Admissions application, contextualized data are used to identify prospective students applying through UCAS who come from a widening participation background. This is aimed at under-represented groups fulfilling certain criteria <http://edin.ac/1E4MG4E> This allows consideration of candidates who may not quite meet our entry requirements and who fulfil widening participation criteria to be included in our interview process.

Prior to application we also provide extensive outreach work to school children through Lothians Equal Access Programme for Schools (LEAPS), Pathways to the Professions and through individual schools.

The University of Edinburgh is a founding partner of LEAPS (www.leapsonline.org). The mission of LEAPS is to "promote social inclusion and equality of opportunity by facilitating increased participation and success in higher education of young people whose ability to choose higher education as a post-school option and/or to demonstrate or realise their potential may have been inhibited by economic, social or cultural factors." In the Scottish education system the years in Secondary (High) school are termed S1 (first year of Secondary/High school) through to S6. S1 students are generally 11-13 years of age. LEAPS activities run from S3 through to and including S6 pupils. At the level of S6 pupils, LEAPS and Pathways to the Professions integrate. The latter focuses on 46 Secondary schools (High school) in Edinburgh and the Lothians and this programme specifically encourages progression of under-represented school children into the professions of Law, Medicine, Veterinary Medicine, and Architecture (<http://edin.ac/1E4MlIte>).

Examples of specific activities include: The Pathways to the Profession: "So You Want To Be A Vet?" This is organized for S5 and S6 pupils and comprises a series of short presentations and talks and then allows the students to participate in some fun and interactive workshops run by academic members of staff and some of our current undergraduate students; The Early Years Initiative provides a similar programme but tailored for S1 and S2 pupils.

Academic staff and students also participate in careers fairs, parents' evenings, clinical and science workshops and careers advice sessions at individual schools.

A free Massive Open Online Course (MOOC) entitled "Do you have what it takes to be a veterinarian?" is available (<https://www.coursera.org/course/edivet>) and runs over a 5-week period. This open access course is widely advertised and can be taken by any individual wishing to gain an insight into studying veterinary medicine at Edinburgh.

Our undergraduate population continues to be increasingly diverse in terms of academic and cultural background. This diversity enriches our student community and continues to feed into and enhance the admissions process.

7.3. List factors other than academic achievement used as admission criteria.

In addition to academic achievement, applications from prospective students are evaluated in relation to extracurricular achievements, academic and non-academic references and career exploration through work experience. Work experience specifically is scored based on experience with animals and veterinary experience (paid or un-paid). Animal experience may include a wide range of experiences such as working in kennels and catteries, dairy, equine, pigs and abattoir/slaughter house. Veterinary experience can relate to a variety of different types of veterinary experience but also may include laboratory and research work.

The seven areas covered in the MMI are: work experience, career exploration, data interpretation, numeracy skills, practical task, awareness of animal welfare and moral and ethical dilemmas. This allows a wide variety of attributes to be evaluated including communication skills, numeracy, problem solving, manual dexterity, ability to follow instructions, exploration of veterinary as a career, empathy, awareness of animal welfare, ability to 'think on their feet' and ability to cope with stressful situations.

7.4 Please refer to **Appendix 7.4** for Table A.

7.5. Describe current plans for assessing the success of the selection process to meet the mission of the college.

Assessing the success of our veterinary students while they are on programme and following graduation is a vital and continuing process. We will be following and monitoring this particularly keenly to identify any changes resulting from the introduction of a new interview format for students entering the course from 2015.

Data continue to be collected from students on programme so that we can evaluate the effects of educational background and interview performance on student success. Students are also followed post graduation through the BVM&S 18 month Post-graduation Survey, the BVM&S Five Year Post-graduation Survey and Employer Surveys. (Please see Chapter A11; Outcomes Assessment. Section 11.1.e and 11.1.f).

7.6. Describe your policies and procedures for admitting transfer students who will receive a degree from your institution, and state the number of transfer students admitted per year for the last five years.

We do not routinely admit transfer students. An exception was made in 2011 where 5 students from Antigua were accepted into the third year of the BVM&S programme. This was as a result of hurricane damage to Antigua's Veterinary School.

AVMA Standard 8, Faculty



AVMA Standard 8, Faculty

8.1. Complete Tables A and B, and assess the strengths of the faculty and support staff in fulfilling the college mission.

Please refer to **Appendix 8.1** for Tables A and B.

Reflecting the range of our clinical services, which offer both first opinion and referral services across all species, including wildlife and exotics, and all the major disciplines within these, we have an extensive, highly qualified and experienced academic clinical staff. Certain disciplines have been strengthened by targeted recruitment in recent years, specifically oncology and neurology. The clinical services also have excellent administrative and technical support including 40 registered veterinary nurses. The clinical support services, imaging, anaesthesia, pharmacology and pathology are also staffed with highly qualified experienced staff. The diagnostic pathology services not only deal with internal samples and cadavers but also supply services to the wider veterinary community and to internal and external research workers, including students. Although the pre-clinical area has seen recent retirements of long serving staff members they have been replaced with well qualified individuals and the Veterinary Medical Education Division has also been strengthened by increasing staff numbers, many of whom are veterinarians capable of teaching across the curriculum. The Roslin Institute has expanded significantly in recent years and Roslin research academics contribute directly to the undergraduate taught programme, mainly in the pre-clinical courses. In addition, the research groups in the Roslin Institute also take on veterinary undergraduate students for summer research projects. Although the majority of the School academic staff are veterinarians, there are eight non veterinarians who supply specialist knowledge in the pre-clinical and animal welfare courses. The Roslin Institute has 19 non-veterinary academics that contribute to the pre-clinical undergraduate programme.

8.2. State the current number of academic faculty (head count) who possess credentials as listed in Tables C and D.

Please refer **Appendix 8.2** for tables C and D.

8.3. Assess the challenges for your college in maintaining faculty numbers and quality.

As for many veterinary schools, retaining and attracting clinical specialists can be a challenge in the face of competing salaries from non-University practices and industry. Our size and reputation, however, have meant that, with few exceptions in recent years, we have maintained and indeed developed our staffing profile in line with the expansion of our educational and clinical programs. In particular, our approach to staff development and opportunities has underpinned recruitment and retention. Our academic teaching staff has grown by 12 over the last five years and the turnover is acceptable with 36 academic staff leaving in the last five years, seven of these age retirements, please refer to Table A in **Appendix 8.1**. The academic research staff numbers have also grown and this supports the undergraduate course by adding depth to the specialisms available to contribute. Maintaining staffing levels in anaesthesia has been challenging for us due to a shortage of well qualified, experienced veterinary anaesthetists available, however with recent restructuring and new appointments this is now resolved.

8.4. Provide information on the loss (what discipline/speciality) and recruitment of faculty (Table A).

Please refer to **Appendix 8.1** Table A.

8.5. Provide a concise summary of promotion and tenure policies, and the policy to assure stability for non-tenured, long-term faculty.

The University has an annual promotion round for both academic and professional services staff. Process and timelines are communicated to staff via on site workshops and local websites/intranet. The Head of School together with Human Resources (HR) review a list of all staff ahead of the promotion round to ensure active encouragement and mentoring of those ready for promotion. Applications are considered at a local School panel before being sent to the College panel for final approval. All staff can be considered for promotion regardless of contract status.

8.6. Provide an estimate of the weight assigned to promotion/tenure and or compensation for teaching, research, service, or other scholarly activities.

Teaching, Research and Leadership and Management duties are used to review promotion applications. The individual and the manager will agree and allocate weightings over these areas before the form is submitted to the promotion panel e.g. they will estimate how much time (via a percentage) is spent on research, teaching and management. For clinical veterinary staff there is also a "clinical track" to promotion and clinical work is also weighted during the process e.g. a veterinary staff member could be 60% clinical, 20% teaching and 20% research. The Head of School represents the School on the College promotion panel to ensure that clinical members are appropriately represented.

The School also has a workload model in place which takes into account all of the above, including outreach and pastoral activities. This ensures equal assessment and review of all aspects of workload. The workload model is part of the annual performance and development review and ensures that pro-active planning and discussion takes place between managers and staff members in terms of workload. It is also an opportunity for managers to identify any support needs or CPD/CE, which may be of benefit for promotion.

8.7. Briefly describe faculty professional development opportunities available in the college/ university.

The University's Institute for Academic Development (IAD) (<http://edin.ac/10c1vJV>) provides a range of courses in support of teaching and staff development including the option of studying for the Postgraduate Certificate (PgCert) in Academic Practice. In addition, we run an extensive series of in-house staff development workshops and events tailored to the needs of colleagues on-site. These include introductory sessions for new staff and sessions on a range of topics including assessment, feedback, learning objectives and small group teaching. Attendance at these events, with appropriate reflections can be built into a portfolio in order to allow participants to gain the Edinburgh Teaching Award, which is formally recognised as equivalent to the National award of Fellowship of the Higher Education Academy (<http://edin.ac/1PyYfIK>).

The Campus also funds a Research Leadership Course every two years. This is a four-day programme for early career academics who wish to enhance their research portfolio. This is run jointly with the Roslin Institute and the feedback is very positive. The course covers many areas from grant writing, managing a group to impact of research. The IAD also has an award-winning Research Development Programme and offers a suite of courses to academic staff members from managing a project and handling difficult conversations to networking. The University offers a further Leadership Programme for senior managers and the School has supported the senior academic management team through this programme. The Head of School and HR also provide an annual promotions workshop on Campus. This was in response to a staff survey which indicated a low awareness of the University promotion criteria, since starting the workshop awareness and understanding of promotion has increased to 80% across the Campus.

8.8. Describe current plans or major changes in program direction that would be affected by faculty retirements, recruitment and retention.

None

8.9. Describe measures taken to attract and retain a diverse faculty.

The University and the School encourage recruitment applications from minority backgrounds and this is stated clearly on all advertisements. The School currently holds an Athena Swan Bronze Award and will be applying for Silver in November 2015. This award highlights the School's commitment to address the issues of gender equality, especially in terms of women in senior positions on decision-making boards. The School was the first Veterinary School in the UK to achieve an Athena Swan award; we proudly display our achievement in the main entrance and also on local websites and job advertisements. The University has an equality and diversity team (<http://edin.ac/1E4N03k>) and hosts many networks and committees including LGBT network, Disability Staff Network, Advancing Gender Equality Committee, Student Disability Committee and an overarching Equality and Diversity Management Committee. The recent staff survey highlighted a clear indication that staff felt the School was committed to Equality and Diversity (95%). The School's Career Development Committee duties, include promoting a culture of equality and inclusivity within the School.

8.10. Describe programs for on-campus delivery of curricular content by individuals not employed full time by the institution (other than occasional guest lecturers), including subjects taught. Estimate the percentage of core curricular content delivered in this way.

The vast majority of our curriculum is covered by our own faculty. We currently employ guest lecturers in the areas of pig medicine, fish husbandry and health, and State Veterinary Medicine. These areas combined represent only 1-2% of our entire curriculum.

8.11. Describe the role of interns, residents, and graduate students in teaching and evaluating veterinary students.

Interns and residents (and veterinary nurses) are involved in day-to-day teaching and support of veterinary students in the Hospitals and diagnostic services. All new residents/interns are required to attend specifically designed staff development sessions as part of our rolling programme of staff development. None of these groups formally assesses students other than having input into general discussions at the end of rotations for the purpose of providing constructive feedback.

Graduate students are also involved in the context of postgraduate demonstrating in the early years of the curriculum (i.e. contributing in small group practical classes in areas such as bacteriology, immunology, anatomy, especially the latter). Specific induction sessions are held for these groups in advance of being involved in any teaching to cover curriculum overview, background to our student cohorts and dealing with small group teaching dynamics.

AVMA Standard 9, Curriculum



AVMA Standard 9, Curriculum

9.1. State the overall objectives of the curriculum and describe how those objectives are integrated into individual courses.

Educational aims of the programme

The BVM&S degree at the Royal (Dick) School of Veterinary Studies provides students with breadth and depth of knowledge in veterinary science. This allows appreciation of fundamental scientific principles and their integration with, and application to, the whole animal. This holistic education combines with the staged acquisition of specific clinical and generic skills to produce graduates trained to the core competencies identified by the accrediting bodies. The aims of the programme as laid out in our Programme Specifications are listed in Table 9.1 below aligned with an overview of their integration as a high-level curriculum philosophy. Further details of our curriculum can be found in Section 9.6 and **Appendix 9.6a**.

Table 9.1 Overall programme aims

Aims	Integration
To provide an understanding of the normal biological function and welfare needs of animals	Animal Body and Animal Life and Food Safety courses. The strong welfare ethos within the School ensures welfare aspects are addressed in every course we teach.
To enable clinical disciplines to be learnt within the context of a firm foundation in basic science	The clinical skills themes run throughout the curriculum and evolve in tandem with the theoretical underpinnings of the related courses
To produce graduates for the practising arm of the profession and allied research, commercial and public health positions	Species based integrated clinical courses, Student Research Component, Veterinary Public Health, Research Track (optional)
To encourage responsible and professional behaviour encompassing legal and ethical considerations	Professional and Clinical Skills courses and portfolios from Year 1
To foster a spirit of enquiry and equip graduates with an appreciation of the importance of lifelong learning	Student Research Component (Foundation Skills), Student Research Component. Professional and Clinical Skills courses. Portrait lectures

9.2. Describe major curricular changes that have occurred since the last accreditation.

The curriculum was last reviewed in 2013 by a curriculum development group reporting to Learning and Teaching Committee (LTC). All recommendations of the group were approved. **Appendix 9.2** captures these changes and those emanating from the previous review in 2008 plus ongoing more minor modifications.

9.3. Describe the process used for curriculum assessment (including course/instructor evaluation) and the process used to assess curricular overlaps, redundancies, and omissions.

Curriculum content, design and review is the overall responsibility of the Learning and Teaching Committee (LTC; formerly the Curriculum Executive), which meets monthly (and 3 times a year is convened as a larger Board of Studies). In practice, working groups of LTC will deal with specific projects and report back to LTC for final discussion and approval. For example the clinical skills committee recently carried out a mapping process resulting in introduction of additional practical classes in Year 3.

Outside of major course level changes, all suggestions for course content or assessment changes must receive approval from LTC. The yearly cycle of amendments follows the process shown in Figure 9.1.

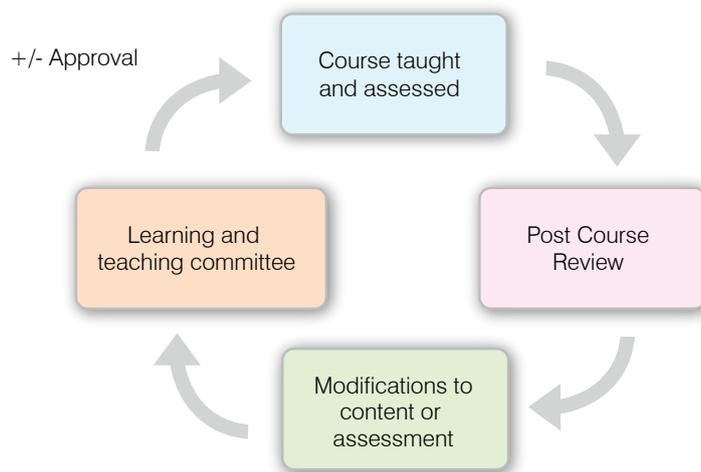


Figure 9.1 Overview of process for course level modifications

All aspects of quality assurance of the BVM&S programmes are carried out by the School's Quality Assurance Committee (VMQAC), which meets four times per year. Membership of this committee includes School academic staff, students and external college representation. VMQAC has a rigorous set of processes and procedures supported by a series of 7 Quality Assurance documents for completion annually. Documentation relating to individual courses is reviewed by a member of VMQAC who is not directly associated with the course to provide a degree of externality.

VMQAC coordinates for each course, the following portfolio of documents:

- Staff Student Liaison committee meeting minutes
- End of Course evaluation
- Post Course Review minutes
- Examination Board minutes
- External Examiners report
- Reflective Summary by the Course Organiser
- Independent review by member of the QA committee

With additional annual cross-curriculum documentation comprising:

- Summary of external examiners and course organisers' comments
- Year summary documents from Director of Teaching, Admissions, Library Services and Student experience/support

The School values student feedback and employs a number of means to ensure the student voice is heard. These include:

Questionnaires/Evaluations

Each course uses a similar post course evaluation, which contain a set number of 'core' questions to allow both year on year and cross course comparisons. Courses also have flexibility to add specific questions to help teams further develop their courses subject to approval by Learning and Teaching Committee.

Staff-Student Liaison Committee (SSLC) meetings

SSLC meetings are the principle means of collecting feedback from students whilst courses are running. They are a forum for immediate, face-to-face responses to student comments and forum for two-way communication. The inclusion of an Independent Staff Adviser (ISA) on each SSL Committee provides a valuable balance to the committee, which is appreciated by students.

Evaluation follow-up

Areas of concern identified by VMQAC are passed to the School LTC for action and are monitored at the end of the academic year. VMQAC produces an annual QA action list at the start of the academic year with a review of progress at the end of the academic year. VMQAC submits an annual report to the College Quality Assurance Committee (CQAC), which in turn submits an annual report to the Senatus Quality Assurance and Enhancement

Committee (SQAEC). College reports are reviewed by SQAEC members who are not aligned to the submitting college and their reports discussed by SQAEC at a specially convened meeting. Comments and recommendation from SQAEC are referred to VMQAC via CQAC.

External examiners

As part of the University's Quality Assurance procedures, each course must have at least one external examiner who must attend at least one Board of Examiners meeting during each academic year to enable them to provide feedback and comment on process and procedure.

In 2013, we established a specific meeting of Year Directors, Director of Veterinary Teaching and Head of Veterinary Teaching Organisation administration to take an overview of all external examiners reports across the curriculum and identify common issues and themes for action. This has proved a very valuable process in advance of the following academic year providing useful holistic oversight of any common issues arising.

The 5 themes that were common across many courses in 2013/14:

- 1. Improved exam statistics and standard setting.** External examiners across many courses commented positively on the introduction of Hofstee standard setting and were very supportive of the changes to the exam board process. Where possible external examiners would like to receive statistics in advance of the exam board. Work to continue and address credit/distinction boundaries.
- 2. External examiners to receive copies of model answers and final draft of exam papers.** External examiners currently receive a draft of the exam paper to comment on but do not see the final version until they arrive for the exam board. These must remain separate documents.
- 3. Reviewing questions from statistics.** Greater guidance needed on future use of questions from statistics – how to improve and when to remove.
- 4. Question writing training.** The Veterinary Medical Education Division (VMED) will continue to publicise and run their MCQ question writing workshops, which covers writing good questions and interpretation of the statistics on question performance.
- 5. Annotating scripts and model answers.** Greater guidance and clarity needed for markers (and personal tutors and external examiners) on how scripts should be annotated to ensure clarity in the allocation of marks, compliance with the model answer and completion of template when question has been failed to allow staff to understand the marking and for students to receive clear feedback when meeting with personal tutors.

Teaching Programme Review

Monitoring of Higher Education Quality in Scotland has been 'Enhancement Led' since 2003-04. (Further detail on this process is available at <http://edin.ac/1PyYmho>) A major component of this review process is the Enhancement Led Institutional Review (ELIR) which took place for the University of Edinburgh in 2007 and will happen again in November 2015. Within this system, there is a rolling programme of subject reviews (Teaching Programme Reviews - TPR) with Veterinary Medicine being visited by a team of external subject experts and internal members most recently in 2010 with a resulting series of commendations and recommendations (See Chapter A11; Outcomes Assessment. Section 11.1.h). The next TPR of veterinary medicine is scheduled for March 2016.

Further detail on our Quality Assurance mechanisms is given in Chapter A11 – Outcomes Assessment.

9.4. Describe the strengths and weaknesses of the curriculum as a whole.

The strengths of the BVM&S programme include:

- Increasingly well-developed clinical and professional skills theme running throughout the programme with year on year increases in practical classes and tutorials supporting professional and clinical skills development. Supported by our small and large animal clinical skills teaching suites.
- A robust approach to assessment and standard setting and quality assurance in general.
- In-house staff development programme and CPD/CE opportunities aligned to the Higher Education Academy (HEA) framework.
- Opportunities afforded by the facilities at the Easter Bush Campus and co-location of Roslin Research Institute as the School's research arm (e.g. 'Portrait' lectures in Year 1).
- Since the last accreditation, we have significantly increased the resource supporting the student experience. This includes the appointment of a student experience officer, implementation of a new personal tutor system and a much wider availability of study skills support and counselling both locally and centrally.
- A highly experienced and enthusiastic teaching faculty many of whom are actively engaged in educational development and related CPD/CE.

Weaknesses currently are:

- Despite curriculum review reducing lecture content, an over-reliance on lecture based approaches for covering core material. We have made the presence of clinical reasoning more explicit in the curriculum but realise further work in this area is needed which is being taken forward by the clinical reasoning working group reporting to LTC.
- Linked to the above point, our experiences with the flipped classroom approach over the last 3 years and the research we have associated with it encourages us to further embed this approach in appropriate areas.
- We have been working hard over the last 2 years in unifying and developing our assessment processes and related audit. We have made good progress but in order to move to the next stage require a move to a unified online assessment system which can produce good quality data and allow solid item banks to be generated.
- Extra Mural Studies (EMS) provides important experience for our students; we are working to further develop monitoring and QA processes related to its management.
- Our NSS scores over the past 3 years have been steadily improving in the area of assessment and feedback but we appreciate there is still work to be done in this area.
- We are in a transition phase between 2 different virtual learning environments, which we appreciate is challenging for staff and students.

9.5. Describe preceptor and externship programs (including the evaluation process).

Extra Mural Studies (EMS)

EMS is the period during which students spend time developing their veterinary skills and knowledge in veterinary practices and in a wide variety of other work-related environments. It is made up of two distinct phases. One is the 'pre-clinical' or animal husbandry phase, which comprises a total of 12 weeks and the other is 'clinical EMS', which comprises 26 weeks towards the latter part of the degree programme. Completion of this 38 week Extra Mural training is a mandatory requirement before being allowed to graduate.

Preclinical EMS

Students gain experience in the husbandry and management of as many species of domesticated animals as possible. Students complete several pieces of coursework associated with these placements. Certificates of Attendance (including feedback from the placement provider to the student on an individual basis including comments on attitude and enthusiasm, ability and confidence when handling animals, communication skills and knowledge) are brought back by the students as a hard copy or submitted electronically by placement providers directly to the EMS Director. The return rate is 100% as placements cannot be added as 'completed' until the Certificate of Attendance plus the Enterprise Report form is received. It is the students' responsibility to submit these forms by the deadline, which is usually 2 weeks after the start of the semester following the placements.

Clinical EMS

The practitioner's contribution to this part of undergraduate education is of vital importance. Clinical placements provide students with the opportunity to extend their learning beyond that acquired within the University and to consolidate their previous experience of animal husbandry. These placements expose students to the reality of working in practice and other environments and gives them the chance to understand organisation and management, as well as an appreciation of commercial factors. In addition, to encourage those students interested in research, up to 12 weeks can comprise working in a research environment.

Placement providers return a paper or electronic assessment form for each student, which is required before the placement can be logged as counting towards EMS. These are accessible to students and staff through the EMS intranet pages on the EEVeC system. Paper copies are scanned in; electronic copies are uploaded directly.

Placement providers score students on a set rubric and also have the opportunity to leave free text comments. Any feedback of a worrying nature from a placement providers will trigger a 'note of concern' by the relevant staff member and students will be required to meet with the student support and advisory group (SSAG) and depending on the outcome of that meeting, potentially to progression committee and fitness to practice.

After completing the core rotations and the academic component of the final assessment, the students have the opportunity to explore areas of work that they wish to develop or intend to work in. These selected rotations can take place within or out with the School. For external selected rotations e.g. fish medicine and Edinburgh Zoo, assessment structure and rubrics are discussed in advance with rotation organisers to ensure QA and standards are upheld.

9.6. Curriculum Digest

The high-level curriculum overview is shown in **Appendix 9.6a** with further course specific detail, including a more graphical format, available through the links below. We offer 2 routes to the BVM&S degree – a 4 year Graduate Entry option and a 5 year option for undergraduate or graduate entry (depending on academic background). Students on the 4 year programme have a longer 1st year and then join with students in Year 3 of the 5 year programme.

- 5 year BVM&S Programme <http://edin.ac/1PyX8me>
- 4 year Graduate Entry BVM&S Programme <http://edin.ac/1E4LMVD>

Please note the two links above require an “EASE” login and password which have been sent separately.

Appendix 9.6b provides a high level overview of the Final Year core (all mandatory) and selected rotations available. More detail on learning outcomes and how these align with our assessment of clinical competences outcomes are also provided in **Appendix 11.1c (i)-(ii)**.

9.7. Describe current plans for curricular revisions

Appendix 9.2 shows the dynamic nature of the BVM&S curriculum with major changes having occurred in session 2014-15 relating to the end of Year 4 and Final Year.

The last curriculum development group reported to LTC in March 2013 with significant outcomes being:

- Development and implementation of the New Final Year rotations
- General consensus that overall structure in Years 1-4 is working but there is a need to focus more on delivery and teaching methods. This has led to current projects on:
 - a. The flipped classroom
 - b. Further development of clinical reasoning
- Student Selected Component 2 (SSC2) [Now Student Research Component/SRC] preparation phase beginning in Year 2

9.8. Provide a description of the testing/grading system (scoring range, pass levels, pass/fail) and the procedures for upholding academic standards.

