UNIVERSITÀ DEGLI STUDI DI MILANO

DIPARTIMENTO DI
MEDICINA VETERINARIA

Self-Evaluation Report
EAEVE Visitation
Milan, 2019

Self-Evaluation Report
EAEVE Visitation
Milan, 2019

Faculty of Veterinary Medicine
University of Milan, Italy

Photos

Cover: Dr. Pietro Riccaboni

Introduction: Prof. Pravettoni Davide, Prof. Roccabianca Paola

Chapters 1, 2, 3, 4, 5, 6, 7, 8, 9: Prof. Pravettoni Davide

Chapters 10, 11 and Acronyms: Prof. Paola Roccabianca

This SER was approved by the Veterinary Medicine Teaching Council on November 27th 2018 and by the Department of Veterinary Medicine on November 30th 2018 and approved by the Directive Committee the 3rd of December 2018.

EAEVE Visitation Committee

Albanesi Elisa	Dall'Ara Paola	Lecchi Cristina	Roccabianca Paola	Stefanello Damiano
Amari Martina	De Giacomo Lorenzo	Moccia Angela	Sacchelli Donatella	Stella Simone
Atti Raffaella	De Giovanni Lorenzo	Modina Silvia	Sala Vittorio	Vanheusden Mattia
Augelli Concetta	Ferrucci Francesco	Negri Armando	Sassi Ada	Veronesi Maria Cristina
Bianchini Claudia	Gandini Gustavo	Novali Giorgia	Savoini Giovanni	Zanchetta Riccardo
Bignami Marta	Gaviglio Anna	Paolella Lorenza	Scanziani Eugenio	Zani Davide
Bontempo Valentino	Giordano Alessia	Paltrinieri Saverio	Scarpa Paola	Zepponi Andrea
Borromeo Vitaliano	Grieco Valeria	Pravettoni Davide	Simonelli Letizia	
Bronzo Valerio	Grilli Guido	Probo Monica	Sironi Giuseppe	
Caniatti Mario	Lauzi Stefania	Riccaboni Pietro	Soncini Chiara	
Di Giancamillo Mauro	Minero Michela	Romussi Stefano	Soraci Marisa	

Index

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ

Introduction

Brief history of the Establishment and of its previous ESEVT Visitations

The School of Veterinary Medicine of Milan was established in 1791 as a one-year equine farrier school. In 1805, the school was officially recognized and reformed by Napoleon Bonaparte, and later reorganized during the Austrian dominion. In 1860, the Ministry of Public Education of the Italian Kingdom integrated the curriculum which led to qualification of "Doctor in Veterinary Medicine". The premises of the Faculty, in order to adapt to the production, social and urban changes, moved from the center of Milan (first two premises) to the periphery in the area termed "Città Studi" where most of the scientific Faculties were located since 1927. In 1932, the School was changed into the Faculty of Veterinary Medicine within the "Università degli Studi di Milano" (UNIMI). The final move to the current facilities in Lodi began in 2005, for teaching and diagnostic activities limited to large animals with the opening of the large animal teaching hospital and in 2008, with the opening of the teaching farm. In June 2018 the companion animal teaching hospital moved to Lodi and in September of the same year the teaching facilities (teaching rooms and laboratories) were opened in Lodi. The definitive transfer of the premises to Lodi is planned for end 2018/early 2019 with the completion of the research and departmental facilities and the central library.

The Faculty of Veterinary Medicine of Milan was evaluated in 1988 for the first time. At that time the major deficiencies were:

1. Insufficient practical teaching;
2. High number of students compared to the academic and support staff numbers;
3. Old facilities requiring renovation.

The Faculty of Veterinary Medicine of Milan was fully evaluated by EAEVE for the second time in 2009: 4 major and 3 minor deficiencies were detected.

Major deficiencies were:

1. Lack of a 24-hour small animal hospital.
2. Lack of mobile clinic
3. Lack of propedeutical animals and shortage in food animal patients in particular in respect to swine
4. Lack of proper isolation facilities in the food animal unit

The minor deficiencies

1. Lack of integrated "Farm to Table" teaching approach of food Hygiene and the Food Safety.
2. Lack of companion animal carcasses in anatomical dissections
3. External review of exam system

The Faculty intensively worked to meet the necessary requirements and a follow-up visitation in early 2013 resulted in EAEVE-approved status.

Following the last reorganization of the Departments resulting in the foundation of the Department of Veterinary Medicine (DIMEVET) this has become the responsible of the Veterinary Medicine Degree Programme (VMDP) and should be considered as the Establishment for the EAEVE visitation.

Main features of the Establishment

The Establishment is one of 13 Schools of Veterinary Medicine in Italy. It is strategically located in Lombardy, the richest region of Italy, 30 km south of Milan, at the center of "Pianura Padana", one of the most relevant industrial and agricultural areas in Europe with the highest number of livestock. The standard of clinical assistance is acknowledged as a reference point by the public and the veterinary professionals. It is based on a constant relationship-exchange with stakeholders, including private professional associations and public entities.

Our staff is highly qualified in terms of teaching and research. The Faculty of Veterinary Medicine of Milano has a very appealing programme, and despite the number of places limited to 83+5 in 2018-2019 Academic

Year, the number of applicants taking the admission tests was 1155 students. The fair relationship between students, academic and support staff allows a welcoming environment for learning and education.

Main developments since the last Visitation

A. Main organizational changes

Major regulatory changes have taken place for all Universities at a National level with the approval of the law 240/2010 (*riforma Gelmini*). This law introduces a new composition of the academic senate and the board of directors of the Universities. Departments are now directly involved in teaching and research organization and activities. Regarding teaching staff, the fixed term researcher position (permanent position termed RU) was abolished and substituted by temporary university research positions. The staff with the old fixed term researcher positions can progress in their careers to associate professor or retire as such.

The new position dedicated to research (RTD) are temporary positions of two types: RTD-A with a 3 year contract renewable for 2 years and then becoming tenure track positions (RTD-B of 3 years); leading to the position of associate professor.

Under the 240/2010 law a new departmental organization occurred at the Faculty of Veterinary Medicine of Milano. In 2009, there were four Departments that were merged into two Departments in 2012: 1. Department of Health, Animal Science and Food Safety (Scienze veterinarie per la salute, la produzione animale e la sicurezza alimentare "Carlo Cantoni" -VESPA) and 2. Department of Veterinary Sciences and Public Health. This latter was replaced in 2016 by the DIMEVET. Since 2016, DIMEVET is the Main Responsible Department for the VMDP (see Chapter 1).

Since 2005, clinical activities concerning Large Animals have been performed entirely in Lodi (Large Animal Hospital). In 2008, husbandry was also moved in Lodi. These activities were assigned to a separate cost center "Azienda Polo Veterinario (APV) Lodi". Initially, the APV Lodi also performed limited activity of diagnostic and oncology on small animals. At that time, all the other clinical activities on small animals were performed in Milan, under the supervision of two Departments (DIVET/VESPA). Both Departments were responsible of the Veterinary Medicine degree.

In 2017, after the institution of DIMEVET, clinical activities were all unified within a single cost center, named Veterinary Clinical and Husbandry Center (CCVZS). At that time, the facilities in Lodi were not completed hence, the Veterinary Teaching Hospital (VTH) was organized on two different sites (Milan and Lodi). In June 2018, the clinical facilities in Lodi were completed and those in Milan were closed. From June 2018, all clinical activities are performed at the unified VTH in Lodi.

The CCVZS is an independent service center that comprises the VTH, the Teaching Farm and all the facilities aimed to the Veterinary Medicine teaching. Additionally, the CCVZS hosts all further pre- and post-graduate courses and research activities in other veterinary fields.

The CCVZS is mostly financially independent from the Departments, with the exclusion of teaching funds that are managed by the Departments, and has its own regulations and own Council. The CCVZS Council includes the Directors of the Departments, in order to better organize and coordinate Veterinary Medicine Degree Programme students' teaching and training.

Since April 2017, development and implementation of an internal Quality Assurance (QA) system has been a major progress from the last EAEVE evaluation. The QA Committee has contributed to raise teaching staff awareness on teaching quality issues and to help appropriate bodies to improve VMDP quality. One of the primary objectives of the internal QA system is the achievement of continual improvement of processes through a Plan-Do-Check-Act process.

B. Main changes in finances

In recent years, Ministry of public education funding for hiring and managing teaching and research have decreased progressively. However, major investments for the construction of the Lodi campus were done, totaling approximately 100 million Euros, thanks to the participation of the University of Milan, The Lombardy Region and other Institutions. The law 240/2010 transferred the financial support for teaching to the Departments, with

a consequent re-organization of the financial flows. The financial support to clinical activities comes in part from the revenues of the VTH that were historically managed by the Departments and that are now directly managed by the CCVZS, from the Departments (e.g teaching animal maintenance) and in part from public funding. As an independent body, the CCVZS is more flexible in managing some of the financial activities compared to central services and departments (e.g. the CCVZS may use its own funds for the recruitment of external collaborators).

C. Main changes to the curriculum

The Faculty was evaluated by EAEVE in 1988 and 2009 with the old curriculum. In 2013 important changes have been performed to the new curriculum. The percentage of credits (ECTS) for specific (qualifying) subjects has increased while the percentage of "basic" and "integrative" subjects has decreased. The core subjects currently account for a total of 255 ECTS instead of 266. The number of "elective" subjects chosen by the students account for a total of 8 ECTS instead of 15 ECTS, but the percentage of practical hours predominates. Preprofessional training activities have been revised and better organized. Last but not least, a more consistent approach to hour allocation has been adopted attributing to one theoretical ECTS 8 hours of teaching and to one practical ECTS 16 hours for practical work. The pre-professional training ECTS accounts for 25 hours. Evaluation of students has become more objective with the introduction of written exams (see Appendix 4).

In 2019 a major structural renovation of the curriculum is scheduled with the possibility to perform major changes to the curriculum.

Student entering all Veterinary Schools had progressively decreased from 2009 with the controlled admission numbers set at the National level by the Italian Ministry of Education. In 2016-2017 and 2017-2018 student numbers have stabilized and in 2018-2019 have slightly increased. Total students admitted to the Milano Veterinary Degree Programme in academic years 2016-2017 and 2017-2018 were 78 EU and 5 non-EU student per year. This is a substantial reduction as compared to 2009, when the number of students was 180 from EU countries, 5 students from non-EU countries and, 2 students from China.

D. Main changes in facilities and equipment

The Faculty has accomplished a complete renovation with the move to the new premises in Lodi. Since October 1st 2018, all teaching activities take place in Lodi. A new teaching center (classrooms and teaching laboratories), the VTH and most facilities of the Teaching Farm are available to students. The VTH has been functionally organized in Companion Animal (CAVTH) and Large Animal (LAVTH) facilities as described in chapters 4 and 5. Still under construction are the Departmental facilities, research laboratories, some premises of the VTH such as the small animal necropsy floor and the food processing units of the Teaching Farm. The departmental spaces and scientific laboratories dedicated to academic research will be completed between the end of 2018 and the beginning of 2019.

The great economic and organizational efforts for the construction of the new premises of Lodi offer the opportunity to create a new cultural reality for the benefit of students, academic staff and the territory of Lodi that has a strong animal production tradition. This is one of the main challenges and aims for all staff and stakeholders for the next years.

Major problems of the Establishment

The major problems currently faced by the Establishment are:

a. Reduction in Government fund allocation with increased difficulties in hiring academic and support staff.

b. Low decision autonomy at Departmental level.

c. High number of off-course students and repeater students (see definitions in section 7.1.4). Despite the reduction of students entering the programme, these high numbers still affect negatively some ESEVT indicators.

d. Reorganization of part of the administrative, technical and, diagnostic activities in the new premises.

Version and date of the ESEVT SOP which is valid for the Visitation
ESEVT 'Uppsala' SOP, May 2016.

1

Objectives and Organisation

1.1. Factual information

1.1.1. Details of the Establishment

Name of the establishment:	Dipartimento di Medicina Veterinaria (DIMEVET), Università degli Studi di Milano (UNIMI)	
	Milan	**Lodi***
Address	Via Celoria, 10 20133, Milan	Via dell'Università, 6 26900, Lodi
Telephone	+ 39 2 503.18002	+ 39 2 503.31111
Fax	+ 39 2 503.18004	+ 39 2 503.31115
E-mail	dimevet@unimi.it	
Website	http://www.dimevet.unimi.it	
Title and name of the Head of Establishment	Mauro Di Giancamillo, DVM (full professor)	
Is the establishment within a university?	Yes	
Address of the University	Università degli Studi di Milano Via Festa del Perdono 7, 20122 Milano, Italy	
Title and name of responsible for VTH (professional, ethical)	Saverio Paltrinieri, DVM, PhD (full professor)	
Title and name of responsible for Academic affairs in VTH	Giuseppe Sironi, DVM, PhD (full professor)	
Official authority overseeing the Establishment	Italian Ministry of Education, University and Research (MIUR) and Rector of UNIMI, Professor Gianluca Vago (until 30th September 2018), new Rector Professor Elio Franzini (from October 1st 2018)	

* from beginning of 2019 this will be the only Facility.

1.1.2. Summary of the Establishment Strategic Plan with an updated SWOT analysis, the mission and the objectives

DIMEVET's mission and vision (available on the website: http://www.dimevet.unimi.it) are part of the DIMEVET regulations, approved by the Department Board (DB) in April 2016, shortly after the department was activated.

The reported mission and objectives, SWOT analysis and operating plan are in accordance with the 2018-2020 DIMEVET Strategic plan and the 2017-2019 UNIMI Strategic plan.

Mission and objectives

The DIMEVET mission focuses on veterinarian education and animal, human and environmental health improvement by providing effective teaching, delivering specialised up-to-date clinical care, developing advanced research and offering high quality community assistance in accordance with international (EAEVE) and national (ANVUR) guidelines.

The DIMEVET objectives shown in **figure 1.1** will be pursued thanks to the optimization of the new Lodi facilities.

Figure 1.1 Overview of DIMEVET objectives.

SWOT analysis

Strengths

- A long historical tradition, as one of Italy's oldest veterinary schools, educating and training veterinarians since 1791.
- National and international recognition of the Veterinary Medicine school, via approval by EAEVE in 2013.
- Most attractive Veterinary Medicine Degree Programme (VMDP) in Italy for students (1,155 applications for 83 places available in 2018).
- Good national ranking for teaching (ANVUR-SUA) indicating a higher VMDP ranking as compared to the Italian average.
- It is the only Italian University listed in the international QS University ranking in the Veterinary Sciences subject area in 2018.
- Good percentage of academic staff with veterinary qualifications (78% and 96% of permanent and temporary academic staff, respectively) and expertise in their fields.
- High-achieving students selected competitively (the top 10% of candidates are accepted).
- Good internationalisation standards, with ongoing European programmes for student and teacher exchange (Erasmus, Leonard and Erasmus plus for students and the Erasmus teaching programme for teachers) and support to students' international activities by the International Veterinary Students' Association (IVSA).
- High staff research levels with a multidisciplinary research group approach.
- Complete transfer of the VMDP and DIMEVET from Milan to the new Lodi site in 2019. Well-equipped and modern facilities, with large areas for teaching and innovative research. The proximity of the DIMEVET research laboratories to the VTH and the Teaching Farm (CZDS) will enhance multidisciplinary research group aggregation.
- UNIMI laboratory animal facilities for basic and preclinical research implemented in Lodi.
- Innovative and unified VTH providing high level 24/7 emergency services for companion animals (including exotic pets), horses, ruminants and pigs.
- Community recognition at local, regional and national levels (several Third Mission activities ongoing).
- Close connections with Animal Sciences and Biotechnology degree programmes, within the same faculty.

Weaknesses

- Since EAEVE approval in 2013, no action was taken to comply with ESEVT standards by the former bodies (i.e. the DIVET and VESPA departments) and by the faculty. Starting from March 2016, after DIMEVET was activated, processes and activities to fulfil ESEVT standards were re-started.
- Some 'Day One Competences' (according to Uppsala 2016 guidelines) have not yet been fully implemented in the syllabuses.
- High repeater (with full-time attendance) and off-course (6 year and over, without attendance) student numbers (for definitions see section 7.1.4). This has generated major difficulties in achieving several ESEVT indicators.
- Creation of an internal Quality Assurance (QAC) Committee only since April 2017, promoting quality culture action in the VMDP, supporting other department committees and preparing SOPs for departmental and VMDP procedures.
- Limited harmonized decision-making processes between the Veterinary Medicine Degree Programme and the Veterinary Clinical and Husbandry Centre (CCVZS) due to UNIMI regulations.
- Low support/academic staff ratio (0.39) due to the recent transfer of part of DIMEVET technical staff to the Lodi CCVZS.
- Low innovative teaching strategy and specific teacher training.
- Limited numbers of international competitive grants.
- Inadequate information on teaching staff research activities (e.g. lists of grant participation, reviewers for competitive grants, roles in scientific and professional organisations).
- Lack of a monitoring programme and strategic plan supporting knowledge transfer and public engagement.

(continue on next page)

Opportunities

- Recent activation of procedures for the recruitment of a full time technical staff with QA competences to enhance and develop the QA system.
- The Lodi location will facilitate links with the local relevant large animal production activities, giving opportunities for funded competitive and non-competitive research grants.
- New locally funded competitive grant opportunities (e.g. Lombardy region, local banking foundation grants).
- Increased public and private external stakeholder involvement in the evaluation and revision of current Degree Programme.
- Better implementation of Third Mission by increasing the number of partnerships with public, private institutions and high schools, according with a more agricultural orientation of the Lodi area compared to Milan.
- The presence in the Lodi area of international researcher networks to improve DIMEVET research standards.

Threats

- Complex harmonization of the National (ANVUR) and European (EAEVE) VMDP accreditation systrems.
- High veterinary education costs, including high maintenance costs for hospital equipment and facilities.
- A progressive reduction in public MIUR funds over the last decade along with National law policies limiting new academic staff posts (including those replacing retirees) with consequent academic and support staff ageing.
- Limitations on human resource management deriving from Italian university law policies.
- The Italian public institutional legal context requiring considerable time and resources on bureaucratic duties.
- Italian laws hampering management of repeating students, causes elongation of student's career.
- Lack of information from MIUR on indicators for the next Research Quality Evaluation (VQR) research evaluation for 2015-2019.
- Insufficient National grant opportunities for specific veterinary research topics (e.g. companion animals, wildlife).
- Challenging staff management during the Milan to Lodi transfer.
- A general belief that the Third Mission is subordinate to teaching and research activities and accordingly low incentives and awards devoted to these.

1.1.3. Summary of the Establishment Operating Plan with timeframe and indicators of achievement of its objectives

Objective	Actions	Implementation
1. Improving teaching efficiency	1.1 Review of syllabuses, upgrading teaching programmes based on stakeholders' feedback	Achieved (ongoing)
	1.2 Monitoring of students' progression and implementation of corrective action	Ongoing
	1.3 Examination procedure standardisation (introduction of written examinations) with specific seminars for teachers	Achieved (ongoing)
	1.4 Small (<4 students) groups for practical teaching activities in clinical sciences	Achieved
	1.5 Extracurricular seminars on Day One Competences that are still not fully covered by the syllabus	Achieved (ongoing)
	1.6 Electronic logbook for pre-professional training	Achieved (ongoing)
	1.7 Improvement of pre-professional extramural training	Mid-term
	1.8 Animal models and dummie acquisition	Ongoing

Objective	Actions	Implementation
1. Improving teaching efficiency *(continue)*	1.9 Promotion of study mobility action (ERASMUS programme, etc.)	Achieved (ongoing)
	1.10 Preparation for EAEVE accreditation in 2019	Achieved (ongoing)
	1.11 Preparation for national teaching accreditation (ANVUR) in autumn 2019	Short term
	1.12 Teacher education improvement (e.g. by attendance at Arena Blended Connected (ABC) learning design workshops)	Achieved (ongoing)
	1.13 Development of web-based teaching methods	Long-term
	1.14 Promotion of teaching staff mobility (ERASMUS teaching programme)	Short-term
2. Improving facilities and services	2.1 Funding applications to support Lodi facility excellence standards maintenance	Achieved (ongoing)
	2.2 UNIMI funding applications related to the VMDP's specific necessities	Short-term
	2.3 Additional staff requests for the organisation of teaching and research facilities for the new Lodi site	Short-term
	2.4 Hospital teaching activity management software acquisition (including a patient record system)	Achieved
	2.5 Applications to UNIMI and the district administration for improved local transport, accommodation, teaching offices, free time, sport and cultural activity, copy shop and bookshop provision.	Short-term
	2.6 Improvement of decision-making processes between VMDP and the Lodi CCVZS	Short-term
3. Promoting post-graduate education	3.1 Promotion of high-quality PhD studies (joint and double doctorates, Doctor Europeus, etc.)	Achieved (ongoing)
	3.2 Master and Continuing Education course promotion	Short-term
	3.3 Activation of additional EBVS-approved residency programmes and re-certification of existing programmes	Long-term
4. Improving research	4.1 Fostering UNIMI Technology platforms for advanced research	Mid-term
	4.2 Improving cooperation within DIMEVET and across UNIMI departments	Achieved (ongoing)
	4.3 Increasing Open Science Policy according to UNIMI guidelines	Achieved (ongoing)
	4.4 Improving research-project proposal and planning	Long-term
	4.5 Periodic monitoring of researchers' scientific work (use of bibliometric tools to analyse research performance e.g. SCIVAL)	Short-term
	4.6 Preparation for National VQR accreditations for 2015-19 and ANVUR 2019 (e.g. increasing research product quality)	Ongoing
	4.7 Setting up a DIMEVET Research Secretariat	Short-term
5. Improving community link strategies (Third Mission)	5.1 Setting up a committee to manage and improve Third Mission activities	Short-term
	5.2 Technology and knowledge transfer and public engagement activity database creation with an annual report available to the community	Mid-term
	5.3 Increasing the visibility of teaching staff involvement in community activity and participation in scientific societies and institutional committees by means of DIMEVET and VTH websites	Mid-term
	5.4 Disseminating research to the community (e.g. MeetMeTonight)	Achieved (ongoing)
	5.5 Promoting research activity patenting research activities	Mid-term
	5.6 Increasing Companion Animal VTH activity on stray dogs and exotic pets	Achieved (ongoing)
	5.7 Community animal welfare training	Mid-term
	5.8 Organisation or sponsorship of scientific meetings for practitioners, farmers and breeders	Achieved (ongoing)

(continue on next page)

Objective	Actions	Implementation
5. Improving community link strategies (Third Mission) *(continue)*	5.9 Publicising activities via the media	Achieved (ongoing)
	5.10 Involvement in 'one – health', animal welfare and the environment activities	Achieved (ongoing)
	5.11 Participation in the work of the Italian Conference of Veterinary Medicine Departments	Achieved (ongoing)
6. Implementing quality assurance and safety policies	6.1 Reinforcing internal quality assessment via recruitment of specialized staff	Short-term
	6.2 Preparing service satisfaction surveys	Short-term
	6.3 Improving student and staff risk protection and biosafety training	Achieved (ongoing)
	6.4 Continuing education for technicians organised by UNIMI	Achieved (ongoing)

Achieved = action completed in 2018; ongoing= continuous process; Short-term= < 1 year to achievement; Mid-term= 1-2 years to achievement; Long-term= 2-3 years to achievement.

1.1.4. Organisational chart of the Establishment

The DIMEVET is the Establishment as it is responsible for the VMDP. It is dependent on UNIMI and MIUR.

The **University of Milan** (UNIMI) is a public university dependent on the Italian Ministry of Education, University and Research (MIUR). The University's central government is the Rector and two collegiate bodies: The Academic Senate (AS), which sets out the university's operational and developmental strategies and coordinates educational and scientific activities; the Board of Directors (CDA), which oversees financial resource procurement, economic/cultural asset management and technical and administrative staff management. At the apex of the administrative structure is the Managing Director who coordinates the work of the technical and administrative staff and implements the plans and objectives set down by the governing bodies. UNIMI includes 33 administratively and organisationally autonomous departments, 10 faculties/schools, 136 degree courses, 31 doctoral programmes (PhD) and specialisation schools. Detailed information is available on the UNIMI website (http://www.unimi.it).

Since 2010, based on current legislation (Law no. 240/2010), departments have replaced the former faculties in their teaching functions whilst retaining their research functions. The current UNIMI Statute has established two types of departments based on their degree programme teaching roles:

A. Main Responsible Department: responsible for degree programmes. The academic staff of the main reference department is responsible for over 50% of total university learning credits (ECTS) required by specific degree programmes. The Main Responsible Department is also where VMDP-related costs are allocated.

B. Associated Responsible Department: department supporting the teaching activities of the Main Responsible Department. The academic staff of associated departments are responsible for over 15% of the Degree Programme's ECTSs.

Faculties are not responsible for teaching activities and are not cost centres. They are responsible for coordinating two or more departments contributing to one or more degree programmes.

The **Department of Veterinary Medicine** (DIMEVET) is the Main Responsible for the VMDP and currently has an academic staff of 85 and a support staff of 33 members. DIMEVET was funded on 4th March 2016 as the result of the reorganisation of two former departments aiming to increase veterinary education and research organisational efficiency. Indeed, before the Main Responsible Department was set up in 2016, the VMDP was managed by two Associated Responsible Departments (VESPA, still existing, and the former DIVET) grouped within the UNIMI FVM, with complex decision-making procedures. The setting up of a main responsible department for the VMDP was strongly supported by UNIMI's Rector. DIMEVET is the main responsible Department for the Science of Veterinary Biotechnology degree.

DIMEVET is also the Associate Responsible Department for also Animal Science, Biotechnology degrees. Since November 2018, DIMEVET is the Department in charge of the Veterinary and Animal Science Doctoral programme administration. DIMEVET participates to the different post-graduate programmes.

DIMEVET organisation is shown in **figure 1.2**. DIMEVET's integration with UNIMI and the MIUR is shown in **figure 1.3**.

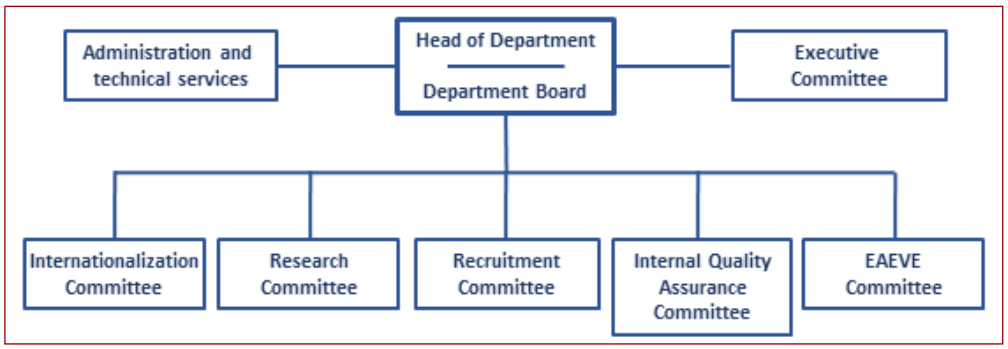


Figure 1.2 DIMEVET organisation.
http://eng.dimevet.unimi.it/ecm/home/department/dimevet-organisation

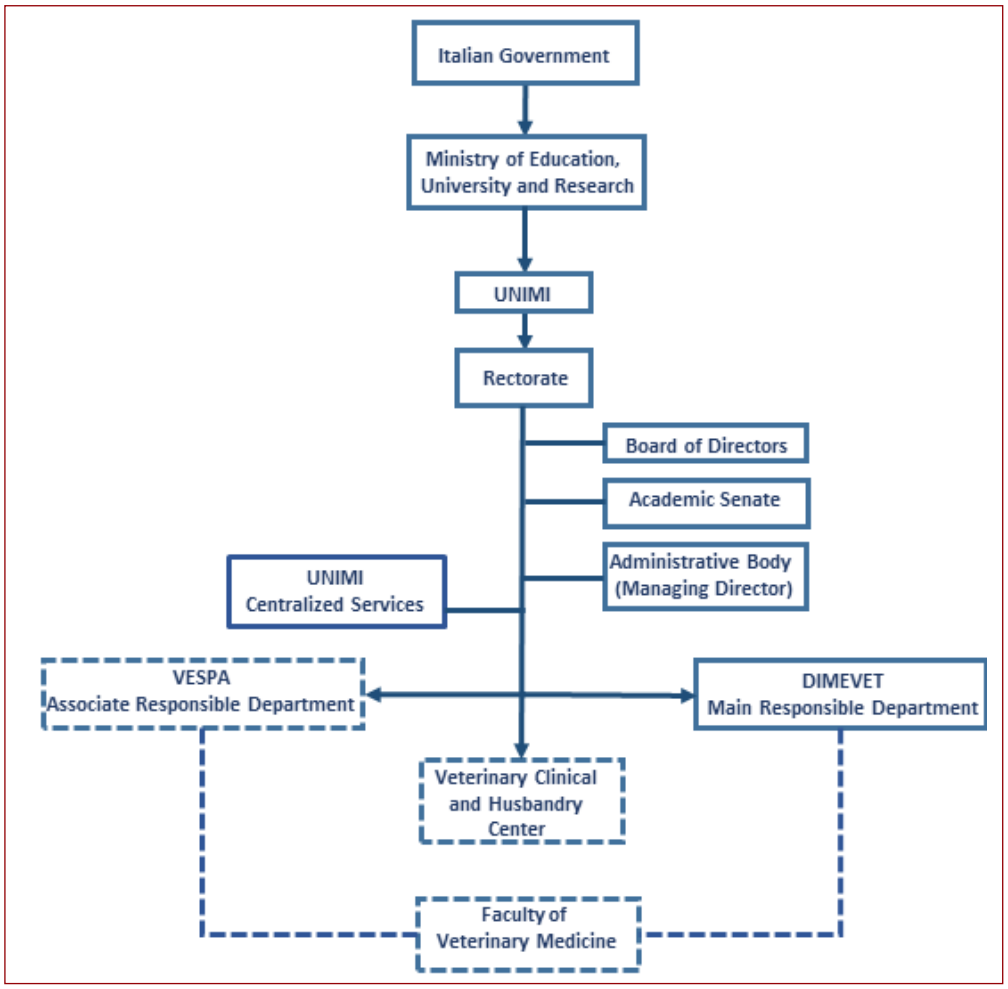


Figure 1.3 Administrative structure: DIMEVET university and government integration.

DIMEVET's VMDP organisation is shown in **figure 1.4** and considers the Associated Responsible Department for the VMDP, namely the Department of Health, Animal Science and Food Safety (VESPA). The DIMEVET and VESPA are coordinated through the FVM.

The **Head of the DIMEVET** represents the Department, and acts as director and manager. The Head is elected by the academic, administrative and technical staff for a three-year term and can only be re-elected once. The Deputy Head is nominated by the Head of Department and works on teaching and research issues with the Head of Department.

The **DIMEVET Department Board (DB)**, chaired by the Head of the Department, is the department's governing body. It is made up of all the department's academic staff (professors, researchers), its administrative officer, its high-level professional technicians and representatives of its administrative and technical staff, PhD

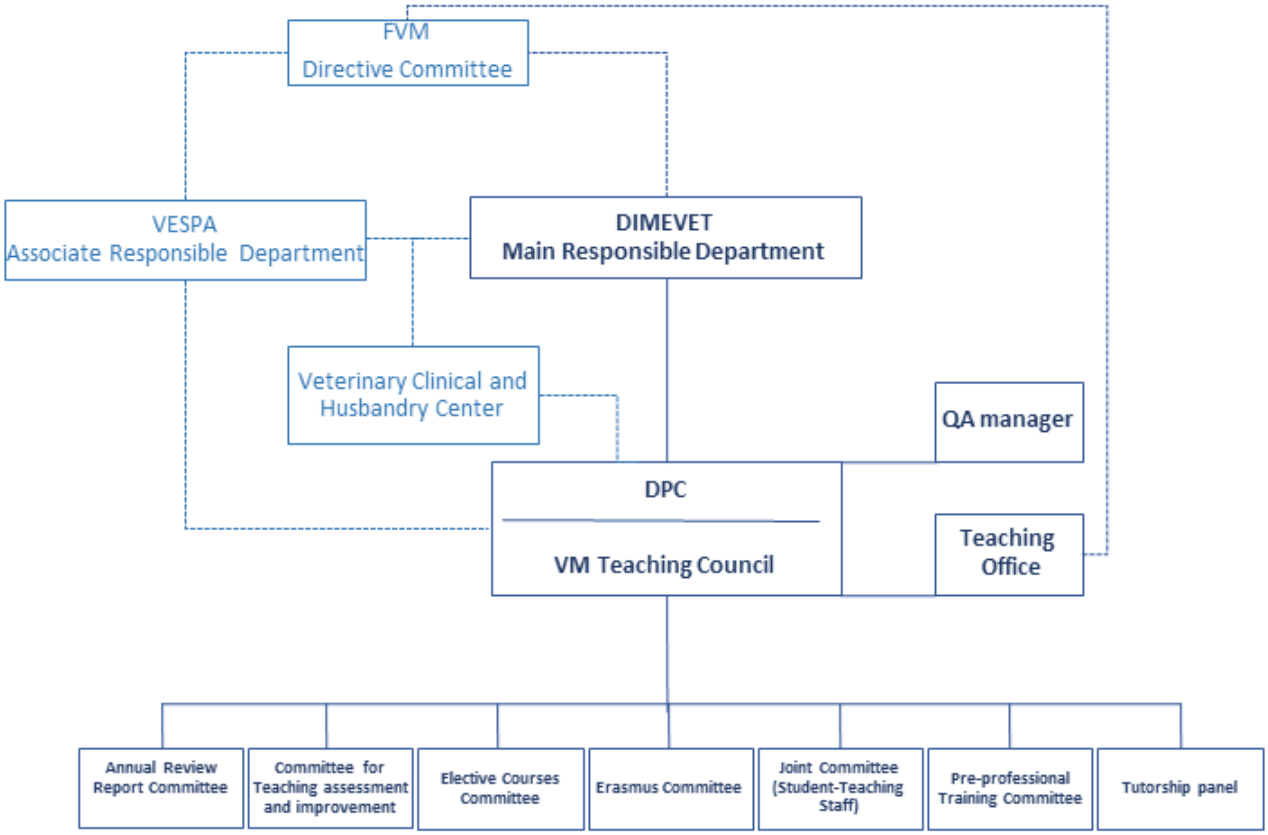


Figure 1.4 VMDP organisation.
http://eng.dimevet.unimi.it/ecm/home/teaching

students, post-doc fellows, specialisation school students and representative of students. It meets regularly (on average 10-11 times per year). It is responsible for final approval of teaching issues decided by the VMTC and for annual VMDP financial management and functional management of departmental activities. The DB provides recruitment strategy proposals for the department's teaching, administrative and technical staff enrollment that is subsenquently submitted to the UNIMI CDA for final decision. The DB is also responsible for implementing the UNIMI AS's decisions and academic teaching regulations.

The **DIMEVET Executive Committee (DEC)** performs an executive function for the Head of Department for all issues discussed by the DB. Its meetings take place prior to DIMEVET DB meetings and are chaired by the Head of the Department. It is made up of the Deputy Head, the department's Administrative Officer, the Heads of Degree Programmes or their delegates, representatives of the department's professors and researchers (15%) and two departmental administrative-technical staff representatives.

DIMEVET administration and technical services are coordinated by the Head of the Department and the Administrative Officer and manage departmental teaching, research and Third Mission work.

DIMEVET Committees. Permanent committees are nominated by the Head of the Department and approved by the DB. The permanent committees include student representatives having advisory functions and are the following:

- ***EAEVE Committee***: this coordinates the application and monitoring of SOP for EAEVE accreditation, as well as SER preparation.
- ***Internationalisation Committee***: its function is to promote student and academic staff International affairs.
- ***Recruitment Committee***: this puts forward academic and technical staff recruitment proposals in accordance with the department's scientific and teaching aims/development.
- ***Internal Quality Assurance Committee (QAC)***: this establishes research and teaching process quality assurance procedures.
- ***Research Committee (RC)***: this puts forward departmental scientific policy and research strategies.

1.1.5. List of departments/units/clinics and councils/boards/committees with a very brief description of their composition/function/responsibilities

Veterinary Medicine Degree Programme Organisation

Degree Programme Coordinator: the Coordinator is a full professor of the Veterinary Medicine Teaching Council (VMTC) elected for a three-year term and can only be re-elected once.

The **Veterinary Medicine Teaching Council (VMTC):** this is the body responsible for VMDP teaching activities. It is made up of DIMEVET and VESPA academic staff and that of other UNIMI departments teaching in the VMDP, adjunct professors teaching in VMDP and 10 VMDP course student representatives.

Veterinary Medicine Teaching Council committees: there are several committees acting in an advisory capacity to the Veterinary Medicine Teaching Council. The committees provide preparatory document proposals for Veterinary Medicine Teaching Council assessment. Discussion on specific issues during Department Council meetings is possible only on prior preparation and proposal by the appropriate committee.

- ***Annual Review Report Committee***: this verifies the suitability of VMDP educational targets and their correspondence with results and the efficacy of the action undertaken to manage identified VMDP critical points.
- ***Committee for teaching assessment and improvement (CAI):*** this assesses coherence between the syllabus and official teaching materials and is responsible for designing degree programme revision.
- ***Elective Course Committee:*** this is made up of teachers from various disciplines and one student representative and organises the elective courses proposed each year.
- ***Erasmus Committee:*** this supports the Erasmus+ programme manager in handling student mobility (selection, learning agreement definition).
- ***Joint Committee (student-teaching staff) (JC)*:** this is made up of five student representatives and five academic staff members who monitor educational provision and teaching quality, including coherence with the syllabus making teaching improvement suggestions and interacting with the QA coordinator.
- ***Pre-Professional Training Committee (PTC)****:* this is made up of teachers from professional disciplines and organises and monitors internal and external pre-professional training activities.
- ***Tutorship panel:*** this supports students struggling with the degree programme and is involved in the University Open Days.

