

**European Association  
of Establishments for Veterinary Education**

**Association Européenne  
des Etablissements d'Enseignement  
Vétérinaire**



**REPORT ON THE STAGE 1 EVALUATION VISITATION TO THE DEPARTMENT OF  
VETERINARY MEDICAL SCIENCES, ALMA MATER STUDIORUM - UNIVERSITY OF  
BOLOGNA, ITALY**

**May 5 – 9, 2014**

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**CONTENTS**

INTRODUCTION.....	4
1 OBJECTIVES & STRATEGY .....	5
2 ORGANISATION .....	7
3 FINANCES .....	9
4 CURRICULUM.....	13
4.1 GENERAL ASPECTS.....	13
4.2 BASIC SUBJECTS & BASIC SCIENCES .....	15
4.3 ANIMAL PRODUCTION.....	17
4.4 CLINICAL SCIENCES .....	20
4.5 FOOD HYGIENE & TECHNOLOGY AND VETERINARY PUBLIC HEALTH .....	25
4.6 ELECTIVES, OPTIONAL DISCIPLINES & OTHER SUBJECTS .....	27
5 TEACHING QUALITY & EVALUATION .....	28
5.1 TEACHING METHODOLOGY .....	28
5.2 EXAMINATIONS .....	31
6 PHYSICAL FACILITIES & EQUIPMENT.....	33
6.1 GENERAL ASPECTS.....	33
6.2 CLINICAL FACILITIES & ORGANISATION .....	35
7 ANIMALS & TEACHING MATERIALS OF ANIMAL ORIGIN.....	39
8 LIBRARY & EDUCATIONAL RESOURCES .....	43
9 ADMISSION & ENROLMENT.....	45
10 ACADEMIC TEACHING & SUPPORT STAFF .....	47
11 CONTINUING EDUCATION .....	51
12 POSTGRADUATE EDUCATION.....	53
13 RESEARCH.....	54
EXECUTIVE SUMMARY .....	56
Annex 1 Indicators (version date May 9, 2014).....	58
Annex 2 Decision of ECOVE.....	60

## **INTRODUCTION**

The Department of Veterinary Medical Sciences is part of Alma Mater Studiorum - University of Bologna, Italy. The origins date back to 1784. The latest and successful EAEVE evaluation was in 2005. Since then, a number of changes have been introduced, affecting the organisation, management, new buildings and degree programme.

The Italian University system has been changed in many ways due to the Italian Law no. 240 of 30 December 2010. The departments that constituted the former Faculty of Veterinary Medicine of Bologna have merged in 2011 and formed Department of Veterinary Medical Sciences (DIMEVET), which now offers the Degree Programme in Veterinary Medicine (DPVM).

New teaching regulations have also been introduced. The Ministerial Decree 509/1999 and Ministerial Decree 270/2004 have introduced a number of changes, e.g.:

- Grouped all the learning activities into subject areas and established the minimum number of University Learning Credits (from here “CFUs”) assigned to area;
- Established that, to obtain a degree in Veterinary Medicine, students must acquire 300 CFUs, distributed in a maximum of 30 examinations;
- Envisaged the establishment of a quality assurance system for the accreditation and periodical evaluation of the universities.

Further the Italian Legislative Decree 219 of 27 January 2012 set the principles of a national system for accreditation and periodical evaluation of the universities and the Ministerial Decree 47 of 30 January 2013 established the requirements and indicators for accreditation. The introduction of the national QAS profoundly affected the local teaching systems, including that of the DPVM. A number of decisions have been made, i.e.:

- Reduction in the number of students. In order to enhance the quality of education and facilitate practical activities, first-year students admitted to the DPVM have been reduced from 150/Year (2004) to the current 90/year;
- Discussion of the results of the students’ opinion in the Degree Programme Board;
- Introduction of syllabi: teachers are obliged to indicate the syllabus of each single subject in writing, in order to avoid doubling and/or lack of information;
- Outsourcing of some practical professional activities: in order to facilitate the contact of undergraduate students with specific professional scenarios, i.e. veterinary surgeons working in the Public Health Service.

Large building and building renovation projects have been taken or are presently taking place, and a number of changes suggested by the EAEVE 2005 report have been introduced into the curriculum.

The extensive Self Evaluation Report including relevant annexes for the Stage 2 evaluation was prepared according to the SOP laid down in the EAEVE guidelines.

The team experienced a very well organized site visit, greatest hospitality and an open door policy, where all requests from the team were professionally fulfilled.

Suggestions for improvement have been made to help the Department of Veterinary Medical Sciences to improve even further.

## **1 OBJECTIVES & STRATEGY**

### **1.1 Findings**

A number of changes have taken place since the last visit in 2005 including e.g. changes in legislation, new strategies and objectives. Since 2007, the University (Alma Mater) has adopted a Strategic Plan, renewed every three years, which presents the mission, strategies and objectives. Along with the Strategic Plan, every year the University approves the Budget Plan, the Personnel Employment Programme, the Building Plan and the Safety Plan.

The overall strategic objectives for education at the University (Alma Mater) include:

- Guaranteeing the students' personal, cultural and professional growth, according to the needs of society;
- Improving the quality of learning;
- Strengthening the international nature of education;
- Developing policies aiming to enhance deserving students;
- Improving policies aiming to support the right to education.

Overall strategic objectives for research at the University (Alma Mater) include:

- Supporting basic research and improving applied research aiming to develop both individuals and society;
- Promoting and supporting the training for scientific research at all levels;
- Reinforcing the ability to attract foreign researchers to our research facilities.

The learning objectives for the veterinary education are set by legislation and states: "DPVM graduates have the scientific fundamentals and the theoretical-practical knowledge necessary to perform the profession of Veterinary Surgeon. DPVM graduates also have the methodological and cultural fundamentals necessary for continuing education and the methodological fundamentals pertaining to scientific research".

The primary overall objectives of DIMEVET are focused on:

- Teaching activities, aimed to provide students with:
  - The scientific fundamentals and theoretical-practical knowledge required to exercise the profession;
  - The methodological and cultural fundamentals required for continuing education;
  - The methodological fundamentals of scientific research.
- Research activities, with the aim of improving knowledge of basic and clinical animal sciences, animal production and welfare, as well as the prevention and treatment of human and animal diseases;
- Territorial-related activities, aimed to strengthen its public, social and environmental role through the care of:
  - Animal health and welfare, achieved through preventive and curative measures, innovative research, and high quality under- and post-graduate training;
  - Quality and safety of products of animal origin to prevent risks for human and animal health and to protect the environment.

These overall objectives of the DIMEVET are then translated into learning objectives matching the EU requirements for veterinary training (EU Directive 2005/36/EC).

## **1.2 Comment**

The objectives of the University and the DIMEVET are clearly stated and regularly amended.

The objectives cover the total education programme (pre- and post-graduate education) adequately.

The undergraduate education is the prime reason for the existence and funding of DIMEVET.

It is obvious that major changes have been enforced and that the process of change is still ongoing affecting students and employee to a not insignificant degree.

The DIMEVET has identified a number of major strengths and major weaknesses, and relevant suggestions as to countermeasure the major weaknesses have been made.

It is, however, the opinion of the team, that the requirements regarding Objectives as they are laid down in Annex I of the SOP are met.

## **1.3 Suggestions**

None

## **2 ORGANISATION**

### **2.1 Findings**

Page 22 fig 2.1 pictures the Italian University System in brief. On page 101 Fig 5.1 can be seen the relations and coordination between departments.

DIMEVET (Department of Veterinary Medical Sciences, head: Pier Paolo Gatta) and SAVM (School of Agriculture and Veterinary Medicine) govern the DPVM (Degree Programme in Veterinary Medicine). DIMEVET is divided into functional units “Services” which have a certain financial autonomy. Services are listed on page 32 tab 2.5. The Local Organisational unit (LOU) is located in Cesena and has financial autonomy, manages budget allocated by the Department Board.

The Head of the department governs DIMEVET. The head also appoints a vice-head assistant who can and will replace the head in case of an absence. DEC (Department Executive Committee) functions as an assisting body to the Head of Department. It consists of the head, the Vice-Head, Head of the LOU, the administrative secretary, 9 professors and researchers and 2 support staff representatives elected from the Department Board and 2 student representatives elected from the Department Board members. The department Board is the governing body of the Department and among other things approves strategies on teaching and research and coordinates financial and technical resources.

Faculties were formed and merged into schools, which are listed on page 35 under the abbreviation 2.1.5 The Schools. The degree programmes do not have financial autonomy; they depend on the school and department they belong with. They are in charge of organization and coordination of all the required teaching activities. The School is represented by the School Dean who chairs the School Board. On page 38 fig. 2.5 the relations between the governing bodies are described.

The Ministry of Education, University and Research (MIUR) supervise education. MIUR is in charge of providing the general guidelines and policies for the degree programmes and higher education in Italy. It allows certain autonomy to the university government, structure of the research, teaching and general organisation.

Within the University of Bologna main bodies of authority and administration are the following: Rector, Academic Senate, Board of Governors, Board of Auditors, University Internal Evaluation Unit and General Director. Rector is the legal and institutional representative of the university. Rector is supported by 8 vice-rectors (Deputy Rector, Vice Rector for the Romagna Campuses, Finance, Teaching and Education, University Staff, International Relations, Research and Students) who cooperate with the rector in the management of the University.

Academic senate functions as a representative body of the University community and is involved in appointing the members in the governing board, it functions as a link between different structures within the University and consists of the Rector, 10 department Heads, 15 professors and researchers, 3 representatives of the service staff and 6 student representatives. The Governing board is in charge of strategic planning, financial and staff programming and consists of the Rector, 5 internal members, 3 external members, 2 student representatives.

Board of Auditors is in charge of the assets within the university and consists of 3 statutory members and 2 deputy members. University Internal Evaluation Unit evaluates teaching, research and administrative activities annually. General director is in charge of general management and organisation of the University services.

Auxiliary bodies are the student council (33 members), service staff council (24 members), Sponsors’ Committee, Student Ombudsman and the Guarantee Committee for Equal Opportunities. The Student Ombudsman listens to complaints concerning student rights and dysfunctions. The Guarantee Committee for Equal Opportunities ensures equality among women and men workers.

## **2.2 Comments**

The organization is relatively new and is the result of great changes. The DIMEVET was the first department to be formed, and the process of the department's formation received keen interest and support from the Rector and University administration, which facilitated the change in organization. During the visit, it is evident that the new organizational structure has favoured cooperation and team spirit within the DIMEVET. The formation of the new Department has been a big work task for all staff and students. For the staff, bureaucracy and new and complicated administrative procedures take up a significant amount of time that could have been used for teaching and research. Academic staff is 108: 17 full professors, 32 associate and 49 assistant professors. Of these 79 are veterinarians and 29 are non-veterinarians (Table 10.2 SER p. 213) e.g. roughly 73% are veterinarians. The organizational structure allows for input from staff and students and from stakeholders.

## **2.3 Suggestions**

If possible, a LEAN process on administrative procedures should be initiated.

### **3 FINANCES**

#### **3.1 Findings**

As in all public universities in Italy, DIMEVET is mainly financed by the government/ministry (MIUR). Nationwide legislation governs distribution of funds at the university level, determines tuition fees limits (no more than 20% of the Ordinary Fund per University), dictates annual numbers of student admissions, and pays directly salaries to all university staff; salaries are not negotiable and are not merit/performance associated; they depend solely on grade and seniority. Much of the allocation of the money comes still from historical share. The University of Bologna establishes the tuition fees (increased in year 2013-14 to 2.000 euros per first year and 1.666 euros for the next years, a total of 8.664 euros/student for the 5 year curricula).

Funds come from 3 different sources. 1. So called National Ordinary Funds or “fixed funds” paid to the university are distributed to the individual Departments and Schools through a complex distribution key which is correlated to teaching load, student numbers and services provided. 2. Alma Mater allocates funds (“Variable funds”) to Department to teaching and higher education, research and library functions, however, without any specific allocation to DPVM. This is in contradiction with other veterinary faculties like Milan, Turin and Pisa where specific funds are allocated to DPVM to support especially the VTH (Veterinary Teaching Hospital) functions. 3. “Private funds” (national or European) for research are subject to Alma Mater rules.

Currently, the DPVM falls under DIMEVET, although teaching activities are partially coordinated by the Vice-Chairmanship of Veterinary Medicine of the SAVM. The finances supporting the DPVM, come from different sources, specifically from MIUR, Alma Mater, and both the DIMEVET and SAVM Vice-Chairmanship of Veterinary Medicine. DIMEVET and SAVM receive funds from Alma Mater and/or other public and private institutions. Annual total income was over 16 million euros, divided to salaries (75%, totally covered by MIUR via Alma Mater) and 25% for the running costs of DIMEVET and DPVM.

Since 2013, the financial model has changed and DIMEVET must direct an increasing part of its income to supporting clinical and diagnostic teaching activities by self-financing for over 1,5 million euros (35% of total expenses). DPVM is therefore underfinanced by Alma Mater. Based on nationwide cuts in university budgets, ordinary funds are not increasing; on the contrary, strict economic measures are being applied such as in many cases non-replacement of retiring senior teaching staff (at least not on the same professorial level) and scarcity of funds for replacement and maintenance of equipment and premises.

The problems of hiring younger staff and the scarcity of technical staff, especially in the clinics and in housekeeping has no chance of being augmented by financing through ordinary funds; the same is true for new positions, whose creation we do recommend, especially veterinary nursing staff, and the junior staff, i.e. true internships and residents who have central role in providing continuity in the teaching and research activities of DIMEVET.

Although funds are never sufficient, especially in the present economically difficult situation, the SAVM and DIMEVET still do deliver proper teaching (under the limitations spelled out in other chapters). Enthusiasm and personnel sacrifice of teaching staff in terms of time and effort are evidently necessary to maintain teaching standards. Teaching standards are maintained under the present financial restraints because of the reduced number (90 Italian and 10 non-EU citizens in 2013) of students admitted annually. Originally, the faculty and its premises were certainly designed for

larger numbers of students but by a joint decision among the Ministry of Education and deans of the veterinary establishments in Italy, the number of admitted students has been lowered considerably.

Almost all the income through research or through project funding by industry or region can be used by the grantee. Overhead payments to department or university are 10+4% from clinical service income, consultancies and private research funds and absent for public research grants.

Student fees are currently quite high, a total of 8.600 euros for a 5-year curriculum. The so-called Fuoricorso students (i.e. students enrolled for more than 5 years) also pay the annual tuition fee to the University.

Funds allocated for library have also been reduced but necessary funding has been succeeded to keep by special efforts.

In the department budget, funds specifically for quality management have been budgeted (approximately 20.000 euros per year).

Income from services (clinics, diagnostic labs etc.) has been slowly increasing and was in 2013 around 1,5 million euros – the total annual budget of DIMEVET for teaching and research being over 16 million euros in 2013 (Table 3.5 and 3.6) including salaries of nearly all staff (budgeted posts).