Under University of Edinburgh regulations, the BVM&S common marking scheme is provided in the table below. In practice, this is very much a final conversion and in line with our assessment development in recent years, we have implemented a new approach to examination boards and standard setting effective from session 2013-14.

Mark (%)	Grade	Description
70-100	A	Excellent
60-69	B	Very Good
55-59	C	Good
50-54	D	Satisfactory
46-49	E	Marginal Fail
35-45	F	Clear Fail
0-34	G	Bad Fail

In addition, we have a School-specific GPA conversion updated annually to allow students to track their performance longitudinally and assist with residency applications.

Course and Task Specific Standards and Standard Setting

The procedures for upholding standards are a combination of our external examiner system aligned with our robust QA committee process.

Our new examination board process developed over the last 2 years is in line with Quality Assurance Authority (QAA) guidance on the role of the external examiners such that their focus is very much on auditing process

rather than arbitrating on individual student decisions. We are very happy with how this process has rolled out and although still being fine-tuned are encouraged by our external examiners' engagement and support for what we are trying to achieve.

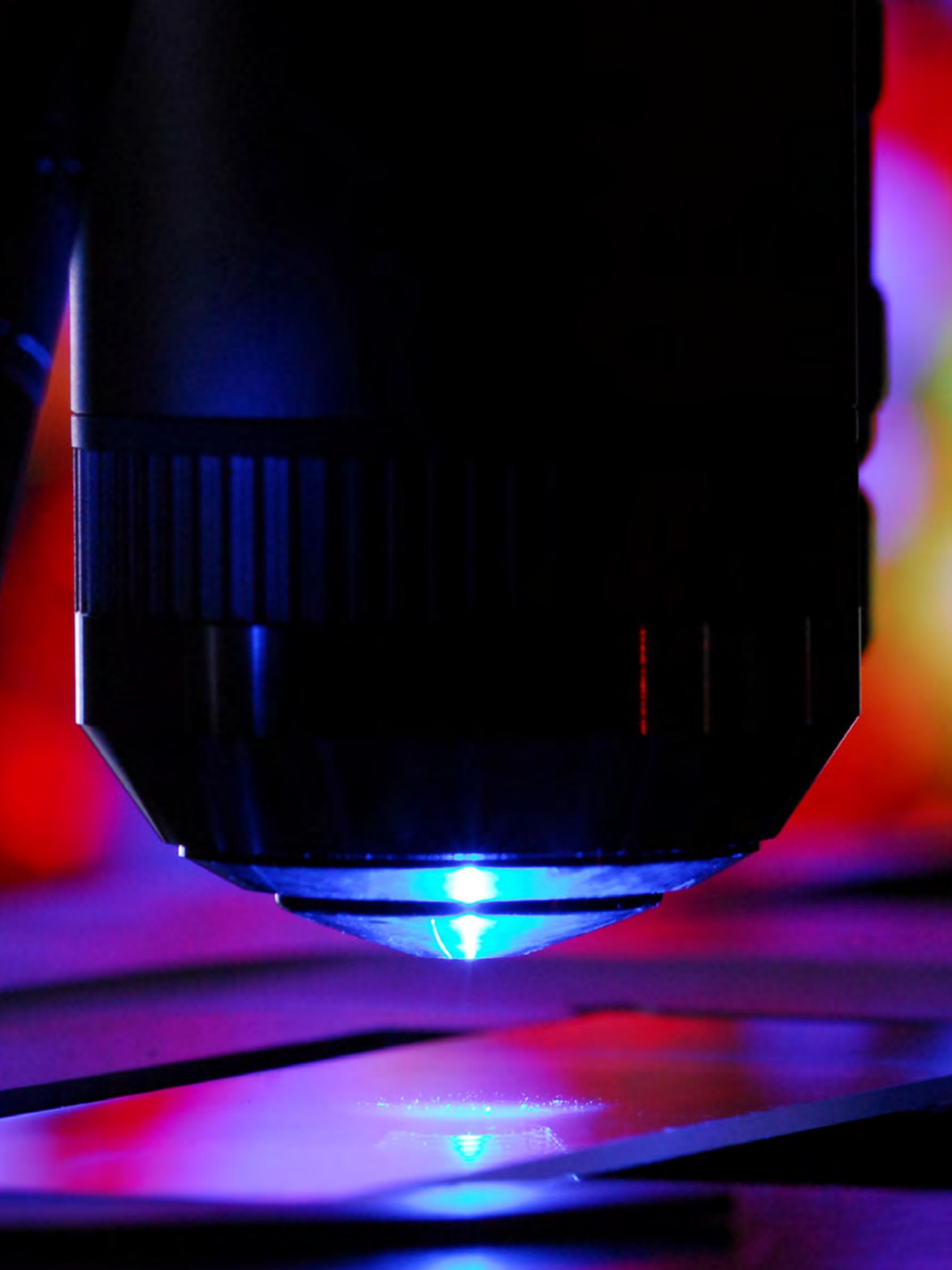
9.9. Describe the opportunities for students to learn how different cultural and other influences (e.g., ethnic origin, socio-economic background, religious beliefs, educational level, disabilities and other factors) can impact the provision of veterinary medical services.

We have a very culturally diverse student body, which undoubtedly serves to highlight and develop the students' ability to understand perspectives of different cultures. The importance of recognising the diversity in the client base is emphasised in our communication skills curriculum and we have specifically expanded our professional skills curriculum to include discussion and role-play of clients with disability to further focus discussion on these key areas. These include visual, hearing and mobility impairments.

The following opportunities also exist:

- Final Year core rotation in Cowdenbeath, Fife is in a low-income area hence students will see on a daily basis the challenges in dealing with financial deprivation and can contrast this with their other experiences.
- Opportunity for students to attend 3 clinics for homeless animal owners in Edinburgh.
- Fostering Compassion – pilot for 30 students in May 2015 (working with children and animals).
- Opportunity for students to attend Polmont Young Offenders Institution and take part in the dog scheme they have working with the 'inmates' and talking to them about responsible pet ownership.
- A subset of our EMS bursaries are targeted at opportunities for students to experience veterinary medicine in different cultures and contexts.

AVMA Standard 10, Research Programmes



AVMA Standard 10, Research Programmes

10.1 Describe up to five programs of research emphasis and excellence that integrate with and strengthen the professional program.

Introduction

The University of Edinburgh is a research-led University and the Veterinary School is a research-led Veterinary School providing a research-led curriculum. The School has taken full advantage of its expansion in research (through incorporation of the Roslin Institute) to drive opportunities for research to be embedded and integrated into the professional programme. In 2008, the University of Edinburgh took the strategic decision to incorporate the Roslin Institute within the Royal (Dick) School of Veterinary Studies to serve as the research arm of the School. Previously managed and funded by the BBSRC (British Biological Sciences Research Council), the Institute became University owned but retained BBSRC core funding for research. The Institute was restructured into 5 divisions and a new director (and associate dean for research for the School) was appointed. Our research focuses on Food and Environmental Security and One Biology/One Health, two of the greatest challenges facing humanity. These themes are underpinned by our combined strengths in five major research disciplines: Genetics and Genomics, Infection and Immunity, Developmental Biology, Neurobiology and Translational Veterinary Sciences. A £60M state-of-the-art research facility, the Roslin Institute (opened 2011), at the Easter Bush Campus now accommodating over 500 research staff and postgraduate students, located alongside the new £50M Veterinary School. Further investments include the Veterinary Oncology and Imaging Centre (£3M, 2009), Avian Research Facilities (£14M, 2013-2014), funded Innovation Centre (£25M, completion 2017)

Programs of research emphasis and excellence that integrate with and strengthen the professional program.

The R(D)SVS offers a variety of opportunities for veterinary students to become engaged in, and receive training in, research. These are discussed in more detail in Section 10.3.b. Formal research programmes available to veterinary students include the Student Research Component (which is integrated into the curriculum), Summer Studentship Program, Intercalated Degree Programmes (BSc./MSc.). Students participating in research will usually follow one of the 5 research programmes described below:

1) Genetics and Genomics: The intellectual and practical challenge in both livestock production and animal and human health is to generate a predictive biology that links genetic and epigenetic variation with phenotype. We aim to produce testable models at all possible scales of bioscience: molecular, cellular, organism, population as well as environmental interactions. We make major contributions to functional annotation of livestock and human genomes, sustainable breeding programmes and new breeding tools, capitalising on new technologies such as Genotyping by Sequencing (GBS). Implementation of the outcomes is achieved through multiple strategic partnerships with major breeding companies and other industry partners.

2) Infection and Immunity: Infectious disease is the greatest single constraint on livestock production, especially with increasing intensification. Our aim is to reduce the economic burden of diseases of livestock and to mitigate impacts on food safety and transmission to humans. The research is based on the genetics, genomics and cell biology of innate immunity in livestock, and includes research on livestock responses, host susceptibility, host-biome interactions and vaccine development to important bacterial zoonoses and emerging diseases. The programme includes pathogen genomics and discovery in livestock species, included an international dimension through the Centre for Tropical Veterinary Medicine. Alongside studies on host-pathogen interactions and pathogenesis, we continue to expand our ability to utilise molecular diagnostic and mathematical tools to develop predictive epidemiology models.

3) Developmental Biology: We investigate fundamental processes such as stem cell biology, control of somatic growth, embryonic patterning, organogenesis, musculoskeletal development, haematopoiesis, gonad function and sex determination that ultimately determine both reproductive success and productivity in livestock, companion

animals and humans. We exploit our ability to analyse and manipulate the genomes of mice, rats, chickens, pigs, sheep and cattle alongside detailed knowledge of human genetics and functional genomics and to analyse the genetic variation in both farmed and companion animals to gain insight into the function of individual genes.

4) Neurobiology (Including Welfare and Behaviour): Animal behaviour and welfare are major areas of public concern as production systems change and intensify. Underpinning this theme, we continue to expand our focus on fundamental biology of the cells of the CNS of large animals, in part through investment in imaging infrastructure.

5) Translational Veterinary Science: The pathophysiology and management of disease are major aspects of our translational clinical research and capitalize on the co-location of veterinary hospitals with the research institute. Strategic areas include infectious diseases (including antibiotic and anthelmintic resistance), genetic basis of disease in companion animals, healthy ageing (e.g. longitudinal “Dogs Life” project: www.dogslife.ac.uk), inflammation, cancer and stem cell biology. Collaborative research between veterinary and human medicine has benefits for all species. On this basis, we continue to enhance our research in the area of “one medicine” through our strong collaborations, particularly focusing on genetics, infectious diseases and large animal models of human disease (e.g. cancer, lung disease).

10.2 Provide evidence for the breadth and quality of the college research program, including:

10.2.a The number of individual faculty members within each department involved in research, total research FTE, and research productivity (tabulate below for each of the last three years).

See **Appendix 10.2** for Tables A, B, and C.

We have recruited a total of 48 new research staff since The Roslin Institute joined the Vet School (20 Group Leaders and 28 Career Track Fellows) and 11 new research-active veterinary clinicians. Combined competitive research income has grown to a current total around £25million per annum. In 2011, we renewed the five-year BBSRC Strategic Programme (£40M) to The Roslin Institute as a National Institute of Bioscience. The output of peer-reviewed publications has grown each year, including major contributions to sequence and functional annotation of livestock genomes. We have more than doubled postgraduate numbers to 237 currently and introduced new postgraduate research programmes. Our graduate programmes were ranked above the Russell Group average in all categories in the Postgraduate Research Experience Survey (PRES2013). Independent consultants estimated in 2012 that each £1 spent in our research has produced £12.7 annual GVA (Gross Value Added) in the UK economy (<http://edin.ac/1bLvFNr>).

10.2.b A description (one page or less) of other measures of faculty research activity (e.g., faculty participation and presentation of original research in scientific meetings, involvement of faculty in panels, advisory boards or commissions, and national and international research awards received).

In the most recent Research Excellence Framework (REF 2014) assessment the R(D)SVS was ranked number one in Veterinary Research for the UK based on research power. The REF is an assessment of the quality of the research being undertaken at UK Higher Education Institutions (HEIs) and the impact the research has in society. Our submission was the largest to UoA6 (Veterinary and Agricultural Panel). Three quarters of the research outputs we submitted was judged to be “world leading” (receiving the top REF grading of four star) or “internationally excellent” (three star). The impact of our research scored extremely well (>80% of the submitted impact studies were scored as 4* or 3*) and the research environment was scored as 100% 4*.

Our research is built upon multi-level strategic partnerships, e.g. The Scottish Government-funded Centre of Excellence in Animal Disease Outbreaks. Our international strategy involves strategic partnerships with research organisations in Australia, New Zealand, North America, Japan, China, National Institute for Animal Biotechnology in Hyderabad, India and many of the CGIAR (Consultative Group for International Agricultural Research)-funded Institutes, notably the International Livestock Research Institute (ILRI). Faculty are involved in a significant number of international consortia: SABRE (Cutting-Edge Genomics for Sustainable Animal Breeding), Quantomics, EADGENE (European Animal Disease Genomics Network of Excellence), PRRSNet (Porcine Reproductive and Respiratory Syndrome in network in Europe), European Farm Animal Industrial Platform, NADIR (Network of Animal Disease Infectionology Research) and ELIXIR, (a distributed infrastructure for life science information,

www.elixir-europe.org). We have active research collaborations in more than 50 countries, including longstanding collaborations in Europe via EU-funded research and training programmes, including FP7 projects on Para-TB Tools, TB-Step and Animal Welfare Indicators.

The large majority of Faculty contribute to development of their disciplines via editorships on journals, members of grant panels and as office bearers in numerous societies. A number of senior staff sit on BBSRC and UK Research grant panels and veterinary grant panels. We have provided members of organising committees of at least 50 international meetings since 2008. Many of our staff act as consultants to UK and Scottish Governments and serve on numerous advisory boards (E.g. Gates Foundation Livestock Development Policy, DEFRA TB Advisory Group).

We also have active veterinary education research. The School created the first UK Chair of Veterinary Medical Education (Professor Susan Rhind) and formed a unit for veterinary medical education (VMED). Grant funded research through the Higher Education Academy, JISC (Joint Information Systems Committee) and internal funding rounds (Principals Teaching Award Scheme <http://edin.ac/1E4Niaj>) underpins much of this research. Faculty in the division contribute to national and international meetings and have particular strengths in research around assessment and feedback, staff development, student peer support and e-learning. Veterinary students are regularly involved in this research and several elect to undertake their Student Research Component in this discipline. Professor Rhind is the first veterinarian to become a Principal Fellow of the Higher Education Academy. VMED faculty were founding members of the international veterinary education organization 'Veterinary Education Worldwide' (VIEW) and have also twice won the HEA's Rewarding Excellence in Teaching and Learning award. Dr. Catriona Bell is an invited member of prestigious international 'ASPIRE Recognition of Excellence in Faculty Development Panel' within AMEE (Association of Medical Education in Europe) for medical, veterinary and dentistry programmes and is a recipient of a Higher Education Academy 'International Scholarship'.

10.3. Describe the impact of the overall research program on the professional program and on professional students, including:

10.3.a Describe courses or portions of the curriculum where research-related topics are covered (literature review/interpretation, research ethics, research methods or techniques, and study design.)

- Research leaders are actively engaged and teach on the professional programme. This provides the most leading edge information given to students and a basis for driving inquiry. In addition, we provide "Portrait" lectures in the professional programme that are delivered by key research and opinion leaders in the School.
- The core skills of searching and critically appraising the scientific literature are introduced in first year in the Professional and Clinical Skills course and developed in Animal Life & Food Safety (ALFS) (1), Student Research Component (SRC) (Foundation Skills) and ALFS 2 and the Clinical Foundation Course (CFC) in Year 3. Study design, research data management and statistical analysis principles are also introduced in the early years ALFS courses, and expanded upon in CFC. These principles are then developed and used as applied subjects in the context of a student led research component in SRC, which begins in Year 2 and runs through Year 4 for completion in Final Year. Statistical, epidemiological and research skills are explored in Year 4 in the Final Year Preparation phase and are integrated in the Final Year in the context of evidence based veterinary medicine where they form the foundation of students' critical appraisal of support for evidence based decision topics.

10.3.b Describe/list the current or proposed opportunities for participation in research, including summer research program (Merial, NIH, Howard Hughes, etc.), academic year programs (NIH fellowships, industry funded, curricular time allowed for research), student employment in research labs and projects, and individually mentored research experiences.

There are a number of opportunities for students to engage in research activity. Some form part of the curricular activity and others are optional or choice based. The choice based opportunities are:

1. The School runs a summer research project programme. Each year individual staff and researchers offer between 12-18 laboratory-based projects, which are then advertised to the students. Projects run for a minimum of 6 weeks and projects are funded from a variety of sources including the BBSRC, Zoetis, MSD Connect and Medical Research Scotland. Such projects are hugely popular with the students and inevitably

are over-subscribed. Generally we can offer disappointed students opportunities for the following year. Projects provide an excellent way for students to sample research and consistently a number of students participating in these projects continue to take up further research opportunities through the programme.

2. Part of a student exchange programme with Colorado State University (CSU) provides the opportunity for 1-2 Edinburgh students to undertake summer research projects with researchers at CSU and similarly 1-2 CSU students will conduct summer research projects with researchers here.
3. A number of our students have been successful in applying for and completing the Cornell Leadership Program, which also provides an opportunity to design and run a research project.
4. Intercalation opportunities. Our undergraduate students can take up the opportunity to take an additional year and gain an intercalated degree (either a BSc or MSc depending on the stage of the programme at which they wish to intercalate and their existing qualifications). There is a large range of opportunities within the University of Edinburgh and at other UK Institutions.
5. SRC (Foundation Skills) and SRC activities are described above. (see A10.3.a)

10.3.c Describe efforts by the college that facilitate the link between veterinary medical student research and subsequent or concurrent graduate education, and that enhance the impact of college research on the veterinary professional program.

- The exposure of our students throughout the curriculum to active high quality researchers provides daily opportunities to inspire the next generation of researchers. The opportunity for intercalation, summer studentships and our core curriculum Student Research Component are also designed to give insight into research and facilitate the interactions, which can lead to a long-term interest in pursuing a research career. In addition, the School has established a strong programme to allow trained veterinarians to enter into clinical training programmes as intern or resident level and these opportunities are open to all of our graduates.
- All students who have participated in the summer research projects (both internally and externally) participate in a poster presentation event in October. This forms part of an event called “Vet Choice”. Posters are displayed and presented to students and staff and a prize is given for the best poster presentation. Prior to the poster presentations, 1-2 students are selected to give an oral presentation of their work as part of the speaker programme, which includes two external speakers. A number of students will also have the opportunity to present their research at external meetings and work may result in peer-reviewed publication. Some of the funding bodies, such as MSD Connect have a requirement that students provide a written report and give an oral presentation at an external meeting.
- We introduce students to the graduate opportunities in research and actively promote our Edinburgh Clinical Academic Track for Veterinarians (ECAT-V) program (a prestigious 6-7 year program of support for outstanding young veterinarians, jointly funded by R(D)SVS and Wellcome Trust). All ECAT-V trainees join the ECAT cohort with medical trainees and participate in a shared research and clinical mentorship programme.

10.3.d Describe college research seminars and presentations for DVM students, including the number of internal and external speakers, endowed research lectureships, DVM student research seminars, DVM student poster presentations, and college research days and awards and presentations made by veterinary medical students at scientific meetings or seminars at external sites.

- Participation in “Vet Choice” and external meetings (described above)
- Students have an invited lecture series. Although this is primarily clinical, some will address evidence based medicine and careers in research.
- A research seminar series is open to all the Easter Bush campus on Wednesday afternoons and is based in the Roslin Institute.

AVMA Standard 11, Outcomes Assessment

PLEASE DO NOT TOUCH THE SCREEN



AVMA Standard 11, Outcomes Assessment

The School prides itself on robust Outcomes Assessment and Quality Assurance (QA) procedures. An overview of our mechanisms aligned to relevant levels of assessment is shown in Figure 11.1 below.

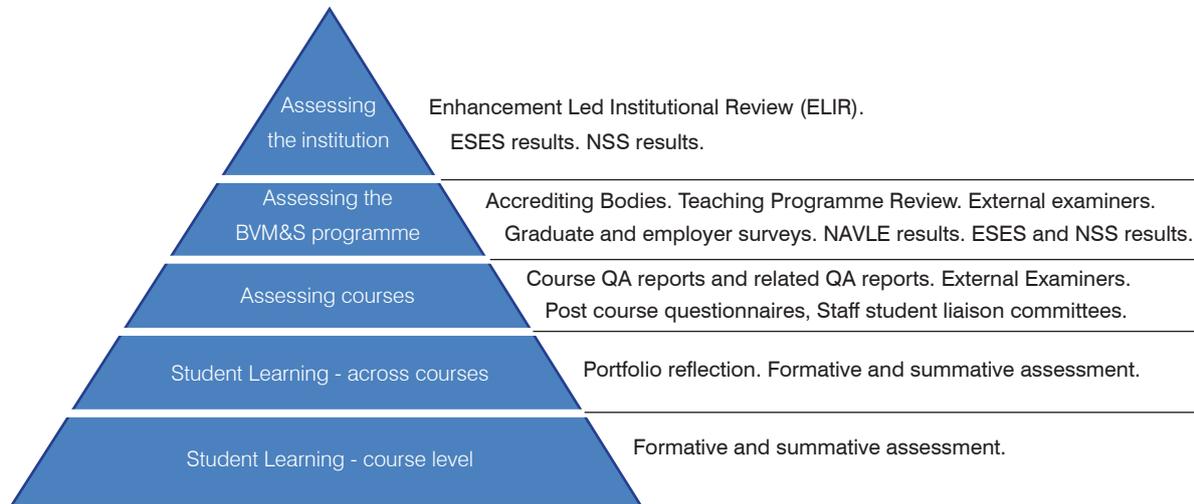


Figure 11.1

NSS: National Student Survey

ESES: Edinburgh Student Experience Survey

QA: Quality Assurance

11.1. Student educational outcomes

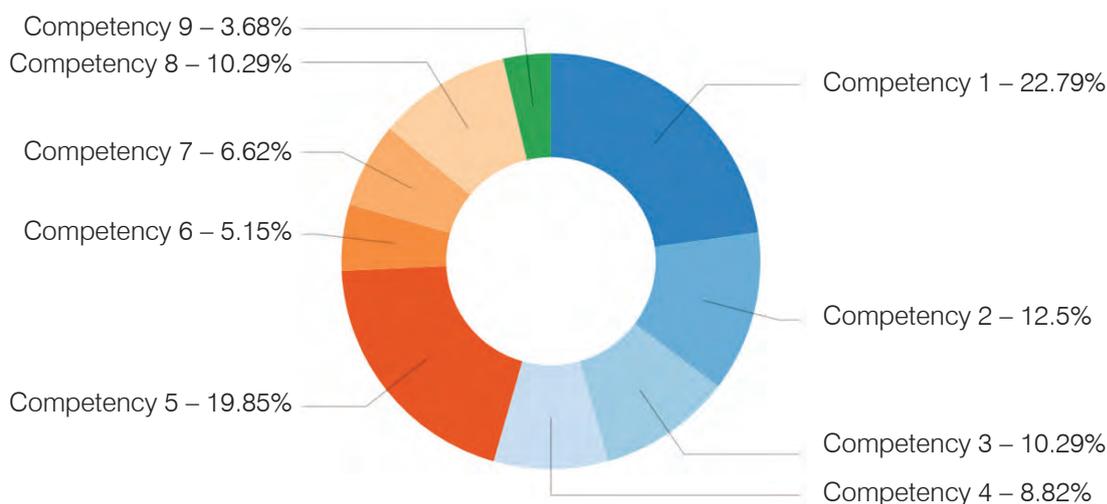
Please refer to **Appendix 11.1a** for Table A, the NAVLE school score report data and passage rates over the past 5 years.

Our pass rate for NAVLE is variable but with increasing numbers of students (both North American and non) electing to sit the exam, we are increasing the support in terms of additional lectures and resources to assist. The students have established an AVMA club and we are exploring School sponsorship of student membership of AVMA in order for this to become a recognised Chapter.

Please refer to **Appendix 11.1b** for Table B, the student attrition rates over the last 5 years with reasons. Attrition in both programmes has been increasing however we would note that a significant number of these students have left due to financial issues. The other relatively common reason is family situations changing or a need to be closer to home; several of these students have managed to transfer onto other veterinary degree programmes so are not 'lost' to the profession.