The VMDP is monitored by a specific QA coordinator, appointed by the VMTC, who interacts with both the DIMEVET QAC and the VMTC Joint Committee.

Veterinary clinical and husbandry center (CCVZS): this is an independent UNIMI service centre with its own regulations which works as a clinical centre for external veterinarians, animal owners and breeders and acts as a research centre for internal (UNIMI departments) or external researchers. The animals and animal samples processed by the CCVZS contribute to the caseload and routine clinical and husbandry activities functional to the VMDP students' education.

The governing body is the **CCVZS Council** chaired by the CCVZS Director, appointed by the UNIMI Rector for a three-year term (can be reelected only once). The CCVZS Council is made up of representatives of the CCVZS and UNIMI and the Heads of the DIMEVET and VESPA departments. More precisely, the CCVZS representatives are the Veterinary Medical Director of the VTH, the Scientific Director of the Teaching Farm, the Administrative Officer of the CCVZS and two CCVZS technical-administrative staff representatives. The UNIMI representatives are the university's Managing Director, one representative from the Board of Directors and three representatives, respectively, of the agro-food area, the biological area and the medical area. These three representatives are selected by the UNIMI CDA, nominated by the Rector.

The presence of DIMEVET and VESPA heads on the Council guarantees coordination between CCVZS activities for the purposes of VMDP students' teaching and training.

The CCVZS is organised into three building complexes: the Veterinary Teaching Hospital (VTH), the Teaching Farm (CZDS) and the Laboratory Animal Facility, as shown in **figure 1.5**.

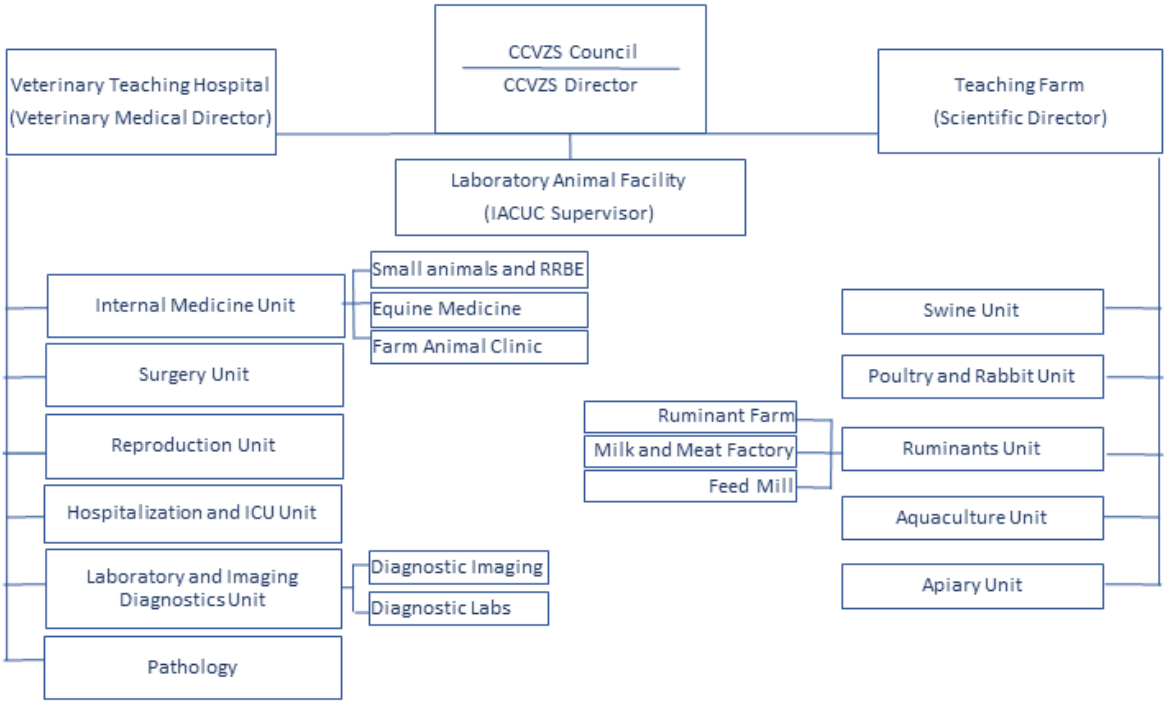


Figure 1.5. Organisation of the Veterinary Clinical and Husbandry Centre (CCVZS). Legends: IACUC = Institutional Animal Care and Use Committee; RRBE = Rabbits, Rodents, Birds and Exotic pets; ICU = Intensive Care Unit. https://www.ospedaleveterinario.unimi.it/

Veterinary Teaching Hospital (VTH): the purpose of the VTH is to provide qualified practical training reference services for students in propaedeutic and clinical areas and animal health. The VTH is managed administratively by the Director of the CCVZS and clinically by the Veterinary Medical Director. The Veterinary Medical Director is nominated by the CCVZS director and appointed by the UNIMI Rector. The VTH is organized in Companion Animal (CAVTH) and Large Animal (LAVTH) facilities as specified in chapters 4 and 5. The VTH has 6 units, each coordinated by a unit manager, nominated by the CCVZS Director and appointed by the Rector:

- Internal medicine, including three sub-units: Small animals and Rabbits, Rodents, Birds and Exotic pets, Equine medicine and Ruminant and Swine animal clinic;
- surgery;
- reproduction;
- hospitalisation and Intensive Care Unit (ICU);
- laboratory and diagnostic imaging;
- pathology.

Further information on the units' function/responsibilities is available on the VTH website (http://ospedaleveterinario.unimi.it).

VTH activity management is supported by the **VTH Technical Coordination body**. It is made up of the CCVZS Director, the Veterinary Medical Director, the VTH unit managers and a representative from the CCVZS's technical staff. The Head of the VMTC takes part in Technical Coordination body meetings which focus on teaching activities within the VTH.

Teaching Farm (CZDS): CZDS is a facility for both educational and research activities regarding food producing animals including cattle, pig, avian, rabbit, aquatic and other species (e.g. bees).

The CZDS has 5 sub-units, each coordinated by a manager:

- Ruminants
- Swine
- Poultry and farmed rabbits
- Aquaculture
- Other Species (Apiary)

Laboratory Animal Facility: this is included within the UNIMI Central Laboratory Animal Facility. The Central Laboratory Animal Facility is an independent UNIMI structure which enables to carry out appropriate research activity on laboratory animals in accordance with national legislation on animal welfare, after the UNIMI OPBA (equivalent to Institutional Animal Care and Use Committee-IACUC) research project approval.

VESPA Department

This is the Associated VMDP Responsible Department (http://www.vespa.unimi.it/ecm/home). VESPA is also the Main Responsible Department for the Animal Science degree programme and Associated Responsible for the Biotechnology and Science component of Veterinary Biotechnology Science degrees programmes. It has its own Head of Department, Department Council, Executive Committee and several permanent committees.

Faculty of Veterinary Medicine

FVM is the body which connects the DIMEVET and VESPA departments and is responsible for providing non-binding opinions on teaching staff recruitment and coordination of certain educational activities.

President of the Directive Committee: the President is a full professor within the Directive Committee, who is elected by the Directive Committee for a three-year term and can be re-elected only once.

Directive Committee (DC): this is the FVM's decision-making committee. It has 15 members: the heads of the DIMEVET and VESPA departments, the heads of the Degree Programmes (3 members: Veterinary Medicine, Animal Science and Science of Veterinary Biotechnology) held by DIMEVET and VESPA as Main or Associated Responsible departments, academic staff representatives (10%) of both DIMEVET and VESPA DEC (elected by the corresponding DB) and two student representatives.

Teaching Office: this is under UNIMI supervision and coordinated by the FVM.

UNIMI Centralised Services

Major UNIMI centralised services and structures are:

- **Student Secretariats** (SEDI): secretariats for students under UNIMI supervision;
- **CASLOD**: this is a centralised UNIMI service managing spaces and classrooms, including computer classrooms for degree programme teaching and students' exams.
- **Libraries**: centralised UNIMI structures;
- **COSP**: university study and career guidance centre;
- **Student Ombudsman**: receives and manages reports on students' complaints. It monitors the correct application of regulations concerning education, study and the right to education;
- **Central Committee for the Promotion of Equal Opportunities, Workers' Welfare and Non-Discrimination (CUG)**;
- **Ethical Committee and Animal-Welfare Body (OPBA)**: evaluates and approves research projects utilizing living animals in accordance with national animal welfare legislation (equivalent to Institutional Animal Care and Use Committee-IACUC).

Head / President /Director of the Major Structures

Structure	Head/President/Director
DIMEVET	Prof. Mauro di Giancamillo
Veterinary Medicine Teaching Council	Prof. Giuseppe Sironi
VESPA	Prof. Giovanni Savoini
Directive Committee of the FVM	Prof. Gustavo Gandini
Veterinary Clinical and Husbandry Centre	Prof. Saverio Paltrinieri

1.1.6. Description of how and by who the strategic plan and the organisation of the Establishment are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

The current DIMEVET strategic plan (2018-2020) was presented September 2018 to all DB members at a departmental meeting by the Head of Department. The strategic plan was positively evaluated by the UNIMI Rector and Managing Director. Online publication of the revised version is expected by beginning of 2019. The strategic plan has three-year validity.

DIMEVET organisation is largely established by national legislation. The UNIMI Statute determines the organisation, function and composition of departments, faculties and teaching councils. All other bodies, boards, committees and services are outlined in Departmental Regulations and assessed, revised and approved by the DB. At the end of this process, Department Regulations are approved by UNIMI Rector.

This organisation and corresponding documents are available in the public area of the Department website.

Strategic Plan assessment and development involves the following steps with transparent decision processes and dissemination (responsible individual: Head of Department) (**Fig. 1.6**):

1. drafting the DIMEVET Strategic Plan following UNIMI guidelines (responsible body: Head and DB);
2. evaluating and identifying priority objectives and goals by interviewing internal and external stakeholders (responsible body: Department Research, Teaching, QAC, Recruitment, Joint, Internalisation and EAEVE committees);
3. defining, communicating and approving the Strategic Plan (responsible body: DB);
4. assigning committees to assess improvements (responsible body: QAC, and QAC Manager following UNIMI QA guidelines);
5. implementing and adjusting the plan, communicating results, reassessment and redefinition of objectives (responsible body: Head of Department and DB).

1.2. Comments

The Veterinary Education scenario has markedly changed since the last EAEVE visitation due to major changes in national legislation that has reorganized the University Government bodies and the University system in general. Since 2016, the organization of the UNIMI-VMDP has improved thanks to the DIMEVET becoming the main Responsible Department. This has resulted in a clear decision-making process which has improved departmental goal achievement (Teaching, Research and Third Mission).

Figure 1.6 DIMEVET Strategic Plan decision making process.

Before 2016, actions to comply with EAEVE standars were limited by the reorganization and the complex decision making process. Since 2016, DIMEVET has put major efforts in complying with EAEVE standards. Priority department goals include setting up EAEVE, QA and Recruitment committees, defining young scientist research awards and establishing a close relationship with the VTH to improve practical teaching activities.

The relocation of the Milan facilities to Lodi started in 2005 with VTH for large animals and horses and followed by the VTH for companion animals in June 2018. The relocation of the Milan facilities to Lodi will be completed with a consequent reorganisation of the teaching office, teaching facilities as well as staff offices, te-

aching and research labs. Despite potential logistical issues, in 2019 the VMDP will be fully transfered. During the relocation process, there has been no teaching or clinical interruption.

1.3. Suggestions for improvement

- Implementation of services for students and staff is advisable, considering that the new Lodi facilities are distant from UNIMI. Specifically, agreements with UNIMI and Lodi district administration should focus on improving local transport, accommodation as well as leisure time, sport and cultural facilities, copy shops and bookshops. The final aim should be to create a hospitable work and study environment, well integrated into the surrounding area, also by implementing a stakeholder network.
- Full revision of the DIMEVET and CCVZS financial transaction system is strongly advisable: the current system considers a flow of funds from DIMEVET to CCVZS (e.g. funds to support teaching activities) and vice-versa (i.e. transfer to DIMEVET of part of the income of clinical activities to support research or other institutional activities) without clear UNIMI central regulations.
- A retrospective analysis of the first two years of CCVZS activity shows that diverse actions may improve hospital services and associated teaching activity quality, including:
    1. improving CCVZS regulations regarding decision-making processes between the VMDP and CCVZS for teaching activities;
    2. simplifying the management model which may potentially be achieved through modified UNIMI regulations leading to VTH transfer from the CCVZS to the main reference department to facilitate the decision-making, intervention and funding flow related to teaching activities;
    3. including veterinary hospitals in the Italian Ministry of Health framework, in line with human medical hospitals: this would ensure the availability of funds for public health and provide a larger caseload for students. This goal should be promoted together with UNIMI and other universities in order to create a critical lobby at government level.
- In 2019 a re-organisation of degree programmes and department websites is planned by UNIMI. This will improve the institutional image and better satisfy internal and external stakeholder and user needs.

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ

2

Finances

2.1. Factual information

2.1.1. Description of the global financial process of the Establishment

UNIMI allocates funds to departments in accordance with a 3-year strategic financial plan, based on University Statutes and National Law no. 240/2010.

Funds are assigned by UNIMI to departments taking into account overall UNIMI objectives, as defined by DB, department roles in managing degree courses (main referent department or associate referent department, for one or more degree courses; see chapter 1 for definition), the type of degree course(s) they manage (e.g. scientific, humanities), staff and student numbers, academic production (number of publications and their quality) and departmental staff involvement in institutional activities. Department funds may also include revenues from clinical and diagnostic activities, resources from private and public institutions, European and international bodies, revenues from property, contracts and joint working agreements and voluntary contributions.

DIMEVET funds include:

- MIUR-FFO, i.e. MIUR funds to UNIMI, and then assigned to DIMEVET, for everyday functioning;
- UNIMI-FUD, i.e. student fees, collected from the central UNIMI administration and assigned to DIMEVET through an internal negotiation process based on some of the above criteria, as defined by university regulations;
- funds for staff (academic and administrative support staff) directly managed by UNIMI;
- additional public funding (i.e. MIUR, European agency or regional fund research grants), originally collected by UNIMI central administration and assigned to DIMEVET after retaining overheads (see paragraph 2.1.3);
- revenues from diagnostic/clinic activities and private/commissioned research contracts, directly managed by DIMEVET or by CCVZS, after providing UNIMI with the respective overheads (see paragraph 2.1.3).

In accordance with available resources, DIMEVET plans operational and developmental expenses each year. The DIMEVET and UNIMI budget is annual, per calendar year (1st January – 31st December) and not per academic year.

Funds assigned from UNIMI central administration specifically to the VMDP, through DIMEVET and CCVZS, over the last three years, are shown in **table 2.1.1**.

2.1.2. Degree of autonomy of the Establishment on the financial process

In accordance with university statutes, the department is a responsibility centre with management autonomy over its funds. Each department coordinates means and resources and guarantees its efficient use, taking into consideration scientific research autonomy and teaching activities. However, as a public institution, the department mainly depends on national budget funding.

2.1.3. % of overhead to be paid to the official authority overseeing the Establishment on revenues from services and research grants

Management fees are mainly levied on: (i) research projects with public funding (from 4% to 10%); (ii) private funding from diagnostic and clinical activities and research contracts (from 27% to 47%); (iii) professional training courses (i.e. Specialty courses, see chapter 10) (on average 50%). **Table 2.1.2** summarises specific management fees by income type.

Table 2.1.1 UNIMI funds assigned to the VMDP.

	2017	2016	2015
DIMEVET	244,250.54	194,431.15	182,418.59
CCVZS	400,000.00	304,396.32	369,385.22
TOTAL	**644,250.54**	**498,827.47**	**551,803.81**

Table 2.1.2 Distribution rules for extra income.

Source of income	Distribution rules			Free[1]
	University overheads	Department overheads / staff		
		Overheads	Staff	
Research	4-10%	-	-	90-96%
Clinical and diagnostic	15-20%	5-7%	7-20%	53-73%
Continuing education	45%	5%	-	50%

[1] The "free" amount is distributed on the basis of the needs of the scientific reference person and the contractual rules signed with the counterpart institution. Range values depend on type of activity and administration unit.

2.1.4. Annual tuition fee for national and international students

Students pay regular fees in two instalments. The first €156 per year instalment is the same for all students. On-course and one year off-course students pay a second instalment of up to 3,733.00 €/year, depending on household (or personal) income. Off-course students for more than one year pay a second installment ranging from 200.00 €/year to 4,065.00 €/year. Fee amounts are fixed by the university board and revised each year. The Lombardy region and UNIMI provide exclusions/grants/financial facilities for selected students, based on their commitment, results and personal income: VMDP students were assigned 12 grants in the 2015-2016 academic year, 14 in 2016-2017 and 17 in 2017-2018.

2.1.5. Estimation of the utilities and other expenditures directly paid by the official authority and not included in the expenditure tables

All costs directly paid by Central UNIMI Services are shown in **table 2.1.3**, divided up into DIMEVET and CCVZS and sections a (staff, except a.3, paid by DIMEVET and CCVZS centres), b (operating costs), c (equipment) and d (maintenance costs).

Table 2.1.3 Annual VMDP expenditure (2015-2017) (Euro)

			2017	2016	2015	Mean
DIMEVET	a.	*Personnel*	*8,437,768.05*	*8,653,974.20*	*7,719,909.70*	*8,270,550.65*
	a1.	Teaching[1]	6,776,409.92	6,826,099.49	6,011,668.40	6,538,059.27
	a2.	Technical staff[2]	1,311,148.52	1,329,106.41	1,195,299.46	1,278,518.13
	a3.	Teaching and research support staff[3]	350,209.61	498,768.30	512,941.84	453,973.25
	b.	*Operating costs*	*980,823.11*	*1,259,655.44*	*1,257,359.03*	*1,165,945.86*
	b1.	Utilities	560,883.51	561,527.86	524,206.87	548,872.75
	b2.	Expenditure relating specifically to teaching[4]	25,269.27	74,027.78	71,363.09	56,886.71
	b3.	Expenditure relating specifically to research[5]	226,963.63	463,883.01	463,659.35	384,835.33
	b4.	General operations	167,706.70	160,216.79	198,129.72	175,351.07
	c.	*Equipment*	*66,937.33*	*92,570.54*	*168,300.24*	*109,269.37*
	c1.	Teaching[6]	4,148.00	34,892.52	47,829.67	28,956.73
	c2.	Research[7]	62,789.33	57,533.13	96,155.65	72,159.37
	c3.	General equipment	0.00	144.90	24,314.93	8,153.28
	d.	*Maintenance*[8]	*3,584.80*	*58,036.38*	*90,411.97*	*50,677.72*
		Total DIMEVET	**9,489,113.29**	**10,064,236.56**	**9,235,980.94**	**9,596,443.60**

(continue on next page)

Table 2.1.3 Annual VMDP expenditure (2015-2017) (Euro) *(continue)*

			2017	2016	2015	Mean
CCVZS	a.	*Personnel*	*689,016.47*	*816,537.71*	*313,444.01*	*606,332.73*
	a1.	Teaching	0.00	0.00	0.00	0.00
	a2.	Technical staff[9]	539,590.26	683,654.39	259,300.09	494,181.58
	a3.	Teaching and research support staff	149,426.21	132,883.32	54,143.92	112,151.15
	b.	*Operating costs*	*1,127,491.76*	*992,402.60*	*950,632.50*	*1,023,508.95*
	b1.	Utilities	616,467.72	578,291.17	609,885.28	601,548.06
	b2.	Expenditure relating specifically to teaching	1,068.85	5,905.69	1,590.71	2,855.08
	b3.	Expenditure relating specifically to research	147,419.29	19,483.29	33,773.74	66,892.11
	b4.	General operations	362,535.90	388,722.45	305,382.77	352,213.71
	c.	*Equipment*	*123,009.02*	*98,043.90*	*118,199.80*	*113,084.24*
	c1.	Teaching	0.00	10,874.33	25,746.68	12,207.00
	c2.	Research	112,781.59	2,720.56	26,718.07	47,406.74
	c3.	General equipment	10,227.43	84,449.01	65,735.06	53,470.50
	d.	*Maintenance*	*12,729.37*	*76,497.37*	*86,461.35*	*58,562.70*
		Total CCVZS	**1,952,246.62**	**1,983,481.58**	**1,468,737.66**	**1,801,488.62**
		TOTAL DIMEVET+CCVZS	**10,460,536.80**	**12,047,718.14**	**10,704,718.60**	**11,070,991.18**

Note: the financial year is January 1st to December 31st. Revenues are divided up between the two DIMEVET and CCVZS centres, since these are autonomous expense centres.
[1] Includes VMDP professors and researchers.
[2] Includes DIMEVET technical staff salaries.
[3] Includes non-permanent staff supporting research and teaching activities recruited via competitive applications processes (post-doc researchers, grant holders, contracted lecturers, etc.).
[4] Includes expenses directly related to teaching, such as the materials used in laboratories.
[5] Includes expenses directly related to research (materials for clinical activities, scientific materials, etc.).
[6] Includes funds for teaching equipment.
[7] Includes funds for research/diagnostic equipment.
[8] Includes ordinary equipment and instrument maintenance for the VMDP's everyday work.
[9] Includes CCVZS technical staff salaries.

2.1.6. List of the on-going and planned major investments for developing, improving and/or refurbishing facilities and equipment, and origin of the funding

From the 2018-2019 academic year onwards, the new Lodi campus will entirely replace the Milan facilities. The Lodi campus is the result of an agreement between several partners: UNIMI, the Institute for the Right to University Education, the Lombardy region, the province and Lodi town council and Lodi's Chamber of Commerce. It was created to meet teaching, research and clinical activity modernisation requirements. The Lodi university campus opened the Veterinary Teaching Hospital (VTH), large animal section, in February 2005. In October 2008 the Teaching Farm (CZDS), was opened. Construction costs for these two parts were approximately €33.5 millions: €20,387,000 for the LA-VTH and €13,123,878.63 for the CZDS.

Investments in the completion of the Lodi campus facilities amounted to €66,300,000. Specifically: construction of the buildings for educational-scientific activities (classrooms, teaching labs, library, departmental activities, general services, public services) cost €53,800,000; the completion of the VTH companion section cost €7,200,000; the completion of the CZDS (facilities for processing milk and meat, sensory analysis and bioengineering activities and the feed) and the completion of the VTH (autopsy rooms, osteology, linked services) cost €5,300,000. The University of Milan provided 60% of the total expenditure and the additional 33% came from the Lombardy region, the province and Lodi town council. The completion of the CZDS (€5,300,000) was excluded from co-funding and came from the University of Milan.

A new management software for the Lodi CCVZS was acquired in November 2018 and is under implementation (PROVET Cloud, cost of €163,900 VAT excluded), to support teaching activities (including post-graduate), clinical-diagnostic services and clinical research and organisation and administration processes.

2.1.7. Prospected expenditures and revenues for the next 3 academic years

No major changes are expected, in particular for funds specifically assigned to VMDP (see Table 2.1.1) over the next three years as compared to the last three years. However, it is difficult to estimate expenses and revenues for the coming years before the Lodi facilities will be fully implemented.

2.1.8. Description of how and by who expenditures, investments and revenues are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

UNIMI administrative-accounting and financial management is regulated by University Regulations for Administration, Funding and Accountability, through central administration spending centres.

For the VMDP, these autonomous spending centres are DIMEVET, whose manager is the head of department, and CCVZS, whose manager is the Centre Director. In the DIMEVET the decision-making authority is the DB composed of the Administrative Officer, all academic staff, the representatives of technical and administrative staff, the representatives of students and post-graduate students (specialization students, PhD students and post-docs). The DB decides expense management by approving a provisional budget. In the CCVZS, the decision-making authority is the CCVZS Council which decides expense management orientation. The CCVZS Council is made up of representatives of the CCVZS and UNIMI and the Heads of the DIMEVET and VESPA departments. More precisely, the CCVZS representatives are the Veterinary Medical Director of the VTH, the Scientific Director of the Teaching Farm, the Administrative Officer of the CCVZS and two CCVZS technical-administrative staff representatives. The UNIMI representatives are the university's Managing Director, one representative from the Board of Directors and three representatives, respectively, of the agro-food area, the biological area and the medical area. The DB and CCVZS Council members foster direct notification of all expenditure, investment and revenues to staff and internal stakeholders, including students.

Table 2.1.4 Annual VMDP revenues (2015-2017) (Euro)

			2017	2016	2015	Mean
DIMEVET	a.	*Public funding*	*9,348,218.26*	*9,448,362.05*	*9,083,207.26*	*9,293,262.52*
	a1.	Ordinary[1]	805,134.05	755,959.01	877,414.94	812,836.00
	a2.	Continuing education[2]	29,031.75	64,912.82	104,308.97	66,084.51
	a3.	Research[3]	120,000.00	227,018.73	751,621.43	366,213.39
	a4.	Personnel[4]	8,394,052.46	8,400,471.49	7,349,861.92	8,048,128.62
	b.	*Private bodies*[5]	*306,167.70*	*788,391.73*	*1,650,470.27*	*915,009.90*
	c.	*Institutional research funded by third parties*	*698,523.26*	*596,431.16*	*1,128,129.05*	*807,694.49*
		Total DIMEVET	**10,352,909.22**	**10,833,184.94**	**11,861,806.58**	**11,015,966.91**
CCVZS	a.	*Public funding*	*1,556,057.98*	*1,566,341.88*	*1,274,772.84*	*1,465,724.23*
	a1.	Ordinary[6]	1,016,467.72	882,687.49	1,015,472.75	971,542.65
	a2.	Continuing education	0.00	0.00	0.00	0.00
	a3.	Research	0.00	0.00	0.00	0.00
	a4.	Personnel[7]	539,590.26	683,654.39	259,300.09	494,181.58
	b.	*Private bodies*[8]	*777,631.52*	*392,654.82*	*643,191.23*	*604,492.52*
	c.	*Institutional research funded by third parties*	*0.00*	*32,767.20*	*36,582.82*	*23,116.67*
		Total CCVZS	**2,333,689.50**	**1,991,763.90**	**1,954,546.89**	**2,093,333.43**
		TOTAL DIMEVET+CCVZS	**12,686,598.72**	**12,824,948,84**	**13,816,353.47**	**13,109,300.34**

Note: the financial year is January 1st to December 31st. Revenues are divided up between the two DIMEVET and CCVZS centres, since these are autonomous expense centres. The 2014 surplus is included in 2015 revenues, because these were used in 2015.
[1] Includes part of FFO-MIUR, student fees (FUD) and utilities (provided by the university).
[2] Includes revenues from DIMEVET post-graduate courses (e.g. M.S.C schools).
[3] Includes publicly funded research projects.
[4] Includes VMDP professorial and researcher and DIMEVET technical staff salaries.
[5] Includes diagnostic and clinical research activities.
[6] University CCVZS functioning funding (including funds assigned to VMDP see table 2.1.1 and funds for utilities).
[7] Includes CCVZS technical staff salaries.
[8] Since 1st February 2017 department clinical and diagnostic activity revenues are included under CCVZS prior to full transfer to Lodi.

Table 2.1.5 Annual VMDP balance (Euro) (DIMEVT+CCVZS)

Year	Total expenditure	Total revenues	Balance
2015	10,704,718.60	13,816,353.47	**3,111,634.87**
2016	12,047,718.14	12,824,948.84	**777,230.70**
2017	10,460,536.80	12,686,598.72	**2,226,061.92**

2.2. Comments

A marked public funding dependence exists. Over recent years, national and regional budget cuts have impacted on VMDP activities, limiting potential improvement.

Development of research activities is hampered by limited private and public funds, as well as low flexibility in the management of such funds caused by the heavy UNIMI bureaucratic regime.

DIMEVET's financial autonomy is limited, despite the University Statute's statement to the contrary. The main constraint is excessive centralisation of the decision-making process.

Albeit with some limitations, the current budget allows the VMDP to provide satisfactory services in both teaching and research terms. This is confirmed by the number of students applying to attend the VMDP which are always significantly higher than the number of students admitted in accordance with MIUR.

In recent years UNIMI has allocated a considerable amount of money for the new Lodi facilities and providing new equipment for research and teaching.

The new Lodi centre will provide high-level services and research, most probably attracting greater investment from public and private institutions.

Continuing education and clinical and diagnostic service overheads are rather high, somewhat discouraging these activities.

2.3. Suggestions for improvement

- Improving staff attitude and commitment to VMDP's financial aspects;
- raising UNIMI public relations office's commitment and that of the press to improving and disseminating the VMDP's image;
- intensifying efforts to attract sponsors, in particular by increasing interaction between VMDP and national and international private veterinary companies;
- increasing opportunities and incentives for start-up companies linked to the VMDP;
- expanding the services provided to the local community and neighbouring areas. Increasing commitment of the academic staff to engage external stakeholders.

3

Curriculum

3.1. Factual information

3.1.1. Description of the educational aims and strategy in order to propose a cohesive framework and to achieve the learning outcome

In accordance with European Directive 2005/36/EC, the VMDP aims to provide the knowledge and skills necessary to practice the Veterinary profession inclusive of the following areas: animal clinics, food safety and quality, animal and public health, animal production, food and feedstuff safety and technologies and pharmaceutical industries.

The VMDP is designed to provide Day One Competences established by the European Coordinating Committee on Veterinary Training, and adopted by the EAEVE.

At the end of the VMDP, students have been exposed to the diverse veterinary medicine scientific subjects, including:

- **basic subjects** (medical physics, chemistry, animal biology, biomedical statistics);
- **veterinary basic sciences** (anatomy, histology and embryology, physiology, biochemistry general and molecular genetics, pathology, animal ethology and animal welfare, animal nutrition);
- **animal production** (animal production and breeding, economics, animal husbandry, herd health management);
- **animal and public health** (parasitology, microbiology, immunology, epidemiology, preventive medicine, state veterinary services and public health, professional ethics, veterinary legislation, forensic medicine and certification);
- **food safety and quality** (inspection of food and feedstuff, food hygiene and food microbiology, practical work in slaughterhouses and food processing plants, food technology);
- **clinical sciences** (reproduction and reproductive disorders, diagnostic pathology, propaedeutics of all common domestic animal species, medicine and surgery including anaesthesiology, diagnostic imaging, clinical practical training, therapy, pharmacology, pharmacy and pharmacotherapy, toxicology).

Knowledge and competences are achieved through lectures, supervised self-learning, laboratory and desk based work, non-clinical and hands-on clinical practicals, pre-professional practical training (PPT) - both intramural and/or extramural-seminars and electives.

Teaching subjects are organized as integrated courses (IC), comprising 2 or more teaching units, or simple courses.

The curriculum is organized in 5 years, subdivided in 10 semesters for a total of 300 ECTS, in which students acquire knowledge and competences, grouped as follows:

- Basic courses: basic subjects and basic sciences (72 ECTS);
- Characterizing veterinary courses (171 ECTS);
- Integrative subjects (12 ECTS);
- Electives (8 ECTS);
- Graduation thesis (7 ECTS);
- PPT (30 ECTS).

A more detailed description of the ECTS assigned to each area of UE listed subjects or activities, and the minimum number of mandatory ECTS attributed to subjects according to the Italian law (Ministerial Decree n° 270/2004) and by the VMDP are reported in Appendix 2 and compared in Appendix 6.

One ECTS corresponds to 25 hours of activities/student. These 25 hours are subdivided as follows:

- Frontal (theoretical) teaching: 8 hours of lectures and 17 hours for self-learning and independent study;
- Practical teaching: 16 hours of laboratory, non-clinical and clinical practical work and 9 hours self-learning and independent work;
- Pre-professional practical training (PPT): 25 hours of independent individual work under tutor supervision.

During the first 4 years of the curriculum and in the first semester of the 5th year, students attend the theoretical courses and related practicals for a total of 255 ECTS. During the last semester, students attend the elective courses for a total of 8 ECTS, and 21 ECTS of PPT. The additional 9 ECTS of the PPT are acquired as follows:

- 5 ECTS in the VTH, mainly in Hospitalization and ICU during the 3rd and 4th years;
- 4 ECTS of PPT in Pathology and Veterinary Public Health at the end of the second semester of the 4th year.

The PPT can be intramural or extramural. The intramural PPT is carried out at the VTH, but also through the Ambulatory Clinics, at the CZDS or Departmental Laboratories, always under the supervision of the academic staff. The extramural practical training (EPT) is not mandatory, and can be carried out at other national or international universities, and at public or private veterinary organizations (see 3.1.8).

The 30 ECTS of PPT are distributed through the 3rd, 4th and 5th years as follows:

- 6 ECTS rotations carried out in the CAVTH and in Hospitalization and ICU (at least 5 routine rounds during the 3rd year, at least 5 routine rounds during the 4th year, at least 2 routine rounds during the 5th year);
- 2 ECTS rotations carried out in the LAVTH during the 5th year;
- 1 ECTS of practical Ambulatory Clinics activity during the 5th year;
- 21 ECTS of intramural and/or extramural PPT divided as follows:
  - Veterinary Public Health including Microbiology and Immunology, Avian Pathology, Parasitology and Parasitic diseases (2 ECTS);
  - Small Animal Internal Medicine (2 ECTS);
  - Ruminants and Swine Clinics (1 ECTS);
  - Equine Internal Medicine and Sports Medicine (1 ECTS);
  - Surgery, Anaesthesiology and Radiology (3 ECTS);
  - Reproduction (2 ECTS);
  - Animal Production, including Animal Nutrition (4 ECTS);
  - Food Safety and Quality (4 ECTS);
  - Pathology including Necropsies (2 ECTS).

Since 2017-2018 AY, access to the subsequent year has been regulated. To be admitted to the following year, students must have acquired, by the end of the September exam session:

- at least 20 ECTS for the 2nd year;
- at least 70 ECTS for the 3rd year;
- at least 120 ECTS for the 4th year;
- at least 170 ECTS for the 5th year.

The rule has been applied starting from AY 2018-2019 for the enrollment to the 2nd year and will be fully applied in the next 4 years.

3.1.2. Description of the legal constraints imposed on curriculum by national/regional legislations and the degree of autonomy that the Establishment has to change the curriculum

Two are the main relevant laws regulating Italian University curricular programmes:

1. the Ministerial Decree n° 509 enacted on 1999 (MD 509/1999),
2. the Ministerial Decree n° 270 enacted on 2004 (MD 270/2004).

The first law, MD 509/1999 fully reformed the Italian university educational system to meet the objectives of the “Bologna process”. The most relevant changes introduced by MD 509/1999 are:

- Replacement of the traditional undergraduate courses lasting 4 and 5 years with a two-level system. The 1st level degrees lasting 3 years (Bachelor), and the 2nd level degrees lasting 2 additional years (Master). Exceptions to this rule are the degree courses in Medicine and Surgery, Pharmacy, Chemistry and Pharmaceutical Technology, Veterinary Medicine, Architecture and Law that are Single Cycle degree courses with a 5 year (Pharmacy, Architecture, Law and Veterinary Medicine) or 6 year (Medicine and Surgery) curricula.
- Introduction of the University Learning Credit-*Credito Formativo Universitario* (CFU) system. CFU, similar to the European Credit Transfer System (ETCS), measuring the total amount of coursework in terms of hours of study and tuition. One CFU corresponds to 25 hours of work. At the UNIMI 1 CFU corresponds to 1 ECTS.

According to MD 509, the curriculum of the VMDP has a 5 year duration and consists of a total of 300 CFUs/ECTS with a mean of 60 credits per year.

MD 270/2004 establishes that the percentage of individual/self- learning for each CFU is determined by the Teaching Regulation of each University. Moreover, MD 270/2004 defines:

- The minimum number and type of scientific/cultural disciplinary areas (*Settore Scientifico Disciplinare* – SSD) - defined by the MD of 4th October 2000 - to be included in the VMDP.
- The minimum number of CFU/ECTS for basic (54 CFU) and characterizing (130 CFU) subjects and for the PPT(30 CFU). The basic and characterizing subjects are sub-divided into general areas. Each general area includes a group of disciplines. The MD 270/2004 establishes the minimum number of CFU for each general area.

Italian Law 240 of 30 December 2010 and Legislative Decree 219 of 27 January 2012 introduced the National Quality Assurance System for accreditation and periodical evaluation of Italian Universities. The National Agency ANVUR (*Agenzia Nazionale di Valutazione dell'Università e della Ricerca*) is the body committed to the evaluation of Universities. The role of ANVUR in the evaluation system has been detailed by the Presidential Decree 76 of 1 February 2010.

The accreditation process is divided in three steps:

1. An internal process of self-evaluation resulting in the production of a written report assessed by the Quality Assurance System of each University;
2. An external evaluation of the QA reports and a direct evaluation of the each establishment by an Expert Committee. The Committee of Evaluation Experts (CEV), appointed by ANVUR, for a medium sized University (50 – 100 Degree Programmes) is composed by 5 system experts, 4 subject-specific teams, each composed of 2 subject-specific experts and one system expert as Team Chair, 2 students and 2 ANVUR representatives. The external evaluation process ends with a written report;
3. ANVUR prepares a visitation report, providing an opinion within 45 days of receiving the Final report from CEV.

The main documents for the self-evaluation internal process are:

- The *Scheda Unica Annuale* of the Degree Programme (SUA-Cds) – This document details the characteristics of the Degree Programme; it is produced by the DPC and is annually updated, by reporting any major changes in the Degree Programme. The document is the basis for the QAC actions.
- The Annual Review Report (ARR) now called *Scheda di Monitoraggio Annuale* is produced by the ARR Group and critically evaluates the different aspects of the Degree Programme and is discussed and approved by the VMTC. In the ARR and the new *Scheda di Monitoraggio Annuale* are reported the main inputs for corrective actions and changes to the curriculum.

