

Self Evaluation Report 2

Stage two

Norwegian School of Veterinary Science



EAEVE visit 24.-28. March 2014

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Definitions and abbreviations used in this document

Institutions and organizational units

NMBU: Norwegian University of Life Science

NVH: Norwegian School of Veterinary Science

UMB: University of Life Science

Board: Highest institutional unit

Rectorate

Rector: The Chair of the Board

Prorector: Deputy to the Rector

Four departments responsible for the veterinary education:

SportFaMed: Dept. of Companion Animal Clinical Sciences

ProdMed: Dept. of Production Animal Clinical Sciences

BasAM: Dept. of Basic Sciences & Aquatic Medicine

MatInf: Dept. of Food Safety & Infection Biology

Sections at NVH: Each department is divided into sections

BasAM:

Section for Anatomy and Pathology

Section for Biochemistry and Physiology

Section for Genetics

Section for Aquatic Medicine and Nutrition

Section for Clinical Pathology

MatInf:

Section for Arctic Veterinary Medicine

Section for Pharmacology and Toxicology

Section for Food Safety

Section for Microbiology, Immunology and Parasitology

ProdMed:

Section for Small Ruminant Medicine

Section of Experimental Biomedicine

Section for Stationary Clinics

Section for Herd Health and Field Service

SportFaMed:

Section for Anaesthesia and Radiology

Section for Equine Medicine and Surgery

Section for Small Animal Medicine and Surgery

Administrative positions

Head of Department

Head of Section

Academic positions

Professor
 Associate professor (1st Amanuensis)
 Assistant professor (Lecturer)
 Post doc
 Diplomat
 PhD student
 Resident (Diplomate student)
 Interns

Administration

General Director: The Secretary of the Board
 Secretariat
 SFA: Department for Academic Affairs and Research Administration: "Study Department"
 SEVU: Center for Further and Continuing Education
 Technical Department
 Library
 Communication Department
 Personnel Department
 Department of Finances
 Information Technology (IT) Department

Administrative positions

Head of Administrative Departments
 Head of Studies
 Senior Adviser, Internationalization
 Senior Adviser, Research
 Student Adviser
 PhD Adviser

Committees at NVH:

SU: Committee for Undergraduate and Continuing Education Programmes: "Study Committee"
 IU: International Committee
 PhDU: Committee for PhD and Residency Programmes
 RSA: Council for Cooperation with Stakeholders
 LMU: Learning Environment Committee
 UFE: Committee for Research and Ethics
 AMU: Work Environment Committee
 Board's Appeals Committee
 Admission Committee
 Appointments Committee

Organization of teaching

Block: Teaching period for integrated disciplines
 Block Leader: Academic staff member responsible for the block
 Teacher: Academic staff member responsible for a topic within a block

Interest groups at NVH:

VSU: Students' Political Organization

VSF: Students' Social Organization

DIOV: PhD Students' Interest Group

SIOV: Residents' Interest Group

DNV: The Norwegian Veterinary Association

Quality Assurance

EAEVE: European Association of Establishments for Veterinary Education

NOKUT: Norwegian Agency for Quality Assurance in Education

ENCA: European Network for Quality Assurance in Higher Education

ACOVENE: European Accreditation System for Veterinary Nurse Training Colleges

Other abbreviations

DBH: Database for Higher Education

FS: National Electronic Student Administrative System

SO: The Norwegian Universities and Colleges Admission Service

SiO: A Student Welfare Organization in Oslo and Akershus County

ECTS: European Credit Transfer System

EBVS: European Board of Veterinary Specialization

HMS: Occupational Health, Environment and Safety

Formal documents and procedures

“Allocation and directive letter”: Formal letter from the Ministry of Education and Research about expectations and budget for the next year.

“Management and dialogue meeting”: Formal meeting once a year between the school leaders and the Ministry of Education and Research.

Strategy: Goals for NVH in different areas.

Action plan: Measures to be implemented in the next year to reach the goals.

Study quality report: Annual report of the study quality and suggestions for measures to be taken.

Appraisal review: Organized meeting annually between each employee and his/her immediate leader.

Foreword

This Stage 2 self-evaluation report (SER-2) from the Norwegian School of Veterinary Science (NVH) is produced as part of the evaluation of the institutions that provide veterinary training in Europe. This is the first time NVH is to be evaluated with regard to a Stage 2 evaluation.

The evaluation will run parallel with a Stage 1 evaluation, and the visit will take place in Oslo on March 24-28, 2014.

The European Association of Establishments for Veterinary Education (EAEVE) is the official accreditation authority for veterinary education establishments within Europe (www.eaeve.org). Furthermore, the mission of the EAEVE is to evaluate, promote and further develop the quality and standard of veterinary medical establishments and their teaching within, but not limited to, the member states of the European Union (EU).

The evaluation of veterinary faculties in Europe as a whole is carried out by the EAEVE in co-operation with the Federation of Veterinarians of Europe (FVE). The evaluation system is managed by EAEVE in cooperation with FVE through the European Committee on Veterinary Education (ECOVE).

The evaluation system consists of two stages of similar mechanical steps, but with a different approach and intention. The first stage provides approval that the Faculty conforms with Directive 2005/36/EC, which governs – among other professions – that of veterinary surgeon. The second stage provides accreditation that the Faculty is following generally accepted and appropriate academic standards and providing learning opportunities of acceptable quality. For this, the Faculty shall prove that it has the relevant methods for monitoring quality of training, assessment and learning opportunities, a sustainable system for quality assurance and a plan for quality enhancement; thus providing confidence -for all stakeholders - that the quality of learning of the trainees is acceptable. A Faculty that has reached this level is to be regarded as accredited by ECOVE.

The SER-2 describes the policies and procedures that NVH uses to assure adequate academic standards and the provision of adequate learning opportunities for the students in the entire field of veterinary undergraduate education. The report also describes the underlying strategy devised by the academic management for quality improvement.

The SER-2 consists of the report itself and an appendix with the most relevant documents. Other documents of interest for the expert committee will be made available to them at the site visit.

Yngvild Wasteson
Rector

Birger Kruse
Director General

Introduction

Higher Education in Norway

The Ministry of Education and Research has the overall responsibility for higher education in Norway. Higher education institutions in Norway are divided in four categories: universities, specialized university institutions, university colleges, and institutions with accredited academic or professional programmes.

The majority of Norwegian Higher Education institutions are owned by the State and more than ninety per cent of the student population in Norway attends State institutions. The public institutions are mainly funded by the State. Tuition is free at public institutions. A small fee must be paid to the student welfare organization every term.

The Act Relating to Universities and University Colleges (2005) regulates the higher education activity. At present one of the important issues is the ongoing work towards a national qualification framework in accordance with the Bologna Process.

Norwegian School of Veterinary Science (NVH) will merge with University of Life Science (UMB) on 01.01.2014 and become part of a new university; Norwegian University of Life Science (NMBU). NMBU will be the only institution that educates veterinary surgeons and veterinary nurses in Norway.

The Quality Reform

In 2003, the Quality Reform introduced budgetary incentives related to candidate production. One of the main elements to assure quality in higher education was the implementation of evaluation of Quality Assurance Systems and the accreditation of higher education. The reform has given all state and private institutions the same rights and possibilities to apply for either institutional or programme accreditation. The Quality Reform also introduced a new degree system with 3 + 2 + 3 year Bachelor's, Master's and PhD degree structure with a few exemptions.

The veterinary programme is one of these exemptions. The veterinary programme leads to the title *Cand.Med.Vet* (Candidatus medicinae veterinariae) and is 5 ½ years of study.

Admission requirements

The minimum requirement for admission to higher education is the successful completion of Norwegian upper secondary education with some specified courses. Admission may also be gained by means of other qualifications recognized as being on a par with the general matriculation standard such as work experience. Some fields of study have additional entrance requirements. The Certificate of Upper Secondary Education is based on 13 years of schooling.

Learning environment

National legislation guarantees the student's physical learning environment. It ensures that the student receives adequate guidance, and provides the institution with an overview to ensure the proper use of resources, and individual education plans for each student with a signed mutual commitment between the student and the institution.

NVH implemented the learning environment committee (LMU) and individual education plans in 2003.

Internationalization

In order to ensure that there is a qualitatively competitive higher education sector, internationalization, in terms of cross-border institutional cooperation, teacher and student mobility, has been one of the overall aims in Norwegian higher education. To help facilitate cross-border credit transfer between institutions, as well as facilitate labour mobility, the Diploma Supplement (a document attached to a higher education diploma developed on the basis of guidelines put forward by the European Commission, Council of Europe and UNESCO/CEPES) was implemented on a compulsory basis for all higher education institutions from 2002.

NVH has in recent years sent about 30 to 40 % of the undergraduate students for an exchange period to a veterinary institution abroad, and has received exchange students from other veterinary institutions around the world.

Grading system

The academic year runs from mid-August to mid-June and lasts for 40 weeks. Courses are measured in "studiepoeng", considered equivalent to the European Credit Transfer System standard (ECTS credits). The full-time workload for one academic year is 1500-1800 hours of study/60 "studiepoeng" or ECTS credits.

Grades for undergraduate and postgraduate examinations are awarded according to a graded scale from A (highest) to F (lowest), with E as the minimum pass grade. A pass/fail mark is given for some examinations.

NVH implemented this system in 2003.

Qualification framework

The National Qualifications Framework for Higher Education was established and distributed to all higher education institutions in the letter from the Ministry of Education of 20th March 2009. The Qualification Framework describes the learning outcomes that all graduates should have achieved at each level. Grading of performance is done using the grading scale. The learning outcomes for the three main levels of higher education - bachelor, master and PhD – are described in the categories of knowledge, skills and expertise.

The Qualification Framework is a part of Norway's implementation of the Bologna process. The framework is adapted to the approved, overriding European qualifications framework for higher education in the Bologna process. Furthermore, Norway has attempted to adapt the framework to the EU Qualifications Framework for Lifelong Learning (EQF).

The institutions were given until the end of 2012 to implement the qualification framework in all study programmes. NVH implemented the framework in 2011.

Lifelong learning

Lifelong learning and educational opportunities for adults are important principles of Norwegian educational policy. The aim is to provide suitable conditions to strengthen the competencies of the adult population. Training takes place in the public educational system, adult education associations, folk high schools, distance education institutions and other private institutions and at the workplace.

The Center for Further and Continuing Education (SEVU) was established at NVH in 2006.

Financial support for students

The State Educational Loan Fund (Statens lånekasse for utdanning) was established in 1947 to provide financial support for students in the form of loans and grants as part of the policy for equal opportunities to higher education, regardless of social, economic and geographical background. The objective of the policy was also to ensure that the work environment for students is satisfactory, so that they can study effectively. Support is also provided for study abroad.

Controlling quality in universities and colleges (higher education)

The Norwegian Agency for Quality Assurance in Education (NOKUT) is a professionally independent government agency that contributes towards quality assurance and enhancement in higher education. NOKUT is the controlling authority for educational activity at all Norwegian universities, specialized university institutions, university colleges and institutions with single accredited higher education programmes. Through an evaluation procedure NOKUT decides on the recognition of the institutions' internal quality assurance systems and carries out checks to see if their educational provision meets national quality standards. Controls take account of the fact, stated in law and Ministerial Regulation, that the institutions themselves carry full responsibility for the quality of their educational provision. A Ministerial Regulation sets some national standards and criteria, which are further developed in NOKUT's own Regulation. Together, these documents define the national standard that NOKUT's control activities refer to.

NVH's quality system was first approved by the Schools Board in 2004. NVH's quality assurance system was successfully evaluated by NOKUT in 2007.

Organizational structure of NVH until the merger with UMB

The overall responsibility for NVH lies with the Board. The Rector acts as the Board's chairperson and has responsibility for the daily academic activities at NVH. The Director General is responsible for the Administration, which serves as the support system for the education and research activities.

NVH is comprised of four academic departments: Dept. of Basic Sciences & Aquatic Medicine (BasAM), Dept. of Food Safety & Infection Biology (MatInf), Dept. of Production Animal Clinical Sciences (ProdMed), and Dept. of Companion Animal Clinical Sciences (SportFaMed). Each department is led by a department head. The departments are further divided into sections, led by a section head. The heads of the departments have a meeting with the School's Rector, Prorector, Head of communication department and Director General every week. These people make up the School's management team.

The Department for Academic Affairs and Research Administration (Further called Study department, SFA) is part of the Administration, and is responsible for the application process, admission and reception of students, Quality system, student exchange, PhD and research administration and many other administrative tasks related to the study programmes.

NVH has six strategic committees of special significance for the students and quality assurance. The Committee for Undergraduate and Continuing Education Programmes, further called Study Committee, (SU), which is the advisory body vis-à-vis the Rector for matters related to the academic and teaching quality of all the study programmes and continuing

education. The Learning Environment Committee (LMU), which reports directly to the Board regarding the physical and psychological learning environment. The International Committee (IU), which was established to address student exchange issues and the internationalization of NVH, and which handles this area of the quality report. The Committee for PhD and Residency Programmes handles these areas of post-graduate training in the quality system. The Committee for Research and Ethics (UFE) handles the research area. The Council for Cooperation with Stakeholders (RSA) is a new committee responsible for relations with society. The study department has a secretary function in all the committees. The Rector is leader of UFE, the Prorector is leader of the Committee for PhD and Residency Programmes and RSA, a head of a department is leader of SU, and an academic employee is leader of IU. Either the Prorector or a student is the leader of LMU. All the committees and the Board have student representatives.

The students at NVH take active part in creating a good learning environment that fosters high-quality education. The Student Political Organization (VSU) is the students' policy-related body required by legislation. The Student Social Organization (VSF) is the students' organization for social activities. The students also have many other clubs and associations. The PhD students and Residents have their own interest groups; PhD Students' Interest Group (DIOV) and Residents' Interest Group (SIOV). NVHs leaders have regular meetings with the student organizations (VSU, VSF, DIOV, SIOV).

See figure 5 and Chapter 1 Policy for further information.

Veterinary Curriculum

The veterinary study is a 5 ½ year (330 ECTS) highly structured professional education. The current Curriculum was adopted by the Board in 2002 and revised to some extent by the Board in 2006 and 2011. Twice a year the Study committee makes small revisions according to the study quality work. The Rector is responsible for giving a mandate for curriculum revision to the Study committee when the curriculum is going to undergo a total revision. This was last done in the spring 2013.

In the present Curriculum, all students follow a fixed program of lectures, colloquia, courses and practical/clinical teaching for the first 4.5 years. The majority of the lectures and colloquia are optional, while the courses and practical/clinical teaching to a large degree are obligatory. The teaching is mainly organized into blocks. Each block involves teaching in several subjects, and is concluded with an examination. During the last study year, the students choose between five different tracks: Food safety and production animal medicine, small animal medicine, horse medicine, aquatic medicine or project-related work. The final year also includes the production of a student essay (student thesis).

The Norwegian veterinary programme leads to the general authorization of Veterinary Surgeon from the Norwegian Food Safety Authority.

Organizational structure of NVH after the merger with UMB: Organization during transitional period 2014-2019 (at time of visitation)

Following its creation on 1st January 2014, NMBU is to be organized into three Faculties that will contain a total of 13 Departments. The University, each Faculty and each Department will have their own Board. In the transition period 2014-2018, NMBU will have three campuses (NVH in Oslo and Sandnes and UMB at Ås) and the Board of the University will

consist of 3 academic staff (one from an election meeting at NVH; one from an election meeting at UMB; and one from a common election meeting), two students (one from NVH; one from UMB), one representative of the technical and administrative staff (common election meeting); one representative from the temporary academic staff (common election meeting), and four (4) external members appointed by the Ministry of Education and Research. The leader of the Board is appointed by the Ministry from the external members.

University Rector and Prorector

For the transition period (2014-2017), the Rector and Prorector are appointed, but an election is the basis for the appointment. A common election meeting for NVH and UMB will be held, according to regulations approved by the University Board. The Rector candidate from one institution must stand for election with a Prorector candidate from the other institution. The elected Rector and Prorector are appointed by the University Board. In May 2013, Mari Sundli Tveit (UMB) and Halvor Hektoen (NVH) were elected Rector and Prorector, respectively, of NMBU and will assume these positions from 1st January 2014. Halvor Hektoen is a veterinary surgeon.

The Rector's responsibilities and tasks are described in the Universities and University Colleges Act §10-4. The Prorector's tasks are delegated by the Rector and the Prorector can deputize for the Rector. The Rector has full responsibility for administrative tasks but can delegate responsibilities to one or more Administrative Directors. The Rector's management groups include: a) Central Management group consisting of the Rector, Prorector, the Deans of the Faculties (3), the Administrative Director(s) that report to the Rector and the leader of the Student Organization; and b) Extended Management group consisting of the Rector, Prorector, the Deans, the Heads of Department, the Director(s), leader of the Student Organization and other leaders that the Rector considers appropriate.

The University Board has the following law regulated permanent committees: Learning Environment Committee (LMU), Board's Appeals Committee and Work Environment Committee (AMU).

NMBU has also decided to have these strategic advisory committees for the Rector: Central Research Committee, Central Education Committee, Central Admission Committee and Central Appointment Committee. It has not been decided whether the Council for Cooperation with Stakeholders (RSA) should be organized centrally or locally. The Rector may decide to appoint other central committees.

NMBU has decided that each Campus should have their own local Learning Environment Committee that reports to the Central Learning Environment Committee.

The Faculties and Faculty Leadership

The University is to be organized academically into three Faculties: Faculty of Veterinary Medicine and Bioscience; Faculty of Environment Science and Technology; and Faculty of Social Science. Each Faculty will be further organized into Departments.

The Faculty Board will be the Faculty's governing body. The Board will have responsibility for the Faculty's strategy and academic priorities within the University's academic strategic plans and will set priorities for strategic budgetary funds in relation to the overall strategic plans of the University. The Faculty Board will have 11 members: Leader (external), 4

academic staff (including 1 temporary staff member), 2 students, 1 technical/administrative staff member and 3 external members (in addition to the Leader).

The University Board will appoint a Dean of the Faculty. The Dean is the academic and administrative leader of the Faculty. The Dean reports to the Faculty Board in matters covered by its authority and in other matters to the Rector. The Dean of a Faculty is a member of the Rector's Central Management group and the Extended Management group and secretary for the Faculty Board. In September 2013, Øystein Lie from MareLife and Olsotech AS was appointed the Dean at the Faculty of Veterinary Medicine and Bioscience. Øystein Lie is a veterinary surgeon.

The Departments and Department Leadership

The Department Board will be the Department's governing body and will be concerned with running and development of the central activities of the Department. The Department Board will have 9 members: Head of Department (Leader of Board and Secretary of Board), 3 academic members (including 1 temporary member of staff), 2 students, 1 technical/administrative staff and 2 external members (one outside NMBU).

The Faculty Board appoints a Head of Department who is a member of the Dean's management group and the Rector's Extended Management group.

Veterinary Curriculum in NMBU

To ensure that the veterinary curriculum is properly integrated with effective central veterinary control, NMBU will establish the position of School Director who will be in charge of the veterinary and animal nurse programmes. The School Director will be appointed by the Dean and will be a veterinarian with competence and experience within teaching, research and pedagogy. The tasks and authority for the School Director are set out in a mandate (see Appendix 8). School Director will have close collaboration with the Dean and the Heads of the Departments. The Heads of the Departments and their Boards shall delegate authority to the School Director to coordinate and develop the veterinary study programme. NMBU will establish an advisory committee for the School Director, which will have the same duties as the current Study Committee (SU) (see Appendix 8). The School Director may appoint other advisory committees such as International Committee and local Admission Committee.

School Director shall have regular meetings with student organizations on Campus Adamstuen. The responsibility for the annual review of study programmes shall be delegated from the Departments to the School Director and major revisions to the Faculty Board. According to the regulations for Admission, Studies and Examinations, a university department is responsible for its own study programmes and the Department Board adopts changes in the study programmes according to the rules in quality system. For the veterinary study programme, four departments and their boards share this responsibility. A coordinated approach is therefore necessary.

At NMBU, the responsibility for the allocation of financial resources to teaching programmes will rest with the Department Boards as each department receives a budget directly from the University Board based on the university budget model that has been adopted. The economic sustainability of the veterinary programme will require a joint approach from the four Departmental Boards. It should be goal for veterinary education at NMBU that a single veterinary controlled entity controls the veterinary study programme including the financial resources for the programme and the responsibility for its revision and content.

The Study department at Campus Adamstuen will become a part of the Central Administration at NMBU, but it will give administrative support and services to the four departments, to the School Director and to the students and staff at Campus Adamstuen. A new regulation for Admission, Studies and Examinations was adopted by NMBU in December 2013. The veterinary and animal nurse studies have received sufficient exceptions to the general university rules to ensure these courses retain their structure and form.

The Norwegian School of Veterinary Science is acknowledged as a well-known and valuable name, and is regarded as attractive brand for NMBU. The term *NMBU- School of Veterinary Science* will therefore be used as a communication tool in the marketing of NMBU.

Summary of Assessment Procedures

NVH introduced its quality system of education in 2004. This system included all the areas important for student learning. NVH divided the system into five areas. In 2008, it was extended to six areas. When EAEVE introduced its quality system, NVH's system was already well established. EAEVE has included 12 Assessment Procedures. In content the two systems overlap each other. Table 1 shows how the systems overlap. Table 2 shows when the different Assessment Procedures were fully implemented. Table 2 also summarises the key tools for quality assurance for each assessment procedure at NVH, since the start of a formal quality assurance system at the School. The assessment procedures are described in detail in Chapter 1-10. A complete overview of the quality system is attached: "*Strategy for study quality work at NVH 2013-2014*" (third revision) and "*Quality system structure*" (third revision) with objectives, activities for quality assurance, responsibilities and related documents (See Appendix 2). This is also published on the School's website: <http://www.nvh.no/no/Utdanning/Kvalitetssystem/>.

The quality system has been in continuous development and this will continue into NMBU, where the quality system also must be adapted to a larger organization with three levels of management.

NVH has systemized the quality assurance in six quality areas. The relation of these six areas to the 10 EAEVE chapters is indicated in parentheses. All the areas are followed up annually through the work with the "*Study Quality Reports*" (See figure 3 and Appendix 3 for the study quality report the accademic Year 2012-2013)

NVH's six quality areas are:

1. Policy and Relevance for Society, (compared with EAEVEs Chapter 1, 5 and 10).
2. Basic Studies, (compared with EAEVEs Chapter 2 and 5).
3. Further and Continuing Education, (compared with EAEVEs Chapter 7).
4. Research, PhD and Diplamate education, (compared with EAEVEs Chapter 2 and 8).
5. Internationalization, (compared with EAEVEs Chapter 9).
6. Framework Quality, (compared with EAEVEs Chapter 2, 3, 4 and 6).

Table 1. The relationship between NVH's Areas and EAEVE's Assessment Procedures.