### **3.2 Comments**

In allocating annually funds to the DIMEVET; the Alma Mater administration should recognise the fact that veterinary education is among the most expensive of studies; to train undergraduate veterinary students the total average costs are at least 20.000 euros per annum for students in Europe. This is substantially more than training in most other disciplines; however, the distribution of public funds does not fully recognise these differences.

Italian faculties are also in different positions how their Alma Mater gives support for instance to operate VTH in a high scientific and expert level. Alma Mater should recognize the importance of upcoming and newly renovated VTH for the public and for the general PR of the university - but above all, for the high level teaching and learning environment for the students.

The recent structural and functional changes (study law and law substituting faculties by departments and schools) make financial planning difficult: the new study law demands a substantial increase in practical teaching which is in line with EAEVE requirements. On the other hand, appropriate financial support necessitating a budget increase is not or is insufficiently provided; a solution is not apparent at the present time. The new Department/School structure entails a new use and distribution system of funds with the main goal of the legislator of being more economical than the previous faculty structure. As this restructuring is an on-going and evolving process DIMEVET would benefit from a long-term plan, i.e. a financial plan covering more than 1 year, as is presently the case.

The precarious budgetary condition will in all probability not change for the better within the foreseeable future; therefore, the DIMEVET is encouraged to maintain and further develop alternative revenues.

Fees in the clinics and hospitals are generally 5% higher than fees in private practices, and this has deliberately been decided as to prevent any negativity from surrounding private practices. The incoming fees are by means of a financial algorithm divided and reallocated to different budget posts in the various services that have participated in the specific clinical case and used for covering e.g.

consumables, overhead to department and university, “bonus” for the clinicians, salary for short-term contracts.

The income from clinical and laboratory services can be further increased e.g. by creating centres of excellence (clinics) and by developing sample delivery services to the diagnostic laboratories, and by using in a business orientated manner and the available know-how (expertise - diplomates), equipment (diagnostic laboratories) and premises (clinics. laboratories). Revenue generated should be invested to improve working conditions by increasing the technical staff, recruiting specialists at the European Diplomate level by creating more residency and true internship positions thereby benefitting research and teaching. In the long run such process is expected to be auto-sustaining and synergistic. Substantial investments are now being made, especially in the veterinary teaching hospital VTH (small and large animal). However, these developments should be governed by a long-term business plan and monitored for continuous growth in expertise and public PR.

### **3.3 Suggestions**

Teaching funds allocated by Alma Mater to DIMEVET should be as much as possible proportional to the real costs of veterinary training (at least 20.000 euros/student/year). Teaching funds must not decrease especially as practical training requires more teaching resources to fulfil the required increase in practical teaching (especially in the Tirocinio) required by Italian law and EAEVE. The Department’s efforts in pursuing funding also from the Ministry of Health because of the significant role of veterinary medicine in the One-Health One-Medicine concept (zoonoses, food safety and food security, antibiotic resistance, translational and comparative medicine) is encouraged and should be further pursued.

Given the budgetary restraints, student numbers should not exceed the established number 90. The recent suggested increase in tuition fee should be accepted by University and it should directly benefit the respective teaching faculty.

A long-term (3 year) business (financial) plan should be established as a supplement to the 3-year Strategic Plan and be governed and progressively evaluated by a dedicated committee. Increase to reasonable levels overhead deductions (in favour of the Department, i.e. more than 4%) for research grants and other external funds; and include this in business planning.

The business (financial) plan can be used to address a number of strategic challenges as well as recognition of the newly renovated VTH which has a very important role in practical veterinary education of the students as well as serving the public and being a positive PR for the whole university. The required additional funding need to be reserved by Alma Mater to the VTH in near future for maintenance and development of expensive infrastructure (e.g. analysers, imaging modalities, etc.), hiring the permanent new personnel (e.g. veterinary nurses and staff in diagnostic imaging), funding for increasing emergency service and perinatal unit, funding for maintenance and development of the clinical record system (Fenice) as well as the Veterinary Teaching Portal (Portale Didattico Veterinario), and required funding for additional necessary cleaning service.

With these necessary investments, the income through services (especially clinical) could be progressively and substantially increased in future (internship and residency programs, hiring junior staff permanently, for technical support and nursing staff).

Creating a larger volume of business (patients) in the large and small animal clinics as well as rendering the teaching hospital more functional in the larger sense (including necropsy services,

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

imaging, more diversified case load etc.). The students need additional practical experience and hands-on training with live animals and these actions are of utmost importance to facilitate this.

Investigate means of reducing bureaucracy, reducing administrative burden and thereby costs; evaluate possibilities of shifting administrative positions changing them into positions of technical support staff (especially clinical support and nursing staff).

Create and define new faculty and staff positions such as “Intern” and “Resident” positions and also permanent positions for “junior clinician” and “veterinary nurse” and allocate to these positions salary frames in order to facilitate business planning and fund allocation.

Find ways to remunerate appropriately specialists (Diplomates of speciality Colleges); Specialist titles should be seen as equivalent to advanced academic degrees (dottorato di ricerca abilitazione – without substituting for those degrees!) and should be remunerated accordingly.

## **4 CURRICULUM**

### **4.1 GENERAL ASPECTS**

#### **4.1.1 Findings**

The general aspects of the curriculum comply with the EU requirements as described in the Directive 36/2005. The studies last 5 years inside the faculty and cover all EU-listed subjects.

The Ministerial Decree (MD) n° 509 (study law) enacted in 1999 has been revised in 2004 by the MD 270. The 1st, 2nd and 3rd years of the curriculum follow the new Decree. The 4th and 5th years are still under the old Decree.

One University learning credit (ULC) corresponds to 25 hours of learning commitment (lectures, practical and individual work). MD 270 says that the students must acquire 300 ULC during the 5 years i.e. 60 credits per year in order to obtain the degree in Veterinary medicine. Finally MD 270 established a system for the accreditation and periodical evaluation of the universities. One of the most relevant recent changes is the introduction of a national Quality Assurance System QAS by the Italian Law 240 of 30 December 2010 and Legislative Decree 219 of 27 January 2012. The same laws created a National Agency (ANVUR: Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca) aiming to pursue the established goals. The role of ANVUR in the evaluation system was established and detailed in Presidential Decree (DPR) 76 of 1 February 2010 and MD 47 of 30 January 2013 established and detailed the requirements and indicators for the accreditation (SER2).

Students graduate as Doctor in Veterinary Medicine. They have regular examinations in all topics, a total of 30 examinations, all along their studies, write a doctoral thesis at the end of the curriculum and pass the national examination in order to be able to enter practise. The doctor degree is necessary for exercising the profession.

Clinical training is supervised in small groups, and the students have additional supervised practical training, called "Tirocinio" which is a special hands-on experience period. All practical activities can be monitored and are checked in a logbook, where each practical skill is signed by the teacher, or contracted teacher present. This work is performed in part at the faculty, in part in extramural activities.

In-class attendance is mandatory for 100% of lecture hours. The hands-on practicals are also mandatory 100%. These practicals are taught in small groups.

#### **4.1.2 Comments**

Structure of the curriculum is still, in spite of the renewal, quite traditional and Bologna declaration is not yet accepted in veterinary medicine. This may be an obstacle for some students to try to move to another university.

In the year 2013, the new curriculum is not yet applied in the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> year course (curriculum 8206), and so it is difficult to appreciate the fulfilment of the exact ratios that have been calculated for the new curriculum (8617). Nevertheless, we can say that in the new curriculum, there is an increase of practical activities with the implementation of Tirocinio from 30 to 37 CFU. In the new curriculum the Tirocinio will be around 670 hours, which will give a better balance between the theoretical and practical learning. However, the ratio of the supervised practical training is still very low compared with the theoretical training (R6).

Adequate hands-on training should be provided by DIMEVET in spite of the recession and changing outside environment and society, in areas of companion (exotics also) and large animal medicine, animal production and public health and food hygiene. These are areas that will recover after recession and graduates need to have the adequate skills in these areas.

In regard to the Bologna process, we can consider that the five years courses correspond to the bachelor and master degree (2nd level master). There are also several PhD degree curricula at the DIMEVET grouped under the PhD School of Veterinary Sciences (animal sciences, equine physiology, public health veterinary hygiene and animal production, science of fishery products and poultry species, veterinary medical sciences); those programs correspond to a minimum of a 3-year course.

#### **4.1.3 Suggestions**

More supervised practical training is suggested into the whole curriculum. The old-fashioned lecture based teaching has to be renewed. The curriculum is too crowded and students do not have time to study and think in order to gain deeper learning.

Alma Mater should provide financial support to ensure that adequate hands-on skills are attained by the students. This can be done by supporting the functions of the VTH as well as supporting the Tirocinio training. More hands-on training in small groups and contact with live animals should be facilitated through the whole curriculum from the basic sciences on. The DIMEVET should have a standard policy and even obligation on increasing the hands-on training in small groups and teachers should adopt this principle from the very start of the veterinary studies.

More innovative teaching should be tried. Lecture hours could be even more reduced, and replaced by self-studying theory at home, more group-based reflections and evaluations and discussions and concentrate more on practical teacher-guided small group teaching while students are in DIMEVET. Theoretical lectures could (all) be videoed and set in intranet which students could follow at home as many times as they wish. The Veterinary Teaching Portal has been established by the Teaching Committee of the former FVMBol in an excellent manner and is provided for the whole faculty. It should be used for teaching and self-studying even more. The preservation, maintenance and up-keeping of this portal should be a priority and moneys should be allocated to this (a 50% position is needed for this).

## **4.2 BASIC SUBJECTS & BASIC SCIENCES**

The findings, comments and suggestions in Section 4.2 are based on the most recent study plan, i.e. Curriculum 8617, which was introduced in the academic year 2012/13. Currently, it is active during 1<sup>st</sup> and 2<sup>nd</sup> years of study.

### **4.2.1 Findings**

With few exceptions, all teachers of Basic Subjects and Basic Sciences belong to SAVM and DIMEVET. The majority of the teachers in the DPVM are veterinarians. Many teachers in the basic sciences also hold a veterinary degree, which leads to a close veterinary-oriented teaching early in the DPVM.

Recently, Integrated Courses have been introduced where different closely related subjects are taught in a number of course blocks.

**Basic Subjects** - *Physics, Chemistry, Animal biology, and Biomathematics* - are taught during the first year of the DPVM. The courses include 126 h of lectures and 26 h of supervised practical training and have a total volume of 15 CFUs (ECTS credits). Thus, the scheduled and mandatory in-class training is 10 h/CFU and 15 h/CFU are allocated for “home studying”. This corresponds to 16 in-class hours per week.

The ten subjects listed as **Basic Sciences** (EC Directive 2005/36/EC) – Anatomy, Physiology, Biochemistry, Genetics, Pharmacology and pharmacy, Toxicology, Microbiology, Immunology, Epidemiology and Professional ethics – are covered in eleven Integrated Courses given during the first three years of the DPVM. With regard to Basic Sciences, the courses include 568 h of theoretical training (566 h lectures) and 124 h of supervised practical training and have a total volume of 64 CFUs. Thus, the scheduled and mandatory in-class training is 11 h/CFU and 14 h/CFU are allocated for “home studying”. This corresponds to 17 in-class hours per week.

In summary, Basic Subjects and Basic Sciences correspond to 79 CFUs or 26 % of the total DPVM. The total time allocated to in-class training is 844 h (i.e. 10.7 h/CFU), of which 694 h are “theoretical” (82 %) and 150 h (18 %) are “practicals”. The ratio between practical and theoretical training is 0.22.

The syllabus covered seems to be adequate as can be judged from the course presentations on the Alma Mater web site. Additional syllabus material was also supplied during the visit.

Lectures are given to whole classes (up to about 100 students) while the class is divided into two or more groups for practical sessions (approx. 10-40 students per group). In anatomy sessions the students work in groups of three to four persons.

Teaching facilities include up-to-date equipped lecture halls and seminar rooms. There are teaching laboratories for chemistry/biochemistry/biotechnology and for microbiology. Histology is studied in a microscopy room (40 microscopes) and anatomy in a dissection hall for eight student groups (30 students, i.e. 1/3 of class). There is an impressive anatomy museum with some 2.000 specimens of which some are unique.

During office hours, the students have access to microscopy and anatomy facilities (if not used by other students), the anatomy museum, library, multimedia rooms, etc. “Studying at home” may in fact well be done in campus.

There is a good supply of dog, cat and chicken whole corpses for use in anatomy. However, whole corpses are scarce or lacking for equine and food producing animals. There is also an obvious reduction in the supply of slaughter-house material (“specimens”) during the last academic year, especially from equines. This is said to be the effect of the reduced number of students.

Judging from the course home-pages, the literature used are recent versions of modern textbooks, often translations from English into Italian. During the visit, textbooks were displayed and the Team noticed that several were written by DIMEVET staff.

The students have access to course notes provided by the teachers. During the visit, course notes were presented both in print and as video-presentations.

The web platform Veterinary Teaching Portal – “*Portale Didattico Veterinario*” – is an ongoing project with the aim to give students free access to supplementary material for practical teaching activities. There is now material available for most of the basic sciences.

#### **4.2.2 Comments**

The introduction of Integrated Courses allows a more comprehensive biomedical synthesis, which may replace fragmented presentation and knowledge of details.

The number of hours allocated to Basic Subjects and Basic Sciences seem to be adequate. However, there is a remarkable imbalance between theoretical training and supervised practical training. The ratio between practical and theoretical training is 0.22. In fact, the number of supervised practical training hours accounted for is very small in several of the Basic Sciences.

Teaching of bio-safety and bio-security is included in several of the basic courses. Students are not allowed to work in laboratories unless they have attended introductory lectures on safety precautions and regulations.

#### **4.2.3 Suggestions**

A shift from a (too) traditional lecture-based teaching towards more student activating didactics should be encouraged.

The Team feels that the introduction of “Integrated Courses” is an important first step towards an even closer integration and collaboration between disciplines.

There are some good examples of inter-disciplinary cooperation. Efforts should be made to further strengthen the cooperation between basic and applied disciplines. With the new one-departmental DIMEVET structure, teachers and students seem to be ready for next step!

Teachers from basic sciences should be encouraged/invited to participate in clinical seminars and rounds.

The Team feels that a “wrap-up” course covering “The Cell” should be considered. At present, the topic seems fragmented and presented in several (not coordinated) courses.

## **4.3 ANIMAL PRODUCTION**

### **4.3.1 Findings**

The main food-producing animal species in the Emilia-Romagna area are milking cows (*Parmigiano-Reggiano* cheese) and pigs.

The SER states that (p. 73) that Animal Production core subjects involve 463 hours of theoretical and supervised practical training, representing about 14% of the core curriculum of the DPVM. Traineeship in Animal Production of the DPVM seems to cover the knowledge of the main food-producing animal species although some deficiencies need to be solved.

Just 8 CFUs of the DPVM are dedicated to “optional subjects”, with several possibilities to be chosen by the students. The own DPVM offers 3 optional courses, one of them dedicated to animal behaviour.

A well-equipped teaching dairy farm with free stalls and a small goat breeding facility are used for practical training in the Animal Production area.