3.1.3. Description of how curricular overlaps, redundancies, omissions and lack of consistency, transversality and/or integration of the curriculum are identified and corrected

Following the student teaching evaluation questionnaires (every year) and internal and external stakeholders, feedbacks, the JC and CAI assess periodically the teaching objectives and programmes and, together with the

DPC, the ARR Group, and the QA Coordinator, provide recommendations for changes or corrective measure to be performed in the short time. Minutes of the VMTC and DB meetings are accessible to the administrative staff in a web based document storage system (Archiflow).

A major revision of the veterinary curriculum is planned for 2019.

3.1.4. Description of the core clinical exercises/practicals/seminars prior to the start of the clinical rotations

During the 2nd year, Animal production and Animal husbandry courses provide students with training on how to perform physical examinations on healthy animals and to evaluate animal welfare. In Veterinary Physiology II course, students learn to handle and restrain livestock animals (bovine and swine). In Physiology courses, practical training consists of laboratory activity (ECG, CBC and clinical chemistry analysis and laboratory analyses on milk, rumen fluid, semen samples) and, seminars on nervous system, cardio-circulatory and skeletal muscle physiology using interactive DVDs. In Clinical Biochemistry course practices, laboratory and computer rooms are dedicated to develop skills in laboratory techniques and calculations routinely used in clinical laboratories. In General Veterinary Pathology, Veterinary Microbiology and Immunology courses the aim of seminars and laboratory practices is to train students on handling blood samples, perform blood sample analysis and the main immunodiagnostic techniques. Students are also trained on critical evaluation of the results.

During the 3rd year, in the integrated course of Veterinary Parasitology and Parasitic Diseases, students, divided in small groups, are trained to handle, restrain and perform basic physical examination in pets (dog) and large animals (bovine) and to collect biological samples (blood and feces). In the laboratory, students perform the diagnostic parasitology techniques on the samples they have collected in kennels and herds. In Special Anatomical Pathology I and II, seminars and practicals in the necropsy room provide students with knowledge and skills on how to evaluate pathological organs from slaughterhouses, to perform a gross pathology morphological diagnosis, and when necessary, to provide a list of possible differential diagnoses. Students perform necropsies and learn to correctly collect the animal history, to determine animal death causes, to write a report of the gross lesions observed employing the correct terminology, to collect and deal with biologic samples for histopathology, toxicology and bacteriology aimed to the correct pathological diagnosis. In the Veterinary Pharmacology course seminars provide knowledge on drug prescription and how to report drug adverse reactions (pharmacovigilance).

During the 4th year, in the practicals of Veterinary Anesthesiology and Surgical techniques, students are trained on pre-surgical, surgical and post-surgical management of patients, principles of surgical asepsis, use of surgical instruments and surgical techniques. Medical and Surgical Propaedeutic courses provide students with the skills for clinical examination, for a logical approach to the evaluation and the interpretation of patient's clinical signs and are trained to basic ultrasonography. Most practicals are organized for small groups of students, working on animal cadavers and organs, animal models, propaedeutic animals, and VTH clinical cases. Veterinary Radiology and Nuclear Medicine subjects train students on basic techniques of radiographic projections and the diagnostic imaging approach to clinical cases. In Veterinary Medical Pathology and Clinical Epidemiology, students are trained on the evaluation of clinical signs, to the diagnostic procedures (including the laboratory tests and imaging) useful for the diagnosis of the more common internal medicine diseases. In Veterinary Obstetrics and Pathology of Reproduction and Artificial Insemination courses, students are trained on collection, preservation and analysis of biological samples, pregnancy diagnosis and discuss clinical cases selected from the VTH records. Some of the practical activities are organized as teamwork seminars, clinical case-solving and laboratory desk activities. In these core clinical practical subjects, students are organized in groups of 20, sub-divided in 3 to 5 students/group.

3.1.5. Description (timing, group size per teacher, ..) of the core clinical rotations and emergency services (both intramural VTH and ambulatory clinics) and the direct involvement of undergraduate students in it (responsibilities, hands-on versus observation, report writing, ...)

Core clinical activities are provided by: core clinical course practicals, intramural VTH Hospitalization and ICU activities, Ambulatory Clinics and Clinical PPT.

Practical rotations of clinical courses are scheduled in the 9th semester of the VMDP. For clinical subjects, practicals are organized on the same days of the week, and students (6-8 students/group) are able to rotate

in all the clinical subjects (see Appendix 7). During these practicals, each group is further subdivided in two sub-groups of 3-4 person/group and, under the supervisor of the teaching staff, trained to perform the specific clinical activity. Every group of students attends practicals of the specific clinical subject only once, for one or two consecutive days, from 8.00 a.m. to 5.00 p.m. with an hour break for lunch, for a total of 8-16 hours/student per clinical activity. On alive animals, the students are trained to collect patient's signalment and the complete patient history, and to perform the clinical examination. Supervised by the academic staff, students summarize and evaluate the recorded data, and plan further investigations involved in the diagnostic work-up, suggest list of differential diagnosis with corresponding therapies and prognoses, and schedule patient follow-up. When applicable, students perform (or participate to) the diagnostic and surgical procedures. Moreover, under the teacher supervision, students write the clinical report and medical prescriptions, as well as inform the owner on patient management. During these activities, students are also trained to discuss and to report the clinical case to colleagues. Students' clinical activities imply also training on animal models, simulators and cadavers, providing the possibility to attain practical skill, confidence with patients and instruments and, with diagnostic and surgical procedures. Additional activities are organized in the teaching room, with attendance of all students to seminars or desk based work. In these activities, students are grouped in small "team" (3 students/group) and discuss simulated clinical cases, providing decision-making process and a detailed work-plan for the management of cases. The organization of the 5th year clinical rotations for the 2018-2019 AY is provided in Appendix 7.

Intramural VTH Hospitalization and ICU activities are part of the PPT and involve students of the 3rd, 4th and 5th year. As stated above (see. 3.1.1) students attend Hospitalization and ICU at least for 5 routine rounds during the 3rd year, at least for 5 routine rounds during the 4th year, at least for 2 routine rounds during the 5th year. Students (2-3 per round) are included in 12 hour shifts and participate to the clinical rotations in conjunction with the referral veterinarian (external collaborators). During day-time clinical shifts student are actively involved in the Hospitalization and ICU services.

Ambulatory Clinics is also included in the clinical course practical rotations during the 9th semester. In addition, Ambulatory Clinics is part of the PPT and is scheduled as a routine activity during the 9th and 10th semesters. Eight external practitioners and the VTH staff are enrolled in the Ambulatory Clinics activities. These activities are regularly scheduled once a week, and concern horse and cattle clinical on-field, one-day clinic services and Veterinary Public Health. Six to eight students participate to each visit.

During the last academic year of the curriculum, when students do not have to attend courses, the core PPT is carried out, in the following topics:

- Veterinary Public Health including Microbiology and Immunology, Avian Pathology, Parasitology and Parasitic diseases (2 ECTS);
- Small Animal Internal Medicine (2 ECTS);
- Ruminants and Swine Clinics (1 ECTS);
- Equine Internal Medicine and Sports Medicine (1 ECTS);
- Surgery, Anesthesiology and Radiology (3 ECTS);
- Reproduction (2 ECTS);
- Animal Production, including Animal Nutrition (4 ECTS);
- Food Safety and Quality (4 ECTS);
- Special Anatomical Pathology including Necropsies (2 ECTS).

As reported above, 9 ECTS of the clinical PPT are allocated to Companion Animal Veterinary Teaching Hospital (CAVTH, see chapter 4). Hospitalization and ICU, Large Animal Veterinary Teaching Hospital (LAVTH, see chapter 4) and Ambulatory Clinics scheduled in the 3rd, 4th years and the 1st semester of the 5th year.

As reported in section 3.1.1., students can carry out intra- or extramural PPT. The EPT is voluntary and based on student request. During the PPT, small groups of students (max 6 students/group) attend the activities at the VTH, from 8.00 a.m. to 5.00 p.m. Under the clinical staff supervision, students are directly involved in hands-on patient management, diagnostic and therapeutic procedures and report writing. The Facilities recognized by the Establishment for EPT are listed in Appendix 8.

3.1.6. Description (timing, group size per teacher,..) of the teaching in slaughterhouses and in premises for the production, processing, distribution/sale or consumption of food of animal origin

Specific training on Food Hygiene is provided in the courses of Inspection of food and feedstuff, Food hygiene and food microbiology, Practical work in slaughterhouses and food processing plants, Food technology including analytical chemistry (4th year, Semester 7th).

Food Safety and Quality teaching are provided by two integrated courses and scheduled at the 4th year of the curriculum. Their modules are: Industries and Animal Feedstuff, Food Hygiene and Technology, Meat Inspection, Fish Inspection, Practical work in Slaughterhouses.

Practicals include supervised self-learning and seminars activities. During the supervised self-learning activities, each student has to write a report after reading a scientific paper chosen within the on line public access catalogue, following teachers approval. This activity implies the use of the Portfolio tool in ARIEL (4 hours/student, see section 6.1.3), the study, the report writing and the correction by the teacher (additional 4 hours/student). Each student has also to focus on the study of a commercial (food) product and its label, choosing a pre-packing animal origin product, and to study its related preservation techniques (4 hours/student), with the description of related legislation. This report is corrected by the teacher (4 hours/student) through the Portfolio tool in ARIEL (see section 6.1.3). Additional activities are organized in the teaching room, with attendance of all the students as seminars or desk based work. In these activities, groups of students focus on food hygiene and labelling (4 hours/student), participate to workshops on microbiology applied to food of animal origin with a final self-assessment test (2 hours/student), focus on food hygiene practical work (2 hours/student). Students have also to participate to a workgroup to be submitted to Portfolio tool (6 hours/student) including: bibliographic research, identification of suitable foodstuffs microbiological criteria of investigation, food safety criteria and hygiene process criteria, mandatory and optional criteria, provision of a written report and of a short power point presentation. A presentation in the classroom with the attendance of the food microbiologist follows (2 hours).

In another part of the practicals assigned to meat and fish inspection, activities are organized in 6 groups of about 15 students/group as follows:

- Meat inspection:
  - Inspection of organs – carcasses in the necropsy room – 5 times (of 1 hour each) for each group: 3 cases are evaluated by subgroups of students and all the cases are discussed with the teacher by the whole group;
  - Inspective cases – images – 5 times (of 1 hour each) for each group: 1 case is faced singularly by the students by a written test, and is then discussed with the teacher by the whole group;
  - Practical case (e.g. law application) – 1 time for each group: the case is faced by each group, and is then discussed with all the students and the teacher;
  - Practice at the slaughterhouse – 1 time (6 hours) for each student: single students or small groups (2-3 students) follow the activity of the official veterinarian at the slaughterhouse.
- Inspection of fishery products:
  - Inspection of fish (species detection) in necropsy room – 5 times (of 1 hour each) for each group: 3 cases are alternative faced by the subgroups of students by themselves, and all the cases are discussed with the teacher by the whole group;
  - Inspection of shellfish (species detection) – 3 times (of 2 hours each) for all the students, with a discussion with the teacher by the whole class;
  - Practical case (e.g. law application) – 1 time for each student: the case is faced by each student, and is then discussed with all the students and the teacher;
  - Visit at the fish market: 8 visits every year, for groups of max 20 students (voluntary participation).

The PPT includes 4 ECTS (100 hours/student) of Food Safety and Quality intramural or extramural activity. PPT is carried out under the supervision of state veterinarians or academic staff at the slaughterhouse and other premises (dairy, meat production facilities, etc), and in laboratory by attendance of individual students or small groups of two students.

The subjects of the curriculum that provide specific training on Veterinary Public Health are: Infectious Diseases of Domestic Animals I, Avian Pathology, Infectious Diseases of Domestic Animals II, Veterinary Public Health and Tropical Diseases, Veterinary Epidemiology (3rd year, Semester 6th).

Practical training of subjects concerning Veterinary Public Health mainly consists of seminars with attendance of all students. Main topics of seminars include: Knowledge of the National and International Organizations involved in Public Health and Zoonoses monitoring, prophylactic and immunization schedules of swine and bovine, diagnostic procedures for infectious diseases and presentations given by invited veterinary practitioners of swine breeding. Other seminars provide with information on infectious diseases of pets, biosecurity and vaccination schedules of broiler breeders, broilers layers, and turkeys. Part of the practicals of the avian pathology course consists in necropsy room work (4 rotations where groups of 20 students, subdivided in groups of 3-4 students, perform necropsies of poultry and, less frequently, of wild birds). At least 1 necropsy/rotation is performed by each student.

The PPT includes 2 ECTS (50 hours/student) of Veterinary Public Health intramural or extramural activity. PPT is carried out under the supervision of academic staff in the diagnostic microbiology laboratories, avian pathology laboratory and necropsy room.

3.1.7. Description of the selection procedures of the Electives by the students and the degree of freedom in their choice (e.g. what happens when too many students select one specific track)

Elective activities are planned in the 10th semester and a list of subjects is provided to the students before the beginning of the 5th Academic Year. Electives are integrated courses mainly based on practical activities, composed of different modules and finalized to the general aim of each course. A list of the electives planned and activated in the last three AYs is reported in **table 3.1.3.1**. Each course is proposed by one or two teachers who act as "main teachers", they plan the course and the different modules involving other teachers, and establish the maximum acceptable number of students. For each elective course, a maximum number of students (ranging between 5 and 12) is defined, in order to allow the adequate teaching activity, depending on the discipline. Only courses chosen by at least 5 students are activated. The 5th year on-course and repeater students (for definitions see section 7.1.4), that have completed all the exams of the 3rd year, may apply for the electives. Students must submit an application within mid December, indicating three preferences in order of choice. Afterward, the TO provides a student's ranking list based on the number of passed exams, the mean examination score, and on the year in which they are attending courses. A committee composed of DPC and student representatives distribute students, according to the ranking, among the different courses by matching the preferences of the students with the number of places available. The ranking and assignment are published on the website. Seldom all three elective course choices are not matched. In these cases the TO contacts the student and offers an option among electives with still available places. The number of students attending electives during the last three AYs is reported in **table 3.1.3.2**. Curriculum hours taken as electives for each student is reported in **table 3.1.3.3**.

3.1.8. Description of the organisation, selection procedures and supervision of the EPT

EPT is a non-mandatory part of the 30 ECTS curricular PPT. Students can accomplish a maximum of 11 ECTS of practices in external public or private institutions (e.g., veterinary clinics, veterinary hospitals, companies, academic institutions, scientific centres, administration institutes, etc.) in any of the areas linked to the veterinary profession. The list of Institutions that have signed agreements with UNIMI and Career Guidance Centre (COSP) is reported in Appendix 8.

The EPT procedures are as follows:

1. COSP registration of external institutions following recognition of the competences by academic supervisors;
2. planning of EPT programme by the external supervisor approved by the academic supervisor;
3. EPT activities carried out under the guidance of the external supervisor and recorded in the logbook;
4. EPT logbook approval by the academic supervisor;
5. Definitive EPT approval by the TO and DPC.

3.1.9. Description of the procedures (e.g. logbooks) used to ascertain the achievement of each core practical/clinical activity (pre-clinical, clinical, ambulatory clinics, EPT) by each student

In past AYs, hardcopy logbooks were assigned to each student for: Ambulatory Clinics, clinical rotation at VTH (companion and large animals) and PPT. Student logbooks were approved by teaching staff and validated by the DPC.

Starting from AY 2018-2019, achievement of the Day One Competences is also monitored using a web-based mobile application.

The logbook records the achievements of the DOCs in all the requested areas of competence. Students have access to the logbook by a phone APP and the teaching staff will be responsible for the student's activities and logbook's approval. The final validation of the logbook is in charge of the DPC.
For the EPT, a further approval by the external tutor is also required.

3.1.10. Description of how (procedures) and by who (description of the committee structure) the core curriculum is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

As stated above, the curriculum is largely defined by the national law, and only some changes are possible at the University level.

In order to verify the compliance of DOCs provision to the students, as requested by the European Coordinating Committee on Veterinary Training and adopted by the EAEVE, the curriculum is periodically evaluated by internal and external bodies, especially to point out weaknesses needing corrections and improvement.

The ARR group is the UNIMI internal body that writes the annual self-assessment report. The aim of the ARR is to monitor progresses and improvements of teaching by assessing the efficacy of corrections proposed by the VMDC, to point out strengths and weaknesses that need improvement, to provide suggestions for corrections of weaknesses.

Meetings with internal and external (private practitioners; FNOVI, ANMVI, ENPAV representatives) stakeholders were held in 2016 in cooperation with the local IVSA section, and two times in 2017. Meetings were focussed on several aspects of veterinary medicine education, such as professional work perspectives, and especially the evaluation of the current curriculum provision of the DOCs to the students. On the basis of internal and external inputs, VMDC defines lines (short, mid and long-term) of actions. Short-term improvements have included corrections of syllabuses and organization of seminars on topics not introduced in the current VMDP, such as bioethics. The mid- and long-term corrections will take into consideration suggestions provided by the ARR, by the stakeholders and, by the 2019 EAEVE committee and will be the basis for the major revision of the curriculum scheduled in 2019.

Table 3.1.1. Curriculum hours in each academic year taken by each student

ACADEMIC YEAR	A	B	C	D	E	F	G	H
Year 1	400	8	20	96	24	-	12 Herd visits	**560**
Year 2	376	40	-	64	16	8*	32 Herd visits	**536**
Year 3	352	140	-	30	43	7	4 Herd visits	**576**
Year 4	296	32	39	87	47	45	6 Slaughter-house visits	**552**
Year 5	160	38	-	20	-	70	-	**288**
PPT #				125	65	500	60	**750**

A: lectures; B: seminars; C: supervised self-learning; D: laboratory and desk based work, E: non-clinical animal work; F: clinical animal work; G: others (specify); H: total
* Clinical/pre-clinical animal work.
# Students attend minor part of PPT during 3rd and 4th year and most of PPT during 5th year.

Table 3.1.2. Curriculum hours in EU-listed subjects taken by each student

SUBJECTS	A	B	C	D	E	F	G	H
Basic subjects								
Medical physics	24							**24**
Chemistry (inorganic and organic sections)	16		16					**32**
Animal biology, zoology and cell biology	24							**24**
Feed plant biology and toxic plants	48							**48**
Biomedical statistics	16			40				**56**
Basic Sciences								
Anatomy, histology and embryology	160			24	39			**223**
Physiology	104	6		18		8		**136**
Biochemistry	96	8		40				**144**
General and molecular genetics	24							**24**
Pharmacology, pharmacy and pharmacotherapy	32	8		8				**48**
Pathology	120	14		22	38			**194**
Toxicology	32							**32**
Parasitology	56	4		21		7		**88**
Microbiology	16	4		12				**32**
Immunology	16	10		6				**32**
Epidemiology	22	22						**44**
Professional communication		2			1			**3**
Animal ethology	32							**32**
Animal welfare	3							**3**
Animal nutrition	56	44				25	29	**154**
Clinical Sciences								
Reproduction and reproductive disorders	72	24	8	23	9	16		**152**
Diagnostic pathology	8	12		16	20			**56**
Medicine and surgery including anaesthesiology	170	22		54	15	63		**324**
Clinical practical training						434		**434**
Preventive medicine	48	24		30	18		10	**130**
Diagnostic imaging	16			16				**32**
State veterinary services and public health	24							**24**
Veterinary legislation, forensic medicine and certification	8	8						**16**
Therapy in all common domestic animal species	24							**24**
Propaedeutics of all common domestic animal species	48			8	4	36		**96**
Animal Production								
Animal Production and breeding	13	8					8	**29**
Economics	24							**24**
Animal husbandry	80	8	4			25	61	**178**
Herd health management	16	16						**32**
Food Safety and Quality								
Inspection and control of food and feedstuff	46	4	3		21			**74**
Food hygiene and food microbiology	20	4	12	70				**106**
Practical work in slaughterhouses and food processing plants					28		6	**34**
Food technology including analytical chemistry	28		16					**44**

(continue on next page)

Table 3.1.2. Curriculum hours in EU-listed subjects taken by each student *(continue)*

SUBJECTS	A	B	C	D	E	F	G	H
Professional Knowledge								
Professional ethics	4	4						**8**
Veterinary legislation	12	4						**16**
Veterinary certification and report writing*	2	4			2	16		**24**
Communication skills	24							**24**
Practice management & business**								
Information literacy & data management				8				**8**
	1584	**264**	**59**	**416**	**195**	**630**	**114**	**3262**

**Seminars on Forensic medicine by the VMDP often in collaboration with Lawyer and Forensic human medicine are organized every year but the subject is not included in the core of the current curriculum
*A seminar on practice management is organized every year to fill the DOC gap but is not included in the core of the current curriculum

Table 3.1.3.1. Electives planned and activated in the last 3 AYs

SUBJECTS	AY 2017-2018	AY 2016-2017	AY 2015-2016
Small animal diseases: diagnosis and therapy	Yes	Yes	-
Small animal internal and behavioural medicine	Yes	Yes	Yes
Management and clinic of sport horses	-	Yes	-
Ultrasonography and endoscopy in companion animals (small animals and sport horses)	Yes	Yes	-
Practical approach to management and health of livestock	-	-	Yes
Veterinary anaesthesiology and analgesia	-	Yes	Yes
Bovine health management	Yes	-	-
Diagnosis and therapy of soft tissue diseases in dog and cat	Yes	Yes	Yes
Anatomical based surgery and techniques	Yes	Yes	Yes
Small animal reproduction	-	Yes	Yes
Veterinary oncology	Yes	Yes	-
Clinical pathology	Yes	Yes	-
Diagnostic and prophylactic approach to infectious diseases of pet animals	Yes	Yes	Yes
Food without frontiers: the role of veterinarian in inspection and control of food	-	Yes	Yes
Nutrition for prevention and longevity	-	Yes	-
Wildlife health management	Yes	Yes	-

Table 3.1.3.2. Number of student attending electives activated in the 3 last AYs

SUBJECTS	AY 2017-2018	AY 2016-2017	AY 2015-2016	Total
Small animal diseases: diagnosis and therapy	6	6	-	**12**
Small animal internal and behavioural medicine	6	6	6	**18**
Management and clinic of sport horses	-	5	-	**5**
Ultrasonography and endoscopy in companion animals (small animals and sport horses)	7	5	-	**12**
Practical approach to management and health of livestock	-	-	8	**8**
Veterinary anaesthesiology and analgesia	-	7	7	**14**
Bovine health management	10	-	-	**10**

(continue on next page)

Table 3.1.3.2. Number of student attending electives activated in the 3 last AYs *(continue)*

SUBJECTS	AY 2017-2018	AY 2016-2017	AY 2015-2016	Total
Diagnosis and therapy of soft tissue diseases in dog and cat	6	6	6	**18**
Anatomical based surgery and techniques	8	8	6	**22**
Small animal reproduction	-	12	12	**24**
Veterinary oncology	5	9		**14**
Clinical pathology	8	8		**16**
Diagnostic and prophylactic approach to infectious diseases of pet animals	10	10	6	**26**
Food without frontiers: the role of veterinarian in inspection and control of food	-	8	8	**16**
Nutrition for prevention and longevity	-	6	-	**6**
Wildlife health management	8	8	-	**16**
Total	**74**	**104**	**59**	**237**

Table 3.1.3. Curriculum hours taken as electives for each student

SUBJECTS	A	B	C	D	E	F	G	H
Small animal diseases: diagnosis and therapy	-	28	-	28	-	72	-	**128**
Small animal internal and behavioural medicine	-	11	-	22	-	95	-	**128**
Management and clinic of sport horses	-	28	10	12	6	72	-	**128**
Ultrasonography and endoscopy in companion animals (small animals and sport horses)	-	48	-	-	-	80	-	**128**
Practical approach to management and health of livestock	-	36	4	6	10	40	32	**128**
Veterinary anaesthesiology and analgesia	-	16	-	-	-	112	-	**128**
Bovine health management	-	31	-	-	-	62	35	**128**
Diagnosis and therapy of soft tissue diseases in dog and cat	-	8	-	16	-	104	-	**128**
Anatomical based surgery and techniques	-	12	-	-	102	14	-	**128**
Small animal reproduction	-	35	-	24	5	64	-	**128**
Veterinary oncology	-	14	-	82	-	32	-	**128**
Clinical pathology	-	-	-	128	-	-	-	**128**
Diagnostic and prophylactic approach to infectious diseases of pet animals	-	68	-	51	-	-	9	**128**
Food without frontiers: the role of veterinarian in inspection and control of food	-	21	2	29	8	-	68	**128**
Nutrition for prevention and longevity	-	64	16	4	-	22	22	**128**
Wildlife health management	-	62	7	13	14	-	32	**128**

Electives A B C D E F G H A: lectures; B: seminars; C: supervised self-learning; D: laboratory and desk based work, E: non-clinical animal work; F: clinical animal work; G: others (specify); H: hours to be taken by each student per subject group

Table 3.1.4. Curriculum days of External Practical Training (EPT) for each student

SUBJECTS	Minimum duration (weeks)	Year of programme	Number of students attending EPT*
Companion Clinical	3 to 4 weeks (100 hours)	5	29
Production Clinical		5	1
VPH		5	1
Erasmus Clinical		4 - 5	31
FSQ		5	5
Companion Pre-Clinical		5	1
Production Pre-Clinical		5	
Erasmus Pre-Clinical		4 - 5	2
Other - Production		5	2
Other - Companion		5	19

*EPT is not mandatory at the Milano VMDP thus, the number of students training via EPT has been listed.

Table 3.1.5. Clinical rotations under academic staff supervision (excluding EPT)

TYPE	LIST OF CLINICAL ROTATIONS	DURATION (HOURS)	YEAR OF PROGRAMME
Intramural VTH			
Small Animal Medicine	Dermatology Cardiology Urology Endocrinology Neurology Ophthalmology Gastroenterology Respiratory diseases Nutrition Behaviour Oncology Exotic pets medicine	106	4–5
Hospitalization and ICU		150	3-5
Infectious and Parasitic Diseases		78	3-5
Small Animal Surgery	Soft Tissues Surgery Orthopaedics Neurology Ophthalmology Gastroenterology Respiratory diseases Oncology surgery Exotic pets surgery	75	4–5
Small Animal Reproduction	Obstetrics Gynaecology Andrology Neonatology	98	4–5
Small Animal Anaesthesia	Diagnostic procedures Surgical procedures	41	4–5
Diagnostic imaging	Radiology Ultrasonography CT and MRI	49	4–5

(continue on next page)

Table 3.1.5. Clinical rotations under academic staff supervision (excluding EPT) *(continue)*

TYPE	LIST OF CLINICAL ROTATIONS	DURATION (HOURS)	YEAR OF PROGRAMME
Diagnostic laboratories (included in various disciplines, but not quantifiable)			
Large Animal Clinic	Equine: Pulmunology Gastroenterology Cardiology Dermatology Oncology Neurology Orthopaedics Nephrology Endocrinology Reproduction and Surgery Sport medicine service Bovine: Neonatal calf diseases Reproduction and surgery	146	4–5
Necropsies and Pathology		70	3–5
Ambulatory Clinics			
Large Animal		8	5
Herd Health		8	5
FSQ & VPH			
Visit to slaughterhouses and food industries		85	4–5
Pathology applied to food inspection		10	4
Electives			
Small animal diseases: diagnosis and therapy		100	5
Small animal internal and behavioural medicine		117	5
Ultrasonography and endoscopy in companion animals (small animals and sport horses)		80	5
Bovine health management		97	5
Diagnosis and therapy of soft tissue diseases in dog and cat		120	5
Anatomical based surgery and techniques		116	5
Veterinary oncology		114	5
Clinical pathology		128	5
Diagnostic and prophylactic approach to infectious diseases of pet animals		60	5
Wildlife health management		59	5
Others			
Rotation in Animal Production		152	1–5
Rotation as Collaborator Student (extra-curricular activities)		300	

3.2. Comments

PPT rules have changed in 2017 with the aim to train students in all subjects of the veterinary profession. However, EPT is not mandatory and this is considered a weakness.

Practical activity assessment will be improved significantly by the introduction of the new logbook designed to record DOCs. Monitoring of practical activities will also be improved with the full implementation of the new VTH electronic document archiving system.

Current schedule for clinical rotation was designed when students attended lectures and practicals both in Milan (lectures and companion animal practicals) and in Lodi (large animal practicals). The schedule of clinical rotations since the complete re-location of the facilities to Lodi is currently under revision to allow a better organization.

Training in handling and restrain animals begins in the 2nd and 3rd year. Clinical patient management is mainly restricted to the last years. In the first years of VMDP this activity should be increased. The complete re-location to Lodi will allow an increase in the clinical training of first year students at the CCVZS. In the last two AY, during the summer teaching break, 1st and 2nd year students have attended VTH activities on a voluntary basis; a minor part of this will become mandatory.

Among the strategies to improve student Day One Competences acquisition, the DIMEVET and VMTC aim to balance the live animal availability with the use of dummies and models for the acquisition of clinical skills. However, the availability of animal and organ models and dummies needs to be increased by regularly scheduled purchase.

Students group size enrolled in practicals is decreasing due to the following key factors: a) the division of students in small sub-groups attending clinical practicals; b) the reduced number of students admitted to the VMDP (based on MIUR regulations); c) the reduction of repeater students (students who have not passed the minimum mandatory exams and have re-enrolled in the same year: they can attend lectures and practicals). The recent introduction of a rule for student access to the following curriculum years will provide a better student career progression and will further reduce the size of student groups, especially in the last two years of the curriculum.

Meetings with internal and external stakeholders have provided with useful feedback on strengths and weaknesses of the current Degree Programme and the effective provision of DOCs to students. Corrections of syllabuses and organization of seminars on bioethics, management and legislation related to veterinary business and communication with clients and of forensic medicine matters have been undertaken as short-term improvements.

A major revision of curriculum scheduled for 2019 will include these subjects in the VMDP.

3.3. Suggestions for improvement

- Animal Production and Animal Nutrition (4 ECTS) and Food Safety and Quality (4 ECTS) parts of PPTs should be shifted to the 4th year, possibly allowing for an acceleration of students' career;
- mandatory EPT (at least 6 ECTS) will be introduced;
- the maximum threshold of EPT ECTS will be raised from 11 to 15;
- clinical rotations will be reorganized with clinical activities scheduled every morning from Monday to Friday with a more effective management of VTH activities for both students and staff;
- concerning clinical handling in the first years, at least a minor part of VTH activities will become mandatory for 1st and 2nd year students during the summer teaching break;
- handling of healthy animals will be increased within basic veterinary science subjects programmes;
- purchase of animal and organ models and dummies will promote student self-learning on main clinical procedures;
- external stakeholder feedback will be improved trough questionaries' submitted to veterinarians involved in the State exam;
- in compliance with the current Italian laws, the curriculum will be revised according to the suggestions of internal and external stakeholders, including subjects such as bioethics and, management related to veterinary business.

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ

4

Facilities and equipment

4.1 Factual information

4.1.1. Description of the location and organization of the facilities used for the veterinary curriculum

Facilities are designed to offer the best conditions for quality education and training, research and provision of services. Facilities were split between Milan and Lodi until September 2018; since October 2018 most are located in the new Lodi site and the move will be finalized in 2019 with the transfer of Departmental facilities and Scientific laboratories. The Lodi site is close to highway A1 (3.5 km) and it is well connected by public transportation with the Lodi city centre and the Lodi train station. Maps of the areas used for the VMDP are provided in Appendix 3. VMDP facilities are organised into a Teaching Area (Didactic spaces: lecture rooms, study spaces, premises for group work, laboratories for practical work, library, cafeteria, etc.), DIMEVET and VESPA Department spaces (academic and support staff offices, research laboratories) still undergoing construction in October 2018, the Veterinary Teaching Hospital (VTH), and the Teaching Farm (CZDS).

Department offices, research laboratories, the small animal anatomical room are under construction (October 2018) and some changes in the premises are foreseeable, and structural changes will be illustrated and amended during the visitation.

4.1.2. Description of the premises for lecturing, group work, practical work (Teaching area, 4,139 m²)

Premises for lecturing, group work, and practical work are located in the Teaching area and are listed in **Tables 4.1.1**, **4.1.2** and **4.1.3**.

A common multimedia display system is available. This includes monitors displaying class and exam schedules located next to each classroom. Monitors are connected with the UNIMI Easyroom software. Classrooms can be connected with the surgical suites of the VTH. The atrium of the building is equipped with a videowall consisting of nine 46" screens to allow viewing (e.g. graduation ceremonies) by a larger audience.

Table 4.1.1 Premises for lecturing

LECTURING				
Premise	**MAP Code***	**Room Code***	**Area m² (places)**	**Description and equipment**
Auditorium	02/04	T031	388 (350)	Multimedia system consisting of professional hardware and software equipment with the following functions: a) fixed and mobile microphone system and line array acoustic diffusers; b) viewing system based on 3 projectors with zoom optics and laser source acting on roll-up screens; c) lesson recording and replay system; d) wireless system for presentations and collaborative teaching (up to 255 users) allowing teacher/student interaction, handout distribution, connection of streaming sources; e) integrated 'room combining' system for bidirectional connection between the auditorium and the educational centre's classrooms in audio and video.
Thesis hall	02	T050	206 (190)	Equipment similar to the Auditorium with the following differences: viewing system consisting of a single video room projector and connection to the videowall in the atrium adjoining the hall.

(continue on next page)

Table 4.1.1 Premises for lecturing *(continue)*

LECTURING				
Premise	**MAP Code***	**Room Code***	**Area m² (places)**	**Description and equipment**
Classrooms	02/04	T001 T010 T011 2002 2003 2013 2014 2015 2016 2017 2018 2019 2024 2053 2061 2062	2016 (1 of 230; 1 of 125; 4 of 105; 10 of 20-55)	Same equipment as Auditorium room. All classrooms located in lecturing building.
Classroom	10A	T091 T093 T104	59 (45) 44 (63) 258 (218)	Located in Hospital building.
Classroom	14	1011	103 (72)	Located in the 1st floor of the Anatomical Pathology building.
Subtotal		**22**	**3,074**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

Table 4.1.2 Premises for group work

GROUP WORK				
Premise	**MAP Code***	**Room Code***	**Area m² (places)**	**Description and equipment**
Work group	04	2068 2069 2076	51 (15) 51 (15) 98 (35)	Multimedia system for frontal class and flipped teaching consisting of professional hardware and software equipment capable of performing the following functions: a) mobile microphone system and full range acoustic speakers for audio diffusion including amplifiers, equipment racks and accessories; b) interactive display system based on three large touch-screen monitors including complete collaboration suites. The system allows multiple users to share the display's tactile surface and work simultaneously on common projects, shared by both wired and wireless connection. Individual students must be able to interact through their personal devices (BYOD) and each interactive display can be connected, also remotely, with similar displays for joint work even from distant sites; c) speaker recording system for streaming and web conferencing; d) integrated 'room combining' system for bidirectional classroom connection with the education centre's other classrooms or remotely both in audio and video; f) digital automation system that enables all the room's functions (audio, video, recording, BYOD, lighting and darkening) to be activated and adjusted through simple programmable screens using a capacitive touch desk display which can be replicated on a mobile device, if room layout permits the chair/podium to be removed.
Subtotal		**3**	**200**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

Table 4.1.3 Equipment for practical work

PRACTICAL WORK				
Standard equipment available in each laboratory: 3 work benches, 2 refrigerators (clean and dirty material), 1 laminar or chemical flow Lockers (biology or chemistry labs), burners, refrigerated centrifuges, wash basins, base and wall cabinet sand shelves for storing materials, 3 ergonomic high ring chairs and 20-30 laboratory stools.				
Premise	**MAP Code***	**Room Code***	**Area m² (places)**	**Description and equipment**
Computer labs	05	3002 3003	101 (35) 108 (40)	Thirty-five desktop computers with internet connection. Multimedia training system for sound diffusion and video content projection.
Microscopy laboratory	05	3014	123 (48)	Forty optical microscopes for histological and cytological specimen examination. One microscope equipped with an integrated smart camera projecting specimens onto a digital or video screen. The microscopy laboratory includes one preparation room with basic equipment for microscopic slide preparation and storage.
	05	3037	90 (30)	Thirty optical microscopes for parasitology specimen examination. One microscope with similar characteristics equipped with an integrated smart camera enabling specimens to be captured and projected onto a digital or video screen. One epifluorescence microscope. The microscopy laboratory includes one preparation room with basic equipment for parasitology specimen preparation.
	05	3039	83 (30)	One optical multi headed microscope (15 multi-viewer teaching microscopes) enabling 15 people to view a specimen simultaneously.
Chemistry laboratories	05	3016 3026	145 (50) 156 (50)	Chemistry labs are equipped with a multimedia training system for sound diffusion and projection of video content.
Biology laboratories	05	3015 3027 3035 3036	125 (18) 74 (20) 122 (20) 100 (32)	These are equipped with refrigerated centrifuge, eppendorf benchtop microcentrifuge, spectrophotometer, colorimeter, thermostat incubator, thermostat bath, thermal cycler apparatus, electrophoresis equipment, rotary evaporator and autoclave apparatus.
Subtotal		**11**	**1,227**	
ANATOMY PRACTICAL WORK				
Premises	**MAP Code**	**Room Code**	**Area m² (places)**	**Description and equipment**
Anatomy lab	13	T004 T008	Overall 215	Consulting room (T004, 95 m², 48 students capacity) equipped with 8 tables for bone, skeleton and model study. The room has a multimedia training system for sound diffusion and projection of video content equipped with a simplified classroom automation system. Dissecting room (T008 85 m² with 40 student capacity), equipped with a general aspiration system, 7 conventional anatomic tables, 1 dissection table equipped with vacuum aspiration and a camera allowing dissections to be broadcast live to a large monitor located in the room. In this room, students perform dissections on organs and, large and small animal cadavers or parts of them. Hand and shoe sinks are present in the room. The room has: a fridge (10 m²) and freezer room (15 m²) for storing material used in practical activities; a teaching activity support room (18 m²); a small room for equipment storage. Two laboratories (35 m² overall) for cadaver preparation and/or tissue and organ sampling with a fume hood and a hazardous material storage cabinet.
Subtotal		**3**	**215**	
TOTAL		**39**	**4,716**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

4.1.3. Description of the premises for housing healthy, hospitalized, isolated animals (1,332.6 m²)

Healthy horses (4) are housed in the Large Animal VTH premises. Other species of healthy animals including: large and small ruminants, pigs, poultry and rabbits are housed in the Teaching Farm (see 4.1.4.6).