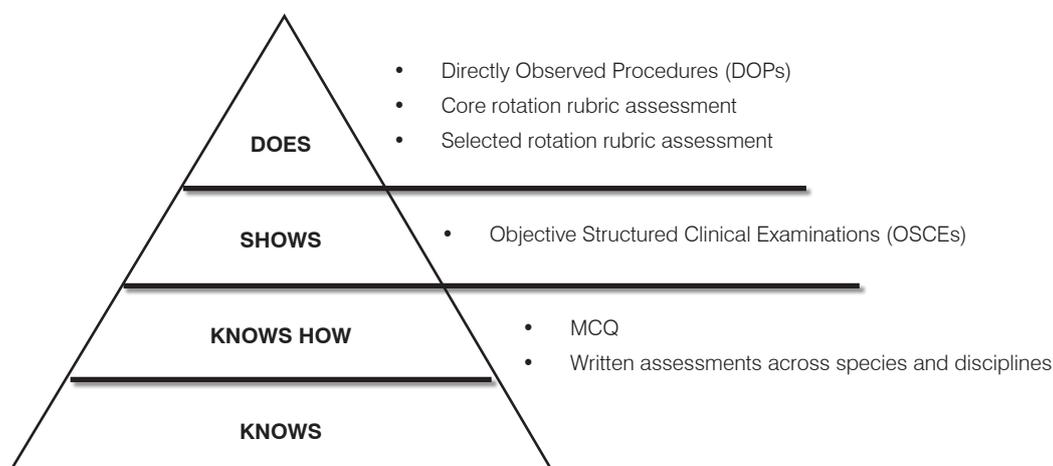
11.1.c.

A summary of the relative weightings of learning outcomes within each competency is shown in the pie chart overleaf obtained from our curriculum mapping software (filtered for Final Year). Clearly the number of learning outcomes does not necessarily reflect time spent in each area however this facility allows us a broad overview of our Final Year curriculum.



Learning outcomes for each of the nine listed AVMA competences and RCVS outcomes are given in **Appendix 11.1c (i)**. We have focused on Final Year to keep the data presented manageable with other years included as necessary to complete the mapping (*Note: these outcomes are a minimum since each student will supplement these with outcomes appropriate to their selected rotations*).

From Session 2014-15 our approach in Final Year to assessing the clinical competences has moved from our previous system of an end of year clinical station model to a combination of methods summarised below to provide an overall portfolio of evidence of a student's ability. Our overall suite of assessments is illustrated aligned to Millers pyramid below with further detail in the associated table.



Assessment	Setting	Format	Other Information
'Finals' MCQ	Exam Hall	240 Items	
OSCE	Clinical Skills Laboratory	10 stations	Must pass each station
Directly Observed Procedures (DOPs)	On core rotation	13 procedures (14 from 2015/16)	Must pass each procedure
Core rotation rubric	On core rotation	3-4 point grading scheme against competences	
Student Research Component	Various	Report submission	
Selected rotations	On selected rotation	Holistic assessment rubric	

The final grade for each student is a combination of their Finals MCQ paper, their Student Research Component (SRC) project mark and their performance on the selected rotations. Our philosophy relating to clinical competences is to have a robust objective system as a 'must pass' hurdle. In tandem with this, students failing to meet these objective criteria are supported and remediated to reach the required standard. Hence for the OSCEs and DOPs (Directly Observed Procedures), there is no mark or grade gained.

Outcomes assessment data for each competency for the last 5 years is available in **Appendix 11.1c (ii)**

11.1.d. Please refer to **Appendix 11.1d** for employment rates for graduates (within 1 year of graduation) Table C.

11.1.e. Assessments of graduating seniors; and assessments of alumni at some post-graduation point (for example, three and/or five years post-graduation) assessing educational preparedness and employment satisfaction

As explained in Chapter A9, Section 9.3, our QA processes require each course to survey students and report back to VMQAC and LTC. Final Year students are surveyed at the end of each module (4 week block) and again with a holistic assessment at the end of Final Year. This supplements the data gained through the National Student Survey (NSS) to provide information from course to programme level.

Graduates are surveyed 18 months and 5 years after graduation. The 18-month survey is currently facilitated by the Veterinary Defence Society (VDS) annual graduate reunion which regularly attracts a high percentage of graduates. This is being supplemented by electronic contact particularly for those overseas graduates who are less likely to attend the VDS event. Please refer to **Appendix 11.1e** for results of the graduate survey (18 months after graduation).

General subjects

The trend for graduates to be content with the level of normal structure and function teaching is continuing. Animal welfare and ethics figures have also maintained their improvement consistent with the increasing profile of animal welfare within the School in line with the opening of the Jeanne Marchig International Centre for Animal Welfare Education in 2011. Whilst last year we were encouraged by the improvement in Veterinary Public Health figures (interpreting it as a greater understanding by the graduates of the crucial role for veterinarians in protecting human health), we note reversion to previous data and will continue our efforts to emphasize the importance of this subject area for our curriculum.

Species specific areas

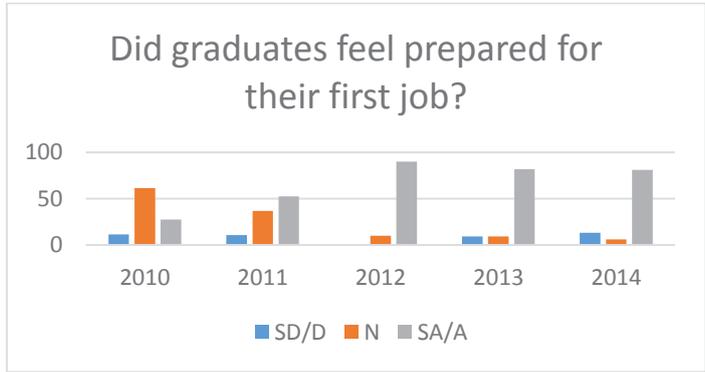
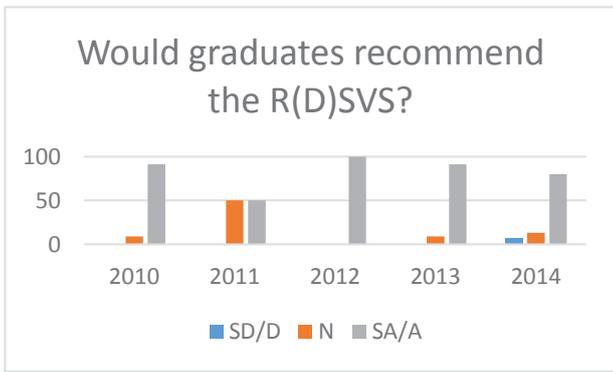
The figures have not changed significantly for this year's surveyed group. As we have noted in previously interim reports, the feedback on species categories has been a major driver behind our new Final Year curriculum hence we will be interested in the feedback from the current 2014/15 cohort on this aspect in 2 years time.

Our most challenging area remains pricing and economics which whilst not unique to us clearly requires some additional thinking. Anecdotally our graduates often report that they don't realise the significance until out in practice and may not engage with current content in this area as best they can. Our new business thread in Year 4 was well received however will not yet have fed through to our 18-month survey (1st cohort to have experienced will be surveyed December 2016). The Learning outcomes are:-

- Appraise the current **financial position** of veterinary practices
- Describe how practice **vet fees are calculated** for both veterinary procedures and drug sales
- Outline systems that practices can use to improve clients desire **to pay veterinary fees promptly**
- Discuss ways of **improving the financial position** for UK veterinary surgeons

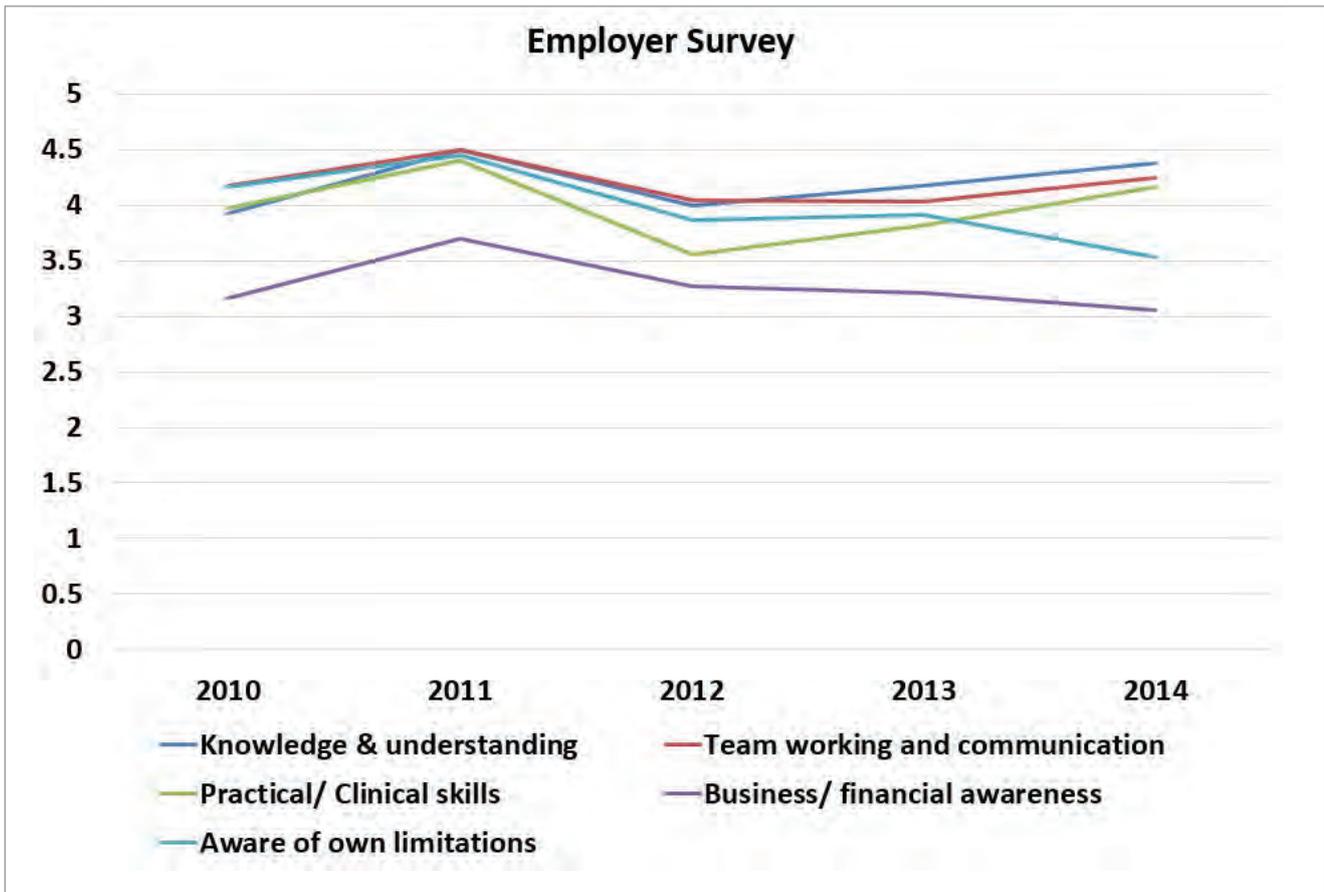
Graduate Survey: 5 years

For the 5 year survey, much of the data is qualitative and given the length of time since graduation we do not feel it appropriate to ask detailed questions on curriculum content. Two key questions relate to whether they would recommend the School and whether the graduates felt the curriculum prepared them for practice. This data is summarized overleaf.



(SD/D = strongly disagree or disagree, N= no strong feelings, SA/A = strongly agree or agree)

11.1.f. Assessments of employers of graduates to determine satisfaction with the graduates



X axis = year of survey; Y axis = averaged likert scale responses (1=strongly disagree, 2=disagree, 3=no strong feelings, 4 = agree, 5 = strongly agree)

The employer survey results are summarised above. The survey took place in the years indicated and questioned graduates who had graduated 18 months previously. The result relating to business and financial awareness is consistent with the graduates' views and we are addressing this common problem with our new business thread in Year 4. Awareness of limitations has seen a drop in the last year. Exploring the qualitative data suggests that this may relate to students having a lack of confidence in themselves and/ or being overly aware of their limitations. We interpret these data with caution however given the relatively low response rate.

11.1.g. Assessments of faculty (and other instructors, for example interns and residents) related to such subjects as adequacy of clinical resources, facilities and equipment, library and information resources, etc and preparedness of students entering phases of education

The Veterinary Medicine Quality Assurance Committee (VMQAC) collects annually a range of information from course organisers and their teams which includes adequacy of facilities and equipment. The results are reported to the Learning and Teaching Committee for action as well as to the College Quality Assurance Committee (CQAC) and Senatus Quality Assurance and Enhancement Committee (SQAEC) to comply with University of Edinburgh Quality Assurance and Enhancement procedures. Line managers for academic staff carry out regular job appraisals (annual performance and development review) to identify areas for personal development relating to teaching, research and administrative duties supported by the University's Human Resources department. Teaching faculty opinion is also collected annually at post-course review meetings which are mandatory as part of the VMQAC processes.

The results from all surveys relating to teaching and learning are reported by the Director of Veterinary Teaching to the LTC for appropriate action. The results from surveys and any resulting actions are also scrutinised by the VMQAC as part of the School's quality assurance procedures.

11.1.h. Additional assessment that might assist the school in benchmarking its educational program

As part of routine QA processes, external examiners are asked to comment on the overall standards of education provided by R(D)SVS as well as in comparison with their other institutions. The University's Teaching Programme Review (TPR), which includes both internal and external members, reviews the BVM&S teaching programme and makes recommendations to the School and Senatus Quality Assurance and Enhancement Committee (SQAEC). The most recent TPR for veterinary medicine was carried out in 2010 (the next is scheduled for March 2016). The full report and commendations and recommendations from the 2010 visitation are available here:

<http://edin.ac/1PyYD3X>

We highlight examples of commendations and recommendation below:

Commendations	Recommendations
Between the time of the last TPR and this Review, the School has experienced major changes. The School is commended for its management of this change.	The Review Team recommend that the School continue its focus on the improvement of feedback given to students on their course work and examinations in light of the NSS results, and also on developing its assessment procedures.
The Review Team were impressed by the standards and professionalism demonstrated by the Veterinary Medicine staff, who are commended for their dedication to providing the highest quality of teaching and their commitment to the overall student learning experience	The Review Team recommend that Veterinary Medicine, in consultation with the College of Medicine and Veterinary Medicine and the Estates and Buildings section of the University, address the issue of transport, and the Team Recommend that free transport links between the central area and Easter Bush site are provided.

At an institutional level, the Quality Assurance Agency (Scotland) carries out regular institution-wide Enhancement-Led Institutional Reviews (ELIR) and includes input on various aspects of the BVM&S course such as teaching programme and quality assurance. Comments from ELIR are passed to SQAEC which cascades information to individual Colleges and Schools as appropriate. The most recent ELIR for University of Edinburgh was carried out in 2011 with the report and all relevant information available at: <http://edin.ac/1E4Nnec> . The next University ELIR is scheduled for November 2015.

The UK Higher Education Quality Assurance Agency's subject benchmark statements for veterinary medicine (<http://edin.ac/1E4NoyD>) are used to guide curriculum development alongside the RCVS day one competency requirements and AVMA competencies.

11.2. Institutional outcomes.

11.2.a. Describe how the college evaluates progress in meeting its mission (for example, benchmarking with other institutions, etc.).

The School has a Strategic Plan (<http://edin.ac/1PySm8i>) that is agreed by the School's senior management, the Heads of Research Centres, and the Head of the College of Medicine and Veterinary Medicine. The Plan is consistent with both the University and College Strategic Plans. There is an annual review at which the responsible staff member presents progress against targets. The School has developed Business Plans for financing the new buildings. These plans are overseen at school level by the School Facilities Coordinator, and at University level by a Strategic Project Committee chaired by the University's Vice-Principal for Planning. This committee includes the University's Director of Finance, Director of Estates and Buildings, and a representative from the University Court, as well as the Head of School and School Facilities Coordinator.

Quality of teaching and research is benchmarked by various bodies at local, national and international level as described in section A11.1.

11.2.b. Describe the adequacy of resources and organizational structure to meet the educational purposes (dean should provide).

The School has strong support from the University in fulfilling its mission. The Dean is Deputy Head of College and sits on the College Strategy Group where high level strategic planning and resources are discussed.

11.2.c. Describe outcomes assessed for college activities that are meaningful for the overall educational process (for example, scholarly activity of the faculty, faculty awards, faculty and staff perception of teaching resources, student satisfaction with the educational program, teaching improvement benchmarks, and others). If your program assesses other outcomes, briefly describe the results.

Overall Approach: The School adopts an enhancement led approach to teaching quality consistent with the Scottish QAA system and enhancement themes (www.enhancementthemes.ac.uk). We have invested significantly in staff development relating to teaching as described in Chapter A8; Faculty. In addition, through the work of the Veterinary Medical Education Division, we have several active educational research and development projects and faculty from the School regularly attend and present at national and international medical and veterinary medical education conferences. Specific areas of interest and strength include:

- Assessment and Feedback
- Peer Assisted Learning and Peer Support

Faculty Awards: The School runs biennial staff awards, which include the 'Rising Star in Teaching' and 'Outstanding Student Experience' Awards. In addition, the Edinburgh University Students' Association (EUSA) organise annual teaching awards for which students vote for staff members across a number of categories including: Best Overall Teacher, Best Feedback and Best Personal Tutor. The School supports a prize for 'Teaching in Veterinary Medicine' and in session 2014-15; more than 100 nominations were received from students with each nominee receiving individual feedback and a lapel pin. Anecdotally faculty and support staff value these awards immensely, especially as the system is entirely student driven. The EUSA Impact award for the Best Peer Assisted Learning Scheme was awarded for the work developing peer support (VETPALS) in the vet school.

Faculty and staff perception of teaching resources

Teaching faculty opinion is collected annually at post-course review meetings which are mandatory as part of the VMQAC processes. In addition, all course organisers and Year Directors sit on the School Learning and Teaching Committee where issues relating to resources can also be raised. Finally, as part of our Athena Swann activities, a campus wide staff survey runs annually capturing feedback on a range of aspects from working environment and facilities through to promotions awareness and support. An extract of relevant results are shown in **Appendix 11.2c (i)**.

Student satisfaction with the Educational programme

As described in Chapter A9; Curriculum. Section 9.3, we have rigorous quality assurance mechanisms, which assess student satisfaction with courses and the overall programme. In addition, a UK wide National Student Survey (NSS) is run annually for Final Year students across disciplines in all Higher Education Institutions. Data on the R(D)SVS from the last 4 years is summarised in the table below. The School and University puts a large amount of effort into ensuring as high a response rate as possible and it is typically more than 70%. Since 2012, these data have been broken down by our 4 and 5 year programme.

Student Satisfaction - NSS data for the Veterinary School

	5 Year Programme			Graduate Entry Programme		
	2012	2013	2014	2012	2013	2014
The teaching on my course	97%	98%	96%	89%	97%	90%
Assessment and feedback	59%	55%	62%	49%	49%	58%
Academic support	82%	85%	86%	66%	76%	79%
Organisation and management	64%	77%	72%	58%	62%	60%
Learning resources	90%	96%	93%	81%	89%	81%
Personal Development	92%	87%	88%	66%	72%	79%
Overall Satisfaction	91%	98%	93%	73%	82%	92%

In addition, for the last 2 years, the University has run the 'Edinburgh Student Experience Survey' (ESES) for non-Final Year students aimed at capturing views on the global student experience across the curriculum. Results for the Veterinary School are shown in **Appendix 11.2c (ii)**. These data are supported by free text comments and the combined quantitative and qualitative data are considered by both VMQAC and LTC.

11.2.d. Describe how outcomes findings are used by the college to improve the educational program (give examples).

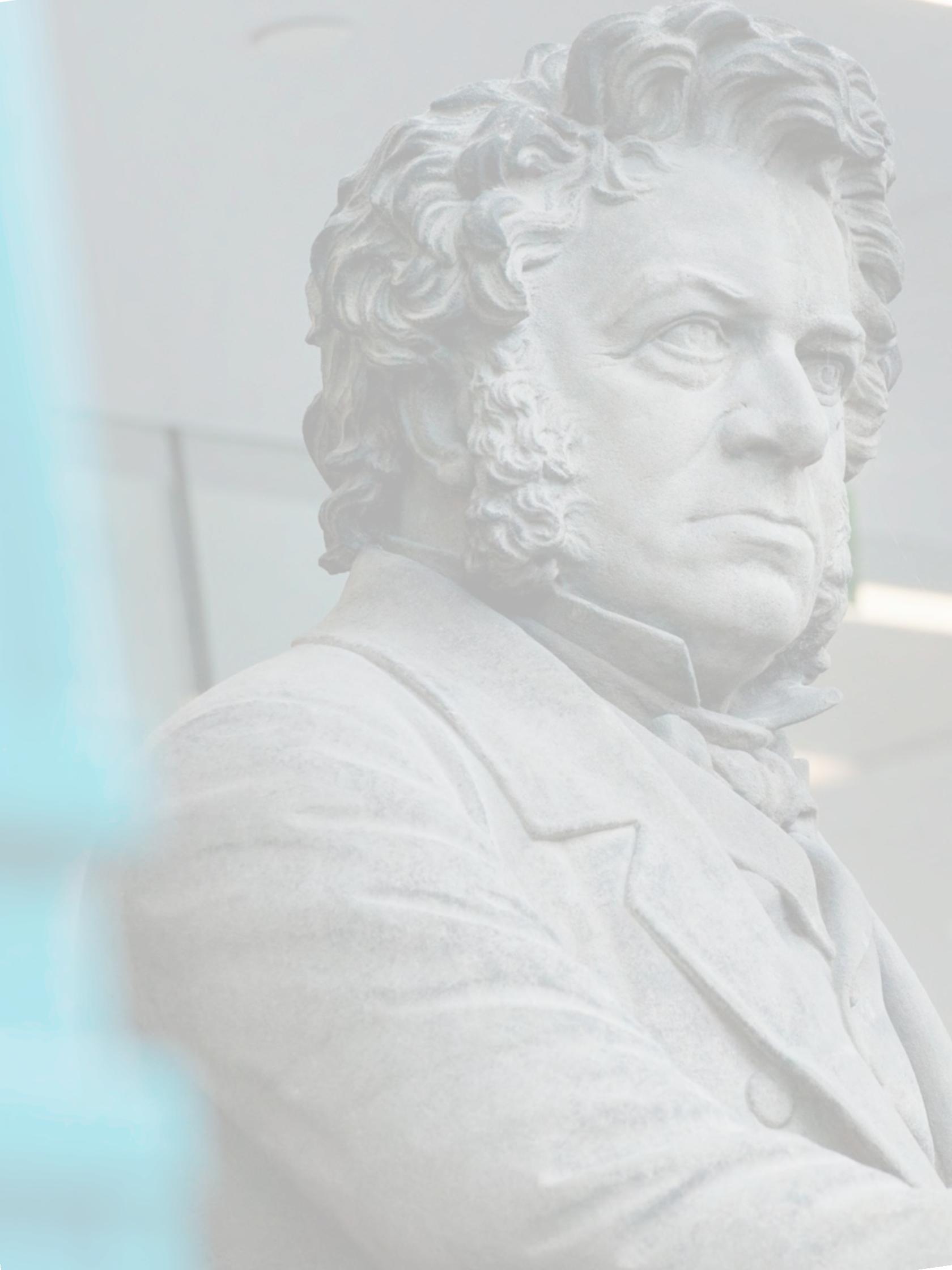
Areas of concern identified by VMQAC are passed to the School LTC for action and are monitored at the end of the academic year. VMQAC produces an annual QA action list at the start of the academic year with a review of progress at the end of the academic year. VMQAC submits an annual report to the College Quality Assurance Committee (CQAC) which in turn submits an annual report to the Senatus Quality Assurance and Enhancement Committee (SQAEC). College reports are reviewed by SQAEC members who are not aligned to the submitting college and their reports discussed by SQAEC at a specially convened meeting. Comments and recommendation from SQAEC are referred to VMQAC via CQAC.

At each level of the pyramid shown in Figure 11.1, we aim to 'close the loop' by responding to the outputs at each level. Examples are shown in the table below.