The Professional Practical Training (PPT) (Tirocinio) in Animal Production has a total offer of 85 hours, and the students have to participate in a minimum of 75% of the proposed practical activities. There are 3 main activities:

- Teaching dairy farm: 30 hours (students need to spend at least 25) performing several activities on calf breeding, dairy cow nutrition, machine milking. Four students per month are admitted (16/week).
- Obligatory activities: 43 hours (students have to attend a minimum of 32). Visits to external farms and facilities (attendance compulsory) and internal activities.
- Equivalent activities: 10 hours (minimum 7 hours). External and internal activities, including visits to beef cattle and small ruminant farms.

### **4.3.2 Comments**

Regarding the Animal Production area, the curriculum seems to be well designed and balanced. It seems to have a preclinical exposure to the knowledge of farm animals, given that the basis of Animal Production are offered in the first (Ethnology, General Zootechnics, Genetic, Economy) and second year (Metabolism, Physiology of Reproduction, Ethology), whereas in the third and fourth years the main subjects are offered: Animal Production and Husbandry of the main food animal species, Animal Nutrition and Feeding, and Animal Welfare.

However, there is not a good balance between theory and practical training in the curriculum concerning the Animal Production area, mainly during the first year. Practicals are nearly 30% of the on-site training but considering in the calculations the PPT (Tirocinio). Without it and taking into account only the IC of the core curriculum, the percentage of the supervised practical training hardly reaches 20% of the on-site training. This fact is reflected in the R6 ratio (page 93 of the SER), and even it appears as Suggestion in the page 97 of the SER. Such low percentage of the on-site practical training is even lower than the considered in the old curriculum of the Veterinary Medicine School of Bologna.

The Economy offer (general, veterinary and of farm animals) seems to be a bit overloaded (6-7 CFU), although the contents of agronomy are included in it. The contents of the technology involved in the

manufacture and preservation of foods are very well covered in the course of Feed Technology (third year). Moreover, the course of Large Animal Feeding (third year) includes 4 hours dedicated to hay production and ensiling process, and even the course of Animal Nutrition offer just 2 hours for feedstuffs.

Contents of Veterinary Hygiene are considered in the different courses during the third and the fourth years. The student is informed early, since the first year, of the safety procedures for working in the farm and for the animal management techniques.

The PPT in Animal Production is rather well organized. The rules and the offered teaching activities are published in the web. Sixteen students are enrolled per month. At the end of the period, the student needs to justify at least 65 hours of practical training and has to fill a questionnaire for evaluation of both teachers and performed activities. The dairy cattle teaching farm is widely used for practical training in small groups of 4 students. However, no farms of broilers or laying hens are offered to be visited in the Tirocinio, although a broiler farm is visited in the course of Avian Pathology.

The dairy farm is also used for practical training during the first year (Animal Breeding course), second year (Food Safety and Traceability course), third year (Epidemiology, Reproduction and Large Animal Nutrition courses) and during the fourth year (Cattle Production). The farm is also widely used for research purposes, being a very well organized facility. It is half funded by the Alma Mater and the income of the milk sales (50:50).

The core curriculum is organized in form of Integrated Courses (IC), each containing several subjects. Although some of them are structured as the juxtaposition of rather different subjects, other are managed as a real integration of contents, even with a just one examination, that is the case of the IC of Animal Nutrition and Feeding. Every IC has a designed coordinator. In general, teaching staff seems to be very motivated, being also aware of the critical points in the student's learning of the several aspects of the Animal Production area. They are also well coordinated with the teachers of other related courses as Reproduction or Physiology for example. This fact is one of the advantages of merging all teaching staff in the unique Department of DIMEVET.

The EAEVE report after the visit in 2005 recommended improving the teaching in small ruminants. Currently, in the DPVM Curriculum there is 1 CFU dedicated to Aquaculture and 1 CFU to the Small Ruminants. There is also a goat housing facility (10 goats and 1 or 2 bucks) for teaching purposes, although the practical activities performed in such facility are still limited and not yet included in the PPT (Tirocinio) of Animal Production.

The exposure to pigs and poultry for training is not enough. Just a visit to a pig farm (in groups of 16 students for 6 hours) is performed, and hardly any additional on-site training is offered with the exception of the welfare evaluation of the pigs housed in the facility of the Animal Husbandry lab. Concerning poultry, just one farm is visited in the context of Avian Pathology, and the students are not familiarized with this species. An additional visit to a rabbit farm is also offered, although as an elective activity.

### **4.3.3 Suggestions**

The dairy farm is an excellent facility for practical training in the Animal Production area. Given that a lot of people of the teaching staff are involved in the farm for both teaching and research activities, the DIMEVET should consider in the near future setting up a Professional Master of Science in Dairy Cattle Health and Production, involving in such project also to practitioners in the field of the dairy

industry. Even a cooperation of the Faculty of Veterinary Medicine of Parma should be also considered. The DIMEVET has enough resources to carry out successfully this specialization activity.

The percentage of the supervised on site practical training for the different Integrated Courses in the Animal Production area need to be increased up to 30%, mainly during the first year (Animal Breeding course) to improve the early exposition of the students to handling of the main farm animal species, but also in the following years. In addition, some practitioners could be invited to give some lessons or seminars to cover the more practical or innovative aspects in the animal production field.

Practical training in pigs and poultry, but also in rabbits, need to be increased. More exposition to live animals at farm level is necessary, but also additional on-site practical activities need to be offered, for example simulations in multimedia rooms. A new facility for rabbits in the Ozzano Campus is in progress, but a small teaching farm for broilers (1000-2000 animals) should be also considered.

## **4.4 CLINICAL SCIENCES**

### **4.4.1 Findings**

Teaching is currently in transition from “8206” and “8617” curricula. Both are based on the fundamentals stated by MD 509 and on the more recent MD 270. The new curriculum is fully implemented at the bachelor education (i.e. 1<sup>st</sup> and 2<sup>nd</sup> year) while an old curriculum has been implemented earlier (i.e. 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>). Within the next 3 years, this transition will be completed and all students will follow the new curriculum.

Curricula 8617 and 8206 are very similar and share the same educational basis. According to the SER (page 58), the 8206 study plan had to be amended to the 8617 to meet further Ministry and University indications regarding the maximum number of courses and exams (30), and the number of credits for the English language course. Some subjects from the previous curriculum (8206) were joined to establish integrated courses. In the curriculum resulting from these changes, twice as many CFUs are dedicated to English (six instead of three) and the final number of exams corresponds to requirements. The cultural and organisational basis of the two curricula have indeed remained very similar and the differences are really minor.

The University Learning Credit-system (CFU) has been established (corresponds 1 to 1 to the ECTS). One CFU credit corresponds to different hours depending on subject; basic subjects have (in-class training) 9 hours/CFU, Basic sciences 11 hours and professional (clinical and food hygiene) correspond a max of 12 hours/CFU. The remainder 16 to 7 hours are considered self-studying at home, i.e. a total of 25 hours of learning commitment per student per CFU. Italian university education, previously regulated by the law MD 509, is currently based on MD 270, establishing that each University can plant the percentage of individual work (self-directed learning). In practical learning, individual work can be equal to zero; that is one CFU in the Tirocinio corresponds to 18 effective hours of practical training (in other Italian veterinary universities this was 25).

However, each university may define in its Teaching Regulation the fraction each student needs to dedicate to individual (self-directed) learning (MD 270). In the Curriculum of DIMEVET, individual work can range from 9-12 hours. For specific activities – like practical training, the individual work time allocated can be 0. In Tirocinio, 1 week is calculated as 4 days. The total number of CFU necessary to obtain the veterinary degree is 300CFU (legislation MD 270).

In the present MD 270 curriculum, the minimum number of CFUs assigned to each subject area is 58 CFUs for basic subjects; 130 CFUs for characterising subjects; 12 CFUs for integrative subjects; 8 CFUs for elective subjects and 30 CFUs for practical training.

Many changes of the 5<sup>th</sup> year curriculum were planned in 2008 (at the time of the approval of 8206 curriculum) and, starting from January 2014, the new PPT plan was finally operative. Many changes have been made in curriculum of the 5<sup>th</sup> year: An 8 CFU increase (27%) in the number of CFUs dedicated to professional practical and hands-on have been implemented. The remodelling of the theoretical/practical hours ratio for each CFU according to different subject areas (see next paragraph); An increase in the number of integrated courses comprising different subjects encompassing various related disciplines; The switch from subject-oriented to a species-oriented teaching. Also the first year students get an introduction of 1 CFU of clinical teaching of professional and problem-oriented issues (“Professional Practical Activity in the Veterinary Teaching Hospital”); additionally 1 CFU has been dedicated to aquaculture; 1 CFU to small ruminants; and finally also the extramural Professional Practical Training in clinical (mobile clinic), food safety and veterinary hygiene. Furthermore the English language has now double credits (6CFU).

As the new curriculum is fully implemented on all years, the practical hands-on-training throughout the Tirocinio has been increased from 30 to 37 CFU (25%).

PPT can be done both in Faculty premises as well as in State Institutions offering veterinary services to the public and/or in private practises/clinics with the veterinarians. The gradual reduction of student numbers (admissions, class size) from 150 students per year (2005/2006) to 90 per year in 2012/13, support the opportunities for close supervision in hands-on training.

The whole clinical sciences part is corresponding to 1.732 hours (48%).

LECTURES: Clinical lectures are comprehensive and consist of all major subjects and subfields. A full list of the clinical lectures was provided for the team during the visit. It was found that the students will attain adequate theoretical basis for their studies.

#### **4.4.2 Comments**

##### Lectures:

Lectures in clinical sciences are generally subdivided into species (canine, feline, bovine, and equine) and some lectures are general and discipline based.

Theoretical basic knowledge required e.g. surgical pathology and basic surgical procedures, medicine etc. are well lectured in one larger series of lectures as these are the same in all species of animals. A similar systematic approach as outlined in modern textbooks is used. Overall, the number of different courses is voluminous; students are being taught much more than is necessary and very detailed information with much repetition in different courses.

Textbooks used are standard textbooks used in veterinary teaching and some of these have been translated into Italian. However, electronic books should be bought into library to provide more access to be used. Most lectures as well as additional material are available in very well managed and designed Veterinary Teaching Portal, which is really appreciated by the students. Continuation of this practise should be ensured also in future because this is an ongoing and very needed portal. Students have their personal computers and can access material any time.

##### Practical teaching:

There is a clear understanding and determination by the faculty to increase the clinical practical training, especially once the necessary prerequisites such as all buildings and services of VTH are completed.

In clinical training (Table 4.2 Curriculum hours of EU-listed subjects SER page 72) only 32% is spent on clinical training (552 hours) and 55% on lectures and seminars. The hours of clinical hands-on training should be increased further in the expense of lectures, especially as one CFU is calculated only as 18 hours of active work.

PPT allocated hours in practical training are calculated with 18 hours for 1 CFU and practise is given only on 4 days of the week, basic working day will be only 4,5 hours long. In the 5<sup>th</sup> year, 560 hours are spent in clinical work. In animal production hours are also very lecture based (306/463 -> 66%).

Students spend in 24hr-emergency 6-8 shifts in small animals, around 6 in large animals as well as some in obstetrics.

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

In the VTH, the students spend 8 or 12 hour shifts in small animal clinics hours per day in a non-continuous fashion in the different clinics in groups of around 4 (2-5) students (SER page 82). They can see cases in polyclinics and as inpatients and get this way rather snapshots of clinical experiences instead of having the opportunity to monitor and modulate disease and healing processes (including post-mortem exams) over time (days) on individual and diversified cases. However, students can, if they wish, follow cases via the patient program.

Case number of the VTH in 2013 in small animals has been increasing and was around 6.500 cases last year. The cumulative number of cases seen per day in all services is documented in the electronic patient record system of the VTH and only electronic system is used for all patient data storage including the imaging, laboratory and other data. Students have free access to recorded cases with the only possibility to read the records but not modify them except when they sign in by supervisor's password and write the record. Supervisor then checks the students' writing and is responsible for the correct data.

The emergency service for companion animals started, in an effective and complete way, in 2011 only. Emergency service starts at 4pm and finishes at 8am next morning, with 1 veterinarian and 2 students being involved. It is operating every weekday and weekends, including holidays. However, 24-hour emergency means that there is service all day and year around. ES is mandatory duty for each student, but students can spend more time on a voluntary basis (internship agreed with the supervisor). Cases seen in small animal emergency are increasing, in 2012 there were 517 consultations in 2013 it doubled to 1.019 cases. However, there were still only 30-40 emergency surgeries i.e. one every 2 weeks respectively. Practical training in VTH with adequate case load in small animals both in daily work as well as in emergency is enabling the students to acquire practical knowledge in the EU- listed clinical subjects.

Animal shelter operations with the agreement with Bologna Province and Provincial Health Service (AUSL) have been made to offer first assistance to stray (not client-owned) dogs and cats hit by cars in the area, and in the first year approximately 15 cases were managed. The agreement with Emilia Romagna Region is more complex and focuses on specific opportunities to provide shelter dogs and cats requiring second-opinion (specialist) consultation, and approximately 45 cases are managed on a yearly basis. Also VTH takes care of the first-aid care of the wild animals.

VTH large animal section, on the other hand, has only 12 cows per year and 16 horses. In cows, practise is currently on herd health level and therefore visits to farms with the mobile unit are essential for students for learning. Individual cases are also seen during Tirocinio in practise together with public health veterinarian and some occasional surgeries etc. can be seen.

In reproduction, there is a very well-functioning foal-neonatology unit where students work as volunteers to provide 24-hour state of the art treatment and care for the foals. In PPT rotation outside faculty in Artificial Insemination Centre (AIC) students have enough exposure to gynaecological problems of horses, as there are 250 cases per year. This does allow developing necessary and sufficient clinical skills at the present time in equine reproduction. However, the number of internal medicine and surgical cases is low (colic, wounds, castrations). This should be increased when economic situation is improved, and new renovated clinics are opened. Further, in large animal practicals, phantom boxes mimicking uterus of a cow could be created for students to mimic the problems in birth-delivery of calves as students miss this teaching almost totally.

Equine emergency service is also very quiet at present except the equine neonatology unit in spring. Only 10% of cases are referrals. Students may see equine emergencies occasionally only in practise

situations during their Tirocinio. However, this is not a consistent finding and students often do not spend the night in the extramural veterinary service, either.

Pathology: the number of animals submitted to pathology varies significantly from one year to other (in 2012 no pigs at all) and overall numbers are at a critical low level. This is directly related to the service provided by VTH. Therefore, adequate caseload is essential for the teaching material in pathology that cannot be learned otherwise. Caseload is also important to support the on-going residency training in pathology. Good practises have helped obtaining material also from outside practitioners. It is important to provide these practitioners with feedback of the cases they have sent in.