Assessment Procedures (AP)/NVH's Areas:	AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8	AP9	AP 10	AP 11	AP 12
1. Policy and Relevance for Society	x						x					x
2. Basic Studies		x					x	x				
3. Further and Continuing Education									x			
4. Research, PhD and Diplamate Education			x							x		
5. Internationalization											x	
6. Framework Quality		x		x	x	x						

Table 2. Overview of the key tools for Quality Assurance and the year implemented.
(Formal documents are put in italic)

Assessment procedure	Key tools for quality assurance	Year
1. Policy statement Assessment Procedure AP 1. (Quality area 1)	Quality reform in Norway <i>“NVH’s Overall Strategy”</i> NVH’s annual management cycle (see figure 5) Student reference group for feed-back NVH’s first <i>“Strategy for Study Quality Work”</i> NVH’s first <i>“Structure of Quality System”</i> NVH’s first <i>“Study Quality Report”</i> Last EAEVE visit and <i>“Action Plan”</i> to follow up Quality system published on NVHs website <i>“Agreement between VSU and Director General”</i> Candidate surveys Fully implemented student feed-back system (electronic and reference groups) NOKUT evaluated the quality system and <i>“Action Plan”</i> to follow up Council for Cooperation with Stakeholders	2002 2011-2013 (latest) 2003 2003 (annually) 2004(3 revisions) 2004(3 revisions) 2004 (9 editions) 2004 2004 2004 2005 and 2012 2005 (annually) 2007 2012 established
2. Admission of students AP 2.a (Quality area 2)	- <i>“Act Relating to Universities and University Colleges”</i> - <i>“Regulations Concerning Admission to Higher Education”</i> - <i>“Regulations for Admission, Studies and Examinations at NVH”</i> -Admissions are made through the Norwegian Universities and College Admission Service (SO). -All applicants are recorded in the electronic Student administrative system (FS) -Appeal procedures and admission committee for local admission -Electronic Recruitment surveys	2005 (last revision) 2011 (last revision) 2006 (last revision) 2009 (former system 1994) 2006 2005 and 2009
2. Assessment of the performance of enrolled undergraduates AP 2.b (Quality area 2 and 6)	- <i>“Regulations for Admission, Studies and Examinations at NVH”</i> - <i>“Study Plan”</i> with learning outcome descriptions and rules for exam and grading -Written routines for quality assurance of exams -Monitoring the failure rate and the distribution of grades in the Study Quality Report - <i>“Manual for Block Leaders”</i> -New appeal routines and the Board of Appeals -Feed-back from students on exams in the electronic block evaluations which are followed up by the block leader. -New routines for sensor approval and Sensor registration -All exam results are recorded in Student Administrative System (FS)	2006 (last revision) (2002, revised twice a year by SU) 2004 established 2004 established 2005 (first edition) 2006 established Annually from 2005 2008 2009 (former system 1994)

	- Report of students' results to Database of Higher Education (DBH) according to written routines at the Study department.	2005 new routines implemented
2. Postgraduate student education: Academic track AP 3.a (Quality area 4)	-The PhD students have the right and duties as an employee: The staff-regulation of NVH describes the recruitment process and rules for employees based on " <i>Norwegian Act Relating to Civil Servants</i> " and " <i>Norwegian Act Relating to Universities and University Colleges</i> " - " <i>Regulation for the Degree of PhD</i> " -Committee for Research and Ethics (UFE) became responsible for area 4 in Quality system and Study Quality Report -Committee for PhD Education became responsible for area 4 in Quality System and Study Quality Report -PhD Students' Interest Group (DIOV) (2 members in the PhD Committee) -All enrolled students and results are recorded in Student Administrative System (FS)	2011 (last revision) 2004-2010 From 2010 Established 2000 2009
2. Postgraduate student education: Professional track AP 3.b (Quality area 4)	-The residents have the right and duties as an employee: The staff-regulation of NVH describes the recruitment process and rules for employee based on " <i>Norwegian Act Relating to Civil Servants</i> " and " <i>Norwegian Act Relating to Universities and University Colleges</i> " - " <i>Guidelines for Quality Assurance of Diplomat Education at NVH</i> " -Committee for PhD Education was expanded to include Diplomat education and responsible for the revised area 4 in Quality System and Study Quality Report -Residents' Interest Group (SIOV) (1 member in the Committee for PhD and Residency Programmes)	2013 2012 Established 2011
2e. Student welfare AP 4 (Quality area 6)	- " <i>Norwegian Working Environment Act Regarding HMS</i> " (Health, Environment and Safety): -HMS procedures are informed on the intra web site (synapse), " <i>Students Manual</i> " and " <i>Study Plan</i> " - " <i>Norwegian Act Relating to Universities and University Colleges</i> ": -Learning Environment Committee (LMU) -Learning Environment Committee Report -Learning Environment Surveys - " <i>The Act Relating to Student Welfare</i> ": -Compulsory membership in Student organization responsible for welfare (SiO). - Health and Welfare Survey (cooperation	2005 (last revision) 2005 (first student manual) 2006 (last revision) 2003 established 9 editions 2007, 2009, 2011 2007 (last revision)

	<p>between LMU and the psychologists at SiO)</p> <ul style="list-style-type: none"> -Counseling at the study department and letters to all students with progression problems -Feed-back from students in the electronic block evaluations on learning environment and HMS are followed up by the Head of the Department 	<p>2005</p> <p>Letters: Annually from 2006</p> <p>Annually from 2012</p>
<p>3. Teaching staff AP 5</p> <p>(Quality area 6)</p>	<ul style="list-style-type: none"> -The teaching staff has the right and duties as an employee: The staff-regulation of NVH describes the recruitment process and rules for employee based on “<i>Norwegian Act Relating to Civil Servants</i>” and “<i>Norwegian Act Relating to Universities and University Colleges</i>” -Compulsory course in University pedagogy -Seminars arranged by Study Committee (SU) -Pegasus prize for excellence in education -Feed-back from students in the electronic block evaluations on teachers are followed up by the Head of the Department Appraisal meeting with immediate leader 	<p>Max 2 years after employment</p> <p>Annually</p> <p>2005 established</p> <p>Annually</p> <p>Annually</p>
<p>4. Learning opportunities AP 6</p> <p>(Quality area 6)</p>	<ul style="list-style-type: none"> -Learning Environment Committee -Learning Environment Committee Report -Learning Environment Surveys -Health and Welfare Survey -Feed-back from students in the electronic block evaluations on learning opportunity are followed up by the block leader and Head of the Department 	<p>2003 established</p> <p>9 editions</p> <p>2007, 2009, 2011</p> <p>2005</p> <p>Annually</p>
<p>5. Training programme and awarding of the title of Veterinary Surgeon AP 7</p> <p>(Quality area 1 and 2)</p>	<ul style="list-style-type: none"> -“<i>Act Relating to Universities and University Colleges</i>” -“<i>Regulations for Admission, Studies and Examinations at NVH</i>” -Study Committee (SU) responsible for most areas in the Quality System and “<i>Study Quality Report</i>” -The block reports and the annual reports from the departments to the “<i>Study Quality Report</i>” -“<i>Study Plan</i>” and subject descriptions -Learning outcome descriptions in the “<i>Study Plan</i>” -Feed-back from students in the electronic block evaluations, other electronic evaluations, reference groups and student democracy Candidate surveys -Council for Cooperation with Stakeholders 	<p>2006 (last revision)</p> <p>2006 (last revision)</p> <p>2004 (replaced the education committee)</p> <p>2004 implemented</p> <p>(2002, revised twice a year by SU)</p> <p>2011 implemented</p> <p>2003 and to now</p> <p>2005 and 2012</p> <p>2012 established</p>
<p>6. Clinics, laboratories and farm AP 8</p>	<ul style="list-style-type: none"> -NVH has accreditation for the following laboratories through Norwegian Accreditation: Parasitology and Bacteriology -Experimental Biomedicine is Accredited through Association for Assessment and Accreditation of 	<p>2012 (last revision)</p>

(Quality area 2)	<p>Laboratory Animal Care International (AAALAC)</p> <ul style="list-style-type: none"> -Manuals, written instructions and Internal Quality Control are in all the clinics and laboratories. -Systems for customer feed-back and complaint handling - Market survey for the small animal clinic -NVH introduced clinic approval routine to ensure the quality of students' learning 	<p>2012 2010</p>
<p>7. Continuing education AP 9</p> <p>(Quality area 2)</p>	<p>-Center for Further and Continuing Education (SEVU)</p> <ul style="list-style-type: none"> -Continuing education allocated its own area in the Quality system and "<i>Study Quality Report</i>" -Study Committee became responsible for course approval -Electronic course evaluation -The Candidate Surveys included questions about further and continuing education and SEVU and lifelong learning 	<p>2006 established</p> <p>2008</p> <p>2008</p> <p>2008</p> <p>2012</p>
<p>8. Research AP 10</p> <p>(Quality area 4)</p>	<ul style="list-style-type: none"> - "<i>Strategy for Research</i>" -Committee for Research and Ethics quality assure student project -External evaluation of the four departments' research activities -Evaluation of Centre for Epidemiology and Bioinformatics -Evaluation Section of Arctic Veterinary Medicine -Biosciences Evaluation - "<i>Research-based Education</i>" -The "<i>Study Plan</i>" describes how research is implemented in the programme - "<i>Students Guidelines for Working with Thesis</i>" 	<p>2010 (last revision)</p> <p>2011 implemented</p> <p>2005, 2006, 2007, 2008</p> <p>2010</p> <p>2011</p> <p>2010</p> <p>2013 (first edition)</p> <p>2002 (revised twice a year)</p> <p>2011 (last revision)</p>
<p>9. International-ization of education and research AP 11</p> <p>(Quality area 5)</p>	<ul style="list-style-type: none"> - "<i>Strategy for Internationalization</i>" -International committee responsible for Quality area 5 and "<i>Study Quality Report</i>" -Student exchange is evaluated through the external web page "Iris" and learning environment surveys 	<p>2004 and 2011</p> <p>2006 established</p> <p>Annually and 2007, 2009, 2011</p>
<p>10. Co-operation with stakeholders and society AP 12</p> <p>(Quality area 1)</p>	<ul style="list-style-type: none"> -Student-, intra and inter Website -Council for Cooperation with Stakeholders -Candidate Surveys -Career day, Open day, Research day, meeting with the government, labor market and so on - "<i>Communication Strategy</i>" -All Reports and Board protocols are publicly available at website: www.nvh.no -All student results are publicly available at DBH web site: http://dbh.nsd.uib.no/ 	<p>2004,2010(revised)</p> <p>2012 established</p> <p>2005 and 2012</p> <p>Annually</p> <p>2011(last revision)</p>

1. Policy statement AP 1

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

The policy statement is expected to include the:

- *The relationship between teaching and research so that research education and research quality can be distinguished*
- *Faculty's strategy for quality and standards*
- *Organization of the quality assurance system*
- *Responsibilities of organizational units and individuals for the assurance of quality*
- *Involvement of students in quality assurance*
- *Ways in which the policy is implemented, monitored and revised*

Research-based education

NVH is a specialized University institution and from 2014 will be part of a university. NVH is committed by legislation to have research and education as its primary activities and to deliver research-based education. The School's Strategy states: "NVH will provide research-based educational programs that meet the Norwegian and European accreditation requirements and qualifications framework." In NVH's document "Research-based education" (see Appendix 9), the School's understanding of the term "research-based education" is explained and how education and teaching are research-based at NVH is clarified.

The veterinary study programme at NVH is closely associated with active and relevant veterinary, animal and natural science research. There are two components to this relationship. Some parts of the programme are research-oriented, and teach skills that prepare the student for a potential career in research. The remainder of the programme is research-led, meaning teaching that is inspired by current research and taught by individuals engaged in that research, at postdoctoral through to professorial level. The majority of our teaching is handled by active researchers, who divide their time between teaching and research. Right from the start of the study, students are taught by active researchers, who both teach the latest knowledge in the subject and refer to their own research where appropriate.

Examples:

Students get in the first study week training in the use of the library. Furthermore, in Cell Biology in the first term there will be a separate seminar in bioethics and students have 15 laboratory courses within the field where they will learn skills and methods that have been and still are used in research. Further in Population Medicine (second semester) students learn how scientific methodology and statistics are used to obtain and evaluate information about populations. In all the blocks from the start of the study programme the teaching is research-led. At the end of the programme, the teaching to certain extent is research orientated. In the 8th semester, students have to write a scientific paper based on sources and literature using library in wildlife health. In the clinical part of the programme, teaching in small groups is evidence-based. Normally students write a thesis of 15-20 ECTS. This can be a literature study or a small research projects. Specially interested students are allowed to do a thesis of 40 ECTS on the basis of a research project approved by the Committee for Research and Ethics. NVH is working for a possibility for students to take a research year earlier in the studies and this is approved by the government. When this is started up some veterinary students may start their research career before they graduate.

NVH's Strategies for quality and standards

NVH has developed its quality system to ensure broad participation, a strong involvement of students and clear leadership. Moreover, the development of a culture of quality and the importance of the quality assurance system are emphasized. The description of the quality system and all documents that set the standard and describe procedures together with reports adopted by the Board are publicly available on the Internet. All decisions at NVH should be the result of a democratic processes and in which the students have an active role. NVH has several Strategies for special fields, and has had a strategy for Study Quality Work since 2004. The quality system was for the first time adopted by the board in 2004. NVH has kept the main principles and structure since then, but there were revisions in 2007 and 2012. The latest revision was adopted by the Board in March 2013.

NVH'S overall Strategy states (see Appendix 1):

“NVH's vision is to be among the best and most advanced veterinary medical institutions in Europe in research, education and communication of knowledge.”

One of the objectives for education:

“NVH will educate candidates with the skills of a high international level of relevance for national and international tasks within veterinary and biomedical fields and animal care.”

The research strategy states:

“NVH will conduct veterinary research of high quality and high ethical standards.”

The Strategy for Study Quality Work states (see Appendix 2):

“Study quality work's mission is to contribute to the School's vision of quality is achieved, and contributes to achieving the goals of the strategic plans. The quality system should secure and develop the quality of education.”

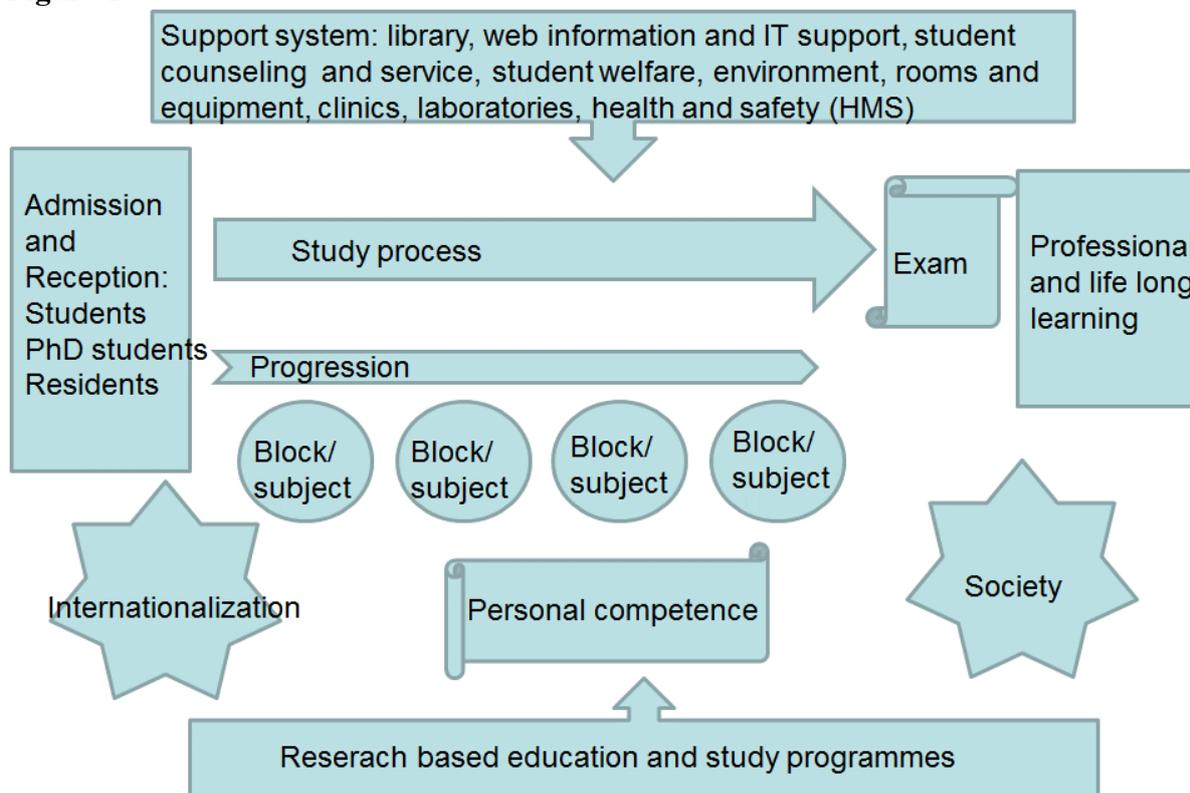
NVH defines Study Quality in the Strategy like this:

- How NVH's quality appears for the student.
- How NVH's quality meets recognized academic goals.
- How NVH's quality provides education relevant to the society in the broadest sense.

Organization of the Quality Assurance System

Higher education institutions are complex organizations, with aims to produce graduates and scientific work of high quality. This figure gives a visual impression of what is included in the School's quality assurance system:

Figure 1.



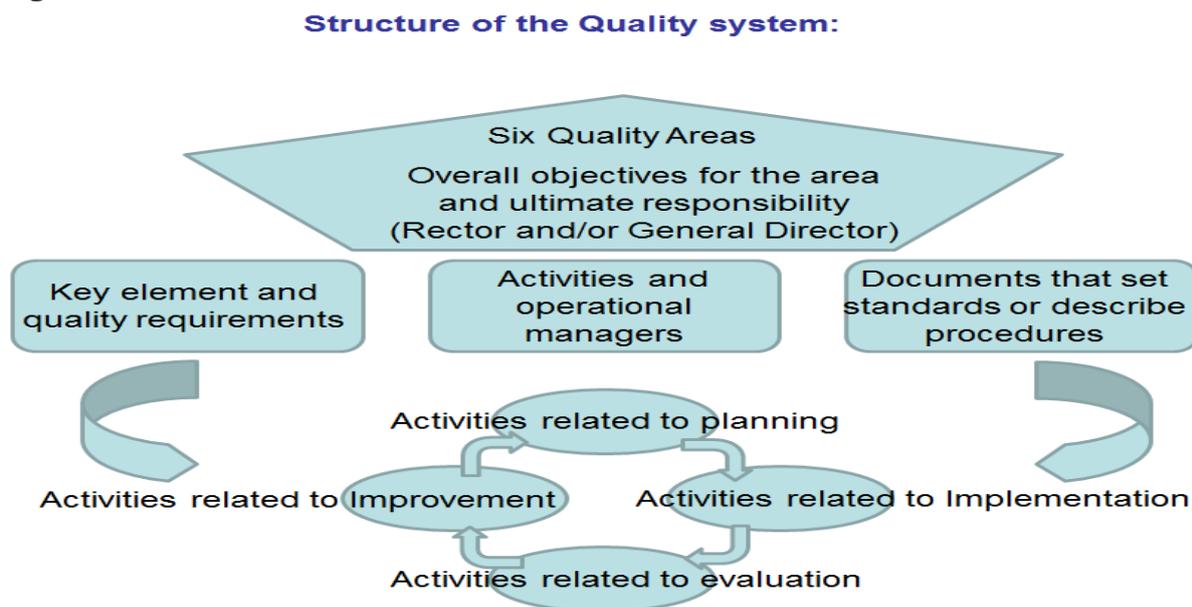
In NVH's structural description of the quality system, the strategies overall aims of quality are first broken down into six main areas of quality (See figure below). Then these areas are broken down into the various key elements needed to provide good study quality.

Furthermore, it sets out a series of activities that will both ensure quality and secure practices, and evaluates whether the goals are reached. Responsibility (operational manager) for each activity is allocated. For each key element, the documents that set the standards and describe procedures are identified. NVH uses the quality cycle actively in its approach to quality and culture work.

The six quality areas are:

1. Policy and Relevance for Society (compared with EAEVEs Chapter 1, 5 and 10)
2. Basic Studies (compared with EAEVEs Chapter 2 and 5)
3. Further and Continuing Education (compared with EAEVEs Chapter 7)
4. Research, PhD and Diplomat education (compared with EAEVEs Chapter 2 and 8)
5. Internationalization (compared with EAEVEs Chapter 9)
6. Framework Quality (compared with EAEVEs Chapter 2, 3, 4 and 6)

Figure 2

**Example:****Quality Area 2: Basic Studies**

Objective of area: NVH will take up the best qualified students and complete admission in a qualitative manner. The Educational programs at NVH should be based on research and maintain high academic and educational quality. Graduates will be well trained and well prepared for society within the School's disciplines.

Overall responsibility: Rector

Key element: 2.5 The study's assessment and grading system.

Quality requirements:

The study's assessment and grading systems shall ensure high quality graduates.

Activity 1: Planning and implementation: Have academic requirements, assessment and grading systems in accordance with applicable guidelines and regulations. (Rector, SU)

Activity 5. Evaluation and improvement: Evaluate the use of assessment and grading system at the aggregate level (Rector, SU)

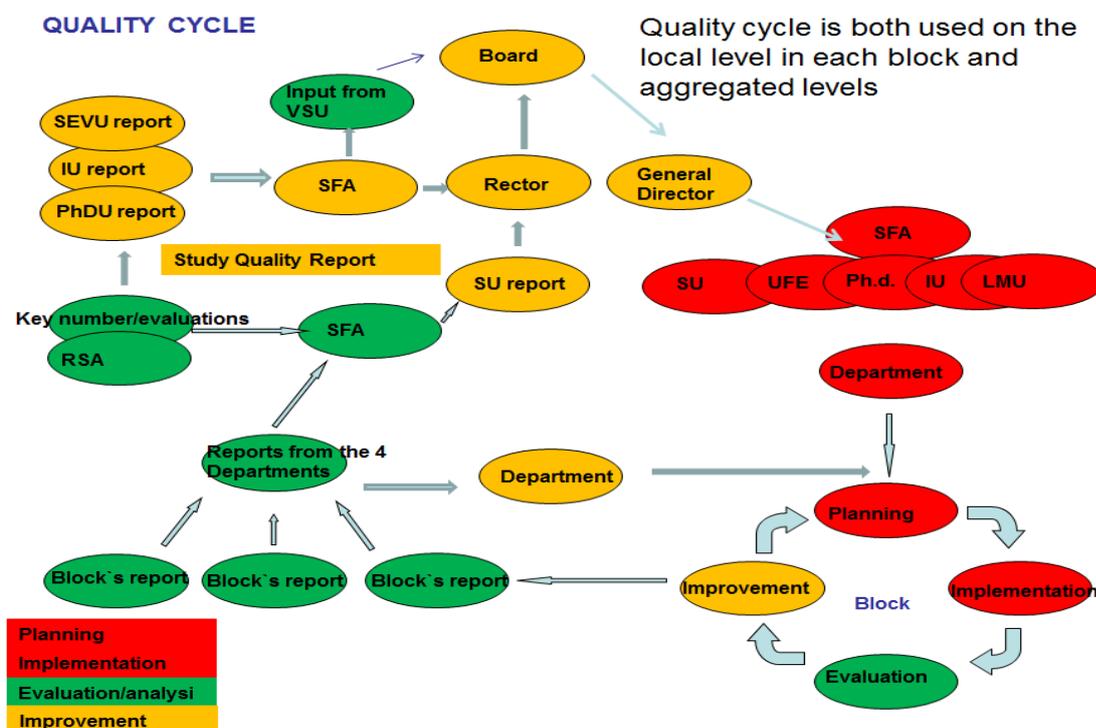
Documents that set standards and describe procedures:

- "Study Plan"
- "Act Relating to University and University College"
- "Regulations for Admission, Studies and Examinations at NVH"
- "Manual Block Leader"

The Study Quality Work

The quality work related to education, which ends up in an annual report of study quality to the Board each year, proposes measures and makes suggestions for further work for the coming year. The report provides the status of evaluations, student results and analyzes that have been made in the preceding year. The Report goes through several levels and revisions before the Rector presents it to the Board. The Study department (SFA) and Study Committee (SU) have a central role in the collection, analysis and action proposed in the report. In the following year, the administration, the organizational units and committees in the relevant study areas initiate actions. These are ongoing processes aimed at steadily improving study quality. Measures that cost money are channeled through the budget process, to the extent that the economy allows. The Board is given the study report as one of the policy documents used for decision making in December. At the same meeting, the Board decides the budget for the following year. The annual processes of preparing the overall Study Quality Report and aggregation of reports from the teaching level (block reports) to the department level (4 department reports) to the final report to the Board take action as shown in figure 3:

Figure 3:



Explanations:

Block: Teaching period for integrated disciplines (Subjects). Final examination
SU: Study Committee responsible for area 1, 2, 3 and 6 in the Study Quality Report
IU: International Committee responsible for area 5 in the Study Quality Report
PhDU: Committee for PhD and Residency Programmes responsible for area 4
SFA: Study department
SEVU: Senter for Further and Continuing Education
RSA: Council for Cooperation with Stakeholders
LMU: Learning Environment Committee
UFE: Committee for Research and Ethics
VSU: Students' Political Organization

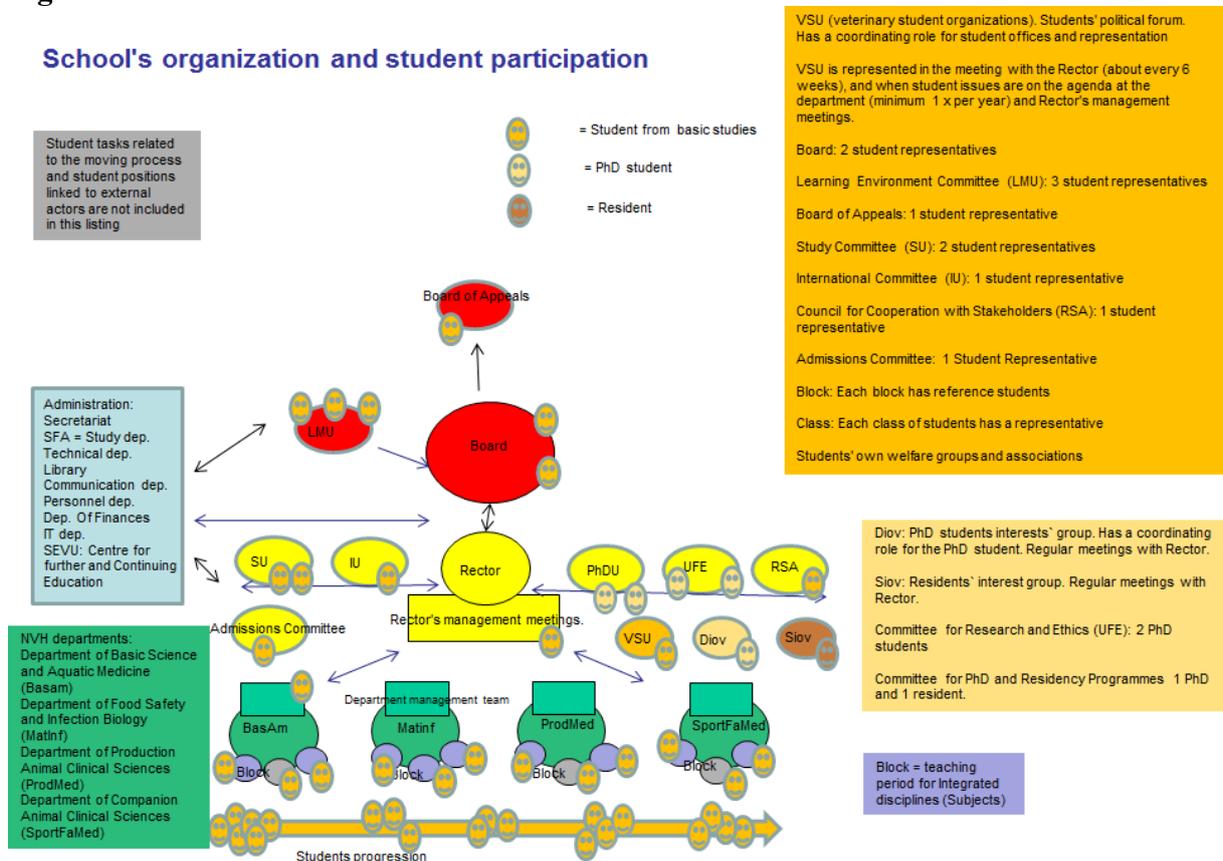
The quality cycle is used both at the local level in each block and at the aggregated level in each department, with their annual, local study quality report work and measures for the coming year. The quality cycle is also a model for the aggregated level of the institution through the main study quality report work and measures for the coming year that are adopted by the Board. Also SU's work with curriculum development in the longer perspective has the quality cycle as a model for their work.