Outcomes assessment examples

Level	Examples of Outcomes Assessment and Actions
Student learning (course level and across courses)	Objective assessments of clinical/ technical skills have been improved by the implementation of our new final year assessment system
Assessing Courses	Traffic light system of comparing performance of courses within and across years provides an annual opportunity for course organisers to reflect and amend / develop courses in response to feedback
Assessing BVM&S Programme	NSS and ESES results have focused efforts on improving feedback and improving student communications via appointment of a student experience officer
Assessing the Institution	Senior school academics sit on University level committees tasked with enhancing the student experience e.g. Student Experience Project Board in response to NSS and ESES results

Section B, RCVS, ABVC and EAEVE additional Information



Chapter B1, RCVS/EAEVE Ratios



Chapter B1, RCVS/EAEVE Ratios

				Recommended value
R1	<u>no. undergraduate veterinary students</u> no. total academic FTE in veterinary training	778 99.2	7.84	Maximum 8.381
R2	<u>no. undergraduate students at Faculty</u> no. FTE total Faculty	778 251.5	3.09	Maximum 9.377
R3	<u>no. undergraduate students at Faculty</u> no. VS FTE in veterinary training	778 90.95	8.55	Maximum 11.057
R4	<u>no. of students graduating annually</u> no. VS FTE in veterinary training	155 90.95	1.70	Maximum 2.070
R5	<u>no. total FTE support staff in veterinary training</u> no. total FTE academic staff in veterinary training	152.4 99.2	1.53	Recommended range 0.505-1.907
R6	<u>Supervised practical training</u> Theoretical training	621 920	0.675	Minimum 0.602
R7	<u>Laboratory and desk based work + non clinical animal work</u> Clinical Work	450.4 1319.5	0.34	Maximum 1.809
R8	<u>Teaching load</u> Self directed learning	2691 110	24.46	Recommended range 2.59-46.60
R9	<u>Total no. hours vet. curriculum</u> Total no. curriculum-hours Food Hygiene/Public Health	2691 125	21.52	Recommended range 8.86-31.77
R10	<u>Hours obligatory extramural work in veterinary inspection*</u> Total no. curriculum-hours Food Hygiene/Public Health	8 125	0.064	Recommended range 0.074-0.556
R11	<u>no. of food-producing animals seen at Faculty</u> no. of students graduating annually	174 155	1.12	Minimum 0.758
R12	<u>no. of individual food-animals consultations outside the Faculty</u> no. of students graduating annually	36652 155	236.5	Minimum 8.325
R13	<u>no. of herd health visits</u> no. of students graduating annually	144 155	0.92	Minimum 0.326
R14	<u>no. of equine cases</u> no. of students graduating annually	4672 155	30.14	Minimum 2.700
R15	<u>no. of poultry/rabbit cases</u> no. of students graduating annually	1950 155	12.58	Minimum 0.407
R16	<u>no. of companion animals seen at Faculty</u> no. of students graduating annually	15623 155	100.79	Minimum 48.061
R17	<u>Poultry (flocks)/rabbits (production units) seen **</u> no. of students graduating annually	30 155	0.19	Minimum 0.035
R18	<u>no. necropsies food producing animals + equines</u> no. of students graduating annually	330 155	2.12	Minimum 1.036
R19	<u>no. poultry/rabbits necropsies***</u> no. of students graduating annually	510 155	3.29	Minimum 0.601
R20	<u>Necropsies companion animals</u> no. of students graduating annually	327 155	2.10	Minimum 1.589

* Our approach to abattoir involvement and all the related activities by students is described fully in Chapter B7.

** * Students doing the poultry selected rotation will visit at least 20-30 flocks from a selection of 300 flocks.

*** Poultry only, rabbits counted in companion animals.

Chapter B2, Finances



Chapter B2, Finances

(AVBC Standard 2; AVMA Standard 2; RCVS/EAEVE Chapter 3)

2.1 Factual Information

A detailed explanation of the University funding model for the Veterinary School is provided in the sections below.

Table 2.1: Annual expenditure of the School last 5 years

Area of expenditure	2013/14 £	2012/13 £	2011/12 £	2010/11 £	2009/10 £
a. Personnel					
a.1 teaching staff	4,703,198	4,710,117	4,408,877	4,418,959	4,277,249
a.2 support staff	3,057,784	2,620,127	2,461,931	2,316,231	2,158,868
a.3. research staff	15,713,544	14,709,277	15,080,819	13,578,503	11,659,958
Total for a	23,474,526	22,039,581	21,951,627	20,313,693	18,096,074
b. Operating costs					
b.1 utilities	671,656	520,886	489,313	436,005	396,157
b.2 expenditure relating specifically to teaching	1,343,554	1,183,155	661,467	527,780	514,094
b.3 expenditure relating specifically to research	8,773,320	8,234,540	8,144,391	7,721,643	10,115,438
b.3 general operations (excluding the above)	2,547,118	5,195,615	5,138,321	1,832,670	885,070
Total for b	13,335,648	15,134,196	14,433,492	10,518,098	11,910,760
c. Equipment					
c.1 teaching	194,128	441,043	235,620	238,054	332,613
c.2 research	1,013,000	1,605,000	805,000	1,541,000	168,000
c.3 general (or common) equipment	445,056	140,864	93,223	330,621	107,117
Total for c	1,652,184	2,186,907	1,133,843	2,109,675	607,731
d. Maintenance of buildings	938,986	911,477	1,288,139	2,553,422	2,846,947
e. Total expenditure	39,401,344	40,272,161	38,807,101	35,494,888	33,461,512

Table 2.1.1: Projected future expenditure of the School for the next 5 years

Area of expenditure	2013/14 £	2014/15 £	2015/16 £	2016/17 £	2017/18 £
a. Personnel					
a.1 teaching staff	4,703,198	4,844,294	4,989,623	5,289,001	5,447,671
a.2 support staff	3,057,784	3,149,518	3,244,003	3,438,644	3,541,803
a.3. research staff	15,713,544	17,086,597	18,006,116	18,323,843	18,874,973
Total for a	23,474,526	25,080,409	26,239,742	27,051,487	27,864,446
b. Operating costs					
b.1 utilities	671,656	691,806	712,560	733,937	755,955
b.2 expenditure relating specifically to teaching	1,319,993	1,359,593	1,400,380	1,442,392	1,485,664
b.3 expenditure relating specifically to research	8,773,320	9,036,520	9,307,615	9,586,844	9,874,449
b.4 general operations (excluding the above)	2,547,118	2,623,532	2,702,237	2,783,305	2,866,804
Total for b	13,335,648	13,735,718	14,147,789	14,572,223	15,009,389
c. Equipment					
c.1 teaching	194,128	199,952	205,950	212,129	218,493
c.2 research	1,013,000	300,000	300,000	300,000	300,000
c.3 general (or common) equipment	445,056	458,408	772,160	1,095,325	1,128,184
Total for c	1,652,184	958,359	1,278,110	1,607,453	1,646,677
d. Maintenance of buildings	938,986	967,155	996,170	1,026,055	1,056,837
e. Total expenditure	39,401,344	40,741,642	42,661,812	44,257,218	45,577,350

Table 2.2: Sources of expenditure for the veterinary teaching hospitals for the last 5 years

Costs	2013/14 £	2012/13 £	2011/12 £	2010/11 £	2009/10 £
Salaries for support staff	1,591,942	1,414,219	1,327,354	1,189,681	1,131,018
Salaries for teaching staff	1,512,379	1,672,232	1,597,896	1,304,947	1,311,285
Maintenance of buildings and equipment	788,814	784,973	495,187	444,311	332,955
Costs of consumable items, drugs etc. including stock carried in house	2,333,479	2,251,964	2,108,257	1,915,007	1,801,556
Total	6,226,614	6,123,388	5,528,694	4,853,946	4,576,813

Table 2.2.1: Projected future expenditure for the veterinary teaching hospitals for the next 5 years

Costs	2013/14 £	2014/15 £	2015/16 £	2016/17 £	2017/18 £
Salaries for support staff	1,591,942	1,639,701	1,688,892	1,790,225	1,843,932
Salaries for teaching staff	1,512,379	1,557,750	1,604,483	1,700,752	1,751,774
Maintenance of buildings and equipment	788,814	812,478	836,853	861,958	887,817
Costs of consumable items, drugs etc. including stock carried in house	2,333,479	2,520,157	2,721,770	2,939,511	3,174,672
Total	6,226,614	6,530,086	6,851,998	7,292,446	7,658,195

Table 2.3: Cost of veterinary training for the last 5 years

	2013/14 £	2012/13 £	2011/12 £	2010/11 £	2009/10 £
Total Costs	9,298,664	8,954,501	7,767,895	7,501,024	7,282,824
Number of students in Undergraduate training	784	778	756	716	693
Annual direct cost of training a veterinary student	11,861	11,510	10,275	10,476	10,509
Direct cost of training for a degree (5 year programme)	59,303	57,550	51,374	52,382	52,545

2.2 Revenues

The University of Edinburgh remove a percentage of the income of the Veterinary School before it appears on the School budgets. These funds are used for a range of facilities and services that both directly and indirectly support the activity of the School. These central facilities and services are listed in **Appendix 1.3** under the following services groups; the Corporate Services Group, the Student and Academic Services Group and the Information Services Group. Some of these central services also have local support within the School such as Health and Safety, Human Resources, Admissions, Estates and Buildings, Information Services and Financial Services. These local support groups are funded from School budgets. The majority of the estate and buildings of the School are maintained by central funds and the utility costs are paid centrally however those areas of School which generate external income such as the clinics and the farms are required to pay these costs from income.

Table 2.4: Annual revenues of the School for the last 5 years

Revenue Source	2013/14 £	2012/13 £	2011/12 £	2010/11 £	2009/10 £
a. revenue from the State or public authorities	18,174,445	16,927,346	16,405,663	15,167,467	14,708,611
b. revenue from private bodies	1,070,819	1,955,645	2,236,054	2,356,056	2,511,951
c. revenue from research	12,395,953	11,528,780	12,674,298	10,654,473	11,369,385
d. revenue earned and retained by the school	889,111	799,068	759,380	745,703	750,000
d.1. revenues from domestic students	14,766	16,500	8,002	20,492	125,822
d.1. revenues from international students	6,894,969	6,435,440	4,943,389	4,292,013	3,500,290

d.2. revenue from continuing education	64,847	35,851	39,309	31,350	49,279
d.3. revenue from clinical activities	6,379,974	5,825,445	5,156,358	4,906,254	4,534,611
d.4. revenue from diagnostic activities	264,151	256,244	255,701	251,815	243,623
e. revenue from other sources (Roslin capital equipment grants)	1,013,000	1,605,000	805,000	1,541,000	168,000
e. revenue from other sources (funds in development office)	705,687	770,982	248,741	997,672	426,635
f. Total revenue from all sources	47,867,722	46,156,302	43,504,896	40,964,295	38,388,208

Table 2.4.1 : Projected future revenues of the School for the next 5 years

Revenue Source	2013/14 £	2014/15 £	2015/16 £	2016/17 £	2017/18 £
a. revenue from the State or public authorities	18,174,445	17,599,620	19,198,679	19,404,659	19,603,709
b. revenue from private bodies	1,070,819	1,382,944	1,704,432	2,041,565	2,394,812
c. revenue from research	12,395,953	13,784,000	16,035,769	17,257,602	18,453,014
d. revenue earned and retained by the school	889,111	915,785	943,258	971,556	1,000,703
d.1. revenues from domestic students	14,766	14,766	14,766	14,766	14,766
d.1. revenues from international students	6,894,969	7,101,818	7,314,873	7,534,319	7,760,348
d.2. revenue from continuing education	64,847	42,500	49,088	56,696	65,484
d.3. revenue from clinical activities	6,379,974	6,954,172	7,580,047	7,921,149	8,277,601
d.4. revenue from diagnostic activities	264,151	272,076	280,238	288,645	297,304
e. revenue from other sources (Roslin capital equipment grants)	1,013,000	300,000	300,000	300,000	300,000
e. revenue from other sources (funds in development office)	705,687	740,971	778,020	816,921	857,767
f. Total revenue from all sources	47,867,722	48,367,680	53,421,149	55,790,957	58,167,741

Table 2.5: Sources of revenue for the veterinary teaching hospitals for the last 5 years

Income Sources	2013/14 £	2012/13 £	2011/12 £	2010/11 £	2009/10 £
1. Core funds from University	0	0	0	0	0
2. Income from business activities	6,353,282	5,778,801	5,072,431	4,869,627	4,516,491
3. Sponsorships from industry	26,692	51,644	38,647	36,628	18,120
4. Benefaction and donations	0	0	45,280	0	0
5. Grants for equipment	0	0	0	0	0
Total revenue	6,379,974	5,830,445	5,156,358	4,906,254	4,534,611

Table 2.5.1: Projected future revenues for the veterinary teaching hospitals for the next 5 years

Income Sources	2013/14 £	2014/15 £	2015/16 £	2016/17 £	2017/18 £
1. Core funds from University	0	0	0	0	0
2. Income from business activities	6,353,282	6,925,077	7,548,334	7,888,009	8,242,969
3. Sponsorships from industry	26,692	27,493	23,318	29,168	30,043
4. Benefaction and donations	0	0	0	0	0
5. Grants for equipment	0	0	0	0	0
Total revenue	6,379,974	6,952,570	7,576,652	7,917,177	8,273,012

What percentage of income from the following sources does the veterinary teaching school have to contribute to other bodies (university, etc.)? Indicate the proportion of additional income that is retained within the institution in each case.

Clinical income: A flat rate of £56K is charged by central university for a contribution to overheads annually which results in the School retaining over 99% of the income generated.

Commercial consulting: Depending on the type of consultancy between 5 and 15% is contributed to central University. A percentage of any consultancy fee is also normally paid to the individual and the School will retain the remainder.

Research grants: Due to a unique financial ring fence around the research arm of the veterinary school, the Roslin Institute, the University deducts no money from research grants. However Roslin does pay all central charges and estate costs directly. These costs are charged as actuals and not on a percentage basis.

Other (please explain): Farm Income – The farms retain all of their income but are also responsible for all their costs including all repair and maintenance and utility charges.

Outline how the allocation of funding to the school is determined, and by what body. If the allocation of funds, or any significant proportion of it, is linked to a particular factor (e.g. student numbers, research output), please describe this.

The allocation of state funding to the School is ultimately decided by the Scottish Government through the Scottish Funding Council (SFC). The SFC calculates the grant each university receives for teaching by student numbers and the type of course. In addition, the SFC also allocates a grant for research which is dependent on the quality of research which is assessed every 5 years through a UK wide Research Assessment Exercise.

The University has an annual planning cycle, in which annual plans are developed and implemented by the Colleges and support groups, and resources allocated to budgets across the University.

Each planning round commences in the autumn when a draft University budget is prepared and agreed by Principal's Strategy Group (PSG)/Central Management Group (CMG). In the autumn of the planning round prior to the year for which budgets are being set, a draft budget is agreed by PSG, taking into account initial assumptions about increases in income (e.g. main grants from SFC and tuition fee income) and major costs (e.g. utilities and salary costs). At this point indicative inflationary increases to core budgets are agreed resulting in an indicative university

surplus/deficit position. At this point planning guidance is published for the use of colleges and support groups. This establishes the framework within which the planning process should proceed and sets out a number of key planning assumptions, and reiterates the main elements of the University's Strategic Plan from which individual College and Group objectives can be developed.

Heads of School in Colleges are asked by Heads of College to consider plans and priorities in the context of the proposed budgets and the planning guidance, or College guidance consistent with them. Consolidated College plans which integrate physical, financial and academic planning are drafted for discussion at PSG and CMG and priorities are agreed. Following this, planning round meetings are held with each individual College to discuss their plan, priorities, any bids for funding they may have made, and to discuss any issues arising. Once the main grant letter from the SFC is received, all the figures and plans are brought together and a budget proposal is made to PSG covering budgets for the following year for the Colleges and Support Groups, based on the agreed priorities and the issues arising through the planning round. PSG discuss and approve the proposal before passing it to Central Management Group and onward for approval to Policy and Resources Committee and finally University Court.

As part of the planning round, student number forecasts for future years are made and targets set. This process is supported across the University by the use of an excel model called the diagonal tables. In addition to being used in forecasting student numbers the diagonal tables are also used in estimating fee income incentives that are allocated to Colleges, and overall University fee income. Another excel model, known as the Income and Expenditure Attribution model, calculates how University core funding from SFC grants and tuition fees is attributed to the University's 22 Schools. The output from this model is considered by PSG as part of the planning round as a check of the balance between the Colleges' income and the resource allocated to them.

Please provide details of the funding model used and the areas that the school has to cover from its operating budget.

The School's revenue is gained from a range of sources: Government core grant for teaching and research; Tuition fees from students; Research income from charities, Government bodies and commercial companies; Income from commercial activities- hospitals, diagnostic laboratories and farms; Endowments and donations. The School is required to fund all of its operating costs from this income. Central University Services are supported by a top slice which is removed from teaching and research income before the income is attributed to the School.

Outline how the allocation of funds within the school is decided.

The allocation of the funds within the School is decided by an annual planning and budgeting process. A series of meetings are held between the budget holder, the finance manager, the Deputy Head of School and the Campus Operating Officer to determine projected requirements after considering current spend and the unit projections and business plan. The proposed budgets are then presented to the Finance and Contracts Committee for comment before submission to the School Operations Executive for approval.

Indicate how the basis for funding the school compares with those teaching other courses (e.g. whether veterinary training receives a higher budget weighting compared to other disciplines).

The SFC historically has used a system of allocation of funds relative to different price groups between courses. This was split over 12 funding subject groups and four levels of study. The SFC is now using allocations of funded places to six price groups only to validate current funding levels. The six price groups have been formulated using TRAC (Transparent Resource Allocation Template) data provided by Universities. (<http://edin.ac/1E4Ny9g>) (Annex A). As detailed above, the University uses a method to distribute funds to Colleges and Schools which take into account the higher cost of certain undergraduate courses. Veterinary Medicine attracts a higher level of funding than other disciplines.

Describe briefly the mechanism(s) for funding capital expenditure (e.g. building work, major items of equipment), and how decisions are taken on this.

Capital expenditure that can be funded from the School's income within the annual budget is in total control of the School and decided by the School Operations Executive. Larger items of expenditure can either be funded through the College of Medicine and Veterinary Medicine minor works funding or through an application to the University Estates Committee who will prioritize depending on business need. Major capital expenditure will require a detailed business plan and justification. Where any facility is seen to generate income directly to the School the University may require a capital contribution from the School which is repaid annually from income.

Please indicate whether students:

- **pay tuition/registration fees**

All undergraduate students pay tuition fees, the level of these fees is dependent on where the student is resident.

- **How much these are**

First degree Scottish and European Union (EU) resident students pay £1,820 annually while students resident in the rest of the UK pay £9,000 annually. Graduate and International students pay the full cost of teaching which in 2014/15 was a flat rate of £28,450 annually. Postgraduate students pay tuition fees which vary and are dependent on the course they register for.

- **How they are decided**

Fees for Scottish and EU students are set by the SFC. Fees for other UK students can be determined by the University but is currently capped at £9,000 annually. Fees for International and Graduate Entry students are recommended by the Fee Strategy Group (FSG) of the University following advice and guidance from the School. The FSG reports to the University Central Management Group who will confirm the proposal.

- **How the funds are distributed.**

The fees are distributed from the Central University to all colleges and schools following the process described above.

2.3 Comments

Veterinary schools never have enough finance. Please comment on any of the “Guidelines and Requirements” that are particularly difficult to fulfill in the present financial situation.

Although the Veterinary School is required to perform within strict annual budgets, these are viewed as being adequate to allow sufficient investment in equipment, buildings and staff to deliver an excellent education. There is always a need to prioritize requirements especially when major capital investment is required and this may be seen to slow progress in some areas.

What is your number one priority for the use of any increased funding?

Any increase in recurrent funding would be used to support further academic posts and the priority would be in areas where there is both a teaching, clinical and research component (e.g. Medical Microbiology, Pharmacology, Neurology). Any increase in capital funding would be invested in improving facilities and equipment. Currently our priority would be to expand the Hospital for Small Animals and possibly upgrade the linear accelerator to facilitate research requirements.

Comment on the degree of autonomy and flexibility available to the veterinary school in financial matters.

All income from outside services provided by the Veterinary School is retained by the School. This gives the School considerable flexibility in responding to the needs of the School either for equipment or staff.

Comment on the percentage of income from outside services that the veterinary school is allowed to retain for its own use, and in particular on the extent to which loss of this income acts as a disincentive for the services concerned.

The University devolves the School's budget and allows retention of all commercial income and as a result the School has a large degree of freedom in the use of its funds. Although in the current financial climate all permanent post approvals have to be agreed centrally this has not been a barrier to the Veterinary School which is operating in surplus.

Comment on the projected budget for the next calendar year and any financial changes anticipated over the next 5 years.

The School is predicting to have a surplus in the next financial year (2014/15) in the region of £800K. The School expects to continue to generate a surplus annually going forward but this will reduce as a result of an agreed contribution to capital expenditure and repayment to the University. For a commentary on expected financial performance going forward please refer to Chapter A2; Finances. Section 2.6.

2.4 Suggestions for improvement

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

The requirement for all posts at all grades to be approved by the Central University prior to advertising has slowed down the recruitment process which in a school where there is need to service clinical services can be frustrating.

Chapter B3, Facilities and Equipment



Chapter B3, Facilities and Equipment

(AVBC Standard 3; AVMA Standard 3; RCVS/EAEVE Chapter 6)

3.1 Factual information

3.1.1 Premises in General

Please give a brief description of the major functions of, or activities that take place in the facilities used by the school. Provide an area map that indicates the principal facilities of the school and describe distance and travel time to off campus facilities.

Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.1 for description of the facilities and 3.2 for details of off-campus facilities.

A map of the Campus is available in **Appendix 3.1** . and at <http://edin.ac/1PyUm0f>

3.1.2 Premises used for Clinics and Hospitals

Table 3.1: Places available for clinics and hospitalisation

Number of hospitalisation places for cattle	7 single housed cattle / 2 bulls
Number of hospitalisation places for horses	36
Number of hospitalisation places for small ruminants	15 – dual purpose
Number of hospitalisation places for pigs	Can use small ruminant pens – 15 dual purpose
Number of hospitalisation places for dogs	110
Number of hospitalisation places for cats	26
Exotic Species	
Number of hospitalisation places for small mammals	15
Number of hospitalisation places for wildlife	10
Number of hospitalisation places for reptiles	6
Number of hospitalisation places for birds	5
Number of animals that can be accommodated in isolation facilities	
Small animals	8
Farm animals	2 if single housed
Horses	2

3.1.3 Premises for Animals

Give a description of the facilities for rearing and maintaining normal animals for teaching purposes.

- Farm Animals – Langhill and Sheep Enterprise. Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.1.
- The School has no pig facilities but access these through collaboration with Scotland's Rural College (SRUC).
- The School owns and maintains a population of between 8 and 10 horses that are used for teaching purposes. These are housed in stables on Campus.
- Exotics – The School maintains a small population of rabbits, guinea pigs, birds and reptiles that are purely used for undergraduate teaching.

3.1.4 Premises used for Theoretical, Practical and Supervised Teaching

Table 3.2: Premises for lecturing

<i>Number of lecture halls</i>			
<i>Number of places per lecture hall</i>			
Hall	no. 1	no. 2	no. 3
Places	202	202	98
Total number of places in lecture halls: 502			

Table 3.3: Premises for group work

<i>Number of rooms that can be used for group work (supervised work)</i>								
<i>Number of places in the room for group work:</i>								
Room	no. 1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	no. 8
Places	20	20	20	20	20	10	10	10
Room	no. 9	no. 10	no. 11	no. 12	no. 13	no. 14	no. 15	no. 16
Places	10	10	20	20	48	48	12	26
Room	no. 17	no. 18	no. 19	no. 20	no. 21			
Places	12	20	20	20	50			

Table 3.4: Premises for practical work

<i>Number of laboratories for practical work by students</i>								
<i>Number of places per laboratory</i>								
Room	no. 1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	no. 8
Places	20	20	60	96	120	20	50	50
Total number of places in laboratories: 436								

Please give a brief description of health and safety measures in place in the premises for practical work and in the laboratories to which undergraduate students have access.

Undergraduate students are made aware at their Induction of the Fire and First Aid arrangements in the laboratories and other practical areas of the School. The principles of risk assessment are described with examples, and students are advised that health and safety information can be found, and will be given in their course handouts, in local areas where practical studies take place and are available on-line.

In compliance with the Management of Health and Safety at Work Regulations, hazardous procedures or substances at the School are risk assessed, controls implemented, and a risk value assigned. Standard Operating Procedures and Guidelines are also in place for multiple areas of laboratory and other practical work.

Approved signage is used to warn of hazardous chemicals, compressed gas and biological substances.

Health and safety information, training and supervision is provided by competent and experienced staff who have a duty of care towards undergraduate students. This will include use of specialist equipment, for example centrifuges and equine stocks, and appropriate waste disposal routes for clinical, medicinal or sharps waste.

Personal Protective Equipment are used where a requirement for this has been identified, and the importance of rigorous biosecurity measures are taught, demonstrated and examined.

Equipment which is used during undergraduate study is maintained, and serviced where appropriate, the fabric and construction of the laboratories are of a high specification and comply with HSE requirements, and areas of clinical practical study undergo appropriate disinfection regimes to maintain infection control standards.

3.1.5 Diagnostic Laboratories and Clinical Support Services

Diagnostic laboratories

Briefly describe the facilities available for clinical pathology and diagnostic pathology.

The facility has a high throughput of cadavers, biopsies, cytology, clinical pathology samples and bacteriology for teaching, diagnostic work from the internal clinics and external practices, and samples from internal and external research workers. All parts of the facility are in one area within the Veterinary Teaching building.

Post Mortem room: This comprises a large necropsy room, separate Category 2+ post mortem/sample handling area for high risk necropsies, walk-in chill and freezer, cadaver disposal area, staff and student changing rooms, mortician office and store rooms.

Clinical Pathology Laboratory: The laboratory has comprehensive facilities for biochemistry (two ILAB650 analysers), a state-of-the-art Advia 2120 haematology analyser, ion selective electrode for electrolytes, coagulation analyser, automated stainer, microscopes and several centrifuges, freezers and fridges for sample and reagent storage. A separate room off the main lab is used for parasitology and urine analysis.

Histology Laboratory: There is a sample trimming room with downdraft table and cassette writer. The main Histology Laboratory has facilities for processing and staining histological sections and cytology preparations, has two automated stainers and an automated immunohistochemistry stainer. A separate ACDP Category 2+ containment room is used for cryostat sections and for handling high risk material, mainly Transmissible Spongiform Encephalopathy samples. Support rooms include reagent preparation room, block archive, -70°C freezer area and stores.