R18 is below (0.592 vs min 1.036) number of food animals+equine+wild animals/ number of students (120) and this will not be better even if have 90 students only (0.789). Necropsies of companion animals are barely adequate (1.611 vs min 1.589). However, special efforts have been made to increase the numbers in recent time and these figures from year 2014 look more promising, although still low. (R18=168/120=1.4 and R20=204/120=1.7)

Students write a logbook that is signed by the supervisor during Tirocinio training. There has not been any practical examination after the Tirocinio at Faculty to assess student's practical skills obtained during PPT (like OSCE Objective Student Clinical Examination).

In VTH, there should be more emphasis on hand-hygiene. Washing hands with disinfecting soap is not adequate enough with emerging hospital infections. Alcohol-disinfectant containing dosettes (nose down, push by elbow or arm) should be installed in every examination rooms by the doors.

In SA isolation the present system should be changed (nose up, difficult to handle). Hand-hygiene should be followed before and after every patient and this should be taught to the student as well, e.g. that all rings from fingers and wrist watches should be removed when working in hospital with animals because these compromise effective hand-disinfection and subject to spread of hospital infections. Hand-hygiene protocol with alcohol/disinfectant should be done before and after every patient.

Medications and drugs were noticed to be out-of-date in many places in VTH. Also the opening dates were missing in the medication bottles.

Mobile Clinic: A true mobile clinic activity is missing. Students do only 2 field trips during their Tirocinio on farms together with the supervisor and practitioner. However, this is not considered as a true mobile clinic activity by the team. Agreements have been made with 3 bovine practitioners and cattle and swine farms where students (4-6) go with faculty members or during their Tirocinio accompanied by an academic teacher. Faculty has 2 cars (9 seats each) to take students to farms. Field trips for bovine and swine start at 6 or 7am in order to reach the veterinarian who is already at the farm and returning around 4-6 pm. In the new curriculum, students go also in infectious diseases-program to 2 different farms.

It shall be emphasised that a VTH must be a centre of excellence in every aspect and must be an exemplary for promoting maintaining and teaching the best research-based standards. Research-based teaching is a key requirement in our EAEVE-SOP – and evaluation guidelines.

R13 Food animal cases are low (8.353 min 8.325)

R14 Equine cases are very low (2.835, min 2.7)

#### **4.4.3 Suggestions**

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

Lecture load is traditional and too large and more emphasis and hours should be allocated to self-studying as well as practicals in small groups. The large animal practicals should be focused on day-1 skills on live animals at the farms and in clinical practise. More self-studying should also be increased.

The VTH is established for clinical training. At present, caseload is not sufficient in large animals (internal medicine and surgical cases of horses) for students and they are getting barely enough training for their day-1 skills. Therefore, VTH case numbers should be increased in the large animal clinic in day and emergency service.

Pathology caseload should be maintained in future as it has been very low both in companion animals as well as large animals etc. Both equine and pathology services will be increasing in future as they are being linked to the development of the VTH practise.

The emergency service should be better visible for the public, and access should be facilitated, and better outlined. A basic price list may be posted in the waiting area. The availability of the emergency service should be made public and local veterinarians should be contacted – a charter of collaboration and referral policy should also be established and published.

Practical animal work is still quite limited and hours calculated CFUs translated to only two-three 8 hours working days – and this without any emergency duties. The number of assigned CFUs in practical clinical work is still too low as in reality 1 ULC should be more than 18 hours of practical work because this translates to just 2-3 days of clinical exposure. Foal-sitter-elective course should be offered to the students of the 1<sup>st</sup> and 2<sup>nd</sup> years. Elective clinical rotations should be established and students should be accredited for these.

In VTH, there should be strict emphasis paid on hand-hygiene. Dosses (nose down, push by elbow or arm) should be installed in every examination rooms and in SA isolation the present system should be changed (nose up, difficult to handle). Hand-hygiene should be followed before and after every patient and this should be taught to the students as well to prevent hospital infections.

In pharmacy and in VTH, all the drugs should be regularly checked and out-dated drugs to be removed. Also opening dates/times should be marked on the medication bottles. Appropriate handling of the medications should be emphasized in VTH.

## **4.5 FOOD HYGIENE & TECHNOLOGY AND VETERINARY PUBLIC HEALTH**

### **4.5.1 Findings**

Food is covered by three integrated courses IC Food Hygiene and Safety (second year), IC Food Inspection, Control and Certification (fourth year) and Professional Practical Training Inspection of Poultry, Game Meat, Seafood, Milk and Dairy Products – (fifth year). In IC Food Hygiene and Safety the majority of hours of training are theoretical lessons (114 hours) and only 18 hours cover the practical training. In the IC Food Inspection, Control and Certification there are 40 theoretical lessons and 44 hours of the practical training. During PPT (professional practical training – Tirocinio) students spent 54 hours (2 weeks) by supervised practical training outside of the university (fifth year). There is no link between animal production, pathology, pharmacology and toxicology because these subjects are in third year courses.

University has its own slaughterhouse and a cheese factory. The capacity of the slaughterhouse is approximately 30 cattle per week, and this facility slaughtered only one day each week. The cheese factory is part of DIMEVET and it runs in cooperation with a private company and processes cow and water buffalo milk. Students have practical there under supervision of the teacher.

Practical training is partly internal (bovine slaughterhouse, cheese factory) but majority of practical training is external.

Extramural Food Hygiene activities aim to expose the students to the professional environment and students take part in daily work of National Health Service veterinarians.

During Tirocinio training the students visit some milk and meat processing plant pig and poultry slaughter and also fish market.

The animal welfare laws and practices are included mainly during the teaching in DIMEVET slaughterhouse and also during Tirocinio training. There is not ritual slaughtering at DIMEVET.

The percentage of teaching hours of Food Hygiene & Public Health according to SER is 8%.

The teaching in the field of Food Hygiene & Public Health is quite well organised. The teaching activities are integrated in curriculum as the intensive courses in 2<sup>nd</sup> and 4<sup>th</sup> year. Except these courses the students have to take part in the professional practical training (Tirocinio) for two weeks. Majority of training is theoretical (154 theoretical and 116 practical hours). The DIMEVET has the slaughterhouse and the cheese factory in the university campus or close to the veterinary campus (the cheese factory). Tirocinio training is going on extramural private facilities under the supervision of the official veterinarians. In general, the practical training is organised for small groups of students so that they can be in close contact with practical veterinarians and adopt practical skills. The students can visit other food processing plants (milk, meat factory, fish market, poultry and pig slaughter).

### **4.5.2 Comments**

First intensive course of Food hygiene is integrated in curriculum in the 2<sup>nd</sup> year and its disciplines are mostly theoretical (there are only 18 hours practical training).

There is no link between animal production, pathology, pharmacology and toxicology because these subjects are in third year courses.

The majority of practical training is shifted to 4<sup>th</sup> and 5<sup>th</sup> year.

There is the imbalance between practical and theoretical hours. Majority of teaching hours is only theoretical.

The teaching in Tirocinio is only under supervision of official veterinarians (without any official contract with the department) and there is any control of the quality of teaching.

#### **4.5.3 Suggestions**

The first integrated course of Food hygiene is incorporated in curriculum in the 2<sup>nd</sup> year. It is quite early in the curriculum because students have completed basic subjects' studies only. It would be better to shift it to the 3<sup>rd</sup> year.

This change helps to improve linking with other disciplines as animal nutrition, pharmacology, and pathology.

Increase the total number of teaching hours in Food hygiene, technology and veterinary public health (at least 12% of total teaching hours) and reinforce number of teachers.

Increase number of practical training hours especially at the meat inspection.

Organise meat inspection of pigs and poultry under supervision of DIMEVET teachers.

## **4.6 ELECTIVES, OPTIONAL DISCIPLINES & OTHER SUBJECTS**

### **4.6.1 Findings**

The aim of these courses is essentially to complete the student's knowledge in some areas of specific interest. In 2013-14 the DPVM proposed a list of three optional subjects (part one and two), offering new teaching approaches in each one, to 4th and 5th year students (Tab. 4.3):

Basic Sciences – Animal behaviour, bridging basic and clinical subjects, the latter including neurological and endocrinological causes of behavioural changes;

Public Health – The role and functions of the veterinary surgeon employed in the National Health Service;

Clinical Sciences – The approach methodology to clinical cases according to the Problem-Oriented Approach.

The European system of accreditation of veterinary education - was offered in 2013 in face of the EAEVE visit.

### **4.6.2 Comments**

There is no tracking and the number of elective courses is very low. All courses are based on lectures. Practicals, when planned, are reported in table 4.3 in the SER (page 75).

Clinical sciences course aims to improve self-directed learning, communication and methodology. It is run entirely in the IT lab, and the students work in small groups with tutorial supervision. The groups of students work with different clinical cases, having to find all the information necessary for proper diagnostic work-up, diagnosis and therapy. At the end of the course, each group presents their specific case to the other students.

Six students were selected for inclusion in the EAEVE working group in order to critically participate in the activities planned to prepare the self-evaluation reports and support the Commission's visit.

Learning outcomes are related to the three Dublin descriptors that consider the so-called transversal skills (i.e. ability to work in teams, find and process information, and analyse data).

### **4.6.3 Suggestions**

In optional courses, more practically oriented courses should be offered, that relate to future working life and students would attain skills needed there. Many more optional, especially practical courses could be offered. This could be supported in VTH with clinical cases especially in large animals (e.g. foal-sitter-course).

## **5 TEACHING QUALITY & EVALUATION**

### **5.1 TEACHING METHODOLOGY**

#### **5.1.1 Findings**

Teaching methodology is outlined in the SER (page 101-121).

According to the SER the aim is to provide theoretical and practical knowledge combined with a scientific background. Life-long learning is encouraged. The practice of day-one-skills is in place. Day-one-skills are acquired by attending lectures and professional practical training. Passing obligatory courses is noted to be enough to ensure sufficient knowledge considering day-one-skills. A student logbook is used during the fifth year and specific skills and achievements are listed within. Qualifying examinations are held after graduation and postgraduate employment percentages are used to assess day-one skills and the adequacy of knowledge and working ability. According to the SER a more problem-oriented approach has been taken into use. Students take part in clinical work and the 24-hour duty. During the visit it became evident that case follow-up is not mandatory/demanded or regulated by the teachers and that the amount of hands on work with the actual patients could possibly be increased.

The DIMEVET has a formal responsibility to ensure that the DPVM is thoroughly research-based.

A syllabus is in place listing the topics taught and examined on a specific course, syllabi are accessible to all students. In the Course unit catalogue, information on learning objectives, syllabus, literature, teaching mode, etc. is available. The literature used is recent versions of modern textbooks, often translations from English into Italian. Students are also encouraged to use and study of scientific papers and journals. Course notes are not preferred by the teachers.

Changes have been made according to the EAEVE evaluation visit 2005, more credits are offered to the students on hands-on practical training according to the SER. Practical training is conducted as obligatory intra- and extramural work. The number of professional and practical activity hours have been increased, the value for R6 meets the criteria provided but is still rather low. Also a more integrated approach has been taken into clinical cases. Mobile clinic has been introduced since the last evaluation but the amount of actual ambulatory trips that an individual student attends is rather low. The practitioners in charge of the ambulatory training at the farm site are private clinicians.

In the SER, the number of scheduled in-class hours are presented under three headings, theoretical training (including lectures, seminars and self-directed learning), supervised practical training (including laboratory and desk based work, non-clinical animal work and clinical work) and other. Teaching methodology differs markedly between large student group lectures (about 100 students) and, e.g. hands-on anatomy classes or clinical training.

The DPVM curriculum is still quite traditional, dominated by theoretical training (lectures). Excluding optional courses and Diploma Work (17 CFU); there is a total of 3.370 h of mandatory in-class training. More than 63 % of that time is allocated to theoretical training. Supervised non-clinical practical training accounts for 19 % and clinical work for 17 % of the 283 CFUs.

The students have access to course notes provided by the teachers. This web site has not been available for evaluation but demonstrations were made during the visit and printed examples were presented. The e-learning platform Veterinary Teaching Portal – “Portale Didattico Veterinario” – is a

project under development with the aim to give students free access to supplementary material for practical teaching activities.

Students are exposed to handling of small or large animals since the 1<sup>st</sup> curricular year.

The 37 CFU Practical Professional Training period (Tirocinio) includes mandatory intramural and extramural practical work. The training begins the 1st year (1 CFU), continues through the 4th year (4 CFUs), and the vast majority is given during the 5th year of study (32 CFUs). During the 5th year, all students attend eight clinical rotations, including hands-on clinical work and 24-hour duty.

During the Professional Practical Training period, all students have a PPT logbook that is used to ensure that they have performed or participated in the clinical (and other) procedures preparing for the “day one skills”. The outcome of the DPVM is also checked via the external national “Esame di Stato” or “qualifying examination” needed to pass before obtaining the licence to practice.

There is extramural practical training in “food safety and veterinary hygiene” in cooperation with the National Health Services.

Teachers are overall motivated and dedicated to their teaching work and are, in general, open and approachable for students.

A system permitting students to evaluate teaching and teachers was established 1999. An Internal Quality Assurance system is in place since 2007 and is assessed by the Student-Staff joint committee. The S-SJC has an important role in monitoring, coordinating and improving teaching and also taking part in conducting the annual self-evaluation reports with the Degree Programme QA Group within all of the degree programmes. One goal of the Annual Review Report is to ensure the policy transparency of the teaching activities and to promote continuous improvement. Changes are proposed on the basis of the ARR. Six students take part in the DPQAG. The ARR takes into account the student experiences. According to the SER the DIMEVET and the DPVM form committees to ensure the quality of teaching. From the SER, it is unclear how does the process work. The Degree Programme Year Coordinator is in charge of facilitating the communication between students and teachers. Different committees and coordinators in charge of teaching are listed in SER on page 105 tab. 5.1. Teaching committees and coordinators.

After every course unit students fill an evaluation form, data is processed and the results are published in the Alma Mater Website. Also the results considering individual teachers are published. Teachers with negative evaluations are contacted by the DPC. Teachers with highest score receive a written recognition. Students feel that their input is acknowledged and that the results of the evaluations are taken into account.

All services related to student welfare and guidance seem to be excellent.

### **5.1.2 Comments**

Judging from the above figures, teaching methods seem to be dominated by traditional academic lectures. In the SER it is stated that the percentage of that type of activities will be reduced when the new curriculum (8617) has been fully implemented. The theoretical hours have been replaced by practical supervised teaching, but still lectures form the backbone of the DPVM.

Thus, teaching is not sufficiently well balanced between theoretical training and supervised practical training. Ratio 6 may well be just within limits for the whole curriculum, but excluding optional courses and Diploma Work the ratio falls to 0.572.

The recent introduction of an Internal Quality Assurance system has shown that “most teachers require proper education to improve their teaching skills”. In spite of this, the Alma Mater has not yet planned any consequent actions. Furthermore, there is no official reward system for teaching excellence.

At Alma Mater little attention has been paid so far to promote and reward teaching excellence. There is no regular or formal pedagogic training required or offered to the teachers.

### **5.1.3 Suggestions**

The Team urges DIMEVET to continue the review of the (im)balance between theoretical and practical training. One way could be the introduction of more modern didactic concepts, including IT-based interactive learning tools. These would activate the students and promote a process of analytical thinking, learning and understanding. Another way to activate the students is to use case-based pedagogics.