The premises for hospitalised companion (dog, cat, rabbit, rodents, birds, exotic pets), and for large animals are in two separated areas. The structural layout was designed to personnel, animal and biological material flows in compliance with biosecurity, hygiene and health regulations.

Premises for infectious companion (dog, cat, rabbit, rodents, birds, exotic pets), equine and farm animals are in a well-defined separate area. Specific rooms are available for each species/group of species. All rooms operate autonomously under forced airflow, through HEPA filters and with close circuit surveillance. All materials are stainless steel and disposable.

Table 4.2.1 Premises housing hospitalized animals

Hospitalized Animals	MAP Code*	Room Code*	Area, m²	No. places
Dog hospitalization room	09-D	T068	31.4	20
Rabbit, rodents, birds, exotic pets hospitalization room	09-D	T064	26.4	20 small mammals cages, 10 terrarium, 10 aquatic turtle tanks, 4 birds cages
Cat hospitalization room	09-D	T066 T057	30.1	18
Horse stables	11-B	T011 T019	232.2	13
Horse stables	11-A	T001	203	9
Horse stables (mares)	11-A	T004	82,8	4
Horse stables for nuclear medicine	11-A	T003	81	5
Cattle sheds	12-A	T004	230.5	18
Calf sheds	12-A	T002 T003	130.6	21
Sheep and goat sheds	12-B	T017	60.9	10
Pigsty	12-B	T018	72.8	8 multiple pens
TOTAL		**14**	**1,181.7**	**170**

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

Table 4.2.2 Premises housing isolated animals

Isolated Animals	MAP Code*	Room Code*	Area m²	No. places
Infectious disease room for dogs	09-D	T073	17.2	15
Infectious disease room for cats	09-D	T070	16.2	12
Infectious disease room for ruminants and pigs	012-B	T010	65	3
Infectious disease room for equines	011-B	T031 T029 T026 T023	52.5	4
TOTAL		**7**	**150.9**	**34**

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

4.1.4. Description of the premises for clinical activities

In the VTH, clinical activities are functionally divided into three areas:

1. Companion Animal (dog, cat, rabbit, rodents, birds, exotic pets) Veterinary Teaching Hospital (CAVTH);
2. Large Animal (ruminants, swine, equine) Veterinary Teaching Hospital (LAVTH);
3. Diagnostic Services for both CAVTH and LAVTH, divided into Diagnostic Imaging (excluded ultrasound, located in the Consultation area) and Diagnostic laboratories.

The VTH has a single administrative area. This administrative area was designed for three activities:

1. Reception and registration of clinical cases of all species;
2. Three separate waiting rooms for companion animals (dogs, cats and exotic animals);
3. Rooms for administrative staff and for VTH staff (VTH Director and VTH Veterinary Medical Director).

4.1.4.1 Companion Animal Veterinary Teaching Hospital

The CAVTH covers an area of 940.5 m^2 divided into 3 operational premises (Consultation, Surgery, Service areas). The Hospitalization rooms are listed in **table 4.2.1** and represent an additional operational premise.

Consultation area (a total of 191.4 m^2)

This area includes a total of 10 rooms for first opinion and emergency consultation, and for specialty consultations including: dermatology, neurology, oncology, ophthalmology, haematology, endocrinology, behaviour, nephrology and urology, soft tissue surgery and orthopaedics, hepatic diseases, respiratory diseases, gynaecology, obstetrics, andrology, neonatology. All rooms are fully equipped with specific instruments. One of these rooms is dedicated to urgent cases and furnished with an anaesthesia and an emergency equipment (Appendix 3, Maps 9A-ground floor, and 9B-ground floor).

Surgical Area (MAP Code 09-C, 411.3 m^2)

The surgical area is separated from main VTH consultation as a conformed surgical unit with clean area to dirty area flow of staff and students.

Table 4.3 CAVTH Surgical premises (MAP 09-D)

Surgical Premise (MAP 09-9D)	Room Code*	Area m^2	Equipment
Two surgical suites with 1 table for general surgery and contaminated surgery	T081 T082	120.1	Laparoscopy and arthroscopy tower. Ligasure, cutting and sealing devices for endoscopy surgery, 1 operating microscope. Full range of operating instruments, orthopaedics set. State-of-the-art anaesthetic and monitoring equipment. Operating room cameras are available for real-time surgery projection during lectures.
One surgical suite with 1 table for radiosurgery, mini-invasive surgery, ophthalmology surgery, microsurgery, orthopaedics	T086		
One surgical suite with 1 table for septic surgery, emergency surgery, dentistry and wound therapy	T084		
Two pre-surgical areas for perioperative management of surgical patients and patients in general anaesthesia for diagnostic procedures	T080 T083	62.1	3 tables and state-of-the-art anaesthetic and monitoring equipment.
One surgeon preparation room	T085	21	Four scrub suits.
One room for surgical instrument and materials cleaning and storage	T089	57	1 autoclave and 1 plasma sterilisation.
One locker room for academic staff (men)	T095	24.1	8 lockers plus a bathroom with shower.
One locker room for academic staff (women)	T099	21	6 lockers plus a bathroom with shower.
One locker room for students (men)	T103	19.2	8 lockers plus a bathroom with shower.
One locker room for students (women)	T107	14.1	6 lockers plus a bathroom with shower.

(continue on next page)

Table 4.3 CAVTH Surgical premises (MAP 09-D) *(continue)*

Surgical Premise (MAP 09-9D)	Room Code*	Area m²	Equipment
Drug warehouse	T088	9.2	Storage of anaesthetics drugs and narcotics in locked cabinets and refrigerators.
Warehouse	T091	5.9	Storage of surgical consumables.
Waste warehouse	T094	9.3	Storage of dirty surgical clothing and cloths before disposal.
Gallery*	1025	48.3	Space with seats and windows looking onto the four operating theatres from above.
TOTAL	**16**	**411.3**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

Service Area (337.8 m²)

The service area is separated from the surgical facilities and is composed of the following services: endoscopy, cardiology, ultrasound, resuscitation, chemotherapy, parturition and neonatal room, radiation therapy, and several service areas fully listed in the table below.

Table 4.4 CAVTH Service premises

Premise	MAP Code*	Room Code*	Area m²	Equipment
Endoscopy room	9-C	T053	14.7	Full range of endoscopy equipment, 1 table and state-of-the-art anaesthetics and monitoring equipment.
Cardiology room	9-C	T048	19.7	Full range of cardiology equipment, echocardiographic examination table, echocardiographic machine capable of performing two-dimensional, M-mode, colour and spectral flow Doppler imaging (MyLab 50 Gold Cardiovascular ESAOTE), ECG device bluetooth connected (Cardioline Clickecgbt), Holter device (Cardioline Cube ECG).
Ultrasound room	9-C	T049	18.4	-EsaOte MyLab70 ultrasound machine equipped with 4 probes (convex 1-4 MHz, microconvex 5-8 MHz, linear 4-12 MHz, linear 1-4 MHz), biopsy guide device, and modules for echocontrastography and real-time elastosonography. -Sonoace 8000SE ultrasound machine equipped with a microconvex 5-8 MHz probe.
Intensive Care Unit	9-C	T052	19.7	Fully equipped to perform emergency live saving operations including ventilatory treatment (O2 cages, Fluid pumps).
Chemotherapy room	9-C	T062	19	Fully equipped to perform antiblastic drug storage, preparation, treatment and disposal.
Parturition/ Neonatal room	9-D	T063	18.5	Thermoregulated room for correct management of peripartum dogs and cats and neonates.
Treatment room	9-D	T074	13.8	Consultation, management of drains medication bandages, wound management for hospitalized patients alone.
Radiation therapy/ Radiology	9-D	T077	26.3	Under construction.
Laundry and dog washing room	9-D	T067	18.1	Equipment for washing and sanitising pets' clothing and accessories, including a specific tub for washing and sanitising hospitalised dogs.
One locker room for academic staff (men)	9-C	T106	9.6	10 lockers plus a bathroom with shower.
Emergency laboratory	9-C	T065	11.34	Blood gases, fast blood chemistry, refractometers, centrifuges.

(continue on next page)

Table 4.4 CAVTH Service premises *(continue)*

Premise	MAP Code*	Room Code*	Area m²	Equipment
One locker room for academic staff (women)	9-C	T109	9.2	10 lockers plus a bathroom with shower.
One locker room for students (men)	9-C	T094	39.5	25 lockers plus a bathroom with shower.
One locker room for students (women)	9-C	T100	46.9	25 lockers plus a bathroom with shower.
Warehouse	9-C	T047	11.4	Storage for drugs and consumable materials at CAVTH, support consultation area and service area.
Technical staff room	9-C	T112	16.5	Room for clinical case discussion, club journals and academic staff meetings.
TOTAL		**18**	**337.8**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

4.1.4.2. Large Animal Veterinary Teaching Hospital (2,297.3 m²)

The Large Animal Veterinary Teaching Hospital (LAVTH) is divided into 3 operative premises: a clinic for ruminants and swine, an equine clinic and a surgical area. Two locker-rooms, respectively for men and women, are available for students attending Equine, Ruminant and Swine Clinics and containing 140 lockers plus a bathroom with a shower each.

Ruminant and Swine Clinic

This area contains a reception area, one examination room, two separate sheds for calves (each with 8 individual pens and 2 large pens), one shed for small ruminants, one shed for swine, a cattle shed for adult animals with 12 tie-stall places and 3 large, hoister-equipped boxes, a cattle shed with 3 large boxes separated by concrete walls, 3 boxes for infectious animal (divided using a specific structure to ensure isolation of infectious animals), a meeting room for clinical case discussion, club journals and academic staff meetings. A 180° tilted table for endoscopic treatment of left displaced abomasum or for endoscopy teat surgery and a motorized cow trimming chute is also present.

Table 4.5 LAVTH ruminant and swine premises

Premises	MAP Code*	Room Code*	Area m²	Equipment
Reception office	12-A	T006	15.8	Reception and mandatory registrations for food animals.
Examination room and standing surgery	12-A	T005	38.6	Examination room with stock for standing surgery. Two tables for the clinical examination of calves. Monitoring and anaesthetic equipment. Endoscopy and ultrasonography equipment.
Emergency laboratory	12-A	T009	11.6	Blood gases, fast blood chemistry, refractometers, micro- and macro-centrifuges.
Meeting room	12-A	T011	26.5	Room for clinical case discussion, club journals, staff meetings and to draft medical reports.
Shed for IBR free calves	12-A	T002	60.8	8 individual boxes, 2 large boxes and 1 mobile igloo for calves. Devices for clinical examination and medical procedures.
Shed for not IBR free calves	12-A	T003	55.7	8 individual boxes and 2 large boxes. Devices for clinical examination and medical procedures.
Shed for IBR free adult cattle	12-A	T010	51.0	3 large boxes. Devices for clinical examination and medical procedures.

(continue on next page)

Table 4.5 LAVTH ruminant and swine premises *(continue)*

Premises	MAP Code*	Room Code*	Area m²	Equipment
Shed for not IBR free adult cattle	12-A	T004	160.6	12 tie-stall places and 3 large, hoister-equipped boxes. Devices for clinical examination and medical procedures.
Shed for small ruminants	12-B	T017	69.7	11 individual boxes for small ruminants. Devices for clinical examination and medical procedures.
Shed for pigs	12-B	T018	72.8	7 boxes for pigs. Devices for clinical examination and medical procedures.
Area for functional and medical claw trimming, udder surgery and laparoscopy*	12-A 12-B	**	886	A 180° tilted table for endoscopic treatment of left displaced abomasum or for endoscopic teat surgery and a motorized cow trimming chute are present.
Drug warehouse	12-A	T011	7.0	Security cabinet
Warehouse	12-B	T016	12.0	Warehouse or instruments and consumables
Service room	12-A	T001	13.4	Washing room and milk preparation
Isolated animals	12-B	T033	65.0	3 isolation rooms for food animals. Devices for clinical examination and medical procedures.
TOTAL			**1,546.5**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.
**Located between 40A and 40B areas.

Equine Clinic

This area accommodates 16 boxes for inpatients (3.50 × 3.30 m), 6 boxes for intensive care (3.50 × 2.50 m), 4 boxes for foaling mares (3.75 × 3.20 m) equipped with a remote video surveillance system, a separated facility for infectious diseases (equipped with 4 boxes and a dedicated examination room), 3 examination rooms (including the one dedicated to infectious diseases only), three horse solariums, one treadmill room (140 m²) and a stall part for nuclear medicine with radioactive manure storage (5 boxes).

Table 4.6 LAVTH equine clinic premises

Premise	Map Code*	Room Code*	Area m²	Equipment
Reception office	11-B	T016	13.4	Reception and mandatory registrations for equine patients.
Meeting room	11-B	T016	13.4	Room for clinical case discussion, club journals, staff meetings and to draft medical reports.
Examination room, endoscopy and ultrasonography	11-B	T013	44.6	General examination room with stock equipped with endoscopes and ultrasound machines.
Examination room, standing surgery	11-A	T010	44.6	Examination room with stock for standing surgery equipped with laser and endoscopes.
Examination room infectious diseases	11-B	T020	38.6	Separated examination room with stock for infectious diseases with dedicated equipment.
Emergency laboratory	11-B	T012	11	Blood gases, fast blood chemistry, refractometers, micro- and macro-centrifuges.
Drugs warehouse	11-A	T006	8.9	Security cabinet.
Locker room	11-A	T002	10.3	10 lockers for staff.
Treadmill room	13	T001	140	Sato high-speed treadmill. Equipped with solarium, instruments for dynamic evaluation of equine patients.
Treadmill laboratory	13	T002	10.8	Equipment for blood lactate, blood gas analysis, cytology, muscle enzymes, muscle biopsy.

(continue on next page)

Table 4.6 LAVTH equine clinic premises *(continue)*

Premise	Map Code*	Room Code*	Area m²	Equipment
Drugs warehouse	11-B	T015	4.6	Security cabinet.
Room for endoscopic washer	11-B	T012	11	Olympus automated washing machine for endoscopes.
Warehouse for instruments and consumables	11-A	T006	8.9	Cabinets for sterile endoscope storage.
Saddle room	11-B	T014	11.2	Warehouse for technical equipment and for farriery equipment.
Isolated animals	11-B	T027	56.7	4 isolation boxes for horses. Dedicated equipment for clinical examination and medical procedures.
TOTAL			**428**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

LAVTH Surgical area

The surgical area is a well-defined area, separated from other VTH areas in order to reduce contamination risk with rooms near the operating rooms and regulated and directed flow of medical personnel, students and nurses.

Table 4.7 LAVTH Surgical premises (MAP 10-B)

Surgical Premise (MAP 10-B)	Room Code*	Area m²	Equipment
Two separate surgical rooms with 1 table for general surgery and contaminated surgery. One separate surgical room with stock for standing surgery	T040 T041	123.5	Laparoscopy and arthroscopy tower. Ligature, cutting and sealing devices for endoscopy surgery. Full range of operating instrument, orthopaedics set. State-of-the-art anaesthetic and monitoring equipment.
Two separate pre-surgical areas for perioperative management of surgical patients and patients in general anaesthesia for diagnostic procedures	T026 T045	75.2	State-of-the-art anaesthetic and monitoring equipment.
Two rooms for surgeon preparation	T036 T038	20.6	Scrub suits.
One room for surgical instruments and materials cleaning and storage	T037	40.8	2 autoclaves.
One locker room for staff (men)	T046	14.2	7 lockers plus a bathroom with shower.
One locker room for staff (women)	T054	10.9	5 lockers plus a bathroom with shower.
Drug warehouse	T053 T031	12.5	Storage of anaesthetic drugs and narcotics in locked cabinets.
Warehouse	T039	8.6	Storage of surgical consumables.
Meeting room	T034	16.5	Room for clinical case discussion, club journals and academic staff meetings.
TOTAL		**322.8**	

4.1.4.3. Diagnostic imaging service for CAVTH and LAVTH

This is a separate building serving both CAVTH and LAVTH that includes conventional radiology, CT Scan, MRI, nuclear medicine. Ultrasound for companion animals is in the CAVTH service areas.

Table 4.8 VTH common diagnostic imaging premises (excluding ultrasound) (MAP Code 10-B)

Diagnostic Imaging Premise (MAP 10-B)	Room Code*	Area m^2	Equipment
Conventional Large Animal Radiology	T008	42	Digital and computed radiography with a high frequency ceiling tube and portable tube system.
Conventional Small and Exotic Animal Radiology	T008	12.5	Digital radiography with an X-ray table, anaesthetics and monitoring equipment.
Computed Tomography X-rays	T014	42	Multi-slice scanner for small and exotic animals and standing horses (head); power contrast agent injector; anaesthetics and monitoring equipment.
Magnetic Resonance	T013	71	Low-field magnet for small, exotic and large animals; horse compatible MRI table; anaesthetics equipment.
Nuclear Medicine	T001	126	Ceiling pneumatic arm for the gamma camera used on equine patients; rotational system for small animals for both planar and SPECT examinations.
Film reading	T009	8	Two workstations with radiography display monitor, full access to RIS and Pacs.
TOTAL		**301.5**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of appendix 3.

4.1.4.4. Diagnostic premises

This is a specific and separate building serving both CAVTH and LAVTH.

Table 4.9 Diagnostic service premises

Premises	MAP Code*	Room Code*	Area m^2	Equipment
Necropsy, histopathology, biopsy processing, cytology	14 ground floor	T015 T016 T017 T027	155	This service is equipped with two necropsy rooms for: large animals (54 m^2); and poultry and rabbits (24 m^2). Microscopes, paraffin embedding vacuum system, tissue processing system, paraffin block preparation system, microtome, cryostat, storage system for paraffin blocks and stained sections. Cytology of all specimens including cytospin for thoracic and peritoneal fluid, synovial fluid, cerebrospinal fluids.
	13 ground floor	T31		Companion animal necropsy room (77 m^2) is under construction (November 2018).
Pathology	14 first floor	1014	30	Multi-head microscope (10 headed) including multi-head microscope with digital photography system
Clinical pathology	10-B first floor	1046	71	This laboratory is equipped to perform a wide range of biochemical and haematological analyses on small, large, laboratory and exotic animals. Automated analyses can be done on blood and serum samples: complete blood cell counts using a laser cell counter and immunophenotyping by flow cytometry; haemostatic function by coagulometer; metabolite, enzyme and ion detection by a biochemistry analyser; automated serum protein and urine electrophoresis. ELISA plate readers and spectrophotometers are also present for manual measurements. Two multi-head microscopes (one equipped with fluorescence lamp) allows microscopical analysis to be performed on various biological fluids (blood, urine, synovial fluid, Bronchoalveolar lavage fluid, cerebrospinal fluid, body cavity and ruminal fluids) and fine-needle aspirates.

(continue on next page)

Table 4.9 Diagnostic service premises *(continue)*

Premises	MAP Code*	Room Code*	Area m²	Equipment
Microbiology laboratory	10-B first floor	1047	26	Bacteriology and mycology services are provided, including pathogen isolation and identification from various clinical samples, and antibiotic sensitivity tests. Services for mastitis control, as well as for the evaluation and control of neonatal calf enteric infections, are also available.
Parasitology laboratory	10-B first floor	1049	26	Analysis of endo and ectoparasites of small animals, exotic and large animals.
Molecular diagnostic laboratory	10-B first floor	1048 1050	26 26	This laboratory provides a common service in which diagnostic systems based on nucleic acid amplification for viral, bacterial and parasitic diseases are developed and performed on various samples collected from small, exotic and large animals. The laboratories are equipped for conventional and quantitative PCR technology.
Preparation room	10-B first floor	1051	26	The laboratory is equipped with instrument for water filtration/purification, pH-meters, precision scales, and a chemical hood. This labs is used to prepare buffers, working solutions, culture media.
Washing/cleaning room	10-B first floor	1052	26	The room includes washing machines, autoclaves, refrigerators and other instruments to clean and store the laboratory equipments.
Reproduction laboratory	12-B ground floor	T030	198	Gynaecology and andrology laboratories provide clinical testing for small and large animals with reproductive and fertility problems and for assisted reproduction. The laboratories are equipped for ELFA hormonal analysis and ovulation time prediction, vaginal cytology for oestrus cycle monitoring, CASA and microscopic analysis for semen evaluation and for gamete manipulation, artificial insemination and embryo transfer, in vitro embryo production and gamete/embryo cryopreservation (semen chilling and freezing, oocytes and embryo freezing/vitrification).
TOTAL		**14**	**557.8**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of Appendix 3.

4.1.4.5. Slaughterhouses, food processing (and related premises)

The FVM has arrangements for teaching activities with many external slaughterhouses and the Milano fish market. These premises are at distances ranging from 22 to 130 km (**table 4.10**) from Lodi.

Table 4.10 Slaughterhouses and food processing premises

Slaughterhouses andfood processing plants	Location and distance from FVM	Species
VENEGONI	Boffalora S/T, 70 km	Pigs
IBS	Ardesio, 100 km	Pigs
NUOVA AGRICOLA CASEALPI	Scanzorosciate, 70 km	Pigs
COCAB	Pozzuolo Martesana, 30 km	Cattle
NAVA	Agrate Brianza, 40 km	Cattle
FUMAGALLI	Tavernerio, 80 km	Pigs
AVISCO	Rivolta d'Adda, 25 km	Poultry

(continue on next page)

Table 4.10 Slaughterhouses and food processing premises *(continue)*

Slaughterhouses and food processing plants	Location and distance from FVM	Species
MM	Palazzo Pignano, 20 km	Cattle
BIFFI	Castello Brianza, 65 km	Cattle
BRI.CON	Casatenovo, 55 km	Rabbits
INALCA	Ospedaletto Lodigiano, 22 km	Cattle
MACELLO PADANO	San Cipriano Po, 40 km	Cattle
STRIGIOTTI	Talamona, 130 km	Ruminants
ZARO	Lonate Pozzolo, 85 km	Cattle
SUN MEAT	Suno, 100 km	Pigs
PELLEGRINI	Peschiera Borromeo, 25 km	Deboning plant
FRATELLI RIZZI	Ghisalba, 54 km	Sausage production
SAN GIOVANNI	Palazzo Pignano, 20 km	Dairy plant
CASEIFICIO DEL CIGNO	Agadello, 23 km	Dairy plant
Fish market		
SOGEMI	Milan, 32 km	
DELANCHY	San Giuliano Milanese, 25 km	

4.1.4.6. Description for premises of the Teaching farm (CZDS, MAP 06)

CZDS covers an area of about 28,000 m^2, of which more than 5,000 m^2 are indoor, and includes 11 blocks (MAP Code 06). It provides farming for several animal species, feed and food processing, large and small animal stables. The teaching farm is divided in units for specific animal species and activities (**table 4.11**). Each unit is provided with rooms for sample preparation/data processing/storage. Units have locker rooms and bathrooms.

The CZDS has a food-processing unit (MAP Code 06, Block F). This structure includes a teaching laboratory with both meat and milk processing facilities equipped with the main tools students needed to perform product (**table 4.12**).

UNIMI has a dairy cattle farm that can be used for teaching by FVM. The farm, housing 180 lactating cows, is located in Landriano (Pavia), about 20 km from the Lodi site.

Table 4.11 Teaching Farm units and premises (MAP Code 06)

Teaching farm unit (Map 06)	Room Code*	Area, m^2	Equipment
Pig Unit	C	1,023	This unit covers the entire swine production cycle focusing on gestation, lactation (12 farrowing crates), post-weaning (2 rooms), and growing/fattening. One room is for boar semen collection for artificial insemination. A specific room is devoted to research activity with metabolic cages.
Poultry and Rabbit Unit	D	930	This unit focuses on poultry and rabbit breeding. It is equipped with 9 environmentally controlled rooms and one zone for artificial hatching egg incubation. The poultry breeding building focuses on growing animals and reproduction. The unit also include a Rabbit Sub-unit which can house 24 does and 128 growing rabbits.
Aquaculture Unit	D	150	The aquaculture unit has two totally separated recirculation systems for freshwater fish farming. Each of these contain drum filters, fixed-bed biofilters, pump reservoirs, protein skimmers, oxygen generators, UV sterilization lamps and water chillers. The first system is equipped with 18 round fiberglass tanks (400 L) and the second with 6 square fiberglass tanks (900 L). Each system is supplied with PC-controlled fish feeders and probes for recording the main physical parameters of water.

(continue on next page)

Table 4.11 Teaching Farm units and premises (MAP Code 06) *(continue)*

Teaching farm unit (Map 06)	Room Code*	Area, m²	Equipment
Beef Cattle Unit	E	768	This unit hosts beef cattle both on straw bedding (8 pens, 30 animals) and on slatted floors (2 pens, 15 animals) to teach students about the various beef cattle housing systems used in Italy. A specific area can host 10 animals in individual stalls for research activity.
Dairy Cattle Unit	G	936	This unit houses 36 lactating cows, 12 calves (individually housed outdoors) and 40 heifers/dry cows. Students follow all activities related to dairy cow management from calving to milk production. A feed and water intake research system allows complete individual control of dairy cow feed intake, also providing information about individual feed intake behaviour.
Dairy Cattle Unit Individual stall	H	292	This unit can house 16 dairy cows in individual stalls for research activities.
Apiary area	**	200	The area provides 12 hives.
Large Animal Stables	A	391	For pigs, cattle and small ruminants for experimental surgery, tissue and biological fluid sampling. This building focuses specifically on running research activities in accordance with specific protocols approved by the Ministry of Health.
Laboratory animals	B	527	This unit contains laboratory animals housing rats, mice, guinea pigs and rabbits. Like Block 1, this building focuses specifically on research in accordance with specific protocols approved by the Ministry of Health.
Feed Mill	I		Under construction
Hay storage	L		
Horizontal silos for silage	M		
TOTAL		**5,217**	

* Map and Room codes refer to the Code numbers of the Maps and of the room included in the maps of Appendix 3.
**Located in front of block L.

Table 4.12 Food processing plant units (MAP Code 06-1, Block F)

Food Processing plant unit (MAP 06-1)	Area, m²	Equipment
Meat processing unit	90	The unit is equipped for experimental small scale meat production: cold rooms for the storage of raw matter, machines for grinding, mincing and stuffing (for sausage making), drying and curing, smoking and meat cooking equipment (e.g. hams).
Milk processing unit	85	The unit is equipped for experimental small-scale dairy production: a cold room for storage, vat for curdling, equipment for curd draining, salting and drying.
Sensory analysis unit	95	The unit conforms to ISO 8589 and is equipped with 8 tasting booths, a professional kitchen for sample preparation, a room for judge training and an office for data processing and analysis.
Honeybee unit	40	The laboratory is equipped for honey collection and processing.
TOTAL	**270**	

4.1.5. Description of the premises for study and self-learning, catering, locker rooms, accommodation for on call students and leisure (3.309 m²):

Premises are listed in **table 4.13 and 4.14**. Lockers are located in the library corridor, 384 lockers, 96 columns (4 lockers per column) which can be electronically opened/closed are available.

Table 4.13 Premises for study and self-learning

Premise	MAP Code	Room Code	Area, m²
Library (Reading room)	04	2030	845 (261 places)
Book storage	04	2033 1004 T038	47 137 163
Room for photocopies and printing	04	2031	18
Rooms for study and self-learning	04 04	2054 T001	107 (36 places) 230 (96 places)
Microwave, dining area	04	T029	225 (70 places)
Historical Book Museum room	04	2034	120 (18 places)
TOTAL			**1,892**

Table 4.14 Premises for catering, accommodation students and leisure

Premise	Type	MAP Code*	Area, m²
Canteen	Teaching area	02	570
Cafeteria	Teaching area	02	72
Accommodation for students in training (student housing)	Five double plus one single room available at VTH	08	120 (total 11 places)
Cascina Codazza (MAP 15)			
Canteen		15	382
Leisure space (Cascina Codazza), park benches and car parks	Meeting/video/reading room	15	185
	Internet area	15	22
	Library	15	22
	Fitness	15	44
TOTAL			**1,417**

4.1.6. Description (number, size, equipment) of the vehicles used for: students transportation (e.g. to extramural facilities), ambulatory clinics, live animal transportation, cadavers transportation

Transport vehicles are listed in **tables 4.15** and **4.16**.

Table 4.15 Student transport vehicles

Student transport Vehicle	No.	Maximum capacity (no. passengers)
Bus	1	40
Van	2	9+9
Car	2	5+6

Table 4.16 Animal transport vehicles

Live Animals Transport Vehicle	N.	Additional information
Vehicle, Ambulance	2	Small and Large animal transport
Cadavers Transport Vehicle		
Vehicle	1	

4.1.7. Description of the equipment used for teaching purposes, clinical services (diagnostic, treatments, prevention, surgery, anaesthesia, physiotherapy

The detailed lists of the equipment available in the clinical services for teaching and diagnostic purposes are provided in the tables 4.3 to 4.9.

Companion Animal Veterinary Teaching Hospital

Most of the equipment available in the companion animal hospital has a dual purpose, as it is used for teaching and clinical services. Students rotate in the different clinical services (surgery, reproduction, internal medicine, diagnostic imaging, oncology, etc.) and participate to clinical activities (see chapters 3 and 5). Therefore, they use rooms and tables for animal examination, operating theatres and instruments for surgical procedures together with the academic staff. The clinics are well-equipped with standard equipment for routine examination and surgery, as commonly performed in general practice, in addition to state-of-the-art imaging, laparoscopy and arthroscopy equipment and several items of rigid and flexible endoscopy equipment. This equipment is routinely used for teaching as the students participate and assist in multiple surgical and diagnostic procedures. Operating room cameras are available for projecting real-time surgery during lectures.

Large Animal Veterinary Teaching Hospital

All clinical equipment is available for teaching purposes (surgical instruments, endoscopy and laparoscopy equipment, surgical rooms and treatment rooms). Practical examinations are performed in all of the listed rooms with students in groups and individually. All students have access to a broad range of diagnostic and therapeutic facilities in all clinical disciplines (internal medicine, cardiology, diagnostic imaging, anaesthesia, surgery, etc., as explained in chapters 3 and 5). The equipment available in the VTH is state-of-the-art technology providing modern diagnostic, diagnostic imaging, therapeutic and laboratory services.

4.1.8. Description of the strategy and programme for maintaining and upgrading the current facilities and equipment and/or acquiring new ones

The CCVZS provides itself for the maintenance of the instruments in use through the stipulation of specific maintenance. The maintenance of the current facilities is, on the other hand, the responsibility of the university's central technical wing. New medical or diagnostic equipment purchases are evaluated in economic terms (purchase sustainability) and therefore funded with the revenues from the utilization of the same tool, or in strategic-educational terms (educational utility) and co-funded by the support teaching departments.

4.1.9. Description of how (procedures) and by who (description of the committee structure) changes in facilities, equipment and biosecurity procedures (health & safety management for people and animals, including waste management) are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

The VTH technical coordination body (see chapter 1) is responsible for the preparation of biosecurity regulation documents and manuals. In the student dedicated section of the VTH web site (https://www.ospedaleveterinario.unimi.it/area-studenti/) students can access and download the CCVZS security manual, the rules of behavior while in the VTH facilities and the rules to access surgical premises. This documents including biosafety rules to be followed are provided to all students accessing the VTH services. Students have to familiarize with all basic biosecurity rules by consulting the CCVZS regulations provided. During VTH attendance, all students are made aware of biosecurity procedures and are actively involved in the maintenance of biosecurity standards, especially in relation to infective patient isolation, and to the handling of biohazard material. The security manual of the CCVZS is also distributed to all students of the 1st, 2nd, 3rd years. Prior to the commencement of the second semester of the I year all students have to attend and on-line mandatory course regarding occupational safety regulations.

4.2. Comments

Some facilities including the Department offices, the research laboratories, the small animal anatomical room are currently under construction and some facilities need still to be furnished (main library). Thus some premises are not clearly allocated and some changes are expected during the next future and will be illustrated during the visitation.

Because most facilities are new and pre-existing facilities have been revised or restructured, all premises for students and clinical, academic and support staff are new and up to date abiding with regulations, and biosecurity. A settling-in phase must be expected, especially for departmental and scientific laboratory facilities.

4.3. Suggestion for improvement

Suggestions for other improvement cannot be fully analysed currently due to the ongoing building and furnishing of the new Lodi structures.

Priority was given to VTH and teaching buildings, followed by department facilities. However, Feed Processing and Bioengineering units are also planned. The experimental feed plant will provide mash, cracked, pelleted and extruded feeds. The fee plant will be designed with the purpose of training students in animal nutrition, focusing on feed concentrate design and preparation. A Small Plant unit is also planned to create experimental concentrates for specific scientific trials that will be conducted at the experimental farm. The same block will also host a mechanisation lab designed to perform teaching and research activities in the field of machine milking. The lab will be equipped with a small milking machine and an artificial udder and will enable students to learn milking principles and, in addition, tests on milking machine components with specific sensors and customised devices. A small office communicating with the unit will serve to download and analyse data obtained from the trials. The Biolab section has been designed to conduct research studies on the environmental impact of livestock for teaching and research purposes. A specific laboratory for sensor development and application (55 m^2) for animal production will serve teaching and research purposes and be located at the Food Processing Unit.

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ

5

Animal resources and teaching material of animal origin

5.1 Factual information

5.1.1 Description of the global strategy of the Establishment about the use of animals and material of animal origin for the acquisition by each student of Day One Competences

The main goal of the DIMEVET, in agreement with the latest standards and guidelines for the European Higher Education Area quality assurance (ESG 2015) edited by the European Association for Quality Assurance in Higher Education (ENQA) Board, and the EU Directives (2005/36 and 2013/55), is to provide students with a training that guarantees Day One Competences, as the starting point to enrol in the veterinary profession.

With reference to the use of animals and material of animal origin, the global strategy of the Establishment is grounded on the provision of adequate resources, based on a suitable number and a variety of healthy and diseased animals to allow practical training, and of cadavers and materials of animal origin for anatomical dissection and pathological training.

The Establishment is actively involved in the procurement of animals and materials of animal origin through diverse sources, thanks also to agreements with external facilities, enabling a comprehensive pre-clinical and clinical training.

Material for **pre-clinical training** (including 1st and 2nd year herd visits, and material for anatomy and pathology) **and for food safety and quality training** is mainly provided through agreements with external parties, including external farms, public health state facilities, regional slaughterhouses, public and private kennels, stray dog and cat associations, practitioners and exotic pet associations.

Regarding the material of animal origin, the Establishment follows the 3R (Replacement, Reduction and Refinement) principles as follows:

Replacement: a combination of whole skeletons (dogs, cats, cows, sheep, horses) and models of dogs, cats, cows, pigs, horses, poultry and fish provide 1st and 2nd year practical anatomical training. This has represented a considerable financial investment which reflects the attempt of the Establishment to comply with the 3R principles (see also 5.1.5).

Reduction and Refinement: all parts of cadavers are used for educational and training purposes (see **table 5.1.1**). As an example, cadavers are first used in Topographical Anatomy (2nd year) then, limbs are removed and subsequently used for practical myology (1st year). Cadavers of dogs and cats come from public and private kennels and catteries and private veterinary hospitals, following signed consents. Moreover, to allow a better cadaver re-use, long-term preservation techniques have been adopted for materials used in some elective course practicals. The Establishment will implement the cadaver preservation technique also for 1st and 2nd year core course practicals.

Material for **clinical training** (PPT and core teaching courses practicals) is provided by the VTH, by the Teaching Farm and by the EPT.

The VTH acts as a referral centre for dogs and cats, ruminants, horses and more recently also for rabbits, rodents, birds and exotic pets. Hospitalization and ICU services (for all species) are also provided. The patient load is ensured by the cooperation with private practitioners, by agreements with several public and private kennels and catteries, and with stray canine and feline associations, by the regional farmers' association and private farmers (large animals), by exotic pet associations. The VTH Hospitalization and ICU services (for all species), thanks to agreements with public and private associations, provides an increasing number of admissions. The VTH patient load will be further improved thanks to the recent (June 2018) transfer of all companion animal clinical activities to the modern facilities in Lodi, and thanks to consolidated and novel cooperation with local private practitioners, as well as with public or private associations.

Moreover, in order to balance the use of live animals and animal models for clinical training, the Establishment is increasing the number of dummies and animal models. Every year, part of the budget is regularly specifically allocated to the purchase of dummies or animal models for student training. As a starting point, in AY 2017-2018 models for 1st year practicals, such as small animal skeletons, have been purchased, while in the current AY, models for more clinical practicals were in part already purchased, and others will be soon acquired.

The Teaching Farm provides animal production and animal nutrition training in a range of species as detailed in section 5.1.3..

The EPT is carried out at approved external facilities following academic overall supervision and approval of the programme. The EPT is thus characterized by the same standards applied at the Establishment and, further provides students with practical training, especially in clinical disciplines (see Appendix 8 for full list of approved facilities recognized by the Establishment for EPT).

5.1.2 Description of the specific strategy of the Establishment in order to ensure that each student receives the relevant core clinical training before graduation, e.g. numbers of patients examined/treated by each student, balance between species, balance between clinical disciplines, balance between first opinion and referral cases, balance between acute and chronic cases, balance between consultations (one-day clinic) and hospitalisations, balance between individual medicine and population medicine

In January 2017, all clinical activities of the VTH were reorganised to ensure that each student could be trained with an adequate number and type (distribution) of clinical cases. The VTH thus ensures practical training in all animal species and disciplines, to provide the students with the clinical Day One Competences.