Microbiology Laboratory: The facility is used for routine bacteriology and has associated incubators including anaerobic culture. There are microscopes and benching suitable for 7 Final Year students during their rotation. A separate Autoclave room has two autoclaves used for disposal, including material from elsewhere on the campus.

Central clinical support services

Indicate the nature of these services and how they are organised (e.g. diagnostic imaging, anaesthesia, etc.)

Technical, administrative and nursing support are managed under a single organisation under the direct control of the Deputy Head of School for Clinical Services. This allows for streamlining and standardisation of processes in the three major clinical areas. Anaesthesia and Diagnostic Imaging services each have a Head of Service who reports to the Academic Director for Companion Animal Sciences. The Diagnostic Imaging team primarily provide support for the Hospital for Small Animals but also contribute to services and support in the Equine and Production Animal areas. The Clinical Anaesthesia team provide direct support in both the small animal and large animal areas on a 24 hour basis.

Anatomic and clinical pathology services are managed by the Academic Head of Pathology but the service is directly linked to the clinical computerised records system to allow rapid and accurate transfer of information and results.

3.1.6 Slaughterhouse Facilities

Provide evidence that the school has access to appropriate slaughterhouse facilities, and that these facilities have the capability of meeting the teaching needs of the program. Are there any factors, including seasonal operations, which may limit access by students?

Since 2009 we have developed and established a network of 12 abattoirs mainly based in the South of Scotland that are regularly hosting our students during their Final Year rotation in VPH. These are all full scale commercial abattoirs slaughtering a variety of species (cattle, sheep, pigs and poultry) very often with associated cutting plant operations. Please refer to Chapter B7; Curriculum for further details.

3.1.7 Foodstuff Processing Unit

Describe briefly any access that the school has to foodstuff processing units.

Cutting plant operations are usually available from the abattoirs we regularly visit with our students. The School has also established a network with the Scottish food industry that give us access to other foodstuff processing establishments in Scotland including meat preparations, meat products, ready to eat products, wild game, dairy, fish, and shellfish products.

3.1.8 Waste Management

Briefly describe the systems and equipment used for disposing of waste material; cadavers, carcasses, biological waste of different types, excreta, etc.

All waste material is segregated, packaged and disposed of according to legal requirements, and arrangements made with Waste and Recycling Department, University of Edinburgh. In addition to waste streams for cadavers, carcasses and biological waste, there are also arrangements for safe disposal of sharps, chemicals, controlled drugs and other medicinal waste.

Packaging for waste complies with UN Type, approved containers and bags. These are held securely prior to uplift. Waste disposal is arranged via authorised waste contractors, and can be tracked from point of source to final disposal. Final disposal can be via incineration or by microwave heat treatment.

Controlled drug waste can be denatured locally by Pharmacy following approved procedures, with subsequent disposal via cytotoxic or medicinal waste stream (Veolia®).

Any infectious biological waste is inactivated prior to leaving the site and uplift by the external waste contractor. Inactivation is by chemical disinfection or autoclave. Autoclaves comply with statutory requirements for 6-monthly service and maintenance regimes, and additionally undergo an annual thermometric validation programme.

Standard Operating Procedures and information sheets are in place for each area, for safe waste management. Staff receive information and training on waste management and use of correct waste streams, and students receive information and supervision relating to waste disposal, where relevant and appropriate.

3.1.9 Future Changes

Outline any proposed changes in the premises that will have a substantial effect on the school, and indicate the stage which these have reached.

Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.6 for current plans for improvement.

3.2 Comments

Comment on the adequacy of the buildings in general for undergraduate teaching.

Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.4 for a commentary on the adequacy of facilities.

Comment on the adequacy of the equipment in general for undergraduate teaching.

The audio-visual and digital technology equipment within the main teaching building was all replaced during the relocation in 2011 and is currently fit for purpose offering the whole range of digital teaching capability. The digital technology across the remainder of the School is constantly being renewed and improved. Wireless access is now available in all undergraduate spaces. Significant investment in equipment and models to enhance and improve teaching have been made especially so in the clinical skills laboratories where new models allow technique development in a controlled environment.

Comment briefly on the school's approach to biosecurity and relevant veterinary occupational health and safety issues.

Students receive information, instruction and training relating to biosecurity and its importance, and the principles behind it, during their first term at R(D)SVS. This includes the importance of effective hand washing to minimise

the potential transmission of infectious substances between patients, locations and pieces of equipment. Effective cleaning of personal protective equipment is also taught and examined. The principles of essential biosecurity continue to be built on and applied throughout the degree course and undergraduate studies.

Comment on the maintenance of buildings and equipment.

Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.3.

3.3 Suggestions for improvement

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.6.

Chapter B4, Library and Learning Resources



Chapter B4, Library and Learning Resources

(AVBC Standard 6; AVMA Standard 5; RCVS/EAEVE Chapter 8)

4.1 Factual information

Main library: Lady Smith of Kelvin Veterinary Library (LSoKVL), Easter Bush Campus		
- is this specific to the veterinary training establishment?		Yes
- is this common to two or more establishments?		No
- Full time equivalents of part time employees		1.3
- Number of full-time employees		2
- Number of journals received each year as hard copies		90
- Numbers of full access electronic journals		over 48,000
- Availability for online literature search		24/7
- Availability of textbooks		**
- Number of student reading places		95
Library opening hours:	weekdays	weekends
during term-time	8am to 10pm	8am to 10pm
during vacations	8am to 6pm	8am to 6pm
Indicate how the facilities are used by students		***

**The University of Edinburgh Library has an e-preference model in relation to the acquisition and retention of books, taking into account financial feasibility, access arrangements, discipline requirements, learning needs and preservation.

The Lady Smith of Kelvin Veterinary Library purchases print copies of all recommended textbooks and, where available, also purchases e-book copies, ensuring off campus access. The Collections Policy states that the Library would not normally purchase or retain more than one copy per group of 20 students on a course.

(<http://edin.ac/1BqDN19>)

*** Students can use the LSoKVL during staffed opening hours and may also use the library outwith these hours. There is swipe access to the LSoKVL allowing students access to the library from 8am to 10pm, every day during semester. Fourth and Final Year students have 24/7 access. Students also use the library study spaces. If the group study rooms in the library are not being used for teaching or tutorials, students may use them. Please refer to Chapter A5; Information Resources. Sections 5.2 and 5.3.

Subsidiary libraries of the Faculty

Please describe the subsidiary (e.g. Departmental) libraries of the Faculty, and arrangements for student access

No subsidiary library.

Although there is no subsidiary library, books are also purchased for the University of Edinburgh's Main Library (George Square, Edinburgh). These books are placed in the High Use Book (HUB) Collection, allowing students further access to veterinary books in the evenings and at weekends.

Indicate whether the main library holds a list of individual books of the subsidiary libraries.

N/A

Describe any other information services and how are they are supported and how student access is regulated

Please refer to Chapter A5; Information Resources. Sections 5.2 and 5.3.

Chapter B5, Animals and Related Resources



Chapter B5, Animals and Related Resources

(AVBC Standards 9 & 10; AVMA Standard 4;
RCVS/EAEVE Chapter 7)

5.1 Factual information

5.1.1 Basic Subjects

Anatomy

Indicate the materials that are used in practical anatomy training, and how these are obtained and stored.

A range of fixed, fresh and freeze-dried material from various species is used. These are mainly from dog, horse, ox and sheep, but also includes some more exotic species. Fixed material is either stored in tanks of buffered formalin or in a cold room. In addition, we are currently running a trial of the Theil soft-fixation method to prepare specimens with more tissue flexibility and life-like properties. Fresh material awaiting dissection is generally frozen. Fixed, freeze-dried and skeletal material is prepared in-house. The skeletal material used is in the form of whole animal skeletons, articulated limbs and individual bones, the latter being available to each student in a 'bone box' which they retain for the whole of Year 1. Farm animal material is sourced from abattoirs, local farms and our PM suite. Companion animal material, such as the dogs used in the Year 1 dissection classes, is donated to the School for teaching purposes. Rabbit and poultry material used is ethically-sourced from local animal facilities serving research institutions (e.g. rabbits no longer required for antibody production purposes). Students also study live anatomy in classes that are run off-site at the Edinburgh Dog and Cat Home. Information on the safe disposal of the materials used in anatomy training is given in Chapter B3. Section 3.1.8.

Table 5.1: Number of necropsies over the past five years

Pathology		2010/11	2011/12	2012/13	2013/14	2014/15
Species		Number of necropsies				
Farm/large animals	Cattle	67	65	62	85	61
	Equines	105	71	103	108	93
	Small ruminants	138	68	148	121	174
	Pigs	4	1	13	16	128
	Poultry (batches) ≠	146	163	93	68	29
	Other farm animals	0	0	0	0	0
Small/pets	Dogs	71	78	89	84	112
	Cats	39	41	26	41	50
	Rabbits	12	10	35	48	24
Other pets/exotics*		152	105	200	202	224
* Includes avian and mammalian zoo and wildlife species, small mammalian pets, reptiles and laboratory animals						
≠ Poultry batches are average of 7.5/batch						

Indicate the nature and extent of any additional sources of material for the teaching of necropsies and pathological anatomy, including slaughterhouse material.

Slaughterhouse material originating from abattoirs in the South of Scotland is collected weekly for 3rd, 4th and Final Year classes on gross pathology and Veterinary Public Health. In addition, numerous gross specimens of common and unusual lesions preserved in Jore's solution which maintains colour and allows sample handling, preserved museum specimens in perspex boxes, histological specimens on glass slides and a virtual slide box are used.

Indicate the nature of any other animal use in teaching other basic subjects.

A range of species of animals are accessed in the pre-clinical years for teaching. The School maintains populations of cattle, sheep, horses, birds, reptiles and rodents specifically to allow teaching of animal handling, husbandry and clinical examination. Companion animals are also accessed through the Edinburgh Dog and Cat Home and by the use of staff and student dogs for the same purposes.

Table 5.1.2: Animals available for necropsy

Ratio: students/post-mortem animals	7.59
Number of students graduated in the last year	160*
Number of cadavers necropsied	1215*

* 2013/14 figures

5.1.2 Animal Handling/Husbandry

Indicate the availability of production animals for the practical teaching of students.

Please refer to Chapter A3; Physical Facilities and Equipment. Section 3.1 and Chapter A4; Clinical Resources. Section 4.2.

5.1.3 Food Hygiene

Indicate the availability of animals and products of animal origin for the practical teaching of students in food hygiene, inspection and technology.

Our students access live animals for Veterinary Public Health (VPH) practical classes from Langhill dairy farm, the Farm Animal Hospital and in the lairage during abattoir visits. The numerous practical classes are spread throughout the curriculum during animal husbandry, biosecurity, farm animal rotation visits to underpin the “farm to fork approach” of the VPH course. Products of animal origin for practical classes are sourced from local abattoirs and from local supermarkets (packaged cuts of meat, milk bottles, canned food, etc.). For more detail please refer to Chapter B7. Curriculum.

5.1.4. Extramural pre-clinical experience with animals

All students are required to gain 12 weeks pre-clinical Extra-Mural Studies (EMS) at a range of animal units as a core element of the Animal Life and Food Safety 1, 2 and GEP courses. Satisfactory evidence of completion of this EMS component is required before a Pass in the Animal Life and Food Safety 2 and GEP courses can be awarded and is therefore a progression requirement.

Students must attend the following units:

- **Cattle** (minimum of **2 weeks, to include at least 1 week of UK dairy cattle**)
- **Sheep** (minimum of **2 weeks, to include at least 1 week of UK lambing**)
- **Pigs** (minimum of **1 week**)
- **Poultry** (minimum of **1 week**)
- **Dogs AND Cats** (minimum of **1 week with additional week from free choice required if only cats OR dogs**)
- **Horses** (minimum of **2 weeks**)
- **Domestic Small Mammals** (minimum of **1 week**)
- **Livestock market – 1 day**
- **Free choice – 2 weeks**

During each placement, students are required to complete an Enterprise Report form for the unit attended. These forms are designed to complement the Animal Life and Food Safety course and encourage students to achieve learning outcomes, practice handling skills, communication skills and engage with the animal husbandry of the unit. Placement providers complete a Certificate of Attendance for each student, which includes feedback on various aspects of the student's performance.

Submission of both these documents is required before a placement is counted towards EMS.

Chapter B6, Admission and Students



Chapter B6, Admission and Students

(AVBC Standard 5; AVMA Standard 6/7; RCVS/EAEVE Chapter 9)

6.1 Factual information

6.1.1 Student Numbers

Table 6.1: Undergraduate student composition (2014/15)

	5 year	GEP
a. Total number of undergraduate students	575	203
b. Male students	102	31
c. Female students	473	172
d. Nationals	356	67
e. Foreign students	219	136
f. 1st year students	131	51
g. 2nd year students	114	44
h. 3rd year students	118	55
i. 4th year students	108	53
j. 5th year students	104	
k. 6th year students		
l. 7th, or subsequent year students		
m. students not in any specific year		

Note: 1st year students = Year 1 of their programme

Table 6.2: Postgraduate student composition (2014/15)

n. Total number of postgraduate students	522
o. Male students	136
p. Female students	386
q. Nationals	250
r. Foreign students	272
s. 1st year students	222
t. 2nd year students	130
u. 3rd year students	99
v. 4th year students	62
w. 5th, or subsequent, year students	9
Give the total number of students in the school (a+n)	1300

Describe the underpinning philosophy for the development of selection criteria. How have criteria been developed and describe how the selection process is reviewed?

The development of the School's selection criteria is based on striving to identify specific characteristics in prospective students which not only will contribute to their success on the Programme but also their continued success post-graduation. Whilst endeavouring to identify desirable characteristics one of the challenges or potential pitfalls that we are careful to avoid is the recruitment of a homogeneous student population. Our belief is that a diverse student community is of great value to the undergraduate experience and is also desirable for the veterinary profession.

Academic ability is essential in order to be able to cope with the rigors of a veterinary degree. We aim to attract the best students regardless of their background and there is a clear relationship between academic achievement and subsequent on-programme performance. In addition as professionals they will be required to adopt an attitude of life-long learning and show an aptitude for inquiry and learning. Prospective students should be able to demonstrate that they have thoroughly explored being a veterinary professional, both the positive aspects and the potential challenges. We want to be able to select students who will make a positive contribution to the society in which they live and work. As they will primarily work in a public-facing role the ability to communicate and empathize are also key. Prospective students should also be concerned with the welfare of animals and be willing and able to discuss and provide reasoned arguments defending their views on a variety of moral and ethical issues including those relating to the welfare of animals.

Our selection criteria have been developed over many years and are under constant review and development in order to keep up with a changing society, changing student population and changing needs of the profession. The admissions process is reviewed by the Admissions Committee who receive input from (1) the Senior Management Group and the School Learning and Teaching Committee internally. (2) Students are tracked on programme and followed up at 18 months and then again 5 years after graduation. (3) Guidelines and input are received from external bodies in particular the RCVS and the AVMA. Admissions Committee consider and review all the information, report to the Admissions Executive and can recommend continuation of current selection criteria or make recommendations for changes in the process. Review occurs on an annual basis.

Describe the admission process: selection criteria and minimum admission requirements.

The Admissions process takes place in a number of stages. These are detailed in Chapter A7; Admission. Sections 7.1, 7.2 and 7.3.

Describe whether students applying for and/or starting veterinary training have an equal or variable knowledge base in scientific disciplines from their studies at school.

Our entry requirements are such that we aim to ensure a degree of consistency in relation to the standards expected in the key scientific disciplines for our prospective students. Specifically:

All prospective students are required to have studied Physics up to a minimum of SQA Standard Grade 2 or GCSE grade B. Some will have elected to study Physics to a higher level (for example A level or Advanced Higher) and so may have attained a higher standard in this science discipline. In relation to Chemistry and Biology all prospective students are required to have studied these to a high level (International Baccalaureate, A level, Higher and Advanced Higher) and therefore we expect to see greater consistency in knowledge base in these two science disciplines. Mathematics similar to Physics will display some variability as prospective students may choose this as an alternative to Physics at higher level and vice versa.

For prospective students applying on the basis of a first degree this must be an appropriate Animal or Biological Science and Biology/Zoology degree. Physics, Biochemistry, Chemistry and Mathematics/Statistics are required to have been studied during that degree.

For further details of minimum academic entry requirements see A7; Admission. Section 7.1.

Indicate where there is a limit to the number of students admitted each year.

There is a limit of 72 funded places. This category comprises UK and EU High School leavers. There is a limit of 45 full fee places in the Graduate Entry Programme (UK, EU or international students with an appropriate and relevant first degree). There is a limit of 53 full fee places for entry into the 5 year programme (International High School leavers or students with a non-science first degree).

Describe how the number of government-funded student places is determined.

The number of government funded places is determined by Scottish Government in conjunction with the University. The Recruitment and Admissions Strategy Group (RASG) of the University specifically determines the number of government-funded places on the BVM&S Programme. This is reviewed annually.

Describe any circumstances under which students may be admitted to the undergraduate veterinary course.

Students are normally admitted onto the undergraduate programme through the mechanisms described above allowing entry into 1st year (5-year programme) or GEP year (4-year programme). Outwith that we accept a small number of students into Final Year from St George's University (Table 6.3). These students apply to enter into the Final Year of the BVM&S degree and each student is considered on an individual basis. Decisions are informed by academic performance to date and references.

Outline any changes foreseen in the number of students admitted annually. If applicable, describe how the school plans to adjust to these changes.

We currently have no plans to change the number of annual admissions.

Table 6.3: Intake of veterinary students

Entry Year	Number applying for admission	*Number admitted	
		Standard intake	Other entry mode
2014/15	1451	164	0
2013/14	1583	166	1 SGU
2012/13	1488	173	2 SGU
2011/12	1379	178	4+2 Ant+SGU
2010/11	1330	174	6 SGU
2009/10 (a)	1188	171	3 SGU
2008/09	1250	157	7 SGU
2007/08	1216	131	5 SGU
2006/07	1090	166	4 SGU
2005/06	1235	127	0

*Numbers admitted are for both the 5-year and 4-year BVM&S programmes in total.

SGU: St George's University, Grenada, West Indies. Ant: American University of Antigua (4 students direct entrants into Year 3 due to Hurricane Irene)

6.1.2 Student Flow

Table 6.4: Student flow

Of the students whose admission year was N-5 (a. in Table 6.3) how many are at present (five years later) in the:	5 Year 2009/10	GEP 2009/10
b. 1st year		
c. 2nd year		
d. 3rd year		
e. 4th year		
f. 5th year	4	
g. how many have graduated	94	60
h. how many have dropped out or been asked to leave	7	6
i. how many are not in any identifiable year		

Table 6.5: Number of students graduating annually (from undergraduate training) over the past five years:

Year of graduation	Number graduating	
	5 Year	GEP
2014/15	104	53
2013/14	104	56
2012/13	84	59
2011/12	95	47
2010/11	87	47

Table 6.6: Average duration of studies

In the case of students graduating in year N (figure j of Table 6.5), how many students have attended the veterinary training course for 4, 5, 6, 7, 8, 9, 10 years or more?		
Duration of attendance	5 Year	GEP
k. 4 years		48
l. 5 years	89	5
m. 6 years	10	
n. 7 years	3	
o. 8 years	2	
p. 9 years		
q. 10 – 13 years		
r. more than 13 years		
Average duration of studies of the students who graduated in year N:	5.2	4.09

Describe the requirements (in terms of completing subjects and examinations) for progressing to a subsequent year of the course.

No student may proceed to the next year of study for the BVM&S programme until he/she has passed all courses of the previous year of the programme, unless a concession is awarded by the Head of School.

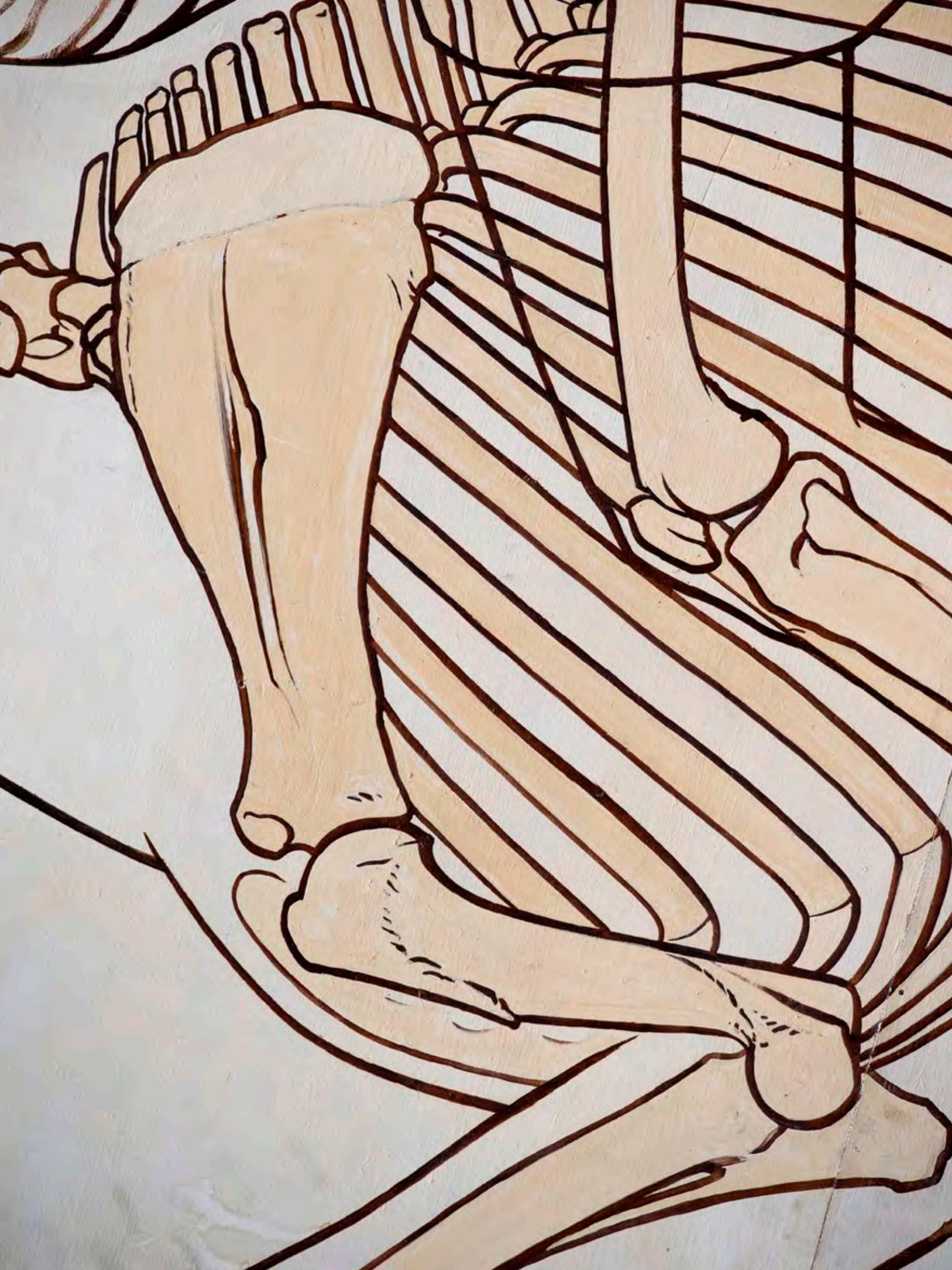
N.B. As a requirement to pass the course in Animal Life and Food Safety (ALFS) and to allow progression from the Second Year (or GEP Year 1) to the Third Year of the BVM&S programme, a student must present satisfactory evidence of having completed at least 12 weeks of Animal Husbandry Extra Mural Studies.

Describe the academic circumstances under which the school would oblige students to leave the course.

In any academic year of the BVM&S programme, a student is entitled to two attempts to achieve a pass in a particular course. A student failing to pass a course at the second attempt (resit) will result in his/her referral to the Progression Committee, where a decision will be taken whether to grant a repeat year opportunity (3rd and, if necessary, 4th attempts). A failure to pass a professional examination after four attempts, and in the absence of any award(s) of Special Circumstances, will result in a recommendation that the student either withdraw or be excluded from the BVM&S programme.

N.B. A student wishing to appeal against a Progression Committee decision will normally be invited to meet with the R(D)SVS Student Appeals Advisory Committee (SAAC). Students may appeal a decision via the University Student Appeals system <http://edin.ac/1LaZ9pa>

Chapter B7, Curriculum



Chapter B7, Curriculum

(AVBC Standard 7; AVMA Standard 9; RCVS/EAEVE Chapter 4)

7.1 Specific information on the practical training in food hygiene/public health

Veterinary Public Health (VPH) teaching at the R(D)SVS is integrated within the curriculum across all years of the programme of studies and every year it focuses on different aspects of the subject.

In the early years, students experience an introductory VPH lecture series which includes the role of vets in the food chain, principles of Hazard Analysis Critical Control Point (HACCP), waste management, zoonoses and emerging diseases. This material is supported by related biosecurity, evidence based medicine, animal husbandry, animal welfare, parasitology and microbiology material in tandem courses. In Year 3 they cover aspects of veterinary epidemiology and veterinary pathology that are propaedeutic for the VPH (Food Hygiene & Safety) course that is taught in Year 4. This course is designed not only to integrate theoretical and practical aspects of VPH during the course itself but also to bring together and integrate with the Farm Animal Course (**see Appendix 9.6a**).