The Degree Projects (Master’s Thesis) represent a considerable work effort by the students. The teachers/supervisors seem to be enthusiastic about the research projects and the resulting printed reports. The Team suggests that the Theses be published in electronic format available (at least) on the DIMEVET intra-net, but preferably with open access and in English.

The very important question on practical clinical training is further commented in other chapters.

The Team also recommends DIMEVET to introduce a long-term continuing education programme in university/veterinary didactics, which should include all permanent teachers. Teaching excellence and development should be encouraged.

## **5.2 EXAMINATIONS**

### **5.2.1 Findings**

Examinations rules were set by the Board of the former Faculty of Veterinary Medicine in 2009. Recently (2012) the DPVM approved the rules for preparation and evaluation of the Final Degree Thesis, starting on at the end of the Academic Year 2013-14.

To graduate, students must pass 30 examinations and the final examination. Students must obtain at least 300 credits during their studies. Students graduate from the University with a final degree score. The SER states that there is no obligation to finish one curriculum year according to the schedule. This results to students who have not acquired enough credits at the end of their 5-year study period to be able to graduate. Students that are not aligned with the examination schedule can sit at any chosen exam. There are no limits to retaking an exam. No certain time frame is set for passing a given examination. However, financial support is withdrawn from students that do not comply with the examination schedule. For students to be allowed to take certain examinations, they have to pass certain preparatory courses.

There are two exams windows at the end of the first and second semester for each academic year. At least 3 (first semester) or 4 (second semester) different dates must be announced, being separated each other by at least 15 days. In addition, the teachers can (not mandatory) announce 4 additional examinations dates per semester (Friday afternoon), and even some additional dates for examinations of the students “fuoricorso”. Italian law allows up to 9 retakes of an examination in a single year, this number has been reduced to 6 at the University of Bologna. The Italian law states that there are no limits in the possibilities to retake an exam.

Different forms of examination are used such as multiple choice questions, oral, practical and in writing; although the last one is strongly recommended. Many teachers use a combination of practical and written examinations.

The Italian law does not consider it mandatory to have external examiners, although for each course examination a board of at least two teachers is required. Moreover, 2 out of the 5 members of the Commission to evaluate the Degree Thesis can be external.

There is an evaluation of the teaching quality by the students at the end of each IC through a hard copy questionnaire. Results are processed by the Alma Mater and published in the web.

### **5.2.2 Comments**

Although the students can sit the examinations the times they need to pass, the DPVM requires that they have to successfully pass examinations in some subjects (basic sciences mainly, but also others) before to have the opportunity so sit examinations of later disciplines in the curriculum. The students can find the list of these “key” or “preparatory” courses or subjects in the web.

The examination system, so many announcements of examinations, seems not to be much stressful for the teachers, but is very demanding in time. It can be said that the 60-75% of the students pass the exams in the two first opportunities to sit the exam.

The results of the teaching quality evaluation made by the students and published in the web show that the DPVM is one of the best appreciated by the students compared to the results of the remaining Degrees of the Alma Mater, even in the biomedical and healthy area degrees. However, nearly 60% of

the students consider that the “study loading” of the courses exceed the equivalent to the number of assigned credits.

No external examiners are used. Previously the need to be accredited for the Alma Mater before being officially inserted in any examinations and this is a discouraging procedure.

### **5.2.3 Suggestions**

Regardless of the Italian law rules, the DPVM has to implement some steps to reduce the number of examination periods. The current system is not efficient and get through a lot of teaching resources. It is necessary to take into account that examinations are a very important part of the teaching process for both teachers and students, being not a single formality. Given that the “study loading” of the DPVM seems to be high (results of the Teaching Quality Evaluation); perhaps a more “continuous” evaluation could help to improve the acceptance of the students to such restriction.

In any case, a system that can persuade students to pass examination in the corresponding year should be implemented, and even a particular and restrictive examination procedure for fuoricorso students could be proposed.

## **6 PHYSICAL FACILITIES & EQUIPMENT**

### **6.1 GENERAL ASPECTS**

#### **6.1.1 Findings**

The DIMEVET is based about 15 km of the city centre of Bologna, in the municipality of Ozzano dell'Emilia. The "Veterinary Campus" was established in 1991 and forms part of the Alma Mater agricultural centre, which has a total area of 300 hectares. In Cesenatico, another 90 km eastwards, by the Adriatic the DIMEVET has a research and teaching a unit for aquaculture, fish pathology and marine biology. The University Dairy Farm and Cheese Factory are located just 1 km from the VC. Finally, the Artificial Insemination Centre is situated 22 km northwest of the VC.

The oldest parts of the VC are from 1991 and new buildings have been added and renovations made. The total building area of the VC is now 30,741 m<sup>2</sup>, including the Veterinary Teaching Hospital.

The VC has facilities for housing a small number of farm animals and equines for teaching and research purposes. There is also a recently established goat-breeding facility with 10 goats and 2 bucks. The University Dairy Farm has 72 places for dairy cows in free stalls and another 47 cow places of different kind. There are also 45 places for heifers and calves. The Cheese Factory is located close to the Dairy Farm. The Artificial Insemination Centre includes offices, laboratories and a classroom. The AIC stables can house 31 mares and six stallions.

In the VC area, there are also the "Animal Husbandry, Nutrition and Feedstuffs Service" and the "Physiology Service" which breed pigs and rabbits for research purposes.

Concerning the lecture halls, the VC has four large rooms with 102 – 208 seats, five medium rooms with 52-94 seats and three additional smaller rooms with less than 50 seats each. All lecture halls are equipped with PC and video-projector. Internet and Wi-Fi-connection is available in all the Campus area.

There are 14 rooms for group work available (between 8 and 30 seats), one of them being the VTH multimedia room with 15 places. Furthermore, 10 rooms (32-42 places) are dedicated to practical training, including anatomy, histology, one teaching laboratory for microbiology and one for chemistry/biochemistry/biotechnology.

Within the DIMEVET, there is also a Central Library with a full collection of textbooks and journals (both in print and electronic format). In the library, there are 86 student-reading places, 6 stations for public access to Internet and equipment for watching audio-visual (video) material.

The VC also has two Multimedia Rooms, one with 21 PCs and one with 14 PCs. Students have free access to these multimedia rooms during opening hours.

There are five VC Museums, which the students can visit on their own by appointment.

For extramural teaching activities (PPT), the DIMEVET has two minibuses (Fiat Scudo and Renault Traffic Passenger, both with 9 seats) and four vehicles with 4 available seats each. There is also a Mobile Clinic (from 2010) to take part in the farm activities of the practitioners of large animals.

The system for waste management seems to be fully adequate, especially with the ISO 9001 accreditation – see SER page 159.

### **6.1.2 Comments**

An ambitious programme for upgrading, renovation and new buildings is in place and parts of the construction works were on-going during the visit.

### **6.1.3 Suggestions**

The renovation of older buildings to include surgical and diagnostic imaging units are very positive, but cannot be evaluated at this stage of the building works.

Although many of the students bring their own laptops and tablets, multimedia rooms are very important tools to increase the on-site practical training in some subjects. Thus, the continuous upgrading and modernisation of the multimedia rooms is of great importance.

Staff and students claim to be happy with the teaching laboratories. However, the Team feels that the microscopy rooms were small and cramped. They should be modernised, including a teacher video-microscope, binocular student microscopes and a more user-friendly bench placing.

The addition of a door to bring large animal carcasses into the anatomy hall is absolutely necessary.

## **6.2 CLINICAL FACILITIES & ORGANISATION**

### **6.2.1 Findings**

DIMEVET is located 15 km outside Bologna on Veterinary Campus and has also Local Organisational Unit (LOU) in Cesenatico about 100 km east by the sea, as well as University Dairy Farm in 1 km, and Artificial Insemination Centre (AIC) 22 km from the campus. Premises in veterinary campus are built around from 1991 (oldest building).

The VTH is located on the right side of the main building and consists of a SA clinic and a large animal hospital building.

Many things are under construction currently: transformation of the previous surgery and reproduction areas into a more integrated structure including: examining rooms; diagnostic imaging area; surgical theatres, and construction of the pathology and anatomy dressing rooms for students; renovation of isolation facilities for small and large animals and wildlife and exotic veterinary centre starting in 2014.

The premises and buildings with various laboratories are spacious and well-equipped. Some are fairly aged but renovations are underway.

Patient records are stored electronically onto a network FENICE®, Zaksoft, and patient data can be handled in different sections and services.

Clinical services are provided by VTH providing teaching for the students as well as research material for academicians. VTH building is divided in different services that are being reorganized in future after renovations are completed.

VTH provides services on companion animals (meaning small animals: dogs, cats, rabbits, reptiles, birds etc.) on various fields. Many staff members operate on more than 1 specialty field in different services (SER1 – Clinical Services in VTH page 142-156). Altogether 20 different services are listed. It is noticeable that the services are discipline based and the same specialists seem to operate both on companion and large animal services. For instance, endoscopy service is combined. There is good collaboration with different services.

Animal cages/places are quite limited for hospitalization but this will improve when renovations are being completed. For regular hospitalization, horses have only 6-9 boxes shared with farm animals. There are 20 cages for dogs and 9 for cats.

Equipment is listed at the end of every service provided which makes it difficult to see the whole picture. Basically the hospital of small and large animals has all the necessary spaces, instruments and functions of a modern unit.

Advanced diagnostic equipment (CT and MRI) has been planned but financial restrictions have stopped so from getting them. VTH has 2 private practises, which it can use for these advanced diagnostic measures. In the new renovation, space has been reserved for both the CT and MRI.

Laboratories: are also listed by services; clinical pathology evaluates all main parameters (haematology, chemistry, urine, cytology, faecal, serology and genetics) both for routine daily clinical and emergency service and they function well. The clinical laboratory has all the necessary equipment for these analyses. Clinical biochemistry service serves also in clinical diagnostics and therapy.

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

There are also many laboratory services based on different disciplines, like transfusion medicine unit (testing blood disorders etc.) and laboratories with special equipment (e.g. mass spectrometer) mainly directed to research providing analytical support for veterinary-biomedical research.

Laboratory and pathology services are not being provided routinely for the practitioners and companion animal owners in this respect.

There are currently 11 Diplomates in the staff representing 7 different specialties. They are providing specialist services in the VTH clinics, which is one of the strengths of the VTH. There are currently 4 disciplines/specialties that have a residency program running with 9 residents enrolled. One resident is going to sit the ECVS large animal examination in 2014 summer.

The MOBILE CLINIC, established in 2010 only, is not fully functional in the meaning of the true mobile clinic to provide enough service for practical teaching in the early clinical semesters. Transporting students to farms has been called mobile clinic, however, true service is not provided for the owners. Student participation is mandatory and they make in average 2 trips to farms where they, under the supervision of a private practitioner, perform clinical examinations and routine tests, including rectal examinations and CMT. .

Experimental animal unit (established in 1993) – is functioning in one wing and is managed very well. It works in collaboration with human research projects and is contributing to excellent research, mainly in pigs. The facilities are somewhat old and need some renovation in near future.

VTH has companion animal isolation unit for dogs and cats with 6 places. New isolation unit was built for farm animals and horses in 2013. It can hold 2 large animals simultaneously and the same can be used for smaller animals (calves, small ruminants). This unit is not suitable for horses and horses have temporary unit. There is a separate isolation for avian species (7 places).

BIOSECURITY measures have been well-established and work well. Students are guided from their day1 for the different security measures, both in laboratory work and in handling animals and how they work safely. Laboratories have emergency showers, eye-wash, and fire-alarm equipment. Pathology has biosecurity protocols to get rid of carcasses safely.

Disinfection in VTH overall (hand hygiene) needs to be established with alcohol/disinfectant and used before and after every patient. This is addressed in VTH section teaching as well.

Many renovations are currently underway. Some major classrooms are being renovated. From 2014 on, horses will have 11 boxes and 28 for bovine/calves. Surgery unit is also renovated both for small and large animals. Experimental animals have their own surgical rooms.

There are some shelters of dogs/cats which animals could be available for teaching purposes; however, cases are quite few annually. Using shelter dogs dying there or having been suppressed as necropsy material has just been instituted. Similar agreements have recently been established with a bovine /pig/ and horse farms. A contract with a transport company has been made this year to bring in large animal – cow and horse - carcasses for necropsy.

By law and as a public health measure (BSA identification and prevention), state veterinarians have to do post-mortem examinations on all bovines dying on farms, if they are over 4 years of age. Universities are not allowed to perform such necropsies nor are they allowed to organise transportation of such carcasses to the faculty premises.

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

The University Dairy Farm and Cheese factory has over 160 places for cows, heifers and calves and animals housed there are used effectively in teaching. The facility is also used in animal ethology and animal welfare teaching.

Central pharmacy provides drugs for the whole VTH. Services have their special drugs and pharmacy provides these.

### **6.2.2 Comments**

VTH premises are listed on SER Chapter 6 page 125-160. They have been designed to serve the needs of teaching and of patient care in small and large animals. However, many constructional renovations are underway to further improve the facilities for teaching purposes and for its different services as well as the usability of the space. Premises are good IF student number is reduced, however, present numbers have NOT been reduced enough even though intake has suggested so.

Many functions are being improved based on the previous EAEVE visitation 2005. However, suggestions made in previous evaluation over 10 years ago have been either only partially fulfilled or have been started just on previous years or even months before the present on-site visit.

There are considerable renovations on-going in the VTH to rearrange the functions in a more practical and functional level. Some functions are therefore in temporary settings but can be performed adequately in present situation. Large animal isolation units (newer bovine and older equine unit) are not adequate in this present situation. Ante-rooms are missing and it is unsure whether true isolation can be maintained there.

The same stalls should not be used for both cattle/ruminants and horses. Stalls/units for hospitalized cattle and horses should be totally in separate areas to avoid risk of emerging diseases (like Salmonella spread in hospital).

Specialist services are not yet provided in full scale yet compared with the number of Diplomates on staff. There is a strong trend to establish residencies in many areas. Department seems to support this trend.

Also services in VTH are discipline based and seem to function well. The payments from services are distributed partially back to the relevant service and this is a motivation factor to develop services further.

Mobile clinic has started only in 2010 (5 years after the previous visit) and its function is still not well established in the sense of a true mobile clinic service. It should be used much more effectively to teach the students animal welfare, management in big units etc. as there is lack of large animal cases and this affects negatively on the teaching the basic day-1-skills Post-mortem pathology premises and services (autopsies) have been renewed and have adequate space.

### **6.2.3 Suggestions**

Different services should be first of all species based like SA emergency and LA emergency. LA emergency could be combined with reproduction emergency in horses.

Cattle stalls should be separated from horse stalls and placed in different units of their own.

Innovative ways to improve large animal practise to students should be the nr.1 goal in clinical teaching. Students need to get enough hands on training and this cannot be done without adequate number of clinical cases of the live animals both in the VTH and in practise (ambulatory mobile

clinic). This relates directly to pathology service that lacks the material similarly. Equine cases received in hospital are really low; the same is in pathology necropsies.