The VTH is divided into units: Internal Medicine, Surgery, Reproduction, Hospitalization and ICU, Diagnostic imaging, Diagnostic laboratories, Pathology. However, the next reorganization scheduled in 2019, will provide a more appropriate division of the VTH in: Companion Animal, Ruminant and Swine, Equine, Diagnostic imaging, Diagnostic laboratories, and Pathology units.

Until June 2018, the VTH was divided in the Milan facilities for small and exotic animals (companion animals) and Lodi facilities for large animals. Since June 2018, the companion animal and large animal VTHs were merged in the Lodi VTH (see chapter 4).

The relevant clinical training is provided to students through the core clinical practises scheduled in the teaching course syllabuses and the PPT, the latter updated and reorganised in January 2018 (see chapter 3).

In the last three academic years, the average intramural clinical episodes recorded at the VTH for companion animals (dogs, cats, rabbits, rodents, birds and exotic pets), were 3,478. For dogs and cats an increasing trend from 2,664 in AY 2015-2016 to 3,297 in AY 2016-2017 and to 4,247 in AY 2017-2018 has been recorded. For exotic pets and rabbits, rodents and, birds, the clinical episode increase was: 18 in AY 2015-2016, to 52 in AY 2016-2017, and to 156 in AY 2017-2018.

The caseload improvement can be ascribed to the enrolment of clinical collaborators leading to the implementation of the General Consultation, Hospitalization and ICU services, and to the acquisition of new professional competences in exotic pet and wild animal medicine and surgery. The increase of companion animal clinical episodes has been supported by the signing of agreements between the VTH and public health kennels and private small animal and exotic pet associations.

With regards to the balance between referral and first opinion cases, the percentage of first opinion clinical episodes has increased from 10% in AY 2015-2016 to 20% in AY 2017-2018 for dogs and cats, and from 5% in AY 2015-2016 to 100% in AY 2017-2018 for exotic pets.

Regarding the balance between acute and chronic cases, on average, acute cases accounted for 5% and chronic cases for 95% of the total. Consultations (one-day clinic) accounted for 77% and hospitalization for 23% of the total caseload. Consultations are balanced among clinical disciplines and are most often referred to the following areas: oncology (medical and surgical), urology, reproduction, endocrinology, cardiology, dermatology, behavioural medicine, clinical nutrition and medical and surgical respiratory diseases.

Regarding large animals, first opinion cases accounted on average for 60% for cattle, 100% for small ruminants and pigs, and for 50% for horses. In ruminants, referral cases were mainly gastroenteric, umbilical and orthopaedic diseases, while in horses, referrals regarded respiratory diseases, poor performance and, cardiology, dermatology, neurology and orthopaedic cases. In ruminants, acute cases were 50% and mainly represented by neonatal calf diarrhoea, left displacement of abomasum and caesarean sections. Hospitalization regarded 90% of ruminants and pigs, while one-day clinic consultations were mainly related to laparoscopic reposition and left abomasum displacement while referrals were internal medical (diarrhoea), umbilical and orthopaedic disease cases.

The modern diagnostic imaging equipment available (X-ray, Computed Tomography, Magnetic Resonance and Nuclear Medicine) allows for referral cases from all species.

Ambulatory Clinics activities expose students to extramural ruminants' and horses' clinical episodes (see **table 5.1.4**).

Ambulatory Clinics activities of population medicine (mainly focused on ruminants and pigs) accounted for 8% of all cases.

5.1.3. Description of the organization and management of the teaching farm(s) and the involvement of students in its running (e.g. births, milking, feeding, ..)

Teaching farm activities (education, training and research) regard cattle, pigs, poultry, rabbits, aquaculture and bees. As for the VTH, teaching and training is directed towards undergraduate and post-graduate students (PhDs, specialisation schools, residents, etc). The teaching farm's units allow student training on animal production and nutrition and, in some cases, also clinical training (reproduction) and PPT. These activities are under expansion starting from 2018-2019 AY. Teaching farm units (see table 4.11) are also available to students for research and data collection aimed to their undergraduate thesis.

The Beef Cattle Unit - can host beef cattle on both straw bedding and slatted floors to teach students the various beef cattle housing systems. A dedicated room can host 10 animals individually restrained for specific physiology and metabolic research projects, to which students can be enrolled for their undergraduate thesis.

The Dairy Cattle Unit - hosts two blocks: one block is a dairy farm with a 36 lactating cows' capacity, equipped with an individual feed and water intake control system (R.I.C., *Roughage Intake Control*). The unit has a milking room. The second block is organized mainly for physiological and metabolic research, and can host 16 cows in individual stalls, equipped with an automatic individual feed and water intake control system. According to the core and elective courses, practicals concerning animal reproduction, under the supervision of academic staff, include training of students to perform rectal palpations, artificial inseminations and pregnancy diagnosis. Students can also be involved in research projects for their undergraduate thesis.

The Pig Unit - is organised to teach students the full swine production cycle. For this purpose, there is a farrowing room for 12 sows, two piglet nurseries and a pig growing/fattening room. One room is dedicated to boar semen collection for artificial insemination. A specific room contains metabolic cages for research purpose. Students can be enrolled in research projects for their undergraduate thesis.

The Poultry Unit - comprises rooms equipped with on floor pens, battery cages for hen layers and male chicken breeders and artificial incubators. Rearing cycles for chicken meat and egg production follows opportunities from research programmes. Within the Italian poultry breed conservation programme, chicken and turkey native breeds are bred and reared. At this unit, students perform part of the PPT and, in some cases, also the collection of data for their undergraduate thesis. Students are involved in managing different layer and broiler hen housing systems in accordance with standard guidelines for intensive poultry production and are involved in assisting poultry breeders for natural mating programs, artificial egg incubation and hatching chicks. Students are trained in data recording and to calculate main poultry performance assessment parameters. Students are also involved in chicken breed management for semen production and artificial insemination.

The Rabbit Unit - will soon house up to 24 does and 128 growing rabbits in two symmetrical experimental enclosures. At this unit students perform part of the PPT. The students can be trained to carry out handling, management and nutrition procedures.

Aquaculture - this unit houses recirculating plants for the housing and rearing of cold, temperate and hot water fish species in freshwater. The facilities are home to three independent recirculation systems. The first plant consists of six aquariums with a 60-litre capacity each, the second plant comprises18 trunk-conical 460-litre tanks and, the third plant has 6 tanks with a square volume of 900 litres. Two independent tanks for the housing of crustaceans and two annular photobioreactors for the cultivation of microalgae complete the unit. The unit promotes educational, research and developmental activities in the aquaculture sector and offers experimental testing services for studies on fish species biology, reproduction and feeding. Students are enrolled in research projects for their undergraduate thesis.

The Bee Unit - beekeeping takes place in the apiary and the dedicated laboratory. There are 12 bee-hives in the apiary. Students perform part of their PPT. With protective beekeeping clothing and smokers, students perform basic beehive inspections in order to determine colony health and productivity, identifying the three bee castes (queen, workers and drones), checking for the queen and/or eggs, examining the brood pattern and evaluating foodstuffs in the colony. Other apiary activities are: Varroa destructor infestation monitoring, Varroa sampling, dividing a colony, joining two beehives and removing the honey supers. In the laboratory, students are involved all steps in honey harvesting.

5.1.4. Description of the organisation and management of the VTH and ambulatory clinics (opening hours and days, on-duty and on-call services, general consultations, list of specialised consultations, hospitalisations, emergencies and intensive care, ..)

VTH ORGANIZATION

The VTH is organised into separate buildings dedicated to companion animals, to farm animals, to equines, to diagnostic imaging, diagnostic laboratory and pathology (see chapter 4).

The **Companion Animal Veterinary Teaching Hospital (CAVTH)** offers a 24-hours, 365 days a year service. The team includes: veterinarians from the academic staff (n=23), veterinarians recruited as external collaborators (n=12), PhD students, technical staff and undergraduate students. The CAVTH offers services of General Consultations, Referral (specialised) consultations, ICU and Hospitalization.

General Consultation, Hospitalization and ICU provide 24-hours, 365 days a year service and are further supported on weekdays (Monday-Friday), from 9.00 a.m. to 5.00 p.m. by two additional veterinarians (external collaborators) and three students. Patients admitted to the General Consultation service are evaluated clinically and potential emergency or intensive care cases are referred to the Hospitalization or ICU.

First opinion cases may be discharged, hospitalized or, when necessary, referred for specialised consultation. For this purpose, three academic staff members (one for internal medicine, one for surgery and one for reproduction) are available for consultation or emergency during weekdays from 9 a.m. to 5 p.m., and on-call during night-time and weekends or holydays.

Referral (specialised) consultations are offered from Monday to Friday 9.00 a.m. to 5.00 p.m. in the following areas: dermatology, cardiology, urology, endocrinology, infectious diseases, ophthalmology, gastroenterology, respiratory diseases, nutrition, behaviour, oncology, neurology, soft tissue surgery, oncology surgery, orthopaedics, obstetrics, gynaecology, andrology, neonatology and exotic medicine and surgery. Referral consultations include cases referred by private practitioners, and cases referred by the General Consultations internal service.

Hospitalization is organised in separate rooms for dogs, cats and exotic species, respectively. Moreover, a room is dedicated to pregnant dogs and cats for peripartum assistance.

Patients with infectious diseases are immediately transferred to the dedicated isolation rooms for dogs and cats (see 5.1.8), according to biosecurity rules.

ICU is organized in dedicated first consultation's rooms equipped with anaesthetic machines and first emergency devices, to allow oxygen support and monitoring, X-ray or ultrasound examination, blood gas and blood analysis. Surgery rooms are available 24-hours 365 days a year, while surgeons are available on-duty or on-call as reported above. At the ICU, students are enrolled in 12-hour shifts.

Clinical rounds between staff and students are regularly scheduled on a daily base.

The most common clinical and main emergency procedures, drug dosages, and treatment protocols are available in folders, as well as chart flows in one consultation room (near the companion animal General Consultation rooms) and in the ICU facilities. Protocols are accessible to all clinicians and students.

Moreover, to promote the students' work in groups, all patient's documentation and scientific literature are available on the hospital computer terminals. Case study, discussion and interpretation of clinical data, among students and with the clinical staff are the main purpose of the VTH activities.

The **Large Animal Veterinary Teaching Hospital (LAVTH)** is organized in the Equine Medicine Unit and in the Farm Animals Unit.

The Equine Medicine Unit offers a 24-hours, 365 days a year, service for emergency, while a consultation

service is provided on appointment from Monday to Friday (9.00 a.m. – 5.00 p.m.). An ambulatory clinical service is also available by appointment.

Regarding the consultation service, the team is composed of 3 veterinarians: 2 academic staff and 1PhD student, 1 support staff and at least 2 students (one collaborator student). Two veterinarians and one student are available on-call during night-time and weekends or holidays. All hospitalized horses are monitored 24 hours a day and examined clinically at least twice daily (morning and evening), or more frequently depending on the clinical conditions.

Clinical rounds between staff and students are regularly scheduled on a daily base.

The Equine Medicine Unit provides two different hospitalization areas: non-infectious and infectious (Equine Isolation Unit). The Equine Medicine Unit deals with first opinion as well as referral cases and provides services in: pulmonology, gastroenterology, cardiology, dermatology, oncology, neurology, orthopaedics, nephrology, endocrinology, reproduction and surgery. Complementary diagnostic investigations include ultrasound (thorax, abdomen, musculoskeletal, echocardiography, ultrasound-guided biopsy), endoscopy (resting and dynamic upper and lower airways endoscopy, gastroscopy, cystoscopy, endoscopic laser surgery), ECG, electromyography, respiratory mechanics and spirometry. The Equine Medicine Unit is supported by the Diagnostic Laboratory unit and by the Diagnostic Imaging unit (X-rays, Computed Tomography, Magnetic Resonance or Nuclear Medicine). The Equine Medicine Unit provides a highly qualified sport medicine service through metabolic and functional tests on a high-speed treadmill, resting and dynamic endoscopy, 24-hours Holter recording, and dynamic blood gas analysis.

The Farm Animal Unit team is composed of 3 veterinarians working on swine and ruminant medicine and surgery, who ensure a service from Monday to Friday, 8.00 a.m. - 6.00 p.m.. The staff includes 3 veterinarians, 1 support staff and at least 2-5 undergraduate students. Farm Animal Unit offers 24-hours, 365 days a year, emergency and critical care services provided by a team enrolling at least 1 veterinarian from the academic staff, PhD students and 2 undergraduate students. Clinical staff is available on-call during night-time and weekends or holidays. Farm Animal Unit medicine is largely addressed to cattle neonatal diseases, such as: neonatal calf diarrhoea, respiratory diseases, neurological diseases, medical diseases of the gastrointestinal tract and infectious diseases. Farm Animal Unit surgery activities are addressed to two-step laparoscopic abomasopexy, umbilical surgery, general abdominal surgery, caesarean section, arthroscopy and fracture management. Farm Animal Unit staff works in collaboration with commercial dairy farms. On-farm activities include examination and treatment of diseased animals, evaluation of subclinical problems and herd health protocols, disease outbreak investigation, rumenocenthesis for the diagnosis of subacute ruminal acidosis, passive immune transfer management in calves and discussing herd problems with owners and practitioners. Clinical rounds between staff and students are regularly scheduled on a daily base.

VTH MANAGEMENT

Although the VTH largely relies on the CCVZS regulations (see chapter 1), it has its own regulations for functional management activities. VTH management is supported by the VTH Technical Coordination body, composed by the CCVZS Director, the Veterinary Medical Director, the VTH unit managers, a representative from the CCVZS's technical staff, and the Head of the VMTC for issues concerning teaching activities within the VTH (see chapter 1). VTH regulations define internal guidelines for all VTH functions, including work organisation, human resources and personnel recruitment, evaluation of expenses, provided services, protocols, regulations concerning animal admission and the use of animals or specimens for research purposes. Regarding personnel recruitment, selection criteria for clinical collaborators enrolment are specifically identified.

Potential owners/farmer complains and solutions, are discussed and managed by the VTH's Veterinary Medical Director and by the Director of the CCVZS, and when protocol changes are necessary, they are communicated to all the VTH staff.

AMBULATORY CLINICS (Mobile clinics)

Clinical extra-mural activities are regularly carried out by the Ambulatory Clinics service. In this service both the VTH staff and eight external collaborators (private practitioners) are enrolled. Full-day activities (from 7.30 a.m. to 5.00 p.m.) are regularly scheduled once a week, and concern mainly horse and cattle clinical on-farm, one-day clinic services and Veterinary Public Health (VPH). Six to eight students participate to each programmed visit. The Ambulatory Clinics is part of the 5th year student PPT, but it is also included in the core

clinical course practicals during the 9th semester (see chapter 3). Ambulatory Clinics subjects include on-field approach to gynaecological examination; gynaecologic and obstetrical diseases in cattle and horses; on-farm approach to clinical examination in cattle, including podology; on-field approach to clinical examination in horses; sport medicine in horses. Ambulatory Clinics include also population medicine in swine and cattle.

5.1.5. Description of how the cadavers and material of animal origin for training in anatomy and pathology are obtained, stored and destroyed

As stated in section 5.1.1, material for preclinical training is mainly provided by agreements with external parties. For core teaching course practicals of Anatomy, real bones and fresh or frozen material are commonly used. Cadavers (not intended for human consumption) and viscera of various domestic food producing animals are purchased from slaughterhouses (calves, equines, pigs, sheep, goats, etc.). Dog and cat cadavers come from agreements of UNIMI with public and private kennels, stray dogs and cats' associations, and from practitioners, following owners' informed consent. No infectious cases are included. All the aforementioned material (cadavers and viscera) are stored in freezers or refrigerators until use and then destroyed through specialised contract companies, according to national legislation.

The number of cadavers examined over the past 3 AYs is shown in **table 5.1.1**.

Plastic reproductions of major organs, organ systems, bones and of entire domestic mammals' bodies are also utilised. The Anatomy Unit has a complete collection of bones and skeletons of various domestic animal species for osteology, and a complete collection of tissue and organ sections of domestic and laboratory animals (mice, rats) for practical histology and microscopical anatomy teaching.

For **Pathology** training, cadavers of food-producing animals and equines, small animals and multiple additional species (listed in **table 5.1.6**) come from VTH, teaching farm, practitioners, public and private kennels, stray dogs and cats' associations. In addition, cadavers of pets sent by owners (provided owner's consent) for diagnostic necropsy purposes are examined with students during practicals and PPT. When a prompt diagnosis is needed, cadavers are refrigerated (0-4°C) and processed as soon as possible while other cadavers and tissues are preserved frozen at –18°C until used. Material for pathology practicals and PPT includes organs obtained weekly from slaughterhouses, surgical biopsies and cytological specimens coming from VTH and private practices for diagnostic purposes. All biological material (tissues organs and cadavers) are disposed through specialised contract companies, according to national legislation.

5.1.6. Description of the group size for the different types of clinical training (both intra- murally and extra-murally)

Initial clinical training is provided in the 3rd year of the curriculum but increases substantially in the 4th and maximizes in the 5th year of the curriculum. Clinical training is provided through the core practicals of teaching courses and during PPT. PPT is granted during 3rd, 4th and 5th years of the curriculum and includes activities carried out at the Internal Medicine, Surgery and Reproduction units, at the VTH Hospitalization unit, at the ICU unit, and through the Ambulatory Clinics (see chapter 3). Part of the clinical training is also attained at external certified institutions, as EPT (see chapter 3 and Appendix 8).

First clinical practicals are carried out during the 3rd year of the curriculum, in the Parasitology course and by the initial PPT in Parasitology, and at the VTH Hospitalization and Pathology units. Practicals in Parasitology are organized in groups of 15 students (extra- and intra- mural activities), while at the Hospitalization unit and at the ICU unit practicals are organized in groups of about 6 students (intramural activity).

During the 4th year of the curriculum, the hands-on clinical training is provided by the core practicals of Internal Medicine, Surgery and Propaedeutic courses. Groups of 8 students are further subdivided in 2 subgroups of 4 students, each subgroup is supervised by one Academic staff. Smaller groups (3 students/group) are assigned to the PPT at the Hospitalization and at the ICU units. All these activities are intramural.

During the 5th year of the curriculum, clinical training is provided by the core practicals of almost all the teaching courses, by some electives, by the Ambulatory Clinics, and by the PPT. The core practicals of teaching courses assign eleven-twelve groups of 6-8 students/group to the different clinical teaching courses (see chapter 3 and Appendix 7). Each group is subdivided in small subgroups of 3-4 students and supervised by additional tutors. During the 10th semester of the curriculum, students choosing electives aimed to clinical disciplines

are organized in group sizes defined for each course, but generally enrolling 5 or lower students/group to allow the proper students hands-on clinical training. In the 5th year PPT, groups of 6-8 students are organized for a part of the Ambulatory Clinics activities (extramural), while at the Hospitalization and ICU units and at the LAVTH, students are organized in groups of 4-5 (intramural activities).

5.1.7. Description of the hands-on involvement of students in clinical procedures in the different species, i.e. clinical examination, diagnostic tests, blood sampling, treatment, nursing and critical care, anaesthesia, routine surgery, euthanasia, necropsy, report writing, client communication, biosecurity procedures, (both intra-murally and extra-murally)

During the 2nd year some pre-clinical practicals are included in the curriculum. However, the first clinical practicals are carried out during the 3rd year of the curriculum with the VTH Hospitalization and ICU PPT, and during the core course practicals on Pathology and Parasitology. Core course teaching practicals in Parasitology include some extra-mural activities: under the supervision of the academic staff, groups of 15 students are trained to perform the basic approach and handling of dogs (at public kennels) and cattle (at local herds) and to collect specimens (blood and faecal sampling) for parasitological examinations. Students are also trained to specimen storage and transportation to the laboratories, where they themselves carry out the more common laboratory analyses and discuss with the academic staff the results. During the 3rd year PPT, at the Hospitalization unit and ICU unit, students are trained to approach companion animal patients and to provide general care, under the supervision of the academic staff. In Pathology they learn to evaluate diseased organs from slaughterhouses, to perform a gross pathology morphological diagnosis, and when necessary, to provide a list of likely differential diagnoses. Students perform the necropsies and learn to correctly collect the animal history, to determine animal death causes, to write a report of the gross lesions observed, to collect and deal with biologic samples for histopathology, toxicology and bacteriology aimed to the pathological diagnosis.

During the 4th year of the curriculum, students are trained through the core practicals of the courses of Internal Medicine, Surgery, Propaedeutics, Anaesthesiology and Reproduction. Under the supervision of the academic staff, students perform the main semeiotic procedures, blood sampling, sutures, endoscopy, ultrasonography, radiology, vaginal cytology, transrectal palpation of the genital tract, artificial insemination. Training is performed on all species by student rotation within the VTH units. In addition, 4th year students attend the PPT at VTH, where they are involved in the management of patients (signalment and medical history data collection and record, physical examinations, diagnostic investigations, anaestesiologic procedures, administration of drugs and patient monitoring), under the supervision of the clinical staff.

During the 5th year, clinical training is provided by the core practicals, by some electives, by the Ambulatory Clinics, and by the PPT. The activities are intra- and extra- mural. Intramural activities are performed within the VTH, the extramural activities are performed during the Ambulatory Clinics and during the EPT. In the core practicals of teaching courses, groups of students perform hands-on clinical training rotations in selected weekdays. Under the supervision of the academic/clinical staff, each group is trained to achieve the clinical Day One Competences in companion and large animal Internal Medicine, Obstetrics and Gynaecology, Andrology and Surgery. Students actively participate to patient management from admission to discharge, perform clinical examination, discuss the relevant data recorded and suggest differential diagnosis, further diagnostic procedures, provide diagnosis, treatment and prognosis, perform blood sampling and perform the more common surgical procedures (such as orchiectomy, ovariectomy), follow the post-surgical patient, write the clinical report and, always under the supervision of the academic staff, report to the owner. During the 10th semester of the curriculum, students choosing electives of clinical disciplines can further enhance their clinical skills. During the 5th year of the curriculum additional practical training is provided via the PPT, involving both laboratory activities (clinical pathology, anatomical pathology) and the Ambulatory Clinics, the CAVTH Hospitalization and ICU, and at the LAVTH activities. Students are actively involved in the complete patient workup, including physical examination, diagnostic problem-oriented decision making, and emergency care of patients.

During the Ambulatory Clinics service, 5th year students participate actively to patient care. In addition to student's involvement in all hand-on clinical activities, some students can attend the VTH's daily routine as Collaborator Students, on an extracurricular voluntary basis. This represents an opportunity to deepen further their clinical training in specific disciplines and/or collect data for their graduation thesis (see chapter 3).

From January 2017, also 1st and 2nd year students can attend the VTH Hospitalization an ICU units, on extracurricular voluntary basis, during the didactic breaks. During these activities, the students are trained to approach and handle patients.

A core general security course is provided at the end of the 1st semester of the 1st curricular year. Students have to familiarize with all basic biosecurity rules by consulting the CCVZS regulations provided. During VTH attendance, all students are made aware of biosecurity procedures and are actively involved in the maintenance of biosecurity standards, especially in relation to infective patient isolation. As state in section 4.1.9, students can download the CCVZS security manual, the rules of behavior while in the VTH facilities and the rules to access surgical premises at all times (https://www.ospedaleveterinario.unimi.it/area-studenti/).

In this regard, three patient's isolation unit areas, one for companion animals, one for equines and one for farm animals, are separated from the VTH facilities and clearly marked by appropriate physical barriers and specific signs. Each one of these units includes an examination room and hospitalization facilities. Access to isolation requires the use of disposable and disinfection materials. Dedicated waste disposal is also granted.

5.1.8. Description of the procedures used to allow the students to spend extended periods in discussion, thinking and reading to deepen their understanding of the case and its management

The 3rd, 4th and 5th year students are actively involved in the management of cases during the core teaching course practicals, during electives, during the Ambulatory Clinics, and during the PPT, as reported in chapter 3. These activities also imply: discussion of cases between academic/clinical staff and students, students group discussion and literature review, student oral presentation of the cases under the supervision of academic/clinical staff. Case discussion, thinking and reading is adjusted to the student's curriculum year (see also 5.1.7).

At the Hospitalization unit and ICU unit, 3rd year students, trained to the basic approach to companion animals' patients and to provide general care, discuss, under the supervision of the clinical staff, companion animals' patient management, general care and clinical diseases. During free time, students deepen daily cases by literature reading and further discussion with clinical staff. In Pathology, during necropsy, students are engaged in the discussion with academic staff about the animal history, the animal death causes, and in writing a report. In Parasitology, students are actively involved in the discussion with the academic staff about the approach to a single patient management in kennels and cattle herds, and to the specific parasitology case. Students are also engaged in drug prescription for parasite treatment.

The 4th and 5th year students enrolled in the VTH are involved completely in the management of patients/cases under the supervision of the academic/clinical staff, are actively involved in discussion about patient management from admission to discharge, clinical examination, data recording and differential diagnosis, diagnostic procedures, diagnosis, treatment and prognosis. Students must write the clinical report and the corresponding drug prescription. Last but not least, under the supervision of the academic/clinical staff, they discuss how to communicate to the owner. Students are advised to read the scientific literature about the clinical cases of the day. Updated selected reviews of clinical major topics are available into a folder on the unit computer desktop. Students are also invited to select a case and give an oral presentation showing relevant clinical case information, and scientific literature findings for further discussion with clinical staff and other students. As reported in chapter 3, also in VPH and FSQ practicals, students are actively involved in report writing, literature review, case study and presentation for discussion with academic staff and other students.

5.1.9. Description of the patient record system and how it is used to efficiently support the teaching, research, and service programmes of the Establishment

A centralised on-line system in the VTH is used as a client and patient database. On general admission, the software generates a unique identification number (ID) and opens a medical record in which general patient details (signalment, owner identification) are recorded and, according to the referral discipline, the patient is assigned to the VTH unit of competence. Subsequent folders are opened at the VTH unit of reference to admit the patient and to record clinical history, clinical examination, diagnostic procedures and, treatments performed. For one-day clinic patients an informed consent, treatment receipt and patient discharge forms are made available and signed by both the clinician responsible for the patient, and by the owner. For hospitalized patients, daily clinical findings, pharmacy dispensing, diagnostic procedures resul-

ts and treatments are recorded. Patient's information is also documented in admission/discharge hardcopy medical records.

Because of the non-optimal performance of the centralised software used until recently, in the last academic years most of the patient record system relied on printed or excel databases documented by clinicians and by the other academic staff, although some units have a well functioning and effective electronic archive.

Medical records are kept in the corresponding VTH units (Equine Clinic, Clinic for Ruminants and Swine, Companion Animal Hospital, Imaging and Laboratory services) and are permanently available for student consultation and as a source of data for their undergraduate thesis.

Following merging to the Lodi facilities of all clinical services in June 2018, VTH is implementing (November 2018) a new, cloud-based, veterinary practice management software (PROVET Cloud), which will improve the VTH management, the access and use of medical records for staff and students and for research purposes. Because of the long bureaucratic procedures required by European regulations on public investments, the new, recently purchased, software will be fully operating by June 2019.

5.1.10. Description of the procedures developed to ensure the welfare of animals used for educational and research activities

The FVM adopts procedures to ensure the welfare of animals used in educational and research activities, in accordance with UNIMI and national regulations.

In parallell, all requests about the use of animals for teaching or research purposes, must be approved by the UNIMI Committee for Animal Welfare (OPBA- "Organismo Preposto al Benessere degli Animali"), that carries out ethical evaluations and gives reasoned opinions for each programme that plans to use animals. The opinion is sent to the Ministry of Health, which gives out permissions to implement the project. On average, the time elapsing between permission request and approval is about 6 months. In addition, the FVM has a "cultural" Ethics Committee/Centre for the Protection of Animals (CETA- Comitato Etico Tutela Animali) with the following functions:

- promoting the three Rs philosophy for animals used in educational or research activities;
- providing guidelines for animals used in educational or research activities;
- promoting animal ethics and welfare among students and academic staff during training and educational activities;
- promoting discussions and meetings on animal ethics and welfare.

Table 5.1.1. Cadavers and material of animal origin used in practical anatomical training

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	Total 52 15 whole bodies 20 limbs 1 digestive tract 3 male genital tracts 2 female genital tracts 2 kidneys 1 bladder 2 hearts 2 lungs 2 livers 2 spleens	Total 36 12 limbs 2 digestive tracts, 2 respiratory tracts 2 livers 4 spleens 8 kidneys 2 female genital tracts 2 male genital tracts 2 bladders	Total 26 2 whole bodies 16 limbs 1 digestive tract, 1 liver, 1 respiratory tract 1 female genital tract 1 male genital tract 2 spleens 1 heart	38

(continue on next page)

Table 5.1.1. Cadavers and material of animal origin used in practical anatomical training *(continue)*

Species	2017-2018	2016-2017	2015-2016	Mean
Small Ruminants	Total 17 4 whole bodies 4 limbs 1 digestive tract 2 kidneys 1 bladder 1 heart 2 lungs 1 liver 1 spleen	0	Total 6 6 whole bodies	7.7
Pigs	Total 70 6 digestive tracts 6 male genital tracts 6 female genital tracts 12 kidneys 6 bladders 6 hearts 12 lungs 10 livers 6 spleens	Total 32 3 digestive tracts, 4 livers, 3 respiratory tracts, 4 female genital tracts 4 male genital tracts 4 spleens 4 hearts 6 kidneys	Total 12 1 digestive tract 1 liver 1 respiratory tract, 2 female genital tracts 2 male genital tracts 1 spleen, 2 hearts 2 kidneys	38
Dogs	Total 12 12 whole bodies	Total 7 7 whole bodies	Total 3 3 whole bodies	7.3
Cats	Total 30 30 whole bodies	Total 16 16 whole bodies	Total 20 20 whole bodies	22
Equine	Total 29 4 limbs 2 digestive tracts 2 male genital tracts 1 female genital tract 8 kidneys 4 bladders 4 lungs 2 livers 2 spleens	Total 28 8 limbs 2 digestive tracts, 4 livers 2 respiratory tracts 2 female genital tracts 2 male genital tracts 2 spleens 2 hearts 4 kidneys	Total 20 4 limbs 2 digestive tracts 2 livers 2 respiratory tracts 2 female genital tracts 2 male genital tracts 2 spleens 2 hearts 2 kidneys	25.6
Poultry & Rabbits	0	0	0	0
Exotic pets	0	0	0	0

Table 5.1.2. Healthy live animals used for pre-clinical training *(animal handling, physiology, animal production, propaedeutic)*

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	160	140	140	**146.7**
Small Ruminants	80	70	70	**73.3**
Pigs	0*	280	280	**280**
Dogs and cats	0	0	0	**0**
Equine**	4	3	6	**4.3**
Poultry & Rabbits	240	311	247	**266**
Exotic pets	0	0	0	**0**
Others (specify)	0	0	0	**0**

*Swine influenza outbreaks have not allowed visits pigsties in 2017-2018, **Horses are housed in the VTH

Table 5.1.3. Number of patients seen intra-murally (in the VTH)

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	352	303	329	**328**
Small Ruminants	72	17	16	**35**
Pigs	72	73	36	**60.3**
Dogs and cats	4,247	3,297	2,664	**3,384**
Equine	212	214	230	**218.7**
Poultry & rabbits	5	1	8	**4.7**
Exotic pets	151	50	7	**69.3**
Others	0	1	3	**1.3**

Table 5.1.4. Number of patients seen extra-murally (in the ambulatory clinics)

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	456	611	471	**512.7**
Small Ruminants	0	0	0	**0**
Pigs	270	256	240	**255.3**
Dogs and cats	40	35	35	**36.7**
Equine	118	45	58	**73.7**
Poultry & rabbits	0	0	0	**0***
Exotic pets	0	0	0	**0**

*According to biosecurity rules, admission of external personnel to herds is not allowed

Table 5.1.5. Percentage (%) of first opinion patients used for clinical training (both in VTH and ambulatory clinics, i.e. tables 5.1.3 & 5.1.4)

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	60	58	70	**62.7**
Small Ruminants	100	100	100	**100**
Pigs	100	100	100	**100**
Dogs and cats	20	15	10	**15**
Equine	50	50	50	**50**
Poultry & rabbits	0	0	0	**0***
Exotic pets	100	10	5	**38.3**

*According to biosecurity rules, admission of external personnel to herds is not allowed

Table 5.1.6. Cadavers used in necropsy

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	65	62	44	**57**
Small Ruminants	6	5	27	**12.7**
Pigs	48	64	6	**39.3**
Dogs and cats	295	274	265	**278**
Equine	6	11	20	**12.3**
Poultry & Rabbits	Total172 125 Poultry 47 Rabbits	Total 163 110 Poultry 53 Rabbits	Total 225 150 Poultry 75 Rabbits	**186.7**
Exotic pets	Total 38 9 Mammals 27 Reptiles 2 Birds	Total 29 29 Reptiles	Total 15 2 Mammals 13 Reptiles	**27.3**
Wild and Zoo animals	Total 321 67 Mammals 254 Wild birds	Total 129 6 Mammals 2 Reptiles 121 Wild birds	Total 52 8 Mammals 3 Reptiles 41 Wild birds	**167.3**

Table 5.1.7. Number of visits in herds/flocks/units for training in Animal Production and Herd Health Management

Species	2017-2018	2016-2017	2015-2016	Mean
Cattle	26	19	18	**21**
Small Ruminants	0	4	6	**3.3**
Pigs	0	5	1	**2**
Horses	24	0	0	**8**
Pets	23	3	1	**9**
Poultry	0	0	0	**0***
Rabbits	0	0	0	**0***

*According to biosecurity rules, admission of external personnel to herds is not allowed

Table 5.1.8. Number of visits in slaughterhouses and related premises for training in FSQ

Species	2017-2018	2016-2017	2015-2016	Mean
Ruminant slaughterhouses	48	65	69	**60.7**
Pig slaughterhouses	40	22	28	**30**
Poultry slaughterhouses	21	1	1	**7.7**
Related buildings*	13	0	0	**4.3**
Others: Fish markets	80	70	70	**73.3**

* Buildings for the production, processing, distribution or consumption of food of animal origin

5.2. Comments

In the three Academic Years considered, numbers of animals and materials of animal origin for student preclinical and clinical training show, in most cases, a general trend of increase that is more evident in the last Academic Year. This increase derives from the Department reorganization and from the activation of the VTH within the CCVZS. Increases in numbers of animals and material of animal origin for student preclinical and clinical training has been a major aim of the recently established DIMEVET, as evidenced by the changes and improvements introduced from AY 2016-2017, that will continue in the next years (see chapter 1). However, the numbers are still low (see chapter 12). Several reasons can explain the low number of animals and material of animal origin for preclinical and clinical students' training and can be separated for the intramural and extramural activities.

Regarding intramural activities, the low average number of dogs, cats and exotic pets can be explained by a complex of general and specific causes including:

- the economical crisis, affecting not only the VTH patient load, but also the one of private clinics;
- the national law concerning the university reorganization with goals, strategies and budget allocations not matching Veterinary Medicine Academic necessities;
- UNIMI and national heavy and occasionally conflicting bureaucracy for external collaborator recruitment (delaying the consolidation of the General Consultation, Hospitalization and ICU services);
- technical difficulties, including technical staff reallocation, deriving from the move to Lodi (the VTH Large Animal Hospital opened in 2005, while the VTH Companion Animal Hospital opened in Lodi in June 2018);
- the old VTH Companion Animal facilities in Milano, not allowing a high-quality clinical, Hospitalization and ICU services until 2018;
- limitations in clinical and support staff enrolment, preventing expansion of clinical services aimed to rabbits, rodents, birds and exotic pets;
- the only recent (January 2017) activation of the General Consultation and ICU services after a series of administrative and bureaucratic impediments and limitations.

Moreover, as shown in table 5.1.5, the balance between Companion Animal first opinion and referral cases is not fully satisfactory, with a still high proportion of referral cases, indicating high-quality specialised services in several disciplines. However, to assure acquisition of the Day One Competences, the first opinion cases have been increased by the recent reorganisation of the General Consultation and Hospitalization and ICU services, as well as the acquisition of the professional competence regarding rabbits, rodents, birds and exotic pets.

Ruminant, pig, and equine extramural patient load must be implemented trough agreements with farmers.

Regarding extramural activities, pig, poultry and rabbits' herds visits, in Italy, in the last years, due to strict biosecurity regulations, student access to herds was forbidden because of viral disease outbreaks (pigs) or general new national regulations (poultry and rabbits). However, these limitations will be soon reviewed for swine, even if the full admission of students in herds remains uncertain. Permanently forbidden is the students' access to poultry or rabbits' herds. Moreover, EPT was an activity that could be chosen by students to perform part of their PPT on a voluntary basis.

Unsatisfactory numbers of equine, ruminant and pig necropsies can be explained by two different reasons. About equines, in the last years, the economical crisis strongly affected horse keeping and breeding, markedly reducing the availability of equines as patients and cadavers. Ruminant and pig farmers most often require necropsy performed at the Public Health State Facilities ("Istituti Zooprofilatici"), the official, recognized laboratories for diseases control and VPH.