Organizational units and individuals' responsibility for the assurance of quality

The overall responsibility for NVH lies with the Board, which approves the Study Quality Report each year. For each of the 6 areas in the Quality System, the person with overall responsibility is either the Rector or Director General. The operational manager for each activity is given in the structure description. Responsibility for analyzing the status and suggesting and implementing improvements is at the level that is responsible for the quality. All NVH systems are rooted in the ordinary operations of the organization.

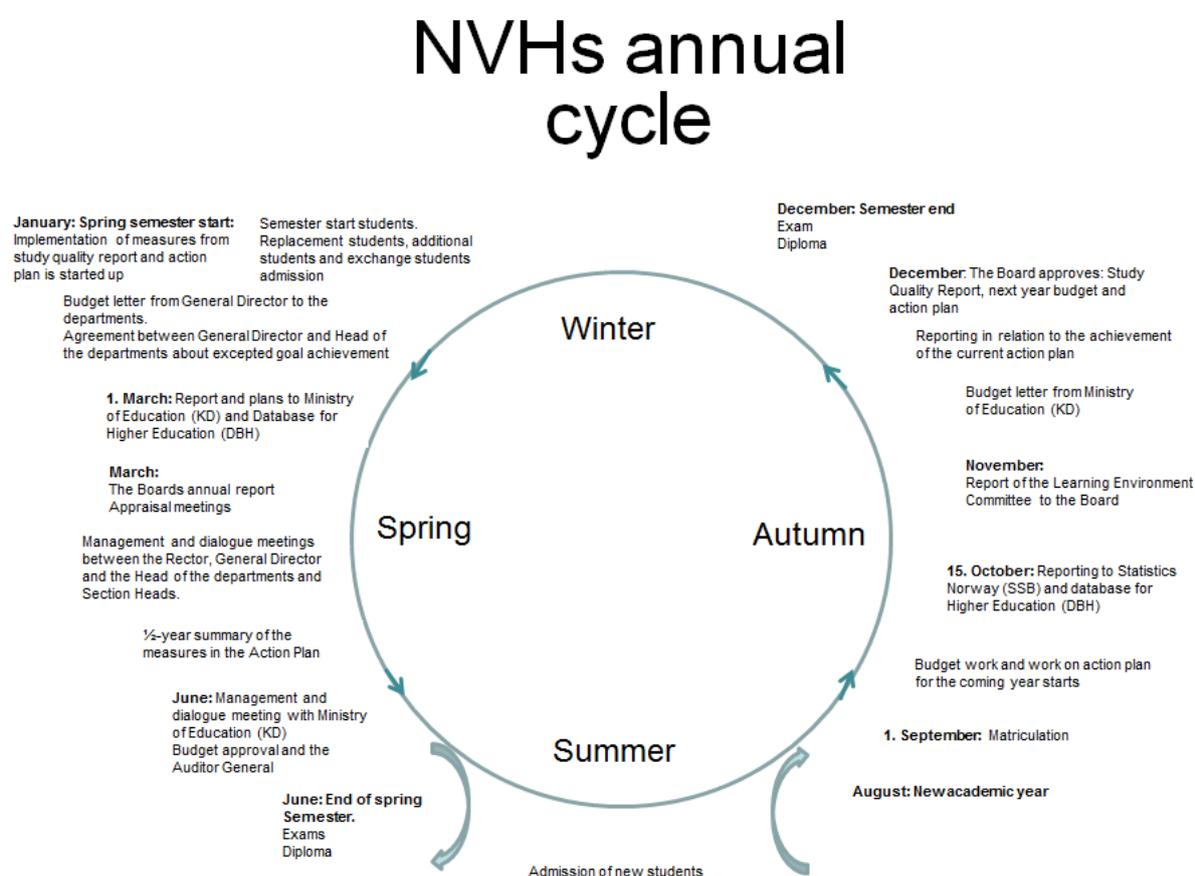
In the current system, the respective committees are assigned to the 6 areas of quality and the Head of Studies is responsible for coordinating the quality work mainly through SU (except area 5; IU and 4; Committee for PhD and Residency Programmes). Nearly all committees are advisory to the Rector, except LMU which reports directly to the Board and the Board's Appeals Committee which considers complaints from students. These two committees and RSA are imposed by the government and regulated by law.

Figure 4.



In December each year, the Ministry of Education sets a budget for NVH and sends an allocation directive letter that indicates how NVH shall conduct its activities and goals for the next year. The Board approves a plan of action and budget for the coming year in December. In March, NVH submits outcome data and reports on last year's results to the government. In June, NVH leaders (Rector, Director, Board representative and Student representative) have a meeting with the Ministry of Education (see attachment 4 for last report). Last year's results and plans for the future are discussed at this meeting. NVH must then follow up on these discussions in the following year, and these matters are specified in the following year's allocation directive letter coming in December (see figure 5).

Figure 5.



The School's departments receive their budget for the year from the Director in January. They are responsible for their own budget and activities but also for reaching the school's goals in the Action Plan. Each block is the responsibility of a given department, and the Head of this department is committed to follow up the teachers and blocks and is financially responsible for the block. The duties of the Head of the department, related to education, are given in detail in the Manual for Block Leaders (See Appendix 7).

When problems arise, it is the School's policy that these matters should be solved at the lowest possible level. The philosophy of the block-quality-cycle in educational planning is to perform good planning, implementation, evaluation and improvement. The responsibility and authority for the various components necessary for teaching are further specified in the

Manual for Block Leaders. The block leader and the teachers have many duties in the quality assurance system.

The administrative departments at NVH also have roles in the quality assurance system, as it is explained in Area 6: Framework Quality in the structure descriptions.

Both employees and students at NVH have a role in the quality work.

Students' participation in quality assurance

Students are represented in all committees that have a role in education and the study quality work in this 10-year period in accordance with figure 4. Students also participate in audits of the system description in the respective committees. Students are represented in all ad hoc committees where issues affecting the quality of education are the theme. Students' Political Organization (VSU), which is the highest, legal, political student forum, participates in leader group meetings when there are relevant issues on the agenda. VSU has an active role in the preparation of the Study Quality Report and submits its own comments on the report to the Board. VSU also participates in section leader meetings in the departments when the 4 departments' Study Quality Reports are under discussion. VSU has a meeting with the Rector, Prorector, General Director and Head of Studies every 6 weeks.

Each block has a reference group of students. All students must participate in at least one reference group during their course of study. A reference group for a block will meet with the block's teachers after completing the final examination. The reference group is also encouraged to conduct meetings during large blocks. When the curriculum was new, a few blocks used the opportunity to discuss the program with the reference group in the planning stages before the block started. VSU has contributed to developing the routine of reference groups.

The student evaluation of the block is an important part of the quality system. When NVH first designed questionnaires for student evaluation, the students were involved in the process and they have been encouraged to give feedback to the questions at each evaluation. In most blocks, NVH has a high participation in the web-based anonymous student evaluation questionnaires.

NVH has several informal systems for feedback. Teachers at NVH are available and there is a low threshold for sending e-mails and making contact. The study department also practices an open door policy, and the distance is short between the students and the department heads and the Rector.

See Figure 4, Table 3 and Chapter 5 for further details.

Formal Feedback system is shown in Table 3. See also "*Strategy for Study Quality Work at NVH 2013-2014*" and "*Quality System Structure*"(Appendix 2)

Table 3. Established feedback systems at NVH

Feedback procedure	When:	Who is responsible to initiate the process:	How: (Written, Oral, Anonymous)	Who is responsible to follow up:	Is this information aggregated in the annual report of the study quality?
Study start and recruitment survey	August about Every 3 rd year	Study department (SFA)	Varies	SFA	Yes
Block surveys	After every block (1.-4. Year or term 8. th and 9. th)	SFA	Written, electronic, anonymous, (quest back ®)	Block leader and Head of the departments	Yes
Block surveys	In the middle of some blocks and after every block (1.-4. Year or term 8. th and 9. th) and differentiation year.	Block leader	Oral with reference groups	Block leader	Yes
Learning environment surveys	February, every 2 nd year	Learning Environment Committee	Written, electronic, anonymous, (quest back ®)	Learning Environment Committee and every department leaders affected	Yes
Student exchange Surveys	After the exchange period	External	Written, electronic, anonymous, Through an external web site	International adviser and committee	Yes
Ad hoc surveys	When appropriate	SFA	Written, electronic, anonymous, (quest back ®) or oral	Depends	Yes
Candidate surveys	Every 3-5 years	SFA	Written, electronic, anonymous, (quest back ®)	Study Committee	Yes
Research	Varies	Committee	Committees	UFE	No

surveys		for Research and Ethics (UFE)			
Council for Cooperation with Stakeholders (RSA)	Twice a year	Prorector	Oral	Study Committee	Yes
Dialogue with the department	Once a year (approximately June)	The department	Oral	Board	No
Database for statistics in education and research	Three times a year (October, February, March)	SFA	Electronic from the student administrative system	Board	Yes
EAEVE Study programme feedback	Every 10 th year	Rector	Written/Oral	Board	Yes
Norwegian Agency for Quality Assurance in Education (NOKUT)	Every 6 th year	Rector	Written/Oral	Board	Yes

External participation in quality assurance

The block leader and the block teachers have a close dialogue with external examiners. In some parts of the programme, the external examiners have a role in assuring the quality of the examination before it is given; in other parts the external examiners have a role in assessing each individual paper. This is in accordance with the Norwegian law:

Act relating to University and College:

An external evaluation shall be made of the assessment or assessment arrangements. When assessing candidates' independent work in higher degree courses, each candidate shall be assessed by at least two examiners, of whom at least one shall be external.

Stakeholders are involved through direct contact with the departments and the school's leader (See the other Chapters and especially Chapter 10) and through the formal committee for dialogue with external parties: Council for Cooperation with Stakeholders (RSA). NVH has twice since 2004 conducted surveys of veterinarians who are working, to identify employment satisfaction and satisfaction with the veterinary programme after a time in the labour market.

Ways in which the policy is implemented, monitored and revised

Norwegian Agency for Quality Assurance in Education (NOKUT), a member of the European Network for Quality Assurance in Higher Education (ENCA), evaluated the School's quality assurance system in 2007. NVH received good feedback from NOKUT, and they encouraged NVH to build on the existing system.

NOKUT is the controlling authority for educational activity at all Norwegian higher education programmes. Through an evaluation procedure NOKUT decides on the recognition of the

institution's internal quality assurance systems and carries out checks to see if their educational provisions meet national quality standards.

The School's quality system was developed in 2004 in close communication with the academic staff and students. Initially, a committee with two student representatives and four academic staff together with a quality assurance adviser designed the system. Every block and department submitted comments on the system that were attached to the documents sent to the Board. The Board of NVH adopted the general framework for quality assurance and strategy for quality in 2004. Since then there have been two revisions.

Through the annual work with study quality report area 1: "Policy and relevance for Society" suggestions for system improvements are considered. With regard to the revision in 2012, the Head of Studies coordinated this work and the respective committees treated their areas. The quality assurance system and quality work have been constantly improved during these years (See Appendix 3).

EAEVE evaluated NVH in 2004. The Veterinary nursing program was first accredited by ACOVENE in 2007 and recently in 2013. NVH has conducted several external research evaluations. After each external evaluation, a plan for improvement has been adopted by the Board.

Comments

NVH should have been evaluated by NOKUT in 2013, but because of the upcoming merger in 2014 this issue has been postponed until after the merger. When NVH becomes a part of NMBU, a new, unified quality system that remains in line with NOKUT requirements will need to be created. NVH and UMB systems are quite similar in structure, but for both UMB and NVH the faculty level is new. Appropriate ways will need to be found to combine important documentation to present to the University Board and to distribute the decisions from the Board. It will also be necessary to promote a common quality culture for the new institution. The daily quality assurance work will continue at NVH because the newly established position of School Director will have the opportunity to appoint committees and be in dialogue with student organizations. Another important measure to promote quality assurance work is the issuing of a new mandate for a Study committee that will have the same responsibilities as the former SU at NVH (See Appendix 8 for details). On Campus Adamstuen and Sandnes, the same cyclical quality work will be done, and student evaluations and quality procedures will be performed, as previously.

Suggestions

The quality assurance in the veterinary programme at NMBU should focus on cyclical quality work with continued use of student evaluations and quality procedures.

2. Assessment of students, post graduate education and student welfare

2. AP 2a Admission undergraduate education

Undergraduate education: Admission of national and foreign students.

The Norwegian Universities and Colleges Admission Service, (Samordna Opptak (SO)) coordinates the admission to regular undergraduate studies at all universities, university colleges, state colleges, and some private colleges in Norway. SO follows the rules of the national admission regulations. The SO admission system is primarily for Norwegian citizens and others with a permanent or renewable residence permit. To be eligible for admission, applicants must document their proficiency in Norwegian. The SO is an admission system regulated by the Norwegian government, and has regular meetings with the Ministry of Education and Research.

The admission process.

All applicants must use the online application form called "nettsøknad", which is available from 1st February on www.samordnaopptak.no. The deadline is 1st March for applicants with foreign education or special requirements, and 15th April for the rest of the applicants. It is possible to list up to 10 different programmes, in order of priority. When the application is registered, applicants receive an application file in their online application. They must fill in information about their educational background and return it with copies of relevant documents. Applicants must document their education with copies of certificates, diplomas, transcripts etc. in the original language and authorized translations to Norwegian or English if the original documents are not in English or a Scandinavian language. Both upper secondary and higher education must be documented. For Norwegian applicants, there is a national data bank with all the diplomas of pupils educated in recent years. When a pupil applies to NVH, all diplomas and certificates taken in upper secondary school are made available in the school's electronic student administration system (FS). Even so, applicants are asked to send in paper copies of all documents. Applicants must fulfill all requirements before 1st July. Applicants with foreign secondary education will be assessed individually and the institutions decide who will be offered a place. The assessment is based on the grade point average/grades from upper secondary school/high school, the grade or points in the examination in Norwegian amongst other things.

The offers are published on 20th July and the applicant has to answer whether he/she accepts the offer by the given deadline. Admission to the veterinary study in Norway is highly competitive. There are 70 veterinary places and about 1000 applicants each year.

Entrance requirements

Applicants must meet the minimum requirements for Higher Education Entrance in Norway ("*generell studiekompetanse*") and fulfill the language requirements in Norwegian and English. For admission to the veterinary programme, applicants need extended courses in mathematics and chemistry from upper secondary school. According to the National Recording Regulations, NVH takes up 50 % of its students on the basis of the first school leaving diploma, and 50 % who have re-taken examinations, taken further education or done other things that give extra points. NVH also gives the underrepresented gender two additional points (from 2004), because NVH wants to recruit more male students. This has been approved by the Norwegian government.

Applicants from most European countries are eligible for admission upon completion of the secondary school leaving certificate that provides the basis for admission to university studies in their home country. Entrance requirements for applicants from non-European countries may include one or two years of university studies in addition to secondary school. Applicants who do not fulfill the entrance requirements can take supplementary examinations in the Norwegian upper secondary school. However, as teaching at NVH takes place in Norwegian, all applicants must be able to document fluency in a Scandinavian language.

Appeal Procedure

After publication of the results of the application procedure, applicants have the right to appeal. This appeal goes to the school that has done the assessment of the applicant's documentation. This is not necessarily NVH, but can be any university or school of higher education in Norway, since it is more or less the same rules and regulations for all applicants. All this is regulated in the student administration system, module application. The appeal is thoroughly looked into and a response is given to the applicant. If the applicant still is not satisfied with the response, he or she can appeal to the National Appeal Board.

Local admission

NVH takes up students from the waiting list during the first month, as vacancies occur. When vacant places arise at a later stage, NVH holds a replacement admission once a year for students studying veterinary medicine abroad. This uptake is regulated through the School's regulations and guidelines. NVH is especially aware of false diplomas and will always report incidents of forgery to the police. This is communicated to the applicants. There is also great competition for these positions. It is the School's local admissions committee which is responsible for these admissions. This Committee has student representation.

The Norwegian Food Safety Authority ("*Mattilsynet*") considers applications for authorization. Veterinarians with qualifications from abroad, who fail to receive authorization from the Food Safety Authority, and who have permanent residency in Norway, may apply to NVH to take the necessary additional training to qualify for authorization. This training takes two years. NVH requires that the veterinary diploma is approved by the National Agency for Quality Assurance in Education (NOKUT) as insurance against false diplomas. NVH also demands that the applicant has a B or better in Norwegian language at higher level. NVH has approximately 2 students for additional training annually.

Information and public criteria for these local admissions are on NVH's web site.

Table 4: Assessment of admission of students into the Veterinary programme:

	Ordinary admission		Replacement admission		Additional training for foreign veterinarians	
	2011	2012	2011	2012	2011	2012
Total applicants (male)	1152 (168)	1148 (164)	17	41	0	2
1. Priority applicants	522	536	-	-	-	-
Norwegian students (% of applicants)	1006 (87.3 %)	1008 (87.8 %)	15	n/a	0	0
Nordic students (% of applicants)	120 (10.4 %)	116 (10.1%)	2	n/a	0	0
Other EU students (% of applicants)	10 (0.9 %)	10 (0.9 %)	0	n/a	0	0
Total admissions	68*	72	4	16	0	2
Norwegian students (% of admissions)	63 (92.6 %)	62 (86.4 %)	3	15	-	0
Nordic students (% of admissions)	5 (6.9 %)	9 (12.5 %)	1	1	-	0
Other EU students (% of admissions)	0	1 (1.4 %)	0	0	-	0

Quota I: Quota for those applying with their first school leaving diploma. 50 % of all study places are in this quota, and competition is only on the upper secondary school score.

Quota II: All applicants may compete for study in a regular quota. The competitive score consists of scores achieved in upper secondary school and scores achieved afterwards plus any additional points. 50 % of all study places are in this quota.

*3 additional students started later

Comments

The number of students applying to veterinary studies at NVH has remained high and stable for many years. NVH accepts the students with the highest grade point average in Norway. In the new university, the student admissions will be the same as the current procedure.

2. AP 2b Student assessment procedures

Enrolled students must be assessed regularly using published criteria, regulations and procedures which are applied consistently.

- *Be designed to measure the achievement of the intended learning outcomes and other programme objectives, e.g. day-one competencies*
- *Have clear and published criteria;*
- *Where appropriate, not rely on the judgement of single examiners;*

- *Results of assessment must be documented properly;*
- *Be subject to administrative verification checks to ensure the accuracy of the procedures.*
- *In addition, students should be clearly informed about the assessment strategy being used for their programme, what examinations or other assessment methods they will be subject to, what will be expected of them, and the criteria that will be applied to the assessment of their performance.*

Summary:

Enrolled students are assessed regularly using consistently applied, published criteria, regulations and procedures. Examination and assessment are strictly regulated through the legislation nationally and locally at NVH. Plans for examinations, different assessment methods and grading system are publicly available on the internet every May for the upcoming academic year through the published “Study Plan” at NVH. According to the law, there must be external examiner for all examinations in Norway. Furthermore, the achieved grade from the examinations is available on student web for each student 3 weeks after the examination. The complaints procedure is regulated according to the law. NVH has regulations and procedures to follow when a student fails. All the grades are, through strict regulation, plotted in the Student administrative system (FS) and aggregated student results are reported and published on the website of the Database of Higher Education (DBH). In the annual Study Quality Report the grade distribution and failure rates are given for each subject/block. NVH’s quality policy is to have transparency in respect of all examinations and student results.

Written information and procedures:

The School's examination and grading systems are strictly regulated through “Regulations for Admission, Studies and Examinations at NVH”. Further instruction is given in these documents:

1. For internal and external examiners:
 - “Study plan and term schedules”
 - “Manual for block leaders”
 - “Academic and formal quality assurance for written exams”
 - “Guidelines for Sensors’ Manuals”
 - “Guidance for Sensors”
 - “Criteria for grading in Norwegian and English”
2. For students:
 - “Study plan and term schedules”
 - “Manual for students”
 - “Sheets for Examination Applications”
 - “Instructions for examination candidates on written exams”
 - “Information about fail monitoring”
 - “Complaint Sheets and information about the complaint procedures”
 - “Criteria for grading in Norwegian and English”
3. Staff at the study department (SFA)
 - “Study plan and term schedules”
 - “Administrative procedures and forms for SFA”

Additional documents:

- “Guidelines for Clinic Approval for 8th and 9th Term”

“Guidelines for Thesis Work”

All these documents are public available on NVH’s Web site.

Policy and assessments of the examinations’ academic quality

Student assessment procedures are designed to measure the achievement of the intended learning outcomes including day one competencies. NVH’s policy for the teaching process and assessments is stated in “Manual for Block Leaders” as follows:

In the planning phase, the learning outcomes for the block have to be reviewed and the appropriate tools determined. Teaching and assessment should adapt learning outcomes. That means: The teaching should facilitate that the students' reach the goals and the assessment should measure whether the objectives have been achieved. Assessment should not only serve as a check on students' learning, but also in itself contribute to learning.

Testing of students' skills and knowledge during the program will give them the opportunity to demonstrate an understanding of the relationships and critical reflection, also in relation to their own attitudes. During the study programme, there will be variation in how students' learning is assessed. Examinations will be assessed in accordance with University and College Council and the Ministry's recommendations for the grade and in line with the Act Relating to Universities and University Colleges.

In the current curriculum, the teaching is mainly organized into blocks. Each block involves teaching in several subjects, and is concluded with an examination. Some blocks also have mid-term examinations. The teachers and the block leader form a project group with tasks to achieve better learning outcomes for the students by improving the teaching and examination in the cyclic quality work (figure 3). The students’ evaluation of the block is an important source of feedback in this matter. The block leader is responsible for the examination quality.