A core Final Year module comprises Farm Animal, VPH (including abattoir visits and State Veterinary Medicine tutorials), Epidemiology and Pathology (including Microbiology and Antimicrobial Resistance tutorials). Students wishing to specialise in VPH and veterinary epidemiology can attend an additional three week-long Selected Rotation (see **Appendix 9.6b**). In addition several externship opportunities are available including Farm Animal Assurance Schemes, local Animal Health offices and the Veterinary Public Health Association (VPHA) EMS Masterclass. The VPH teaching team offers support to those students who have an interest in VPH-related topics and wish to carry out a research project as part of the Student Research Component.

Students can also benefit from the use of the Virtual Slaughterhouse simulator, an interactive computer based learning tool developed by faculty that allows students to explore a “state of the art” cattle abattoir with embedded problem-solving scenarios related to the most common practical issues observed in real time work.

Additional VPH Core Course Detail

VPH teaching provides a foundation that will enable the students to develop, during the practical classes and lectures, an interest for and knowledge of VPH especially concerning food hygiene and safety. Course learning objectives are that by the end of the Course they will be able to:

- Understand the role of the veterinary surgeon in protecting public health and hygienic production of food of animal origin in Europe and the UK.
- Describe the key principles involved in the food chain and the “Farm to Fork” approach.
- Describe the main European and UK legislation and enforcement principles of identification and traceability of animals and food of animal origin, hygienic production of food and animal welfare.
- Explain the importance of animal welfare during transport and at slaughter and how this is related to food safety and quality of product in the food chain (including poultry, wild game and fish).
- Describe link between animal identification, food chain information and traceability of food of animal origin.
- Describe key principles involved in food producing establishment hygienic design and operational process.
- Describe the hygienic production and risk associated with food of animal origin (including milk, poultry, eggs, wild game and fish).
- Describe the key principles involved in food technology.
- Demonstrate the advantage of using a Food Safety Management System (FSMS) to control hazards in food of animal origin and how auditing of FSMSs are performed.
- Discuss the importance of food microbiology, the main food preservation techniques and interpret microbiological testing results.
- Explain the relationships between Ante Mortem Inspection, food chain information, Post Mortem Inspection and communication of inspection results to farmers and veterinarians.
- Describe the principals involved in emergency slaughter of food producing animals at the farm of origin.

- Make a judgement on fitness of food of animal origin for human consumption.
- Explain the various aspects of veterinary public health including non-foodborne zoonoses.
- Understand the relationships between the environment and the correct disposal of waste from the farm and food producing establishments.
- Explain the importance of the National Surveillance Scheme on residues in the UK.
- Explain the main control measures in place in the UK for TSEs (BSE and Scrapie).

The practical classes have a strong case-based scenario orientation supported by a wide variety of e-learning resources (including the Virtual Slaughterhouse simulator) to enhance the critical thinking of the students and facilitate learning in an inclusive environment. Practical classes are designed to achieve a more in-depth knowledge of the learning objectives and in particular:

Practical Classes	
Meat Inspection	Recall basic, comparative and topographic veterinary anatomy and in particular: <ul style="list-style-type: none"> • Identification of species and organ • Comparative anatomy with other species • Normal features and pH of meat
	Practice methodology and techniques of post-mortem inspection (PMI) in red meat animals and in particular: <ul style="list-style-type: none"> • Legal requirements for PMI • Principles of inspection of carcass, red and green offal • Visual inspection • Palpation • Incision (including safe use of knives)
	Examine gross anatomical pathology specimen and in particular: <ul style="list-style-type: none"> • Identification of lesions • Suspect diagnosis • Differential diagnosis • Possible test available in abattoirs • Identification of possible aetiological agents and relevance for public health • Basic epidemiology of disease
	Recall and recognize parasitology lesions of interest in meat inspection and in particular: <ul style="list-style-type: none"> • Generality on parasites life cycle • Epidemiology • Relevance for public health • Trichinella testing in abattoirs • Cold treatment of infested meat (cysticercosis and trichinosis)
	Underline other specific hazards of interest in meat inspection and in particular: <ul style="list-style-type: none"> • Transmissible Spongiform Encephalopathies • Tuberculosis • Brucellosis • Compulsory slaughter during Bluetongue and Foot and Mouth diseases • Principles of Health and Safety at work
	Assess risks and apply decision making concerning meat and in particular: <ul style="list-style-type: none"> • Legal grounds for declaring meat unfit for human consumption • Localized and generalized pathological conditions • Acute and chronic pathological conditions • Abnormal colours of meat • Disposal of Animal-by-Products
	Assess animal welfare (AW) compliance at slaughter and in particular: <ul style="list-style-type: none"> • Lesions and conditions of AW importance • Use of penetrative captive-bolt instruments (including H & S aspects) • Principles of animal identification (ear-tags)

	Practice methodology and techniques of PMI of whole carcasses and in particular: <ul style="list-style-type: none"> • Legal requirements for PMI • Visual inspection • Palpation • Incision (including safe use of knives) • Principles of carcass hygienic dressing and quality of meat • Principles of pathology and animal welfare lesions relevant to public health
Food microbiology	<ul style="list-style-type: none"> • Understand the processes involved in diagnostic food microbiology • Perform microbiological diagnostic procedures • Analyse and interpret test results • Formulate recommendation to be provided with the microbiology test report
Food Labelling and Traceability	<ul style="list-style-type: none"> • Describe the legal requirements for food labelling in the UK • Identify the information on the food label that is relevant to veterinary public health (e.g. Identification mark, date labelling, preparation technology, British Lion Code, etc) • Identify and explain traceability systems of food products
Contact Zoonoses	<ul style="list-style-type: none"> • Understand the risks posed to human health by contact zoonoses; in particular, the risks to veterinary surgeons, clinic staff, clients and families • Identify specific risk situations for the spread of selected zoonotic pathogens • Identify sources of reliable information on zoonotic disease • Provide recommendations on the prevention and control of zoonotic diseases

Final year Core Rotation

Final Year teaching at the R(D)SVS is focused totally on the practical application of knowledge and theoretical notions acquired in previous years in the light of what is required as Day 1 Competency (D1C). The VPH core rotation includes:

- Field Study Trip to a commercial slaughterhouse where a group of five students are asked to perform individually an audit of the establishment against the EC Hygiene Regulations and account for the findings formally in an audit report (same format used by Official Veterinarian (OV) working for the Food Standards Agency). To understand and assess the processes involved in the hygienic production of food of animal origin (Abattoir Audit Report). RCVS Day 1 Competence: Underpinning knowledge. [See further detail below]
- Post Mortem Inspection Class to perform a basic gross post mortem examination, record details and make a judgement on fitness of food for human consumption (D1C 35 and 36).
- State Veterinary Medicine Tutorial delivered by experienced Veterinary Officers working for the local Animal and Plant Health Agency (APHA) Office to recognise and act upon the most important notifiable / zoonotic diseases in the UK, (D1C 25).
- Animal Welfare tutorial and Shooting Practical Class to apply animal welfare principles and legislation to red meat animals at the farm (Emergency Slaughter), during transport and at slaughter. To recognise when euthanasia is appropriate and perform it humanely, using an appropriate method and advise on disposal of carcasses (D1C 34 and 36).

Field Trips To Abattoirs

The R(D)SVS was the first vet school in the UK to implement this system now widely used in the UK: a small group of students (up to 5 individuals) are taken on a field study trip to an abattoir usually based in the South of Scotland (distance range 35-120 miles) by a resident VPH member of staff. A pool of 12 commercial slaughterhouses have been identified that are suitable for teaching to Final Year students and these are visited on a rota basis including red meat and poultry establishments. The tour of the abattoir and teaching is carried out by a resident VPH member of staff and is based on a minimum of 4 hours in-situ visit that includes also looking at OV and Food Business Operator documentation and HACCP plans. Students are required to produce an audit report on the visit that is marked by the attending staff member. If the abattoir report is not satisfactory, students will be required to spend a full week in an abattoir as part of their EMS programme.

Chapter B8, The Assessment/ Examination System



Chapter B8, The Assessment/ Examination System

(AVBC Standard 8; AVMA Standard 9 & 11;
RCVS/EAEVE Chapter 5)

8.1 The Examination System

Describe the examination system of the Faculty, in particular:

- **Is there a central examination policy for the Faculty as a whole? If 'yes', by whom is it decided?**

There is a central examination policy in the form of University regulations. The University of Edinburgh Taught Assessment Regulations set minimum requirements and standards for students and staff, expressing in practical form the academic goals and policies of the University. These are updated annually and the new additions/key changes are highlighted in their own link (<http://edin.ac/1PyZ7H8>).

The regulations allow significant flexibility for individual schools to adopt assessment processes which are most appropriate and effective for their degree programmes, and for the level of study and subject area being assessed.

Within these regulations BVM&S assessment is the overall responsibility of the School Learning and Teaching Committee (LTC). A sub-group of LTC, BVM&S Assessment Executive (ASSET) is tasked with developing programme-wide consistency in assessment. ASSET reports to LTC.

LTC have developed a number of assessment policies that are used School-wide.

- **Are there special periods (without teaching) during the year for examinations?**

Examination periods depend on the year of study and the duration of courses within the year. For each year there are end of course examinations both during and at the end of the academic year. For written degree examinations, students have a minimum of 1 week revision time immediately prior to the examination.

- **What form(s) of examination are used (written papers, multiple-choice questions, oral, practical, clinical examination, continuous assessment, etc.)?**

Multiple forms of assessment are used across the Programme appropriate to the outcomes being assessed. We aim to achieve an optimal balance of validity and reliability in using a range of methods to build a holistic view of student competence at each level of the curriculum. All courses employ more than one assessment method which may include but are not limited to; Short answer written questions, multiple-choice questions, oral, Objective Structured Clinical Examinations (OSCEs), Objective Structured Practical Examinations (OSPrEs), research project, essays, written interpretations questions, spot examinations (in lab and on-line), holistic assessment rubric.

Assessment Rubric

Year	Y1	Y2	GEP	Y3	Y4	Final year
In Course						
MCQ	x	x	x	x	x	x
Essay	x	x	x			
Oral	x	x	x			
OSCE				x	x	x
DOPs						x
Rotation Rubric						x
End of course						
MCQ	x	x	x	x	x	x
Short Answer	x	x	x	x	x	
Interpretation	x	x	x			
OSPrE		x	x			
Presentation		x				
Research Report						x

- **Is use made of external examiners?**

We value highly the contribution of our external examiners. Their involvement includes: Comment on draft exam questions and paper balance; observe and comment on the assessment process, attend and contribute at Board of Examiners meetings, submit reports to which the School responds as part of our quality assurance processes. The role of the external examiners is in line with Quality Assurance Agency (QAA) guidance such that their focus is very much on auditing process rather than arbitrating on individual student decisions.

As part of the University's Quality Assurance procedures, each course must have at least one external examiner who must attend at least one Board of Examiners meeting during each academic year to enable them to provide feedback and comment on process and procedure.

As part of routine QA processes, external examiners are asked to comment on the overall standards of education provided by R(D)SVS as well as in comparison with other institutions.

As a key part of our 360 degree QA process course organisers respond to specific comments and recommendations in external examiner reports. The University has recently introduced a central electronic External Examiner Reporting System (EERS) for electronic submission of and responses to external examiner reports.

- **How many retakes of an examination are allowed?**

All veterinary students are normally entitled to two attempts at end of course examinations, ie. one retake. (Unless Special Circumstances have been awarded via clearly described process). See end of Chapter B6. Admission and Students.

- **Do students have to pass the examination within a certain time? Do students have to pass an examination before they can start other courses?**

Veterinary students are normally required to pass all courses for a particular year of study before progressing to the next year of study. As courses run both in parallel and series within a year of study with the retake opportunity for all courses normally in August students are not required to pass an examination before they can start other courses within that same year of study.

8.2 Evaluation of Teaching

Describe the method(s) to assess the quality of teaching used in the school.

Indicate whether the evaluation is a school procedure, or one set up by individual departments, by students or by individuals.

Describe the role of students in the evaluation of teaching and teachers.

Please see Chapter A9; Curriculum. Section 9.3.

Describe the follow-up given to the evaluation.

Evaluation follow-up

In 2013, we established a specific meeting of Year Directors, Director of Veterinary Teaching and Head of Veterinary Teaching Organization administration to take an overview of all external examiners reports across the curriculum and identify common issues and themes for action. This has proved a very valuable process in advance of the following academic year providing useful holistic oversight of any common issues arising.

The procedures for upholding standards are a combination of our external examiner system aligned with our robust QA committee process.

Areas of concern identified by Vet Medicine Quality Assurance Committee (VMQAC) are passed to the School LTC for action and are monitored at the end of the academic year.

Part of the QA cycle requires course organisers to reflect on the independent QA reviewer comments, student performance trends over three years, previous year's plans for change and to comment on progress.

VMQAC produces an annual QA action list at the start of the academic year with a review of progress at the end of the academic year. VMQAC submits an annual report to the College Quality Assurance Committee (CQAC) which in turn submits an annual report to the Senatus Quality Assurance and Enhancement Committee (SQAEC). College reports are reviewed by SQAEC members who are not aligned to the submitting college and their reports discussed by SQAEC at a specially convened meeting. Comments and recommendation from SQAEC are referred to VMQAC via CQAC.

The School has also introduced a system for Course Tracking Analysis in order to compare course survey responses across all courses, by means of a 'traffic light' system. A summer meeting of LTC reviews the data from all course surveys, with Course Organisers presenting a commentary on their course results and provides the opportunity to discuss best practice and share ideas.

Chapter B9, Clinical Resources and Clinical Learning and Teaching



Chapter B9, Clinical Resources and Clinical Learning and Teaching

(AVBC Standards 9 & 10; AVMA Standard 4; RCVS/EAEVE Chapter 7)

Primary versus Referral Consultations in the past 5 years for dogs, cats and others

Species		Number of consultations				
		2013-14	2012-13	2011-12	2010-11	2009-10
Farm and Large animals	Ruminants *	36634	37584	39596	39480	36480
	Cattle	92	154	140	120	110
	Small ruminants	82	320	202	304	290
	Equines	3356	3565	3195	3249	3620
		1316	1192	1270	1335	1587
	Pigs	18	11	24	23	30
		0	7	8	6	0
	Other farm animals**	12	1	2	4	5
2		2	2	2	2	
Small/pets	Dogs	5105¹	4562¹	4248	3773	3395
		7658	6842	6373	5659	5093
	Cats	1144	1109	1070	922	786
		1716	1663	1606	1383	1178
	Other pets	2660	2510	2337	2243	2106
		140	132	123	118	111

NOTE - Number of primary consultations are in bold type

* - Division of ruminant primary consultations by species is not available.

** - Camelids and deer

¹ For each of these years, see **additional** primary consultation for small/pets at the Inglis rotation described in 9.1 below.

All reports are derived from information in the financial year (1st August to 31st July) which closely approximates the academic year. The information is primarily sourced from our practice management software system (Tristan). Production Animal figures are based on total number of appointments per species in the time period. The following formula is applied:

Estimate 1 in 5 calls are single animals.

2 in 5 calls are initially to see single animals but average 6.

2 in 5 calls are routine planned work and average 50 animals.

Average 22.6 animals per call.

For analysis of trends please refer to Chapter A4; Clinical Resources. Section 4.1.

9.1 Other Information

Where a distributed clinical teaching model is being used, please provide information about case numbers at each of the clinics for the last 5 years.

Inglis Vets, Cowdenbeath, Fife (20 miles for Edinburgh) (since 2012). A discounted cost, first opinion small animal clinic run by the Final Year students under supervision of an Inglis Veterinary staff member

- 2012-2013: 4071 student-led consultations, 1311 vet-led consultations, 857 surgical cases.
- 2013-2014: 4489 student-led consultations, 1288 vet-led consultations, 877 surgical cases.

Indicate any notable additional outside sources of material for clinical training purposes, such as animal charities, animals awaiting slaughter, etc.

Please see **Appendix 4.1** Table C.

In addition:

- Peoples' Dispensary for Sick Animals (PDSA) Pet Aid Hospital in Edinburgh: small animal anaesthesia and general practice dentistry as part of three-week Dentistry/Ophthalmology selected rotation.
- School's herd of teaching horses & Edinburgh University Exmoor Pony Trekking Section: volunteering gaining exposure to healthy horses, management and care.
- Edinburgh Dog and Cat Home and Scottish Society for the Prevention of Cruelty to Animals (SSPCA) (shelter medicine); 1000 canine/feline clinical teaching cases.
- Zoo and wildlife medicine; Five Sisters Zoo and Edinburgh Zoo when needed for expert advice and services.

Indicate how the level of clinical service that is offered by the school (in small companion animals, equines and production animals) compares with outside practices in terms of facilities, hours of service, equipment, expertise, responsiveness, etc.

We consider we have the leading facilities, equipment and expertise in Scotland and much of the North of England in all three clinical service areas. Each major area is accredited under the RCVS Practice Standards Scheme.

- Facilities; state-of-the-art facilities, that are being continually modified and up-graded as needed with major new builds to replace older buildings approaching the end of their working life.
- Hours of service & Responsiveness; standard working hours for routine appointments Monday to Friday (0830 to 1700h for equine and farm, 0800 to 1800h for small animals), and Saturday morning (0900 to 1200) for the small animal practice, with additional full emergency admissions capacity. Additional night service for emergencies and in-patient routine care, with a team of staff (medicine, surgery, anaesthesia and diagnostic imaging) and students (core rotation).
- Equipment; full complement of state-of-the-art equipment for primary, secondary and tertiary clinical care, with up-grades and replacement as needed and budgeted costs.
- Expertise; complete staff cohort that can deal with all primary, secondary and tertiary care requirements across all species.

Describe (if applicable) any other relationships with outside organisations that are routinely used to provide students with training (in particular practical training) in other clinical subjects (e.g. pathology work, interaction with state veterinary work).

- Edinburgh Dental Institute (since 2013); 'One health' approach to teaching core skills in dentistry, using state-of-the-art human dental manikins and equipment. Intensive two-day course in dental prophylaxis (Year 4), workshop for all Year 3 students and dental selected rotation.
- Moredun Research Institute and SRUC (research pathology and diagnostics; pathology selected rotation visits).
- Other external experts (SRUC and Abattoirs); farm animal building ventilation, pig medicine, state veterinary work, Veterinary Public Health core rotations red meat or poultry abattoirs visits (see detail in Chapter B7).

Provide an outline of the administrative system(s) used for the patients, e.g. in terms of how case records are kept, how data is retrieved, whether systems are centralised, etc

- Practice Management System (Tristan); fully searchable, electronic notes, records and client charging, with separate database for each major area of activity. Password protected with varying levels of permitted access and editing (management, accounts, reception clinicians, students). Some paperwork may be stored as hard copy in a case file with the patient unique number cross referencing both electronic and paper file.
- Diagnostic image storage and retrieval; Picture Archive and Communication (PACS; ClearCanvas, Synaptiv Medical) with images accessed using the unique patient reference number and the Tristan system. Other storage still to be linked to PACS stored separately e.g. small animal endoscopy.

Provide an indication in percentage terms of the proportion of cases that are primary (i.e. first opinion), and referrals (provide a breakdown by species, if helpful). If the school has a particular aim or policy as regards this mix, describe it.

The estimated percentage is:

Species	% primary	% referral
Farm	100	0
Equine	75	25
Dog	40	60
Cat	40	60
Exotics	95	5

We aim to provide a balance of first opinion and referral caseload.

Our farm caseload has concentrated on primary work only (ambulatory service), but due to development of isolation facilities, we intend to develop our farm animal referral services in future. However we anticipate this will still be a very small percentage of total farm animal caseload.

Indicate what areas of clinical specialisation are covered, and the extent of the coverage (for example, a veterinarian with a particular specialisation may see patients in the clinic for one day a week, 3 afternoons, etc.)

Hospital for Small Animals	Equine Veterinary Services
Orthopaedic Surgery	Medicine
Soft Tissue Surgery	Orthopaedic Surgery
Canine Internal Medicine	Soft Tissue Surgery
Feline Internal Medicine	Dentistry
Emergency and Critical Care	
Cardiopulmonary Medicine	Production Animal Services
Dermatology	Dairy Herd Health Consultancy
Oncology	
Neurology	Specialist Support Services
	Diagnostic Imaging
	Anaesthesia

Clinicians are assigned to a service for a full week so will attend to patients as necessary. The clinics may be structured such that there are admission days and procedure days. However flexibility is exercised to ensure we respond appropriately to patient and client needs.

Small Animal Neurology is currently a one person service. Arrangements are in place for neurological cases to be attended to by the relevant medical or surgical discipline on the weeks the neurologist may be absent from clinics. We are currently recruiting an additional neurologist to provide continuity of service.

Outline if there are fee rebates provided to clients for clinical services, in order to generate material for clinical teaching.

- Companion Animals; significant discount is provided to two charitable organisations in order to carry out neutering of dogs, cats and rabbits. This approach has generated caseload which is heavily utilized for clinical teaching.
- Equine Hospital; has an allocated budget to allow student access to dental procedures and minor surgical cases including castrations.
- Production Animal Services; has an allocated budget to allow active recruiting of caseload into the Farm Animal Hospital. Herd Health visits to farms are usually provided with free veterinary time, and some visits (e.g. disbudding classes) are charged only for consumables when there is a significant teaching component with additional time spent on farm.

Indicate the relationship the school has with outside practitioners (in small companion animals, equids and production animals) in terms of matters such as referral work, providing diagnostic or advisory services for private practitioners, practitioners participating in teaching, holiday or 'seeing practice' work for students, feedback on the level of clinical training.

- Practitioners; we provide a comprehensive referral and advisory service for practitioners in all three major clinical areas, with no geographical exclusion, and we have a User Group for referring practitioners (Hospital for Small Animals) to gather feedback on enhancement of services.
- Laboratory and Diagnostics; we provide comprehensive commercial necropsy, histopathology, microbiology and clinical pathology service (Easter Bush Pathology), and diagnostic imaging reporting through the clinical sections.
- Mixed/farm veterinary practices; we have a good relationship with neighbouring practices which provide case material for the Farm Animal Hospital and dairy farms for herd health visits (metabolic profile blood sampling and bacteriology of high cell count). Dairy Herd Health and Productivity Service (DHHPS) operates a UK-wide farm animal extension service for herd/flock health diagnostics and advisory services for veterinary practitioners.
- Extra-Mural Studies; the School has special relationships with several practices that either take many of our students on a regular basis, or that are involved in intra- as well as extra-mural teaching. For example, the Inglis Practice, Cowdenbeath and PDSA PetAid Hospital in Edinburgh and Thrums mixed practice (OOH placement). Core and selected rotations and all standard EMS placements require feedback and assessment from external practitioners, but for partner EMS centres the School maintains a closer working relationship due to the large numbers of students attending.

Describe clinical exercises in which students are involved prior to the commencement of clinical rotations.

- Professional and Clinical Skills; 1st, 2nd and 3rd year students undertake a series of 'Preparing for EMS' themed clinical skills practical classes (small group, 2 academics, 1 technician) designed to introduce them to common practical skills around the following themes; Small Animal, Large Animal, Diagnostic, Emergency and Critical Care and Dentistry, with skills in drug dose calculation, appropriate equipment selection (syringe, needle, blood tubes), jugular sampling, intramuscular injection, intravenous fluid set-up, urinalysis, otoscope and ophthalmoscope use and dental prophylaxis (scaling and polishing), using simulators and models wherever appropriate.
- EMS recording; training session formulating learning objectives for their clinical EMS.
- Clinical Examination; Years 1, 2 and GEP students undertake practicals in live animal physical examination of the dog, horse and cow with instruction in the use of SOAPs for recording and managing clinical case material.
- Final Year Preparation Phase; end of Year 4 preparing for work on clinical rotations focusing on problem-oriented approaches to clinical cases, revision of relevant material from previous courses, expectations in Final Year and preparing for job applications.
- Emergency and Critical Care and School -based EMS; there are opportunities for Years 3 and 4 to gain experience of our Hospitals' environment and working practices using their EMS and by being allocated to OOH duties (HfSA and Equine Hospital).

Outline the student involvement in the emergency (24-hr.) and hospitalisation activities of the clinics.

Students participate fully in the out of hours care of patients, all year, in both the Hospital for Small Animals and the Equine Hospital as part of core rotations (Final Year) or as EMS placements (Year 4). Time commitments are managed to minimize the number of consecutive nights on duty.

- Small Animal: Emergency and Critical Care (ECC; 1 week-days) and Out of Hours (OOH; 1 week nights, on-site accommodation) core rotations, with option for additional selected rotations. Duties include care and monitoring of patients, stabilization and emergency triage, and if on OOH, of exotic and other in-patients. Supervised by an intern and nurse with senior clinical training scholars and senior clinicians (medicine, surgery, anaesthesia, diagnostic imaging) when needed.
- Equine: Intensive Care Unit (ICU - 1 week core rotation and 1 week selected rotation with the option for additional periods on ICU, on-site accommodation). Duties include assisting in the evaluation and treatment of in-patients, admission of new emergency cases and involvement with the colic service. Supervised by a senior clinical scholar and an equine nurse with senior clinicians (medicine, surgery and anaesthesia) when needed.
- Farm Animal: emergency activity of the Farm Animal Practice ambulatory clinic is limited to office hours and any emergencies at this time (calvings, lambings etc.) involve students.