5.3. Suggestions for improvement

To improve the availability of clinical cases, animals and materials of animal origin for students, a systematic strategy will be implemented through different actions:

- the settlement of the new VTH facilities in the Lodi area will increase the number of referral cases;
- the consolidation of the recently activated services of General Consultation, Hospitalization and ICU, and exotic pet medicine and surgery that will provide an improved, regular and differentiated patient caseload, providing a balance between first opinion and referral cases;
- the development of new agreements with additional public and private kennels, catteries and exotic animal associations will further increase the number of cases and will also help to achieve a better balance between first opinion and referral cases; the full integration of VTH specialisations, technologies and lifelong learning initiatives in the new area, supporting veterinary practitioners and farmers, will allow the increasing collaborations and the patient load improvement, as well as the improved number of ruminants and pigs necropsies;
- the development of agreements with private farms (herds/flocks/units) in the Lodi area will facilitate visits to herds/units/flocks, adjusting the student's extramural exposition to small ruminant patients;
- access of students to poultry and rabbits' herds visits will probably become permanently forbidden by national regulations. This problem will be solved by two actions: the use of the rabbit and poultry units of the CZDS to allow students hands-on practicals on these species; the acquisition of educational videos from herds to provide students an alternative to the on-farm exposition;
- the consolidation of the Ambulatory Clinics, especially in small ruminants on-farm medicine and surgery will guarantee the students with the exposition to extramural one-day clinic cases;
- the insufficient number of equine necropsies will be adjusted by implementing the collaboration with private practitioners;
- EPT will become mandatory with the curriculum revision in 2019.

6

Learning resources

6.1. Factual information

6.1.1. Description of the main library of the Establishment

The main FVM library http://www.veterinaria.unimi.it/Facolta/Personale/1777_ITA_HTML.html is part of the UNIMI Library Services, that is included in the National Library Service. The FVM library participates to catalogues, discussion-lists (EVLG, VET-LIB, AIB-CUR LISTS) and National and International Library Associations (AIB, EAHIL, ISKO) through the Document Delivery and Inter-Library Loans services. **Table 6.1.1** summarises the relevant data of the "Milan facilities" main library (active until November 2018) and the "Lodi campus" main library (active from December 2018). The former main library with the subsidiary smaller libraries of the "Milan facilities" will be merged in the "Lodi" library. The main library holds a total of approximately 67,300 volumes including historic volumes, reviews, dissertations and journals. The library also holds the faculty's historical archive and a historic collection (published before 1830) composed of 600 veterinary medicine, human medicine and natural science volumes. All documents are described in conformity with ISBD and are accesible through the UNIMI University Online Public Access Catalogue (OPAC). The library is open to University staff, students and to the general public.

Table 6.1.1. Description of the main library of the Establishment

	Until November 2018: Milan	From December 2018: Lodi
Staff (FTE)	7	6
Qualification	1 chief librarian 1 catalogue librarian 1 serial librarian 2 reference librarians 1 acquisition librarian 1 assistant librarian	1 chief librarian 1 catalogue librarian 1 serial librarian 2 reference librarians 1 acquisition librarian
Opening hours and days[1]	Monday-Thursday 8.45 a.m.- 5 p.m. Friday: 8.45 a.m.- 4.30 p.m. (August: closed two weeks)	Monday-Thursday 9 a.m.- 4 p.m. Friday: 9 a.m.- 3.45 p.m. (August: closed two weeks)
Annual budget	€ 63,860	€ 88,523
Facilities		
Overall space	1,250 m²	1,506 m²
Number of rooms	3	2
Number of seats	135	279
Equipment		
Number of computers[2]	30	14
Number of electric PC sockets	127	217
Software for bibliographical search	400 databases licensed/free	400 databases licensed/free
Number of veterinary books and journals of which:	60,533	92,861
Books	20,634	41,037
Volumes (of no. journals)	39,899 (782)	51,824 (1299)
Number of veterinary e-books and e-journals	282 (234 journals)	335
Number of other (e)-books and (e)-journals of which:	6,726	10,317
Books	2,293	4,559
Volumes (of no. journals)	4,433 (86)	5,758 (143)

[1] In 2014 the library extended opening hours (Monday-Friday 8.45 am -11.30 pm, weekends 10 am - 6 pm); however, attendance did not increase sufficiently to justify the prolonged schedule.
[2] At the new Lodi location there are two computer laboratories, outside the main library, for a total of 75 desktop PCs.

In addition to the consultation service, the main library offers an interlibrary loan service, a document delivery service from other libraries, a teaching material consultation service, a computer literacy service and assistance to students in bibliographic searches.

6.1.2. Description of the subsidiary libraries

At the Milan campus, there were two subsidiary libraries: 1) VESPA Department library; and 2) DIMEVET library. In both cases the main library was in charge of their material and services.

From December 2018, all subsidiary library books and services will merge in the main Lodi library, as stated in 6.1.1.

The VESPA library covered an area of 264 m^2 with 67 seats (opening hours/days: Monday-Thursday: 9 -12 a.m.; 2.30-4 p.m.; Friday: 9-12 a.m.; 2.30-3.45 p.m. August: closed). There were 10,148 books and 189 journals (a total of 6041 volumes), 260 veterinary e-books and e-journals and 1127 other (e)-books and 21 (e)-journals (a total of 671 volumes). The annual budget was €11,139.

The DIMEVET library covered an area of 204 m^2 with 18 seats (opening hours/days: Monday-Thursday: 9 -12 a.m.; 2.30-4 p.m.; Friday: 9-12 a.m.; 2.30-3.45 p.m. August: closed). There were 10,255 veterinary books and 328 journals (a total of 5884 volumes), 261 veterinary e-books and e-journals and 1139 other (e)-books and 36 (e)-journals (a total of 654 volumes). The annual budget was €15,872.

6.1.3. Description of the IT facilities and of the e-learning platform

The new Lodi campus has two computer laboratories containing 75 desktop computers with internet connection, allowing for practical classes with students working in pairs. In addition, IT facilities are also available at the main library with 14 desktop computers and 217 electric PC sockets (see **table 6.1.1**). Desktops and connections, and technical support for users, are managed centrally by UNIMI through the UNICLOUD IT management centre. Basic software (Microsoft package) and statistical packages will be available on desktops (e.g. see http://www.unimi.it/personale/servizi/1536.htm). The entire campus has free wireless internet access.

CTU is UNIMI's centre for e-learning and multimedia production (http://www.ctu.unimi.it/). CTU provides the ARIEL platform (https://ariel.unimi.it/) developed by UNIMI. Trough this platform, teaching staff can communicate with students and upload teaching material in their specifically assigned course space. ARIEL platform allows for forums and blogs to interact with students. CTU also provides online tests, online exams, video lecture and virtual classroom.

6.1.4. Description of the available electronic information and e–learning courses, and their role in supporting student learning and teaching in the core curriculum

Information regarding the UNIMI Library Service and all UNIMI libraries is available on the portal http://www.sba.unimi.it/.

The UNIMI OPAC (http://opac.unimi.it/SebinaOpac/.do) contains nearly 1,518,000 bibliographic records comprising books, journals, audio-visual resources and electronic journals. UNIMI users can apply for library loans remotely.

The Digital Library includes: A) access to 400 databases of which nearly 28 relate to the biomedical area (Database: http://metalib.lib.unimi.it/V/?func=find-db-1&mode=title); these databases work on various platforms and use their own search languages; B) E-journals and e-books (http://metalib.lib.unimi.it/V/IJMQG1F77U-QAS558FXSSTHPRJ9SITIG363ACIHFY3FL989BU8U-91042?func=find-ej-1).

Section 6.1.6. below describes the roles of both University Study and Career Guidance Centre (COSP, http://www.cosp.unimi.it/), and the main library in supporting students and teaching staff to use resources provided by the digital library.

Section 6.1.3. above describes the e-learning services available. On the ARIEL platform teaching material (including, in some cases, forums and blogs with which to communicate with students) concerning 122 courses is available (https://ariel.unimi.it/Offerta/faculty/H/Cdses).

6.1.5. Description of the accessibility for staff and students to electronic learning resources both on and off campus

Staff and students have access to all the learning resources described above (6.1.4) through VNP connections and open access (OPAC). Computer laboratories and electric PC sockets are listed in 6.1.1. The entire campus has Wi-Fi/Eduroam access.

6.1.6. Description of how the procedures for access to and use of learning resources are taught to student

At the beginning of each academic year, the COSP organises courses to introduce freshmen to the learning resources and access methods, and to the University Library Service.

Each year the main faculty library offers courses to students on the use of bibliographic resources. An average of 15 courses is provided each year, including some hours within the first year course on IT and Biostatistics and a course within the doctoral programme in veterinary and animal science. See also Chapter 10 section 10.1.3. The Library also offers computer literacy services on demand.

The UNIMI Library Service also organises many courses on biomedical databases and citation tools.

6.1.7. Description of how and by who the learning resources provided by the Establishment are decided, communicated to staff, students and stakeholders, implemented, accessed and revised

The library scientific committee includes 14 academic staff members, 6 students representing all degree courses and 2 library staff. The committee defines purchases, validates the library budget, provides guidelines for the library's collections and services in accordance with UNIMI library guidelines, and monitors the work carried out. New learning resources are communicated on https://opac.unimi.it/SebinaOpac/query/bulletin/novita/1M. Major investments are discussed with UNIMI central library scientific committee.

6.2. Comments

The main library holds most of the major veterinary journals in paper or electronic formats as well as many journals covering most areas of animal and biomedical sciences. The textbook collection is constantly updated and enhanced by multiple copy purchases.

The merging of the current (Milan campus) subsidiary libraries into the new main library at Lodi campus is an opportunity to improve all library services.

The book subject layout has recently been completely revised in order to foster independent use. At the Lodi library, in contrast to Milan, reading rooms and service points will be on a single floor, facilitating library use and the work of the staff. The UNIMI continuing education programme provides a minimum of 30 hours per year for librarians.

6.3 Suggestions for improvement

- Promote the use of e-learning tools;
- increase the number of courses targeting both staff and students on learning resource use;
- upgrade the main library website;
- promote the use of the library through social media;
- increase main library technical assistance services;
- increase the number of copies of textbooks through new agreements;
- evaluate the need to increase the main library’s opening hours.

7

Student admission, progression and welfare

7.1. Factual information

7.1.1. Description of how the educational programme proposed by the Establishment is advertised to prospective students

Every year UNIMI offers future students orientation to university's educational facilities and degree programmes. Programmes are constantly updated and available at http://www.cosp.unimi.it/aspiranti_studenti/1862.htm. Some of these events are of general interest (meetings with students' parents, counselling services, summer schools) whilst others focus on the promotion of UNIMI educational programmes. Specific activities of the FVM are:

- FVM Open Day: FVM's study areas and educational facilities are introduced to high school students interested in enrolling are advertised each February at FVM. The 2018 programme is available on http://www.cosp.unimi.it/documenti/Eventi/programmaOPENDAY2018.pdf.
- Student Orientation Fair: during this event organised by UNIMI in the central facilities (Via Festa del Perdono 7), the FVM sets up a stand where teaching staff and alumni meet high school students providing information to potential future students about opportunities and requirements for veterinary studies. Information leaflets regarding FVM courses and facilities are distributed.

7.1.2. Description of the admission procedures for standard students

a) Selection criteria

All the Italian VMDP have limited enrolment with student numbers determined by the MIUR following proposals from the VMTC (see paragraph 7.1.4).

Selection is by admission test. Italian students applying for the exam must have completed the mandatory education courses required by Italian law (https://en.wikipedia.org/wiki/Education_in_Italy). Foreign students must have a certificate issued by their country of origin, certifying 12 years of school attendance, valid for admission to their home country universities and pass an Italian language test (http://www.unimi.it/ENG/admission/29528.htm). No specifical science diploma is required for admission.

Admission tests are regulated and organised by the MIUR at a National level, taking place on the same day and time with the same questions at all Italian universities. In AY 2018-2019 the test consisted of 60 multiple choice questions to be answered in 100 minutes. Students achieving a minimum score of 20 points are listed in one national ranking list and assigned to a VMDP on the basis of: i) score obtained; ii) number of available places at each university; iii) student geographical preferences (students must indicate three Italian universities in order of preference).

b) Policy for disable and ill students

Students with disability certificates or specific learning disabilities (SLDs) are ensured special admission test rules for VMDPs (e.g. additional time, non-scientific calculators, video-magnifiers, tutor assistance, etc.). Detailed information is available at: http://www.unimi.it/studenti/serviziodisabiliedsa.htm and http://www.unimi.it/studenti/42036.htm, http://www.unimi.it/studenti/42023.htm.

c) Composition and training of the selection committee

The selection process is managed exclusively at the MIUR level.

d) Appeal process

Students excluded from the national ranking list can appeal to the Regional Administrative Court (TAR) against MIUR selection criteria.

e) Advertisement of the criteria and transparency of the procedures

All VMDP admission exam procedures and criteria are made public every year on the FVM, UNIMI and MIUR websites, far in advance of the admission test date:

- http://www.alphatest.it/Test-di-ammissione/informazioni-ufficiali/Bandi-di-concorso-decreti-e-posti-disponibili/Bandi-di-concorso-2018-Medicina-Veterinaria

- http://www.unimi.it/corsi_istituti/corsiUrla.jsp;
- http://www.unimi.it/studenti/matricole/77598.htm
- http://www.unimi.it/studenti/matricole/77572.htm

Following the admission test, candidates are given individual protected passwords to access VMDP national ranking lists (http://accessoprogrammato.miur.it/2018/VE_HP.html).

7.1.3. Description of the admission procedures for full fee students (if different from standard students)

Not applicable.

7.1.4. Description of how the Establishment adapts the number of admitted students to the available educational resources (facilities and equipment, staff, healthy and diseased animals, material of animal origin) and the biosecurity and welfare requirements

Every year, the VMTC proposes a 1st year VMDP student admission number to AS and then MIUR, based on facilities and staff numbers. For AY 2015-2016, 2016-2017 and 2017-2018 the VMTC proposed 100, 100 and 90 students respectively. Five additional places per year are reserved for non-EU students. However, upon the proposal, MIUR determines the number of students to be enrolled at each university based on overall Italian university places available, the professional needs of the social and productive system, EAEVE certification, and individual university requests.

On average, over the last three AYs student numbers assigned by MIUR to UNIMI's VMDP have been 20% lower than requested (**table 7.1.1**). All available places were assigned.

Table 7.1.2 shows the total number of veterinary undergraduate students registered at UNIMI for each year, for the new H15 and old H08 degree programmes separately.

In Italy, students can be differentiated according with the postion in their career as follows:

- On-course students: students who have passed a specific number of exams and of ECTS enabling their admission to the following year (see 7.1.5 and 8.1.4 for specifics).
- Repeater students: students who have not passed the minimum mandatory exams and have re-enrolled in the same year (these students can attend lectures and practicals).

Table 7.1.1. Numbers of new veterinary students admitted by the Establishment

	2017-2018	2016-2017	2015-2016	Mean
Total Admitted	78 (5)	78 (5)	85 (5)	80 (5)

In brackets, places reserved for non EU students

Table 7.1.2. Number of veterinary undergraduate students registered at the Establishment -

	2017-2018	2016-2017	2015-2016	Mean
New Degree Programme (H15)				
First year	75	78	78	77
Second year	74	83	86	81
Third year	77	83	89	83
Fourth year	77	106	144	109
Fifth year	92	262	251	202
Off-course	132	74	95	100
Total	**527**	**686**	**743**	**652**
Old Degree Programme (H08)				
Off-course	102	137	181	140
Total registered (H15+H08)	**629**	**823**	**924**	**792**

- Off-course students: students that have attended all VMDP courses but have not passed all exams. These students are enrolled but do not attend lectures and practicals. Number of students enrolled each year after the 1st year are the sum of students admitted, students who have transferred from the H08 to the H15 degree programmes, students enrolled as repeaters (see paragraph 7.1.5) and students transferring from other FVMs.

7.1.5. Description of:

a) the progression criteria and procedures for all students

The progression criteria are established by VMTC within ATR rules (http://www.unimi.it/ateneo/normativa/34145.htm). Every year the criteria are discussed, amended and approved by VMTC and made available to students on the Study Plan of the Veterinary Medicine Course (SPVM) published every year on institutional web sites (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/manifesto_ITA_HTML.html).

The progression criteria for AY 2017-2018 are:

- to register on a subsequent year, students must have earned a specific number of ECTS (a rule introduced in AY 2017-2018): enrolling on the 2nd year requires 20 ECTS, the 3rd year 70 ECTS, 4th year 120 ECTS and 5th year 170 ECTS. Furthermore, student enrolling on the second semester of the 5th year elective courses must have completed all the examinations of the first 3 years. Students not complying with these requirements have to re-enroll to the previous academic year (repetear students). There is no limit to the number of times student can re-enroll. Furthermore, students can re-enroll to the same year on a voluntary basis (e.g. if they are not confident enough to continue or prefer to gain more in-depth knowledge on a given subject). Repeater student numbers are low in the first and second years but increase progressively from the third year on.
- to sit specific exams students need to have passed propaedeutic exams (e.g. physiology exams must be passed before general pathology exams and this latter must be passed before anatomical pathology exams). The order in which exams are to be passed is available on SPVM (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/manifesto_ITA_HTML.html).
- students cannot graduate until they have passed all exams and completed the PPT.

b) the remediation and support for students who do not perform adequately

A tutorial system provides learning assistance to individual students on request (see section 7.1.6). Furthermore, all academic staff have a specific office consulting schedule published in their personal staff webpage (http://www.unimi.it/chiedove/chiedove.jsp).

The university monitors overall student progression and performance by regularly evaluating student graduation numbers each year, graduation time frames and ECTS obtained each year. This data is reported in the ARR annually.

Student progression survey results for the last three AYs are reported in tables (**7.1.2**, **7.1.3**, **7.1.4** and **7.1.4a**). The most relevant findings are:

- the number of students graduating annually is decreasing (**table 7.1.3**) as the consequence of a progressive reduction in students registered at the university (**table 7.1.2**). This in turn is due to: (i) the progressive graduation of the H08 (Old Degree Programme) students; (ii) progressive graduation of students who transferred en masse from H08 to the 4th and 5th years of the new H15 Degree Programme in AY 2012-2013, and (III) a reduction in students enrolled on the 1st year of the H15 Degree Programme starting from AY 2011-2012.
  We expect this trend to continue.
- The percentage (see tables) of students graduating in 5 years is improving.

  New Degree Programme (H15), **table 7.1.4**. In 2015-2017, on average only one third of students completed their studies within five years. However, this percentage is constantly improving, with almost 50% of students graduating in +0 years in 2017.

  Old Degree Programme (H08), **table 7.1.4a**. In 2015-2017, almost all students graduated in +3 years (off-course), an obvious consequence of the fact that enrolment in H08 ceased in AY 2009-2010 and

students are now registered off-course (see paragraph 7.1.5 and **table 7.1.2**). In the last three years, approximately 40% of graduates were form H08 degree programme, therefore in approximately two to three years their number will become irrelevant. We expect that the number of H08 students enrolled/graduated within 2-3 years will be not significant for the VMDC (**table 7.1.2** and **7.1.3**).

Table 7.1.3. Number of veterinary students graduating annually

	2015	2016	2017	2018*	Mean
New Degree Programme (H15)	59	92	89		80
Old Degree Programme (H08)	84	71	29		61
Total (H15+H08)	**143**	**163**	**118**		**141**

* Data not available, graduation ending on 31/12/2018

Table 7.1.4. Average duration of veterinary studies - New Degree Programme (H15)

	% of students who graduated in				
	2015	2016	2017	2018*	Mean
+ 0 year	32.2	22.8	46.1		33.7
+ 1 year	62.7	42.4	16.9		40.7
+ 2 years	0.0	30.4	23.6		18.0
+ 3 years or more	5.1	4.3	13.5		7.6

* Data not available, graduation ending on 31/12/2018

Table 7.1.4a. Average duration of veterinary studies - Old Degree Programme (H08)

	% of students who graduated in				
	2015	2016	2017	2018*	Mean
+ 0 year	0.0	0.0	0.0		0.0
+ 1 year	11.9	0.0	0.0		4.0
+ 2 years	19.0	9.9	0.0		9.6
+ 3 years or more	69.0	90.1	100.0		86.4

* Data not available, graduation ending on 31/12/2018

c) the rate and main causes of attrition

Dropout rates are low and have been stable over the last three years. On average, 6-7 1st year students do not continue to the 2nd year (8-9% of first year students) and about 5-6 students enrolled on subsequent years drop out of VMDP (total dropout rate after the 1st year, approx. 1%).

d) the exclusion and appeal procedures

Exclusion criteria are established by the ATR in compliance with Italian law and the DPB cannot modify these rules. Exclusion criteria can be consulted on: http://www.unimi.it/ateneo/normativa/34145.htm. No lack of progression. There is no limitation to the registration on supplementary years or to re-sitting exams and students can postpone graduation indefinitely. Furthermore, students can resume studies and register at the university without taking fresh admission tests up to 8 years after they passed their last exam, even if they have not regularly paid tuition fees.

e) the advertisement to students and transparency of these criteria/procedures

Criteria and procedures are permanently available on institutional webpages (http://www.unimi.it/ateneo/normativa/34145.htm). Furthermore, since AY 2017-2018 the JC organizes informal meetings to describe FVM organization, VMPD and the general progression rules to students. These meetigns are attended by senior undergraduate student representatives to meet and provide information to students regardign all aspects of FVM. A brief summary of what students can expect over the 5-year curriculum.

7.1.6. Description of the services available for students

a) Registration, teaching administration

There is a section of the UNIMI web site directed to students and their dedicated services: http://www.unimi.it/studenti/776.htm. Central orientation services and events such as orientation for students, open days etc. are organized regularly (http://www.unimi.it/studenti/863.htm). Central secretariat and student information is accessible via internet at the address http://www.unimi.it/studenti/segreterie/773.htm. Registration information is available at http://www.unimi.it/didattica/614.htm. Services available to students attending the VMDP are coordinated by the DPC's TO. Teaching office works closely with the central UNIMI offices responsible for admission, registration and any other administrative matters, both for undergraduate and postgraduate studies. Admission, lists of students admitted and enrollment are accesible at http://www.unimi.it/hpsifa/nonProfiledPage_100.html and http://www.unimi.it/studenti/matricole/77516.htm. Students can communicate directly with the DPC's TO and, from 2016, can write to: didattica.veterinaria@unimi.it. The International Student Office provides a welcome desk - for international students, doctoral students and interns coming to Milan for the first time.

b) Mentoring and tutoring, careers advice, listening and counselling

Mentoring and tutoring exists for both VMDP students and PPT students. Specifically, a member of teaching staff acts as reference tutor for students enrolled on each year of the new H15 Degree Programme. Furthermore, one tutor is available to students enrolled on the old H08 Degree Programme. Mentoring and tutoring of students attending the PPT has a specifically dedicated PPT committee coordinated by the DPC. These tutors offer guidance and advice and their names are listed in the SPVM (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/manifesto_ITA_HTML.html).

Students can convey their needs and queries through their representatives in the JC, DPB and DB. They can also provide suggestions, comments and complaints by writing, anonymously, to the following email address: veterinaria.referenteaq@unimi.it as published in the DIMEVET web page specifically dedicated (http://www.dimevet.unimi.it/ecm/home/osservazioni-e-reclami). The link is available also in English: http://eng.dimevet.unimi.it/ecm/home/suggestion-box.

Career guidance is the task of the University Service Center for Study Orientation and Professions (COSP- http://www.cosp.unimi.it/) and the VMDP. The latter foster student contact with practitioners from all areas. The COSP also offer psychological counselling and study advice for students encountering academic difficulties.

c) Assistance in case of illness, impairment and disability

To guarantee study rights equality and social integration within the university community, UNIMI provides the following assistance:

- services for students with disabilities or specific learning disorders (SLDs) including specific reading training for students with SLDs (http://www.unimi.it/studenti/serviziodisabiliedsa.htm). A transport service for disabled students and employees is available on request.
- health protection - as part of Milan's Agency for University Student Services project the university has drawn up an agreement with Milan's ATS - Health Protection Agency – designed to offer basic health care services free of charge to students residing outside the Lombardy region.
- "Committee promoting equal rights opportunities and welfare at work and against discrimination" (CUG). The CUG works to protect and promote personal dignity at work and guarantee and improve environmental and context conditions to staff and students (http://www.unimi.it/ateneo/62183.htm).
- Student Ombudsman (http://www.unimi.it/studenti/100964.htm). The Student Ombudsman examines complaints regarding university bodies, offices and individuals, and monitors the respect of students' rights and guarantees students representation in the academic committees.

d) Clubs and organisations

The university has a Cultural and Recreational activity centre available to all members of UNIMI (students and staff) accesible at http://www.arcus.unimi.it/. The activity centre embraces several services including social activities, cultural activities turistic activities, provides tickets to Milan theaters, sport centers, theatre company).

Table 7.1.5. Number of postgraduate students registered at the Establishment

	2017-2018	2016-2017	2015-2016	Mean
PhD programmes	82	85	85	84.0
Postdoctoral fellowship	10	18	14	14.0
National specialization schools	163	209	176	182.7
Masters	0	0	0	0.0
Residents	17	17	21	18.3
Interns	1	4	1	2.0
Total	**273**	**333**	**297**	**301.0**

- The University Sports Centre (CUS, http://www.unimi.it/studenti/50779.htm) promotes and organises university sporting activities.
- Milan University Choir. The choir (http://www.coro.unimi.it/) is a mixed four-part choir made up mainly of students and university staff.
- Ensemble Accademico UniMi is part of the University Orchestra (http://orchestra.unimi.it/) devoted to encourage and foster UNIMI student and staff musical talent (http://orchestra.unimi.it/ensemble-accademico-it/).
- Milan University Theatre Group (http://www.arcus.unimi.it/?go=showarticle&id=885).
- Several highly active student associations exist including one representing the International Veterinary Student Association (IVSA, http://ivsamilan.wixsite.com/ivsamilan/statute). The list of student associations and student representative lists is provided in Appendix 9.

7.1.7. Prospected number of new students admitted by the Establishment for the next 3 academic years

No significant change in student numbers will be planned by the VMTC nor assigned by MIUR to UNIMI.

7.1.8. Description of how (procedures) and by who (description of the committee structure) the admission procedures, the admission criteria, the number of admitted students and the services to students are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

Not applicable. These procedures are managed directly by MIUR, as reported in sections 7.1.2 and 7.1.4.

7.2. Comments

MIUR admission procedures do not take adequately into account students' motivations to the veterinary profession. Unfortunately, no actions can be taken at the VMTC level.

Allocation of students to the different Veterinary Schools, following national admission test, is cumbersome. Admission exams are scheduled in September causing delay in student enrolment to the first semester of the first year. This problem was partially solved postponing the beginning of the academic year teaching activities (action that was implemented since AY 2016-2017).

Although dropout numbers are limited, there are no surveys investigating the causes. Background of students entering the course is variable, including students with scientific and non-scientific (humanities, art etc.) education. Students with poor scientific background might have difficulties to pass first years' exams, this affecting both dropout rate and career length.

According to Italian legislation, no limits can be imposed to the number of times an exam can be retaken, nor to the number of years students can be enrolled as repeater or off-course. Unfortunately, VMTC cannot take actions to solve the problem.

A major problem of the students' career lays in the small number of students graduating within the allotted 5-year time. However, H15 Degree Programme statistics (**table 7.1.4**) are significantly better than those of the

old H08 Degree Programme when, on average, 8% of students graduated within the regular course time frame and 16% in +1 year (historical data from the Milan FVM - SER 2009). The improvement shows that the changes introduced in the new H15 Degree Programme have been effective in reducing graduation timeframes. It should be underlined that these figures are not truly representative of the H15 Degree Programme performance because among H15 students there are also some H08 transfers.

Off-course students do not attend lectures and practicals. However, they determine a significant increase of both the total number of students enrolled and the number of students graduating annually. These numbers negatively impact on relevant ESEVT indicators.

Most students enrolled as off-course are either H08 or former H08 transferred to the H15 Degree Programme. These students are expected to graduate in the following years according with some of the corrective measures (written exams, syllabus revision, tutorial activities).

7.3. Suggestions for improvement

As mentioned above, average study duration is the main problem. The results obtained by the H15 Degree Programme show that actions taken have succeeded in speeding up student progression. Further improvements may be obtained by:

- ongoing monitoring of students' study progression (ECTS acquired and exams passed);
- further implementing student tutorial system;
- ongoing syllabus updating, with the aim to solve problems that slow down student career in each course;
- introducing specific subsequent year registration requirements to discourage supplementary year enrolment;
- revision of the Degree Programme planned for 2019.

Regarding admission procedures, pressure will continue to be applied at MIUR level in order to anticipate admission test dates and to evaluate student predisposition to veterinary medicine and to increase the number of scientific questions against general knowledge questions.

8

Student assessment

8.1. Factual information

8.1.1. Description of the global student's assessment strategy of the Establishment

Students are assessed regularly, and the exam is considered part of the educational process.

To help students to complete their career on time, the VMTC has set up 8 exam sessions per year (January, February, March/April, June, July, September, October, November/December). Students are informed of exam sessions on the web (http://www.unimi.it/foProssimiEsami/ pdf/H15) and use an intranet system to sign up for specific exams (http://www.unimi.it/hpsifa/nonProfiledPage_100.html) and can check their exam results. Exam dates must be made public 60 days prior to the exams. A semester coordinator is responsible for exam timetables, providing students with optimal opportunities to sit the exams (eg. avoiding overlap of dates).

Italian law sets no limits on the number of times students can re-sit examinations.

Students are required to pass propedeutical (barrier) exams before sitting specific exams. As an example physiology must be passed before pathology exams. A list of these exams is published on the course website (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/manifesto_ITA_HTML.html).

Class attendance is compulsory. Only those students who have attended at least 75% of lecture and practical ECTs of the course can sit the corresponding exam.

In spring 2016, the VMTC strongly recommended adopting written examination formats. Today, exams can be sat in written and practical form (see Appendix 4).

In a few IC, students take one or two mid-term examinations. The final score of IC courses is the sum of the score of the teaching units weighed by their corresponding ECTs.

Examination methods and assessment criteria are available for consultation on the internet in the course syllabus at the beginning of the academic year (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/elenco_ITA_HTML.html).

The VMTC strongly encourages that class workload is closely mirrored in the respective course examinations. This is an ongoing process.

The final grade and the DVM title are obtained following the oral presentation of the research work included in the undergraduate dissertation thesis to a nominated academic committee after all exams are passed and all ECTS have been obtained. The final grade is the results of student career and thesis dissertation score and the maximum score that can be obtained is 110 cum laude (with honors).

CAI, QAC and JC develop and monitor the whole assessment strategy.

8.1.2. Description of the specific methodologies for assessing theoretical knowledge, pre-clinical practical skills, clinical practical skills

a) Theoretical knowledge

Assessment of theoretical knowledge is mainly based on written exams that are assembled with the inclusion of different question format including: true or false, multiple choice, short answer, open-ended questions and page essays. Examination questions are not subject to review.

UNIMI offers a service to assemble and manage written and computer based exams. Teachers provide questions. The order of questions and the order of responses within questions are randomized to guarantee a fair process and evaluation is computer-assisted too. Teachers decide examination question format.

b) Pre-clinical practical skills

Pre-clinical skills are assessed during the first three years of the curriculum. Practical evaluations are made on healthy animals, cadavers, organs and images.

c) Clinical practical skills

Clinical practical skills are assessed by written exams and in a practical form on patients in formative and summative form in the 3rd, 4th and 5th years.

8.1.3. Description of the assessment methodology to ensure that every graduate has achieved the minimum level of competence, as prescribed in the ESEVT DOCs

Clinical practical skills, as set out in the ESEVT DOCs, are monitored by teaching staff during practicals and exams. Logbooks are assigned to each student for: ambulatory clinics, rotation at VTH and PPT. Student logbooks are certified by teaching staff and validated by DPC. A web based, electronic logbook will be made available by December 2018 to all students.

In Italy, licence to practice is mandatory to access the veterinary medicine profession. The licence to practice exams are held by veterinary practitioners, state veterinarians and UNIMI teaching staff, and consist of four oral parts: 1-Internal medicine and avian pathology; 2-Surgery, obstetrics and gynecology; 3-Animal husbandry; 4-Food of animal origin safety. There are two sessions per year (June and November) to access the license to practice exams.

8.1.4. Description of the process for:

a) Ensuring the advertising and transparency of the assessment criteria/procedures

Assessment methods and criteria, along with learning outcomes, course contents, readings, teaching methods and tools, and office hours for each course are set out in the course website syllabus (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/elenco_ITA_HTML.html). The VMTC encourages teaching staff to discuss the syllabus, including learning outcomes and assessment methods that will be applied, during the first day of class. Prior to their publication on line, syllabuses are checked by JC (see Appendix 4).

b) Awarding grades, including explicit requirements for barrier assessment

Grades are expressed in numbers. In all examinations, the minimum approval grade is 18 and the maximum grade is 30 “cum laude” (with honors). The examination board for each teaching subject must include at least two members of the teaching staff. Individual students are notified of exam grades at the end of oral and practical components or, for written exams, by a provisional list via electronic mail or via the Ariel student teaching platform (https://ariel.unimi.it). Students must be notified of results within 15 days of the exam date. Grades are registered by the corresponding central services following online acceptance by the student.

Students cannot enrol to the next year if they have not completed exams for 20 ECTs (first to second year), 70 ECTs (second to third year), 120 ECTs (third to fourth year) and 170 ECTs (fourth to fifth year) respectively. They must re-enrol as repeat students on the same year.

Students’ progression and performance is monitored on a regular basis, every three months, by the DPC with a document, drawn up by IT, showing how many students per each year of registration to the VMDP have passed each exam.

c) Providing to students a feedback post-assessment and a guidance for requested improvement

Students have the right to consult and discuss their written exams by making an appointment with the teaching staff before grade registration. No systematic procedures are established for post-assessment feedback to students after summative exams.

If improvement is required, tutoring is guaranteed by a few members of the teaching staff and rarely by specific course teachers on a voluntary basis. At any rate students do not often take advantage of this opportunity.

d) Appealing

In general terms, any issue regarding student assessment or other aspects of student life at FVM can be reported by the student representatives to JC and VMTC. Moreover, students can file web based complaints on http://www.dimevet.unimi.it/ecm/home/osservazioni-e-reclami, managed by QAC (http://eng.dimevet.unimi.it/ecm/home/suggestion-box).

UNIMI also has a student ombudsman (http://www.unimi.it/studenti/100964.htm) whose functions are regulated by art. 35 of the UNIMI Statute (http://www.unimi.it/ateneo/normativa/3056.htm#c55243). A non-UNIMI external guarantor with proven specific legal knowledge is appointed by the Academic Senate. The external guarantor can take action on any claims and ensure student and witness right to anonymity. The guarantor draws up an annual report of activities which is published on the UNIMI website (http://www.unimi.it/cataloghi/unicom/Relazione%20sull%27attivit%C3%A0%20svolta%20(novembre%2020%2016%20-%20ottobre%202017).pdf).

8.1.5. Description of how and by who the student's assessment strategy is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

DPC and VMTC are responsible for developing guidelines and evaluating teaching methods and student outcomes. VMTC receives help and suggestions from CAI, QAC and JC. At the end of the procedure, the VMTC has the responsibility to ensure a fair and strict student assessment system and to ensure the achievement of ESEVT DOCs at the end of the five-year Degree Programme.

8.2. Comments

Further work is required to ensure a fair and rigorous student assessment method. Over recent years, significant attempts have been made to harmonize the exam system. This is still an ongoing process. Most exams are now written. However a review of exam methods and question preparation and selection has not taken place.

8.3. Suggestions for improvement

- Syllabuses ongoing revision should promote inter-IC interaction and coordination;
- the acquisition of ESEVT DOCs will be monitored more objectively using a web-based logbook mobile application;
- specific guidelines for written and practical examination for each course should be developed to meet internationally recognised examination standards. In addition, specific teacher training on how to structure written exam and practical assessment;
- a computer-based examination system of exam quality control should be developed;
- exam scores should be converted to ECTS grading tables to make exam results easier to understand and translate at the European and International level;
- mid-term examinations may help to speed up student progression;
- SOP on appealing procedures need to be assembled and should be made available to students and for QA.

9

Academic and support staff

9.1. Factual information

9.1.1. Description of the global strategy in order to ensure that all requested competences for the veterinary programme are covered and that staff are properly qualified and prepared for their roles

Under the DIMEVET supervision and responsibility, VMDP ensures that the required skills for the veterinary programme are covered. The list of skills that students must have acquired by graduation, pursuant to European guidelines and Italian MIUR requirements, was revised in October 2009.

Every year:

- courses are assigned by VMDP to teaching staff in accordance with their ministry accredited SSDs and fields of expertise;
- teaching staff are responsible for defining learning contents in accordance with the teaching objectives defined by VMDP and published in the official study plan (Manifesto degli Studi http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/manifesto_ITA_HTML.html);
- course objectives and contents are discussed and implemented by the JC, CAI and VMDP and following external stakeholders' suggestions;
- the syllabus contains information related to each course and is available on http://www.veterinaria.unimi.it/CorsiDiLaurea/2019/H15of1/pianoStudi/index_ITA_HTML.html

Teaching staff qualifications are guaranteed by recruitment/promotion procedures. Teachers must first obtain national accreditation, according to their SSD, and secondly go through local competitive selection for appointment as teaching staff, as section 9.1.2. below describes. The vast majority of permanent teaching staff are full time, ensuring they have sufficient time to assist students and keep their knowledge and skills up-to-date. In addition, a high percentage of teaching staff (78.3% among permanent academic staff) are DVMs, guaranteeing appropriate qualifications for veterinary teaching.

UNIMI has a unit devoted to promoting top quality teaching. DIMEVET teaching staff are invited to attend pedagogic and new teaching methodology courses, as described in section 9.1.2. Teaching staff research activities are evaluated by UNIMI; staff with negative evaluations are penalised in their access to resources and participation in committees, etc. (e.g. PhD programmes). Teaching assessment by students (see 9.1.6) contributes to monitoring teaching contents and quality.

Support staff qualifications are ensured by the competitive selection process they go through for recruitment/promotion and by the continuing education courses, mainly organised by UNIMI, that they periodically attend (see 9.1.3).