The current “Study Plan” was adopted by the board in 2002 (revised 2006 and 2011). Minor revision included that the revision of a block’s exam procedure is according to the “Regulations for Admission, Studies and Examinations at NVH” delegated to SU. If the teaching staff of a block wants to change the assessment methods, they must submit an application to SU before the next academic year revision of the “Study Plan”. SU revises the subject description in the “Study Plan” and “Term Schedule” one to two times annually and this revision is approved after a hearing process in May (and November if necessary). The main revision is in May for the next academic year. The teaching staff and students are heard in this process.

Matters related to assessment methods are always handled in the Study Committee (SU), which has two student representatives, and one member from each department. The Head of the Studies is the secretary. There is usually cooperation between SU and the block leader concerning changes in assessment methods. The students from VSU are also involved. The reason for this is that SU wants variation in assessment methods and wants to see the blocks in connection with each other. SU is responsible for the assessment methods for the whole study programme (See example below figure 2).

If problems have been detected through SU’s work with the Study Quality Report, e.g. for poor student results or poor student evaluations or where SU believes that the block is not testing learning outcomes well enough, SU may initiate a process in cooperation with the

block. This is normally done by establishing a working group to look at content, teaching and assessment in a block. Such groups consist of academics from the block, students and normally a person with pedagogical expertise. The working groups provide suggestions for changes to SU. The Rector makes the final decision.

Example how SU worked 2011/2012:

1. *Problems: Extremely low failure rate in examinations in introductory veterinary medicine in the 7th semester. Learning outcomes were added at a very high level in relation to the timing of the block, and the questionnaire did not test the intended learning outcome. Clinicians in 8th semester meant that students were not well enough prepared.*
2. *SU discussed this in several meetings and introduced measures in the Study Quality Report for the next year.*
3. *SU established a working group, which came up with suggestions.*
4. *Block leader, VSU and SU received minutes from the working group continuously for comment.*
5. *VSU and the block leader received the final proposal for comment before the suggestions were discussed by SU.*
6. *SU gave advice to the Rector who finally decided changes.*
7. *The Head of Studies sent assignments to the block leader about the implementation.*
8. *The Head of Studies put the changes in the next year subject description in the Study plan and term schedule.*
9. *SU adopted the next year subject description in the Study plan and term schedule by the annual process for Study plan revision*

Assessment methods in the veterinary curriculum

NVH uses mostly written and to a lesser extent oral examinations at the end of a block. Often the written examinations have a mix of short answer assignments, multiple choice questionnaires, photo assignments and essays. Several blocks also have written examinations in the middle of a block that are counted in the final grade. The final examination may then be a major written examination or an oral examination. After 9th semester, there is a long case, large clinical examination in production animal medicine including poultry, and in small animals- and equine medicine. Students must write a scientific paper on diseases in wildlife and semi-domesticated reindeer in 8th semester and a thesis in their final year (20 to 40 ECTS). Students who have chosen the project-related differentiation track have to write a thesis at the master level and deliver a presentation and discussion with examiners. In most blocks, there are also requirements that must be passed in order to take the examination. These can be in the form of group work and presentations, case discussions, testing laboratory skills, written tests and compulsory courses which require the presence of the student and optionally submitted reports and journals. There is a separate approval for the clinic weeks. Students who show poor attitude and behaviour in the clinics may have one or more weeks disallowed.

Further detailed descriptions of the examinations and the requirements to pass the examinations, are available in the “Study Plan” and on the student intranet site (Hippocampus to 2013 or Fronter from 2013). Students have access to previous written examinations. Some blocks give students the opportunity to take a test examination, and the examiners tell them how they will judge this examination. The clinical departments have a trial examination, and the students are allowed to watch clinical examinations and the presentation of graduation

theses. However, very few students use this opportunity. The students also have the right to see their assignment, any examination manuals and complaints for examination after a written examination.

Examinations and retakes

Final examinations are located at the end of each block. Students are normally free to read 1-3 weeks before the examination. Retakes are placed in the last week of the summer holidays or Christmas holidays. The curriculum sets requirements for a student's credit production to continue the next academic year after the retake period in August. On application, the Rector may in some cases grant exemption, but professional concerns are more important than the student's wishes. Students who fail the same examination three times lose their right to study at NVH. The student can apply for a 4th attempt. The Rector decides whether to allow the 4th retake after a conversation with the student and the Head of studies. These decisions may be appealed to the Board of Appeals. The maximum time a student may use studying on the veterinary programme is 8 years. Legal leave comes in addition, however.

In May/June, every student who may not succeed in meeting the requirements for credit production after the retake period of August, receives a letter from the Study department. The student is informed about the rules and what happens if they do not pass the examination at retake. The student is invited to a counseling talk at the study department, if they want one. If a student does not pass the retake and is not allowed to follow the class next year, he/she must have a talk with the Head of the studies and in some cases together with the Rector.

Examiners work and grading

Grading can be either pass/fail or A-F equivalent to the ECTS scale. NVH always uses more than one examiner, with at least one external and one internal examiner. One of these examiners is normally experienced. The Rector appoints external examiners for 5 years. According to the University act, "an external evaluation shall be made of the assessment or assessment arrangements". The normal practice at NVH is to employ external examiners for each student assignment. However, when an examination is of a pass/fail, multiple-choice format, an external assessment is made of the examination arrangements. There are also examiner manuals for most subjects. External examiners also participate in examiner meetings to discuss grading for each student. All external examiners sign the grading form and the block leader delivers it personally to the study department. For the written examinations the document: "Academic and Formal Quality Assurance for Written Exams" serves as a checklist and quality assurance of the examination and examiners.

The examiners have three weeks to submit the results of the grading. When the study department receives the results, the results are put in a safe until the grades are written into the administrative student system (FS). Two persons have to check the printout from FS and write their name on it for accuracy. The signed printout is then placed in the safe. All grades will be anonymously visible to the students through the student web (An FS system). The grades are also exported to the Student Loan Fund, which enables the conversion of some of the students' loans to scholarships. NVH reports all student data to the Database for Higher Education once to three times a year. NVH is required by law to have quality control procedures for checking the correctness of student data. This may be controlled by National Audit Office ("Riksrevisjonen"). Students' examination papers are stored centrally according to the law of archives, and all student theses are saved in the library.

Student results

Each year student results for each block are presented in the Study Quality Report. Developments in the failure rates over the years are followed carefully. If more than 15% of students fail in a single examination, the block must take action and report this.

Students can appeal both grades and formal errors. Complaints about formal errors are resolved by the Board of Appeals. An overview of the number of complaints and the outcome of appeals are presented in the Study Quality Report every year.

The failure rate on the Veterinary Programme (DBH data):

2007	2008	2009	2010	2011	2012
7.7 %	6.0 %	4.8 %	3.5 %	4.4 %	5.8 %

Study point production for each student on the Veterinary Programme (DBH data):
(60 is max study points)

2007	2008	2009	2010	2011	2012
n/a	51.5	48.9	50.5	51.1	47.0

Grades distribution for A-F on the Veterinary Programme (DBH data):

	A	B	C	D	E	F
2011	8.8 %	34.7 %	28.9 %	14.6 %	5.9 %	6.1 %
2012	8.4 %	31.4 %	32.2 %	15.6 %	6.2 %	6.1 %

Comments

The new regulations for Admission, Studies and Examinations were adopted by NMBU in December 2013. The veterinary and animal nurse studies have received sufficient exceptions to the general university rules to ensure these courses retain their structure and form.

There are some indications that the student results are falling, and NVH needs to take action on these matters again. The failure rate was up to 11 % when the present curriculum (2002) was initially implemented but had been declining until 2010. There is a national trend that the numbers of drop outs in higher education in Norway are increasing. In a national context, however, NVH has good results and is one of the institutions with the best student flow (see Appendix 4). NVH has only 56 fully government financed student places (NVH has received an additional 7 more fully financed student places from 2014), but has an intake of 70 veterinary students each year. NVH has countered this drop-out problem by taking in more students than the fully financed places. In the autumn 2013, 76 students were admitted at the veterinary studies. This topic is thoroughly discussed in this year's study quality report (see Appendix 3).

Suggestions

Because of the high number of applicants and limited resources at NVH, NVH has not previously given priority to marketing. In NMBU, there is a separate communications department with responsibilities to promote studies. Veterinary students will in 2014 visit all Education Fairs to inform applicants about studies in veterinary medicine. This information campaign may prepare the student better and reduce the subsequent drop-out rate. NVH will in 2014 also carry out a study on why students have dropped out of the veterinary course so that future action will be based on a better understanding of the problem.

SU has plans to look at the assessment methods for the clinical part of the studies. Assessment is an important task when starting to work with new curricula (See chapter 5). There is still need for more competence in assessment methods and curriculum development at NVH. The Study committee should continue to initiate seminars at *NMBU- School of Veterinary Science* on this topic.

3. AP 3a Postgraduate Student Education; academic Track

Information on the following topics is required:

- *Admission of national and foreign students*
- *Underlying study programmes, requirements and programme-assessment*
- *Student assessment procedures and results*

Postgraduate education performed: PhD and Dr.Philos.

The doctoral education at The Norwegian School of Veterinary Science (NVH) comprises the philosophiae doctor (PhD) and the doctor philosophiae (Dr.Philos.). The latter may be conferred on graduates who have qualified for a doctoral degree on their own, without formal research training. The preparatory work and the thesis of the Dr.Philos. degree are expected to be more extensive than that of the PhD degree because the Dr.Philos. degree does not include an educational component or supervision. Information about application and admission, practical matters and completion of the doctoral education is available on the NVH's webpage: (<http://www.nvh.no/en/Home/Study/PhD/>).

NVH is assigned 32 PhD positions that are financed over the ordinary budget provided by the Ministry of Education & Reserach (KD). In addition, there are PhD positions partly or fully financed by external project funding. Persons employed at other research institutions may also be enrolled as PhD candidates at NVH.

NVH also has some candidates on the Industrial PhD scheme. This scheme is designed to enhance interaction between industry and research institutions and to increase the research activity in industry. The candidate is employed by a company and the company receives an annual grant from the Norwegian Research Council equal to maximum 50 per cent of the established current rates for doctoral research fellowships for a three-year period. For more information please see: http://www.forskningradet.no/prognett-naeringsphd/Programme_description/1253952592832

Seven PhD candidates at NVH receive support from the Quota Scheme. This scheme is offered by the Norwegian Government to students from developing countries in the South and countries in the Western Balkans, Eastern Europe and in Central Asia. The funding is given as part loan/part grant by the Norwegian State Educational Loan Fund, see <http://lanekassen.no/nb-NO/Toppmeny/Languages/The-Quota-Scheme/about-the-quota-scheme/>

All together there are about 120 persons enrolled as PhD candidates at NVH. The Committee for PhD education and Residency Programmes (PhDU) consists of senior academic staff members from each of the four departments, two representatives from PhD candidates, one representative from the Residency programme, and the Prorektor as chairman. The mandate of the committee is given by the NVH board, and the main purpose of the

committee is to suggest the content of PhD education, assure quality and acceptable completion rates. The committee has an advisory role for the Rector.

The doctoral education is regulated respectively by the Regulations for the degree of PhD, and Regulations for the degree of Doctor philosophiae (dr.philos.) at the Norwegian School of Veterinary Science (available only in Norwegian). The PhD regulations comprise:

- Objectives of the PhD education
- Responsibilities
- Quality assurance
- Admission procedures
- Supervision
- Educational components and plans
- Progress
- Doctoral thesis
- Submission
- Evaluation
- Doctoral examination and approval

PhD education

The PhD education is a defined three years full time study consisting of an educational component (30 ECTS) and a research component estimated to 2.5 years. The PhD candidates are given supervision from two or more supervisors. One supervisor is the main supervisor. The supervisors are formerly appointed by the PhD committee.

Under special circumstances, the PhD candidates may apply for up to one year extra time to fulfill the degree. Extension time can be given if the PhD candidates take part in either teaching and/or clinical service duties, or extra time is required for the PhD candidate to acquire necessary competence to perform the research work, or extra time is needed for data sampling. If the PhD candidate is employed part time, the contract period is extended to a total of three years postgraduate education.

Admission procedures

In Norway, the PhD candidates are regular employees during the PhD period and are given a salary and have the same rights as other academic employees. Therefore, all PhD positions are openly announced and there is no discrimination between national or international students other than for some projects that require knowledge of the Norwegian language. Applicants are required to have completed a higher degree equivalent to the cand.med.vet degree, a relevant 5-year Master's degree or other relevant professional degree from a Norwegian institution or equivalent foreign institution. For some positions, especially in clinical studies, a veterinary degree (equivalent to a cand.med.vet) is required. The applicant must be able to document a strong academic background from previous studies. To select between the applicants, a committee is appointed by the relevant Head of Department. On the basis of the committee's evaluation of the applicants' competences, the Head of Department makes a recommendation to the School's Appointments Committee. The NVH committee makes the final decision on appointments based on a total evaluation of the candidates. The PhD candidate will normally be given a contract for three years' employment.

Within two months after the employment, the PhD candidate, together with the supervisors, must submit an application for enrollment as a PhD candidate to the PhD committee. The

application consists of the plan for the research project, the 30 ECTS educational component, a time schedule and a budget for funding. There is also a requirement for plans for a stay at an institution abroad. The PhD candidates are enrolled in the student administrative system of NVH (FS).

The plan for the research project includes the following elements:

- A research project proposal
- A presentation of existing research done within the subject of the project. This is intended to place the project in a wider context and make visible the benefits of the research in question.
- Explicit goals for the research, both long-term and short-term. The short-term goals should be concrete and examinable, and typically are related to individual experiments of the project.
- Description of the methodology chosen for the project.
- Scientific dissemination plan
- Plan for progression (may be schematic).
- Budget (if not presented elsewhere in the application).
- Planned publications
- Plans for a stay at an institution abroad
- An explanation regarding any possible intellectual property rights
- An explanation regarding any possible legal or ethical issues which might arise from the project and how these will be clarified

The supervisor or department is responsible to provide the necessary infrastructure to carry out the research project. If the PhD candidate is employed by external funding or is externally employed, there must be an agreement that ensures the necessary infrastructure between the parties.

Requirements of the PhD education

The PhD education at NVH aims to train the PhD candidate to become an independent researcher at a high international standard in accordance with scientific and ethical principles. The education shall qualify the candidate for research activity and other work in the civil society that demand a high level of scientific insight and analytical thinking.

NVH has defined the learning outcome of the PhD education to be:

- The PhD candidate shall acquire during the education period an overview of the research subject or discipline, and obtain a critical and detailed knowledge that is at the forefront of the selected research field.
- The research work shall make a significant contribution to the topic, and the PhD candidate should be able to design and execute research to deal with new problems, and thereby learn principal skills and use techniques and equipment associated with the discipline.
- The PhD candidate shall demonstrate originality and creativity, be able to deal with new and complex issues, be able to communicate academically and popularly, and deal with ethical issues.

The educational component must contain the academic and methodological training necessary for the candidate to complete the PhD programme. This component shall equal one full-time semester (30 ECTS) and include training in the dissemination of scientific information, scientific theory and scientific methodology. This training includes mandatory courses at NVH (Introduction to biomedical research and mid-term course and evaluation). The PhD candidate is free to attend additional relevant training and courses at PhD or MSc level at other institutions. Participation in relevant seminars or conferences including presentation of own results will also give credits as part of the educational component.

The objective of the research project is to form the basis of a thesis. The thesis must be an independent scientific work of high academic standards with respect to formulating key questions, methodology, documentation and statistics and treatment of the relevant literature. The size of the research project is to comprise about 2.5 year's full-time work. The thesis is based on a collection of articles, and shall represent an independent and comprehensive scientific work. The articles need to be of a standard that is suitable for publication in peer-reviewed journals.

Academic training and courses

The educational component at NVH consists of a three compulsory courses: VET400-Introduction to biomedical research, VET420 Midterm course and VET421-Midterm evaluation. These courses give in total 10 credit points. The remaining 20 credit points are elective.

The individual education plan is outlined in the application for admission to the PhD education and is formally approved when admission is granted. If the PhD candidate needs to change the plan underway, the candidate must notify Department of Academic Affairs and Research Administration (SFA) in order to seek approval. The educational component must be completed and approved by SFA before submission of the thesis.

Information about the courses at NVH is on our website:

<http://www.nvh.no/en/Home/Study/PhD/Academic-training-and-courses/> All the courses are approved by the Committee for PhD education and European Specialist education (PhDU).

Admission to the PhD courses at NVH is conducted through Studentweb. Studentweb is an Internet service, where the PhD candidates also can update their contact information and check the results from courses taken at NVH.

The PhD candidates evaluate the courses on the student learning platform. The teachers use this information to improve the course. If the teacher wants to revise a course the PhDU must approve.

Supervision

On enrollment, the PhD candidate is assigned at least two supervisors, one of which is nominated as the main supervisor. Candidates that are employed at another institution must have one co-supervisor from NVH. The main supervisor has the main responsibility for the PhD candidate. The supervisors must hold a doctoral degree or equivalent competence within the relevant academic field and must be working actively as a researcher. The main supervisor must furthermore possess the necessary qualifications for supervising PhD candidates either from previous supervising experience (de facto competence) or from having completed supervisor training. NVH does not offer any formalized supervisor training at present, but the

members of academic staff are invited to participate in a supervisor forum at The University of Life Sciences at Ås. If the PhD candidate and the supervisors agree, an additional supervisor may be appointed by the PhD committee. Disagreement and differences between the PhD candidate and the supervisors that cannot be solved, may lead to the replacement of one or all of the supervisors. The primary role of the supervisors is to help the PhD candidate develop into an independent researcher by:

- Preparation and outlining of the research topic and ensuring the feasibility of the project.
- Recommending relevant literature and courses of interest.
- Helping in the establishment of national and international networks.
- Creating enthusiasm and a good environment for work and research, research group, journal clubs, seminars and regular presentations.

Procedures for assessment

The assessment consists of the main elements: 1) Annual reports, 2) midterm evaluation and midterm course, and 3) submitting the thesis and its public defense.

The PhD candidate and the main supervisor individually have to submit a yearly report of progress, changes in the project plans, economic matters and about the relationship between the PhD candidate and the supervisors. The yearly report has a standard format.

The compulsory midterm evaluation is tied to the PhD candidate's research project. The evaluation consists of:

- A written presentation of the project with emphasis on the results, progress and modification of the original plan.
- An oral presentation given in an open forum with opportunity for questions and discussion.
- A closed forum led by the project reviewer where the PhD candidate receives feedback on the written and oral presentation.
- The project reviewer's written report

The midterm evaluation aims to provide the opportunity for the student to practice oral and written presentation of his or her research results placing the project in a wider scientific perspective. The evaluation is meant to motivate the PhD candidate and the supervisors and to detect any aspects of the project that need extra focus or follow-up. The midterm evaluation is connected to the midterm course (2 ECTS), which focuses on completion and thesis-writing. The doctoral thesis must be an independent work of scientific research at an international standard. The articles in the thesis should conform to standards suitable for publication in international peer reviewed journals. In addition to the scientific papers, the thesis must contain:

- A summary in English and Norwegian
- A background and introduction
- Main objectives and sub-objectives
- A summary of the papers
- A discussion of the scientific work, materials and methodology, strengths and weaknesses and conclusions and perspectives for further research

Submission of the thesis

The PhD candidate applies to the Rector to have the thesis evaluated, and a recommendation from the supervisor must accompany the application. The Rector will approve or reject the thesis to be evaluated.

The Rector appoints an evaluation committee consisting of three experts recommended from the relevant Department. Both genders should be represented in the committee. One of the members of the committee is usually from the staff at NVH, and serves as a coordinator for the committee. The two other members of the committee will not have any affiliation with NVH, and as far as possible, should be from a foreign institution. This is to certify that the scientific work is at an international standard. The committee submits a report that contains a conclusion as to whether the thesis is worthy of a public defense leading to a PhD degree. The procedures related to the committee's report are stated in the Regulation for the degree of PhD.

The doctoral examination consists of a trial lecture on a given topic and the public defense. The trial lecture has to be approved by the evaluation committee before the candidate is given the opportunity to defend the thesis. The committee approves or rejects the public defense and gives a recommendation to the Rector. On basis of Rector's final approval, the candidate is awarded the degree of PhD.

Table 4. PhD results the last 2 years.

	2011	2012
Number of students enrolled	PhD: 20 Dr.Philos.: 0	PhD: 8 Dr.Philos.:2
Number of students passed	PhD: 19 Dr.Philos.: 2	PhD: 21 Dr.Philos.: 1
Mean number of paper per student	4,21	4,29
Mean number impact factor obtained per student	1,79	1,64

Comments:

NVH expects to award 31 PhDs in 2013, which will be a new record. As of November 2013, the administration and regulations for PhD studies have not been decided for NMBU. There will still be need for administrative support to the four departments at Campus Adamstuen.

Suggestions:

A local Committee for PhD education and Residency Programmes would promote quality assurance work in this area at *NMBU- School of Veterinary Science*. This committee should report to the Central Research Committee.

4. AP 3b Post-graduate student education; professional track

Information of the following topics is required:

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

NVH is an approved European College institution which is affiliated to the European Board of Veterinary Specialization (EBVS) and diplomates, in the areas where NVH has residencies:

Table 5. Diplomates, Residents and Interns at NVH

College	Diplomate title offered	Number of diplomates on staff		Number of Interns		Number of residents		Success rate	Success rate
		2012	2013	2012	2013	2012	2013	2012	2013
European College of Animal Reproduction	Dipl. ECAR	7	7	1	1	1	1	-	
European College of Animal Welfare and Behavioral Medicine	Dipl. ECAWBM	1	1	0	0	0	0	-	
European College of Bovine Health Management	Dipl. ECBHM	1	1	0	0	1	1	1/1 failed	
European and American College of Equine Internal Medicine	Dipl. ECEIM Dipl. ACEIM	4	4	1*	2*	0	0	-	
European College of Porcine Health Management	Dipl. ECPHM	1	1	0	0	3	3	-	
European College of Small Ruminant Health Management	Dipl. ECSRHM	2	2	0	0	0	0	-	
European College of Veterinary Anesthesia and Analgesia	Dipl. ECVAA	1	2	0	0	1	0	1/1 success	
European College of Veterinary Clinical Pathology	Dipl. ECVCP	2	2	0	0	1	1	-	
European College of Veterinary Dermatology	Dipl. ECVD Dipl. ACVD	0	1	0	0	0	1	-	1/1 Success
European College of Veterinary Diagnostic Imaging	Dipl. ECVDI Dipl. ACVDI	1	2	0	0	2	2	1/3 **	1/1 and 1/1**
European College of Veterinary Internal Medicine - Companion Animals	Dipl. ECVIMCA	0	1	2*	6*	0	1	-	1/1 Success
European College of Veterinary Neurology	Dipl. ECVN	1	1	0	0	0	0	-	
European College of Veterinary Ophthalmology	Dipl. ECVO	2	2	0	0	0	1	-	

European College of Veterinary Pathologists	Dipl. ECVP	5	5	0	0	2	2	-
European College of Veterinary Public Health	Dipl. ECVPH	5	5	0	0	1	1	-
European College of Veterinary Surgery	Dipl. ECVS Dipl. ACVS	3	3	0	0	0	0	-
European College of Zoological Medicine	Dipl. ECZM	1	1	0	0	0	0	-

2013 include data until 20. November 2013.

*Interns in horse medicine and small animal medicine.

** Mid-term examination. Final examination has to be taken

NVH offers no other specialization than through EBVS. NVH has prepared “Guidelines for Quality Assurance of Diplomate Education at NVH”. These guidelines are an important tool for quality assurance and focus on the process at NVH from admission to an approved examination. This document also clarifies responsibilities and may be used as a check list for those involved. The Committee for PhD education and Residency Programmes is responsible for area 4 in the quality system, and for working out and following up the Study Quality Report for this area (See figure 3)

NVH announces the availability of residencies publicly. This is accomplished through the regular employment procedures. Specialist candidates have the regular rights and duties of other employees of NVH. It is also possible for employees in other positions to apply for a college admission, provided that this is approved by the head of their department.

Residents must have a supervisor at NVH. If NVH does not have a diplomate on site, NVH may enter into a partnership with another institution. NVH has no organized collaboration with other institutions for specialist training at the present time. All the examinations are taken at other veterinary colleges.

Comments

NVH has increased the number of residency positions in the last year.