Specify student participation in the activities of the mobile clinic and indicate whether or not the hours spent in the mobile clinic are included in relevant tables.

- Equine Practice (equine ambulatory clinic); full student involvement in all aspects of the equine practice. Specific classes in routine procedures, such as dentistry, carried out using our teaching herd and local charities (Riding for the Disabled Association and Scottish Society for the Prevention of Cruelty to Animals).
- Farm Animal Practice (farm ambulatory clinic); full student involvement in all aspects of farm animal practice. Specific classes in routine farm animal veterinary work, such as disbudding, foot trimming and blood sampling undertaken by all students on core rotation.
- Shelter Medicine and Zoos; full student involvement in visits to rescue centres for veterinary treatment, care and management advice.

9.2 Ensuring the quality of clinical training

Describe the mechanisms used to ensure that all clinical placements are supervised, well organized and subject to appropriate quality assurance processes. Provide information that the process provides:

Small group clinical teaching by staff who have advanced clinical experience and a commitment to student learning

All clinical teaching activities are undertaken in small groups.

Supervision, Organisation and Quality Control:

- The School provides workshops to clinical teaching staff as part of the suite of VMED 'support for teaching workshops', specifically on the challenges of small group teaching in the clinical environment. Generic induction to BVM&S teaching workshops are mandatory for new staff and several staff either hold or are pursuing the Fellowship of the Higher Education Academy (FHEA; Edinburgh Teaching Award Programme).
- A Final Year Learning and Teaching subcommittee (Hospital Directors, five Teaching Coordinators for core modules, Deputy Head of School Academic & Clinical ex officio, Exam Board Chair) oversees Final Year rotations and reports to the School Learning and Teaching Committee.
- Rotation heads are expected to oversee the commitment to teaching at the clinical level, including provision of additional teaching material as needed e.g. additional tutorials.
- All clinical academic teaching staff receive anonymous feedback from Final Year students, which is reviewed by the rotations heads, disseminated to the teaching team and discussed as necessary with individual staff.

Clinical Teaching by Staff with Advanced Clinical Experience:

- *Companion Animal*: students in small rotation groups are exposed to typical primary, secondary and tertiary level cases, through the first opinion practices (dog, cat and exotics) and the discipline-specific specialist referral clinics and the support services.
- *Farm Animal*: students in small rotation groups are exposed to typical primary and secondary level cases, through the ambulatory clinic and Farm Animal Hospital.
- *Equine*: students in small rotation groups are exposed to typical primary, secondary and tertiary level cases, through the ambulatory clinic and the discipline-specific specialist referral clinics and the support services.

In all of the rotations above all permanent clinical staff have appropriate or advanced clinical experience, with either advanced clinical qualifications or in the process of obtaining advanced credentials.

Clinical teaching primarily by institutional appointments that have relevant experience and qualifications and promote best practice

Institutional appointments:

The majority of clinical academic teaching staff are appointees of the University of Edinburgh. There is occasional need for temporary or hours-to-be-notified appointments for holiday, illness and maternity cover. Typically such appointments are at an experience level commensurate with the School's expectations. For example, Brigitte Reusch, a former member of the academic clinical staff, contributes periodically to our exotics, zoo and wildlife teaching.

Methods that provide a supportive environment and encourage students (under staff supervision) to investigate cases in depth

For all clinical areas, emphasis for the students is on applying knowledge and rational decision-making, accurate record keeping, effective communication, development of practical skills, and patient care. Time is made available for research around cases and discussion with clinicians and their peer group at set rounds and throughout the working day, and there is provision for formative feedback on performance.

- *Small Animal*: students are given primary case responsibility for a small number of cases during each rotation week, including history taking and physical examination, diagnostic and treatment plans, aftercare, follow-up, discharge instructions for clients and maintenance of case records. At each stage all aspects are reviewed by the attending clinician.
- *Farm animal*: the Farm Animal Hospital provide the opportunity for examination, use of more advanced diagnostic tools (e.g. ultrasound) and treatment of cases without the added pressure of farm staff time and journeying to see cases. This also gives a more controlled environment for instruction in health and safety, biosecurity and the economics of veterinary treatments. On ambulatory visits the students work as a team with the attending clinician in delivery of clinical care.
- *Equine*: students work as part of the wider clinical team contributing to initial assessment, decision making, admittance, care and discharge, and are given opportunities to investigate individual cases in depth. Students work with a buddy when examining animals and are supported by nursing and grooming staff, particularly if less confident handling horses. For the ambulatory clinic students work with the attending clinician as for Farm Animal.

The opportunity for students to spend extended periods in discussion, thinking and reading to deepen their understanding of the case and its management

For all clinical areas, periods are set-aside in the working day for discussion with clinicians and their peers regarding their own and other cases. The timing and nature of such clinical rounds can vary between hospitals and between services (see below). When there is any clinic down-time students are expected to use this time productively, reviewing their lecture notes, the current literature on-line, expert web-sites and core textbooks kept in the hospitals, and bring that knowledge to their own clinical decision making and discussion of other cases. If clinics are very busy they are expected to do the same in the evening prior to morning rounds. Tasks such as phoning owners, writing discharge notes or referral reports are used to focus attention on the clinically relevant aspects of their cases.

- *Small Animal*: Students are expected to take responsibility for their cases. Service rounds are scheduled at the start and end of each day with senior staff in attendance.
- *Farm Animal*: Students are required to write reports on herd/flock health issues, as well as present cases at Farm Animal ward rounds to their peers and clinicians, and expected to engage with farm clients asking appropriate questions regarding history, farm management and economics.
- *Equine*: Students are required to attend and present cases at the twice daily ward rounds (whole hospital), and to prepare and give a weekly PowerPoint case presentation to their peers.

A commitment to systematic review and reflection (eg through assessment outcomes and student feedback) on the effectiveness of the clinical educational experience in preparing students for practice.

Our suite of assessment methods relevant to Final Year are presented in Chapter A11; Outcomes Assessment.

Provide evidence that the clinical learning environment:

Enables student to perform or contribute to extended diagnostic work up and problem solving of complex cases, including referrals, that go beyond those typically encountered in practice.

Students are involved in ALL cases irrespective of their complexity at primary, secondary and tertiary level. Their contribution to diagnostic procedures is at the level of day one competencies with specialized procedures being under-taken by the attending clinicians with student assistance and support. In the selected rotations students are expected to develop greater insight in case diagnosis and management, explore specialist topics in more detail and have additional opportunities to gain experience in more specialized procedures under supervision e.g. small animal echocardiography. Problem solving and decision making for complex cases is based around team discussion, with final decisions by the attending clinician. Their training in and exposure to complex cases is so that they know what

is possible and can use that knowledge to best advise their clients in practice, make appropriate referral decisions and inform their own interest in post-graduate training.

- *Small Animal*: students are exposed to the entire range of advanced diagnostic techniques across all clinical disciplines, and become knowledgeable as to their application and utility in diagnosis, but are not expected to gain detailed interpretative ability. Through their case responsibility, case management and need to report at case rounds, they gain insight into complex diseases, the requisite diagnostic tests and the potential treatment options.
- *Farm Animal*: students are exposed to advanced techniques such as diagnostic ultrasound and complex surgery for referral cases only, but also perform basic diagnostic techniques that they may not encounter commonly in farm animal practice (faecal worm egg counts, Baermann flotation, lumbosacral CSF sampling, bull electro-ejaculation).
- *Equine*: students are exposed to the entire range of advanced diagnostic techniques in both equine medicine and surgery (soft tissue and orthopaedics). During twice daily rounds of in-patients students are able to contribute to detailed discussion of management and treatment plans for complex cases.

Enables students to have “hands on” involvement and contribution to case management and clinical record keeping.

Assignment of case responsibility has the expectation that students will contribute to continuous case management, make justifiable decisions and maintain accurate and contemporaneous case records. Depending on species group, notes are either handwritten (equine) and then entered onto the system (farm) or entered directly into the system (small animal). The student module of the Tristan PMS facilitates feedback to the students on their clinical records. Case discharge instructions are the student’s responsibility, but not the final report to the referring veterinarian.

Provides students with the opportunity to understand and be involved in the full range of treatment options (including surgery).

For ALL cases students are fully involved in treatments, either as the primary person, working with a buddy, assisting the attending clinician or observing difficult treatments. For some complex treatments, the students do not attend as doing so is considered not to be of educational value.

Detailed discussion of the full range of treatment options and final decision making is carried out with the students present, at rounds or on an ad-hoc basis as needed, with students being directed to arrange delivery of medications for pharmacy stores to the appropriate case.

For surgical cases students are the primary person for elective procedures (under supervision) and the surgical assistant for more complex procedures.

Encourages students to demonstrate skills in evidence-based and research-based clinical practice.

The undergraduate course encompasses detailed tuition in the concepts of EBVM, statistical methodologies, epidemiology, literature review, critical analysis and understanding of the role of expert opinion in clinical decision making. This thinking is reinforced in the Final Year Preparation phase in Year 4.

The Student Research Component (SRC) enables students to carry out short research projects or literature reviews of clinical importance, with the purpose of developing the skills for critical analysis of data, published reports and expert opinion.

There is active encouragement across ALL clinical services for students to be aware of the evidence base for clinical decision making and when reading around their case to bring that critical thinking to group discussion; for example, the sensitivity, specificity and predictive values of diagnostic tests. Clinical rounds offer ideal opportunity for the evidence base to be discussed and analysed. The Farm Animal Practice includes a tutorial in Clinical Audit looking at common farm animal conditions and all services are encouraged to involve students in discussion on Clinical Audit and Morbidity and Mortality rounds.

For extramural and off-campus clinical instruction, evidence must be provided that:

Students contribute to case management by directly undertaking clinical record keeping.

- *Inglis Vets Rotation*: students are responsible for writing up clinical case notes and creating a client discharge sheet, following review and discussion with the supervising vet. The vet further reviews the written notes before saving them to the system.
- *External dentistry/ophthalmology rotation*: students are actively involved in clinical record keeping.
- *Other EMS*: see Chapter B10. Extra-Mural Studies.

There is documentation, close supervision and regular monitoring of instruction.

- *Inglis Veterinary Rotation*: student opinion of instruction is gathered at the end of each module via an on-line questionnaire. Teaching staff have access to this feedback and it is discussed during practice visits. The rotation manager visits the practice each semester. Training sessions for clinic staff have been carried out covering provision of student feedback, small group practical teaching, and assessment criteria for selected rotations.
- *External dentistry/ophthalmology*: students on the rotation are instructed by an academic staff member at all times.
- *Other EMS*: see Chapter B10. Extra-Mural Studies.

There is provision for staff development of those providing off-campus instruction, particularly for the assessment and management of student learning.

- *Inglis Veterinary Rotation*: staff receive a training session at the start of their teaching involvement which is supplemented with specific training as needed (e.g. curricular changes), training in identifying and managing students with specific needs (Disability Services) and development of assessment criteria and standardization of marking. Regular on site meetings are held to discuss processes and address issues of concern. The staff also have access to in-house staff development workshops run by the School Veterinary Medical Education Department.
- *Other EMS*: see Chapter B10. Extra-Mural Studies.

Facilities are of a standard comparable to those in AVBC accredited intramural facilities and meet those of national accreditation standards/RCVS Practice Standards (eg ASAVA and AAHA accreditation standards, NZVA Best Practice™ standards) and meet the minimum standards stated in guidelines issued in jurisdictions under contemporary veterinary legislation.

Inglis Veterinary Group is an accredited practice under the Practice Standards Scheme, with the main site in Dunfermline registered as Small Animal Hospital Status.

The University has a set of standards for off-campus clinics and that there is dedicated learning spaces, access to computers, the internet and the university library resources.

See additional commentary above.

Inglis Veterinary Rotation: the clinic in Cowdenbeath was developed for the primary purpose of providing workplace student teaching, with a purpose designed building. The site is organised and functions as a teaching unit and has full internet access to the University's on-line resources, including student services and library. The facility has a student common room used for rest and as a study space.

Students are active participants in the workup, care and clinical management of cases.

Inglis Veterinary Rotation: there is FULL involvement of the students in the workup, care and management of clinical cases (including surgery), with guidance and supervision by a veterinary surgeon. The supervising veterinarian is not usually in the consulting room but can view using CCTV. Clients are aware of the arrangement and encouraged to engage with the students on site and on the branch Facebook page.

Chapter B10, Extra-Mural Studies



Chapter B10, Extra-Mural Studies

(RCVS Chapter 14 and AVBC (new) Standard 7)

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.

EMS is formally integrated into the curriculum in a number of ways in addition to students' personal recording obligations (described separately below). Lectures and information sessions on EMS are given yearly to update students on regulations, advice and good practice.

Animal Husbandry (AH) EMS is central to the core Year 1 and 2 courses, Animal Life and Food Safety 1, 2 & GEP. AH EMS is also integrated into Student Research Component (Foundation Skills), a new 10-credit Year 2 course. Students develop a group project which has as its starting point the Enterprise Reports which each student generates from every animal husbandry placement. The group work then develops themes and issues into a broader context which investigates issues such as economics, sustainability and global one health in relation to animal enterprises across any or all domestic species. The course is designed to allow considerable flexibility, choice and creative thinking in relation to given themes, but EMS reports are the starting point.

In Year 3, students receive small group practical teaching which is geared to practical and 'behavioural' techniques for successful clinical EMS. Classes give students a repertoire of commonly performed clinical skills which can be used as a platform from which to exploit further learning opportunities on placement. The sessions also involve general discussion of the possibilities and challenges of workplace learning, setting learning objectives and reflection upon these post-placement, and the importance of this in the context of reflective professional practice.

The Student Research Component (SRC) from Year 3 onwards is fully integrated with EMS. It is carried out during EMS time and is designed and implemented with the cooperation, input and supervision of placement providers, who may also be involved in aspects of assessment. Thus both SRC (Foundation Skills) and SRC form a vertical thread throughout the Programme which links assessed project work to EMS activity.

Some specific EMS providers (PDSA and Inglis practice) are also involved in taught elements of the course, thereby blurring the extra-/intra-mural divide. (see Chapter A4; Clinical resources. Section 4.1 and 4.4). We have a programme of EMS placement providers and speakers, some of which we work closely with to develop future taught rotations, for example we hope to develop a shelter medicine rotation with a current EMS provider in Portugal.

Students must undertake a total of 38 weeks of EMS before they graduate: Twelve weeks should normally be devoted to animal-husbandry related EMS so that students gain experience of the behaviour of normal animals in their own environments. Clinical EMS must comprise at least 26 weeks across a broad range of areas.

Animal Husbandry EMS

Please refer to Chapter B5; Animals and Related Resources. Section 5.1.4.

In addition EMS placements should be on units of a commercial scale (with either pigs or poultry EMS required to be on an intensive unit). The following guidance on minimum unit sizes is given:

- **Dairy Cattle:** 80 milking cows.
- **Beef Cattle:** 50 breeding cows or 100 fattening cattle.
- **Sheep:** 200 breeding ewes
- **Horses:** 10
- **Cats / Dogs:** 15 dogs and or 15 cats
- **Domestic Small Mammals:** 25 preferably of more than one species
- **Poultry:** 500 birds or 1000 birds (for intensive)
- **Pigs:** 10 breeding sows / 100 fatteners or 50 breeding sows / 500 fatteners (for intensive)

An EMS week is a calendar week - Monday to Friday +/- the weekend. Students are expected to work the normal full time working week of the unit.

Clinical EMS

Observational clinical EMS can be started as soon as Animal Husbandry EMS has been signed off. Students can log 6 weeks of observational clinical EMS before the start of third year (they can do more than this, but only 6 weeks will count towards the clinical EMS total of 26 weeks).

Thirteen weeks of EMS are embedded and integrated into our Final Year as externships, meaning that students should complete thirteen weeks EMS before the end of Year 4 and start of Final Year in June. This arrangement also allows for some holidays in Final Year.

As long as students satisfy our core requirements to ensure adequate breadth, they are free (and encouraged) to develop their EMS in line with their own interests. Their EMS profile can be used to demonstrate interests which can then be helpful in applying for jobs, residencies, etc. We have a flexible approach to EMS – the only criterion being that students must be directly supervised and assessed by a veterinarian, i.e. the EMS relates to a veterinary role.

Core requirements are:

- A minimum of two weeks in each of companion animal, farm and horse practice.
- A minimum of one week of veterinary public health/meat inspection EMS or participation in a structured Veterinary Public Health (VPH) visit run by R(D)SVS staff, and this must take place after VPH course teaching in Year 4. Please refer to Chapter B7. Curriculum.

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

Preclinical students complete a comprehensive Enterprise Report (ER) for every animal husbandry placement undertaken. This report examines a wide range of factors relating to animal enterprises and links the placement to intramural teaching, especially that provided in the Animal Life and Food Safety courses, and to the Student Research Component (Foundation Skills). These reports are designed to complement the Animal Life and Food Safety course and encourage students to achieve learning outcomes, practice handling skills, communication skills and engage with the animal husbandry of the unit.

Clinical students have recording obligations analogous to the Enterprise Report, currently:

1. A 'Case Log' - a brief account of every case in which they have undertaken any active client communication, diagnostic or treatment role. Students are encouraged to evidence this where possible by, e.g. means of photographs (this will be easier to achieve when we switch to the planned PebblePad recording format).
2. A 'Practice Profile' (proforma provided to students), in which various aspects of the functioning of the practice as a business are considered, e.g. marketing; use of nurse clinics; layout of the practice; average caseload; average transaction fee, etc. In this section of the report, students are encouraged to come up with ideas that might improve the practice in some client-facing way. The emphasis here is mainly non-clinical.
3. The students' 'Personal Learning Objectives with Reflection' document for each placement, which is related to core clinical skills and their acquisition across all EMS placements.

Note: we are currently developing an electronic recording format for these elements (PebblePad).

General reflections on EMS are also recorded on a proforma, discussed with Personal Tutors and then embedded in Portfolio submissions.

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.

Animal Husbandry EMS

Placement providers complete a Certificate of Attendance for each student, which includes feedback on various aspects of the student's performance. Submission of both the Certificate of Attendance and the Enterprise Report is required before a placement is counted towards EMS.

Clinical EMS

Providers return a paper or electronic assessment form for each student which is required before the placement can be logged as counting towards EMS. These are accessible to students and staff through the EMS intranet pages on EEVeC. Paper copies are scanned in; electronic copies are uploaded directly.

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.

Enterprise Reports and feedback from AH EMS providers are read and assessed formatively by the AH EMS coordinator and action taken where indicated. General 'pastoral' discussion on AH EMS feedback takes place during Personal Tutor meetings, where issues can be flagged to the Animal Husbandry EMS coordinator as needed.

In Clinical EMS, the assessment rubrics contain the elements given below which are all graded on a 5 point scale from Poor to Excellent plus a box for free text comments.

Attitude; Professional appearance; Communication skills; Animal handling abilities; Veterinary knowledge; Problem solving abilities; Manual Skills; Contribution to clinical discussion; Appreciation of placement management

Periodic reports are generated whereby every student scoring less than 'Satisfactory' on any element of an EMS assessment is identified. These are individually followed up by the Clinical EMS coordinator, in coordination with Personal Tutors, and actions set in place to help remedy issues where appropriate.

Case Logs, Practice Profiles and Learning Objectives with Reflection submissions are examined for breadth, depth and evidence of engagement in a process of reflective learning by a team of academic MsRCVS who have wide experience in practice and in veterinary education. General 'pastoral' discussion on these aspects also forms part of students' Personal Tutor meetings.

Any written (by letter or email) or telephone feedback on students from placement providers (animal husbandry or clinical) is followed up, usually with a face to face meeting with the student. The student is asked to reflect on the feedback and devise an action plan in relation to it. This occasionally occurs while a student is on placement, in which case the relevant EMS coordinator will liaise with the placement provider and the student.

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.

Two members of academic staff have oversight of animal husbandry and clinical EMS respectively. The senior clinical lecturer in charge of clinical EMS sits on the national EMS coordinators group. Both roles are supported by a full time administrative position.

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

Placement feedback forms are available which the students are encouraged to use however uptake is relatively low. In our new electronic recording system, feedback on the placement will be built into the practice profile section to increase yield since students will be obliged to complete some basic questions. We have tried to develop a culture where students are encouraged to speak directly to EMS staff about their placements and we are frequently contacted by students for meetings in this regard. These can cover a variety of different issues. Personal Tutors and our Student Support and Advisory Group may become involved.

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.

Databases are available in print form in the Library, electronically on EEEVeC, and on an EMS noticeboard. We also have frequent e-mailings to relevant student years about specific or new placements. Information comes from the placement providers and is circulated or displayed at their request or with their agreement. Students seek personal advice on placements from EMS staff (by email and office visit) and are encouraged to do so.

Chapter B11, Academic and Support Staff



Chapter B11, Academic and Support Staff

(AVBC Standard 4; AVMA Standard 8; RCVS/EAEVE Chapter 10)

11.1 Factual Information

Table 11.1: Personnel in the establishment provided for veterinary training

	Budgeted posts (FTE)		Non-budgeted posts (FTE)		Total (FTE)	
	VS	NVS	VS	NVS	VS	NVS
1. Academic staff						
Teaching staff (total FTE)	74.9	6.6	15.7	0	90.6	6.6
Research staff (total FTE)	0.35	1.65	0	0	0.35	1.65
Others (please specify) (FTE)	0	0	0	0	0	0
Total FTE	75.25	8.25	15.7	0	90.95	8.25
Total FTE (VS + NVS)	83.5		15.7		99.2	
FTE providing last year teaching	60.3		10.5		70.8	
2. Support staff						
a) responsible for the care and treatment of animals		54.3		12		66.3
b) responsible for the preparation of practical and clinical teaching.		18.2		2.7		20.9
c) responsible for administration, general services, maintenance, etc. d) engaged in research work e) others (please specify)		58.2		7		65.2
Total support staff		130.7		21.7		152.4
3. Total staff		214.2		37.4		251.6

All research support staff are employed in the Roslin Institute and not accounted for in the veterinary training establishment.

Table 11.2: Allocation of academic (veterinary surgeon and non-veterinary surgeon) teaching staff and support staff – expressed as Posts –to the various departments (2015)

Department	Academic teaching staff										Support staff (see table 11.1)		
	Full prof.		Associate prof.		Assistant prof.		Assistant		Other		Technical	Animal carers	Admin
	VS*	NVS**	VS	NVS	VS	NVS	VS	NVS	VS	NVS	(b+d+e)	(a)	(c)
Pre-clinical				3	2			1			8		
Pathology	1		2		3						12		1
Production Animal	2		3	1	3		3				1	9	2
Equine Science	2		5		5						1	11	3
Companion Animal	2		16		17		4					54	15
Animal Welfare	1	1			2		2						1
Vet Medical Teaching	1		6		1	2		2					
Anaesthesia	1		2		5		1						
School Admin	1		2										62

*veterinary surgeon; **non veterinary surgeon

Please note – This data is not available in FTE only in posts.

The academic convention of naming staff with the titles of Professor, Associate Professor, Assistant Professor, Lecturer and Instructor are not followed in the UK. However these titles do align with our University staff grades and alternative titles. We have completed tables C and D following the following interpretation.

The title of Professor aligns with the title of Professor appointed at a University grade 10.

The title of Associate Professor aligns with the title of Senior Lecturer, Reader, and Senior Research Fellow appointed at University Grade 9.

The title of Assistant Professor aligns with title of Lecturer or Research Fellow at a University Grade 8.

The title of Lecturer and Instructor align with the title of Lecturer, Research Fellow or Research Scientist appointed at a University Grade 7.

Outline how the allocation of staff to the Faculty is determined.

The staff salary budget is devolved from the College to the School and academic staffing levels are determined by this. Additional staff can also be recruited in clinical areas in response to business need and this is determined by business planning within the separate cost centres.

Outline how the allocation of staff to the departments (or other units) within the Faculty is determined.

Staff within the separate academic departments tend to remain fairly stable unless a particular area is identified as requiring increased emphasis in the undergraduate programme. Recent examples of this was increasing staffing in Veterinary Public Health and strengthening Clinical Pathology. New technology also drives staff recruitment and recent developments in imaging and radiotherapy have resulted in staff recruitment. Other staff changes are driven by demand in clinical services especially in the referral clinics.

Indicate whether there are difficulties in recruiting or retaining staff.

There have been some challenges in recruiting anaesthetists in response to our increasing clinical load however recent appointments have resolved this. Retaining staff has not been a problem, there have been 36 staff leave the faculty in the last 5 years an average of 7 per year. See **Appendix 8.1**.

Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade.

Our staffing level across the School has increased over the past decade especially in the last 5 years. This has been as a result of an expanding research sector and increasing clinical load. In addition to this there have been University-led initiatives to recruit young Career Track Fellows in both teaching and research. Apart from some shortage in anaesthesia recruitment has not been an issue. See **Appendix 8.1**.

Indicate whether it is easy to employ additional staff from service income (e.g. from revenues of clinical or diagnostic work).

The University will support new appointments when our business plan can demonstrate that they can be supported from increased income.

Describe the regulations governing outside work, including consultation and private practice, by staff working at the establishment.