Also true mobile clinic service should be finally established with a veterinarian going out with students, also in emergency service, and medications + special equipment to do clinical case managements on the field. Special permit for this activity should be arranged.

Large animal isolation unit is necessary for emerging zoonotic and infectious diseases (salmonella, influenza, West-Nile virus etc.) and in any case should be functional as soon as the large animal patient is admitted. Combining isolation stalls horses with cows is not acceptable due to cross-species-infecting diseases (Salmonella). Current situation is temporary and proper equine isolation should be ready by end of this year.

Modern well-equipped VTH with adequate caseload is also necessary for clinical postgraduate training (residency programs in all clinical fields including pathology). DIMEVET should actively strive for this and also to improve the visibility of this training in European level.

Equine neonatology clinic needs renovation of the stalls as well as its handling rooms for foals. This is extremely good and special service for horse-owners should be supported by proper facilities to the skilled personnel and students work and treat these foals.

In pharmacy and in VTH units, there were some drugs that were out-dated. These should be removed and replaced accordingly. Also the drugs should have a marking, when the bottle was opened for the first time and drugs should be handled aseptically and with appropriate care.

## **7 ANIMALS & TEACHING MATERIALS OF ANIMAL ORIGIN**

### **7.1 Findings**

Alive animals in the Veterinary Teaching Hospital, and on the contracted farms (18) with different farm animal species.

Animals for anatomy and necropsy are detailed under articles 4. and 5.

The University Dairy Farm has about 160 animals, consisting of lactating cows (77), dry cows (10), heifers and calves and young heifers. A 2 x 6 herringbone-milking parlour is also available for milking the cows twice a day. Artisan cheese factory is operated there.

The goat farm has 10 nannies and two bucks.

DIMEVET has access to 18 farms out of them 6 are dairy farms 4 are sow farms, 3 beef cattle farms, 1 rabbit farm, 3 poultry farms of different kinds (laying hens /with dairy and beef cows/, broilers, game birds) and 1 farm with different animal breeds. These farms are visited during practical activities in the course units and during professional training in Animal Production. The number of farms seems to be low related to the number of students, mainly if the practical work carried out by the students on the different farms is considered. It is also true for poultry farms; students learn about transmissible diseases of poultry, and there is contract only with two poultry farms, one for layers, one for broilers. The farms are visited in small groups, three tutors, 5 students, and on the farm the public health veterinarian joins the group. That means, that these practical days can be extremely effective if students can really work, but work possibilities on the farms are rather limited for students.

As the mobile units start at half past 7, no milkings on the dairy farms are included in the rotation. There is a possibility to participate in the farm's work during the one-week practice. On the dairy cattle farms the students have possibility to make rectal palpation, pregnancy testing, and participation in the actual problems (i.e. hoof trimming) during rotation. As far as the dairy cattle is considered, only one assisted calving case during two years is registered. There is single suckler beef cattle farm with Chianina, Romagnola and Limousine, apart from meeting the local breeds no practical possibility for the students. The situation is similar on the fattening farm, that purchases cull animals from different places, fattens and sells them. The only possibility for the students here is to meet Simmenthal, Pinzgauer, Grigia Alpina, Brown Swiss, Chianina, Romagnola, Marchigiana, but no possibility for practical actions there either.

It would be beneficial to have more farms, not only chicken, but geese, ducks, turkeys etc.

Swine farms are visited once a month with 15 – 16 students. The chosen day is the day of semen collection, insemination and pregnancy checks. The students have possibility to observe collection, they participate in semen processing, insemination and pregnancy testing, and in case they assist at farrowing. No castration, vaccination, tails docking, (and hardly any) blood sampling is made by students, though due to the Parma ham production all these actions take place on the farm.

Average clinical caseload (875 food producing animals, 157 rabbits, 290 horses, 5.196 canine and 1.490 feline and 127 other (birds and exotics) cases) in the last three years seem to be in accordance with the number of graduating students (125 in 2013, 123 in 2012, 111 in 2011). Graduating students seem to have enough possibilities to work with these animals on their own inspected by a tutor. According to the rotation plan students have enough possibility to work with the patients.

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

Average number of necropsies during the last 3 years is shown in table 7.2a. 36,3 food producing animals, 11,7 equine, 23 wild mammals, 456 poultry, birds and rabbits, 193,3 companion animals, 140 ornamental fishes, 4,3 lab animals, 3582,6 farmed and wild fishes and 1,7 wild reptiles were necropsied. The same numbers of the first trimester of 2014: 3 cattle, 7 small ruminants, 25 swine, 3 equines, 4 wild mammals, 29 dogs, 22 cats, 5lab animals and 49 rabbits were autopsied. This number still seems to be low related to the number of graduating students.

Anatomy: Small animals come from the local crematory; large animal limbs and heads come from necropsy and are frozen. Fresh farm animals and organs come from the local slaughterhouses. Diagnostic imaging completes the practical work. The number of specimens -detailed in table 7.1., - seems to be suitable. Students seem to have enough possibilities to work on their own with the help of a tutor on different species. Complete skeletons, bones and dry preparations are available, the students have free access to bones and some other specimens, and also have possibility to visit the Anatomical Museum full of valuable items The outstanding Veterinary Teaching Portal (Portale Didattico Veterinario) very nicely helps the students in learning anatomy. 200 histological preparations are available for direct study, quality and description of the sections is very good. (Portale Didattico Veterinario needs continuous maintenance, it's great and important, it should be carried on, thus financial background should be worked out.)

Pathology: Hospitalized animals died at DIMEVET. Referred cases sent by practitioners or owners, or by insurance companies. Swine, rabbits and fish collected from farms/facilities for teaching purposes. Wild mammals hunted or found dead. Food animals from an incinerator. Small animals died in shelters. Small animals found dead in the region. Students have to make necropsies both in groups and autonomously. Table 7.2.a: number of small ruminant cases seems to be low. Total number of necropsies is critically low related to the number of students even if only the fifth years' students make the necropsies. Making reports on the autopsies by the students and after the tutor's check including them into FENICE system is a good solution. Veterinary Teaching Portal (Portale Didattico Veterinario) helps learning with histopathological sections and cytological preparations.

Actions shall be taken to collect more animals for pathology. Tab 7b shows the number of animals slaughtered in the DIMEVET abattoir. Legal limitation for cadaver transport could be solved by means of an own special lorry, and more contracts on having education materials from the neighbouring farms would be beneficial.

The Veterinary Teaching Hospital is currently open to public 24 hours a day, 365 days a year. Students perform rotations on their practical training, attend the VTH in summer, Christmas Holidays and they do overnight shifts too. Number of animals presented to the VTH is given in table 7.4a. Number of companion and exotic animals presented to VTH shows a positive trend. Students have also possibility to visit the nearby AI Centre for horses belonging to DIMEVET, thus number of horses in the table 7.4b include these horses as well. In the AIC students have possibility to collect semen from a stallion, carry out rectal examinations, fake inseminations, US examinations on 8 mares especially there for learning purposes, they have possibility to learn semen processing. As they go there in small groups of five, the work is very effective.

Number of cases is not equal to number of animals as either different specialist examine one animal or one animal can be examined several times during the year. Table 7.4.c shows number of animals consistently kept in the facilities of the Animal Husbandry, Nutrition and Foodstuff Services for research and teaching purposes. All research projects carried out at DIMEVET after approval of the Ethical Committee of the Alma Mater in accordance with L.D. 116/92 guaranteeing the animals'

welfare. These animals are there for research purposes, internal students and PhD students have possibility to participate in the work with them.

Slaughterhouse/food hygiene: Veterinary sanitary control takes place in the local slaughterhouse. Students learn ante mortem on different breeds and post mortem in cattle. Students have possibility to visit extramural cattle slaughterhouses too, and from this year they also have possibility to visit three regional swine slaughterhouses to make swine post mortems as well. Tab. 7.3. shows figures of the intramural abattoir.

Other species: An apiary can be used for practical purposes only for students enrolled in the elective integrated course of “Role and Activities of Veterinary Public Health”.

The subject Aquaculture is a part of the integrated course Animal Production II. The LOU of Cesenatico (90 km away from the Ozzano campus) and the Fish Pathology Lab (Ozzano campus) are facilities of the DIMEVET that can be used on an elective way by the students to improve the training in Aquaculture.

## **7.2 Comments**

Animals and teaching material of animal origin are covered by page 167 – 188 in SER1.

A lot of teaching and research activities are performed at the dairy farm, as referred under chapter 4.4.3 of this report.

Since the last EAEVE visit (2005) a goat farm has been established at DIMEVET, and the teaching activities offered in the dairy farm have been markedly improved in both contents and organization. The practical training performed in the goat facility (10 nannies and 2 bucks) is still limited (reproduction, identification) and not offered to all the students, and need to be increased in the near future.

An increase in the caseload in large animal clinic and emergency service is required, as the case load is at present at the minimal critical level

The number of anatomical and histological preparations seems adequate. Number of the contracted farms in the region should be raised if possible. The scale of animal breeds to meet during the curriculum is wide from ornamental fishes via poultry till farm animals, exotic and wild animals.

Perhaps some more farms should be involved so that the students can have more possibilities to work on the farms and apart from the clinical studies to deal with welfare of the farm animals too, not only on the few special welfare lessons.

Number of necropsies seems to be too low related to number of the graduating students.

## **7.3 Suggestions**

Since the last visit in 2005, the current DIMEVET has done remarkable efforts for increasing the number of animals and facilities used for teaching, although some additional improvements are still needed. Entrance examination penalizes students from rural parts of the country that results in a disproportion to equine and small animal practice. This should be changed to be proportional. Education and access to different animal breeds seem to be more balanced, perhaps number of small ruminant cases should be higher; hardly any sheep in the program (20 at Azienda LEM), and no ducks, geese, turkey can be found either.

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

According to present information farmers are not really willing to receive students from the university as practising veterinarians are not willing to do so either. It turned out that the university people have no direct contact to owners of the contracted farms, just to the veterinarian of the given farm. Perhaps reports containing advices/proposals to the farm owners and employing practising vets as assistant/external professors at the university would help willingness as at the moment number of farms and possibilities for practical work (dystocias, abomasal displacement, etc.) is too low. (Financing background should be found for that as well.)

There are some mobile units for teaching purposes, mainly for farm work. These could be utilized also for animal protection work as well; 5 - 6 students with one or two tutors could make neutering work in shelters/foster homes and on stray animals. The university staff informed that it is hardly possible, as they don't want to compete with the local practitioners. As the team learned from the head of the Veterinary Association stray animals and shelters are mainly municipal problems and belong to the public health veterinarians, they have just started to involve private practising veterinarians as well. University teachers with some students started to carry out stray animal/shelter animal neutering, but Chairman of the Veterinary Chamber intervened in order that the university don't compete with the private veterinarians in this field; as it turned out, the local municipality pays 40 – 50 euros for one neutering. The problem should be solved based on an agreement with the municipality and the Veterinary Chamber; determining a limited number of stray animals to be neutered by students with an inspector and leaving the rest for the private vets. Another possibility is to send students to the private vets to assist them in this work. It should be solved; taking a part of this task for teaching and practising purposes would be very beneficial for everybody. Equipment of the mobile units that are just mobile cars and not really mobile clinics at the moment with devices, instruments for neutering work is not an expensive investment. Majority of the students tend to work with pet animals; neutering is one of the most frequent surgeries. Practising more neuter work on young animals included would help their possibilities.

Another problem with the mobile unit is that names of the students travelling with the unit have to be authorized in advance that means that in case of emergency calls no students can be taken to work/assist. This should be solved by means of having all internists and students in the fifth year authorized, if possible.

The number of necropsied animals seems to be too low related to the number of students/graduating students. Possibilities for contracts with farms/veterinarians in the region should be checked; shipping problem seems to be solved.

## **8 LIBRARY & EDUCATIONAL RESOURCES**

### **8.1 Findings**

The Central library provides resources to all scientific disciplinary areas represented in the Department. All bibliographic resources are indexed and made readily available to users. The G. B. Ercolani library is a part of the Library System of the University of Bologna. Access to electronic resources (databases and e-journals) is coordinated and organised by the SBA (The University Library System). It also coordinates the libraries of all the various subjects, which are divided into 5 macro-areas. The main library is specific to the veterinary training establishment and can also be used by the students of other Veterinary Science Degree Programmes in the Department. In addition 11 store libraries can be accessed by appointment. These hold less recent journals and monographs and are not supervised full-time.

The library has 6 full-time employees and 4 part-time employees. Students are also employed to some extent.

The library collection is made to respond to the needs of teaching and research. The faculty subscribes to journals that are deemed to be of interest. The library holds 20.575 books of which 251 are English textbooks. Up to 217 hard copy journals are received on annual basis and the University has access to 5.336 electrical journals. The University has access also to 313 databases, 7 of which are specific to agro-veterinary sciences. Textbooks that are recommended by teachers are available as more than one copy and are loaned out during the weekends. Some books can be borrowed for 15 days and loans can be extended for 7 additional days if needed. A variety of textbooks are freely downloadable from Internet databases. The library also has a marked historical collection.

The library holds 86 student-reading places, additionally there are study rooms within the university where students can study from their own books. The library has 6 stations for public access to the Internet, 2 TV + VCR desks for watching audio-visual material, printers for staff and 6 staff stations. A wireless Internet is accessible throughout the library to students and staff. A computer lab with 21 and a computer room with 14 computer places are accessible to the staff and students, rooms are open from Monday to Thursday from 9 am to 6 pm and on Fridays from 9 am to 3 pm.

Library is open during term time from Monday to Friday 8.30 am to 6.45 pm. The library is closed during the weekends. Students have asked for longer opening hours and also that the library would be open during weekends. The SER states that at the moment it is not possible.

Students access the library with an identification badge and use the library when preparing to exams or final dissertations. Students can propose books they need to use in studies. The demand for the books is assessed and the number of copies present taken into consideration when deciding on new purchases. Students can access e-journals from within the university or from home via proxy authentication service. The SER states that students do not use the library to full potential and majority of students use the library as a study room. Free courses on bibliographic search methods are run within the library but they are not mandatory for the time being. The aim is to increase the students' ability to use web-based scientific databases. Students also have access to Alma Digital Library where course materials are stored and from where students can download them to personal use.

Interlibrary loans are possible (from other libraries/to other libraries) but according to the table on page 193 not used very often.

The Veterinary Teaching Portal is a web-based learning platform created to improve teaching and student services. It contains multimedia educational materials. It was created to support self-directed learning and to improve problem solving skills of the students'. The Library has participated in the development of the Veterinary Teaching Portal, and it participates in courses for undergraduate and post-graduate students on the uses of library resources.

ITLS (Information Technology and Laboratory Service) provides technical support to staff and students supporting teaching and research activities, develop software solutions, maintain hardware and software locally, buy tools in the electronic market place, and liaise with the central ICT office at the University. 3 people are employed and they take care of approximately 400 computers, 100 laptops, 45 printers, 10 servers, and 100 MB Internet connection at the department. IT facilities include email-account, wireless network for students and staff, institutional warehouse of teaching course materials, resources access (proxy) for students and staff, 2 computer rooms, the Veterinary Teaching Portal, web conferences, the clinical record tool (Fenice), data and Dicom storage.