Suggestions

NVH should continue to work for more residents in small animal medicine and surgery. The Nordic Forestry, Veterinary and Agricultural University Network, NOVA, is at present looking into possibilities for working on joint solutions for residency training at the four veterinary programmes in Finland, Sweden, Norway and Denmark.

2. AP 4 Student welfare

Information of the following topics is required:

Measures taken to prevent zoonoses

General and specific student counselling

As with university staff, students are covered by the Norwegian Working Environment Act regarding Health, Environment and Safety (HMS). There is a HMS system at NVH, with a central HMS coordinator. The department which is responsible for the teaching is also responsible for the necessary safety training of students and for focusing on health and safety

in line with the strict regulation by law in Norway. Separate instructions for laboratories, clinics and pathology and dissection halls have been prepared and must be followed. (See chapter 6).

Under each subject in the Study plan it is explained briefly what kind of safety training is given in the block. Pregnant students need to take special precautions when handling certain agents or animals suspected of suffering from a zoonosis. Pregnant students are encouraged to inform teachers at the start-up of subjects that could pose a risk.

Information of how injuries to the students have to be followed up through the HMS system is given in a “manual for students”. It is the Head of the departments responsibility to follow up each accident. All injuries are also reported to the work environment committee (AMU) which is obliged to follow up on these reports. There have been some concerns about too many students being injured during their studies at NVH. In 2012, 9 students were injured, and as of November 2013, 7 students had reported injuries.

Students are encouraged to take out private accident insurance, as NVH has no personal accident insurance beyond Norwegian national insurance. Students are encouraged to attend the annual first aid course which is an initiative by student organization VSU.

All students should be vaccinated against tetanus at the start of the study. In exchange to countries where rabies is present or where other vaccines are required, NVH students must be vaccinated before they travel to these countries.

As of autumn 2012, students are asked in student evaluations if they have received adequate safety training in the block, and whether they felt that the necessary precautions to avoid injury and zoonosis were taken. The responsibility for following up belongs to the head of the responsible department. In 2013, a full report of all student answers was sent to the Learning Environment Committee (LMU), HMS Coordinator and Work Environment Committee (AMU), so that systematic efforts at an institutional level can be taken.

General and specific student counseling

At study start, students are informed orally and given written information about being a student at NVH. Students have their own mentor programs and many social activities for the new students. The Study department informs about the curriculum, regulations and the student organization for all students in Oslo and Akershus (SiO). The Head of Studies also organizes a meeting where students who have studied one year at NVH, inform the new students on study techniques and habits. The study department also organizes other information meetings later in the study.

The Center for Further and Continuing Education (SEVU), Study department and associations for veterinarians and veterinary nurses organize a career day at NVH. In 2013, about 137 students participated. At NMBU, there will be a careers center for students, which will give students new ideas and possibilities.

The study department practices an open-door policy. Students do not need to make appointments to talk to an adviser. The study department has an international adviser who takes special care of students going on exchange, or international students who come to NVH.

The study department systematically monitors the student examination results and has routines for written information and following up of students with study problems (See chapter 2 AP2b). If a student cannot follow the expected progression, a new education plan is made for the student. If necessary, the adviser at NVH informs the student about the health care centre at SiO, which has psychologists, social workers and doctors. SiO has a low threshold service for all students which is free of charge. SiO membership is, however, obligatory for all students and costs about 900 NOK a year.

SiO supplies student housing, fitness facilities, bookstores, dentists and kindergartens for all students in Oslo and Akershus. The canteen and bookstore at the school's campus at Adamstua are run by SiO. Additionally, students also have access to a welfare building with fitness rooms, locker rooms and bodega pub at NVH.

At NVH, there is a private kindergarten which also students with children can use. There is a kennel for students' and employees' dogs.

The students' political organization (VSU) has meetings with the Rector, Director, Prorector and Head of Studies every six weeks, and informs the rest of the students weekly by mail about their work. Students themselves run many activities for students through the students' social organization (VSF). VSF has regular meetings twice a year with the Rector, Director, Prorector and Head of Studies.

Through the Act Relating to Universities and University Colleges, NVH is required to have a Learning Environment Committee (LMU) working with the students' physical and psychological learning environment. This committee reports directly to the Board and writes annual reports on its activities and the status of NVH. In 2005, LMU completed a major health and welfare survey in collaboration with psychologists and doctors at SiO and students at NVH. Psychologists also assisted in monitoring students, including offering stress management courses open only to students at NVH. NVH also had collaboration with student advisers to provide students with study technique courses. Interest among students dropped after a few years, so such courses are not offered currently. In 2014 the psychologists at SiO will carry out a new health and welfare survey. The veterinary students at NVH are to be included together with students from other universities and colleges, which are members of SiO.

LMU completed three learning environment surveys in 2007, 2009 and 2011. Students participated very actively in the efforts to create and follow up these investigations. In anticipation of a planned national survey in 2013, it is not planned to carry out a special learning environment survey at NVH this year. These surveys, among other things, monitor how satisfied students are with the school's support and welfare services. NVH also receives information about the students' level of academic stress and pressure of work. NVH will receive the results of the national survey in February 2014.

Comments

In NMBU, a central LMU will report to the University Board. There will also be a local LMU on Campus Adamstuen reporting to the central LMU.

Students on Campus Adamstuen will in the two campus period have access to all services that SiO offers.

Students will have a local council that takes over the function of VSU, and this council will have regular meetings with the School Director. All services from the Study department will continue in the two Campus period.

There have been too many injuries to students in the clinics and laboratories at NVH.

Suggestions

At Campus Ås, each department has student advisors. At NVH, this has been centrally organized through the Study department. During the two campus period, it will be important to ensure that students in the veterinary and animal nurse courses still have access to student councillors who know the distinctive character of the veterinary studies.

The HMS coordinator is a new position at NVH and HMS has recently been included in the student evaluation Questionnaire. Systems to follow up injuries must be better and more resources to prevent injuries must be made available.

3. Assessment of teaching staff

- *Institutions should ensure that their teaching staff recruitment and appointment procedures include a means of ensuring that all new staff have at least the minimum necessary level of competence.*
- *Teaching staff should be given opportunities to develop and extend their teaching capacity and should be encouraged to improve their skills.*
- *Opportunities for didactic and pedagogic training and specialization should be available.*
- *The institution should describe any systems of reward for teaching excellence in operation.*
- *A system for assessment of teaching staff must be in operation and should include student participation.*

Staff recruitment and appointment procedures

The employment regulations at NVH describe the recruitment process based on the “Norwegian Act Relating to Civil Servants” and the “Norwegian Act Relating to Universities and University Colleges” and defines the requirements for teaching, postgraduate supervision and scientific merit for educational staff. Documented competence in relevant educational theory and practice based on training or on teaching and supervision is a criterion for employment. A lack of pedagogical skills has to be compensated within the first two years of employment by attending a course in pedagogics (10 ECTS credits). This requirement is normally emphasized both in the instructions for the position and in the job posting. The quality of the hiring process is assured by appointing an expert evaluation committee, a recommendation committee and an appointment committee. The expert evaluation committee produces an assessment based on the applicant’s qualifications in teaching skills together with other qualifications. Based on the assessment the recommendation committee decides who to invite for interview and whether a trial lecture is required. Trial lectures are used to some extent depending on whether this ability needs to be verified. Their recommendation is passed on to the appointment committee for a further quality assurance and a final resolution.

Economic incentives

During local pay negotiations twice a year, there are five specific criteria for scientific positions that support a claim for a raise in salary. Pedagogical skills/development and development of new teaching programs are one of the criteria. This focus and recognition support teaching as an area of expertise and encourage good performance. The teachers are also evaluated on scientific merit and this represents a significant input to salary negotiations for teachers.

Available staff development facilities

Veterinary surgeons and veterinary nurses in Norway are obliged by the law governing animal health professionals to keep themselves professionally up to date. The development of teaching staff is a responsibility that lies at the departmental level at NVH.

Staff members are encouraged to take part in national and international congresses and continuing education. The goal is for every teacher in the clinical departments to participate on average in one national or international field-specific congress with the full financial support of the department each year. Many of the staff members are contributors to the Center for Further and Continuing Education's (SEVU) courses, and, of course, they also have the opportunity to attend courses held by SEVU (see Chapter 7).

Professors, Associate professors, post docs and PhD students will conduct research as part of their job, and they are encouraged to present their work at national and international conferences and establish international networks. The academic staff at NVH have the possibility to take sabbatical leave in line with other University institutions in Norway. Most resident's positions and PhD positions are advertised, but the department may allocate funds to educate their own employees further when desired. Whenever relevant, teaching staff who might fulfill the requirements for a full professor position or an associate professor position, are encouraged to apply for promotion. The deadline for applications is 15th September each year. Successful candidates will receive an individual promotion.

In the clinics and in other practical courses (for instance: pathology and anatomy dissection) young teachers are under supervision of older teachers when they are at their beginning of their academic career. There is also always at least two examiners assessing the students, and one of these is normally experienced.

The appraisal meeting is an important tool in identifying needs for competence, and this is implemented systematically at NVH. Appraisal meetings are conducted with the nearest leader, normally the section leader, and are performed once a year. Various aspects of the staffs' work, such as evaluation of teaching, scientific production, external funding, career development and plans for the coming year are discussed. The departments may take in use work plans for the staff.

The head of the department is responsible for following up individual teachers where the students have a complaint, and for conveying both praise and criticism which has been given through student evaluations.

NVH has not had its own section for pedagogy, but teachers at NVH have been able to attend UMB's 10 credit course in University Pedagogy for the last twenty years. All employees in regular teaching positions must take this course, and it is the department's responsibility to ensure that they do. Other staff members such as veterinary nurses, who participate in teaching, usually get the opportunity to take this course too.

NVH implemented e-learning (Class Fronter) in 2013. Previously, NVH has used Hippocampus (an intranet web site) as an information channel to students and "It's Learning" for PhD courses. Incorporation into NMBU from January 2014 will provide new possibilities regarding e-learning as a pedagogic tool, as UMB has both the experience and educational expertise in this area.

The Study Committee (SU) is responsible for organizing educational seminars for the teachers at NVH. Both national and international lecturers have been used for this purpose. Various assessment methods in veterinary medicine and professional ethics among others have been topics. There has been great interest among the teachers for these seminars. SU also arranged meetings where various educational topics have been up for discussion, e.g. implementation of learning outcomes in the study programs descriptions. A two day seminar was held in autumn 2013. Day one was for teachers and students and about 40 teachers and 10 students participated. On day two, the meeting was between SU and the two invited lecturer. The topic was curriculum development and Peter van Beukelen from Utrecht and Stephen May from RVC were the invited lecturers. Teachers have asked for more seminars about education, and the merger with UMB may provide more resources in this field.

Teaching performance and excellence

In connection with the Study Quality Report work, meetings are held with the Rector and Heads of departments every autumn. Blocks that have been given a very good evaluation get special attention. Normally the head of the department brings this praise back to the block's teachers.

There is also a system of reward for teaching excellence in operation: the School's award for communication and teaching - the Pegasus Prize. This is given to individuals who have distinguished themselves in the field. It has been awarded six times since 2004. The Committee proposes candidates on the basis of applications from students and staff. The Board assigns the prize and it is awarded during the students' graduation ceremony. The prize consists of a diploma and 6250 €.

Students present their own awards for educators who have made a special effort for the students. This is only awarded when they believe they have good candidates. The last time this was awarded was at the graduation party of autumn 2011.

Role of students in assessing teachers

NVH has had a student evaluation system for the last 30 years (See chapter 1). In 2005, the system became electronic and in 2011 the electronic system was further developed. Since 2005, the students have had the opportunity to comment on teachers anonymously for each block every year through this system. These comments are given to the Head of the responsible department. The Head of the department follows up these comments. NVH does not collect scores for individual teachers.

The follow up of teacher evaluation is usually done in the form of conversations between the teacher and the Head of department. At one department all their teachers must read both positive and negative comments about themselves and if there is criticism this is followed up in a conversation, if necessary. If there are larger problems with a teacher, further instruments are used: These can range from the introduction of microphones, changes in teaching methods: e.g. if a teacher does not work well as a lecturer, he/she will do more supervision instead. In extreme situations, a teacher will be removed from this kind of teaching altogether. Mentoring, supervision from colleagues and pedagogic training may also be tried.

Through the evaluation system, NVH also obtains information about the students' results and the students' satisfaction with the different blocks. When SU becomes aware of problems they may start a review process of the block. This has for instance been done for animal biology, population medicine, anatomy and physiology in the veterinary programme. The block leader, together with the other main teachers, cooperates with a person who is competent in pedagogy to develop the didactic and pedagogical quality of the course or block. Such a process also improves the teachers' pedagogical skills.

Comments

NVH has had very few pedagogical resources. The new university will increase these resources.

Suggestions

The resources of the new University should be used to develop further the pedagogic skills of teachers at NVH.

4. Assessment of learning opportunities

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

Quality assurance system

The learning opportunities are described in chapter 6: Framework quality in NVH's quality assurance system. The person or unit which is operationally responsible for each learning opportunity is given there. Learning opportunity is highly emphasized in university legislation.

The university act states: Learning environment

(1) The board has overall responsibility for the students' learning environment. In cooperation with student welfare organizations, the board shall seek to provide suitable conditions for a good studying environment and to enhance student welfare at the educational institution.

(2) The board is responsible for ensuring that the learning environment at the institution, including the physical and mental working environment, is fully satisfactory on the basis of an overall assessment of considerations regarding the

health, safety and welfare of the students....

(3) At the institution there shall be a learning environment committee to assist in ensuring implementation of the provisions laid down in the first and second paragraph....

The learning environment committee reports directly to the board and shall submit a report each year concerning the institution's work on the learning environment. The students and the institution shall each have an equal number of representatives on the committee.

(4) The institution's work on the learning environment shall be documented and be included as part of the institution's internal systems for quality assurance pursuant to Chapter 1-6.

The Learning Environment Committee (LMU) has a central role in the quality assurance of the learning environment at NVH. The committee from NOKUT wrote in their report in 2007:

"The Committee would like to praise that NVH has succeeded to give LMU a central role in the college's governance structure, and generally put a clear focus on the overall learning environment at the college, which is also reflected in the prioritization and resource management. Interplay between LMU and students bodies also seem to work well. "

NVH has in this 10-year period modernized many of the student facilities such as auditoriums, computer rooms, student computers, printers and projectors, wireless networking, group rooms and clinic rooms. NVH has started to rent examination rooms outside the institution. But there is still much to be done because of old and outdated buildings. This is also one of the reasons why NVH is merging with a university and getting brand new buildings. Since 2003 LMU has provided a total of nine annual reports to the School's Board. Each year, LMU prioritized the school's modernization needs and provides a financial report to NVHs Board.

LMU undertook a health and welfare survey along with VSU and psychologists from SiO in 2005. It was found that students experienced high workload and stress related pain. The psychologists held stress coping courses for the students for three years after the survey. LMU completed three learning environment surveys; 2007, 2009 and 2011. These surveys have asked about physical environments such as auditoriums, reading room, group rooms and computer facilities, student welfare, student service, library, work load and stress, student democracy and student exchanges possibilities. LMU has submitted separate reports to the Board on the basis of these investigations. Measures have been taken locally in the individual department or in the student organization. There have also been initiatives that have been written in the study quality report for the coming year's work. In learning environment surveys some questions have been repeated, while others are reshaped. The surveys indicate, however, greater student satisfaction now than in the first survey. In 2013, NVH shall participate in a nationwide survey conducted by NOKUT. The result of this study should be ready in February 2014.

The evaluations have shown great variation between blocks in work load, although ideally one week gives 1.5 ECTS and should be a work load of 40 to 45 hours. In the health and welfare survey it was revealed that time spent on self-study throughout the programme was relatively constant, while the organized teaching varied. SU has also followed up the learning environment surveys, by distributing student work load more equally between subjects, changing the curriculum, and introducing various forms of examination that diminish students' levels of stress. The teachers have also worked systematically to improve teaching

based on feedback from students. In all block evaluations, there are questions about student satisfaction and motivation, as well as total time students spend on teaching and self-learning. NVH monitors this closely. Students have reported increased satisfaction with NVH, although most students experience the study as hard.

In several evaluations, students have reported that their teachers are helpful and kind. There is a low threshold for contacting their teachers, support units and the Rector. Most of the teachers respond quickly by mail and have an open door policy. The study department as a service agency for the students also practices an open door policy and is quick to respond to student inquiries. NVH has still a relatively low group size in the clinics, but less suitable buildings and relatively difficult logistics provide some challenges in clinical teaching. During the last year, the small animal department has worked hard to try to spread students more evenly over the calendar year, so that the group size will be as small as good as possible.

Learning opportunities

As with other veterinary institutions, there is much use of case-based learning and problem-oriented learning at NVH. Right from the start of the study, students work in groups on various tasks. Students are partially in self-selecting groups; partly they are assigned to groups. They must present their work orally in various parts of the programme. Although NVH has made several group rooms available in recent years, there is still a lack of good group rooms. The lack of suitable group rooms is a hindrance to this teaching method.

Teachers have the freedom to choose their own didactic methods within NVH. However, they are given certain guidelines in the Manual for Block Leaders. Teachers in a block work as a project group and conduct proper planning, implementation, evaluation and improvement each year. Teachers are free to post lecture notes on the student intranet, but they should announce their policy on this to the students in advance. Students have through the "*Freedom of Information Act*", the right to see previous examination papers. It is common for NVH to post lecture notes, exercises and old examination papers on the student web. On this intranet students will find bibliographies, compendiums and lecture notes to use in their self-study work. There are many pictures available and also explanations e.g. histological sections, on these web pages. Students can work with histological sections, pathological and anatomical specimen collection and images that are relevant for the various subjects in their self-study time.

In 2013 NVH will move from "*Hippocampus*" as a student information web channel to "*Class Fronter*" as an E-learning platform. This change will provide new opportunities, as it will now be possible to post videos, and a greater degree of interactivity can be possible. In population medicine, posting lecture recordings on the web has been tried. This has been popular with students.

Multimedia Room/Training Clinic

The Norwegian School of Veterinary Science wishes to make greater use of audiovisual aids and other alternatives/supplements to the use of animals in teaching. A multimedia room/training clinic equipped with a selection of relevant products that students and teachers can use at all stages of the veterinary and veterinary nurse courses opened in 2009. The Norwegian School of Veterinary Science had for many years collected information on alternatives and supplements to the use of animals in teaching. The NORINA database (<http://oslovet.norecopa.no/NORINA>) has been established, which contains information on approx. 3,900 alternatives produced worldwide. Many of these alternatives are aimed at

higher education. In 2003, the Laboratory Animal Unit, with the project “Quality Assurance of Research-based Instruction in Laboratory Animal Science” received the 3rd prize for outstanding work in Norwegian higher education. It is the Ministry of Education and Research who awards the prize. The Jury’s justification reads: “*One database, NORINA (A Norwegian Inventory of Audiovisuals), provides information on audiovisual aids and other alternatives to use in teaching. The second, Text Base Database, contains information about the literature in the field. Both databases are available in English and offered free on the Internet.*”

NVH decided in 2012 to split up and move the training clinic and multimedia room. The training clinic was moved nearer the clinics and the students. It can now be used after normal working hours. SportFaMed is now responsible for the clinic and a veterinary nurse teacher is responsible for the operations. NVH uses older students as tutors in the evenings. This change was necessary to make the training clinic more accessible to students. In 2013, 30 000 NOK (approx. 3750 €) was allocated to fund the availability of the training clinic to students in the evening. By the two first evenings, 36 students visited the training clinic. NVH will also allocate funds for an older student to be responsible for supervising training in the evening in 2014.

Meanwhile, the CD and video collection has been moved to the library and is available through the library's services.

Library facilities

The library has its own website that presents an account of library services including links to the various databases to which NVH students have access. Library opening hours are Monday and Friday from 8.00 to 15.45 (15.00 May - September) and also 8.00 to 18:00 on Tuesday, Wednesday and Thursday during semester time. The library is closed on Saturdays and Sundays.

The library has a large number of students who borrow books and download articles. The library also has a collection of all current textbooks that are used in the blocks. In 2013, the library has a trial subscription to e-books from Elsevier (Veterinary Science Collection). PubMed and BIBSYS ASK are freely available, while the ISI Web of Science, Biological Abstracts, Animal Production, Veterinary Science and CAB Abstract Archives are available through the School's network. A collection of movies on DVD and CD are available at the library, but it is also possible to borrow them for home viewing for a short period. These are in regular use by students. Library seating, 2 seminar rooms, 19 workstations, PCs and printer are in frequent use. Students have expressed great satisfaction with library services and enjoyment of the premises in evaluations. There are often queues in the morning when the library opens. Students would like longer opening hours but, due to limited resources, this has so far not been possible to achieve.

One of the staff has become very interested in e-books and has held information meetings for staff members and Elsevier and Pearson in the autumn 2013. The students in the second year have also been involved in these evaluation and information meetings.

Use of the student library has changed over time. Previously students only used the library to borrow recommended literature, but now it has become more common for students to search for literature and to use source material. Students also use the library more during group work. After the introduction of wireless networks from 2008 the students use their own lap tops at

the working places. This also indicates that the teaching methods at NVH have been changed in recent years.

Students receive training in library use during their first week at NVH. More training is also given at a later stage when they are about to start their thesis work. A half-day course in literature searching and the use of reference management system RefWorks is offered then.

Earlier special courses for PhD students were given, but because these students are now generally well versed in literature searching and already active library users, such courses are only given when needed. Courses in reference management are, however, still arranged.

IT learning facilities

NVH has two computer rooms with available computers and printer/copier options. NVH used a disproportionately long time to get the wireless network up and running, and this was pointed out in the NOKUT report (2007), but it is now available to students across NVH. Access to a wireless network has changed the students' computer habits.

Reading Rooms

Transition to the new curriculum in 2002, increase in the veterinary intake from 60 to 70 students, and the introduction of a second year to the veterinary nurse programme changed the students' reading room needs. The process of changing the reading room regulations, where VSU, LMU and the regular students had an interest was a long and drawn-out process. Finally, NVH's director resolved that handling the reading room regulations should be done by the students themselves through VSU. After this, there have been few complaints about the reading rooms.

Comments

NVH has challenges related to the buildings and indoor air quality, and also the logistics concerning the curriculum and a better distribution of students in the clinics. Although improvements have been made, it is not possible to solve all these problems before new buildings are available in 2019.

SU started preparing a new curriculum in spring 2013 and plans for an intake of 90 veterinary students when NVH is relocated to the Ås campus of NMBU in 2019. The change in student learning habits that have been evident in recent years, facilitates students' own-learning and self-study. This will also require a change in teaching staff competences, from teacher to coach, and involve more use of new technology in teaching and increasing focus on assuring the acquisition of professional skills rather than transferring knowledge.

Suggestions

NVH must consider these matters in the planning of the new University and curriculum development.

In 2014, an editorial council will be appointed to develop the educational use of class-frontier for the use in the veterinary and veterinary nurse courses. Two teachers, two students and two administrative staff will participate on this council, in addition to IT-expertise from NMBU.

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

Assessment is expected to include:

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

The Study committee (SU) has two student representatives, one staff member from each department and a leader who is Head of one of the departments. The Head of Studies is secretary. The Study Committee has a central role in the quality assurance system. See figure 3 and Chapter 1.

The mandate for Study Committee is:

- The Study Committee shall initiate/manage/evaluate/propose study plans, examination schedules, curriculum, evaluation and quality assurance systems for education at colleges.
- The Study Committee has a special responsibility to consider the totality, continuity and quality of the education.
- The Study Committee has authority as far as regulations on study, admission and examination allow.
- The Study Committee is advisory to the Rector.

The “Study plan” has a general section and a section for subject descriptions. These include content, learning outcomes, teaching methods, examination methods and rules, compulsory education and rules for retakes, literature and needed equipment.

The annual revisions of the “Study Plan” and term schedule follow a fixed cycle. The Head of studies incorporates former work on the study plan and term schedule, and sends a suggestion to students via VSU and all block leaders. The blocks may suggest changes in content, learning outcomes, literature, didactic approach and examination procedure. After the hearing SU adopts the coming “Study Plan” and term schedules for the next academic year. The new versions are published on the internet and student web on 31st May. However, in accordance with quality assessment procedure, it is possible to make changes until 30th November for subjects that are to be taught next spring. This is done when necessary.

The Rector gives SU a mandate when it is time to revise the whole curriculum. This was last done in spring 2013 (see Appendix 6). The final approval of new curriculum is given by the Board.