Each laboratory or facility working with biological material has its own biosecurity guidelines/procedures developed in accordance with general UNIMI guidelines (http://www.unimi.it/personale/prevenzione_sicurezza/2608.htm) and the Laboratory Biosafety Manual published by the Italian Institute of Occupational Safety and Prevention (ISPESL, Istituto superiore per la prevenzione e la sicurezza del lavoro) (http://www.unimi.it/cataloghi/prevenzione/ManualBiosafety.pdf). Guidelines are given and explained to staff and students attending lab or facility activities.

The DIMEVET Quality Assurance system takes part in promoting, managing and evaluating degree course teaching quality for continuous improvement. The system acts through, and in conjunction with, a range of bodies, see chapter 11 for detail.

9.1.2. Description of the formal programme for the selection, recruitment and training to teach and assess students (including continuing education) of the academic staff

Under the current system, the Italian academic staff is composed of full professors, associate professors and tenure-track assistant professors/researchers.

For postgraduate teaching (e.g. Italian specialisation schools), academic staff is also assisted by external colleagues with relevant professional experience.

Under the procedures described in section 9.1.8 below, the UNIMI Rectorate assigns new academic staff recruitment posts/promotion every year. Staff recruitment/promotion is by public competitive selection. In some cases, competitive selection is restricted to UNIMI personnel. As outlined in section 9.1.1, selection takes place in two steps: 1) a periodic national selection process carried out by MIUR, based on the objective assessment of scientific qualifications; 2) a local competitive selection process, managed by departments, based on research achievements, teaching abilities and career and service activities. Candidates must pass the national selection process to apply for local selection. Rarely, staff are recruited without the second competitive selection phase, but only according with established reputation criteria. Both procedures are based on criteria which include research record, teaching capabilities and experience, service activities and curriculum vitae. A PhD is mandatory.

In 2016 the University of Milan launched an initiative promoting top quality teaching, the so-called EXEL (Experiment of Enhanced Learning) project. The purpose of EXEL is to foster teaching skills and promote an institutional culture which values effective teaching and meaningful learning. In 2017, VMDP teachers took part in the first ABC Workshops, set up by London's University College and modified by UNIMI. ABC workshops are effective face-to-face and team-work based activities applied with great success to a range of programmes worldwide.

In 2019, VMDP teachers will attend other UNIMI courses to enhance teaching quality (e.g. blended learning). Blended learning is an education program that combines online digital media with traditional classroom methods. The "(Re)design your course with blended learning" project was designed by Utrecht University and adapted to UNIMI conditions and some DIMEVET teachers took part in a preparatory pilot course in 2017.

9.1.3. Description of the formal programme for the selection, recruitment and training to perform their specific duties (including continuing education) of the support staff

DIMEVET periodically identifies specific new support staff requirements, both administrative and technical, and makes recruitment/promotion proposals to UNIMI. If these are accepted, recruitment procedures with specific selection criteria begin. Candidates are selected via competitive examinations.

Support staff continuing education courses are offered by UNIMI yearly. Support staff must take a minimum of 30 hours per year of continuous education. Support staff can request permission from UNIMI to attend non-UNIMI courses offered by various institutions for continuing education in specific sectors.

9.1.4. Description of the formal programme for the appraisal, development, promotion criteria and procedures, supporting and mentoring of both academic and support staff

Permanent academic staff can be promoted via competitive selection procedures. Departments must apply for new posts to the UNIMI Rectorate. Competitive selection procedures can be restricted to UNIMI academic staff or open to any Ministry accredited participant. Research, service and teaching curricula are evaluated.

Academic staff research is evaluated both by UNIMI and DIMEVET. UNIMI evaluates academic staff research productivity every three years. DIMEVET, with its DRC, monitors and evaluates staff research activities. Low research productivity penalises the Department in terms of funding for recruitment and promotion of staff, as reported in section 9.1.1..

Until recently, within an academic category, changes in academic staff pay band did not require full evaluation but were linked to years of service. However, in the face of the economic crisis, all academic career pay rises have been suspended since 2011, at the national level. In 2015 a one-off economic incentive on the basis of academic and scientific merit was given. From 2019, changes in academic staff pay band are expected to require evaluation of research, teaching and service activities.

Support staff are evaluated periodically in view of category pay rises. Support staff with higher professional positions linked to specific allowances are evaluated every year.

Research staff generally work under the guidance of one or more senior academic staff. Staff dedicated to administrative duties work under the guidance of a senior departmental staff member. Technical staff work under the guidance of one or more research or academic staff members.

9.1.5. Description of the formal rules governing outside work, including consultation and private practice, by staff working at the Establishment

UNIMI has specific rules governing external staff work. Most research and academic staff can apply to work full or part time and choices are revised every second year. Staff working full time cannot work outside the university, with a few exceptions (editorial and some type of consultancy work, etc.) which have to be authorised by the rector in some cases and, in all cases, payment amounts must be limited. Part time means 250 hours of teaching (vs. 350 for full time), a lower salary and opportunities to work outside the university.

Support staff can also apply to work part-time. In the 2015-2018 period only a small proportion of research, academic and support staff applied to work part-time.

9.1.6. Description of the formal programme of the Establishment for the assessment of teachers by students and its outcome

- Since the 2001-2002 academic year, all courses have been evaluated every year by attending and non-attending students, via online (since 2015) questionnaires. Students analyse facilities, courses and teachers. Teacher evaluation considers a range of questions, including attendance, punctuality, clarity, capacity to stimulate interest, behaviour toward students, willingness to help students, concordance between syllabus and lessons, etc.
- The results of each course are passed on to the teacher responsible. Results for all courses are passed on to the President of the Directive Committee and the DPC.
- UNIMI has not yet drawn up procedures to make the results of teacher assessments by students public. However, in 2018 most VMDP teachers agreed to make their assessments public and these can be published on their Teaching Material web pages (ARIEL; https://ariel.unimi.it/).
- Overall results are discussed each year at the VMTC.

9.1.7. Prospected number of FTE academic and support staff of the veterinary programme for the next 3 academic years

Academic staff numbers are expected to remain at current levels. With expected new recruitment to offset retiring staff, with reduction of the current average age (for full professors and associate professors, 59 and 53, respectively).

On the other hand, support staff numbers, both administrative and technical, that declined substantially during the DIMEVET and VESPA reorganization and the Lodi transfer, is expected to increase over the next 3 academic years, but within constraints linked to the national economic crisis.

9.1.8. Description of how (procedures) and by who (description of the committee structure) the strategy for allocating, recruiting, promoting, supporting and assessing academic and support staff is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

Every year, the UNIMI Academic Senate and UNIMI Administration Board draw up a UNIMI financial plan for staff recruitment and promotion and assign quotas to departments. Occasionally, if additional resources become available, financial plan is revised during the year. Concurrently, the UNIMI Rectorate consults departments and CCVZS to identify their personnel needs. Within departments, the SSDs submit their research and teaching personnel needs. For DIMEVET, the Recruitment Committee evaluates staff requests of SSDs on the basis of several different criteria including: need for new skills, balance across staff categories, teaching and research needs, support for CCVZS, continuing and postgraduate education needs, harmonious distribution across SSDs.

In order to harmonise DIMEVET and VESPA's recruitment/promotion plans, proposals are analysed and validated by the Directive Committee and submitted to the Rector. The CDA is in charge of the final approval of posts allocations.

Additionally, posts can be funded by non-competitive or competitive grants, in particular for researchers.

Regarding support staff, every year department proposals are discussed by the UNIMI CDA which assign staff budgets to departments.

Transparency of the process is based on publication of the decisions on the web site and by the presence of representatives of support staff and students on the Department Board and on the Directive Committee, alongside academic staff. Posts are advertised on the UNIMI website.

Table 9.1.1. Academic staff of the VMDP (FTE)

Type of contract		2017-2018	2016-2017	2015-2016	Mean
		DEPT. DIMEVET			
Permanent		55	51	45	50.3
Temporary	External contract professors[1]	10.1	14	12.6	12.2
		DEPT. VESPA			
Permanent		26	24	25	25
		Other DEPT.			
Permanent		4	5	2	3.7
		CCVZS			
Temporary	Practitioners	14.4	0	0	4.8
TOTAL		**109.5**	**94**	**84.6**	**96.0**

[1]Includes course staff, clinical instructors/Ambulatory Clinics teachers, and a limited FTE from PhD and graduate students.

Table 9.1.2 Percentage (%) of veterinarians in academic staff (FTE)

Type of contract	2017-2018	2016-2017	2015-2016	Mean
Permanent	81	76	78	78.3
Temporary	98	96	95	96.3

Table 9.1.3. Support staff of the VMDP (FTE)

Type of contract		2017-2018	2016-2017	2015-2016[3]	Mean
		DEPT. DIMEVET			
Permanent[1]	Administrative	12	11	13	12
	Technical[2]	26	27	34	29
		CCVZS			
Permanent[1]	Administrative	7	7	4	6
	Technical[2]	16	14	7	12.3
TOTAL		**61**	**59**	**58**	**59.3**

[1]Support staff hired and managed directly by the University are not included, e.g. building caretakers, educational and administrative offices.
[2]Includes teaching, research, equipment maintenance, care of animals and driving staff.
[3]At the end of 2015-2016, staff were moved from DIMEVET to CCVZS.

Table 9.1.4. Research staff of the DIMEVET

Type of contract		2017-2018	2016-2017	2015-2016[1]	Mean
Permanent	Researcher permanent contract	27	29	32	29.3
Temporary	Researcher fixed-term contract	12	10	7	9.7
	Post doc	41	42	25	36
	PhD student	26	26	25	25.7
TOTAL		**106**	**107**	**89**	**100.7**

[1]DIMEVET was set up in March 2016. Before this date, numbers refer to DIVET and partially VESPA departments.

9.2. Comments

The number of academic staff involved in veterinary training is considered adequate.

The academic staff have sufficient expertise to cover the required veterinary training skills. Plans are underway to rectify deficits in a small number of additional skills which are currently poorly represented (e.g. equine surgery).

The Italian economic crisis, and a consequent reduction in recruitment, has lead to an average teaching staff age increase (see 9.1.7), that it is expected to decrease over the next few years thanks to new recruitment policies.

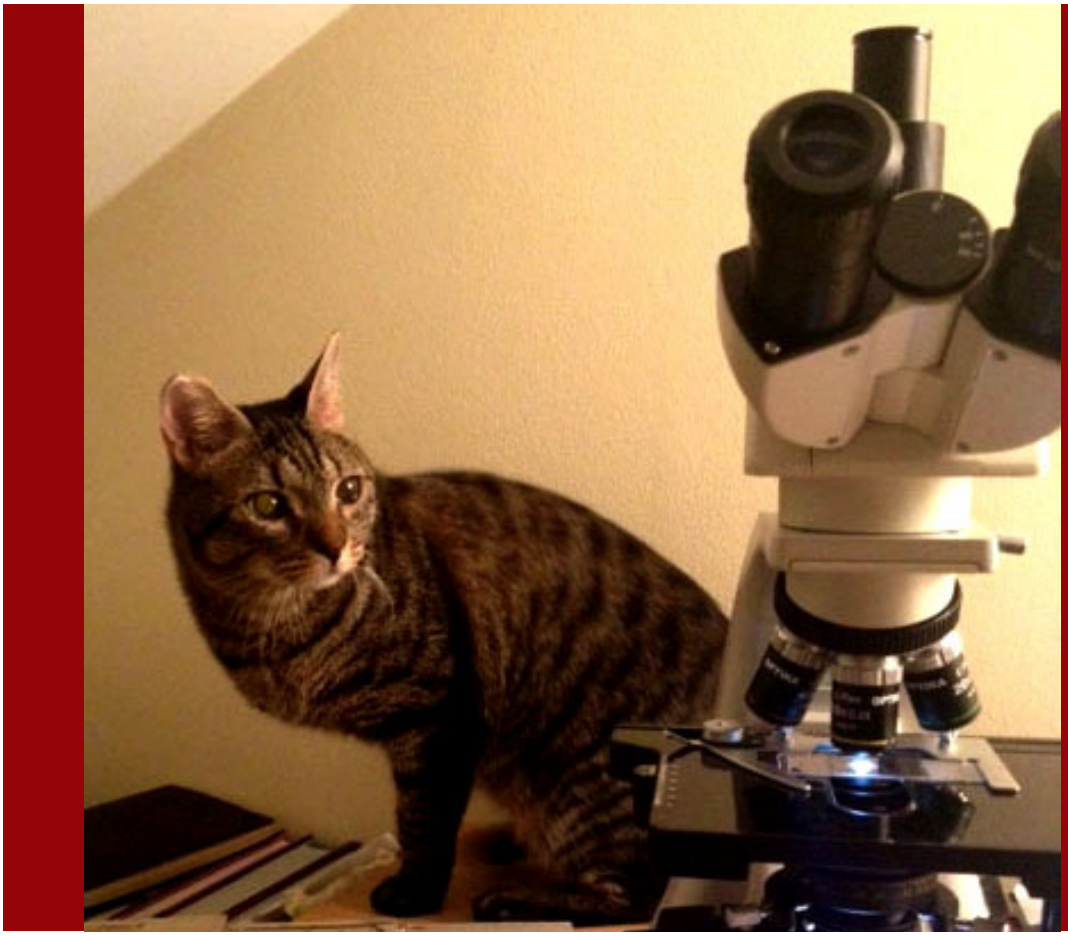
Economic incentives and/or career progression are poorly linked to academic and scientific merits.

As already pointed out, UNIMI recently launched a programme to promote top quality teaching. Our veterinary degree course has been selected to participate actively in the development of this important project. Most DIMEVET staff are responding positively to the implementation of a UNIMI-DIMEVET programme for continuous high quality teaching education.

9.3. Suggestions for improvement

- Full revision of the VMDP course is necessary and will be implemented in 2019;
- development of a periodic teacher and student assessment training programme, compulsory for newly recruited staff, in conjunction with UNIMI's EXEL initiative;
- increase transparency of teacher assesment questionnaires by publication of the results – this aspect has been discussed over the last two years within DIMEVET and 99% of teachers have agreed to make this information public. However, in order to fully implement this, UNIMI general rules need to be developed.

10



Research programmes, continuing and postgraduate education

10.1. Factual information

10.1.1. Description of how the research activities of the Establishment and the implication of most academic staff in it contribute to research-based undergraduate veterinary education

Undergraduate participation in research is compulsory in the graduation thesis programme. Overall, 7 credits (175 hours) are allocated to scientific projects (laboratory experiments, clinical research studies, analytical activities, critical reviews) which must be developed by every student under the supervision of teaching staff (professors, graduate students and/or residents). The process requires team work, internet based bibliographic searches, reading and interpreting relevant publications, critical evaluation of published results and protocols, producing and/or interpreting and analysing data, providing sound results and writing theses in scientific publication format (introduction, materials and methods, results, discussion, conclusions, references, acknowledgements). A guidance document on how to write and format undergraduate theses is available at http://www.dimevet.unimi.it/ecm/home/didattica/tesi-disponibili. Theses are revised by referees and reviewed with students. Results are delivered to 11 teaching staff members of the advisory examining board as a 15 minute presentation including questions. Marks obtained (0-12) are part of DVM title final marks. Research projects available for graduation theses are posted at http://www.dimevet.unimi.it/ecm/home/didattica/tesi-disponibili. Students may develop also a research project of their personal interest.

10.1.2. Description of how the postgraduate clinical trainings of the Establishment contribute to undergraduate veterinary education and how potential conflicts in relation to case management between post- and undergraduate students are avoided

There are 21 European College specialists among academic staff. In 2015-2018, the VTH offered two rotational funded internships in Companion Animal General Medicine (one full time funded intern per year) and 7 interns in Anatomical Pathology. The FVM provides training in 4 EBVS recognised specialties: ECAWBM, ECAWBM-AWSEL, ECVP, ECAR. The ECVCP residency is undergoing facility and programme re-accreditation following FVM's move to Lodi. The European College of Aquatic Animal

Table 10.1.1.a Number of students registered at postgraduate clinical training.

TRAINING	AY 2017-2018	AY 2016-2017	AY 2015-2016	TOTAL
Interns				
Small animal medicine (funded rotational internship)	1	1	*	**2**
Equine	NA	NA	NA	**NA**
Production animals	NA	NA	NA	**NA**
Anatomical pathology	0	3	1	**4**
TOTAL	**1**	**4**	**1**	**6**
Residents in EBVS Disciplines				
European College of Animal Welfare and Behavioural Medicine (ECAWBM BM)	2	2	2	**6**
European College of Animal Welfare and Behavioural Medicine (ECAWBM AWSEL)	3	2	2	**7**
European College of Veterinary Clinical Pathology (ECVCP)**	0	0	0	**0**
European College of Veterinary Pathology (ECVP)	10	10	13	**33**
European College of Animal Reproduction (ECAR)	2	3	4	**9**
TOTAL	**17**	**17**	**21**	**55**

NA: Not available
* Not available in the academic year 2015-2016
** Re-accreditation of ECVCP residency facilities and programme is underway due to the move to Lodi

10.1.1. b Number of students registered at postgraduate clinical training (Italian specialisation schools).

ITALIAN SPECIALIZATION SCHOOLS leading to Italian specialist QUALIFICATION (3 years)				
SPECIALIZATION SCHOOL	AY 2017-2018	AY 2016-2017	AY 2015-2016	MEAN
Animal Nutrition	10	9	8	9
Fish husbandry hygiene, pathology and fish product inspection	19	19	19	19
Applied ethology and animal welfare	21	21	21	21
Milk and dairy product hygiene and technology	22	22	22	22
Inspection of foodstuff of animal origin	*	8	8	8
Equine medicine and surgery	7	7	16	10
Small animal clinics and pathology	16	22	20	19.3
Swine diseases	9	9	*	9
Animal health, husbandry and production	28	62	32	40.6
Laboratory animal sciences and medicine	9	10	10	9.6
Technology and pathology of avian, rabbit and wildlife species	22	20	20	20.6
TOTAL	**163**	**209**	**176**	**548** / **182.6**

*Not provided in the academic year of reference. Courses are provided annually as 3 year programmes

Table 10.1.2. Number of students registered at postgraduate research training degrees.

PROGRAMME	AY 2018	AY 2017	AY 2016	AY 2015	MEAN
PhD program in Veterinary Animal Science	57	61	61	52	57.75
PhD program in Nutritional Science	25	24	24	17	22.5
Old PhD programs	*	*	*	30	30
Postdoctoral fellowship type A (funded by UNIMI and tenured)	6	10	14	8	9.5
Postdoctoral fellowship type B (funded by projects or additional funds)	4	8	0	0	3
MASTER	0	0	0	0	0
TOTAL	**92**	**103**	**99**	**107**	**401** / **100.5**

* Old PhD programs last enrolment in 2012

Health (ECAAH) residency has received provisional approval in June 2018. Interns and residents are supervised by teaching staff and take part in clinical and diagnostic work and practical undergraduate training at all levels including 5th year pre-professional training. The presence of diplomats among the teaching staff is perceived as a significant incentive for undergraduate and postgraduate clinical trainees. Clinical training of residents and interns does not generate conflict but contributes to the students' practicals and represents a great aid to teaching staff. In Italy, the most significant postgraduate training in clinical and non-clinical practical disciplines is offered by National Specialization Schools (http://www.veterinaria.unimi.it/PostLaurea/1733_ITA_HTML.html) organized into three year structured practical programmes providing specific training in several disciplines (**table 10.1.1.b**), with yearly exams, clinical research and a final thesis leading to Italian specialist qualifications. The disciplines and organisation of these schools are regulated nationally by MIUR. These schools provide practical permanent education programmes requiring one-two days per week of supervised attendance and lead to the Italian specialist qualifications. The small animal clinics and pathology specialisation school is currently applying for the VetCEE accreditation by the European Coordinating Committee on Veterinary Training (ECCVT).

10.1.3. Description of how undergraduate students

a) are made aware of the importance of evidence-based medicine, scientific research and livelong learning

1. The compulsory graduation thesis programme includes an experimental part or a critical review of a specific topic with evidence based medicine published data evaluation.
2. Academic staff foster undergraduate development of a scientific approach to learning.
3. Organization of VAS days, 4 day scientific meetings held every summer and open to all staff and students (undergraduates and graduates) with keynote speakers and scientific project presentations by all PhD students (http://users2.unimi.it/vas/index.php/vas-days-2018).
4. Participation to research oriented events such as the Night of the Researchers, organising several workshops.
5. Seminars and conferences open to undergraduate students.
6. Students may attend the PhD and residents' Journal Clubs and are also invited to personally present a scientific article in the same context (on a voluntary basis).

b) are initiated to bibliographic search, scientific methods and research techniques, and writing of scientific papers

1. Every year a compulsory 9 hour course (part of the IT course) assists undergraduate students with Pub Med, OPAC, CAB Abstracts and teaches how to use university library digital resources (73 attendees in 2017). Every year, 2 courses for CAB Abstracts, and CAB reviews (8 hours) and 2 courses for FSTA (6 hours) and 6 courses for PubMed (30 hours) are offered to all staff and students (136 attendees in 2017) by the library personnel. A compulsory course on veterinary and biomedical bibliographic databases is offered every year to Ph.D. students (12 hours, 16 attendees in 217).
2. Trough the compulsory graduation thesis programme.
3. Students may write scientific abstracts and/or papers related to their graduation theses.

c) are offered to participate to research programmes on a non-compulsory basis

1. Students make contact with research and research programmes during their theses, pre-professional training (on a voluntary basis) and VAS days (on a voluntary basis).

10.1.4. Description of how the continuing education programmes provided by the Establishment are matched to the needs of the profession and the community.

Veterinary Continuing Medical Education (VCME) is mandatory in Italy and requires practitioners to acquire 50 ECM per year by attending ECTS accredited courses and sitting a final MCQ exam. Postgraduate practical VCME has traditionally been offered by external institutions (private and state scientific institutions) as a result of the heavy front-of-class and practical academic teaching load involved, generally low teaching staff numbers, a lack of academic recognition of additional external teaching and the need for university approval (granted only if structured academic teaching is within the determined number of hours). Veterinary Schools have mainly focused on undergraduate teaching and postgraduate research programmes including: young researcher bursaries (veterinarians under 29 year of age who graduated less than 2 years previously), doctorate programmes (3 year structured research funded programmes leading to doctoral degrees), internships (rotational in small animals, and speciality veterinary pathology internships) and National Specialization Schools (http://www.veterinaria.unimi.it/PostLaurea/1733_ITA_HTML.html), residencies. Additional recognised practical training is delivered on a voluntary basis to DVMs in advanced courses lasting up to three months and often ECM-CPD accredited (**table 10.1.3**). The FVM has organized over 30 accredited and non-accredited seminars, workshops and short courses mostly focusing on fields which are not covered by external institutions (**table 10.1.4**). Following evaluation of scientific programmes by the departments, the FVM hosts and sponsors many courses and seminars organised by external state and private institutions which often include FVM academic staff (not listed).

Academic staff are also actively involved (on a voluntary basis) in VCME provided by private external 'cultural' veterinary organizations (SCIVAC, EV, AIVPA, UNISVET etc.) but this is not officially registered since it is not recognised by the FVM.

Table 10.1.3. Number of students registered at other postgraduate programmes (including any external/distance learning courses)

NAME OF COURSE	AY 2017-2018	AY 2016-2017	AY 2015-2016	MEAN
ADVANCED COURSES				
Food security *Specialist course*	*	*	100	100
Protection and correct management of zoo animals *Expert course 48 hours* **ECM**	7	6	*	6.5
Wildlife and public health *Expert course* **ECM**	*	*	32	32.0
Exotic animal welfare in zoos-basic level *Expert course*	7	6	6	6.3
Canine artificial insemination and semen preservation *Expert course* **ECM in 2017/2018**	8	8	6	7.3
Laboratory animal welfare and care-basic level *Expert course* **ECM**	*	*	25	25.0
Laboratory animal welfare and care-advanced level *Expert course* **ECM**	*	*	16	16.0
Laboratory animal welfare and care-rodents *Expert course* **ECM**	25	13	*	19.0
Anatomic basis and techniques in thoracic surgery *Expert course* **ECM**	10	12	*	11.0
Anatomic basis and techniques in abdominal surgery *Expert course* **ECM**	10	25	*	17.5
Anatomic basis and techniques in plastic surgery *Expert course* **ECM**	12	*	*	12.0
Legal and inspective veterinary medicine: forensic and judiciary procedures. Methods, roles and responsibilities *Expert course* **ECM**	30	30	15	25.0
Veterinary law and legislation *Expert course*	26	33	39	32.3
TOTAL	**135**	**63**	**239**	**437** / **145.6**

Courses may be provided annually
*Not provided in the academic year of reference
Specialist course - minimum 100 hours; Expert course - minimum 30 hours

Table 10.1.4. Number of attendees to continuing education courses provided by the Establishment.

CONTINUING EDUCATION COURSES		
NAME OF THE COURSE	**ATTENDEES**	**ECM-CPD accredited**
2015-2016		
Seminar – Emergence of *Aethina tumida*: current knowledge and future disease control perspectives	220 Students, DVMs, Breeders	**ECM-CPD accredited**
Meeting – "Quality of life in a cattery: animal behaviour indicators and legal matters"	170 Students, DVMs, Breeders	
Seminar – "Cats as we know them"	45 Students, DVMs	
Meeting – Technologies defending Italy from Food Sounding"	75 Students, DVMs, Open to the public	

(continue on next page)

Table 10.1.4. Number of attendees to continuing education courses provided by the Establishment. *(continue)*

CONTINUING EDUCATION COURSES		
NAME OF THE COURSE	**ATTENDEES**	**ECM-CPD accredited**
2015-2016 *(continue)*		
Antibiotic resistance: to know and face it.	100 Students, DVMs	
Workshop Clinical Case discussion: Orthopaedic cases of racing horses	100 Students, DVMs	
Meeting – CoVAL – Conservation and Valorisation of Poultry Lumbardy Breeds	45 Students, DVMs	
Seminar – Towards the Future of Chronic Kidney Disease	80 Students, DVMs	
Practical course – Equine Ultrasound	20 DVMs	
A step towards the Veterinary Profession (future perspectives, Day One skills and Practice management)	90 Students, DVMs	
2016-2017		
Meeting – Jail's Bond: human-animal relationship in jail	200 Law and Veterinary Medicine staff and Students	
Workshop – "Bee cholera: current knowledge and future perspectives"	50 Students, DVMs, Technicians, Breeders	
Practical course – Fetlock: I and II level diagnostic imaging	30 Students, DVMs	
Canine breeding: veterinary recommendations for the good management – IV edition	146 Students, DVMs, Breeders	
Veterinary Practice Management	60 Students, DVMs	
Problems of Public Service Veterinarian role in the international market of animal foodstuff	147 Students: 80 DVMs: 37 Food technologists: 30	**ECM-CPD accredited**
Educational projects of veterinary international teaching and knowledge management	40 DVMs, Teaching staff	
Practical Course – Equine Ultrasound	18 DVMs	
Equine Dentistry Course	16 DVMs	
A brighter future for frogs? Experimental approaches to ex situ amphibian conservation	30 Students	
The responsibility of the Veterinarian in the pre-trade and in the behavioral clinical evaluation	30 DVMs	
Risk assessment strategy for GMOs currently in place in the European Union	20 Students	
The role of the veterinarian in production animal industry (bovines and small ruminants)	45 4th-5th year students	
Infectious keratoconjunctivitis: news and prospectives	100 DVMs	**ECM-CPD accredited**
Ethics as a responsibility:; Integrity pathways and prevention in veterinary medicine: a peer educational project	90 Students, Teaching staff	

(continue on next page)

Table 10.1.4. Number of attendees to continuing education courses provided by the Establishment. *(continue)*

CONTINUING EDUCATION COURSES		
NAME OF THE COURSE	**ATTENDEES**	**ECM-CPD accredited**
2016-2017 *(continue)*		
Seminar – "Update on Equine Asthma"	30 DVMs: 15 Students: 15	
The inhouse diet is not for few	180 Students, DVMs	**ECM-CPD accredited**
Vets with Horsepower Free multiple seminars	100 Students, DVMs	
Summer School – A trip through the School of Veterinary Medicine	18 Students	
Workshop on *Listeria monocytogenes*: epidemiology, risk factors, tools to assist food industry technologists	150 Students: 80 DVMs: 40 Food technologist:30	**ECM-CPD accredited**
2017-2018		
Animal euthanasia: medical, ethical and social considerations	220 Students, DVMs, Teaching staff	
Seminar – "The European Veterinary Specialization Diplomas: European Colleges and how to become and European Veterinary Specialist"	150 Students, DVMs, Teaching staff	
Community management of Companion small animals	20 DVMs, Citizens	
Medical molecular farming: plant transformation and transgene expression systems for molecular farming of recombinant proteins	22 Students	
For a Veterinary Medicine of Quality – Worskshop on quality assurance	Students, DVMs, Teaching staff	
The inhouse diet is not for few : what to do in case of a disease	170 Students, DVMs, Teaching staff	**ECM-CPD accredited**
Open Lessons – Animals in the city, not only pets: birds, bats, rodents and country animals	108 Students, DVMs, Teaching staff	
Veterinary Medicine meets with high school students	High schools	
It's not all in your head: the contribution of the sperm to successful fertilization	45 Students, Teaching staff	
Sustainable research in animal husbandry and agriculture: CAMFEED meets with Food Bank. A scientific project can contribute to social welfare? History of a collaboration	80 Students, DVMs, Teaching staff, Medical Doctors	
The Wildlife Veterinarian and Research: Different perspectives	115 Students, DVMs, Teaching staff	
The private practitioner and the market: economic potentials of the companion small animal profession	169 Students (compulsory for 4th 5th year) DVMs Teaching staff	
Seminar on reptile medicine: anatomy, physiology and clinical approach to selected diseases of pet reptiles	70 Students, Teaching staff, Private practitioners	
Bioethics Seminar – Students and teaching staff analyze bioethical aspects in three practical cases: a stray polytraumatized dog, stray animals in the clinical setting, a case of an aggressive dog	152 Students (compulsory for 4th 5th year), Teaching staff	

(continue on next page)

Table 10.1.4. Number of attendees to continuing education courses provided by the Establishment. *(continue)*

CONTINUING EDUCATION COURSES		
NAME OF THE COURSE	**ATTENDEES**	**ECM-CPD accredited**
2017-2018 *(continue)*		
The role of the veterinarian in producing animals: meeting among the students and the professional world	70 Students, DVMs, Teaching Staff, Stakeholders	
From nano- to micro-technologies: size matters in sciences	Students, Teaching Staff, Stakeholders	
Canine Genomics and Veterinary: from domestication to pathologies	80 Students, Teaching Staff, Stakeholders	
The electronic veterinary medical prescription	120 Teaching staff, DVMs, Students Stakeholders	
Written exams: shared experiences	56 Teaching staff, Students	

10.1.5. Prospected number of students registered at post-graduate programmes for the next 3 academic years

Postgraduate clinical and research student numbers are expected to increase with new course provision as well as with existing course improvement, according to the following estimates: Y+1 (15%), Y+2 (20%), Y+3 (25%). The FVM's postgraduate programmes will be promoted through ECVCP residency accreditation, a new European College of Aquatic Animal Health satellite residency (application awaiting approval), Small Animal Clinics and Pathology specialisation school accreditation (VetCEE accreditation from ECCVT expected in 2018-19) increasing internships, implementing the European Joint Doctorate in Molecular and Animal Nutrition (MANNA) funded by an approved Marie Curie Grant which will be activated in the first semester of 2018-2019 and increasing the number of PhD funded posts by 3 per year.

10.1.6. Description of how *(procedures)* and by who *(description of the committee structure)* research, continuing and postgraduate education programmes organised by the Establishment are decided, communicated to staff, students and stakeholders, implemented, assessed and revised

a) Research: FVM research programme evaluation takes place at 3 levels: (a) national: defined by the ANVUR quality assurance programme (since 2004); (b) university: coordinated by the Vice-Rector for Research; (c) internal: by the DIMEVET Department Research Committee (DRC).

ANVUR, the National Agency of Assessment for University and Research, evaluates academic and other public agencies' research quality through the VQR programme mainly using bibliometric parameters (from SCOPUS and Web of Science) on 2 publications per individual research/teaching staff member. Research assessment spans 4 years and takes place every 4 years. Final reports, published at the national level (http://www.anvur.org/index.php?option=com_content&view=article&id=799&Itemid=597&lang=it), include university, departmental and SSD rankings. Research Quality Evaluation (VQR) 2011-2014 reports have been discussed at the university level and in DBM in the presence of student representatives.

Internal research organisation standards are set by those of DIMEVET Research Committee (DRC). The DRC has 7 members, comprising one member from each of the following: basic sciences, animal husbandry and clinical and preclinical scientific areas and research staff, postdoctoral fellows and undergraduate students, and including one member of the QAC and the departmental delegate to interface with the Presidium of Quality Assurance of the university for issues related to research policies. Recently (2017), a full time academic secretary joined the DRC. The DRC meets every 3 months on average and promotes research through: (a) yearly research staff funding allocations to the department by the Vice-rector for Research following project evaluation (component

Table 10.1.5. List of the major funded research programmes in the Establishment which were on-going during the last full academic year prior the Visitation (2017-2018)[1]

Scientific topics:	Grant/year (€)	Number of projects	Duration (Yrs, avarage)
Research programmes[2]			
Animal Health	633,664.63	7	2.4
Animal Production & Welfare	694,484.48	11	2.2
Biomedicine	172,224.51	5	3.0
Food Science	40,000.00	2	1.5
Animal Genetics	661,220.72	4	2.4
Others	43,005.00	2	1.0
Subtotal Research Programmes	**2,244,599.34**		
Commissioned research programs (multidisciplinary)[3]	722,423.34		
Previous research programmes (multidisciplinary)[4]	569,312.91		
Revenues from tariffs[5]	577,293.45		
TOTAL	**4,113,629.04**		

[1] Funds refer to programmes and committed researches on-going during the last academic year (2017-2018) prior to EAEVE visit, starting on 1st October 2017. Data were extracted on 23rd April 2018 from the university accounting system (UGOV)
[2] Funds from competitive grants from public and private national and international institutions and research collaborative projects with national and international organizations
[3] Researches commissioned by national and international enterprises and organizations. Entries include research conducted at the Veterinary Clinical and Experimental Animal Husbandry Centre
[4] Additional funds from previous research programmes still available for departmental research activities on the date of data extraction
[5] Additional funds from analytical, diagnostic and clinical activities commissioned by third parties according to tariffs available for departmental research activities on the date of data extraction

quality, coherence and bibliometric indexes) and monitoring of the scientific quantity and quality of publications identifying coherency (especially for RTD-A and RTD-B postdoctoral programmes); (b) coordination of actions aimed at continuous up-dating of institutional (AIR), national (personal site of MIUR database) and on-line databases (ORCID, SCOPUS, Web of Science) with all staff/post-doctoral/research fellow research products; (c) identification of actions to help inactive (low number/quality publications) staff members.

Results of the research activity are summarised in SUA-RD (Scheda Unica Annuale di Ricerca Dipartimentale= Unique Annual Report of Department Research), a self-evaluation document based on a standard form provided by ANVUR. It is expected that ANVUR requires preparation of SUA-RD concerning activities performed after 2014 in the near future.

b) PhD Program of Veterinary and Animal Sciences: The number of doctoral students per year is determined by the university board in accordance with national funding distribution to all faculty programmes. The FVM can increase the number of bursaries in accordance with the availability of additional grants from private, national or European public institutions, i.e. next year the PhD Course will be awarded 3 additional fellowships funded by the European Joint Doctorate in Molecular and Animal Nutrition (Marie Curie Grant MANNA).The doctoral degree board is made up of a chair and all staff members of FVM who fulfil minimum standards (active research) established by MIUR. The board meets a minimum of 3 times a year and is responsible for assessing doctoral students' research activities and teaching schedule organisation. At the end of the academic year doctoral students produce a written report on research progress, congress presentations and publications. During the VAS days congress, doctoral students give an oral presentation explaining their work before a panel of selected committee members. All PhD progress reports, evaluation reports and exam results are published on the doctorate website (http://users2.unimi.it/vas/index.php/class-34). To be admitted to the subsequent year students must present adequate amounts of research work. The list of PhD student publication is continuously updated on the web site (http://users2.unimi.it/vas/index.php/students-papers). The final evaluation procedure is established by the university's central regulatory body which determines a number of requirements including theses written in English evaluated by two external peers followed by presentation and discussion of a dissertation thesis to a committee made up of one professor of the University of Milan and two professors from external Italian or foreign institutions. Some

PhD students, according with their career, as an example that must include 3 months in a foreign European Country research programme, may attain also the Dr. Europaeus title.

c) Italian National Specialisation Schools: Veterinary specialisation schools awarding specialist qualifications are topics and organization are established by MIUR. Specialisation programmes are organised in 3 years of theoretical and practical courses on a specific subject with one to two days per week of compulsory attendance with a final MCQ every year. Each student must develop a clinical research project based on internal or external practical training (approved by the school board) leading to a written thesis and final oral presentation. The FVM offers a number of specialisation schools (subjects listed by the Italian Ministry of Education) on a voluntary basis. The number of attendees is determined by the university and entrance is based on curriculum and written MCQ tests. Each school has a board of professors and two students which meets a minimum of twice a year to modify and implement courses, approve external practical training and prepare exams and evaluations. Approved students, exam results and each school's regulations are published on the university web site.

d) Internships and Residencies: Internships and residencies are organized in agreement with EBVS regulations; they must be approved and supervised by the specific College and by the corresponding European specialists among academic staff.

e) Continuing education: The FVM has a continuing education committee since 2018. Advanced courses (generally lasting one week to three months), seminars, workshops and courses have been organised by teaching staff on a voluntary basis in accordance with their interests and specialisations and have been activated following approval by departmental boards. Subjects have generally been organised into fields not covered by other institutions or in accordance with the Veterinary Medical Professional Association in Milan and Lodi.