## **8.2 Comments**

The Library and ICT resources are very well integrated into the department and are actively involved in development and maintenance of relevant teaching and research infrastructure

The students are happy with the loaning policies of the library and the students find the services provided by the Library adequate.

## **8.3 Suggestions**

None

## **9 ADMISSION & ENROLMENT**

### **9.1 Findings**

Admission criteria is determined and regulated by MIUR. The University has limited possibility to change it. Enrolment is based on numerous clauses. To enrol the Italian students must have a 5-year high school diploma. Students from other countries must have a certificate of 12 years of schooling that is comparable to the Italian diploma. Foreign students take an examination on Italian language. The admission procedure includes a national entrance examination prepared by the ministry which takes into account the applicant's general knowledge, logical thinking, biology, chemistry, physics and mathematics. The test is distributed to students in each Italian University on the same day and is composed of 60 multiple-choice questions. Students are ranked according to the points they gain from the entrance examination (maximum of 90 points) and their previous diploma (maximum of 10 points) and the highest-ranking students can enrol. Nevertheless the admission procedures result in a heterogeneous student pool.

The number of annual students is proposed by the basis of teaching potential, facilities, and employment rate among graduates. The number of students admitted has been reduced by Ministry of Education, Universities and Research on the basis of the request of professional statutory bodies (Italian National federation of Veterinarians) and other veterinary practitioner's association. Annually 90 students are accepted and the amount is considered appropriate for the available resources (before 150 students were admitted). The University also takes in a maximum of 15 non-EU students including the Marco Polo –project (5 students are taken in from the People's Republic of China). The annual fee for the first year studies is 2,011 euros and for the following years 1,666 euros. Students graduating from high-school with a grade high enough (grade of 100 with honours) are relieved from their first year tuition fee. Students can apply for reductions for their student fees depending on merit, income and enrolment.

Student flow is low and 41% (438/1060) of the students that are enrolled to the University are so called fuoricorso students. Fuoricorso students are not aligned with the normal study and examination plan and take longer time to graduate (over 5 years). Students can proceed to the next study year without a certain limit of CFUs or without passing the basic subjects. Only 10-20% of the students graduate on schedule. Up to this date the graduation time has been highly prolonged. No specific requirements are found for proceeding to the following years, and the students do not have to pass basic subject before proceeding to the clinical subjects.

The minimum amount of years to pass the tuition is five years, there is no maximum amount. Students can stop and come back to study after few years. Students are only obliged to leave the school if they fail to sit any examinations during 8 consecutive years. The drop-out (spontaneous withdrawal) rate was 7.8% during the year 2013 which is low. The number of fuoricorso students is high.

Financial allocation: student effect only builds up to 15% of the budget allocated to the university. Students are weighed according to the amount of credits they are able to obtain, which in term has an effect on the funding.

Exchange programs are in place: 60 incoming and 56 outgoing ERASMUS students. Italian language courses are provided for the exchange students. English is not used as a teaching language for the time being.

## **9.2 Comments**

The entrance procedures result in a very heterogeneous student pool and causes trouble with student flow, graduation rates and graduation times – which the SER also acknowledges. No specific demands are held considering the basic subjects apart from the entrance examination and the entrance procedures seem not to be enough to test student motivation towards the veterinary profession.

The examination procedures that allow the students to retake an examination multiple times also contribute to the long graduation times and are too lenient– students tend to retake examinations and lack behind with their studies in order to gain a higher grade, which can have an effect on future employment. The number of fuoricorso students is high, the graduation times are long and the student flow is rather poor.

During the visitation it became evident that the current admission procedures do not result in a large number of motivated students in the veterinary profession, the problem being that it is nearly impossible for the University / staff to influence the admission procedures. They are not happy with the current system.

One of the reasons of so low drop-out rate is that there is no upper limit for length of study and students can leave the study for whatever reason and come back after few years to complete their study. In addition the student can access to the following year regardless of the number of obtained CFUs. Students are only obliged to leave the programme if they fail to sit exams for 8 consecutive years.

The reduction of the overall number of students can improve the quality teaching activity and increase the possibility of practical training.

The length of study is very long without any restrictions. Only 10-20% the students graduate on schedule and approximately 50% of students graduate after 6/7 years. This problem lasts for long time and unfortunately The Internal Quality Assurance System just monitored the number of acquired credits.

## **9.3 Suggestions**

Passing of basic subjects should be obligatory to some extent before proceeding to clinical subjects and the students should have certain boundaries in their study and examination plan in order to alleviate graduation and reduce the amount of fuoricorso students and long graduation times.

A more selective entrance procedure should be given more consideration to reduce the heterogeneity of the student pool. Students could also be subjected to a baseline test on basic subjects after entering the school.

If possible according to the law, a limit for the study years should be implemented.

Reorganise the system of reducing tuition fee according to the student's study results as the existing system is too lenient and should be stricter.

A minimum amount of CFUs should be defined to enable access to the following year

The foreign teaching should be involved in the teaching.

## **10 ACADEMIC TEACHING & SUPPORT STAFF**

### **10.1 Findings**

Ratio of teaching staff versus students  $R1 = 7.122$  (RV max 8.381); Ratio of teaching staff versus support staff  $R5 = 0.937$  (recommended range 0.505-1.907)

Most researchers have also in teaching duties on quite regular basis. Fixed term researcher is a 3-year position or a junior researcher. Senior is a 3-year contract and thereafter the national qualification is required to become Associate professor.

All staff appointments and staffing levels are decided centrally according to funding received from MUIR and Alma Mater decides the teaching staff numbers. Altogether staff costs are 90-95% of the total budget.

Alma Mater allocates support staff personnel units balancing different department applications in main areas (library, administration, IT, laboratories). Any position must be applied for and justified for in an application process.

Academic staff is composed of full professors, associate professors, as well as researchers ("ricercatori" assistant professor equivalent). Academic posts are assigned thru public national search processes but there is also a local competitive examination published by University. Candidates need first to pass national competition in order to proceed to local competition.

Salary increases are based on seniority and in general not linked to performance. However, recently Alma Mater put up a new system and will recognize applicant merits as well. Head of the Department negotiates with senior representatives of various subject areas how to allocate budget and funds for teaching (teaching hours/subject, new programmes or courses, retirement of professors, research activity and clinical related activities) and this is decided in Department Board.

Allocation of ordinary funds is also dependent on how many professors retired the year before, because replacement is usually not authorised; thus, only part of this salary money comes back to faculty, part is kept for recruitment plans and part is assigned to faculties with a recruitment policy based on specific ministerial indexes.

Percentage of staff that are veterinarians:

Academic staff is 108 and includes 17 full professors, 39 associate and 49 assistant professors. Of these 79 are veterinarians and 29 are non-veterinarians (Table 10.2 SER page 213) e.g. roughly 73% are veterinarians. Considering the people involved in the DPVM, they are 87.34 FTE, being a 79.8% of them veterinarians. Only 4 associate professors of the staff do not belong to the DIMEVET.

According to the Alma Mater rules based on the Italian law, Full and Associate professors must perform not less than 120 lectures per year. Even Assistant professors are encouraged to be involved in teaching activities, with at least 60 lectures per academic year.

Ratios  $R1$  is inadequate if Fuoricorso students are taken into account (7.122 without and 12.136 with Fuoricorsos – required max is 8.381)

Ratio  $R2$  is 3.797 (maximum value: 9.377)

$R3$  is 8.927 (maximum value: 11.057)

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

R4 in 1.722 (maximum value: 2.070)

R5 is 0.937 (recommended range: 0.505-1.907)

Teaching staff to student ratios are very favourable and above the average. However, Fuoricorso students have been left out because they do not sit in lectures and take only examinations.

As student numbers will continue to decrease, as decided by Italian government, and the annual intake of new students is 90 students max, total number of students in few years will be around 450 instead of the current 622, which will improve this ratio.

There is however a definite shortage of full professors as well as in recruiting young academicians and specialists especially in clinical fields. Also as salaries are low through the whole system and it does not reinforce the recruitment of teaching staff.

Support staff requests are ranked according to internal priorities. There are currently 32 technical staff, 15 animal caretakers and 41 in administration. Temporary appointments have been used as well, but only 20% of support staff can be hired by this manner. Also support staff has not increased due to budget cut. In VTH, there is currently only 1 nurse-like support person who does many organizational things as well.

However, evolving functions of the VTH has increased the need of support staff (nurses, imaging personnel, laboratory personnel) and by future increasing patient numbers in large animals and VTH special functions like isolation and large animal necropsy, will need specialized support staff who also is aware of and trained for bio-security and bio-safety measures. Teaching staff can also be contracted even on an annual basis (contract veterinarians).

Staff can move and be reallocated within the establishment. This will become relevant as intake of students should be decreased to accepted numbers and reallocations must be made. Future hospital nursing staff should have undergone training and formation at the veterinary nursing school in Cremona.

Senior teachers can also take sabbatical leaves without salary but it must be accepted by faculty and it must have a specific purpose (doing research, international experience). The teaching must be secured while the person is away. The posts, which become vacant, are not automatically filled.

The establishment can suggest staffing levels but cannot decide these on its own. Academicians and PhD students are allowed to travel abroad for training and continuing education or research. This is supported. Professors and other teaching personnel can also work outside DIMEVET after asking permission for it.

Open public search and criteria are being used for employment of senior level teaching staff. The need is based on need of discipline as well as research allocations that are relevant. Searches for professor positions are not internationally advertised. There is no true 1-2 year internship program in VTH. Current 'internship' is a student program where he/she participated in clinical activities with the specific voluntary tutor. There is no formal or organised training in didactics available, especially for junior faculty. However, department has organized internally teaching course for all interested and junior staff participates to this training.

## **10.2 Comments**

Fuoricorso students are still undergraduates and present quite a burden to teaching staff especially in certain subjects because of their examinations and retakes several times. If they are included, student teacher ratio would be unacceptable (12.136). However, Fuoricorso students don't participate to teaching activities (except for exams) and, thus, cannot be counted as active students

The number of Fuoricorso students is unacceptably high (over 40%).

The new staff recruitment process is adequate: a national accreditation process on the basis of research and teaching merits plus an additional application for open posts published in the university. However, the system needs to be developed, because it is slow in time and strongly dependent of the funding. Moreover, the low salary of the teaching posts discourages the application of foreign candidates.

R1 ratio (Students/FTE) (7.12) is close to the limit (8.4). It seems to reflect the limited teaching staff of the DPVM. In fact, giving that the number of teaching staff is very similar to that of 2005 (although younger in age), this ratio is under the limit because of the reduction in the number of students. Such limited teaching staff makes difficult the increasing of practical training percentage of the on-site training as suggested in 4.4.3. The loading of technical staff (R5 ratio) seems to be enough, and its qualification has been improved when compared to 2005.

There is a definite need for more support staff in VTH, especially as functionality will improve and case load increase. Currently there are NO nurses working in the VTH environment. Animal caretakers (5) are different from veterinary nurses who are trained for hospital nursing care and functions; trained nursing staff will also be involved in undergraduate teaching. Reallocation of staff must be done as student numbers will decrease and functional emphasis will shift to the clinical sector.

Support staff (nurses etc.) should be hired from the specially allocated funding coming to VTH from Alma Mater. A clear charging system of services of VTH must be created and followed.

Salaries are fixed by law for teaching personnel. The salary based only on seniority is old-fashioned and has been given up in many countries. This should be changed as this is not motivating for the young and productive academic staff. Meritocracy is seen as an improvement, definitions must be carefully designed thou.

Bureaucracy in getting the needed (for example buying small equipment or reagents), when academic staff is developing functions both in clinical teaching, services and research is seen as a huge obstacle and very tedious process that could be made much lighter in administration.

Clinical specialisation is essential and the European/American College system is the backbone and sets the standards for specialisation. College specialists among the teaching staff of any European veterinary school must create residencies and striving to offer services and teaching better than below average. DIMEVET must continue to support this and also make it internationally visible. Alma Mater should also support this by creating postgraduate specialization schools in the different fields of clinical sciences.

## **10.3 Suggestions**

Fuoricorso student numbers should be radically reduced (in all Italian veterinary schools). They are a huge burden to the whole system and teachers especially. There is no justification for this high numbers. Also system to follow the annual credits they perform must be closely followed in order to

find the reasons for delayed studies. Tutoring etc. should be developed for these students or help them to pass and graduate.

Salaries of academicians should be increasingly based on teaching merits as well as research merits and productivity (clinical services). Likewise, clinical specialists and Diplomats (in the future) should be paid salaries commensurate within their high expertise. Specialized practitioners (Diplomates) should be used in teaching until DIMEVET can recruit their own diplomats.

Staffing for the VTH must become in part and initially from internal reallocation of the posts. The technical staff, at least is aware of this kind of possibility and necessity. Trained nurses are mandatory for the appropriate functioning of the VTH hospital to help veterinarians with patient care and students with teaching, advising and learning the practical skills.

Creating contract professorships: local practitioners with high expertise in some fields should be allowed to come to, examine at and treat their patients in VTH. However, they should not be able or allowed to take or refer patients from VTH to their own private clinics.

A rotating (1-2 year) clinical internship program first in small animals and then in large should be instituted as soon as possible. Interns will also be able to replace the practitioners hired in the 24hr Emergency Service. Some of the salaries economised can be returned to the benefit of the interns.

More residency training programs according to European College standard should be planned, financed by the department and Alma Mater and instituted as soon as possible (postgraduate clinical school of specialization); the condition sine qua non, however, is the regular employment of Diplomates in different specialities. All veterinarians in the present staff, who are Diplomates, should establish a residency program on their field. This has to have top priority in clinical academic planning. Residencies can be advanced together with PhD programs, as resident must produce 2 scientific articles into refereed international scientific journals. Residencies and PhD programs can be developed simultaneously.

Certain staff could be flexibly deployed i.e. for clinical services, as there are currently no nurses working in the VTH.

A compulsory training programme on university didactics and pedagogic should be introduced for the young scientific staff, including PhD-students.

Learning and CPD opportunities should be a standard also for the support staff who is very motivated to work in department.

Bureaucracy when the academic staff is developing functions both in clinical teaching, services and research, should be made much lighter in administration, especially when smaller but essential things are needed to obtain.

## **11 CONTINUING EDUCATION**

### **11.1 Findings**

Currently there is a legal basis for mandatory Continuing Education (CE) for Italian veterinarians.

Public health and Food hygiene programs are held by universities, territorial branches of NHS and, to some extent by private companies.

In clinical field post-graduate clinical CE oriented to private practitioners is highly developed and provided by mainly private companies.

DIMEVET is about establishing continuing education programs both on undergraduate and on postgraduate levels. DIMEVET cooperates with international organizations (ESVN-ECVN, ACVIM) and provides premises for the courses. The provided premises are suitable, high level facilities.