Learning outcomes and curriculum development at NVH

On the basis of the Norwegian quality reform, NVH changed its curriculum in 2002. NVH introduced the block structure and stipulated that one week of learning activity should equal 1.5 ECTS credits and be the equivalent to 40-45 hours of work load. The opportunity for specialization through differentiation tracks was realized. Learning objectives were introduced in all subjects and overall objectives for the programme were adopted. In 2006, the Board adopted a revision concerning assessments methods and length of the blocks. Until then, in every year since 2002, minor revisions to the curriculum were made. However, in view of the problems that the quality system had clarified, this was not enough to solve the problems. The examination failure rate had increased sharply at NVH after the quality reform, and students reported through student evaluations that the workload was too high in some blocks and too low in others. It was necessary to distribute the workload of the blocks better and to reduce examination stress, and the block structure was revised. The retake time was moved from within the semesters to a week before the semester start during the summer and Christmas holidays. These changes reduced the failure rate to an acceptable level.

In the autumn of 2010, NVH began work on the qualification framework, as required by the government. NVH found it natural to coordinate this work with EAEVE's day one skills. Both systems use the terms knowledge, skills and generic competencies of the graduates. SU led this effort, and it was introduced by a general meeting with all the blocks responsible for the definition and understanding of the task. Block leader asked for written guidelines for the assignment and this was sent out. In January, SU held a mid-semester seminar, where challenges and views were discussed. Each block was responsible for their subject, and also to ensure that the block contributed to achieving the "*Day one skills*". For the clinical sciences, a work group consisting of a representative from the Small animal clinic, the Equine medicine clinic and the Production animal clinic was formed. "*Day one skills*" were an important tool in this effort to ensure that all students regardless of differentiation track possess the necessary professional skills at the time they graduate. The proposals were submitted to the SU by April 2011.

SU worked to unify the level of details between the different blocks, writing which "*Day one skills*" the block was leading up to and what learning outcomes students should have after completing the examination in the subject description of the "Study plan". SU also formulated new overarching goals for the veterinary programme on the basis of the work. It was important to ensure that all blocks and the overall objectives had generic/ professional competencies and that all blocks helped to make this accessible.

New goals of the veterinary study:

NVH will educate veterinarians who

- have good basic knowledge and skills in veterinary medicine so that they can work to improve animal health, public health and animal welfare.

- understand both the meaning of the terms "one health - one world" and "animal's own value" and act ethically in line with this.

- have a broad understanding of the nature of scientific issues and are able to identify, formulate and solve complex problems within the veterinary field of work and research.

- have the ability to communicate in an understandable, efficient and respectful manner with

clients, the public, colleagues and responsible authorities.

-know their professional limitations, and safeguard professional liability through further education, training and professional development throughout life.

In parallel with the work on learning outcomes, SU worked on revising the differentiation year. This work was also completed in autumn 2011. The School's Board adopted the revised curriculum in December 2011.

SU has worked with new content and a new examination in the 7th semester in 2011/2012. This was adopted by the Rector in May 2013. SU plans to work on the assessment methods for 8th and 9th semester as well. However, there are some areas that cannot be resolved by the current curriculum.

The overall objective and learning outcomes for each subject are in the study plan (See Appendix 5)

Student participation

The University act: Chapter 4-4. The students' representation in the institution's bodies
(1) The students shall have at least 20 per cent of the representatives on all collegiate bodies that are given decision-making powers.

At NVH, the collegiate bodies that are given decision-making powers are the Board, the Board Appeals Committee and LMU. These bodies all have student representatives in accordance with the law. NVH has chosen to include student representatives on all committees both permanent and ad hoc which deal with student affairs (see figure 4).

In connection with the curriculum work, students are both represented in any ad hoc committees and they have two representatives in the SU, which leads the work. VSU always receives the plans for comment and will be invited to the Rector's management meetings, where the curriculum is an issue. The Board always has two student representatives who make final decisions for major revisions.

In the academic year, all block leaders report any requests for changes to the department after the block is completed. On the basis of their own experience, student performance and student evaluations, the block leader compiles a block report. Each department's annual report combines the block reports and is sent to the Head of Studies. Most of these changes will be resolved locally. If more extensive changes are required, these are included in the Study Quality Report to the Board (See Figure 3 and Appendix 3). This cyclic way of working is one of NVH's main quality assurance procedures and has led to systematic improvements of the teaching and the curriculum over the years.

NVH policy is that all students must participate in "quality work". Because of the many committees at NVH, many students are involved in this work. NVH has also placed all students in a reference group, which has a central role in the dialogue with teachers and block leaders on the quality of learning. This student involvement is considered as very useful. When NVH introduced the online student evaluations, the response rate was very high. Response rate was up to 80 - 90%. The students had many suggestions for improvements and this was a very important tool in quality work. As the students became more satisfied, the response rate decreased. SU was afraid of "evaluating fatigue" but the students and their

teachers, however, wanted to be able to evaluate each block every year. SU decided then to maintain the offer. In 2012, a new evaluation tool “*Quest back*” was introduced. It has led to the response rate for almost all blocks rising to an acceptable level again (see the Study Quality reports). In blocks where the response was low, it was decided to take action. In the academic year 2012/13 the response rate was between 67-92 % (see Appendix 3). The response rate in the learning environment studies has been somewhat lower, but is satisfactory compared to what is normal for this type of evaluation in Norway. In the School's last candidate survey the response rate was 90 %.

Most blocks have a score between 4 and 5 (of a possible 6) in the web based student evaluation. Previously if this score fell below 4, the block had to take special measures. In some cases the block teachers arranged measures themselves, in other cases, SU appointed working groups to look at the situation. After the implementation of Quest Back, a more proper measure has been to look at the differences between the percent of students who scored 5 or 6 and the percent of students who scored 4 or lower. In this way, blocks that had more dissatisfied student than normal could be identified and possible reasons investigated. This was done in the two last Study Quality Reports (2012 and 2013 (see Appendix 3)). When the failure rate of a single examination exceeds 15 % steps must be taken. These rules are in “Manual for Block Leaders” (see Appendix 7). Suggestions of improvements and comments are addressed immediately, if possible.

A candidate survey was conducted for the first class to go through the new curriculum (class 2002), four years after they graduated. The candidate survey asked about curriculum, working conditions and continuing education. The survey found that the interest for continuing education and life-long learning of the graduate was high. Through this survey NVH received confirmation that many of the changes that had been made to the curriculum were appropriate.

The Council for Cooperation with the Stakeholders (RSA) was first established at NVH in 2012. This council is made up of members of staff, students and various veterinary employers. A variety of issues are on the agenda. The minutes are distributed to SU and VSU. SU discusses follow-up. This activity led specifically to the introduction of Professional Ethics as a separate subject in the veterinary programme from 2014 onwards. In autumn 2013, RSA advised NVH on what should be the focus of attention for a new curriculum from the point of view of society and the employers. SU received these opinions for use in its planning efforts. NVH has found this council to be especially useful, and has great expectations for its future work.

NVH has a tradition of making action plans after external evaluations. These describe what should be done to follow up, when it should be done and who is responsible. For the EAEVE evaluation in 2004 and NOKUT evaluation in 2007, the Board adopted action plans for follow-up. In this way, the external evaluations were incorporated in quality assurance work. The Norwegian Food Safety Authority (“*Mattilsynet*”) is responsible for giving the new veterinary graduates authorization to work as a veterinarian in Norway. For foreign degrees not recognized in Norway or in EU, Norwegian Food Safety Authority requests an individual evaluation from NVH. If the foreign veterinarian does not get a Norwegian authorization, NVH will offer additional training to qualify for authorization. NVH has regular meetings with Norwegian Food Safety Authority.

See also Chapter 1 Policy, Chapter 7 for life-long learning and Chapter 10 contact with the Stakeholders.

Comments

The reason why the Rector has initiated a total curriculum revision now is explained as follows:

- NVH has had the same curriculum for over 10 years and has experienced its strengths and weaknesses.
- When NVH moves to Ås, The Ministry of education has decided that NVH shall admit 90 veterinary students each year. The current curriculum is not designed for this number

NVH must focus on avoiding “curriculum overload”. The progressive accumulation of content is a great challenge for the current curriculum. NVH must also consider increasing clinical and animal contact through the whole curriculum. This contact happens too late in current curriculum. NVH must also focus on acquisition of generic/professional skills. However the inclusion of new topics in an overloaded curriculum is not easy.

NMBU will appoint a School Director to be in charge of the veterinary and veterinary nurse programmes. This measure has been introduced to ensure central veterinary control of the veterinary curriculum. The tasks for the School Director are set out in a mandate (see Appendix 8). School Director will have close collaboration with the Dean and the Heads of the Departments. NMBU has established an advisory committee, which is to have the same duties as the current Study Committee (SU) (see Appendix 8). Students will continue to be represented in SU and at all levels of the University (See introduction chapter). The study plan and subject description will be published in a new electronic system, and reviewed annually. SU will still be in charge of this procedure and the development of the new veterinary curriculum. The cyclic way of working according to figure 3 will still be used.

Suggestions

Priority should be given to work with the development of a new veterinary curriculum.

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

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

Department of Companion Animal Clinical Sciences

This department is responsible for the Small animal clinics and Equine clinic.

Quality assurance is a daily concern in the clinics, as it is at the entire veterinary school. Quality assurance is a dynamic process and, therefore, constantly undergoing revision and improvement.

A market survey was conducted in 2012 amongst all veterinarians that referred patients to the animal hospitals. This was to map any problem areas perceived by referral veterinarians and to take measures to improve the referral service. It also had questions pertaining to the

imminent merger of the veterinary school with the agricultural university (UMB) and the possible ramifications of physically moving the clinics outside of Oslo.

In 2011/2012, an agency was brought in to hold several seminars and to work through all routines in the small animal clinics, in order to improve patient and information flow, as well as looking at the working environment in the hopes of optimizing the working environment. This was a measure in the quality assurance of the clinics.

Small animal clinics

The hospital director is the person responsible for the running of the clinics, although the department head holds the overall responsibility for all activity at the department.

General quality assurance routines:

Every Monday morning there is a staff meeting in the small animal department. The meetings are led by one of two sections heads, the department head or the hospital director. These meetings are used to address any arising issues of general interest, to supply information from the department leadership and to present on-going research projects.

The surgery and internal medicine clinics have rounds every morning and afternoon. These are primarily conducted at the clinics 'white-boards (surgery board, in-patients board) and involve the duty nurses. Students are also present at these rounds and participate in the patient discussions.

Journal clubs are conducted on a regular basis, usually one morning every other week. Veterinarians present an article for discussion and scientific content as well as research methodology is discussed.

The hospital director handles owner complaints, and where there is the need for any action, the hospital director meets with all parties involved. Information on the outcome of the complaint is disseminated to all involved parties.

The hospital director is also responsible for the routines concerning the reporting and handling of unexpected deaths of in-patients, patients undergoing treatment, difficulties in the transfer of patients between clinics and other non-optimal procedures, with the goal of an overall improvement of the clinical work.

For all unexpected deaths, there is a meeting with the clinic staff involved in the case and the case is then discussed with a view to improve systems and procedures. Minutes are recorded and if general procedures are altered as a result, the entire clinical staff will be informed of the alterations. All staff and students can, and are encouraged, to report any incidents to the hospital director.

All owners admitting animals to the hospital must sign a consent form thereby agreeing to any required anaesthesia and also allowing the clinic to perform an autopsy on any animal that unexpectedly dies.

The clinics have developed numerous pamphlets and written information on a number of treatments to give to owners, both medical and surgical. Information is given in writing, as much as possible, as well as being given verbally. These information pamphlets are developed by leading clinical staff, and are reviewed annually or more often if treatment regimes are altered.

The computerized journal systems used in the clinics are in accordance with national Norwegian legislation on medical journal keeping.

Newly appointed staff are given an introductory week where they are taken through all procedures and routines, given time in the clinics to orientate themselves as to where things are and how they work, they are shown the procedures on routine diagnostic and treatment regimes and given information on the policies and attitudes of the clinics at the Norwegian School of Veterinary Science.

Quality assurance of procedures and protocols are also an important part of the clinics' work. Numerous procedure descriptions for standard routine procedures have been developed and these are easily available in folders in each clinic, as well as on the School's internal website. The protocols are developed by leading clinical staff; Professors, Associate professors and European Diplomates. All are evidence-based and reviewed regularly. These procedures involve diagnostic procedures and treatment procedures - both medical and surgical. Nursing procedures have also been developed, although there is an increasing need for additional nursing procedures.

In order to quality assure the equipment and disposables in all clinic rooms, nurses have been delegated rooms that they are responsible for. This responsibility includes ensuring that rooms are fully stocked with disposables, that all equipment functions correctly and proper hygiene is maintained. Any problems in these areas are then reported to the clinic's head nurse, who again reports to the section head or hospital director. Measures are then implemented.

Equine clinic

The overall routines are the same at the Equine clinic as in the Small animal clinics. There are, however, some differences:

There are rounds in the stables every morning, followed by white-board meetings. The clinic nurses and students also participate here.

The Equine clinic also has a journal club, although on a weekly basis. Owner complaints are handled by the section head, although at times the complaint is referred to the hospital director.

The nurses are responsible for cleaning and maintaining all equipment, and report to the veterinarians or section head at times when problems arise, or when equipment needs servicing.

Quality assurance with respects to Health, Environment and Safety routines

All accidents, mishaps or unexpected events involving health and safety are reported and the incidents are recorded. According to the type of unexpected event, the correct and appropriate measures are instigated. All health and safety documentation is available to all staff on the school's website. All reports are also published on this website. The system is an open one where all staff has access to all documentation and findings.

For the clinics, the personnel responsible for health and safety are the head nurses and the department head. The system is divided into areas such as: radiation, fire and welfare. Each area has a person who is responsible. Information on these people is on the web along with all the routines. There are health and safety rounds every year, which are the responsibility of the department head. On these rounds the following people participate: department head, section

heads, person responsible for welfare for the whole veterinary school, medical personnel from the school's health service. These rounds are usually conducted in August/September so that any measures needing to be taken can then be planned in the following year's budget and put in the action plan. The rounds have 3 stages: preparatory meeting, inspection rounds, summation meeting.

Risk analyses are also done to map any possible problem areas. These reports are also published for staff access on the intranet. Any identifiable risk areas are also described in a report, and measures needed to be taken are the responsibility of the department head.

Quality assurance of teaching students in the clinics

The learning outcomes have been revised and are more in accordance with EAEVEs day one skills requirements.

The students have a preparatory week in the 7th semester just prior to their first clinical rotation. This week is a measure for preparing the students for the clinic the following week. Practical skills are taught, routines for diagnostics, basic surgery, communication techniques, health and safety in the clinics, radiology and clinical examination are topics for the week.

The students receive information concerning their rotations on the student web. Clinic routines, required equipment and clothing, safety clothing for the equine clinic, learning outcome descriptions, and preparatory requirements are all information that is readily available and accessible for the students. All teaching in this rotation and in 9th semester is evaluated by the students. This is in the form of informal meetings and anonymous evaluation online.

Student evaluation results are published on the intranet and are accessible to all staff and students. Student evaluations are used actively in the quality assurance and development of the clinical rotations.

Department of Production Animal Clinical Sciences

1) Section for Stationary Clinics

a) General Information:

Clinical routines: Routines for operating the clinic are legally regulated through The Working Environment Act ("*Arbeidsmiljøloven*"). The prime responsibility for the condition and operation of the clinic rests with the Head of the Section and the Head of the Unit, both veterinarians.

Disease prevention contingency plans and HMS (Health, Environment and Occupational Safety) routines for safety reports: All staff members are required to study the HMS regulations as outlined in the working contract before they are employed at NVH. In the event of an unexpected incident with regards to accidents, damage or other unexpected events concerning students or staff, or unexpected incidents relating to patients, the member of staff reports the incident to the Head of the Section and, in matters concerning the health and safety of staff, animal owners or students, it is reported to a member of the Occupational Health and Safety Committee (HMS) on a standardized form. Reports of events needing special attention

concerning administrative matters, financing, staff, and rosters are submitted to the Head of Section, and the Head of Department. The section has one safety representative.

Fire Protection contingency plans, escape routes and evacuation exercises are carried out on a regular basis. For the clinic and for every floor of the building a person is assigned to supervise Fire Protection and Evacuation Routines for personnel. These people report to the person responsible for fire protection for the whole building. Escape routes and evacuation routines and the name of the floor responsible person are displayed on a poster in the clinic and on each floor. The evacuation of animals is regulated through a specific regulation.

b) The Reproduction Unit

Responsibility regarding quality assurance systems for the clinical unit (Rooms, equipment, and operation): Traditionally the veterinarians have had responsibilities connected to their specialization in different animal species e.g. the equine specialist admits and discharges equine patients and has the responsibility for equine reproduction teaching and patient surveillance, as well as administration of in-house interns, residents, herd visits and communications with owners. This has worked out successfully for a number of years.

Animal disease prevention: There is a physical barrier (40 cm high concrete wall between the office/corridor sections of the building) and the clinic in a pre-clinic room in order to prevent people from entering into the clinic from other parts of the building. Disposable protective clothing and footwear are available for visitors on the outside of the barrier. On the clinic side there is clothing and footwear to be used only in the reproduction clinic (protective clean coats for rectal examination). There is also a door between the clothing area and the clinic and there are cleanings stations with hot and cold water hoses, brush and scrub both inside the clinic and on the outside of the door separating the clinic and the clothing area. There is, however, no physical barrier between the clinic, between the stables and the cattle unit, or the clinic and the outside doors (two) where animals are admitted to the cattle unit or stables. There is also people traffic between the cattle area and smaller rooms where male animals are kept (pigs, small ruminants). Generally, only clinically healthy animals are used for teaching in these facilities, such that no separate isolation is present in these facilities. Staff members also enter through outside doors when animals are introduced to the stables. from other units at Department of Production Animal Clinical Science, such as the Unit of Internal Medicine (cows, sheep, goats, and pigs) and the Section for Herd Health (horses).

Student Information: At the beginning of their clinical period in the reproduction unit the students receive written instructions for the teaching plan for the week. The staff receives updated plans for the coming week on Friday the week before. Individual student attendance and attitude are noted for each day and form the base for pass/no pass of the clinical week. Information is always given to students prior to any clinical examination on hygienic procedures and safety measures for handling and examining animals. Measures to minimize stress to animals being examined to secure welfare of individual animals are discussed with the students. Young heifers and newly arrived animals are sedated prior to rectal examination. Horses are examined in a protective box or by the use of a harness. Animal caretakers are present and are given the responsibility to supervise the welfare of each individual animal and the safety of students and staff.

Patients: The cattle consist of heifers and cows admitted from herds with a favorable health and sanitary state. Animals are admitted from three specific herds and two of these are also used for on farm practice (herd health visits). Only healthy cattle are used for examination and they are examined by rectal palpation of the urogenital tract and ovaries for oestrus cycle determination and pregnancy diagnosis. At the end of each semester, cows are slaughtered and heifers are returned in the pregnant state to their herds. Their health is thoroughly evaluated before the animals are returned to the owners or sent to the abattoir. Male animals (boars or rams, bucks) are kept for weekly semen collection and andrological examination. These animals are always slaughtered at the end of the semester. Some of the horses used for teaching are owned by the unit and these are kept on pasture during summer. All other horses are either examined or treated clinically as day patients (in and out on the same day), or returned to their owners after a brief period of hospitalization. Horses are rectally and vaginally examined to determine stage of the oestrus cycle, or pregnancy, and may be treated locally for endometritis by intrauterine antibiotics installation or general treatment and /or inseminated IU. Occasionally, stallions are admitted as day patients for semen collection and andrological examination.

Treatment of patients: All animals have journal numbers and all treatments are registered in the journal. If a healthy animal falls ill, it is treated at the reproductive unit, or transferred to the internal medicine unit of the stationary section. If a contagious disease is suspected the outbreak is reported to the Head of Section and Head of Department, and in the case of a serious transmissible disease, to the Food Safety Authority. Normal procedure is then to withhold all animals in contact with the affected animal at the premises and deny any admittance of new patients. People traffic is also restricted. If an animal dies, the autopsy is carried out at Pathology (Department of Basic Sciences and Aquatic Medicine, BasAM). Information to the owner of the patients is given via personal contact, and/or via telephone, e-mail or letter.

Canine reproduction unit: The reproduction unit hosts the semen bank of the Norwegian Kennel Club and runs a fertility practice operation for dogs, which is physically separated from the large animal clinic and has a separate entrance. Bitches are admitted for fertility examination, oestrus examination and artificial insemination. Dogs are admitted for fertility examination, semen evaluation, the processing of semen for transport i.e. chilled or processed for permanent storage in the semen bank (semen freezing). All animal treatment and examination is done with the owners' consent. Students participate in examination and evaluation of these patients.

Andrology laboratory: The andrology lab is a teaching unit used to show examination and processing of animal semen. It contains microscopes and a large on wall colour TV screen connected to computer and microscopes (such as CASA) and on bench equipment. As mentioned previously animal semen (stallion, buck, ram and boar) is collected in the large animal clinic of the unit and is brought to the andrology lab for further examination and processing. Semen from the canine reproduction clinic is also analyzed in this lab. The lab is also used for research on fish sperm and occasionally other cell analyses associated with research projects when not in use for student laboratory practice.

Hormone laboratory: Immunoassays form the backbone of tests used in clinical endocrinology. The hormone laboratory uses a variety of immunoassay techniques; RIA, ELISA and DELFIA. Application of human kits demands careful validation of assaying samples from other species. Modification of the assays is frequently necessary, for instance,

replacing standards from human serum with standards made from “zero serum” of the actual species. Validation of assay performance includes inter- and intra-assay precision. High and low control samples are always included in the assays to ensure that the results are within accepted limits of precision. The hormone laboratory has recently attained a patent on a rapid method for androstenedione measurement in pork fat.

c) The unit for medicine, surgery and obstetrics

Responsibility regarding quality assurance systems for the clinical unit (Rooms, equipment, and operation): In the daily work, the head of the animal attendants staff has the responsibility for the purchase and maintenance of equipment, for the practical intake of animals, and for the organization of the animal attendants work in general. The day-to-day responsibility for the clinical work with the patients and the teaching of the students rests with the veterinarian in charge for each week, in cooperation with the responsible animal attendant. General meetings for all personnel in the unit are held every month, to secure information and discussion of common matters. The coordination of the daily work is secured by a common round in the clinic each morning, led by the veterinarian in charge and attended both by veterinarians and animal attendants. There is a special collection of written information given to new veterinarians in the clinic to provide adequate information on routines and procedures. For new animal attendants, there is an organized teaching to inform and train them in the relevant procedures. Protective clothing, steel-reinforced boots and, when appropriate, protective gloves and protection for eyes and ears are compulsory.

Clinical routines: In the daily morning rounds, all treatments and procedures to be performed on each animal are decided and written on the check-list. Documentation of the condition of each animal and of all treatments done is secured by temperature lists kept beside every animal box. Each animal has an electronic journal, established when the animal is taken into the clinic. This electronic journal system is used for the recording of all tests, analyses, x-rays etc. During the animal’s stay at the clinic, new written journals and protocols are made continuously by the students. All material is marked by the electronic journal number and name of the owner, and kept together at a designated place for each animal. When an animal leaves the clinic, all information is summed up in the electronic journal, and all written material is stored in a file system. All euthanized animals are sent to Pathology for autopsy, together with a written summary of the clinical findings. Standard procedures for common surgical treatments are documented in education material that is given to the students and is available to all veterinarians. To secure proper handling of drugs, one of the veterinarians is responsible for the purchase and storage of all drugs, together with a laboratory technician. The clinic has a locked room for the storage of drugs. Narcotics are held in a special code-locked safe within this room, and all use of these drugs is recorded strictly and continuously. Employees and students are reminded of the correct use of drugs by written rules which are hung on the refrigerators and cupboards that are used for drug flasks in use in the clinic. All flasks are signed at opening, and opened flasks are discarded no later than one month after opening.

Clinical pathology: Blood samples are taken from most almost all patients in the clinic, and analyzed at the Central Laboratory of the school. Standard analyses of feces, urine and rumen fluid are done at a special clinical pathology laboratory within the unit, run by a trained laboratory technician. Bacteriological, parasitological and other specific analyses are taken at need and sent to the relevant laboratories of the school.