The University has a clear policy on consultancy and service work. <http://edin.ac/1E4NV3y>

Describe the possibilities and financial provisions for the academic staff to: attend scientific meetings and to take sabbatical leave.

The School provides a training budget which is accessible to all to fund appropriate scientific meetings or training courses. These budgets are controlled within departments so that the relevance of the meeting or course can be assessed. Sabbatical leave is permitted but it must be supported by the Head of School and College.

11.2 Comments

Comment on the numbers of personnel in the various categories.

The School believes it has a good balance of staff numbers and seniority across the departments to meet the teaching requirements on the undergraduate programme. The companion animal services appear to have a disproportionately large number of staff but this is driven by the clinical demands for the services offered in addition to the teaching needs.

Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sector.

It is clear that when compared directly with similar specialists in the private sector salaries of clinical staff, especially the more senior positions, are significantly less. However direct comparison is often difficult because of the different working conditions and opportunities within the University. As recruitment currently is not an issue we feel that the salaries offered are appropriate.

Comment on the ease or difficulty of recruiting and retaining personnel.

Recruitment of staff has not been a problem with the exception recently of anaesthetists and fully trained veterinary nurses. This does not appear to be as a result of poor salary or working conditions but rather an absolute shortage of these skills in this area.

Comment on the percentage of veterinarians in the academic staff.

Veterinarians make up the vast majority of the academic staff (92%). There is a larger proportion of non-veterinarians required to teach pre-clinical subjects but within this department there is sufficient veterinary input to allow the use of clinical scenarios within the classes to give clinical context and relevance.

Chapter B12, Postgraduate Training and Continuing Education



Chapter B12, Postgraduate Training and Continuing Education

(AVBC Standard 11; RCVS/EAEVE Chapter 11 & 12)

12.1 Factual Information

12.1.1 Postgraduate Clinical Training (Interns and Residents)

Table 12.1 Postgraduate Clinical Training Courses (2014/15)

Clinical discipline	Duration of training	Number enrolled		Diploma or title anticipated
		Full time	Part time	
1. Anaesthesia	48 months	2		ECVAA
2. Anaesthesia	36 months	1		ECVAA
3. Cardiology	48 months	1		ECVIM-CA
4. Cardiology	36 months	1		ECVIM-CA
5. Oncology	48 months	2		ECVIM-CA
6. Internal Medicine	48 months	4		ECVIM-CA
7. Diagnostic Imaging	48 months	4		ECVDI
8. Equine Internal Medicine	48 months	1		ECEIM
9. Surgery (Equine)	48 months	2		ECVS
10. Surgery (Small Animal)	48 months	4		ECVS
11. Equine Medicine	48 months	1		Cert AVP (Equine Medicine)
12. Clinical Pathology	36 months	1		ECVCP
13. Dermatology	36 months	1		ECVD
14. Farm Animal (Cattle)	36 months	1		ECBHM
15. Farm Animal (Sheep)	36 months	1		ECSRHM
16. Anatomic Pathology	36 months	3		ECVP, ACVP or RCPATH
17. Equine Practice	24 months	1		Cert AVP (Equine Practice)
18. Small Animal Medicine	12 months	3		Rotating internship
Total		34		

Indicate whether students involved in this training receive a grant or a salary.

All except one externally funded scholar, receive a stipend that is paid either by the Vet School or through an external funding body.

12.1.2 Taught Postgraduate Courses

Table 12.2: Taught postgraduate courses (2014/15)

	Duration of training	Number enrolled	
		Full time	Part time
(a) Diploma level (discipline)			
1. International Animal Welfare, Ethics & Law (DL)	48 months		4
2. One Health (DL)	48 months		3
3. Equine Science (DL)	48 months		3
4. Conservation Medicine (DL)	48 months		3
(b) Masters level (discipline)			
1. International Animal Welfare, Ethics & Law (DL)	72 months		78
2. One Health (DL)	72 months		7
3. Equine Science (DL)	72 months		53
4. Conservation Medicine (DL)	72 months		41
5. Animal Biosciences	12 months		10
6. Applied Animal Behaviour & Animal Welfare	12 months		36
Total			238

(DL) = Distance learning

Do students involved in this training receive a grant or a salary?

Part time students (72 months) may be in full-time work. Full-time students (12 months) do not receive a grant or salary.

Indicate the extent to which training towards a diploma is combined with clinical training.

The diploma level courses are not combined with clinical training.

Indicate the percentage of graduating students who follow such training.

3-4% follow such training initially.

12.1.3 Postgraduate Research Programs

Table 12.3. Postgraduate research training programs (2014/15)

	Duration of training	Number enrolled	
		Full time	Part time
(a) Masters level			
Indicate discipline and/or department			
1. Clinical Veterinary Sciences	12 months	2	
2. Clinical Veterinary Sciences	24 months		3
3. Infection and Immunity	12 months	6	
4. Infection and Immunity	24 months		1
5. Neurobiology	24 months		1
6. Animal Genomics & Disease Resistance	24 months		2
7. Master of Veterinary Science	12 months	2	
8. Master of Veterinary Science	24 months		1
9. MPhil Clinical Sciences	36 months	1	
Total		11	8
(b) PhD Level			
Indicate discipline and/or department			
1. Clinical Veterinary Sciences	36 months	32	
2. Clinical Veterinary Sciences	72 months		1
3. Developmental Biology	36 months	32	
4. Developmental Biology	72 months		1
5. Genetics and Genomics	36 months	41	
6. Genetics and Genomics	72 months		7
7. Infection and Immunity	36 months	55	
8. Infection and Immunity	72 months		1
9. Neurobiology	36 months	13	
Total		173	10
(c) Other doctorate level			
Degree and discipline and/or department			
1. DVM&S Veterinary Medicine	60 months		1

The percentage of Masters students holding a veterinary degree is 47%. The percentage of PhD students holding a veterinary degree is 17%.

Grants and Salaries

Masters level

MSc students – 3 receive a staff salary and 2 receive UoE administered scholarships.

MPhil student - receives UoE administered scholarship.

PhD level

6 receive a staff salary and 128 receive UoE administered scholarships. The remaining students are currently writing up and nearing completion.

DVM&S Level

Employed.

The proportion of graduates who enter such a programme.

Although a small percentage (<5%) of our graduates would directly enter postgraduate research programmes, a common career path is for graduates to gain some practical experience first (either general veterinary practice or

residency/ internship) and then select an area for post graduate research based on this experience. We do not have a robust means of gathering data on these career paths which can develop several years after graduation.

12.2 Comments

Comment on the number of postgraduate diplomas/titles awarded annually.

In session 2013/14, 25 postgraduate diplomas were awarded. Our numbers of PGCert/Dip/MSc awards are predicted to rise steadily, and in 2016 four new MSc programmes are being launched (Anaesthesia and Analgesia, Advanced Clinical Practice, Clinical Animal Behaviour and Disease Ecology in Livestock).

If there is an intern and/or residency program, please comment on their involvement in student teaching and any potential conflicts in relation to case management

Residents and interns are actively involved in student teaching in clinics, both one on one and in small groups. Occasionally there is potential conflict with student teaching and case management e.g. unstable or aggressive patients. In such cases, management/patient care takes priority over student teaching. As part of our in-house staff development programme, we run a regular (mandatory) 'teaching induction' workshops.

Comment on the percentage of veterinarians participating in postgraduate research training programmes.

Veterinarians enrolled on postgraduate research training programmes include 31 PhD students, 5 MSc students, 3 MVetSci students, 1 MPhil and 1 DVM&S.

We actively encourage our UG students to enrol in PG degrees and have identified specific funding streams for veterinary graduates. These include the Wellcome Trust funded ECAT-V as well as studentships funded by School endowments and by the pet industry. In general, our veterinary qualified PhD students receive a higher stipend than non-veterinary students. PhD and Masters students are engaged in research projects across the breadth of research in the Roslin Institute ranging from quantitative genetics, basic science including infectious diseases and developmental biology to clinical research supervised by staff in the hospitals. See Chapter A10; Research Programmes.

12.3 Suggestions for improvement

We are actively exploring more funding schemes specific to veterinary graduates.

12.4 Continuing education courses held at the school

Table 12.4 Courses organised by the School itself in the most recent year (state year)

2014/2015

Title of course	Number of participants	Total number of hours of the course
Foot & Farriery	29	Full day
Rabbit Study Day	44	Full day
Abdominal Surgery	3	6hrs
Rabbit & Rodent Anesthesia & Analgesia	3	6hrs
Rabbit & Rodent Critical Care	2	6hrs
Boehringer XL Vets - 6/7 November 2014	10	Full day
Clinical Club	50 per month	2hrs per month

Table 12.5: Courses organised at the School by outside bodies in the most recent year

2014/2015

Title of course	Number of participants	Total number of hours
BCVA	16	Full day
Ethicon	22	Full day
VDS Graduate reunion	90	Full day

Indicate the involvement of teaching staff at the school in continuing education organised by outside organisations.

The School's academic staff make significant contributions to CPD/CE events in the UK and internationally that are provided both by commercial providers and by professional associations. This provision will continue and is encouraged by the School as a desirable academic activity enhancing the School's and University's reputation and the staff member's profile.

12.6 Distance learning (including via internet)

If the school is involved in providing distance learning, please outline the nature and volume of this work.

The School provides a range of distance-learning options delivered fully online via the virtual learning environment, Blackboard Learn. Continuing Education (CE) via distance learning falls into four categories outlined below:

1. Certificate in Advanced Veterinary Practice (CertAVP)

The CertAVP is a postgraduate certificate level 11 qualification accredited by the RCVS. Edinburgh has been approved to deliver a range of modules as listed below:

- A-Foundations in Advanced Veterinary Practice (A-FAVP)
- Equine Dentistry – three C modules in Equine Dentistry
- Lab Animal Science (LAS) – B-LAS module and five C modules
- Production Animal Practice (PAP) – B-PAP module and ten C modules in both Sheep and Cattle Medicine
- Small Animal Medicine (SAM) – six C modules in Canine and Feline Medicine
- Small Animal Surgery (SAS) – five C modules in core surgery, soft tissue and orthopaedic surgery
- Veterinary Cardiology – three C modules in Cardiology
- Zoo Medicine (ZM) – B-ZM module and five C modules

There are currently 246 candidates enrolled at Edinburgh for the modules listed above. 140 candidates completed modules in 2014-15, with 15 completing their synoptic examination at Edinburgh and achieving a designated CertAVP, e.g. CertAVP (Zoo Med).

A fully-online course is offered for the A-FAVP module. This has been delivered as a 6-week online course for the past seven years. It is now undergoing review with the intention of providing a 10-week online course awarding 20 credits at level 11 at Edinburgh in addition achieving the requirements for the RCVS qualification.

As all other modules are offered as "assessment only", a support course is provided on Learn where candidates can network, organise clinical clubs, access reading lists, module descriptors, past papers, model answers and examples of candidate work achieving distinction. They can also take the Academic Study Skills for Postgraduate Online Students course free of charge (15 hours CE equivalent).

The CertAVP administrator and Programme Director monitor the discussion boards, assist with setting up clinical clubs, and respond to requests for guidance as required.

2. Flexible online CE courses

- Foot & Farriery
- Rabbit Study Day
- Abdominal Surgery
- Rabbit & Rodent Anaesthesia & Analgesia
- Rabbit & Rodent Critical Care
- Wildlife Disease Management (upcoming)

3. Postgraduate materials provided as CE

Following a successful pilot for Equine Nutrition and Digestion in 2013-14, materials from some of our online postgraduate programmes are made available for CE, e.g. Professional Skills: Managing Complex Issues in the Animal Health and Conservation Workplaces which ran in autumn 2014. The courses are adapted, as CE participants do not have access to the library e-journal facility. Learning materials comprise recorded presentations, open-access journals and web resources, in addition to the opportunity to attend live seminars when available. Participants also have the option to take CE in a range of imaging techniques, through the School's involvement with Edinburgh Imaging.

4. Massive Online Open Courses (MOOCs)

The School has been a leader in developing and running MOOCs. Building on the success of the Equine Nutrition MOOC run for the first time in 2013, we now offer an additional 2 MOOCs – Animal Behaviour and Welfare and EDIVET: Do you have what it takes to be a veterinarian? <http://edin.ac/1PyZhhO>

12.7. Comments on continuing education

Comment on the quality of the continuing education programs in which the school is involved.

Comment on the degree of participation of veterinarians in the continuing education programs in which the school is involved.

The quality of the CPD/CE offered by the School is high. The quality of CPD/CE delivered by external providers, including industrial partners, with involvement of School staff is high.

The participation of School staff in School organized and external body organized CPD/CE provision is variable. For School CPD/CE, as we expand our activities (see below), near universal staff involvement will be expected. For external CPD/CE there is widespread involvement of staff in provision by both professional and commercial providers. The extent of involvement externally is not monitored, but staff are advised to be sensible in the amount of delivery they agree to.

Professor Brendan Corcoran has taken on a new role as Director of The School CPD Unit and has recently conducted a review of delivery of CPD/CE (2015), with development of a clear strategic plan for future activities and delivery (See 12.8).

CertAVP

This programme is the PGT programme of the RCVS that is run by a variety of providers and examined by a variety of centres. R(D)SVS contributes by being the single largest examining centre for this programme. There is minimal provision of the taught components as our geographical location tends to mean registrants (typically from England) are unable to justify the cost of travelling to Edinburgh.

12.8 Suggestions in relation to continuing education

Future plans to further develop and strengthen or CPD/CE activities include:

1. Maintain our level of face-to-face provision, at minimal or no cost to practitioners.
2. Develop a comprehensive basket of on-line material covering all aspects of our academic and clinical activities, with contributions from all staff members. Make full use of the University's expertise in delivery of on-line Masters programmes and on-line teaching in general to enable the School to deliver on these plans.
3. Develop a comprehensive package of CPD events for veterinary nurses and vet technicians, with the final aim to offer PG qualifications.
4. Markedly expand delivery of on-line CPD for practitioners by launching our MVetSci Advanced Clinical Practice (September 2016). This will allow users of our CPD resources to apply their learning to University of Edinburgh PG qualifications at Certificate, Diploma and Masters levels. For those not wanting to register for a PGT qualification the same material will be available as non-curated (no assessment or moderating) stand-alone units and modules.
5. Provide targeted and partnership driven CPD to those countries lacking a robust post graduate veterinary professional training, taking advantage of our international profile and linking with our Global Academies.

Chapter B13, Research



Chapter B13, Research

(AVBC Standard 11; RCVS/EAEVE Chapter 13)

13.1 Factual Information

Indicate the involvement of undergraduate students in research, including the time spent, percentage of students involved and outcome required.

A full discussion of the research environment within the School and Roslin Institute and its impact on undergraduate students is provided in Chapter A10; Research Programmes. In addition, postgraduate education, residency programmes and CPD/CE provision can be found in Chapter B12.

In summary:

- Research leaders are actively engaged and teach on the professional programme. This provides the most leading edge information given to students and a basis for driving inquiry. In addition, we provide “Portrait” lectures in the professional programme that are delivered by key research and opinion leaders in the School. As an example, Professor Hume delivers a Portrait lecture on “Genetics and Genomics” to Year 1 students. These lectures are intended to inspire the next generation of clinician scientists and to describe cutting edge science as it applied to veterinary medicine.
- The core skills of searching and critically appraising the scientific literature are introduced in Year 1 in the Professional and Clinical skills course and developed in Animal Life & Food Safety (ALFS) (1), Student Research Component (SRC) (Foundation Skills) and ALFS 2 and the Clinical Foundation Course (CFC) in Y3. Study design, research data management and statistical analysis principles are also introduced in the early years ALFS courses, and expanded upon in CFC. These principles are then developed and used as applied subjects in the context of a student led research component in SRC, which begins in Year 2 and runs through Year 4 for completion in Final Year. Statistical, epidemiological and research skills are explored in Year 4 in the Final Year Preparation phase and are integrated in the Final Year in the context of evidence based veterinary medicine where they form the foundation of students’ critical appraisal of support for evidence based decision topics.
- Student Research Components: SRC (Foundation Skills) and SRC (Research Project).

Course: SRC (Foundation Skills)	Credits: 10 credits*; SCQF level 8
Course: SRC (Research project)	Credits: 20 credits; SCQF level 11
Detail	
SRC (Foundation Skills) is a group activity and SRC Research Project is an individual project undertaken by the student. The aim of the SRC is to enhance and develop research skills, critical appraisal, knowledge and attitudes, within a framework of students having control over some of their learning. It runs from Year 2 to Final Year and students initiate and carry out, either a clinical, laboratory, field or educational project, or undertake a literature review and generate a future project outline. Each student has a mentor for this course and designs the study before it is approved by the SRC director.	

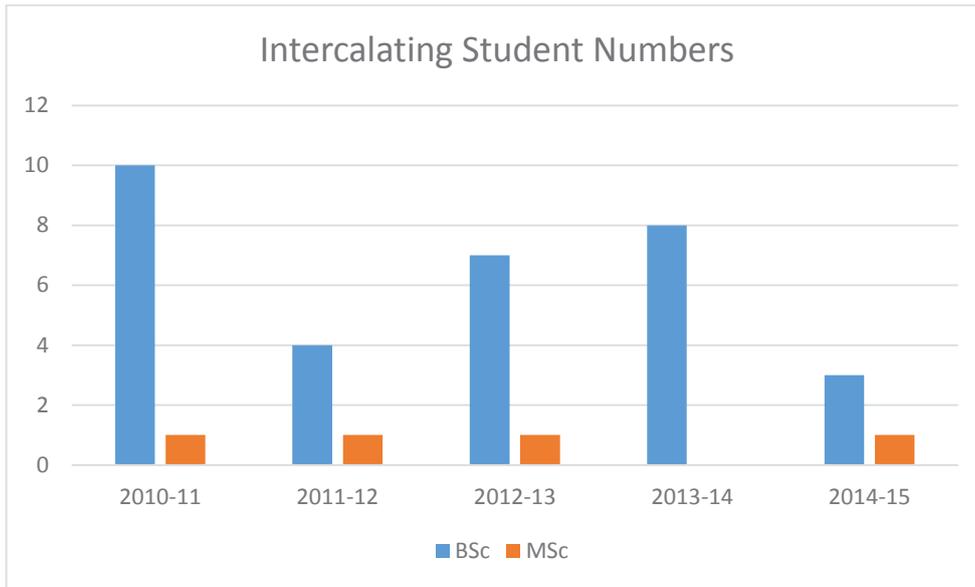
*In the SCQF system, each credit represents a notional 10 hours of study time.

There are also a number of other opportunities for students to engage in research activity as outlined in Chapter A10; Research Programmes. Section 10.3b.

Statistics

- 100% of students carry out core SRC projects.
- Outcomes Assessment data for the SRC individual project for the last 5 years is presented in **Appendix 11.1c (ii)** Competency 9.
- Around 15% of students carry out a summer research project
- A relatively small number of our students intercalate (either BSc or MSc) This situation has not been helped by reduced funding opportunities in recent years. Data for the last 5 years is shown in Figure 13.1.

13.1. Intercalating Student Data



13.2 Comments

Comment on the opportunities for students to participate in active research work.

The University of Edinburgh is a research led university and this drives curriculum development and our approach to tertiary education. The School aims to provide a balance within its programmes to ensure that students gain the appropriate skills for private practice, in addition to access to research opportunities that underpin a philosophy of life-long learning and evidence based medicine. Our approach to giving research opportunities to students is to provide a balance of experience within the core curriculum, coupled with choice and opportunities throughout their student experience.

13.3 Suggestions for Improvement

Will students be given more opportunity to participate in research activities? If so, how will this be done?

Students currently have an array of opportunities to conduct research projects. The major area of expansion for us will be in summer research projects, which are mainly limited by financial constraints. We have recently introduced a number of funding schemes (funding from our endowments) to support student summer projects (e.g. the Fiona and Ian Russell Programme). We have also recently introduced Charnock Bradley bursaries to assist individual students conducting intercalated research degrees.

The funding of Intercalated degrees is still a major issue and we will be pursuing other avenues to fund this.

Chapter B14, Outcomes Assessment



Chapter B14, Outcomes Assessment

(AVBC Standard 12)

14.1 Factual information

Student outcomes

Employment rates of graduates (within one year of graduation)

Please see **Appendix 11.1.d**. Table C.

Demonstration of achievement of RCVS Day 1 competences

Please see ChapterA11; Outcomes Assessment. Section 11.1.c and **Appendix 11.1c (i) and (ii)**.

Assessments of graduating final year students (eg external assessment, graduating class course evaluations of their experience etc)

Please see ChapterA11; Outcomes Assessment. Section 11.1.e and **Appendix 11.1e**.

Assessment by employers of graduates to determine satisfaction with graduates.

Please see ChapterA11; Outcomes Assessment. Section 11.1.f.

Describe how the findings are used by the school to improve the educational program.

Please see ChapterA11; Outcomes Assessment. Section 11.2.d.

Institutional outcomes

Describe how the school evaluates progress in meeting its mission (eg benchmarking with other institutions)

Please see ChapterA11; Outcomes Assessment. Section 11.2.a.

Significant indicators of the quality of the educational process (eg staff awards, staff perception of teaching resources, student satisfaction with the program, teaching improvement benchmarks etc)

Please see ChapterA11; Outcomes Assessment. Section 11.2.c and **Appendix 11.2c (i) and (ii)**.

Describe how the findings are used by the school to improve the educational program.

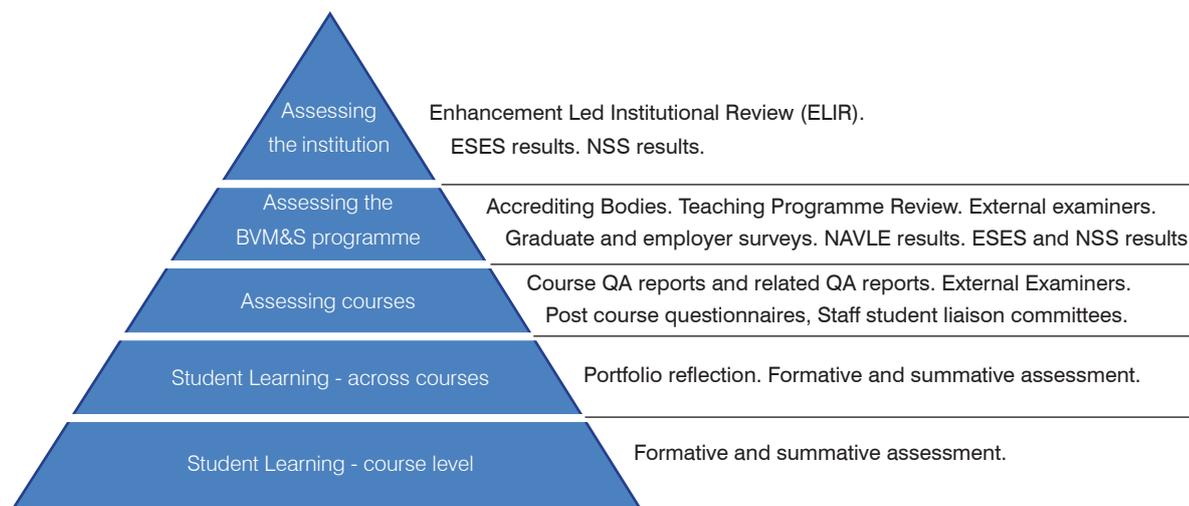
Please see ChapterA11; Outcomes Assessment. Section 11.2.d.

Professional competences

Please see ChapterA11; Outcomes Assessment. Section 11.1.c and **Appendix 11.1c (i) and (ii)**.

14.2 Comments

Comment on the degree to which the assessment methods and feedback have been used to improve the quality of the school's degree programs.



At each level of the above model, we use information gathered to continually improve from course to institutional level. Relevant examples include:

Level	Examples of Outcomes Assessment and Actions
Student learning (course level and across courses)	Objective assessments of clinical/ technical skills have been improved by the implementation of our new Final Year assessment system
Assessing Courses	Traffic light system of comparing performance of courses within and across years provides an annual opportunity for course organizers to reflect and amend / develop courses in response to feedback
Assessing BVM&S Programme	NSS and ESES results have focused efforts on improving feedback and improving student communications via student experience officer
Assessing the Institution	Senior academics sit on University level committees tasked with enhancing the student experience e.g. Student Experience Project Board in response to NSS and ESES results

14.3 Suggestions for improvement

What processes are being considered to improve the ability of the school to monitor the outcomes of the degree program? How can the key stakeholders be engaged more effectively to provide feedback about areas of strength and weakness in the current degree program?

We believe we have a robust suite of outcome assessment measures providing abundant data to feed into ongoing development and review. Our most challenging area is in obtaining input from employers – typically a relatively small number respond to our requests for survey completion and it is a delicate balance of not wanting to overly pressurize a group who are in all likelihood also taking our students for EMS placements. We are considering re-instituting focus groups with practices who employ our graduates as a means of gathering richer qualitative information. As this is a well-recognised problem across the schools, discussions have also recently taken place nationally at the Veterinary Schools Council Education Committee about adopting a joined-up approach across the schools to surveying employers. Similarly challenging is the response rate from graduates - especially at the 5 year time point. We are working currently with our alumni office and also within the School to establish mechanisms to maintain better contact with our alumni.

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