Between 2011 and 2013 DIMEVET teaching staff organized 149 courses and seminars for a total of 714 hours CPE for private practitioners. Apart from them courses for PhD students are also organized. The seminars are advertised on the DIMEVET homepage for PhD students and the DIMEVET staff. Tab. 11.1 shows courses for veterinary surgeons, private practitioners and PhD students, Table 11.1 contains seminars for PhD and other postgraduate students, and Table 11.2 contains seminars organized by DIMEVET for undergraduate and postgraduate students. CPE for postgraduate students are detailed in Chapter 12.

At the moment there is no dedicated committee and specific planning; no special structure in the CPE programs can be observed. Topics of the CPE programs are on a wide scale; from bees to farm animal, from genetics to external fixation of mandibular fracture in companion animals, from herpetology to feeding.

A staff for organizing CPE courses and seminars and a well-designed long term schedule would be vital.

CPE on the veterinarians' tasks in the animal protection/animal welfare is missing as is CPE on gerontology of companion animals, these topics are important for the practising vets; the last one due to the increasing age of the companion animals.

There is no information on income from the CPE courses and seminars. Joint ventures with private companies would be beneficial. Bureaucracy should be decreased in order to have more efficient and income-generating CPE seminars at the DIMEVET. Financial background should also be worked out.

There is no information in the SER1 available whether CPE is mandatory for veterinarians or not. According to verbal information veterinarians are obliged to participate in CPE courses. There are three years periods to collect some 200 credits; it works for the public health veterinarians, but not for private practising ones, as no one checks participation, only in case of problems. Cooperation with the National Veterinary Chamber (Veterinary Association) would be beneficial both on organizing courses for vets and for working out credits for the different CPE courses and requirements of CPD for each veterinarian.

### **11.2 Comments**

Based on the available information there is a possibility to set up a CPE program, but DIMEVET should work in joint ventures with private companies and/or with the Veterinary

Chamber/Association. The actual CPE programs are organized for practitioners, PhD students, undergraduates and postgraduates, but no system in the whole can be observed. Scale of topics is wide.

### **11.3 Suggestions**

Establishment of a DIMEVET team for designing CPE schedule and working out financial background is vital. Topics and setup should be determined by DIMEVET and Veterinary Chamber or Veterinary Association, based on the demands and needs, and possibly not by private companies based on their interests. A well-organized course needs investment but can create income for DIMEVET. Equipment of DIMEVET could be utilized for generating income on courses as well. This income could be used for developmental project/functions of the specific units. Up-to-date topics i.e. the veterinarians' role in the animal protection/welfare, companion animal gerontology should also be considered. Based on Danish experience monthly "invitation" of the fresh graduated practising ex-alumni for one-day "Communication and problem solving" courses could be of great help.

## **12 POSTGRADUATE EDUCATION**

### **12.1 Findings**

The DIMEVET offers the following postgraduate training:

- Four Residency training programmes with a total of 9 residents under supervision of DIMEVET staff: European College of Veterinary Neurology (ECVN); European College of Veterinary Internal Medicine (ECVIM-CA); European College of Bovine Health Management (ECBHM); European College of Veterinary Pathology (ECVP).
- Two Professional Master’s Programmes, in Ultrasonography of Small Animals (2-year second level, 20 students) and in Aquaculture and Ichthyopathology (first level, 12 students).
- A 3-year PhD programme in Veterinary Sciences. The research progress of each PhD Thesis is evaluated yearly. Previous to the final Thesis presentation, two papers have to be published in or accepted by peer-reviewed journals.
- Research Fellowships.

Furthermore, two DIMEVET staff members (residents) are supervised by Diplomates from foreign establishments, one for ECVIM-CA and one for the European College of Veterinary Anaesthesiology (ECVA).

One DIMEVET staff member has finished his ECVS residency programme and is awaiting final examination.

Presently, there are no true internships offered.

### **12.2 Comments**

There are eleven members of the staff who are Diplomates of European Veterinary Colleges. The number has increased since the last EAEVE visit, although it needs to be still increased.

The PhD Programme in Veterinary Sciences seems to be working in a continuous way. There were 22 positions in 2014, this figures being more or less stable since 2011.

### **12.3 Suggestions**

Formally, graduates in the DPVM (300 CFU’s) can be enrolled in a PhD programme without taking any additional credits. Consequently, the Masters of Science offered in the near future by the Schools of Veterinary Medicine should be more of professional interest than just “academic”. The School of Bologna seems to have a great potential in dairy cattle, including a teaching-experimental farm. Therefore, a future Master of Science in Dairy Cattle Health and Production should be seriously considered involving both internal and external (researchers and practitioners) teachers as stated in chapter 4.2 of the report.

There is an obvious need to establish some kind of postgraduate training programme in Clinical Sciences, including livestock, equine and, especially, small animal medicine and surgery. A national programme for “clinical specialisation” with postgraduate school is needed.

Given the significance of pig breeding in the Emilia Romagna area, the team encourages the DIMEVET to promote at least one member of the staff to become Diplomate in the European College of Porcine Health Management.

## **13 RESEARCH**

### **13.1 Findings**

Students are actively involved in many aspects of different research projects. The standard of research of the department is nationally very high and therefore the department receives substantial amount of its funding based on good research evaluation. Also internationally research is of very high standard, as witnessed by successful EU-projects.

DIMEVET wishes to educate veterinary students to apply research findings in order to improve their professional skills: it also focused how to read and critically interpret information on lectures, textbooks and the published scientific papers. Students' projects are also published in international refereed scientific journals.

Alma Mater has a 3-year strategic plan, where transfer of research into education is emphasized. It is an obligation of teachers to apply latest research knowledge into teaching and every teacher should include the most important scientific issues into their teaching. Free course of bibliographic search methods is run by library.

Undergraduate students are expected to be involved in research in their final Thesis project of 9 CFU. Additionally, 6 CFU is dedicated to study English language. All students do their projects in different laboratories in Department or can also do it in outside places. They can apply a grant to go elsewhere. Final paper can also consist of comprehensive literature review instead of research but majority of students elect a research-based dissertation (77%). Students are attracted to different projects by their personal preference. They contact directly to the teacher usually between the end of their 3rd and 4th year, and get a project. The website of each laboratory publishes their available projects in a web site. Each professor has also personal web-site. Students are free to choose the topic from the ones the supervisor has suggested.

Each student is able to serve as voluntary 'intern student' independently from their research work and attend scientific meetings, journal clubs and seminar of the research group. Many students do this kind of work in order to learn more. The students able to continue the research as PhD researchers later if they manage to do their projects well.

PhD program lasts usually for 3 years and 2 papers published in international refereed journals is needed. Twice a year PhD students present their current research results in seminars and these are discussed with undergraduates and staff. The purpose is to disseminate information about the current research in DIMEVET. This is an excellent way of informing others and recruiting students to projects.

Research is fragmented as there are many various units of the faculty with specific topics, interests and tasks as well as collaborations with outside partners. However, very fruitful collaboration exists since the formation of the new department. Research activity is wide and papers are encouraged to be published in international refereed journals. Substantial amount of research activities were introduced to the team during the visit. Due the economic situation, research funding from public sources has diminished substantially during 2013.

### **13.2 Comments**

Excellent research was presented and researchers are enthusiastic and have great collaboration, which is quite rare in university setting.

### **13.3 Suggestions**

Permanent post-doc positions should be created to the PhD students who can then continue in the department. They are the future of the department.

Voluntary intern and research group activities of the students could be credited (CFU) as electives/optional courses in their curriculum.

## **EXECUTIVE SUMMARY**

The visit to the Department of Veterinary Medical Sciences, Bologna, Italy (DIMEVET) was well prepared, well organised and carried out in a cordial and professional atmosphere. The SER produced by the establishment was written in accordance with the SOP. During the visit, the team was given full access to the information, facilities and individuals they asked for.

The team acknowledges the very difficult circumstances and challenges that have been present for the DIMEVET since the last EAEVE visit. The team also acknowledges the huge and deliberate efforts and significant progress, which have been made by the staff. However, fulfilling or setting-up initiatives to fulfil EAEVE- requirements just prior to external evaluation is to be discouraged but should be pursued immediately following EAEVE-evaluation and done continuously

The team has identified several areas of excellence to be especially mentioned:

- Very high team spirit, cooperation and motivation between staff, students and stakeholders
- Visible development since last visit
- Successful creation of one department
- Very good research activities and diversity of research areas
- Focus on internationalisation both in research and teaching
- Dairy farm and AIC-station well-incorporated in teaching activities
- Refurbishment of VTH and involvement of staff in this process
- Cheese factory and slaughterhouse support teaching activities
- Electronic learning/teaching resources in the form of the Fenice® and Veterinary Teaching Portal

The team has also identified several suggestions for improvement to be mentioned:

- Organisation is complex and prone to bureaucracy
- Finances – long term plan missing
- Overall teaching philosophy is missing
- Overload of the curriculum with lectures
- Introduction of new didactic methods activating students
- Integrated courses can be advanced between fields
- No formal training of educational skills
- A long-term (e.g. 3-year) business (financial) plan for e.g. foreseeable expensive infrastructure, new personnel (e.g. veterinary nurses, internships and residencies) must be developed
- Initiatives in attracting more alternative funding besides funding from the University must be pursued
- Admission: DIMEVET should take annually only the number of students officially allocated to it and not exceeding this number.
- Immediate attention must be given to secure funding for the Fenice® and Veterinary Teaching Portal (both are core to present and future teaching)
- More supervised practical training in all areas of the curriculum is essential (as was also noted at the 2005 evaluation)
- A course in cell biology is suggested as this topic seems fragmented and presented in several courses in a less coordinated manner
- Development of a professional master of science in dairy cattle health and production should be considered

## **FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

- Postgraduate school of clinical veterinary sciences should be established by Alma Mater
- Courses in university teaching and didactics should be made a continuous and integral part of professional development of all teachers and recruitment of academic staff
- Increase in the case load in large animal clinic and emergency service is required - because the case load is at present at the minimal critical level
- The number and diversity of necropsies has recently increased but is still at the very critical level
- Under the umbrella "Veterinary public health", a clear link between food hygiene, animal production, pathology, pharmacology and toxicology needs to be developed and integrated
- Ways to reduce the number of examination periods and limitation of the number of re-examinations should be investigated
- Courses and examinations of basic subjects should be mandatory before proceeding to the clinical subjects
- A true, adequately equipped mobile clinical unit should be established
- Isolation units for large animals, separate for ruminants and equine, need to be established in the renovated areas with appropriate lay-out and equipment

The team raised a number of concerns, but the team found no major deficiencies. It is the opinion of the team that the requirements as they are laid down in Annex I of the SOP are met.

The team recommends to the ECOVE that Department of Veterinary Medical Sciences, Bologna, Italy be classified after Stage one evaluation as holding the status of: Approval

**Annex 1 Indicators (version date May 9, 2014)**

<b>R1:</b>	n°. undergraduate veterinary students	=	622	=	<b>7.122</b>	GUIDELINES <8.381
	n°. total academic FTE in veterinary training	=	87,34	=		
<b>R2:</b>	n°. undergraduate students	=	748	=	<b>3.797</b>	GUIDELINES <9.377
	n°. FTE total Faculty	=	197.01	=		
<b>R3:</b>	n°. undergraduate veterinary students	=	622	=	<b>8.928</b>	GUIDELINES <11.057
	n°. VS FTE in veterinary training	=	69.67	=		
<b>R4:</b>	n°. of students graduating annually	=	120	=	<b>1.722</b>	GUIDELINES <2.070
	n°. VS FTE in veterinary training	=	69.67	=		
<b>R5:</b>	n°. total FTE support staff in veterinary training	=	81.8	=	<b>0.937</b>	GUIDELINES 0.505-1.907
	n°. total FTE academic staff in veterinary training	=	87.34	=		
<b>R6:</b>	Supervised practical training	=	1372	=	<b>0.621</b>	GUIDELINES >0.602
	theoretical training	=	2211	=		
<b>R7:</b>	Laboratory & non clinical animal work	=	789	=	<b>1.353</b>	GUIDELINES <1.809
	Clinical work	=	583	=		
<b>R8:</b>	Teaching load	=	3599	=	<b>47.987</b>	GUIDELINES 2.59-46.60
	Self directed learning	=	75	=		
<b>R9:</b>	Total n° hours vet curriculum	=	3599	=	<b>13.329</b>	GUIDELINES 8.86-31.77
	Total n° hours FH/VPH	=	270	=		
<b>R10:</b>	Hours obligatory extramural work in veterinary inspection	=	48	=	<b>0.178</b>	GUIDELINES 0.074-0.556
	Total n° hours FH/VPH	=	270	=		

**FINAL REPORT AS ISSUED BY ECOVE ON 10 DECEMBER 2014**

					GUIDELINES
<b>R11:</b>	$\frac{\text{n}^\circ. \text{ of food-producing animals seen at the Faculty}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{875.3}{120}$	=	<b>7.294</b> >0.758
					GUIDELINES
<b>R12:</b>	$\frac{\text{n}^\circ. \text{ of individual food-animals consultations outside the Faculty}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{1002.3}{120}$	=	<b>8.353</b> >8.325
					GUIDELINES
<b>R13:</b>	$\frac{\text{n}^\circ. \text{ of herd health visits}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{85.7}{120}$	=	<b>0.714</b> >0.326
					GUIDELINES
<b>R14:</b>	$\frac{\text{n}^\circ. \text{ of equine cases}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{340.2}{120}$	=	<b>2.835</b> >2.700
					GUIDELINES
<b>R15:</b>	$\frac{\text{n}^\circ. \text{ of poultry/rabbit cases}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{156.7}{120}$	=	<b>1.306</b> >0.407
					GUIDELINES
<b>R16:</b>	$\frac{\text{n}^\circ. \text{ of companion animals seen at Faculty}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{6813}{120}$	=	<b>56.775</b> >48.061
					GUIDELINES
<b>R17:</b>	$\frac{\text{Poultry (flocks)/rabbits (production units) seen}}{\text{n}^\circ. \text{ of students graduating annually}}$	=	$\frac{12.7}{120}$	=	<b>0.106</b> >0.035
					GUIDELINES
<b>R18:</b>	$\frac{\text{n}^\circ. \text{ necropsies food producing animals + equines}}{\text{No. of students graduating annually}}$	=	$\frac{168}{120}$	=	<b>1.400</b> >1.036
					GUIDELINES
<b>R19:</b>	$\frac{\text{No. of poultry/rabbits}}{\text{No. of students graduating annually}}$	=	$\frac{456}{120}$	=	<b>3.800</b> >0.601
					GUIDELINES
<b>R20:</b>	$\frac{\text{Necropsies companion animals}}{\text{No. of students graduating annually}}$	=	$\frac{204}{120}$	=	<b>1.700</b> >1.589

**Annex 2      Decision of ECOVE**

No major deficiencies have been found.

The Department of Veterinary Medical Sciences, Alma Mater Studiorum - University of Bologna is classified after Stage 1 evaluation as holding the status of: **APPROVAL**