Routines to secure animal welfare and avoid the spread of infectious animal diseases:

In general, all animals taken into the medicine, surgery and obstetrics unit are referred cases, taken in at the request of a local veterinarian or the ambulatory clinic of the school, in agreement with the owner. The animals are transported by the school, by employees who are specially trained for this task. The premises at NVH are old and generally not well suited for protection against the spread of contagious disease. Before the intake of patients, the animal is always checked whether there are any special signs or special circumstances indicating an increased risk of contagious disease. If especially suspect cases are taken in, they are set into the isolation unit of the clinic. If suspicious signs of contagious disease occur in the clinic, the clinic is closed for transport in and out until the situation is clarified. Pigs taken into the clinic are never sent back to the farm. Dependent on the outcome of the treatment in the clinic, they are either euthanized or slaughtered. Sheep from different farms are kept in different parts of the clinical unit to avoid contact and thereby contamination between farms. There is a pre-clinic room with a physical barrier between the office/corridor sections of the building and the clinic, and hand washing and change of footwear and clothing are mandatory when passing in and out of the clinic. Disposable protective clothing and footwear are always available for visitors on the outside of the barrier.

Information to customers and procedures for complaints: During an animal's stay at the clinic, it is the responsibility of the veterinarian in charge to inform the owner of the clinical development. If it becomes necessary to euthanize an animal, the owner is always contacted and informed beforehand, and a written death certificate is sent afterwards. The only exception to this is in the case of sick pigs that are handed over to the clinic by the owners with the explicit permission to euthanize them when necessary. When an animal is returned to the owner, it is followed by a letter that includes a short summary of the clinical record and other relevant information. The referring veterinarian receives a comprehensive written record, summing up the clinical and laboratory findings, diagnosis, treatment and outcome. For euthanized animals, the referring veterinarian also receives a copy of the complete autopsy report. The treatment of patients at the medicine, surgery and obstetrics unit is free of charge and generally seen as a generous offer by most local veterinarians and owners of production animals. The cases referred in are also commonly quite difficult cases, with uncertain prognosis. These may be some of the reasons that customer complaints on the work of the unit is very uncommon, amounting to less than once a year. The few complaints received are handled individually by the Head of the Unit and, if necessary, by the Head of the Section.

Student Information: Students are informed very thoroughly on the work and procedures of the clinic. The veterinary students receive a written description of the clinic and its procedures before their first clinical period. This description is also available on the student web site. They are also shown videos on basic diagnostic and therapeutic techniques, and taught proper handling of large animals, before they are allowed to participate in the clinical work. At the start of each clinical week, the students are reminded of the most important procedures; and for each day in the clinic, the tasks of the day are discussed at a morning meeting with the veterinarian in charge.

The veterinary nurse students are led through a specific training program when attending the clinic to ensure that they learn all the standard procedures of care, feeding and treatment of the animals.

2) On farm practice

a) **Reproduction:**

Two farms with dairy cattle herds have been selected for regular visits by veterinary students and professors with the intention of providing students with practical training in ovary palpation, oestrus detection and pregnancy determination. The co-operation with these herds has lasted more than 30 years. Students are informed about the routines for hygiene and management in the two farms prior to the visit. Clean protective clothing and footwear are used exclusively in the one herd visited that day. Upon return to the NVH, the used clothing and footwear are taken care of by staff and are thoroughly cleaned in washings machines.

Should any damage occur to patients, students, staff or farmers during an on-farm visit, the incident is immediately reported on a standardized form to the head of department.

During more than 30 years, only one student has been harmed in association with these visits, and we have not received any complaints from the farms regarding the treatment of patients, or the attitude or conduct of students.

b) **Ambulatory Clinic:**

Teachers give an introduction to every clinical rotation group at the start of each rotation. The introduction includes safety and health precautions. The students are also required to study a document preparing them for the rotation. The document addresses health and safety concerns. On farm visits, the students are under close supervision of the teacher. There are rarely more than three students per teacher on farm visits during mobile clinical rotations. This makes it easier to maintain an overview of the students' activities. The teachers report accidents (including those that concern students) to the section head as well as to NVH's safety consultant, using a special form available on the NVH's Intranet. Self-reporting sick leave forms feature a question on whether the leave is related to conditions at work. Newly employed teachers are assigned to a mentor, who is a more experienced colleague. Questions related to diagnoses, safety, and client disputes are brought up at the section's regular, weekly meetings. There is a culture of discussing veterinary science and clinical practice informally and in ongoing morning seminars (weekly). The section has initiated a council for cooperation and discussion between the section and its affiliated farmers. The council meets annually, and has been doing so for many years. The council is a forum for all types of questions, including quality issues and general complaints or worries from clients. Formal complaints from farmers or other animal owners are rare, being less frequent than one per year.

c) **Compulsory Animal husbandry practice:**

Between the first and second years of the veterinary programme students must have four weeks of on-farm practice and they have to write a practice report afterwards.

There are certain criteria the farm has to fulfil. The production should be either milk production (in cows or goats), or piglet production. Milk producing units need to have at least 10 dairy cows in production during the period. The number of goats or sows is not specified. The farmer is obliged to give the student proper instructions on his/her tasks, and the farmer must give the student the opportunity to see all possible sides of the production, such as

quality control systems, health surveillance plans, feeding plans, breeding plans, buildings and inventory. If necessary, the farm should provide the student with room and board.

3) Section for Small Ruminant Diseases (SSRD), in Sandnes

General quality assurance: The Section Leader is responsible for the quality and service of all parts of the Section for Small Ruminant Diseases (SSRD) in Sandnes. During the year there are weekly Monday meetings for the academic staff, leader of the laboratory, system operator (“driftsleder”) and secretary led by the section leader. Relevant topics are also dealt with every second Thursday among all staff at the Section. During the periods when students are at the Section, the veterinary surgeons have daily morning meetings to discuss the day’s work, cases and results from previous days. SSRD Sandnes has a contract with a company health service (www.StaminaHOT.no). The company assists in preventive measures related to health, safety and environment (HMS) and there is a plan of action. The section has two safety representatives, one for the farm area and one for the laboratory and office areas. There are infection control instructions for the premises, which were made in 2012. These instructions include report routines. The section has very few complaints and they are all taken care of on an individual basis.

Clinic and herd: SSRD has an experimental sheep flock of approximately 180 winterfed sheep. The farm is managed as a normal sheep flock in Norway. All use of animals for research purposes has to be approved by the Norwegian Research Animal Authority (NARA). Altogether four persons are involved in farm activity the whole year around. The sheep are housed during the winter period, turned out in early May and housed again in October / November. During the summer months (June-August), most of the animals are sent to mountain pasture in Sirdal (Vest-Agder county). During the indoor period, the animals are fed twice a day. During the lambing period, the animals are continuously observed day and night by the farm personnel. Diseased sheep will be treated by the veterinarian on duty. Two veterinarians on the staff of SSRD share the responsibility to be on-call day and night the whole year around. During the lambing period, students will use the flock at SSRD for practical training. This training includes obstetrics, caesarian sections, lamb care, examination and treatment of diseased animals. The flock is also used for practical training in for example clinical examination, blood sampling and hoof care. All training is supervised by veterinarians at SSRD. In addition, during the lambing season, the section receives sick animals from farms in the neighborhood for treatment. There is a separate isolation facility for reception of such animals. When delivering the animals, the client (farmer) will be informed about the normal treatment procedure at SSRD. In order to avoid spread of infection between animals from different farms, these animals will be housed in separate rooms. All animals will have a journal, and all treatments are recorded by students supervised by a veterinarian. If the animals have to be euthanized, the owner will be informed by telephone beforehand. Students make daily written reports on each clinical case. At the end, a written report will be sent to the owner. All sick animals will be housed and treated by the students according to standard medical procedures. Before treatment, the actual case will be discussed by the whole group of students at the clinic. However, in emergency, the actual patient will be treated as soon as possible. All treatment is performed under guidance of veterinarians at SSRD. Medicine is stored in a locked room, and used medicine is continuously recorded according to the rules of the Norwegian Food Safety Authority (“Mattilsynet”). The Norwegian agricultural industry has their own quality system based on laws and regulations for food production, animal

welfare and HMS. The farm at NVH Høyland has a yearly revision of this quality system that goes through routines and documentation.

Pathology: The necropsy room is in shared facilities with the Norwegian Veterinary Institute. Laminated written hygienic procedures for the necropsy room are posted on the wall in both changing rooms. This also includes actions in case of injuries. Prices for the diagnostic work are posted at the delivery area. All cases that die from our own herd or cases received to the clinic in the student period that die or have to be euthanized, are necropsied. Students perform necropsies under the guidance of veterinarians. Paper journals are filled in at the necropsy room. Bacteriology is routinely performed and evaluated in the following days by the responsible veterinarian. The students do simple bacteriological tests and there are common demonstrations of the bacteriology from the cases they have necropsied. Samples for histology are taken when necessary. Written reports are produced for all external cases. During the student period, the students write suggestions for the reports that are edited by the responsible veterinarian and both student and veterinarian sign the report. We have no electronic journal system and each veterinarian is responsible for filing the written reports. The newest paper journals are stored in the secretary's office. In this room we also have a hand-written journal book with one line for each submission (animal, organs, blood samples, fecal samples).

Clinical pathology: There are four people currently employed at the laboratories. The primary tasks are research and diagnostic work on clinical chemistry and molecular biology. Fecal parasite egg counting and blood smear evaluation are also performed in this laboratory. The laboratory equipment includes Pentra 400, atomic absorption spectrophotometer AA300 (clinical chemistry), ADVIA 120 (hematology), MagnaPure, Lightcycler and sequencer. Some equipment is not in daily use. There are personnel training in equipment procedures, waste routines and use of the internal control books (analysis records and hazard information). Annual external service is carried out on the sequencer, the microscopes, the microtome (histology laboratory), ventilation cabinets and Pentra 400 (last year this year). The ADVIA 120 machine has external services every second year. The other machines and equipment are serviced by the staff. The weights and pipettes are calibrated yearly. The -70 freezers have alarm systems connected to the system operator.

Laboratory animal unit: The section at Sandnes is accredited by NARA as a laboratory animal unit and can conduct experiments on sheep, goats, swine and mice. The section fulfils the requirements for animal welfare, housing environment, control and journals. Weaned pigs can be stalled for short term experiments at the farm. The section has a small mouse stall with a variable number of animals. The section leader Martha J Ulvund is currently the competent veterinarian. Four out of five veterinarians hold the approved FELASA C course. The fifth veterinarian position is currently vacant. Two of the engineers have attended a course in laboratory animal science for technicians.

4) Section for Experimental Biomedicine

The unit consists of three subunits, including laboratory animals (rodents, poultry, and smaller production animals), model fish and the salmonid aquarium. The Section is approved for animal experimentation by NARA (Norwegian Authority for Research Animals) and all experimental animals used in teaching are kept according to Norwegian legislation. The Section for Experimental Biomedicine provides an excellent program of animal care and use. The unit is committed to the concept of AAALAC International (Association for Assessment

and Accreditation of laboratory Animal Care) in relation to infrastructure, program documentation and the knowledge and competence of staff associated with the animal care and use program and was in 2011 awarded international accreditation by AAALAC.

Department of Food Safety and Infection Biology

Quality assurance and safety at the student laboratory

There are clean and unclean zones at the entrance to the laboratory. Hand washing and change of lab coat are mandatory upon entrance and exit from the laboratory. A laboratory coat is mandatory upon entering the laboratory. Special laboratory coats are to be worn when working with microbiology.

A course in fire safety is given to all students on entering the laboratory for the first time. A first aid kit and emergency shower are available. The Bunsen burners are fed from a main line which is fitted with a stop valve. A demonstration of the stop valve is given in the first laboratory session. The number of burners is kept to a minimum. The gas lines are checked twice a year before courses start. Ventilation hoods are used for the handling of chemicals.

Since laboratory work in the infection biology classes poses a risk of infection, thorough instruction is given to the students and security measures are implemented. The students receive both verbal and written information (written for *Listeria monocytogenes*) so that special precautions can be taken for immune-compromised or pregnant students. Students need to inform the instructor about their situation, and the instructor will make sure that these students will not be presented with assignments or cultures containing *Listeria monocytogenes* or *Salmonella typhimurium*.

The laboratories at the Center for Food Safety work in accordance with a quality assurance system and several analyses are accredited by Norwegian Accreditation. Culture media for laboratory sessions are produced in accordance with the quality assurance system and the same system is applied to waste disposal, sterilization and cleaning of laboratory equipment.

Virology

In the student's virology course, one of the aims is to obtain understanding of and training in biosecurity. Most exercises of the course contain virus inactivated material such as serum, but two examples of cultivation of viruses are performed. The students are specifically trained in biosecurity in this matter, including the use of gloves, face (mouth) mask and safety goggles. The first example is equine herpes virus 1, which is cultivated in closed cell culture flasks. This virus is not considered to be able to infect humans i.e. in studies of this matter there have not been found any seropositive results from humans routinely working with EHV-1 and thus no human infections have been reported. The second example is cultivation of the laboratory adapted, attenuated, influenza A PR8 strain in embryonated hen's egg. In this exercise, the students perform hemagglutination and hemagglutination inhibition. The laboratory PR8 is a highly attenuated strain that is not pathogenic to mammals or birds, the exception being laboratory mouse strains that lack a complete antiviral defense system. PR8 has been used for the past 30 years to produce inactivated influenza vaccine. Such vaccines contain the six so-called internal gene protein segments of PR8 for attenuation, and the neuraminidase (NA) and hemagglutinin (HA) genes of the circulating viruses. The cultivation of the EHV-1 and PR8 has been a part of the student's virology course since the 1970's, and there have been no examples of accidental infection.

Parasitology

The Parasite Laboratory performs diagnostic analyses for the Department of Production Animal Clinical Sciences, the Department of Companion Animal Clinical Sciences and the Department of Basic Sciences and Aquatic Medicine (Pathology). The laboratory's quality assurance system includes all parasite analyses on animals (qualitative and quantitative analyzes of endo-and ectoparasites) and parasites in the water. The Parasite Laboratory is accredited for analysis of waterborne parasites (*Giardia* and *Cryptosporidium*). Norwegian Accreditation is the external body that controls and approves the quality system of the laboratory. The laboratory holds the reference function for *Giardia* and *Cryptosporidium* in water and parasites in bees.

Quality system includes:

- Use of equipment
- Control of equipment
- Methods and associated procedures (reagents)
- Staff with roles and responsibilities
- Validation of methods
- Ring Tests and internal control
- Standards
- Control of deviations
- Room
- Filing of documents

All analyses are performed by authorized personnel. All documents are in Norwegian.

Students do not usually have access to the laboratory. However, if this occurs in connection with their student thesis or doctoral studies, the students receive training from the staff in general laboratory procedures and quality assurance procedures.

The teaching of parasite diagnosis takes place in the classroom. The use of protective equipment (coat, gloves), disinfectants on benches, and hand-washing with antibacterial soap are required. Food and drink are strictly forbidden in the course room. Mainly model products (not infectious) are used in teaching. Live specimens are exhibited separately and are under the control of professional personnel. Handling of infectious material such as feces is under strict control of professional personnel.

Bacteriology

The Bacteriological Laboratory performs diagnostic analysis for the Department of Production Animal Clinical Sciences, Department of Companion Animal Clinical Sciences and Department of Basic Sciences and Aquatic Medicine (pathology), in addition to a variety of external veterinary clinics. The samples consist of different biological material from animals, primarily livestock and horses, dogs and cats.

The laboratory has an extensive quality assurance system (KS). KS internally in the laboratory is under the quality management system of the Department of Food Safety and Infection Biology, which in turn is controlled by Norwegian Accreditation. The laboratory holds the reference function for bacteria and fungi in the bees.

Quality system includes:

- Use of equipment
- Control of equipment

- Methods and associated procedures (reagents)
- Staff with roles and responsibilities
- Validation of methods
- Ring Tester (when available) and internal Control
- Control of deviations
- Room
- Filing of documents

All analyses are performed by authorized personnel. Students do not usually have access to the laboratory. However, if that happens the students receive guidance in laboratory procedures by School employees. The teaching of bacteriological and mycological diagnosis takes place in a special classroom. Protective equipment (mainly coats, gloves in special cases), disinfectants on benches, and hand-washing with soap and disinfectant are required.

The laboratory has changed student teaching significantly in recent years with regard to infection. All zoonotic bacteria are almost completely removed from the course and are partially replaced by apathogenic varieties. The laboratory does not use liquid broths and tests which may form aerosols, and uses a transparent cover as a protection for the student (See details in study plan: Veterinary microbiology and parasitology, Appendix 5).

Department of Basic Sciences and Aquatic Medicine

Dissection room

Students have classes in the dissection room in 1st to the 4th semester. Health and safety measures include:

The class is divided into smaller groups for many practical sessions to reduce student density and the risk of injuries with knives and scalpels. There is a medicine chest in the room for cuts and small injuries. There is a container for used sharp items. A presentation/demonstration on the correct use of dissection equipment is given at the commencement of anatomy teaching. Formalin-fixed animals are stored in an ethanol-water bath for a minimum of several months, prior to the start of practical work so that formalin is replaced by ethanol.

Post-mortem premises

In the 7th and 8th semester, the students are given compulsory practical autopsy training in pathology. The post-mortem premises are considered to be at BSL2 level and there is a stringent line between the outer “clean” environment and the side where the contaminated area is defined. Health and safety measures include:

The class is divided into smaller groups to reduce student density and the risk of injuries with knives and sharp instruments.

There is a medicine chest in the room for cuts and small injuries.

There is a container for used sharp items.

Before students are given access to classes they are given a document on health and safety instructions in the post-mortem room. Students have to sign that they have read and understood the instructions.

Students are shown two films before the teaching starts, presenting autopsy techniques of small animals (dog) and ruminants (cow), respectively.

At their first attendance, the students are shown how the rules are to be followed in practice. During their work period, the students are told to change practice if the rules are not followed in a proper way.

Students are taught in groups of 8-12 students. These groups are again divided in 2-4 smaller groups depending on number of cases available. All students participate in this activity for 4 periods in total (5+5+4+4 days) from 9 – 12 am every day. The activity includes autopsy on their own case for 2 hours before students present their own case for the rest of group. There are on average 3 cases each day and all students participate in discussions on all the cases. The activity is supervised by a pathologist. The groups must present a written summary on their cases with descriptions of macroscopic changes, suggestions on morphological diagnoses and possible etiologies. This summary shall be approved by the teacher. Presence at post-mortem classes is verified by the registration of each student.

The carcasses are transferred directly from the autopsy hall to a container in a separate room. The top of the container is at floor level and the carcass is transported via a roof rail into the container. All biological tissue material is put into the container except carcasses from pet animals which normally are cremated. The container is transported on a truck to an incineration facility outside the NVH (<http://www.norskprotein.no/>) Blood, excreta and water from cleaning processes are all drained with other wastewater.

Histology laboratory

The pathology service is supported by a laboratory. Routine and diagnostic tissue specimens and research material are processed here. The laboratory is divided into a routine histology unit and an immunobiology unit. Standard protocols and procedures are used for methods in the laboratory. Methods include tissue processing and paraffin embedding, standard histology staining techniques, immunohistochemical and immunofluorescent techniques (including double- and triple staining methods), cell cultures and Western blot. Chemicals used in tissue processing are changed at regular intervals. If applicable, positive and negative controls are always included in staining procedures.

Central Clinical Pathology Laboratory

The Board of NVH established the Central Clinical Pathology Laboratory in January 1992. The laboratory is currently a part of the Chapter for Clinical Pathology under the Department of Basic Sciences and Aquatic Medicine.

The Central Laboratory is a diagnostic service and research laboratory for veterinary medicine and clinical pathology. The laboratory provides services to the School's practices, first line clinic (Small Animal), Farm Animals, and referral clinics (Small Animal Hospital and Equine Referral Hospital) and to animal clinics and veterinary surgeons in practice. The laboratory is located on the ground floor in building 14, and has a size of 150 square meters. The working area consists of six consecutive rooms, including the combined lunch and meeting room with two working desks, administration office/sample preparation room, a room for microscopy (hematology and cytology), two rooms where the clinical chemistry, endocrinology and hematology are performed, one office for the laboratory manager and a storage room. In the close vicinity of the laboratory, there are four offices (50 m²) for the clinical pathologists.

For all processes, key figures for quality assessment and methods for monitoring the measurement of the Quality Management System (QMS) processes are defined and checked at regular intervals by the Quality Assurance Officer. The results of these assessment

processes are discussed during the regular (weekly) laboratory meetings where corrective and preventive actions are discussed according to the plan-do-act-check cycle. Internal Quality Control (IQC) routines are performed daily in the laboratory according to standard operating procedures. The laboratory participates in two of the European Quality Assurance (EQA) schemes offered by Norwegian Clinical Chemistry EQA Program (NKK), namely Labquality (Finland) and NOKLUS (Norway). NKK is a non-profit organization established to serve Norwegian laboratories, mostly human, within medical biochemistry in the fields of EQA, standardization and other quality development issues. NKK's engagement in quality development issues is communicated through the annual national NKK Conference, regular newsletters, documents on the NKK website and by presentations at various meetings and congresses.

Comments

These procedures will still continue to be a departemental responsibility in NMBU.

7. Assessment of continuing education

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

The obligation to maintain professional skills through continuing education is written in the law. The Norwegian School of Veterinary Science maintains that continuing education is vitally important to the goal of life-long learning for veterinarians.

SEVU - Center for Further and Continuing Education

The Board of NVH decided in February 2006 to establish the Center for Further and Continuing Education (SEVU) from August 2006. SEVU reports to the School's Director General. All continuing educational activities are administrated by SEVU and consist of

- a. Courses for individuals, with or without offering ECTS (European Credit Transfer and Accumulation System) credits.
- b. Teaching assignments, when an enterprise orders a specially made course from a certain academic field at NVH.

Each educational offer is organized as a project where SEVU is responsible for scheduling, organization, implementation and evaluation. The activities are academically grounded in the respective academic departments at NVH.

Each further educational program is quality assured by the Study Committee, which also controls the use of ECTS credits. The Study Committee monitors and promotes the design, implementation and quality of the course. They also monitor the annual chapter in the Study Quality Report from the head of SEVU. SEVU has its own area in the quality system.

The legal basis and official requirement for further education in Norway are set by the Norwegian Government, which has a statute stating that all universities should offer further education for their professional group.

SEVU organizes further education courses for veterinary surgeons, veterinary nurses, food authorities, blacksmiths, behavioral consultants and physiotherapists for dogs and cats.

The courses for veterinary surgeons are in cooperation with the Norwegian Veterinary Association. There is no legal basis for mandatory continuing education courses in collaboration with the Norwegian Veterinary Association. Every year continuing education programmes in a variety of subjects are offered through the Norwegian Veterinary Association. The idea for each course usually comes from the course manager, but topics are also requested from practitioners as they evaluate courses they have participated in. Courses are offered in a variety of subjects within the major fields of the veterinary profession, including successive fields which build upon the knowledge gained in a previous course. Many programmes of further education are held in cooperation with the Norwegian Food Authorities; such as courses in fish health, serious contagious and vector borne diseases (5 ECTS), detection of food-borne disease outbreaks (2 ECTS), statistical analysis of data in connection with the outbreak of contagious diseases (2 ECTS).

Evaluation of courses

Course evaluation takes place after the completion of a course. All participants are asked to evaluate the course by responding to an electronically generated questionnaire, and usually the class and the lecturer(s) have a common discussion about the content and conduct of the course. The participants are, among other things, asked to score and comment on the quality of the overall course, the course materials, presentations, presentation techniques, lecturers, knowledge gained, and are also invited to submit proposals for new courses. The course coordinator summarizes the results of the evaluation and distributes the results to the involved lecturers and the academic department. The evaluations are always reviewed by the course manager and lecturers, so as to improve the courses continuously.

List of courses offered in 2012:

- 1) Reproduction, large ruminants: "Good fertility – foundation for the economy"
- 2) Odontology (dogs, cats, rabbits) – 10 ECTS
- 3) Course in Laboratory Animal Science for Research Workers – 6 ECTS
- 4) Neuropsychology and psychopharmacology (dogs and cats) – 5 ECTS
- 5) Endoparasitological diagnostics of the horse, dog and cat.
- 6) Anesthesia and analgesia (dogs and cats) – 15 ECTS
- 7) Rehabilitation and physiotherapy in small animal practice – 30 ECTS

List of courses offered in 2013:

- 1) Reproduction, large ruminants: "Good fertility – foundation for the economy" (cancelled due to too few participants)
- 2) Anesthesia and analgesia for veterinary nurses (dogs and cats) – 15 ECTS
- 3) Horse dermatology
- 4) Small animal cardiology
- 5) Course in Laboratory Animal Science for Research Workers, May – 6 ECTS
- 6) Serious contagious and vector borne diseases – 5 ECTS
- 7) Acute and intensive treatment, small animals
- 8) Challenges in internal medicine of the cat
- 9) Modern cattle husbandry
- 10) Course in Laboratory Animal Science for Research Workers, Oct. – 6 ECTS
- 11) Emergency and intensive care in small animal practice
- 12) Challenges in internal medicine of the cat

- 13) The veterinarian and modern cattle husbandry
- 14) Course in fundamental bird and reptile medicine
- 15) Feeding the horse

The participants' assessment of all courses has been good. The course in reproduction of large ruminants was cancelled due to too few participants.