10.2. Comments

The FVM considers research and postgraduate practical teaching activities a relevant part of its program. The doctorate school is generally considered to be well organised and has been ranked one of the university's best PhD programmes on the basis of its QA, curriculum, internationalisation, participation of all active staff members and transparency. Regarding post-graduate's research and education the FVM programmes cover most areas with the exclusion of Masters. The FVM has a strong and attractive program of practical post graduate teaching that includes practical National specialization school, and advanced and expert courses (**table 10.1.4**). Regarding research, all undergraduates are encouraged to join and experience multiple research activities especially during their last two years of the degree program. This builds a strong network among undergraduates, PhD, professors and their research. As a result, a significant number of our graduates attend postgraduate programmes including PhD programmes. As quality indicators of the research activity, 758 scientific papers were published between 2015 and May 2018 in JCR (Journal Citation Reports) indexed journals. The 200 most cited articles account for 36,648 (SCOPUS) citations in the last three years (Appendix 5).

10.3. Suggestions for improvement

There is room for improvement in aspects in which FVM is independent.

- Increase the number of internship programmes and residencies. Internships in large animal clinics have not been implemented due to the low number of teaching personnel allocated to the LAVTH. The merging of the FVM in Lodi in 2018-2019 will facilitate the implementation of additional internships especially dedicated to large animals. To increase residency programmes and resident numbers, recertification of the ECVCP training programme following relocation to Lodi is necessary;
- hire additional European diplomats in disciplines that are missing among permanent and temporary teaching staff;
- increasing rotational intern numbers on a voluntary basis by advertising posts on the web site and informing external stakeholders;
- the merging of the FVM in Lodi will increase the collaboration with external stakeholders allowing better organization and programming of ECTS practical courses;

- negotiate with the University to streamline course approval bureaucracy and find a way of facilitating teaching recognition for academic staff involved in ECTS continuing education activities;
- no Master programmes were provided in the 2015-2018 academic years. A master in laboratory animal medicine which is awaiting approval by the Italian Ministries of Health and Education for 2019;
- to increase research results the DRC is committed to improving aggregation between existing skills in a range of fields in which FVM already has expertise. This is fundamentally important to focus and meet stakeholder and grant-funding organisation requirements;
- to increase the collaboration with undergraduate student associations (such as the IVSA-International Veterinary Student Association) including in the organisation of workshops and seminars open to students, residents and private practitioners.

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ

11

Outcome Assessment and Quality Assurance

11.1.1. Factual information

The VMDP QA is managed by a range of bodies acting at three interlinked levels (**figure 11.1**): (I) faculty level, the DIMEVET QA system; (II) university (Rectorate) level, the UNIMI QA system (Presidium of Quality Assurance in collaboration with the 'Nucleo di Valutazione'); and (III) national level, the MIUR QA system, namely ANVUR.

Figure 11.1 Bodies involved in the Milano VMDP QA system.

(I) The DIMEVET QA system encompasses five bodies, namely the Committee for Teaching Assessment and Improvement (CAI), the Joint Committee (JC), the Veterinary Medicine Teaching Council (VMTC), the DIMEVET Board and the Quality Assurance Committee (QAC) (**figure 11.2**). The QAC is in charge of coordinating the activities of the DIMEVET QA system, which involves all academic and support staff, and students. The global strategy of the DIMEVET QA is summarised in **figure 11.3**. The CAI, JC, VMTC and QAC work jointly to:

- promote and manage all degree course teaching quality activities and foster constant improvement in educational provision in veterinary medicine;
- gather information on syllabus development and implementation in accordance with the objectives, contents, teaching activities, assessment, communication and quality procedures set out in the VMDP 'Manifesto degli Studi': (http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/manifesto_ITA_HTML.html);
- collect data on results, performance indicators and satisfaction inputs from internal and external stakeholders and use them to put forward and plan VMDP improvement suggestions (Scheda di Monitoraggio Annuale and Rapporto di Riesame Ciclico http://www.unimi.it/didattica/62240.htm);
- support the DPC in preparing self-evaluation reports (Scheda Unica Annuale SUA http://www.unimi.it/didattica/63178.htm) to fulfil ANVUR requirements (http://www.anvur.org/index.php?lang=it);
- establish and promote the VMDP QA policies;
- activate any initiative promoting a culture of quality within the VMDP.

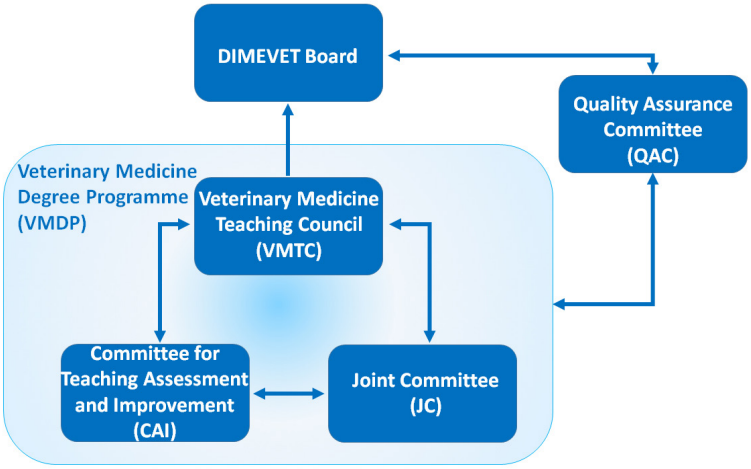


Figure 11.2 DIMEVET QA System.

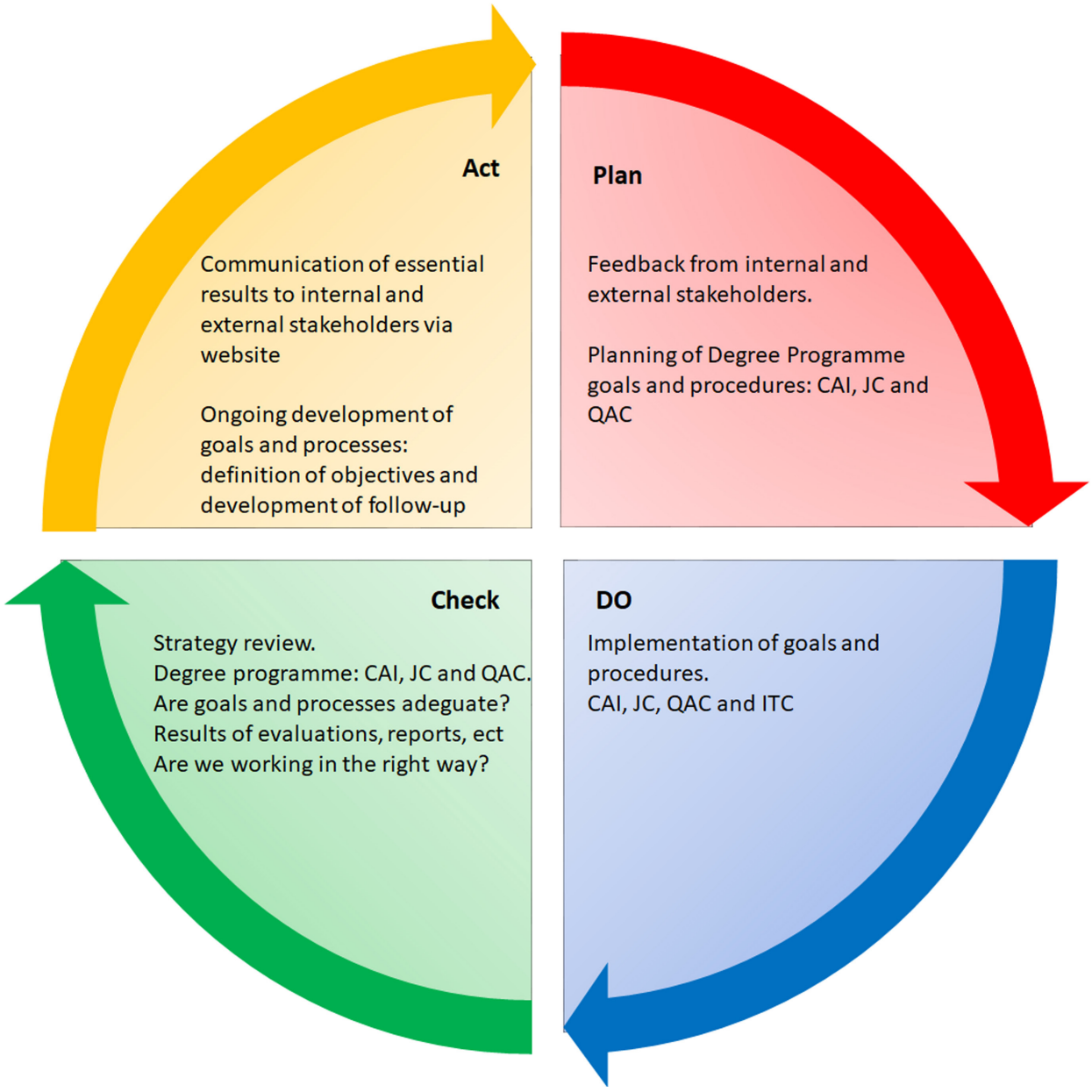


Figure 11.3 Description of the global QA strategy.

CAI, JC and QAC activities are shared with the VMTC and DIMEVET. During DB meetings, DIMEVET reviews and evaluates improvement proposals, deciding whether to approve and apply them to the VMDP.

The QA system operates *ad hoc*, cyclical, sustainable and transparent outcome assessments and on the basis of their results, implements strategies adopting quality enhancement mechanisms.

The VMTC and the DIMEVET Board activities are described in chapter 1. QAC, CAI and JC activities are coordinated by their corresponding chairperson appointed by the head of DIMEVET. Commission functions and composition are fully described in their internal regulations published on the website and approved by DB. Briefly, the QAC is responsible for promoting and managing all VMDP teaching quality activities and supporting constant improvement in educational provision in veterinary medicine (http://eng.dimevet.unimi.it/ecm/home/department/organi-del-dipartimento/department-comittee/quality-assurance-commission). The CAI's main tasks include identifying teaching weaknesses and planning adequate countermeasures (http://eng.dimevet.unimi.it/ecm/home/teaching/master-degree-in-veterinary-medicine-committee/veterinary-medicine-teaching-committee). The JC sets out to monitor the training provided and the teaching and student service quality, as well as to identify result evaluation indicators. Moreover, it draws up programme improvement parameters (http://eng.dimevet.unimi.it/ecm/home/teaching/master-degree-in-veterinary-medicine-committee/joint-committee).

Non-teaching staff plays an important role in the DIMEVET QA system. Internal stakeholders (including technical staff, undergraduate and PhD students, and post-docs) and external stakeholders are represented and participate as active QAC members. Student and teacher peer groups also sit on the JC. Undergraduate student representatives sit on the CAI, VMTC and DB and convey information to the student body. The external stakeholders are as follows: MIUR; the Ministry of Health; regional, national and supranational institutions related to the veterinary medicine sector; the professional body; companies, professionals and associations related to the veterinary medicine sector. Their representatives take part once a year in roundtables designed to share and discuss VMDP results and expectations. The contribution of students and external stakeholders is of paramount importance to promoting continuous degree programme improvement to match the prospects of the veterinary profession.

(II) The UNIMI QA system (http://www.unimi.it/ateneo/111574.htm) is coordinated by the Presidium of Quality Assurance (http://www.unimi.it/ateneo/111576.htm) in charge of promoting the UNIMI's QA policy, defining QA policy implementation procedures, monitoring the QA processes and supporting UNIMI teaching and research QA. The Presidium of Quality Assurance, in collaboration with the 'Nucleo di Valutazione' (http://www.unimi.it/ateneo/1081.htm), gathers institutional academic indicators and evaluates all UNIMI degree programme self-evaluation reports (Scheda Unica Annuale SUA, Scheda di Monitoraggio Annulae, Rapporto di Riesame Ciclico) to promote ANVUR accreditation in accordance with the requirements of Italian laws 240/2010 (http://www.camera.it/parlam/leggi/10240l.htm), 19/2012 (http://www.gazzettaufficiale.it/eli/id/2012/03/08/012G0035/sg) and 987/2016 (http://attiministeriali.miur.it/anno-2016/dicembre/dm-12122016.aspx) and following the AVA (self-evaluation – periodic evaluation – accreditation) system (http://www.anvur.org/index.php?option=com_content&view=article&id=25&Itemid=118&lang=it).

(III) ANVUR is the National University and Research Assessment Agency and it is affiliated to ENQA. An unsatisfactory ANVUR evaluation can lead to a higher education institution losing its accreditation status and undergoing an in-depth general evaluation. For these reasons, process organisation, systems of responsibility and funding and programming strategic planning activities need to be integrated into QA as structural elements of the teaching processes.

The VMDP QA system includes:

- preparing the self-evaluation reports (Scheda Unica Annuale SUA, Scheda di Monitoraggio Annuale and Rapporto di Riesame Ciclico) (see chapter 3) to be submitted to ANVUR;
- degree programme monitoring involves two types of activities. The JC gathers monthly information from internal stakeholders (students and teachers) about teaching and student service quality and shares it with the DPC. Once a year, the DPC prepares a SUA, including data from the JC, and shares the results at a VMTC meeting. Teacher and student representatives are invited to discuss and draw up degree programme improvement proposals.
- direct student input collected by student JC members and, informally, by social networking (https://www.facebook.com/search/top/?q=commissione%20paritetica%20veterinaria%20unimi);

- compliance and suggestion "mailbox" for student, teacher and support staff (http://eng.DIMEVET.unimi.it/ecm/home/suggestion-box);
- internal student surveys related to Day One Competences acquisition (http://eng.dimevet.unimi.it/ecm/home/eaeve/commissions/questionari-e-focus-group-studenti-sulle-day-one-competences).

The VMDP QA system receives external input from:

- UNIMI satisfaction surveys and teacher assessments targeting students. Academic staff are invited to publish the results of their teaching assessments on the UNIMI course website e-learning platform (ARIEL https://ariel.unimi.it/). Results can also be requested at UniRe (http://www.unimi.it/UniRe/);
- external national QA Agency (ANVUR);
- external stakeholder suggestions collected during yearly roundtables.

11.1.2. Description of the form by which the strategy, policy and procedures are made formal and are publicly available

DIMEVET's strategic plan is published on DIMEVET website.

All QA system proposals and actions are discussed and approved by the appropriate bodies and then, approved by the DB for implementation. Accepted actions comply with UNIMI and DIMEVET rules and regulations and are formalised and made available on DB reports. The DB reports are confidential and shared within the DB at various levels.

Full QA policy information is available on the DIMEVET website including:

- QAC composition and its internal regulations (http://www.dimevet.unimi.it/ecm/home/organizzazione/organi-de-dipartimento/commissione-dipartimento/commissione-qa-quality-assurance-commission);
- QA policies (see Appendix 4, http://eng.dimevet.unimi.it/ecm/home/quality-policy);
- DIMEVET's strategic plan (2018-2020);
- promoting research activities, including national and international projects;
- monitoring and promoting academic staff research output;
- student services;
- complaint and suggestion "mailbox";
- information about excellence awards made to DIMEVET teachers and students.

QA system activities are made public on the DIMEVET website, by e-mail, through printed posters displayed on notice boards and by social networking (Facebook https://www.facebook.com/search/top/?q=commissione%20paritetica%20veterinaria%20unimi) and meetings (http://www.DIMEVET.unimi.it/ecm/home/aggiornamenti-e-archivi/tutte-le-notizie/content/medicina-veterinaria-di-qualita.0000.UNIMIDIRE-60309).

11.1.3. Description of the regular publication of up to date data, impartial and objective information, both quantitative and qualitative, about the educational programmes and awards the Establishment is offering

Educational programme information is made available to the public via DIMEVET (http://eng.DIMEVET.unimi.it/ecm/home/teaching/degree-programmes?p_p_id=TOWERADDON_6_WAR_ssoproxyportlet_INSTANCE_KK0F&p_p_state=normal&p_p_lifecycle=0&template=didatticaCDS.vm&department=6188&id_tipo_corso=2,4,7,9&appelliURL=$httpUtil.encodeURL($appelliNode.getURL())&language=en_US&tipo-cds=9) and UNIMI websites (http://www.cosp.unimi.it/offerta_didattica/H15.htm; http://www.unimi.it/studenti/865.htm). Programmes are available at least three months before the academic year starts. General information about the VMDP, including the study plan with the course syllabuses, is published at http://www.veterinaria.unimi.it/CorsiDiLaurea/2018/H15of1/pianoStudi/index_ITA_HTML.html.

Qualitative and quantitative information about the programme is published on the website (https://www.universitaly.it/index.php/public/schedaCorso/anno/2017/corso/1535967#null).

11.1.4. Description of the QA processes not yet described in the other 10 Standards

The QAC Advisory Board drafts the VMDP's Standard Operating Procedures (SOPs) (Appendix 4). The QAC may, if needed, requests opinions from independent experts either indirectly or by invitation to meetings. SOPs revision and approval is the task of the QA Executive Board and the head of the Associated Responsible Department (VESPA) is invited to take part as an auditor without voting rights. The QA Coordinator can sign SOPs approval.

11.1.5. Description of how (procedures) and by who (description of the committee structure) the QA strategy of the Establishment is decided, communicated to staff, students and stakeholders, implemented, assessed and revised

The VMDP QA strategy is set out by DIMEVET, with the assistance of the QAC, within the framework of the UNIMI QA. The structure and regulations of the CAI, the QAC and the JC are publicly available on the DIMEVET website.

Strategy is revised on the basis of self-evaluation reports, data collection from internal and external stakeholders and inputs from national (ANVUR) and international (EAEVE) agencies.

In detail, QA policy related strategies are drawn up by the QA system and SOPs are drafted by the QAC in compliance with university QA policy as well as relevant national laws.

Every improvement and SOPs are communicated to internal and external stakeholders during VMTC and DB meetings, as well as by email and on the website in public or access-controlled areas. All relevant QAC documents are stored on a dedicated link on the department's intranet. Information is also disseminated as explained in 11.1.2..

Periodic policy and SOPs reviews are scheduled. Moreover, the revision process can also be activated by individual academic staff members via justified and motivated requests to the QAC.

11.2. Comments

Since April 2017, QA system implementation and development has been a key DIMEVET objective, and progress from the last EAEVE evaluation regarding QA policies is tangible. In detail, the QAC has contributed through its work to raising academic staff awareness of teaching quality issues and helping VMDP quality improvement. An QA workshop has been organised (http://eng.DIMEVET.unimi.it/extfiles/unimidire/251801/attachment/per-una-medicina-veterinaria-di-qualita.pdf); questionnaires on Day One Competences acquisition have been prepared, distributed, collected, analysed and discussed with stakeholders (an abstract is available at http://eng.DIMEVET.unimi.it/ecm/home/eaeve/commissions/questionari-e-focus-group-studenti-sulle-day-one-competences); the DIMEVET website has been reorganized, the EAEVE webpage is available (http://eng.DIMEVET.unimi.it/ecm/home/eaeve/commissions) and SOPs have been drafted. Despite the recent establishment, the QAC has been very active receiving full support from the DIMEVET. Integration between the DIMEVET system and the demands of university, national (ANVUR) and international (EAEVE) accreditation systems can be difficult to harmonize as requirements are sometimes formally different and scheduled at different times.

The move of all premises to Lodi introduces challenges that will require careful monitoring such as, for instance, student and staff logistics. The move to Lodi constitutes an extraordinary opportunity to increase degree programme quality, provided that these excellent new facilities are well used and promoted and that positive interaction with the local area is fostered. The role of the DIMEVET QA system will be crucial to appropriately target departmental activities in this new context. For this, a specifically dedicated QA expert will be recruited among support staff.

11.3. Suggestions for improvement

- Drafting and approval of additional SOPs covering all teaching activities;
- implementing a constant monitoring system;
- participation by designed QAC members on a training course for internal auditors;
- recruitment of a dedicated QA technician;
- yearly Quality Assurance workshops and meetings targeting internal and external stakeholders;
- increasing internal and external stakeholder awareness of QA;
- enforcing QA system by implementing guidelines.

12

Indicators

12.1.1. Calculated Indicators from raw data considering 141 students graduating annually

		Establishment calculation	Establishment values	Median values[1]	Minimal values[2]	Balances[3]
I1	n° of FTE academic staff involved in veterinary training / n° of undergraduate students	96,03/792	0,121	0,16	0,13	-0,005
I2	n° of FTE veterinarians involved in veterinary training / n° of students graduating annually	78,43/141,33	0,555	0,87	0,59	-0,035
I3	n° of FTE support staff involved in veterinary training / n° of students graduating annually	59,33/141,33	0,420	0,94	0,57	-0,147
I4	n° of hours of practical (non-clinical) training		784,000	905,67	595,00	189,000
I5	n° of hours of clinical training		624,000	932,92	670,00	-46,000
I6	n° of hours of FSQ & VPH training		386,000	287,00	174,40	211,600
I7	n° of hours of extra-mural practical training in FSQ & VPH		16,000	68,00	28,80	-12,800
I8	n° of companion animal patients seen intra-murally / n° of students graduating annually	3402,66/141,33	24,075	70,48	42,01	-17,934
I9	n° of ruminant and pig patients seen intra-murally / n° of students graduating annually	423,33/141,33	2,995	2,69	0,46	2,532
I10	n° of equine patients seen intra-murally / n° of students graduating annually	218,66/141,33	1,547	5,05	1,30	0,249
I11	n° of rabbit, rodent, bird and exotic seen intra-murally / n° of students graduating annually	75,3/141,33	0,533	3,35	1,55	-1,012
I12	n° of companion animal patients seen extra-murally / n° of students graduating annually	36,7/141,33	0,259	6,80	0,22	0,036
I13	n° of individual ruminants and pig patients seen extra-murally / n° of students graduating annually	768/141,33	5,434	15,95	6,29	-0,861
I14	n° of equine patients seen extra-murally / n° of students graduating annually	73,7/141,33	0,521	2,11	0,60	-0,074
I15	n° of visits to ruminant and pig herds / n° of students graduating annually	26,3/141,33	0,186	1,33	0,55	-0,361
I16	n° of visits of poultry and farmed rabbit units / n° of students graduating annually	0/141,33	0,000	0,12	0,04	-0,045
I17	n° of companion animal necropsies / n° of students graduating annually	278/141,33	1,967	2,07	1,40	0,567
I18	n° of ruminant and pig necropsies / n° of students graduating annually	109/141,33	0,771	2,32	0,97	-0,199
I19	n° of equine necropsies / n° of students graduating annually	12,3/141,33	0,087	0,30	0,09	-0,006
I20	n° of rabbit, rodent, bird and exotic pet necropsies / n° of students graduating annually	253/141,33	1,790	2,05	0,69	1,097
I21*	n° of FTE specialised veterinarians involved in veterinary training / n° of students graduating annually	27,7/141,33	0,196	0,20	0,06	0,133
I22*	n° of PhD graduating annually / n° of students graduating annually	22,3/141,33	0,158	0,15	0,09	0,070

[1] Median values defined by data from Establishments with Approval status in April 2016
[2] Recommended minimal values calculated as the 20th percentile of data from Establishments with Approval status in April 2016
[3] A negative balance indicates that the Indicator is below the recommended minimal value
* Indicators used only for statistical purpose

12.2. Comments

Of the calculated indicators, 13 are below the recommended minimum value. Of these, 10 are affected by the average number of students graduating annually. Despite the reduction of the numbers of students entering the programme and of the numbers of students graduating annually, the number of students graduating annually from the VMDP of Milan is still too high. It is necessary to stress (as discussed in chapters 1, 3, 7, 8) that the high number of students graduating annually comprises a relevant number of Old Degree Programme off-course students. As reported in Table 7.1.3, the number of these students is rapidly declining from 84 in 2015 to 18 in 2018. Projections of this trend indicate that the number of Old Degree Programme off-course students graduating annually will be zero in a maximum of 2 years. On the opposite, the number of New Degree Programme students graduating annually is expected to maintain to around 95, considering that the number of students entering will be 80 (+5).

The numerator of indicators **I1, I2, I3** is dependent on UNIMI budget for personnel recruitment. In detail, as reported in chapter 9, I3 is below the threshold because support staff numbers have declined substantially during the DIMEVET and VESPA reorganization and during the Lodi transfer. UNIMI is expected to increase in particular the support staff number in the next 3 academic years.

I1 is lower than the suggested threshold not only because of the numerator but also for the high number of off-course students amounting to 240 out of a total of 792 students registered (see chapter 7). As chapter 7 reports, off-course students are not allowed to attend lectures and practicals but they pay registration fees.

I5, I7: concern the structure of some syllabuses and PPT organization. Regarding I7, the extra-mural PPT is not mandatory at the VMDP of Milano. In the last three AYs, the extra-mural training in FSQ and VPH included the core practicals of some teaching courses (for all students), and only in the last AY a part of the PPT was performed by all students at extra-mural facilities, such as slaughterhouses, fish market and transformations plants. In the AY 2017-2018 the hours of FSQ and VPH training included the core practicals of some teaching courses and part of the PPT (for all students). FSQ in AYs 2015-2016 and 2016-2017 was limited to core practicals of some teaching courses (for all students), while the PPT FSQ was not mandatory and was included in the Pathology PPT, and students could choose between two subjects, so that not all the students attended the FSQ PPT. Similarly, the VPH PPT was included with Internal Medicine (and also in this case students could choose between the two subjects, so that not all students attended the VPH PPT).

I8, I11, I13, I14, I18, I19: Indicators I14 and I19, involving equine species, reflect a national decline of equine patients due to the economic crisis affecting horse keeping and breeding in Italy.

Regarding the number of cases (Indicators I8, I11, I13, I18), several reasons probably cause the insufficient numbers of intramural and extramural animals available for student clinical training, including:

- the economical crisis, affecting not only the VTH patient load, but also private clinics all over Italy;
- the national law concerning the university reorganization with goals, strategies and budget allocations not matching Veterinary Medicine University necessities;
- UNIMI and National heavy and occasionally conflicting bureaucracy for external collaborator recruitment;
- technical difficulties, including technical staff reallocation, associated to the move to Lodi (the Large Animal VTH opened in 2005, while the Companion Animal VTH opened in Lodi in June 2018);
- the old VTH Companion Animal facilities in Milano, not allowing a high-quality clinical, hospitalization and ICU services;
- limitations in clinical and support staff enrolment, preventing the expansion of clinical services for rabbits, rodents, birds and exotic pets;
- the activation of the General Consultation, Hospitalization and ICU services only in January 2017, after a number of administrative and bureaucratic impediments and limitations.

I15, I16: regarding pig (I15), poultry and rabbit herd visits (I16), in Italy, in the last years, due to biosecurity regulations, student access to herds was forbidden because of viral disease diseases outbreaks (such as influenza and rabbit haemorrhagic disease). These limitations will be soon reviewed, but full access of students to herds remains undefined, especially for poultry and rabbits.

Calculated Indicators from raw data considering 95 students graduating annually

Considering that, as above explained, the number of students graduating annually is severely affected by students that do not attend classes or practicals, in a table reported below, indicators are calculated on the basis of

95 students graduating annually, a number that will be reached in two years. Following this approach, among the indicators including the number of students graduating annually, most indicators are over the recommended minimum value ,while indicators **I8**, **I11**, **I15**, **I16** are still below the recommended threshold.

For indicators **I8** and **I11**, with the reduction of students graduating annually from 141 to 95, the balance in terms of percentage will improve from -43% to – 15% (**I8**), and from -65% to -49% (**I11**).

For indicators **I15** and **I16**, see the above reported explanations.

	Calculated Indicators from raw data considering 95 students graduating annually	Establishment calculation	Establishment values	Median values[1]	Minimal values[2]	Balance[3]
I1	n° of FTE academic staff involved in veterinary training / n° of undergraduate students	96,03/792	0,121	0,16	0,13	-0,005
I2	n° of FTE veterinarians involved in veterinary training / n° of students graduating annually	78,43/95	0,826	0,87	0,59	0,236
I3	n° of FTE support staff involved in veterinary training / n° of students graduating annually	59,33/95	0,625	0,94	0,57	0,058
I4	n° of hours of practical (non-clinical) training		784,000	905,67	595,00	189,000
I5	n° of hours of clinical training		624,000	932,92	670,00	-46,000
I6	n° of hours of FSQ & VPH training		386,000	287,00	174,40	211,600
I7	n° of hours of extra-mural practical training in FSQ & VPH		16,000	68,00	28,80	-12,800
I8	n° of companion animal patients seen intra-murally / n° of students graduating annually	3402,66/95	35,818	70,48	42,01	-6,192
I9	n° of ruminant and pig patients seen intra-murally / n° of students graduating annually	423,33/95	4,456	2,69	0,46	3,993
I10	n° of equine patients seen intra-murally / n° of students graduating annually	218,66/95	2,302	5,05	1,30	1,004
I11	n° of rabbit, rodent, bird and exotic seen intra-murally / n° of students graduating annually	75,3/95	0,793	3,35	1,55	-0,752
I12	n° of companion animal patients seen extra-murally / n° of students graduating annually	36,7/95	0,386	6,80	0,22	0,163
I13	n° of individual ruminants and pig patients seen extra-murally / n° of students graduating annually	768/95	8,084	15,95	6,29	1,789
I14	n° of equine patients seen extra-murally / n° of students graduating annually	73,7/95	0,775	2,11	0,60	0,180
I15	n° of visits to ruminant and pig herds / n° of students graduating annually	26,3/95	0,277	1,33	0,55	-0,270
I16	n° of visits of poultry and farmed rabbit units / n° of students graduating annually	0/95	0,000	0,12	0,04	-0,045
I17	n° of companion animal necropsies / n° of students graduating annually	278/95	2,926	2,07	1,40	1,526
I18	n° of ruminant and pig necropsies / n° of students graduating annually	109/95	1,147	2,32	0,97	0,177
I19	n° of equine necropsies / n° of students graduating annually	12,3/95	0,130	0,30	0,09	0,037
I20	n° of rabbit, rodent, bird and exotic pet necropsies / n° of students graduating annually	253/95	2,663	2,05	0,69	1,970
I21*	n° of FTE specialised veterinarians involved in veterinary training / n° of students graduating annually	27,7/95	0,291	0,20	0,06	0,228
I22*	n° of PhD graduating annually / n° of students graduating annually	22,3/95	0,235	0,15	0,09	0,147

12.3 Suggestions for improvement

Although a comprehensive improvement of the VMDP is needed, considering that the number of Old Degree Programme students graduating annually will decrease to zero in a maximum of two years, and that consequently the total number of students graduating annually will decrease below 95, the following suggestions are proposed:

- to increase personnel recruitment;
- to revise syllabuses and PPT to adjust the number of clinical hours and the number of hours related to extra-mural practical training in FSQ;
- to implement a mandatory EPT;
- to maintain the Milan referral patient load and to increase the number of first opinion and referral cases in the new Lodi area;
- to network in the new location in Lodi, through the full integration of VTH specialisations, technologies and lifelong learning initiatives to support veterinary practitioners and farmers;
- to develop additional agreements with public and private kennels, catteries and exotic animal associations to increase the number of clinical cases;
- to develop agreements with private farms to increase the number of visits to herds/units/flocks, number of cases and of farm animal necropsies;
- to consolidate the General Consultation, Hospitalization and ICU services, and exotic pet medicine and surgery services;
- to expand the activity of the Ambulatory Clinics to guarantee the students with proper extramural farm animal and horse on-farm one-day clinical training;
- because student access to poultry and rabbit herds will be likely forbidden permanently, to implement the use of the rabbit and poultry units of the CZDS for students, hands-on practicals on these species. Also to acquire educational videos to provide students an alternative to the on-farm exposition.

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ

Acronyms

Acronyms

Acronym	English	Italian
ANVUR	National Agency of Assessment for University and Research	Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca
ARR	Annual Review Report	Rapporto di Riesame
AS	Academic Senate	Senato Accademico
ATR	Academic Teaching Regulations	Regolamento didattico di Ateneo
AVA	Self-Periodic Evaluation and Accreditation	Autovalutazione, Valutazione periodica, Accreditamento
AY	Academic Year	Anno Accademico
CAI	Committee for Teaching Assessment and Improvement	Commissione didattica/revisione ordinamento
CASLOD	Centre of the University for Teaching Facilities	Centro d'Ateneo per i servizi logistici per la Didattica
CAVTH	Companion Animal Veterinary Teaching Hospital	Ospedale Didattico Veterinario – Animali da Compagnia
CCVZS	Veterinary Clinical and Husbandry Center	Centro Clinico-Veterinario e Zootecnico Sperimentale
CDA	Board of Directors	Consiglio di Amministrazione
CETA	Ethical Committee for Animal Protection	Comitato Etico Tutela Animali
CFU	University Learning Credit	Credito Formativo Universitario
CIVR	National Research Committee	Comitato Nazionale di Ricerca
CZDS	Teaching Farm	Centro Zootecnico Didattico Sperimentale
DB	Department Board	Consiglio di Dipartimento
DBM	Department Board Meeting	Riunione del Consiglio di Dipartimento
DC	Directive Committee	Comitato di Direzione
DEC	Department Executive Committee	Giunta di Dipartimento
DIMEVET	Department of Veterinary Medicine	Dipartimento di Medicina Veterinaria
DIVET	Department of Animal Pathology, Hygiene and, Veterinary Public Health	Dipartimento di Patologia Animale, Igiene e Sanità Pubblica Veterinaria
DOC	Day One Competence	Competenza del primo giorno
DPC	Coordinator of Veterinary Medicine Degree Programme	Presidente del Collegio Didattico di Medicina Veterinaria
DRC	Department Research Committee	Commissione Ricerca
DVM	Doctor of Veterinary Medicine	Medico Veterinario
EAEVE	European Association of Establishments for Veterinary Education	Associazione Europea delle Istituzioni per l'Educazione Veterinaria
EBVS	European Board of Veterinary Specialists	Associazione Europea degli Specialisti Veterinari
ECM	ECTS continuing Education	Educazione Continua in Medicina
ECOVE	European Committee on Veterinary Education	Comitato Europeo per l'Educazione Veterinaria
ECTS	European Credit Transfer System	Sistema Europeo di Trasferimento dei Crediti Formativi
ENQA	European Association for Quality Assurance in Higher Education	Associazione Europea per l'Assicurazione della Qualità nell'Educazione Superiore
EPT	External Practical Training	Tirocinio Esterno
ESEVT	European System of Evaluation of Veterinary Training	Sistema Europeo per la Valutazione della Formazione Veterinaria

Acronym	English	Italian
ESG	Standards and Guidelines for Quality Assurance in the European Higher Education Area	Standards e Guidelines per l'assicurazione di Qualità nella Formazione Universitaria
FVM	Faculty of Veterinary Medicine	Facoltà di Medicina Veterinaria
FNOVI	Federation of the National Veterinary Chapters	Federazione Nazionale Ordini Veterinari Italiani
FSQ	Food Safety and Quality	Sicurezza e Qualità degli Alimenti
FTE	Full-Time Equivalent	Impiego a tempo pieno
FVE	Federation of European Veterinarians	Federazione dei Veterinari Europei
IC	Integrated Course	Corso Integrato
ICU	Intensive Care Unit	Unità di Terapia Intensiva
IT	Information Technology	Servizi Informatici
ITC	Interdepartmental Teaching Council	Collegio Didattico Interdipartimentale
IVSA	International Veterinary Students Association	Associazione Internazionale degli Studenti di Medicina Veterinaria
JC	Joint Committee (Student-Staff)	Commissione Paritetica
LAVTH	Large Animal Veterinary Teaching Hospital	Ospedale Didattico Veterinario – Grandi Animali
MCQ	Multiple Choice Questions	Domande a Scelta Multipla
MIUR	Ministry of Education, University and Research	Ministero dell'Istruzione, dell'Università e della Ricerca
OIE	World Organisation for Animal Health	Organizzazione Mondiale di Sanità Animale
OPBA	Ethical Committee and Animal-Welfare Body (UNIMI)	Organismo Protezione e Benessere Animale
PPT	Preprofessional Practical Training	Tirocinio
PTC	Preprofessional Training Committee	Commissione Tirocinio
QA	Quality Assurance	Assicurazione della Qualità
QAC	Quality Assurance Committee	Comissione Assicurazione di Qualità
RC	Research Committee	Commissione Ricerca
RTD-A	Temporary assistant professor/researcher	Ricercatore a tempo determinato-A
RTD-B	Tenured-track assistant professor/researcher	Ricercatore a tempo determinato-B
SAQ	Short Answer Questions	Domande a Risposta Breve
SBA	University Library System	Sistema Bibliotecario di Ateneo
SEDI	Student Secretariats	Segreterie studenti
SER	Self-Evaluation Report	Report di Autovalutazione
SOP	Standard Operating Procedures	Procedure Operative Standard
SPVM	Study Plan of the Veterinary Medicine Course	Piano degli Studi di Medicina Veterinaria
SSD	Scientific Subject Area	Settori Scientifico-Disciplinari
SWOT	Strengths, Weaknesses, Opportunities, Threats	Punti di Forza, Debolezza, Opportunità, Minacce
TO	Teaching Office	Segreteria Didattica
UNIMI	University of Milan	Università degli Studi di Milano
VAS	Veterinary and Animal Sciences	Scienze Veterinarie e dell'Allevamento
VESPA	Department of Health, Animal Science and Food Safety	Dipartimento di Scienze veterinarie per la salute, la produzione animale e la sicurezza alimentare
VMDP	Veterinary Medicine Degree Programme	Corso di laurea di medicina veterinaria
VMTC	Veterinary Medicine Teaching Council	Collegio Didattico di Medicina Veterinaria
VPH	Veterinary Public Health	Sanità Pubblica Veterinaria
VQR	Research Quality Evaluation	Valutazione della Qualità della Ricerca
VTH	Veterinary Teaching Hospital	Ospedale Veterinario Universitario

UNIVERSITAS STUDIORUM MEDIOLANENSIS
Vitai Lampada Tradunt
SCHOLA MEDICINÆ VETERINARIÆ