Comments

The participants evaluations indicate that the quality of the continuing education programme is good. The teachers involved are always of the highest quality. Where there are considered to be better lecturers in a particular subject abroad, foreign lecturers are employed. In this way SEVU can also provide a knowledge boost internally. The Norwegian Veterinary Association provides courses which lead to the achievement of National Specialist accreditation, in addition to many short courses for veterinary practitioners, many of them using lecturers from NVH.

The degree to which veterinarians participate in the continuing education programmes held by SEVU varies. Courses aimed at small animal practitioners are usually fully booked, but large ruminant courses are more challenging, due to there being few large animal veterinarians in Norway. Equine courses are so far mainly held by the Norwegian Veterinary Association and others, using NVH's professionals. Further education in poultry, porcine and small ruminant medicine is still at the planning stage.

All the courses in cooperation with the Norwegian Food Authorities work very well. Usually the courses are designed for the food authorities own employees, but are also open to other practitioners.

SU and School Director will still have the responsibility of the quality assurance of the courses (see Appendix 8).

Suggestions

Further education is an excellent way to keep in contact with the practitioners throughout the country. Since veterinary medicine is an evolving profession it is crucial for everyone who practices veterinary medicine to keep up to date with new technology and research. NVH should increase the quantity of courses offered and work to include small ruminants, porcine and poultry medicine in the continuing education program. More courses should offer ECTS. Courses with ECTS are more time consuming for the academic staff, which makes it more difficult to implement.

8. Assessment of research

The institution should describe the system of quality assurance it possesses to develop and maintain and audit research programmes.

- *Of particular interest is how research provides opportunities for student training, staff promotion, and how research methods and results are conveyed into basic veterinary training.*

Committee for Research and Ethics

The Rector is the head of the advisory Committee for Research and Ethics (UFE). The committee consists of one member from each of the four departments and two members representing the PhD students. The Senior Adviser for Research is the secretary of the committee. As described in the mandate, the main objective of the committee is to develop and prepare the strategic research plan for the Board. The strategic research plan is incorporated in the strategic plan for the institution as a whole. Further objectives for the committee are to:

- Recommend strategic priorities for the research work at NVH
- Prioritize applications for strategic research funding and PhD student positions
- Prioritize applications for research equipment and infrastructure
- Recommend measures to improve the research quality and increase the number of publications.
- Make recommendations in ethical matters related to research
- Support and encourage establishment of research groups

On the departmental level, the head of the department is the responsible leader of research activities and has the budgetary and personnel responsibilities. Each department has developed its own strategic research plan in accordance with the strategic plan for the institution.

UFE is responsible for checking the quality and approving final year student projects in February each year. Approved projects will be presented by researchers to students in April each year. It is the researchers themselves who decide which students get the projects among interested students after an interview session.

Table 6. Approved Student Project in 2012 and 2013

2012		Student participants
Chimeric zebrafish embryos to assay induced pluripotency	Peter Aleström	
Detection, isolation and characterisation of pandemic H1N1 virus in Norwegian pigs	Anna Germundsson	x
Expression of virulence genes in <i>Vibrio salmonicida</i> during the latens period	Anne Mohn Bjelland	
Immunological studies of lab mice and wild mice in a natural environment	Preben Boysen	x
Mercury in fish from Lake Victoria. Health risks for fish and consumers?	Jan Ludvig Lyche	x
Cognitive development in laying hens	Andrew M. Janczak	
Effects of homeopathic berry-based remedies on in vitro survival of <i>Giardia duodenalis</i>	Lucy Robertson	
In Vivo and in Vitro Models for Studying Effects of Persistent Organic Pollutants (POPs) on development and cancer	Erik Ropstad	x
Population based disease control, an analysis of strategies for control of PD and salmon lice in Norwegian Fish farms	Eystein Skjerve	
2013		

Dose-response studies of UV irradiation using transgenic zebrafish models: Biomonitor tg(NFkB-GFP) and tg(mitf:BRAF) melanoma model	Peter Aleström	x
The impact of motility and flagella on the pathogenesis of Cold-water vibriosis	Ane Mohn Bjelland	
Do environmental pollutants interact with stress responses?	Erik Ropstad	
Experimental bovine coronavirus infection and indirect virus transmission.	Maria Stokstad	
Prevalence and genetic background of anxiety in dogs	Frode Lingaas	x
Leukocyte populations and the anatomy of the immune system of Atlantic salmon.	Charles McL. Press	
Patterns and causes of mortality in Norwegian salmon farming	Arnfinn Aunsmo	
Canine Staphylococcus pseudintermedius – molecular typing, antimicrobial resistance and virulence characteristics in isolates from healthy carriers vs isolates from infections	Marianne Sunde	
SheepHouse: Simple winter housing systems for sheep - Consequences for health, welfare, production and economy.	Randi O. Moe	

NVH allocates resources for strategic research funding in the annual budgets, which is administered by UFE. In the budget for 2013, about 2.5% of the total budget from the Ministry was allocated to strategic measures (6.3 million NOK). The following strategic measures are prioritized:

- Strategic funding of research projects/research groups, including measures for gender balance
- Research management education
- Guest lecturers and guest researchers
- Sabbaticals and International Mobility of PhD students, residencies, post docs and researchers
- Scientific equipment

The Ministry has earmarked funding for PhD and post doc positions at the higher education institutions. NVH has funding for 32 PhD- and 4 post doc-positions at its disposition, and also 7 PhD quota stipends from the Norwegian Quota Scheme. These positions and stipends are also allocated to the research groups by UFE. The research groups have to compete for all strategic funding according to the research priorities drawn up in the strategic plan. The committee's priorities are each year reported to the Board through the Study Quality Report.

The role of UFE was discussed at two research management seminars in 2012 and 2013. Since the committee members also are among the most active researchers and research group leaders at NVH, the question about the impartiality of the members is important for the legitimacy of the committee's decisions. This question is often discussed at the committee meetings, and members leave the meeting when applications from their home-department are

discussed and evaluated. One of the take-home messages from the two seminars was that NVH needs forums for exchange of scientific ideas and information across departments. UFE should take a clearer role to create such forums.

Research strategy

In the Strategic research plan for the period 2010 – 2012 (extended to include 2013), NVH will continue to

- Prioritize aquatic medicine, where NVH has the goal to be the leading international research institution.
- Have focus on food safety and veterinary public health, animal health and welfare, preventive medicine and disease mechanisms relevant for veterinary medicine.

The research strategy is to a large extent built on the results of the evaluations of the research activities at the four academic departments that were done in 2005-2009. During 2010 and 2011, the Research Council of Norway carried out a comprehensive evaluation of Norwegian research within biology, medicine and health in Norwegian universities, hospitals, university colleges and independent research institutes. This evaluation partially included the research activities at NVH. The following is quoted from the report of panel 2, under which NVH was evaluated: *The education is highly intertwined with research and contributes to the concept of research-based teaching and evidence-based veterinary medicine. ... NVH has responded well to the recommendations of the last evaluation. They've invested in appropriate leader positions and developed their own Strategic Plans. They are investing increasing percentages of resources to encourage multidisciplinary research areas.* The groups from NVH that participated were all graded as *good*.

NVH continues to place emphasis on establishing more viable and competitive research groups and networks by using funding from UFE. Research quality, measured as described in the strategy, within the strategic areas is the main criterium for receiving strategic funding. A consequence of prioritizing core area research groups or thematic groups is that it is not possible to cover the full width of veterinary research concordant with the broad mission of NVH. Such an approach is supported by the Ministry as expressed the allocation directive letter for 2013, and does not contradict the goals concerning research-based education. Emphasis is put on increasing the number of publications and the quality of the PhD training, increasing the number of postdoctoral fellows and on increasing external funding for research.

Research groups/network groups:

In the strategic research plan for the years 2006 – 2009, the need for establishing more robust research groups was emphasized. This was followed up in the strategic research plan for 2010 – 2013, which clearly points out that the research activities should mainly be organized in research groups. The research groups that fulfill the quality criteria described in the strategy are prioritized for economic support. The current research groups are of different sizes and strengths. Some groups are well established and some are more in a starting phase with less available resources and ongoing projects.

The research groups are essential for establishing goals and strategic measures for research within the field. The groups are also important for the scientific development of the individual group members, where senior group members act as mentors and supervisors for post docs and PhD-students and also veterinary students working with their thesis, and for preparing project applications. The groups are led by a dedicated research group leader, and consist of

researchers with interdisciplinary skills from several departments at NVH, but also from other institutions. At present there are about 20 established research groups or network groups at NVH (for an overview of NVHs research groups/network groups see: www.nvh.no/forskning/forskergrupper).

Reporting of results and feedback to the researchers

All employees have on an annual basis an appraisal meeting with their leader. During these dialogues, individual results regarding both teaching and research are evaluated, and new goals are set. Scientific production, research leadership and external funding are also criteria for the annual individual salary negotiations that are carried out at the institutional level. These systems have been in effect for many years.

In 2012, all group leaders who received funding from UFE met with the Rector, the advisor for research affairs and their respective head of department. At these meetings, results, new goals and strategies for the groups were discussed. This system will be followed up in the future.

The Rector and general director have annual dialogue-meetings with the four departments, and the department heads, Rector and General Director agree by the beginning of every year on goals and priority tasks for the department heads. Research is an important topic at these meetings.

Comments:

Within NMBU, strategic funds for research will be set aside both at university and faculty level. The structure and mandates for research committees at the different university levels has not yet been decided.

The Faculty Board will have responsibility for the Faculty's strategy and academic priorities within the University's academic strategic plans and will set priorities for strategic budgetary funds in relation to the overall strategic plans of the University.

Suggestions:

The Faculty of Veterinary Medicine and Bioscience is a very research heavy faculty, and there are great expectations for synergies within the research disciplines of this faculty.

9. Assessment of internationalization of education and research

The institution should describe the system it possesses to promote and assess the development of international post-graduate education and of co-operating research projects with other countries, including developing countries. Of particular importance is description of the measures of encouragement applied to engage veterinary students and newly graduates in international mobility of training (e.g. EU programmes such as Erasmus, Socrates, Tempus, Marie Curie etc) as well as the effectiveness of the activities.

Internationalization at NVH

Internationalization at NVH is anchored in the School's main strategy, and laid out in concrete terms in a four year "International Strategy".

Furthermore, part five of NVH's Quality System (and the annual Study Quality Report, (See Appendix 3) is concerned with all international activities related to education. The School's International Committee (IU), which is made up of representatives from the School's four academic departments, one of whom leads the committee, and a student representative chosen by VSU, is responsible for monitoring international activities and compiling part five of the Study Quality Report.

Over the last ten years, internationalization has been a prioritized area at the School. In 2003, the new administrative position of International Adviser was created to work on promoting an increased international focus and level of international activity at NVH, mainly in respect of teaching and learning. The International Adviser is secretary of the International Committee. An important aspect of the international adviser's job is to promote international mobility and internationalization in general at NVH. This is carried out through a series of formal and informal information meetings with staff, and with veterinary students and veterinary nursing students throughout their studies at NVH, especially during the year preceding mobility. Student meetings, which are carried out with each year group in cooperation with the student representatives, have been successful in mobilizing student interest in international exchange. Each year over a third of the relevant veterinary year group applies to take part in student exchange (approximately 30 of 70 veterinary students). The increase in numbers over the last 10 years has resulted in some students being disappointed, despite the number of new agreements that NVH has entered into with other schools abroad. Information concerning international cooperation and exchange is available on NVH's Norwegian and English websites and on the staff and student intranets.

International Programmes

NVH takes part in the following international education programmes: Erasmus, Nordplus, the Norwegian Quote Scheme (scholarships to students and PhD fellows from developing countries), NUFU/NORHED (PhD fellows from developing countries), and bilateral exchange. Additionally, the School's Committee for Ethics and Research awards travel scholarships to encourage all PhD students to take part of their degree abroad. Information concerning schemes such as Marie Curie and the Fulbright program are also made available to staff and students online.

Student Exchange

Almost all student exchange, excepting PhD exchange, takes place during the 8th semester of the Veterinary Programme and the 4th semester of the Veterinary Nursing Programme. At this point in the programmes, students have started their clinical practice. Exchange, therefore, takes place to and from the various animal clinics. To facilitate incoming exchange, teachers in the School's clinics use English as the language of instruction during this time of year (Jan – April). Some final year students, especially those following a small animal or equine differentiation track, spend 4 to 6 weeks training at veterinary colleges in the US, while others, whose differentiation concerns aquatic medicine, food safety or production animal medicine, sometimes carry out field work in countries such as Canada, Tanzania and Ethiopia.

For a number of years, NVH's goal for student exchange has been to send 20 students out and to receive 20 students from abroad. In recent years, interest in outgoing exchange has exceeded this goal. In Jan – April 2013, 23 veterinary students from NVH studied at other universities around the world and two of our veterinary nursing students trained in clinics in Australia and the US. By the time of graduation, approximately 35 % of our veterinary

students have gained experience abroad which has been fully approved and recognized as part of their degree at NVH.

The quality of student exchange is guaranteed by the rigorous rules, regulations and procedures of the various exchange programmes, i.e., Erasmus, Nordplus, and by the regulations that NVH has set up to regulate the cooperation that takes place with the School's bilateral exchange partners. (See "Hand Book for Exchange & "Ut i verden" in the web based Quality System).

Students who wish to apply for exchange, either incoming or outgoing, do so by applying via the School's international adviser. Out-going students are selected by lottery, but must have achieved an average C grade to be able to take part. Competition for some of the School's exchange places is very tough. Students may also seek so-called "free mover" places at Universities with which NVH does not have an agreement. However, in all cases, students must have had the plan of courses which they intend to take abroad, officially approved in advance (Learning Agreement). As the type of clinics that can be recognized has, in the main, been decided several years ago by the clinical departments and the IU, the responsibility for recognizing and allocating credits for clinics taken abroad has been allocated to the international adviser, who works closely with the head of studies in these matters. The responsibility for accepting exchange students from abroad has also been delegated to the international adviser. However, when in doubt the heads of the clinical departments are always contacted.

Quality assessment of all exchange that has taken place each year is monitored by the IU. All students who have studied abroad or have been to NVH as exchange students are required to complete an on-line evaluation form which is stored in the national and international data bases, <https://www.intersek.ntnu.no/rappport/> and <http://iris.siu.no/>

The evaluations are an important source of information for all future students who are planning to go, or thinking about going on exchange visits. They are also an important part of the quality assessment work at NVH. The international adviser monitors the student evaluations and any other feedback from students and staff, and presents the findings to IU each autumn. IU discusses the findings and suggests changes and action when necessary. These discussions form the basis of part five of the School's annual Study Quality Report.

PhD and Researcher Mobility is encouraged and monitored mainly by UFE (See previous section).

Table 7:

Table showing exchange numbers at NVH over a five year period

Figures show mobility of veterinary students* of up to twelve weeks duration, and include data from DBH and NVH's own records.

Academic year	2008/09	2009/10	2010/11	2011/12	2012/13
No. of exchange students out	13	14	19	20	23 (32 = record number of initial applications for exchange)
No. of exchange students in	6	11	9	11	6

*Field work and differentiation work abroad not included here

There will be a new record in 2014 for incoming students: 15 exchange students will take part of their clinical training at NVH, and 18 NVH students will travel abroad at the same time. Most of the students will be staying for 12 weeks.

Table 8. Agreements

Currently, NVH has bilateral exchange agreements for student exchange with the following Schools, Colleges or Faculties of Veterinary Medicine around the world:

<u>Nordic Countries</u>				
NOVA, Nordic Forestry, Veterinary and Agricultural University Network (Nordplus exchange)	Finland, Denmark, Sweden	no set limit		
www.nova-university.org				
<u>Rest of Europe</u>				
University College Dublin	www.ucd.ie	Ireland	2	Exchange to and from clinics
University of Edinburgh	www.ed.ac.uk	Scotland, UK	2	„
Universität Leipzig	www.uni-leipzig.de	Germany	1	„
Universität Giessen		Germany	2	„
Universidad de Córdoba	www.uco.es	Spain	1	„
Universitat Autònoma de Barcelona	http://www.uab.es/english/	Spain	1	„
École Nationale Vétérinaire de Lyon	www.vet-lyon.fr	France	1	„
University of Liverpool	England, UK		2 places	
University of Helsinki	www.helsinki.fi/university	Finland	1	„
Szent Istvan University, Budapest	www.sziu.hu/	Hungary	2	„
Universität Zurich og Bern (Parallel to Erasmus)	www.int.unizh.ch www.int.unibe.ch	Switzerland	1	„

Table 8. cont.

Partner Institutions outside Europe	Country	Status
Charles Sturt University , Wagga Wagga, http://www.csu.edu.au/	Australia	Exchange to and from clinics.
Iowa State University , Ames http://vetmed.iastate.edu/	USA	Exchange to and from clinics
University of California , Davis http://www.vetmed.ucdavis.edu/vmth/	USA	Exchange to and from clinics
University of Pretoria , Onderstepoort http://web.up.ac.za/default.asp?ipkCategoryID=50	South Africa	Exchange to and from clinics
University of Sarajevo*	Bosnia & Herzegovina	New 2005
Sokoine University+#	Tanzania	
Univ. of Zambia ++	Zambia	
Makerere Univ. ++	Uganda	
Universidad de Chile	Chile	
University of Zimbabwe#	Zimbabwe	
University of Addis Ababa#	Ethiopia	
Hawassa University	Ethiopia	
Yellow Sea Fisheries Research Institute#	China	
Zhejiang University#	China	
Taiwan University	Taiwan	

* CPWB - Cooperation Program on Research & HE with countries on the Western Balkans

Norwegian Quota Scholarship Scheme.

+# Norwegian Quota Scholarship Scheme, in addition to other institutional agreement

Collaboration in research and teaching with developing countries

NVH has a long tradition of working with veterinary faculties in developing countries. Today, the collaboration with Sokoine University of Agriculture in Tanzania is a key element. This collaboration is anchored in the “Agreement of cooperation between Sokoine University of Agriculture, Norwegian University of Life Sciences and the Norwegian School of Veterinary Science”, which was renewed for another five years in March 2013. The purpose of this joint agreement is to strengthen the professional and technical capacity in teaching, research and extension at all three institutions. The three rectors, with involved staff, meet once a year. Parallel to the rectors’ meeting, the student organizations at the three institutions have organized exchange visits to discuss student matters such as development of student democracy. The rationale for this independent organization of programmes has been a wish to safeguard the independence of student’s organizations. The students have appreciated this point, but have also felt that this independent planning process has resulted in lack of synergies between student bodies and programme implementing teams. This point was addressed at the Steering Committee Meeting at Sokoine in September 2013, and implementation of new activities has been proposed.

During the last decade, NVH has coordinated several NUFU-financed research projects (NUFU = the Norwegian Council for Higher Education’s Programme for Development Research and Education). These projects have been very successful in respect of the education

of PhD-candidates, and the establishing of a sustainable network between veterinary faculties in South-East Africa (Tanzania, Uganda, Zambia, Zimbabwe, Malawi and South-Africa). An excerpt from the introduction to the official NUFU Final Report, of July 2013, states that,

“The activities of Norway’s flagship Programme for Development, Research and Education, NUFU, has now come to an end after an impressive and successful two decades. The focus has been on international research and training collaboration with low and middle-income countries, and for many universities in Africa and Asia the programme has been nothing less than a door-opener to the world of international collaboration both in research and in higher education.”

Full report: [http://siu.no/eng/Front-Page/Global-menu/Publications/Publication-database/\(view\)/10508](http://siu.no/eng/Front-Page/Global-menu/Publications/Publication-database/(view)/10508)

The NUFU-programme has now been replaced by the NORHED-programme (www.norad.no/norhed). Based on the networks created during the NUFU-period, NVH has submitted four proposals for collaboration and capacity building to the NORHED programme, two within the field of aquatic medicine/aquaculture, one within zoonoses and one within water hygiene.

Both the NUFU and NORHED programmes are governed by written agreements and comprehensive rules and guidelines. The programmes incorporate strict measures and reporting procedures that ensure academic quality and financial accountability.

Comments

The School Director will have the responsibility of this area at the local level in NMBU (See Appendix 8)

Suggestions

The quality work of IU should continue.

10. Assessment of cooperation with stakeholders and society

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

NVH launched its own professional web site in 2004. It was upgraded in 2010. All relevant information to the public is published here. NVH has an information manager who is editor of this site. The information manager is also responsible for the Communication Strategy.

Information to applicants and information concerning curricula and rules for students are available on www.NVH.no. Information concerning the School's research areas, the specialists employed at the School and the services offered to the public are also published on this website. NVH is in favour of transparency, so that all the School's study documents, official reports, documents to the Board and protocols are available to everyone on the internet. Moreover, all "Study Quality Reports", "Learning Environment Survey Reports", "Candidate Survey Reports", "Health and Welfare Reports" are available on the web based "Quality System".

The four academic departments account for their extensive contact with Society in their respective annual quality reports.

The Council for Cooperation with the Stakeholders (RSA) was first established at NVH in 2012. This council is made up of members of staff, students and various veterinary employers. A variety of issues are on the agenda. The minutes are distributed to SU and VSU. SU discusses follow-up. NVH has found this council to be especially useful, and has great expectations for the future work.

NVH has extensive contact with the Norwegian Veterinary Association (DNV). DNV has for many years visited the student cafeteria one day a week. In addition, DNV holds information evenings with graduating students. They have also taken part in the information sessions concerning the different tracks of differentiation in 8th semester, and have co-hosted the career day for students. This was last held in April 2013.

In conjunction with DNV, the School performed a labour market survey in 2004, and a candidate survey in 2012 from the first class of the new curriculum (2002), four years after they completed their studies. The response rate was 90%. NVH has rewritten parts of the last survey and made this more accessible on the web. NVH will in future carry out such surveys more frequently.

NVH organizes an "Open Day" once a year and participates with stands at the annual "Research Days" in the city center and at "Veterinary Days". NVH also participates in relevant conferences nationally, e.g. Aquatic Biology. NVH has participated in Education Fairs a couple of times but, since NVH has a steady, high number of good applications, this has not been our first priority. When NVH becomes part of NMBU, we will gain more opportunities and expertise in this field.

The School's leadership has annual management and dialogue meetings with the authorities. At these meetings the authorities discuss the School's results and annual reports, including the Study Quality Report. In this report, NVH gives a frank presentation of strengths and weaknesses. The authority especially appreciates the honesty of NVH and the study quality work (See Appendix 4)

The School leadership also has annual meetings with the other ministries responsible for other relevant areas, for instance, the Ministry of Agriculture and Food and the Ministry of

Fisheries and Coastal Affairs. The Leaders at NVH also have regular meetings with the Research Council of Norway.

NVH must send data annually to the database for statistics in higher education (DBH). All NVH results are published on the website of the DBH: <http://dbh.nsd.uib.no/> there is also a NOKUT portal where NVH's results can be compared with all other institutions in Norway in an easy way: <http://dbh.nsd.uib.no/nokutportal/>

The purpose of this is to promote quality development in institutions of higher education in Norway. NVH achieves very good results in a Norwegian context; something that the government gives positive feedback on, in meetings with NVH's leaders (See report from last meeting, Appendix 4).

NVH has no alumni association. However, because of the small number of veterinarians in Norway, employees of NVH always meet a lot of colleagues when visiting veterinary courses and the annual "Veterinary Days".

For further information see Chapter 1.

Comments

NMBU will have a larger communication department (it will increase from one person at NVH to 15 persons at NMBU), and the opportunities for marketing and public information will increase. Veterinary students will in 2014 visit all Education Fairs to inform applicants about studies in veterinary medicine. This information campaign will be organized by the new Communication department. A new study brochure that also deals with veterinary programme is in printing.

Suggestions

The School Director should appoint a new local advisory "RSA".

